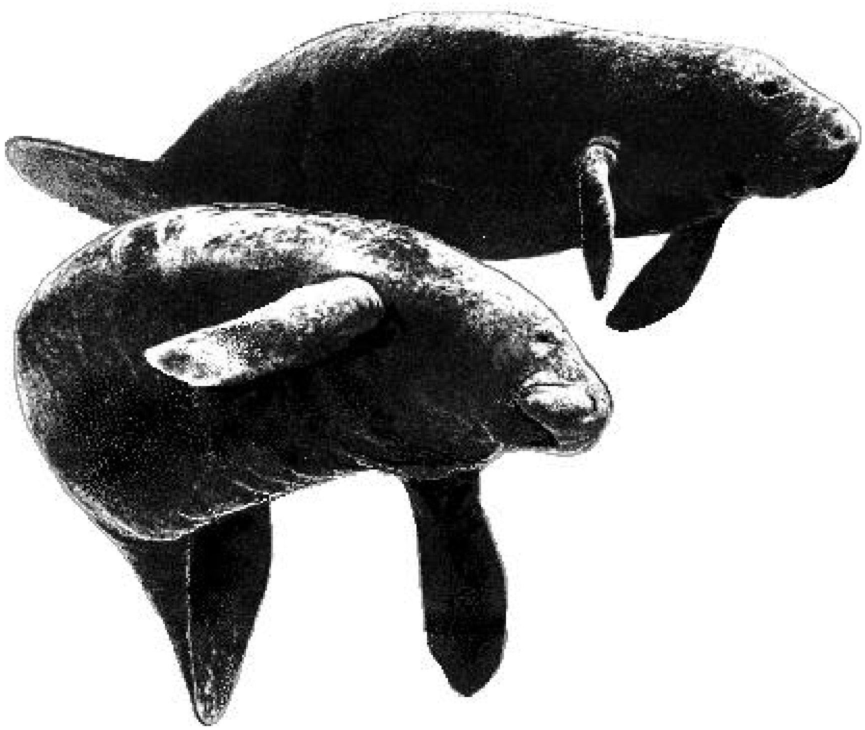
NOAA Technical Memorandum NOS NCCOS CCMA 145

National Status and Trends Program
for Marine Environmental Quality

Biscayne Bay:
Environmental History and Annotated Bibliography



Silver Spring, Maryland
July 2000

US Department of Commerce

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Center for Coastal Monitoring and Assessment
National Centers for Coastal Ocean Science
National Ocean Service

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National Ocean Service
National Oceanic and Atmospheric Administration
U.S. Department of Commerce
1305 East-West Highway
Silver Spring, MD 20910

Notice

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Environmental History and Annotated Bibliography

A. Y. Cantillo, K. Hale, E. Collins, L. Pikula and R. Caballero

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United States Department of Commerce	National Oceanic and Atmospheric Administration	National Ocean Service
William M. Daley Secretary	D. James Baker Under Secretary	Nancy Foster Assistant Administrator

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ACRONYMS

AAF	Army Air Field
AFB	Air Force Base
AOML	Atlantic Oceanographic and Meteorological Laboratory/ERL/OAR/NOAA
ARB	Air Reserve Base
ATC	Air Transport Command
BBPI	Biscayne Bay Partnership Initiative
CAA	Clean Air Act
CCMA	Center for Coastal Monitoring and Assessment/NCCOS/NOS/NOAA
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DDTs	Dichlorophenyltrichloroethane and metabolites
ENSO	El Niño/Southern Oscillation
EPA	Environmental Protection Agency
EPCRKA	Emergency Planning and Community Right-to-Know Act
ERL	Environmental Research Laboratories/OAR/NOAA
ESA	Endangered Species Act
FAU	Florida Atlantic University
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FIU	Florida International University
FP&L	Florida Power and Light Co.
FWCA	Fish and Wildlife Coordination Act
FWPCA	Federal Clean Water Act
MMPA	Marine Mammal Protection Act
NAS	Naval Air Station
NCCOS	National Centers for Coastal Ocean Science/NOS/NOAA
NESDIS	National Environmental Satellite, Data, and Information Service/NOAA
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service/NOAA
NPDES	National Pollutant Discharge Elimination System
OAR	Oceanic and Atmospheric Research/NOAA
PAHs	Polycyclic aromatic hydrocarbons
PCBs	Polychlorinated biphenyls
RCRA	Resource Conservation and Recovery Act
RSMAS	Rosenstiel School of Marine and Atmospheric Science/UM
SARA	Superfund Amendments and Reauthorization Act
SOI	Southern Oscillation Index
TAC	Air Transport Command
TFW	Tactical Fighter Wing
TSCA	Toxic Substances Control Act
UM	University of Miami

Biscayne Bay:
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ABSTRACT

Biscayne Bay is located along the southeast coast of the state of Florida. It is surrounded on the north by urban Dade County which includes Miami and Miami Beach, and on the south by the Homestead area, sparsely inhabited until recently, and the northern Florida Keys. Prior to the 1920s, major changes to the Biscayne Bay ecosystem were caused only by climatic events. Since then, human actions have also been the cause of major alterations. During the 1920s, there were disruptions from construction of artificial islands, bulkheading, dredging of channels and construction of cuts. Construction activities slowed considerably after 1930. Bacterial pollution due to untreated sewage discharge began during the 1920s and reached maximum levels during the 1950s. Changes to the sewer system reduced bacterial contamination after 1956. Turbidity in the water column was identified as a major problem during the 1980s and abatement measures began at that time. Environmental degradation of the Bay has slowed although areas of concern remain.

1. INTRODUCTION

"Biscayne Bay, broad and brimming with fish, was the highway on which the people moved in their small sailing craft under shifting starch-white clouds while great blue and great white herons, American egrets and roseate spoonbills dipped and wheeled and came to rest in the shallows along the shore.

"Across the Bay, Miami Beach, actually the first of the Florida keys, was preceded south in the curved march of islands by Key Biscayne which had its own history. Pedro (el) Biscaino lived there and gave the Bay its name. He was a Basque who had held the title 'Keeper of Swans' at the court of Spain."

"The thing that made the Bay country was fresh water. Calusa Indians, discoverers, pirates, seamen of all descriptions, had been sailing up the Miami River to stock up on fresh water for centuries. You could dip a tin cup in the Miami River and bring up a crystal-clear drink, and there were places in the Bay itself where fresh cold water bubbled up."

J. Muir (1953)

Biscayne Bay is located along the southeastern-most portion of the state of Florida (Figure 1). It is surrounded on the north by the growing urban areas of Dade County, which include Miami and Miami Beach, and on the south by the sparsely inhabited Homestead area and the northern Florida Keys. The environment of Biscayne Bay has changed significantly over the last one

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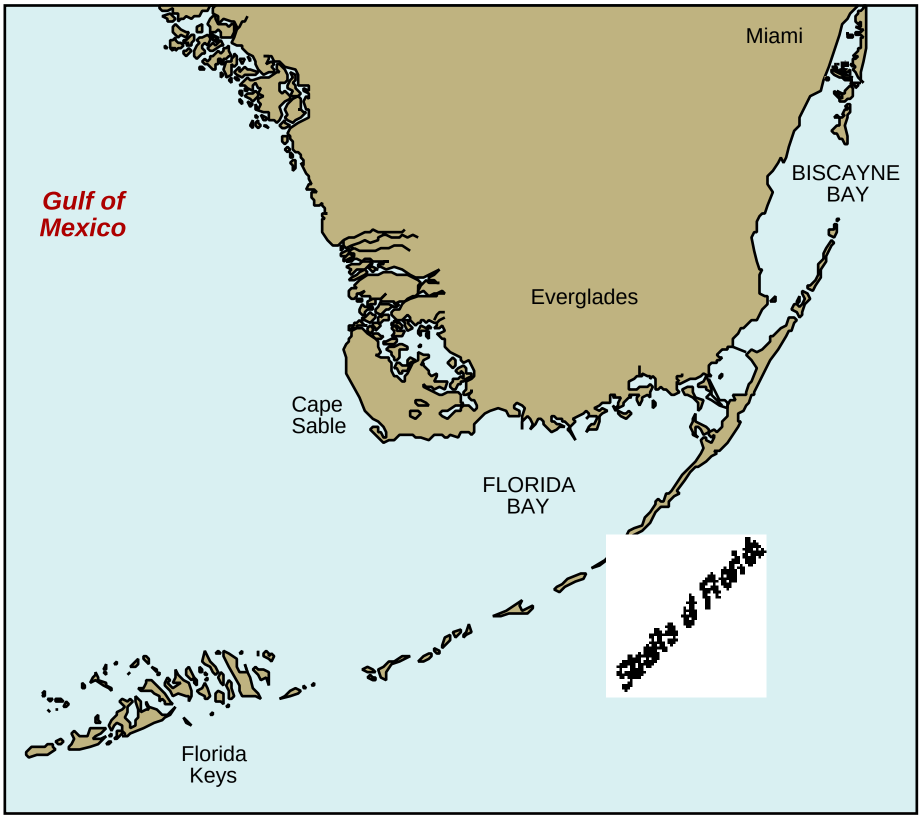

Figure 1. South Florida.

hundred years with the onset of development of Dade County, and only recently has its environmental degradation reversed. This report documents the environmental history of Biscayne Bay, which is closely tied to the history of South Florida. An annotated bibliography of material on the subject, and author and subject indices are included.

2. INFORMATION GATHERING METHODS

This document has been compiled using various sources and methods. It is based primarily on the bibliography maintained at the Marine Library of the Rosenstiel School of Marine and Atmospheric Sciences of the University of Miami (Hale, 1993 and 1996, and unpublished updates). This bibliography incorporated and updated previous bibliographic works on Biscayne Bay (Morril and Olson, 1955; Rosendahl, 1975; de Sylva, 1984; and others). Citations describing studies in which water from Biscayne Bay was used to maintain aquaria or cultures were not included. The coral reefs located east of the barrier islands and keys are not located in Biscayne Bay proper and citations concerning them were not included in this work. Only selected citations about the Miami River were included in the bibliography.

The annotated bibliography can be found in Appendix I. The subject index of the bibliography is in Appendix II and the author index is in Appendix III.

3. GENERAL DESCRIPTION

Biscayne Bay is a shallow tropical saline lagoon located on the southeast coast of the state of Florida (Figure 1). The eastern boundary of the Bay is composed of barrier islands which eventually become part of the Florida Keys. The western shore is the Florida mainland. The Bay is connected to the Atlantic Ocean by several channels and cuts, some natural and some man-made. Major tributaries (north to south) are Arch Creek, Biscayne Canal, Little River, Miami River, Coral Gables Waterway, Snapper Creek Canal, Black Creek, Goulds Canal, North Canal, Florida City Canal, and Model Land Canal. Tidal flow enters the Bay (north to south) at Bakers Haulover Cut, Government Cut, Norris Cut, Bear Cut, the Safety Valve, Sands Cut, Caesar's Creek, Broad Creek and Angelfish Creek (Figure 2 and 3). There are many islands located in Biscayne Bay, most of which are man-made.

The geology of Biscayne Bay is described in Wanless (1969). The Bay was formed as rising sea level filled a limestone depression. It is not a drowned river valley like most estuaries. Unlike other estuaries, the Bay does not receive a sediment load from major river systems. Most sediments in the Bay are produced by local biota (Wanless, 1976).

The Biscayne Bay can be divided into three major areas.

3.1. North Bay

North Bay is the heavily urbanized area extending from Broward County in the north to Rickenbacker Causeway, approximately 10% of the total Bay area (Figure 2). Five waterways drain to the northern part: the Oleta River, Arch Creek, the Biscayne Canal, Little River and Miami River. North Bay was estuarine prior to the construction of Haulover Cut. Exchange with ocean waters occurs at Bakers Haulover Cut, Government Cut and Norris Cut. There are numerous islands in North Bay. Only Belle Isle and Virginia Key are natural. A description of the construction and/or development of the islands in Biscayne Bay can be found in Kleinberg (1997). Most of the shoreline has been bulkheaded and very little remains as mangrove shoreline. Most of the bottom has been dredged and for many years lacked benthic vegetation.

3.2. Central Bay

The central area of the Bay ranges from Rickenbacker Causeway south to the boundary of Featherbed Bank just north of Sands Key (Figure 3). The Safety Valve, a series of shoals through which ocean tidal exchange occurs, serves as the eastern boundary. Three major canals, the Coral Gables Waterway, Snapper Creek and Cutler Drain, reach the Bay in this section. Moderate coastal development has occurred in the mainland portion of this area. Much of the mangrove wetlands in Central Bay remain intact. Seagrasses dominate the bottom vegetation. Chicken Key and Soldier Key are the only natural islands in this section of the Bay. A north-south area in the center of the Bay is barren but used to be vegetated by seagrasses (Harlem, 1979). Small areas of soft corals and sponges are found in the southern-most region of Central Bay.

3.3. South Bay

The southern portion of the Bay ranges from the Featherbed Bank to Card Bank (Figure 3). This section is undeveloped and fringed by mangrove wetlands. Benthic habitats are dense seagrass beds, large hard ground areas and algal communities. The main canals draining into the portion of the Bay are Black Creek, Princeton Canal, Military Canal, Mowry Canal and Model Land Canal. Ocean exchange is restricted to the tidal creeks between the islands of the northern portion of the Florida Keys. The larger creeks are Angelfish, Broad and Caesar’s Creeks. The

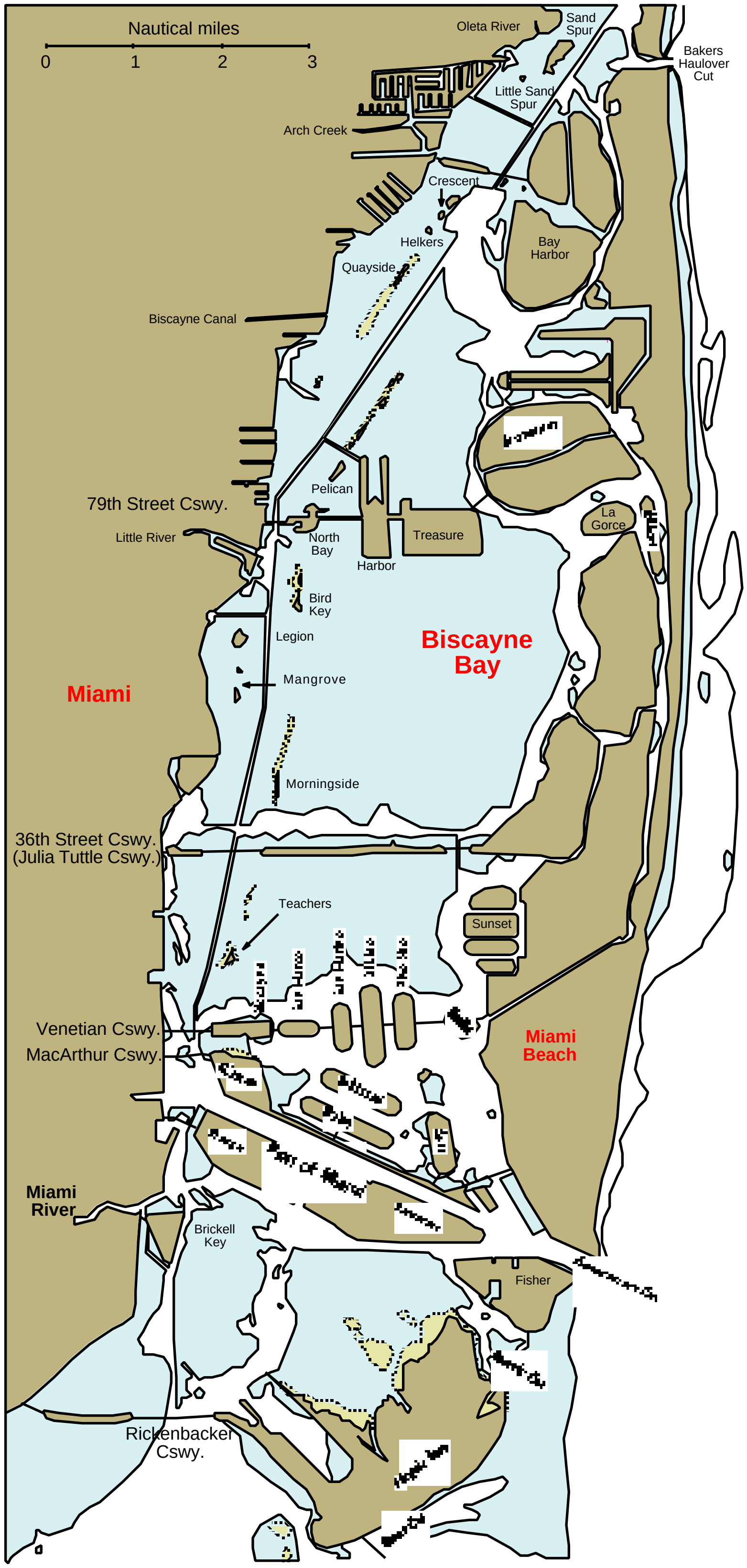

Figure 2. Northern Biscayne Bay.

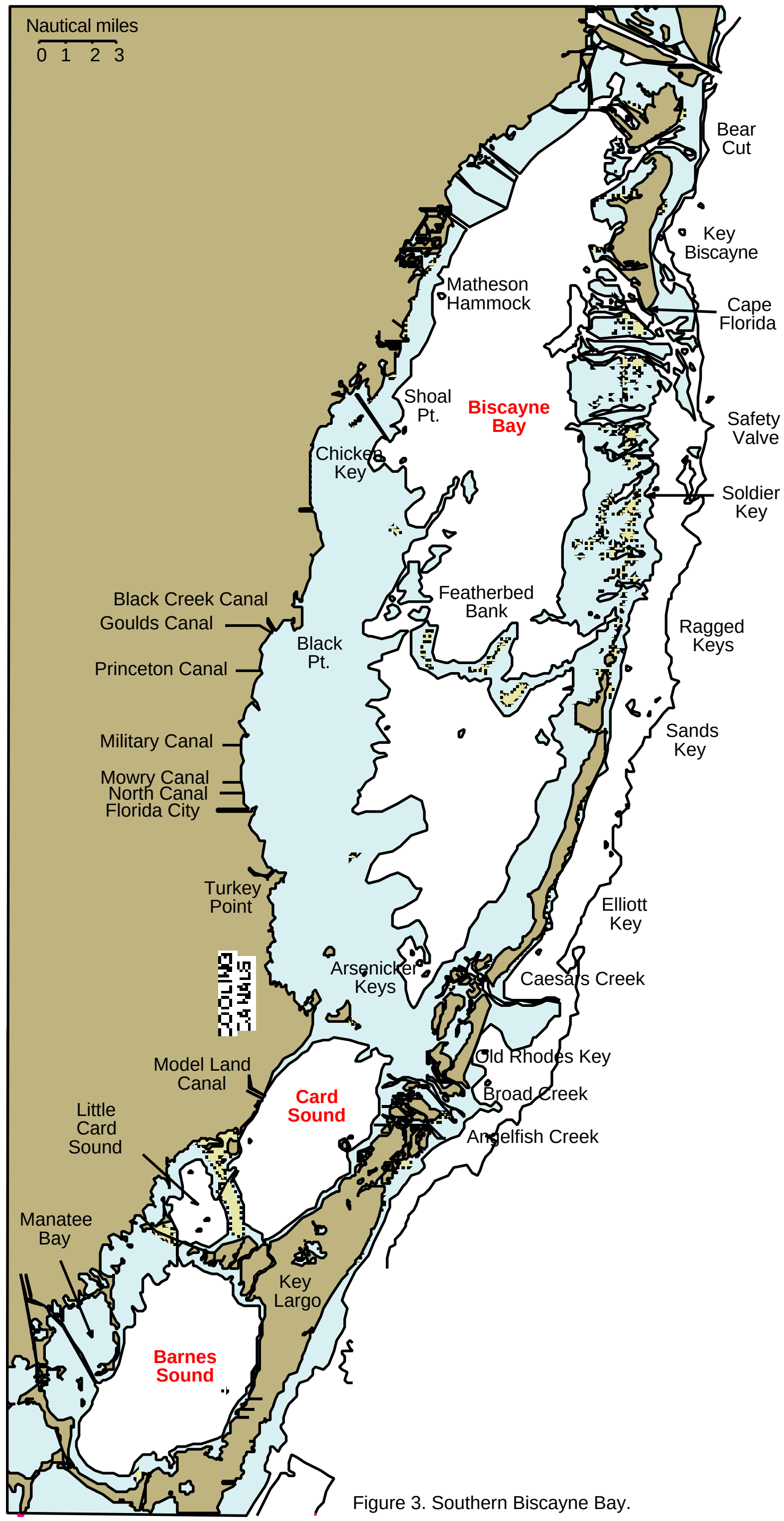

Figure 3. Southern Biscayne Bay.

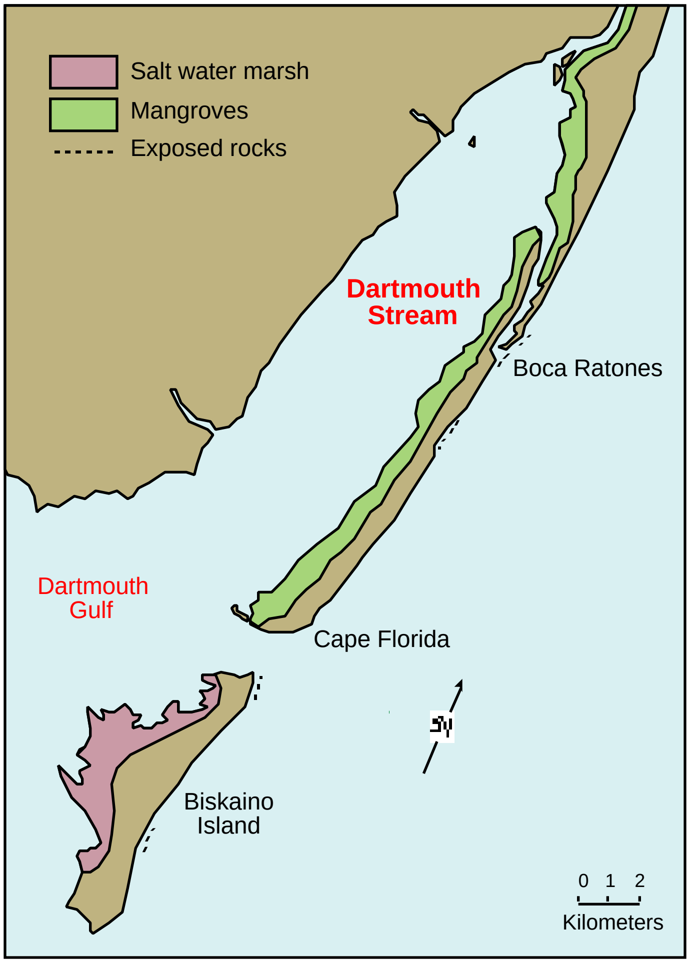

Figure 4. Northern Biscayne Bay in 1770. [Redrawn from Chardon (1978).]

southern portion of the Bay is connected to Card Sound, a small bay approximately 3 miles wide and long, and about 3 m deep. Restricted openings limit flushing and water exchange between Card Sound and Biscayne Bay. There are numerous keys in this section of Biscayne Bay and Card Sound.

4. HISTORY

Significant events related to Biscayne Bay are listed in Table 1 and shown graphically in Appendix IV.

4.1 Pre 1910s

The coastline of the barrier islands of what is now known as Biscayne Bay has changed considerably over the past 200 hundred years. Some of these changes were the result of natural processes such as hurricanes, while others were anthropogenic.

Chardon (1978 and 1982) examined pre-urban historical maps of the northern portion of Biscayne Bay. The 1770 De Brahm chart showed a continuous barrier island encompassing what is now Miami Beach to the west of the Bay, then known as Dartmouth Stream (Figure 4). Boca Ratones, a pass leading to the Atlantic Ocean, cut across the barrier island. The southern end of the barrier island was known as Cape Florida. This pass eventually became Indian Creek in Miami Beach. South of the barrier island was Biskaino Island (Key Biscayne). Dartmouth Inlet, the pass between the barrier island and Biskaino Island was eventually renamed Bear Cut. The main portion of Biscayne Bay was called Sandwich Gulf.[Δ]

During the early part of the 1900s, the population of South Florida was small, approximately 40,000 people. The largest towns in the area were Cocoanut Grove[◊] and Lemon City and the site of downtown Miami was undeveloped (Figure 5). Most of the inhabitants were dependent on the Bay for a living. There was abundant fishing in the Bay and the Miami River. Building materials and assorted items were routinely salvaged off the shores of Key Biscayne. Agriculture was not well established due to the harsh environmental conditions and swarms of mosquitoes.

[Δ] Many of the geographical names along the coast of South Florida and the Florida Keys have been in use since at least the late 1700s. Romans (1999) mentioned in the reprint of his 1775 natural history book the names Key Biscayno, Key Largo ("Cayo Largo"), Key Sal, Matacombe, Cape Sable, "Cayo Huesos" (Key West), Cape Florida, Soldier Keys (also known as "La Parida y su Figuelo"), and many others.

[◊] The spelling was later changed to Coconut Grove and coconuts planted in the area to match the name.

Table 1. Significant events in Biscayne Bay.

MAJOR TROPICAL CYCLONES PASSING CLOSE TO BISCAYNE BAY

1903	Storm 3, Sept. 9 - 16
1904	Storm 3, Oct. 12 - 21
1906	Hurricane of 1906 (Storm 8), Oct. 11 - 22
1909	Storm 9, Oct. 6 - 13
1916	Storm 14, Nov. 11 - 14
1926	Hurricane of 1926 (Storm 6), Sept. 11 - 22
1929	Storm 2, Sept. 22 - Oct. 4
1935	Storm 6, Oct. 30 - Nov. 8
1941	Storm 5, Oct. 3 - 14
1945	Storm 9, Sept. 12 - 20
1948	Storm 8, Oct. 3 - 16
1964	Hurricane Cleo (Storm 5), Aug. 10 - Sept. 5
1965	Hurricane Betsy (Storm 3), Aug. 27 - Sept. 13
1992	Hurricane Andrew (Storm 2), Aug. 16 - 28

CANALS, CUTS AND THE MIAMI RIVER

pre 1887	Norris Cut formed as the result of the passage of a hurricane (Chardon, 1977)
pre 1887	Pass at Boca Ratones was no longer observed (Chardon, 1977)
1896	Channel dug from Cape Florida to the Miami River (Harlem, 1979)
1902-1905	Construction of Government Cut (Michel, 1976)
1903	Drainage of the Everglades begun (Harlem, 1979)
1904	Salt intrusion begins
1904-1905	Government Cut (Toner, 1979; Harlem, 1979)
1908	Government Cut widened and deepened
1908	Rapids of the Miami River dynamited (Muir, 1953)
1910	4.25 mi of Miami Canal completed
1911	Miami Canal was 10 mi long
1912-1913	Other canals included Snapper Creek Canal, Cutler Canal, and the Coral Gables Waterway (Harlem, 1979)
1912	Collins Canal through part of Miami Beach
1913	Miami river dredged and material dumped on current site of Claughton Island (Gaby, 1990)
1914-1919	Channel built to Vizcaya
1924-5	Bakers Haulover completed (Toner, 1979)
1924	Haulover Cut was opened (Michel, 1976)
1925	Other smaller channels dug prior to 1925
1925?	Intracoastal Waterway (Michel, 1976)
1930s	River subjected to contamination from commercial activities and sewage
1934	Environmental concerns about the River begins.
1940s	Salt intrusion arrested but problems remain
1941	Houseboats ("shanties") removed from the River

Table 1. Significant events in Biscayne Bay (cont.).

BULKHEADING AND RELATED ACTIVITIES

1913-1914	Mangroves cut down in southern Miami Beach
1920	Large mangroves cut down in Miami Beach and swamps filled
1920s	Fisher Island shape changed by bulkheading and filling
1925	Bayview section of Miami Shores filled (Toner, 1979)
1925	Area east of Biscayne Blvd. filled to create Bayfront Park (Toner, 1979)
1950s	Southern one-fourth of Key Biscayne bulk-headed and filled
1970s	Dredge and fill activities at Fair Isle (Voss, 1974)

ISLANDS

1902	Lummus and Dodge islands (Chapman, 1993)
1905	Creation of Fisher Island (Toner, 1979)
1912	Belle Isle (Kleinberg, 1997)
1913	Miami river dredged and material dumped on current site of Claughton Island (Gaby, 1990)
1913	Flagler Monument Island when Carl Fisher merged two piles of dredge spoil (Kleinberg, 1997)
1915	Some roads built in Key Biscayne and Hurricane Harbor dredged
1916	Claughton Island purchased (Gaby, 1990)
1917	Star Island (Toner, 1979)
1918	Hibiscus Island (Toner, 1979)
1918	Palm Island (Toner, 1979)
1918-1922	Belle Isle built
1918-1922	Palm, Rivo-Alto, and Di Lido Islands (US Army Corps of Engineers, 1922)
1918-1922	Star Island (US Army Corps of Engineers, 1922)
1920s	Fisher Island shape changed by bulkheading and filling
1922-1925	Hibiscus, San Marino and San Marco
1922	Flagler monument built on spoil island
1923	Claughton Island bulkheaded and renamed Burlingame Island (Toner, 1979; Gaby, 1990)
1924	Fair Isle (Voss, 1974)
1925	Pelican Island (Isola Dilolando) outlined north of Venetian Islands (Kleinberg, 1989)
1930s	Islands of North Bay Village (Toner, 1979)
1943	Bay Harbor Islands (Toner, 1979)
1944	Pelican Island bought by the City of Miami Beach (Kleinberg, 1989)

CAUSEWAYS

1913	Collins Bridge (Toner, 1979)
1918	County Causeway (Kleinberg, 1989; Toner, 1979)
1925	Venetian Causeway replaced the old Collins Bridge (Michel, 1976; Toner, 1979; Kleinberg, 1997).
1928	79th Street Causeway (Toner, 1979)
1942	County Causeway renamed MacArthur Causeway (Kleinberg, 1989)
1943	Rickenbacker Causeway (Toner, 1979)
1951	Broad Causeway (Michel, 1976; Toner, 1979)
1960-1961	Julia Tuttle Causeway (Michel, 1976; Toner, 1979)

Table 1. Significant events in Biscayne Bay (cont.).

SEWER SYSTEM	
1950s	Elimination of discharge of raw sewage into the Bay
1956	Completion of sewage disposal system (Wilson, 1995; Stone and Suman, 1995)
1974-1981	Munisport landfill operations (Florida Department of Health and Rehabilitative Services, 1998)
1983	Munisport added to EPA Superfund list
1987	Serious problems encountered with Cross Bay line
1994	Cross Bay Line replaced (Swakon *et al.*, 1995)
POWER PLANTS	
1965	Turkey Point opened (Ho, 1998)
1967-1968	Fossil Fuel units began operation (Florida Power and Light, 1994)
1972-1973	Turkey Point nuclear units (Ho, 1998; Florida Power and Light, 1994)
1972-1973	Initial cooling canal operations (Thorhaug and Bach, 1973)
PORT OF MIAMI	
1896	Port of Miami opens (Miami-Dade County, 2000)
1920s	Port is primary hub for all shipping to South Florida (Miami-Dade County, 2000)
1920s	Passenger service to Baltimore and New York begins (Miami-Dade County, 2000)
1930s	Passenger service to Havana (Miami-Dade County, 2000)
WWII	US Navy assumes control of Port (Miami-Dade County, 2000)
1960	First phase of Dodge Island Seaport (Port of Miami) (Chapman, 1993)
1964	Dodge Island Seaport opens (Chapman, 1993)
1976	First port in history to record more than one million passengers in a year (Miami-Dade County, 2000)
1981	Port expanded to Lummus Island (Miami-Dade County, 2000)
1991	A record 3.9 million tons of cargo are handled in one year (Miami-Dade County, 2000)
1999	Royal Caribbean's Voyager of the Seas, the largest cruise ship ever constructed, is based at the Port (Miami-Dade County, 2000)
PARKS	
1948	Crandon Park
1967	Cape Florida State Park opens (Blank, 1996)
1960	City of Islandia incorporates (Shroeder, 1986)
1967	Dept. of the Interior purchases keys and Bay bottom around Elliott Key (Shroeder, 1986)
1967	Biscayne National Monument established (Shroeder, 1986)
1980	Biscayne National Monument expanded and renamed National Park (Shroeder, 1986)
1993	Soldier Key sold to the National Park Service (Dewar, 1993)

Table 1. Significant events in Biscayne Bay (cont.).

ARTIFICIAL REEFS	
1982	North Bayshore Park Reef (artificial reef)
1991	San Souci Reef (artificial reef)
1979	Pelican Harbor Reef (artificial reef)
1982	Julia Tuttle Artificial Reef (artificial reef)
1991	Brickell Area Reef (artificial reef)
1986	Rickenbacker Causeway Reef (artificial reef)
1984	Mercy Hospital Reef (artificial reef)
AVIATION	
Military	
1942	Construction of Richmond Naval Air Station
1943	Construction of Homestead Army Air Field
1945	Destruction of Richmond Naval Air Station during hurricane of 1945
1945	Homestead Army Air Field rendered inactive by hurricane of 1945
1955	Homestead reactivated as an Air Force Base
1992	Destruction of Homestead Air Force Base by hurricane Andrew
1993	Homestead reactivated as an Air Reserve Base
1999	Plans to convert the Homestead facilities to civilian use
Civilian	
1917	Red Arrow Flying Service begins operation (Chalk's International Airlines, 1999)
1917	Dinner Key served as a Naval Air Station (Florida State Photo Archive)
1919	Chalk's Flying Services begins operation (Chalk's International Airlines, 1999)
1920s	Lighter than air ships begin flights over South Florida
1926	Chalk's terminal built at Watson Island (Chalk's International Airlines, 1999)
1928	Dinner Key became the first customs entry airport of the US Atlantic mainland (Florida State Photo Archive)
1930s	Pan American World Airways purchased Dinner Key to use as home base for the trans-oceanic seaplane clippers (Florida State Photo Archive)
1932	Dinner Key seaplane basin dredged
1934	Pan American terminal built at Dinner Key (Kleinberg, 1989)
1939	Embry-Riddle School of Aviation begins operations in MacArthur Causeway (Mormino, 1997)
WWII	Pan American navigators served as instructors to US Army, US Navy, British and Canadian air forces at the Dinner Key facility (Florida State Photo Archive)
1945	Pan American operations out of Dinner Key cease (Kleinberg, 1989)
1954	Dinner Key facility became the City of Miami City Hall (Kleinberg, 1989)

Table 1. Significant events in Biscayne Bay (cont.).

STILTSVILLE	
1930s-1950s	Stiltsville construction (Semple, 1997; Williams, 1990)
1964, 1965	Hurricanes Cleo and Betsy destroy all but 2 dozen houses in Stiltsville (Williams, 1990)
1992	Hurricane Andrew destroys six of the remaining 13 houses in Stiltsville
1999	Stiltsville scheduled to be removed (Morgan, 1999)
2000	Stiltsville fate to be decided (Morgan, 1999)
ENVIRONMENTAL IMPORTANCE	
1938-1939	Sponge blight
1991	Biscayne Bay closed to sponge fisheries
1992	Sponge die-off
1958	"Milk" shrimp first described (Schmale, 1998)
1970s	"Milk" shrimp infestation
1970s	Federal environmental legislation
1930-1977	PCB use
1942	DDT comes into the market (Stetler, 1983)
1970s	DDT use banned (Stetler, 1983)
MISCELLANEOUS	
1896	East Coast Railroad reaches Miami
1916	Vizcaya built
1930s	Sealevel rise begins (Wanless *et al.*, 1994a)
1980s	Baynanza begins
1983	Christo Surrounded Islands
1998	Discovery of the Miami Circle at the entrance of the Miami River

Figure 5. Miami River at Brickell Point (1897). [Photo negative, black and white, 4 x 5 in. PR09460. Print Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

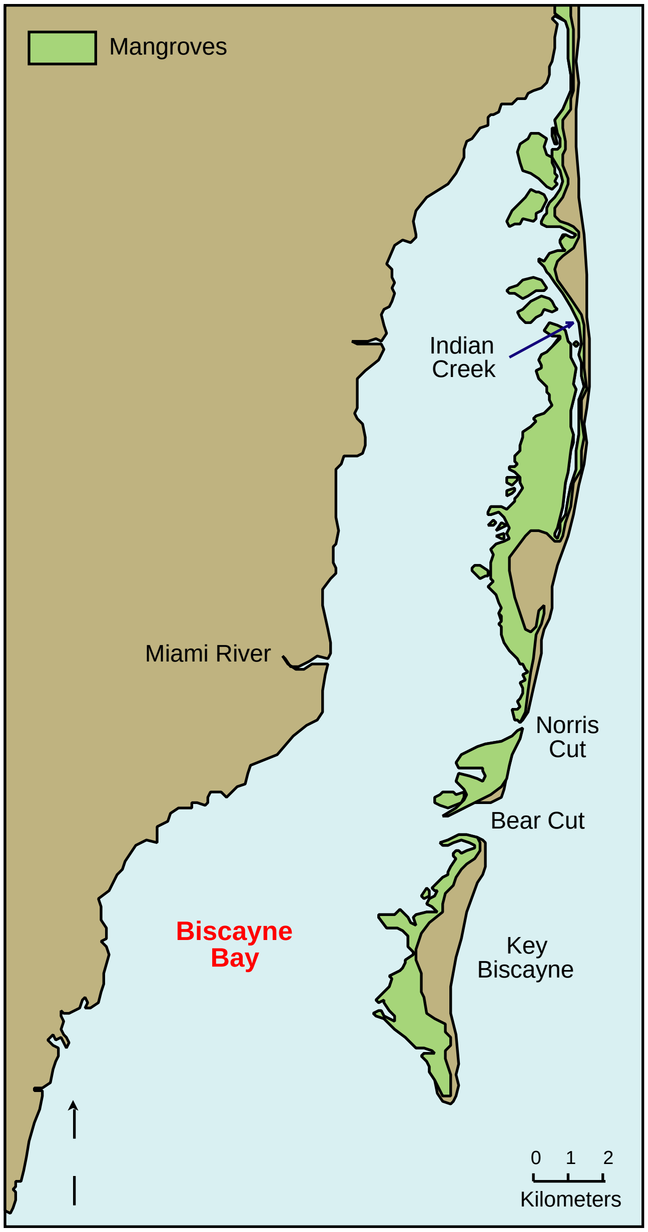

Figure 6. Northern Biscayne Bay in 1887. Adapted by Chardon (1978) from US Coast Survey charts. The area north of Norris Cut and south of Indian Creek may be evidence of a wash-over. [Redrawn from Chardon (1978).]

Chardon (1978) generated a chart of Biscayne Bay for 1887 from a series of US Coast Survey charts (Figure 6). By then, a hurricane had formed Norris Cut, probably the Hurricane of 1835 (Chardon, 1977), and the pass at Boca Ratones was no longer observed.

The Baedeker travelers guide of 1909 described Biscayne Bay as "a large sheet of clear salt water separated from the ocean by the first of the Florida Keys" (Baedeker, 1909).

James Buck visited South Florida in 1877 and wrote about his experiences (Buck, 1979 reprint). Although he did not recommend "a removal to this southeast coast" due to lack of communications and business opportunities, for an "invalid, suffer-ing from consumptive tendencies, bronchial complaints, or rheumatic affections, we think we can truly say that this bay is unsurpassed in the United States. Rheumatic troubles disappear in a surprising manner. It is a veritable Fountain of Youth."

Marjorie Stoneman Douglas recalls the Bay in 1915: "Oh, it was beautiful, so clear and clean. The color of the water changed with the nature of the bottom. It was pale green and dark blue and almost purple in spots, overflown by flocks of white birds. In the distance, the flocks wheeled and turned, flashing white in the sunshine" (Whited, 1986).

H. W. Hoover, heir to the vacuum cleaner fortune, observed in the 1920s, "Every single boat out in the ocean was escorted by three or four porpoises. I remember black clouds of mosquitoes rising out of the mangroves. I remember pulling shrimp out of the bay by the bucketful, and looking down Government Cut and seeing the sea bottom covered with what looked like a living black carpet. It was a solid carpet of lobster" (Zaneski, 1997).

Hoping to attract northerners to the mild climate and tropical conditions of the coast, Henry Flagler decided to extend his Florida East Coast Railway route to Miami. The first train arrived in the city in 1896. Flagler built the Royal Palm Hotel in 1897 on Brickell Point, between the

Figure 7. View of Royal Palm Hotel, the Miami River and Brickell Point (19--?). (View is towards the east.) [Postcard. Color (9 x 14 cm). PC2092. Postcard Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Bay shore and the entrance to the Miami River, as a resort at the end of the railway line (Figure 7). Miami began to grow around the hotel and the City was incorporated in 1896.[Δ]

Native Americans of the Seminole tribe, who occupied much of South Florida since well before the arrival of Columbus, were familiar visitors to Miami (Rainbolt, 1924?). They frequently traveled down the Miami River to Biscayne Bay in canoes and camped by the river banks. Miami is the Seminole word for "sweet water" and it was the Seminole name for the Miami River.

One of the features of the Miami area and Biscayne Bay at this time was the presence of freshwater springs described as early as 1838. One of the best known springs was the Punch Bowl, located in the 3000 block of Brickell Avenue, very close to the Bay shore (Kleinberg, 1989).

> "Springs of good water are common and wells are to be had by a comparatively small amount of digging. This latter may often be done with axes, through the soft rock, so that the well is already stoned, when the water is reached after a few feet of cutting. Many springs burst up through the bottom of the bay, and we see fresh water boiling up through the salt."
>
> J. Buck, 1877 (Buck, reprinted 1979)

[Δ] The city was incorporated and officers elected in a failed pool room (Kleinberg, 1989). The number of votes cast exceeded the number of voters present. It was questionable that the 312 voters would have fit into the pool hall.

Freshwater flow stopped probably as the result of the lowered water table when the drainage canals were built.* The location of the former springs within the Bay proper is not known. The Punch Bowl is thought to be off what is now Peacock Park. The offshore springs were about 1.2 Km from the Cutler area (Reich, 1998). No landmarks can be identified in one (if not the only) photograph known of the site (Figure 8).

Figure 8. Mariners installed a pipe and built a platform to make water from a fresh spring in Biscayne Bay. [Photograph 117D. Munroe Collection, Historical Association of Southern Florida.]

As the population of South Florida increased at the turn of the century so did the need for dry land, and canals were built to drain the coastal wetlands beginning in 1903. The construction of the canals changed the hydrography of South Florida eventually resulting in reduced water flow to the Everglades and Florida Bay (Halley *et al.*, 1998; Reich, 1998; and others).

In 1915, E. G. Sewell advertised the City of Miami in newspapers and magazines and attracted many tourists. That season all the area hotels were filled. By the season of 1917-1918, over 10,000 people were turned away due to lack of hotel space (Rainbolt, 1924?). As tourism rose so did the number of permanent residents. The growth led to accelerated development of the Miami/Miami Beach area, that lasted until the middle of the 1920s.

Development included simultaneous destruction of natural shorelines, cutting down of mangroves (Figure 9), construction of channels, cuts and artificial islands (Figures 10-12), filling in of tidal flats (Figure 11), bulkheading of shoreline, construction of bridges and causeways (Figure 13), construction of drainage canals, and building on land. Waterfront land was created by artificial islands composed of dredged Bay bottom material, a process which removed benthic cover from large areas of the Bay bottom. There was no legislation at that time to protect the Bay's natural resources or ecosystem.

Port facilities were in the Miami River and were reached from the Atlantic Ocean via a channel south of Cape Florida and running north to the River entrance. The first channel from Cape Florida to the Miami River was dug by the Florida East Coast Railway Company. In 1897, the river dockage was abandoned and a new one built adjacent to the railroad line. There were other small channels from the Bay to the mainland, including the one built to allow ship access to Vizcaya (see Section 6.3.5).*

* Freshwater springs have been observed intermittently in Biscayne Bay since the passage of Hurricane Andrew in 1992. The springs were last seen during the 1960s. The location of the springs has not been recorded (H. Wanless, University of Miami, personal communication, 2000).

* Vizcaya is an Italian Renaissance-style villa and formal gardens built in 1916 as the winter residence of industrialist James Deering. Vizcaya is one of only two officially designated National Historic Landmarks in Miami-Dade County. The site is on the bay shore north of Dinner Key.

Figure 9. Cutting down mangrove forests (1914). [Glass transparency, black and white (3.25 x 4 in). Lc405. La Coe Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Figure 10. Fisher Island, Terminal Island and Government Cut (1918). (View is east towards the Atlantic Ocean.) [Photograph, black and white (5 x 7 in). WE164. Wendler Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

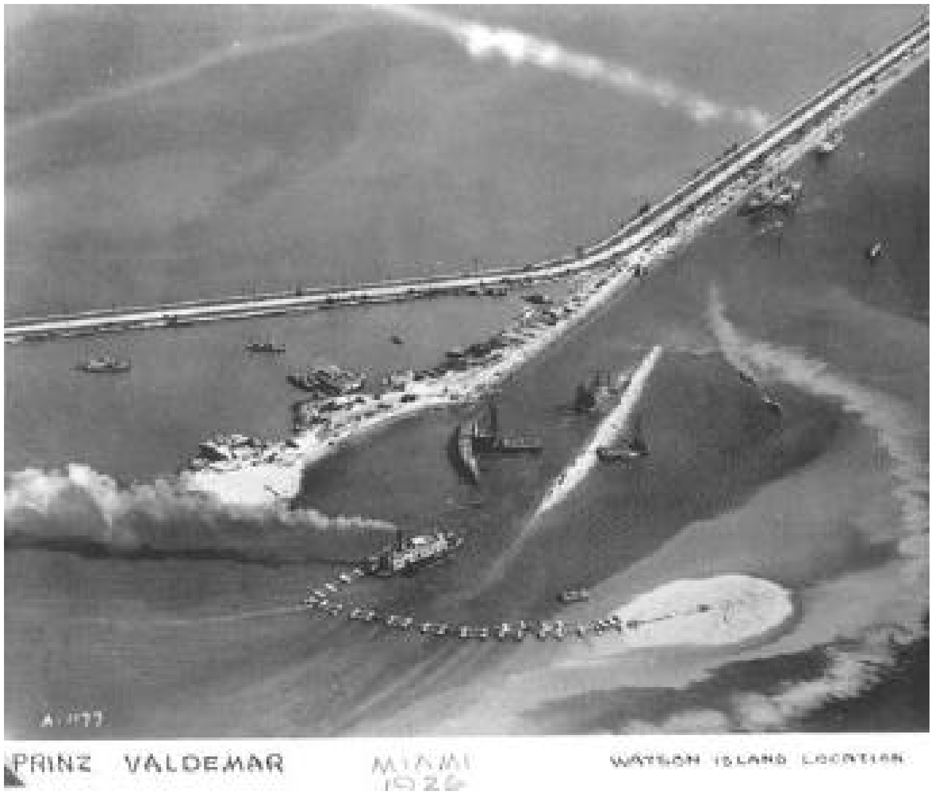

Figure 11. Prinz Valdemar capsized in the ship channel (Government Cut) (1925). (Note dredging activities in the area.) [Photo negative, black and white (4 x 5 in). N040770. General Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Figure 12. Aerial photograph of Haulover Cut, Miami Beach (1927). (Biscayne Bay is at the top of the photograph and Atlantic Ocean is at the bottom.(Photo negative, black and white (4 x 5 in). N035204. General Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Figure 13. Aerial view of Miami Causeway and Star Island (1922). (The Venetian Islands are to the left.) [Photograph, black and white (8 x 10 in). PR06842. Print Collections, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

In 1902, Government Cut was constructed between Miami Beach and Norris Cut to provide access to the Miami River that avoided the lengthy trip south and around Cape Florida (Figure 10). Government cut was originally 18 ft deep and 60 ft wide, and has undergone a series of widening and deepening projects since that time.

The islands created south of the channel with dredge spoil during the construction of Government Cut were named Dodge Island and Lummus Island (Chapman, 1993). Fisher Island, the southern end of the Miami Beach barrier island, was also created at this time and was expanded with dredge spoil from the construction of the Cut. Dredged material was placed in a spoil bank on the north side of the channel, eventually becoming the MacArthur Causeway (Michel, 1976). As a result of tidal flow through the new Cut, the beaches of Fisher Island, Virginia Key and Key Biscayne experienced beach erosion (Michel, 1976).

An access channel was built to Vizcaya, the Italian Renaissance style villa built in 1916 on the mainland shore of Biscayne Bay, just south of the present day Rickenbacker Causeway Other small channels continued to be built in the Bay.

Fisher Island was once the southern-most part of Miami Beach before it was severed by the construction of Government Cut in 1905 (Hannan *et al.* 1972) (Figure 10) (see Section 6.2.5). The island was known as Rat Island or Peninsula Island. The present form of the island is the result of bulkheading and filling during the 1920s and the island was renamed after this developer, Carl Fisher. He planned to develop the island as a resort but the hurricane of 1926 brought this to an end. Since its creation, Fisher Island has undergone a series of natural and anthropogenic changes and is currently the site of high rise exclusive residential buildings. Fisher Island is only accessible by boat.

Belle Isle, one of the natural islands in North Bay and the easternmost of the Venetian Islands, was originally known as Bull's Island (Kleinberg, 1997) (see Section 6.2.7). It was little more than a muddy tidal flat when John Collins built a bridge to it in 1912. The successor to that bridge is now the Venetian Causeway The adjacent tidal flat was filled to form an island by the aforementioned Carl Fisher and renamed Belle Isle. Between 1918 and 1922, Fisher expanded the island to 32 acres and sold lots to mostly millionaires.

The first bridge to Miami Beach was built in 1913 by John Collins, and Carl Fisher began development of Miami Beach as a tourist resort. This led to the destruction of the mangrove forests of the barrier island and the bulkheading of the shoreline on the western side of the Bay.

Star Island was the first true fill island totally constructed by bulkheading a previously open water area (US Army Corps of Engineers, 1922).

Aviation has been a part of South Florida since the early part of the 20th century (Ridings, 1985). In 1917, over a million dollars were spent building the Dinner Key Aero Station. The Aero Gunners' School for the Army at Chapman Field and the Marine Aviation Station at Curtiss Field were located in the Miami area (Rainbolt, 1924?). Flying boats flew regular routes from Miami to the Caribbean and Dinner Key became the first customs entry airport of the US Atlantic mainland. Flying boats and lighter than air ships have operated in the Bay since that time. (See Section 9.1.)

Figure 14. Shipyard with trains, Biscayne Blvd. (192-). (Note seaplanes on the lower left. Biscayne Bay is to the right of the image.) [Photograph, black and white (5 x 7 in). PR06837. Print Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Figure 15. Bayside NE 11th Street (19--). Biscayne Boulevard in the foreground. (MacArthur Causeway, Chalks Aviation, Flamingo Hotel, Miami Harbor and a lighter than air ship in the background. Biscayne Bay is towards the upper left of the image.) [Photograph by H. Wolfe. Photo negative, black and white (4 x 5 in). N038736. General Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

4.2. 1920s

The development of Miami/Miami Beach continued during the decade of the 1920s until the Hurricane of 1926, the Land Boom bust and the stock market crash of 1929.

During the 1920s Land Boom, fortunes were being made and more land was needed. "Water acreage" of Biscayne Bay was sold even before islands were built (Rainbolt, 1924?). After selecting a lot, the customer was rowed out to the appropriate location in the Bay and "shown the particular wave where his property" was located. Any disputes were soon 'washed out". When enough orders for "sea lots" accumulated, building began. Two photographs of Biscayne Bay shoreline during the mid 1920s show the degree of activity taking place in the area (Figures 14 and 15).

The Venetian Islands are artificial islands located between Belle Isle and the mainland. Their characteristic shape makes them very recognizable. San Marco, San Marino, DiLido and Rivo Alto were build in rapid succession during the 1920s and lots on these islands were quickly sold (Figure 16). The Venetian Islands were to be extended north of DiLido Island, with six additional islands to be built through the center of the Bay to Miami Shores, close to the location of the present day 79th Street Causeway (Kleinberg, 1989). However at a 1925 Miami Chamber of Commerce meeting many objected to the destruction of the beauty of the Bay and set the precedent for the Chamber to prevent further "mutilation of the waterway". Developers persuaded the Chamber to proceed with the construction plans by arguing that the Bay was "now of no utility". Sales of lots in the unbuilt islands began in 1925. Isola Dilolando, the island planned north of Di Lido Island, now known as Pelican Island, was marked out with pilings (see Section 6.2.6). The hurricane of 1926, the Land Boom Bust and the Depression ended the plans.

The removal of dredge material for the construction of islands and causeways created an 8-foot deep borrow channel on the eastern side of the Bay. There was an 8-foot limitation for

Figure 16. The newly built Venetian Islands (1925). [Photograph, black and white (5 x 7 in). WE163. Wendler Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

dredges at that time. Only a series of pits were made on the western side of the Bay since land filling activities were not continuous. The 8-foot deep Intracoastal Waterway was created at this time (Michel, 1976).

In 1923, spoil dredged from the entrance to the Miami River was used to create Burlingame Island, now known as Claughton Island (Toner, 1979).

Bakers Haulover Cut was opened in 1924 (Michel, 1976). The results were changes in the water circulation of North Bay and deterioration of the beaches of Miami Beach. It is not clear why the Haulover Cut was made (see Section 6.1.2.5).

The 79th Street Causeway was constructed at about this time. Fortuitously its location is close to the nodal point where tidal flow from the north and south meet in central Biscayne Bay so water movement was not seriously affected by construction (Michel, 1976).

Relocation of the Port of Miami created controversy. As early as the 1920s, a proposal was made to move the Port from its location on the Miami River off Biscayne Blvd. in downtown Miami to Dodge Island, an island spanning the width of the Bay (Chapman, 1993) (Figure 17). The City of Miami could not reach a decision regarding the location of the Port and it remained on Biscayne Blvd. (see Section 6.2.4). The plan re-surfaced in the 1950s and this time led to the creation of the New Port of Miami in the 1960s.

Shipping activity on the bayfront was an indicator of the intense effort required to keep up with an accelerating demand for goods and materials of the Land Boom (McIver, 1987). A photograph of the port area in Biscayne Blvd. shows several types of vessels, trains, cars and seaplanes in proximity to each other (Figure 14). In 1925, incoming railway shipments of most kinds of freight had to be stopped to repair overworked equipment and to add more track (McIver, 1987; Chapman, 1993). By winter, 7,600 southbound freight cars were sitting outside Jacksonville. By the Christmas holidays, 32 schooners, trying to help break the freight impasse, were in port, and forty more schooners were on their way to Biscayne Bay. This

Figure 17. Miami River, Royal Palm Hotel, Henrietta Towers and Granada Apartments (192-). (Biscayne Bay is to the right of the image. Port facilities are north of the Royal Palm Hotel, in the upper center of the image.) [Postcard, color (9 x 14 cm.). PC2083. Postcard Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Figure 18. Miami Beach during the passage of the Hurricane of 1926. [Photonegative, black and white, 4 x 5 in. N045921. General Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Figure 19. Bay Shore Drive after hurricane (1926). [Postcard, black and white (9 x 14 cm). PC2134. Print Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

bottleneck was made all the worse because the PRINZ VALDEMAR (a 241-feet Danish barkentine rigged as a floating hotel), the largest sailing vessel ever to enter the Miami Harbor, had ran aground in the late fall of 1925 in Government Cut, and overturned due to high winds on January of 1926 blocking the channel for several weeks. Several large vessels were unable to leave Biscayne Bay (Figure 11).*

At about this time, the Land Boom financial dealings came under scrutiny by the federal government, and the area was hit by the Hurricane of 1926, one of the most destructive hurricanes ever to affect Biscayne Bay (Figure 18).

The Hurricane of 1926 is rated four on the Saffir/Simpson scale (see Section 5.3.2). More than 300,000 people living in the affected area were unprepared for the storm and unaware of the potential danger of hurricanes. The hurricane reached South Florida September 17-18, 1926. Passage lasted approximately 11 hours. The hurricane moved several large vessels onto dry land (Figure 19). Many others were sunk, including the dredge that was supposed to deepen Government Cut (Chapman, 1993).Δ Damage to buildings was severe. The newly built bridge across Bakers Haulover Cut became unusable as shorelines on either side were washed away (Figure 20 and 21). Photographs and stories of the aftermath reached northern cities and destroyed the image of South Florida as a paradise and Fountain of Youth. The pace of development in the area slowed down. Photographs, newspaper articles and various government proclamations can be found in Reardon (1986).

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* The PRINZ VALDEMAR was eventually refloated and beached at 6th Street and Biscayne Blvd. In 1928 she was converted into a floating aquarium (Boldrick, 1975). In 1937 a steel bulkhead was placed around the vessel and it was converted into a building. It served as an Navy officer's club during World War II. It was declared an eyesore in 1949 and dismantled in 1952.

Δ The PRINZ VALDEMAR was one, if not the only ship to survive the hurricane with little damage (Chapman, 1993; Boldrick, 1975).

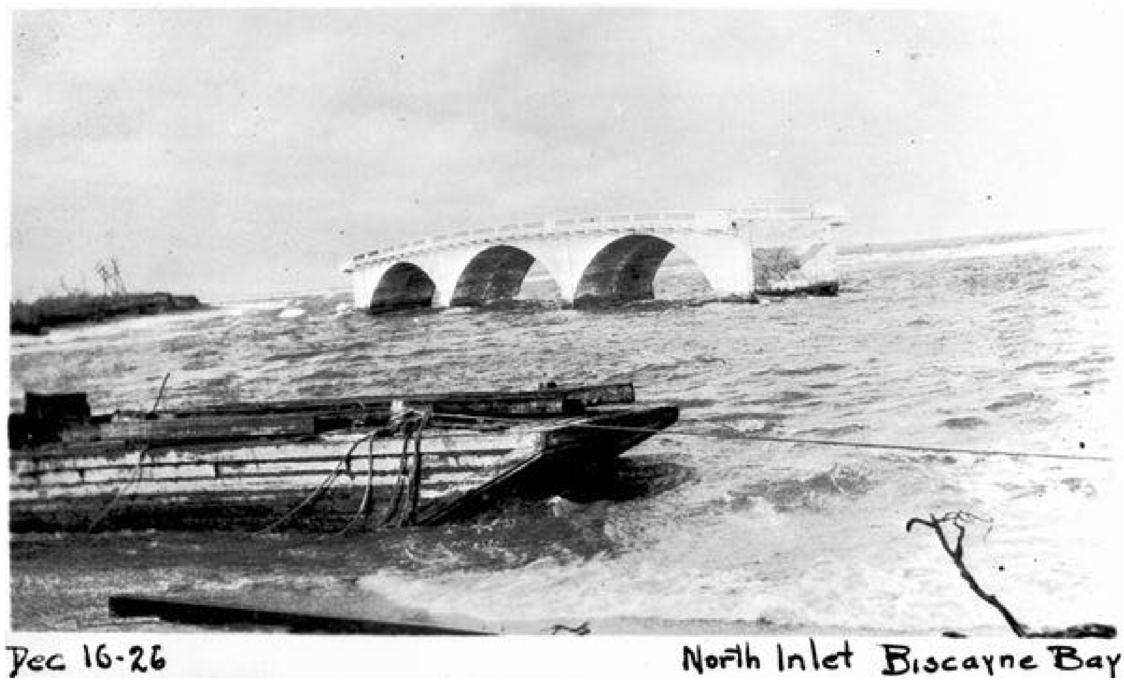

Figure 20. Remains of the bridge at Bakers Haulover Cut after the Hurricane of 1926. (See Figure 12 for aerial photograph of bridge before the hurricane.) [Photo negative, black and white 4 x 5 in. N031942. General collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Figure 21. Aerial view Bakers Haulover Cut after the Hurricane of 1926 (December 1, 1927). (See Figure 12 for aerial photograph of bridge before the hurricane. Biscayne Bay is at the top of the image and Miami Beach is at the bottom. Note erosion of the sides of the Cut. Bridge destroyed during the hurricane has been removed.) [R. B. Hoit, photographer. Photo negative, black and white, 4 x 5 in. N035203 . General Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

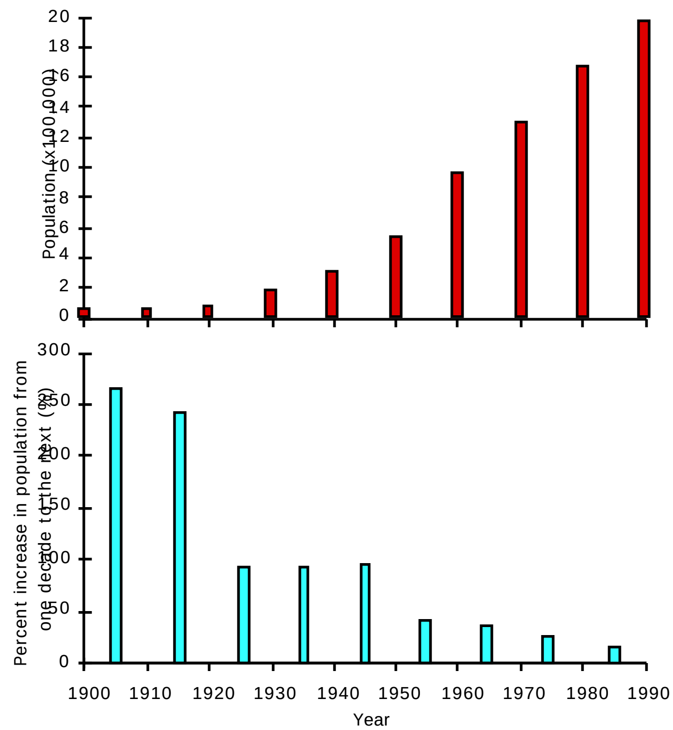

Figure 22. Numbers of persons in Dade County from 1900 to 1990 [Andriot (1983), and Bureau of the Census (1994)].

The changes that occurred in and around Biscayne Bay during the 1920s continued to affect the ecosystem well into the 1980s. While the largest percent increase in population took place before 1930 (Figure 22), population continued to increase well into the 1990s.

The significant changes to the bottom and shoreline of the Bay prior to 1930 were quantified by Harlem (1979) (Figures 23 and 24). More than 75% of the land from Broad Causeway to the Rickenbacker Causeway was developed by this time. Approximately 75% of the Bay bottom from Venetian Causeway to MacArthur Causeway had been dredged or disturbed by 1925, and little benthic vegetation remained in this area. The years of major dredge and fill projects in North Bay are shown in Figure 25. Most major changes occurred prior to the 1930s. The exception is the construction and expansion of the Port of Miami in the 1960s and 1970s.

4.3. 1930s

During the 1930s, few changes were noted in Biscayne Bay. Bay topography shows little change from 1920s conditions except for the presence of spoil islands next to the ship channel (Figure 26).

The first Miami cruise ship began regular service between Cuba and Miami in 1931 and passenger service between Miami and other US ports continued (Chapman, 1993). Further dredging of the ship channel began to accommodate more passenger traffic.

Commercial aviation continued to grow in the Miami area. Pan American World Airways started service in 1927 with a flight from Key West to Havana. The airline purchased Dinner Key in

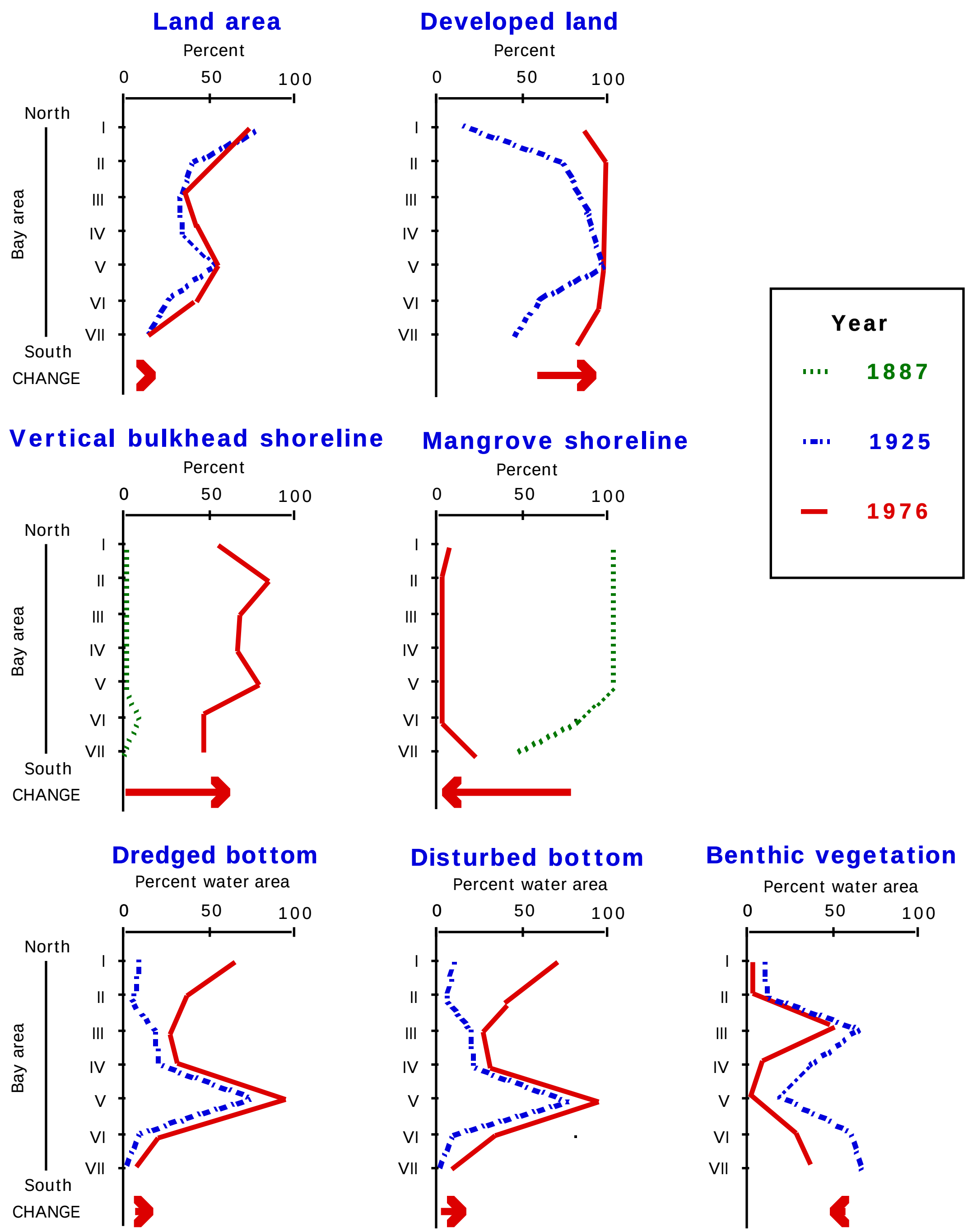

Figure 23. Percent change between 1887 or 1925 and 1976 of various characteristics of Biscayne Bay. (Redrawn from Harlem, 1976.) [Area I: North of Broad Cswy; Area II: from Broad to 79th St. Causeway; Area III: from 79th St. Causeway to Julia Tuttle Causeway; Area IV: from Julia Tuttle Causeway to Venetian Causeway; Area V: from Venetian Causeway to MacArthur Causeway; Area VI: from MacArthur Causeway to Rickenbacker Causeway; Area VII: from Rickenbacker Causeway south to the Safety Valve.]

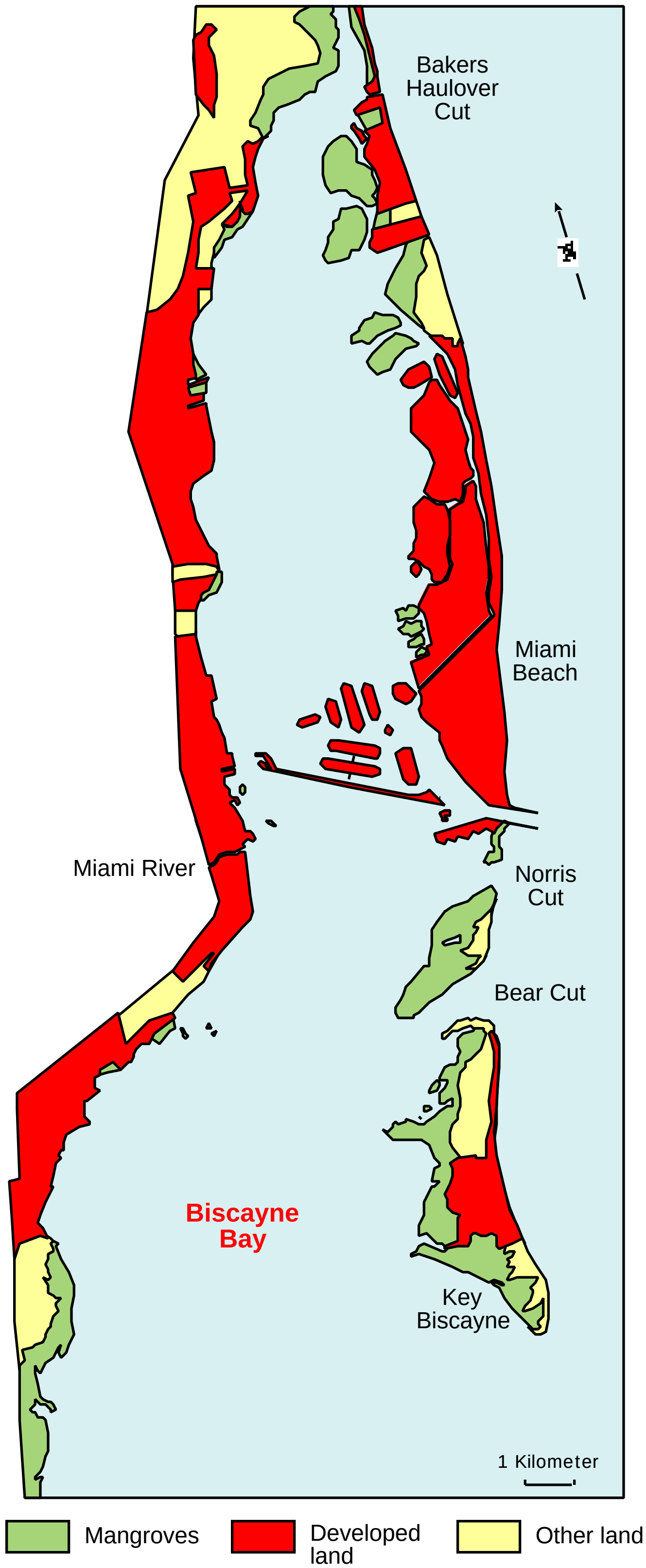

Figure 24. Developed land in northern Biscayne Bay in 1925. [Causeways not shown. Redrawn from Harlem (1979).]

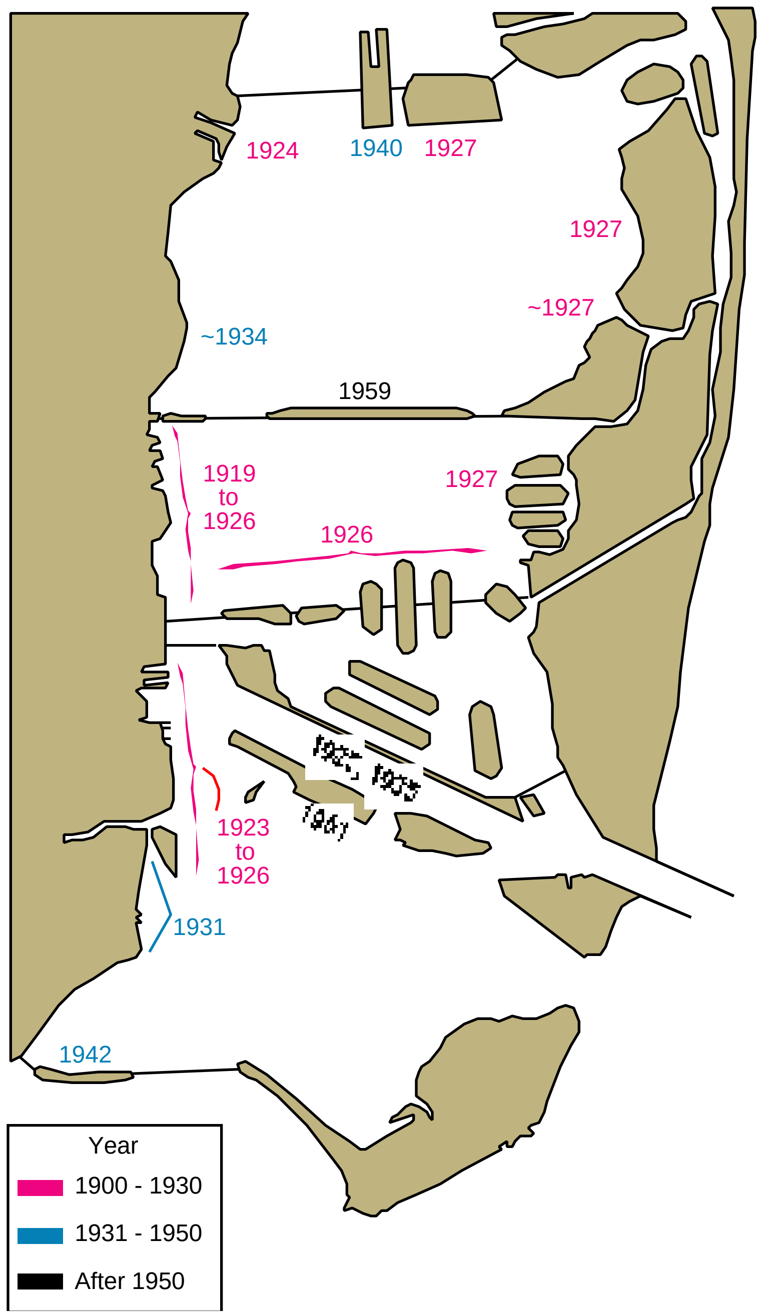

Figure 25. Years of major dredge and fill projects prior to 1970. [Redrawn from McNulty (1970).]

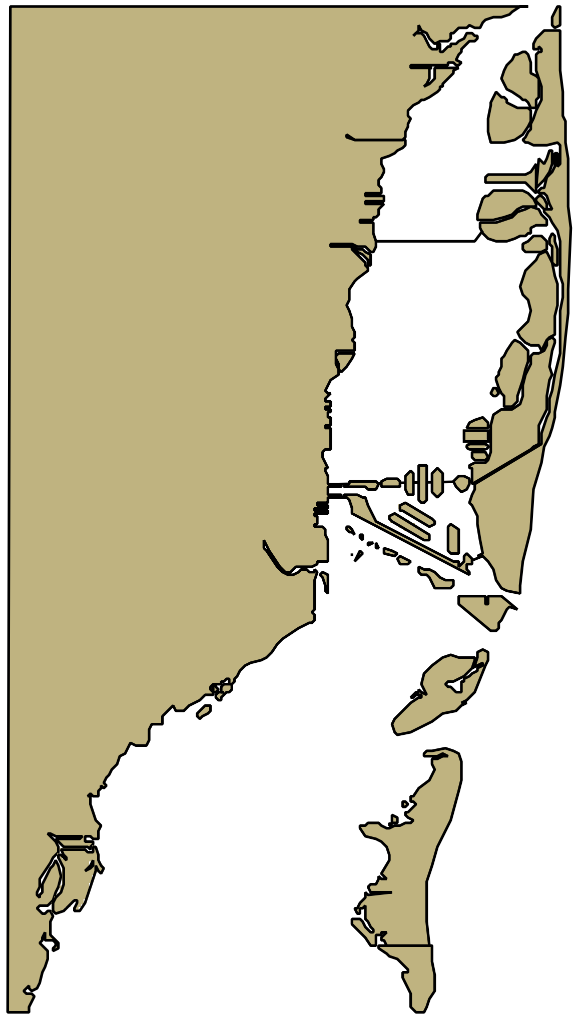

Figure 26. Biscayne Bay in the late 1930s. [Re-drawn from Wakefield (1939)].

1930 to use as home base for the trans-oceanic seaplane clippers (Figure 27). By 1935, Pan American was connecting Miami with 32 Central and South American countries. During 1938, its peak year, more than 50,000 passengers flowed through the Dinner Key facilities, making Miami the leading American city as a port of entry for international air travel at that time (Florida State Photo Archive caption for image PR00568. <http://fpc.dos.state.fl.us/>). Also during the 1930s, Eastern Airlines was flying daily between Miami, New York, Chicago and intermediate cities.

By the 1930s, sea level began to rise as evidenced by tide gauge data from Key West (Wanless *et al.*, 1994a) (Figure IV.2 Appendix IV).

In the 1930s, bacteriological pollution was found from North Bay to Tahiti Beach (located directly east across the Bay from the Safety Valve) and was traced to the City of Miami, the greater part of which had sanitary sewers discharging untreated waste (Wakefield, 1939). Twenty-eight of these sewers emptied into the Miami River. Thirty-six sewers emptied directly into the Bay and by far the greater number and the larger sewers were in the central

Figure 27. Pan American Airport at Dinner Key (193-). [Postcard, black and white (9 x 14 cm). PC2100. Postcard Collection, Florida State Photo Archive.<http://fpc.dos.state.fl.us/>]

part of the City. Between 25th Road and Northeast 55th Terrace, a distance of approximately five and one-half miles, the sewage from about 7,900 acres of densely-built city entered the Bay and Miami River through 59 separate outfalls. There were no known sanitary sewers, either private or public, entering Biscayne Bay from Miami Beach. Coral Gables had no public sewer system and depended upon private septic tanks and drainfields. Pollution from ships also contributed to the contamination. Pollution was found only close to shore and the degree of pollution decreased rapidly with distance from the Miami River or sewer outfalls. The area between 79th Street Causeway and a line between Dinner Key and Cape Florida received constant pollution which in many places reached high concentrations. Wakefield recommended that this area be closed to swimming and the citizens warned not to use the Bay in this area.

4.4. 1940s

World War II brought an economic boom to Miami, with construction, aviation and tourism as major industries. A few months after the attack of Pearl Harbor, German submarines sank several ships near the coast of Florida. In 1942, the Mexican oil tanker POTRERO DEL LLANO was torpedoed near Fowey Rocks (east of the Safety Valve) and sunk (Mormino, 1997; Kleinberg, 1989).[◊] Thirteen crew members of a total of 35 perished. The glow of the burning tanker could be seen from Miami. Due to U-boat activity just off the coast, all cruise activity and coast-wide waterborne commerce stopped (Chapman, 1993). The Port of Miami came under the control of the US Navy and used as a training camp. The Gulf Sea Frontier and Seventh Naval

[◊] Mexico was a neutral country at the time of the sinking of the LLANO. As a result of the attack, Mexico declared war on Germany two weeks later (Kleinberg, 1989).

Figure 28. Pilots in training at the Pan American World Airways facilities in Dinner Key (194-). (Note seaplanes.] [PR00559. Photograph, black and white (8 x 10 in.). Print Collection, Florida State Photo Archive.<http://fpc.dos.state.fl.us/>]

District headquarters were set up in Miami, the Submarine Chaser Training Center was established, and a U.S. Naval Air Station to house and service blimps was constructed. Many cruise ships were converted into troop transports. Miami and Miami Beach hotels were used as barracks for training and rehabilitation of service personnel. Private and fishing vessels were repainted and outfitted with .50 caliber machine guns and their owners joined the Coast Guard Reserves to assist in patrolling the waters off South Florida (Mormino, 1997). Although this Coast Guard Auxiliary was referred to as The Cockleshell Navy and the Hooligan Navy, they were credited with reducing U-boat activity.

Pan American Airways' veteran navigators served as instructors in the navigation school at Dinner Key to US Army, US Navy, British and Canadian air forces at the Dinner Key facility (Figure 28) (Florida State Photo Archive caption for image PR00559). Biscayne Bay was used to train aviation and Navy personnel.

In 1942, the County Causeway was renamed MacArthur Causeway (Kleinberg, 1989). The Rickenbacker Cswy, connecting Miami with Key Biscayne, was built in 1943 (Toner, 1979).

The Bay Harbor Islands were built in 1943 (Toner, 1979). Pelican Island was bought by the City of Miami Beach in 1944 (Kleinberg, 1989).

New parks were established including: Crandon Park, Cape Florida State Recreation Area, Biscayne National Park, and Everglades National Park.

Tourism gave birth to the cruise ship industry and today Miami is the "Cruise Ship Capital of the World" with 3.5 million passengers departing annually from The Port of Miami.

Construction of Homestead Air Force Base began during World War II to serve as a maintenance stopover point for aircraft being ferried to the Caribbean and North Africa (see Section 6.4.1.) Construction of the Richmond Naval Air Station south of Miami took place in 1942. The Station was the Navy's largest Airship Station, short of the one in Lakehurst (Friends of Naval Air Station- Richmond, 2000) (see Section 6.4.2).

The temporary residence in South Florida of thousands of service personnel introduced the area as a pleasant place to live and after the war many returned to South Florida as permanent residents.

After the war, control of the Port of Miami was returned to the City of Miami. By the 1950s, the City recognized that the port site on Biscayne Blvd. could not be expanded further and another site had to be found. During the post-war era, the cruise industry based in the Port of Miami began to expand.

During the 1940s, a faunal shift occured in Manatee Bay indicating change from euhaline to polyhaline conditions present since the 1900s to a highly fluctuating annual salinity conditions with episodic periods of hypersalinity (Ishman *et al.*, 1998).

Environmental conditions in Biscayne Bay continued to deteriorate. By the mid 1940s, Hoover's idyllic Bay was in decline. Black coral sea fans, stone crabs and pompano were dying off (Zaneski, 1997). Development of Miami Beach and continued construction of man-made islands were fouling the Bay with suspended material and raw sewage. "A boat trip in the bay and out the main channel gives the visitor a chance to contrast the dark brown-gray polluted water near the city with the beautiful blue-green ocean water", a state sanitary engineer observed in 1949 (quoted in Iverson, 1979).

Up to the late 1940s, raw sewage was discharged directly into the Bay and the Miami River. The levels of contamination became so high that recommendations were made that contact with

Figure 29. View of causeway connecting Miami with Miami Beach from the Goodyear Blimp (194-). (Government Cut is on the right of the image. The spoil islands that became Dodge Island are to the left of the Cut.) [Photograph, black and white (8 x 10 in). PR06876. Print Collections, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Bay water be avoided thus threatening the tourist industry (Minkin, 1949; Moore *et al.*, 1955) (Figure 30). In response to public demands, the Virginia Key sewage plant was constructed, and public outfalls to the river and the Bay were sealed.

In September 1945, a massive hurricane passed through the area (Figure 31). The center passed almost directly over Homestead Army Air Base and Richmond NAS. The estimated maximum winds were approximately 275 kph on the east side of the storm (Gentry, 1974). Property damage in Dade County was $50 million. Because of destruction caused by the storm, Homestead Army Air Base was shut down in December of that year.

Salt water intrusion into the highly permeable Biscayne aquifer became significant (Figure 32). In 1945 salinity control dams were installed in most of the canals in the Miami area as barriers against further encroachment (Leach and Grantham, 1966).

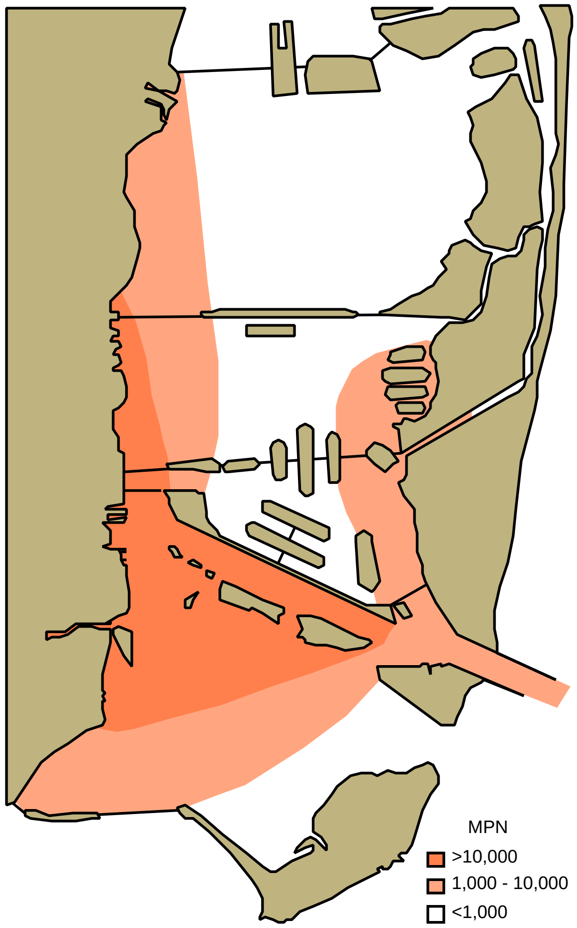

Figure 30. Distribution of mean coliform bacteria in 1949 (unpublished report by Minkin (1949). [Redrawn from McNulty (1970).]

Figure 31. Wind-driven waves threaten to inundate homes. (American Red Cross, September, 1945. NOAA Photo Collection, NOAA Central Library, Silver Spring, MD. <http://www.photolib.noaa.gov/lb_images/historic/nws/wea00404.htm>.)

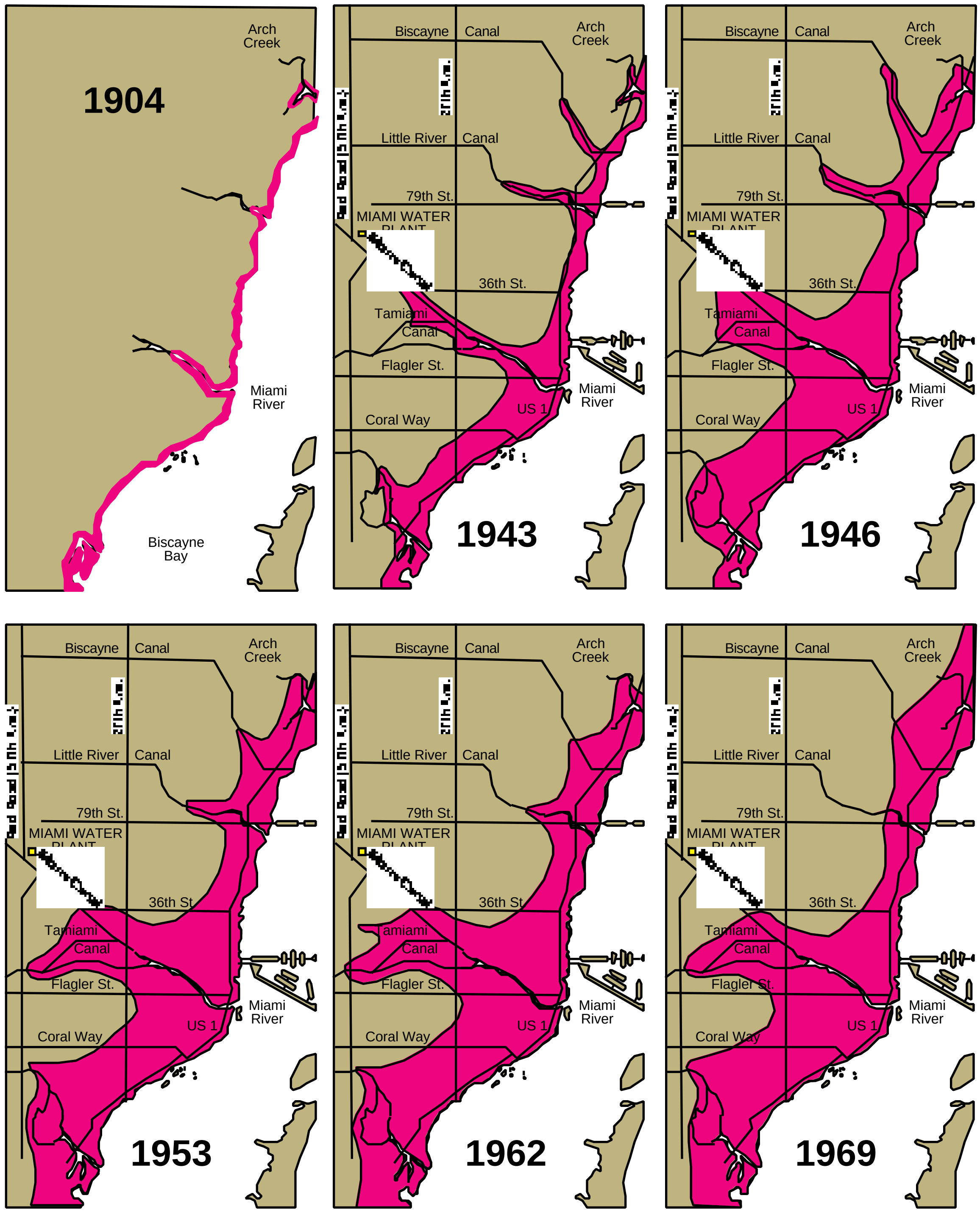

Figure 32. Seawater intrusion at the base of the Biscayne aquifer. [Redrawn from Leach and Grantham (1966) based on the work of Parker *et al.* (1955) and Kohout (1961).]

Figure 33. The newly built Rickenbacker Causeway between Key Biscayne, Virginia Key and Miami (194-). [Miami and the entrance to the causeway are at the top of the image. Key Biscayne is at the bottom. Virginia Key is the land mass in the lower middle. Presently UM/RSMAS and NOAA facilities on Virginia Key are to the left and right of the causeway in this view.] [Postcard, postmarked 1949, black and white (9 x 14 cm). PC2080. Postcard Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

4.5. 1950s

The decade of the 1950s brought a population increase and urban expansion as many servicemen who were stationed in the area during World War II returned to South Florida (Figure 22). The physical shape of Biscayne Bay did not change much during the previous decade (Figure 34).

Broad Causeway was constructed in 1951 (Michel, 1976). This causeway restricted the tidal exchange in North Bay. No significant borrow pits are associated with the construction of this causeway.

In 1959, Dodge Island was chosen as the site of the Port of Miami (Dodge Island Seaport) by Metro-Dade County. Construction began on the new facilities (Chapman, 1993).*

Over 80 ha of wetlands were destroyed in southern Key Biscayne through dredge and fill operations associated with failed developments (Milano, 2000). These wetlands were replaced with Australian pines which were destroyed by Hurricane Andrew.

The Dinner Key airport facility became the City of Miami City Hall in 1954 (Kleinberg, 1989)

* The year 1956 is listed in the Miami-Dade County web site (Miami-Dade County, 2000).

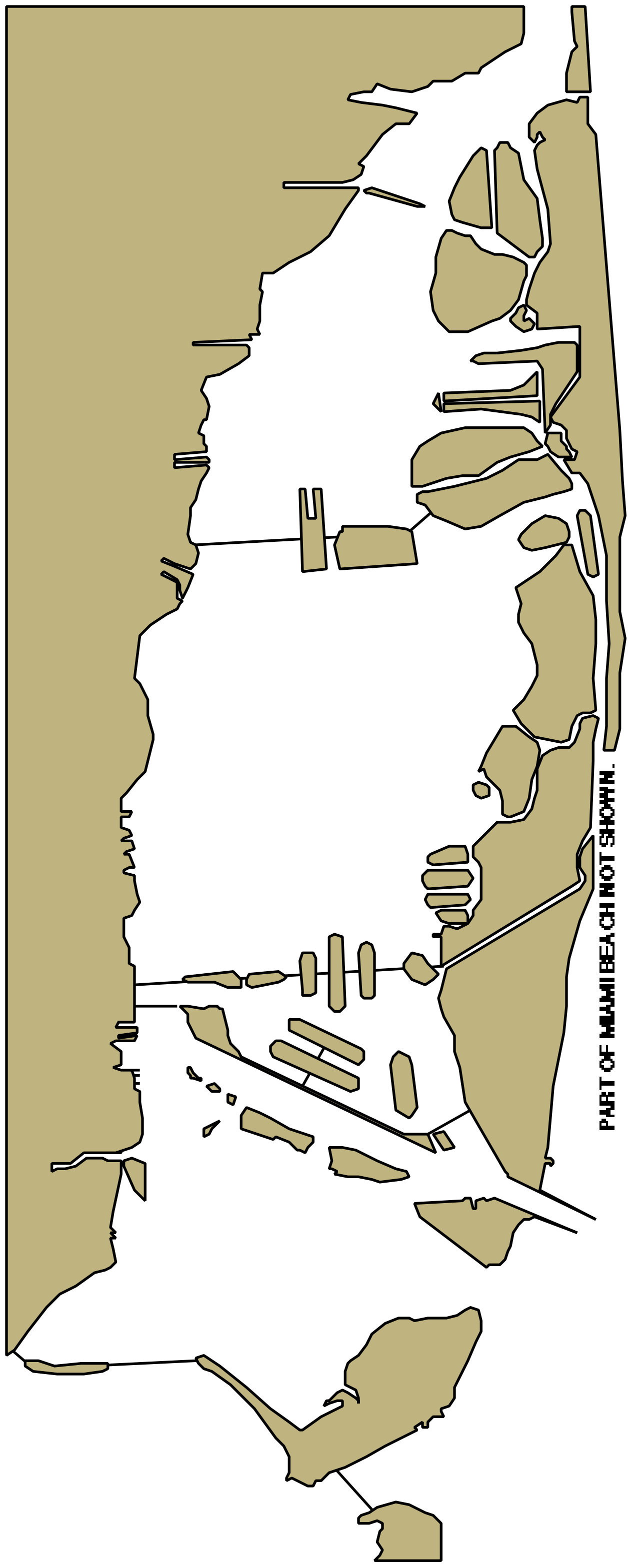

Figure 34. Biscayne Bay in the 1950s. [Redrawn from Moore *at al.* (1955).]

During the 1950s, the number of outfalls was reduced and the level of coliform bacteria in Biscayne Bay waters declined. McNulty (1970) compared the benthos, sediment, plankton, and fouling organisms of northern Biscayne Bay before (1956) and after (1960-1961) pollution abatement. Care was taken to use the same sampling techniques at many of the same stations sampled in 1956 before pollution abatement measures were instituted. Pollution came from the 136 to 227 million liters per day of untreated domestic sewage. Four years after abatement certain changes were noted. Populations of benthic macro invertebrates in the area near the City of Miami and the Miami River declined from abnormally large numbers of species and individuals to normal numbers of each. In hard sandy bottoms adjacent to outfalls, numbers of species and numbers of individuals increased. In poorly flushed waters, volumes of zooplankton decreased to about one-half the pre-abatement values. Abundance of amphipod tubes declined. Populations of other fouling organisms remained about the same. There was no evidence of improved commercial and sports fishing.

Due to abnormally high river water discharge in 1954, the pollution situation was comparable to that of 1949. Pollution was less severe than expected (Hela *et al.,* 1957).

The area from the mouth of the Miami River north to the west end of the MacArthur Causeway was expected to remain polluted until major changes were made to contaminant input to the Bay from the Miami River (Voss, 1972). The waters of the area were turbid, reducing illumination and limiting growth of marine plants. Bottom sediments were very fine grained. There were indications of eutrophication. Surveys in 1954-57 and 1959 showed the area to be almost totally devoid of attached benthic life. Fishing in the area was minimal.

Figure 35. Aerial view of Miami (1969). (The Port of Miami at the upper left of the image. Cloughton Island is the triangular-shaped island to the left. The entrance to the Miami River is just past the island. The shoreline between Cloughton Island and Rickenbacker Causeway (just off the image) remained undeveloped and was known as Millionaire's Row.) [Photograph, black and white (8 x 10 in). PR06844. Print Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

The waters of the ship basins were found to be traps for the collection and sinking of debris and garbage.

4.6. 1960s

Urban development in South Florida continued during the 1960s with the influx of Cuban refugees.

The Julia Tuttle Causeway was built in 1961 (Michel, 1976). Fill was obtained from an area just north of the new causeway. The resulting borrow pit is 29 feet deep. This causeway further restricted circulation in North Bay.

The Dodge Island Seaport officially opened in 1964 when port operations were moved from the old site in Biscayne Blvd. Port activity continued to increase as cruise lines used the Port as a base of operation (Chapman, 1993) (Figure 35). Several NOAA vessels including the DISCOVERER and the RESEARCHER, and University of Miami vessels including the R/V COLUMBUS ISELIN were based at the port.

During the 1960s Hurricanes Donna, Cleo and Betsy passed near or over Biscayne Bay. These storms were less devastating than the 1926 storm (see Section 5.3.4).

4.7. 1970s

The environmental movement, begun in the 1970s, brought public attention to the growing environmental problems in the US. In 1974, the Biscayne Bay Ecology Committee organized a symposium on the status of the Bay and the papers published in the proceedings are a synthesis of the physical, geological and biological processes, and man's uses and interaction with the Bay (Thorhaug and Volker, 1976).

The last major change to North Bay took place with the expansion of the Port of Miami onto Lummus Island (Figure 36).

In 1974, the Florida State Legislature enacted a law designating Biscayne Bay as an aquatic preserve thus placing stringent controls on further development of the Bay (Michel, 1976; Dade County, 1984; Florida Department of Environmental Protection, 2000a). The Preserve consists of two separate areas of the Bay: North Bay south to a line connecting Cape Florida to Chicken Key; and Card Sound. The two areas are separated by Biscayne National Park.

The nuclear units of the Florida Power and Light Turkey Point Power Plant in South Bay began operations in 1972 (see Section 6.3.1.1). The effect of thermal pollution on the fauna and flora of southern Biscayne Bay and Card Sound were extensively studied during the 1970s before and after the cooling canals were put into use.

Pollution inputs to the Bay during the 1970s were attributed to runoff from the metropolitan areas introduced via the canals and rivers (Waite, 1976). Sewage pollution continued to occur and further monitoring of Bay conditions was recommended.

Teas *et al.* (1976) studied changes in shore vegetation up to the 1970s at five sites: Interama, Cocoplum, Saga, a section south of Black Point, and Card Point. The shoreline vegetation of Biscayne Bay changed significantly since the turn of the century. Shore vegetation was eliminated in most of the northern Bay and seriously impacted elsewhere. Anthropogenic effects on the shore vegetation were of two types: physical (land fill, vegetation removal, erosion by boat wakes) and water quality- and quantity-related (reduction of freshwater and changes in salinity). There is evidence that vegetational changes took place in the shores of the Bay prior to human settlement. The authors recommended revegetation using mangroves to stabilize shorelines.

Walter Kandrashoff began to catch sick and deformed fish in Biscayne Bay, and brought this problem to the attention of local scientists to determine the reason for the emaciated condition of the animals. A description of the problem is found in Section 7.2.4.

A cyanobacterium Synechococcus sp. was isolated from an area of Biscayne Bay where a massive fish kill occurred in the 1970s (Reyes-Vazques, 1985). Hemolytic compounds are produced by this strain.

4.8. 1980s

During the 1980s, fine suspended material was identified as a major problem in Biscayne Bay (Wanless *et al.*, 1984). Fine bottom sediment became suspended in the water column through several mechanisms, such as wind events, cold fronts, wave action, and boat traffic. Fine

Figure 36. Central Biscayne Bay. [Some of the channels, such as the one between the Miami River and the Virginia Key Sewage Treatment Plant can be observed. The left-most rectangular indentation in the Port of Miami was home base to NOAA and University of Miami research vessels. The deep area north of the 36th Street Causeway is the dark colored area. Note seagrass bed at the top left of the image.] [Aerial photograph 5WGQ2987, 1992. Scale 1:48000, azimuth 191.1, 25.76833° N, 80.14556° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGQ2987.gif>. Black areas are artifacts in original photograph. See Figure 2 for identification details.] *See color version on p. 119.*

material can also enter the Bay waters via runoff. The suspended material can smother bottom communities thus destabilizing additional areas of Bay bottom. During the passage of cold fronts, there is a southward longshore drift of sand along the beaches and southward transport of unstable sands along the Bay bottom (Warzeski, 1976). Sediment is stirred into suspension and is redeposited elsewhere in the Bay, carried out to form tidal deltas and bars, or taken out of the Bay. It is well documented that higher levels of trace metals and organic contaminants are found in fine sediments than in coarse ones. Steps were taken to reduce the amount of suspended material, including installation of natural sediment traps, such as restored mangrove wetlands, planting of native trees and shrubs in the mid-Bay islands, placing limestone boulders along shorelines, and creating reefs in silty depressions in the Bay bottom (Zaneski, 1995). As the amount of suspended material in the water column was reduced, light penetration increased, and bottom communities, including seagrasses, showed signs of recovery and expansion.

The amount of suspended solids decreased in the Bay from 1979 to 1983 (Dade County, 1985). Nonetheless, initial efforts to restore seagrasses failed due to high turbidity. The only sections in North Bay that appeared healthy were flushed with ocean water from Bakers Haulover Cut, and the seagrass bed north of the Julia Tuttle Cswy (Figure 37). The most turbid water was found between the 79th Street and Broad Cswys., probably the result of the dredge pits created during waterfront development in the 1920s.

Corcoran *et al.* (1983) conducted a survey of hydrocarbon concentrations in Biscayne Bay sediments in 1982-1983. High concentrations were found in Little River, the Miami River, Black Creek/Goulds Canal and Military Canal. The Miami River, with its shipping activity and urban runoff, had the highest concentrations. Military Canal drains Homestead Air Force Base (see Section 6.1.3.2). Black Creek merges with Goulds Canal before emptying in to Biscayne Bay. It has small boat traffic and two marinas. Little River has minimal boat traffic but receives high amounts of urban runoff.

Development of Cloughton Island, renamed Brickell Key, began at this time.

During the 1980s, there were many events centered on Biscayne Bay that helped raise awareness of its environmental condition and importance to South Florida. These events included Christo's Surrounded Islands (see Section 9.2), the annual Baynanza boat races (see Section 9.3), and the use of Biscayne Bay in film, television and print media (see Section 7.3.4).

4.9. 1990s

Restoration efforts continued during the 1990s. The passage of Hurricane Andrew resulted in damage to the Bay ecosystem as well as new restoration opportunities.

Hurricane Andrew, a category 4 storm, passed directly over Biscayne Bay in August 1992 (see Section 5.3.5). Homestead and towns nearby suffered severe damage. Homestead Air Force Base was virtually destroyed and the Air Force decided not to re-open the facility (see Section 6.4.1). Hurricane Andrew literally removed tons of vegetation from the mainland and Bay islands. Most of the plant species lost, such as the Australian pine, were foreign to Florida. The removal of the vegetation provided a unique opportunity to restore many sites to conditions as close as possible to those found in the 1900s. Planting of native species, such as mangroves, sea oats and gumbo limbo, stabilizes shorelines and reduces runoff of fine sedimentary material (Maass, 1992). As of 1995, one million mangrove trees were planted on the shores of Biscayne Bay, 100 acres of wetlands were restored or created, and twelve artificial reefs were created (Zaneski, 1995). The eight “spoil” islands created during the dredging of the Intracoastal Waterway have been transformed into beaches and picnic areas, surrounded by rock boulders to

Figure 37. North Biscayne Bay. [Note seagrass bed north of 36th Street Causeway (Julia Tuttle Causeway).] [Aerial photograph 5WPA1338, 1999. Scale 1:39800, azimuth 186.1, 25.82484° N, 80.14796° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WPA1338.gif>. See Figure 2 for identification details.] *See color version on p. 120.*

reduce fine material runoff and protect mangrove plantings. The underwater craters in North Bay are being filled with concrete rubble to create artificial reefs. Restoration efforts continue at present.

Hook and line, and crab trap surveys were used to determine the nature and distribution of abnormalities and diseases in fish and blue crabs from sites throughout Biscayne Bay during the 1990s (Gassman *et al.*, 1994). Missing or deformed dorsal fin rays were the most common abnormalities observed in gray snapper. Scale disorientations were most common in pinfish while sea bream exhibited both types of abnormalities. The highest prevalence rates for these three species were found at Sunset Harbor Marina and at Miami Beach Marina. Blue striped grunt had a low frequency of a variety of abnormalities. The prevalence of abnormalities for all fish surveyed was correlated with the concentration of total and aromatic hydrocarbons in sediment samples from sites within 2 km of the faunal survey sites. However, no correlations were found with sediment concentrations of aliphatic hydrocarbons, polychlorinated biphenyls, or five metals (Cd, Cu, Pb, Hg, and Zn). No correlations were found between contaminant concentrations and the distribution of abnormalities in the individual fish species or blue crab except between sediment Cu levels and abnormalities in the blue striped grunt.

Contamination hot spots were identified at Biscayne Canal, Arch Creek, Little River and the Miami River in North Bay. Shoreline dumpsites were identified and targeted for clean up, while damage to the ecosystem from boating activities continues.

Military Canal was identified as a potential source of contamination to South Bay (see Section 6.1.3.2.). Conversion of Homestead Air Reserve Base to civilian use may pose other environmental problems (see Section 6.4.1.).

The initial Surface Water Improvement and Management (SWIM) Plan for Biscayne Bay was prepared and adopted by the South Florida Water Management District in 1988 and modified in 1989 and 1995 (South Florida Water Management District, 1995). The 1995 plan addressed the issues identified in the previous plan and the effectiveness of the initial strategies, as well as new issues and problems.

In 1999, the Florida Legislature and the South Florida Water Management District funded the Biscayne Bay Partnership Initiative (BBPI), coordinated by the Biscayne Bay Foundation and the FAU/FIU Joint Center for Environmental and Urban Problems (Biscayne Bay Partnership Initiative, 2000). BBPI will foster a management forum and program incorporating federal, state, county and local governments, as well as marine industries, tourism and business development interests, members of the conservation community, recreational organizations, and citizens of South Florida. BBPI Survey teams were formed to identify and discuss issues in management, social and economic values, science, and regulations. The Science Team is currently preparing a document on past and current research efforts in Biscayne Bay, information gaps, and priorities.

Fishing improved in Biscayne Bay during the 1990s perhaps due to reduction of contaminant input, above-average rainfall reducing the salinity, and the statewide ban on coastal net fishing protecting game-fish and bait established in 1995 (Cocking, 1997). Fishermen reported clearer waters in the northern Bay.

5. METEOROLOGY

5.1. Solar cycles

The sun provides all of the energy that fuels the atmosphere and oceans, and changes in solar output can affect planetary weather. Sunspots are dark (cool) areas on the Sun's surface that interrupt the regular pattern of solar emissions (NOAA, 1991). Sunspot frequency rises and falls with the 11-yr solar cycle. Monthly mean sunspot values are shown in Figure IV.1 (Appendix IV) (NOAA, 2000a). It has been found recently that the solar radius is variable, with variations on an ~80 yr time scale, and that these variations may result in large changes in solar luminosity (Gilliland, 1982). This ~80 yr cycle, as well as the shorter 11-yr solar sunspot cycle and 22-yr Hale cycle of solar magnetic reversals, may explain hemispheric temperature trends. A third possible cycle is the 18.6-yr lunar nodal cycle in which tidal influences may also play a role.

5.2. El Niño Southern Oscillation

The El Niño/Southern Oscillation (ENSO) is the largest single source of interannual climatic variability on a global scale and its effects are wide ranging (Diaz and Markgraf, 1992). The Southern Oscillation is a large scale sea level pressure "seesaw" across the tropical Pacific Ocean. The anomalous oceanic and atmospheric conditions that occur periodically along the upwelling zone of the Equatorial Pacific along the coast of Ecuador and Peru are known as El Niño and are a manifestation of coupled ocean-atmosphere processes. The warm phase of this coupling is known as El Niño and the cold phase as La Niña. Winter *et al.* (1994) found a very good correspondence between low $\delta^{13}C$ values (indicative of cloud cover) in a core taken from a specimen of *Montastrea annularis* and strong El Niño events indicating that the Caribbean is sensitive to ENSO activity.

The Southern Oscillation Index (SOI) is defined as the normalized difference in surface pressure between Tahiti, French Polynesia and Darwin, Australia, and it is a measure of the strength of the trade winds, which have a component of flow from regions of high to low pressure (NOAA, 2000b). High SOI (large pressure difference) values are associated with stronger than normal trade winds and La Niña conditions, and low SOI (small pressure difference) values are associated with weaker than normal trade winds and El Niño conditions. El Niño and La Niña years as defined by SOI values are shown in Figure IV.1.

Hanson and Maul (1991) identified rainfall anomalies associated with major El Niño events in the climate record of the seven climatic divisions of Florida. Only El Niño events that were strong enough to persist over two successive years were examined in this study. Therefore only "moderate" and "strong" events as defined by Quinn *et al.* (1987) were used. An additional requirement was that the year prior to the two-year event must be a non-El Niño year. The two-year events that met this criteria were: 1911-12, 1917-18, 1925-26, 1930-31, 1939-40, 1957-58, 1972-73, and 1982-83 (other events have been identified since 1991). The most significant anomalies were: below normal rainfall over the State of Florida during winter (December, January and February) and spring (March, April and May) of the year prior to an El Niño event; and above normal rainfall over the State during the winter and spring of the second year of an El Niño event. The largest rainfall anomalies occurred in the southern climatic divisions of Florida (the Everglades and southeast coast, lower east coast, and the Keys).

5.3. Hurricanes

Hurricanes are tropical cyclones with wind speeds of 119 km per hour (Table 2) or higher that occur over the Atlantic Ocean, Caribbean Sea and Gulf of Mexico usually during summer and fall. These storms originate in warm waters in areas of low pressure and with wind circulation counterclockwise around the center. The annual number of hurricanes is greater in South Florida than in any other place in the US and hurricanes have struck in half the years during the past century (Gentry, 1984). The annual numbers of all hurricanes in the Atlantic was below average from 1894 through 1930, and was especially low from 1911 through 1921. During the 1930s, the numbers increased above average and remained so through 1982, with the exception of a few years around 1940. In Florida, the frequency was above average from 1933 - 1938, 1945 - 1952, and 1964 - 1966. Frequencies were below average until the onset of El Niño. Tropical cyclones passing over or within a radius of approximately 50 mi of Biscayne Bay from 1910 to 1999 are listed in Table 3 and are shown graphically in Figure IV.1. Meteorological information about tropical cyclones from 1921 to 1999 can be found in the NOAA National Hurricane Center internet site (<http://www.nhc.noaa.gov/pastall.html>), and information about cyclones from 1886 to 1998 can be found at the Unisys internet site (<http://weather.unisys.com/hurricane/atlantic/ index.html>).

5.3.1. Hurricane of 1906

In October 1906 Miami was hit by a minimal strength hurricane (Kleinberg, 1989). Few of the approximately 5000 residents had experienced a hurricane and none of the buildings in the area had been through such a storm. The city suffered considerable damage. Eyewitness accounts report the sinking of the paddle wheeler St. Lucie, and of survivors clinging to mangroves in an effort to survive the storm surge.

5.3.2. Hurricane of 1926

The Hurricane of 1926 struck South Florida in the morning of September 18. High winds and storm surges of 3 - 4 m caused severe destruction to Miami and Miami Beach (Figures 18 - 21) (see Section 4.2). Recorded winds were 132 mph before the anemometer was blown away. The storm surge destroyed many buildings and carried large vessels into Bayfront Park. Damage in Florida was estimated at $100M (Gentry, 1974) and more than 100 lives were lost in Miami (Kleinberg, 1989). This hurricane severely reduced the rate of urban development in South Florida.

5.3.3. Hurricane of 1945

The Hurricane of 1945, a category 4 storm, passed directly over Homestead Air Force Base on September 15 (Figure 31). Maximum sustained winds of 177 Kph were recorded at Carysford Reef Light, a few miles west of the point of entry to the coast but on the weak side of

Table 2. Saffir/Simpson hurricane intensity scale (Morgan and Morgan, 1989).

Category	Central pressure		Wind speed		Storm surge		Damage
	(mb)	(in)	(mph)	(km/hr)	(ft)	(m)	
1	>980	>28.94	74-95	121-154	4-5	1-2	Minimal
2	965-979	28.50-28.91	96-110	155-178	6-8	2-3	Moderate
3	945-964	27.91-28.47	111-130	179-210	9-12	3-4	Extensive
4	920-944	27.17-27.88	131-155	211-250	13-18	4-6	Extreme
5	<920	<27.17	>155	>250	>18	>6	Catastrophic

Table 3. Tropical cyclones passing over or near Biscayne Bay from 1900 to 1999 (Neumann *et al.*, 1993; NOAA, 2000d; Unisys 2000).

Year	Category (when nearest to the Bay)		Storm name	Date
1901	TS		Storm 4	Aug. 4 - 18
1903	2		Storm 3	Sept. 9 - 16
1904	1		Storm 3	Oct. 12 - 21
1906	3		Storm 8	Oct. 11 - 22
1909	1		Storm 9	Oct. 6 - 13
1916	TD	(off shore)	Storm 5	Aug. 21- 25
1916	1		Storm 14	Nov. 11 - 14
1924	TS	(north of Bay)	Storm 7	Oct. 14 - 23
1926	4		Storm 6	Sept. 11 - 22
1926	2	(south of Bay)	Storm 10	Oct. 14 - 24
1929	3		Storm 2	Sept. 22 - Oct. 4
1932	TS	(Florida Bay/Florida Keys)	Storm 3	Aug. 26 - Sept. 4
1935	1		Storm 6	Oct. 30 - Nov. 8
1936	TS		Storm 1	June 12 - 17
1936	TS		Storm 5	July 27 - Aug. 1
1941	3		Storm 5	Oct. 3 - 14
1945	4		Storm 9	Sept. 12 - 20
1947	5	(north of Bay)	Storm 4	Sept. 4 - 21
1947	1	(Florida Bay/Florida Keys)	Storm 8	Oct. 9 - 16
1948	2		Storm 8	Oct. 3 - 16
1950	2	(north of Bay)	Storm 11 (King)	Oct. 13 - 19
1960	4	(Florida Bay/Florida Keys)	Storm 5 (Donna)	Aug. 29 - Sept. 14
1964	2	(Florida Bay/Florida Keys)	Storm 5 (Cleo)	Aug. 10 - Sept. 5
1965	3	(Florida Bay/Florida Keys)	Storm 3 (Betsy)	Aug. 27 - Sept. 13
1966	1	(Florida Bay/Florida Keys)	Storm 9 (Inez)	Sept. 21 - Oct. 11
1968	TD	(Florida Bay/Florida Keys)	Storm 4 (Dolly)	Aug. 10 - 17
1970	TD	(Florida Bay/Florida Keys)	Storm 7 (Felice)	Sept. 12 - 17
1972	TD		Storm 5 (Dawn)	Sept. 5 - 14
1987	1	(Florida Bay/Florida Keys)	Storm 7 (Floyd)	Oct. 9 - 14
1992	4		Storm 2 (Andrew)	Aug. 16 - 28
1999	TS	(north of Bay)	Storm 8 (Harvey)	Sept. 19-22
1999	TS	(Florida Bay/Florida Keys)	Storm 9 (Irene)	Oct. 13 - 19

TS - Tropical storm. : A tropical cyclone in which the maximum sustained surface wind speed from 39 mph (63 kph) to 73 mph (118 kph).
TD - Tropical depression: A tropical cyclone in which the maximum sustained surface wind speed 38 mph (62 kph) or less.

275 Kph. Richmond Naval Air Station, one of the largest lighter than air ship bases in the US, was destroyed by fire during the passage of this storm (Gentry, 1974) (see Section 6.4.2). Homestead Army Air Field suffered severe damage and was closed for several months (see Section 6.4.1).

5.3.4. Hurricanes Donna, Cleo and Betsy

Hurricane Donna reached South Florida in September 1960. The storm moved across the Florida Keys and Florida Bay on a northwesterly course. Winds of 80 mph were recorded in the northern part of Biscayne Bay, and of 100 mph in the southern portion. Storm surge on southern Biscayne Bay was 5 - 6 feet above mean sea level (Perkins and Enos, 1968). Hurricane damage to vegetation was generally most severe in the mangrove belt and on the Florida Keys. Hurricane Donna caused storm effects in an area where detailed data on prestorm sea floor conditions existed (Ball *et al.*, 1967). The amount of boulder-sized rubble formed by hurricane surf on platform-edged reefs far exceeded the amount produced by day-to-day processes, and death and deterioration. Donna was considered the most destructive hurricane ever to affect the US up to that time (Gentry, 1974).

Hurricane Betsy was a slow-moving storm that reached South Florida in September 1965 passing over the Florida Keys on a westerly course (Perkins and Enos, 1968). Sustained winds of between 120 and 140 mph were recorded. Winds from the north brought high tides of up to 10 feet above mean sea level to southern Biscayne Bay. The water spilled over the narrow bank into Florida Bay washing out two sections of US Highway 1.

The effects of hurricanes Donna (1960) and Betsy (1965) were compared (Perkins and Enos, 1968). These hurricanes were of comparable size and intensity but their effects differed. Both caused extensive damage to the outer reefs but Betsy acted essentially on fauna from which Donna had already removed the weaker elements.

Hurricane Cleo approached the South Florida coast from Cuba on August 26, 1964. As the center approached Miami, winds intensified to approximately 105 mph with gusts of approximately 135 mph resulting in a category 2 storm. The eye of the hurricane moved over Key Biscayne August 27 (Dunn *et al.*, 1965). The geometric center of the eye passed over Virginia Key and reached the west side of Biscayne Bay at about the 36th Street Causeway There was minimal damage to buildings in Dade County. Principal damages were uprooted trees, disrupted communications and power, sand blasting of buildings and automobiles, overturned parked aircraft and agricultural losses. Cleo was the first hurricane to strike South Florida since 1950.

5.3.5. Hurricane Andrew

Hurricane Andrew passed directly over Biscayne Bay August 24, 1992 and moved rapidly west. Andrew was a relatively dry hurricane, with strongest sustained winds of 144 mph (Rappaport and Sheets, 1993). The effects of this storm on Biscayne Bay and the northern Florida Keys have been well documented (Tilmant *et al.*, 1994). Its effect has been described as that of a 25-mile wide tornado. The major environmental impact occurred in South Bay. Homestead Air Force Base, which was sevely damaged by hurricanes in 1926 and 1945, was again nearly destroyed (see Section 6.4.1).

The most evident impact of Andrew on coastal ecosystems was uprooted and defoliated mangroves. Many of the small keys in the Bay and most of Cape Florida were denuded of vegetation or severely damaged. Hurricane Andrew flattened over 70,000 acres of mangrove forest on the east and west coasts of south Florida (Gelsanliter, 1993). This flattening was primarily caused by high winds The areas of severe mangrove destruction in Biscayne Bay were Soldier Key to Caesar's Creek, and south of Matheson Hammock. The catastrophic modification by Hurricane Andrew is a normal part of the geological dynamics of these mangrove wetlands. Mangrove environments contain well-preserved storm layers from previous storms. These storm layers are capped by a coarse charcoal layer which represents burning of the mangrove forest that had been flattened. Sediments were disturbed and organic material from coastal areas entered the Bay resulting in discolored waters and low oxygen conditions. Seagrasses did not appear to suffer much damage since Andrew was a fast moving storm. Since Andrew, vegetation of many keys and coastal areas has begun to recover to natural conditions. The effects of the storm on the ecosystem of Biscayne Bay continue to be studied.

5.4. Rainfall and temperature

The cycles of rainfall and temperature for South Florida can be found in NOAA (2000c). The Palmer Index was developed in the 1960s and uses temperature and rainfall information in a formula to determine dryness. The Palmer Index is most effective in determining long term drought and is standardized to local climate. The Palmer Index for South Florida is shown in Figure IV.1 (Appendix IV). From the 1940s to the present, correlations can be observed in drought conditions in South Florida and the presence of El Niño or La Niña in the Pacific. Data prior to the 1940s may not be as abundant or of the same quality as recent data.

5.5. Sea level change

Global sea level has been rising since the last glacial maximum approximately 18,000 yrs ago and this rise has not been at a uniform rate. Wanless *et al*. (1994b) has shown that the sea level rise for the past few thousand years has been about 0.04 cm/yr compared to that of the Holocene, approximately 0.25 cm/yr. Maul and Martin (1993) have determined the sea level rise at Key West using instrument records from 1846 - 1987. The linear sea level rise has been about 30 cm and there is a statistically weak but consistent indication that the rate of rise has increased slightly since the 1920s (Figure IV.2, Appendix IV). Should the sea level rise continue, changes to the coastal ecosystem are expected as more land is submerged. The changes include an increased level of coastal turbidity and nutrients; storm driven loss of coastal wetlands; storm driven modification and migration of coastal levees, mud and sand banks, and barrier islands; deepening of coastal bays; and breaching of low areas along the Keys to create new tidal passes.

5.6. Soil subsidence

A review of subsidence of organic soils in the Everglades can be found in Stephens (1984) and is abstracted in this section. The Everglades, adjacent to Biscayne Bay, contains the largest single tract of organic soils in the world, over 3,100 square miles. These soils, formed under marshy conditions, subsided when drained. Subsidence is caused by compaction due to: dessication, consolidation, and tillage; biochemical oxidation; wind erosion; and/or burning. Biochemical oxidation accounted for approximately two thirds of the total loss of arable soils in the region. Subsidence has had serious environmental effects on agriculture, water supplies and wildlife. The sequence of observed subsidence of organic soils at three sites in the Everglades is shown in Figure IV.2. The sites are the North River Canal, just below old South Bay Lock; the Bolles Canal, a major drain at Okeelanta; and the Everglades Experiment Station. Ground surface elevation has decreased by approximately 9 ft at all three sites. Soil losses have been greatest near the original drainage canals and "subsidence valleys" several miles wide were formed along both sides. Valley depths were greatest where drainage was best.

6. GEOGRAPHICAL FEATURES

6.1. Rivers, channels, cuts and canals

6.1.1. Rivers

6.1.1.1. Miami River

> "The mouth of the Miami River, which we were about entering, was before us, flanked by high banks, well-built houses (the best on the bay) were on either shore, in fact the river's brim was fringed with really handsome and stately rows of fruitful cocoa-palms, while back of them could be seen the dense and vivid foliage of sweet-orange trees, royal bananas, lemons, limes, guavas, and the graceful, unsurpassed crowns of delightful maumees.
>
> The Miami River, like all others on this coast, has a course of but a few miles, but is a full-grown stream at its source, bursting, as though propelled from a hydrant, out of the vast and accumulation reservoir of the Everglades, and forcing its widening way to the Bay. Indeed, at times, in the rainy season, so much fresh water is driven into this salt bay of thirty miles in length, from the various streams, that the entire body becomes freshened, and salt-water fish are obliged to leave for the time or die."
>
> J. Buck, 1877 (Buck, reprinted 1979)

The Miami river is the major river flowing into Biscayne Bay, flowing west to east through the center of the city of Miami (Austin, 1971). The River ranks fifth largest among Florida's international seaports, handling $1.7 billion of cargo, approximately 9% of Florida's port cargo value and 18% of total cargo from the Miami Custom District. Approximately 80% of all river cargo is containerized, and the rest is bulk (Beacon Council, 1991) The major exporting partners are Haiti, the Bahamas, the West Indies and Mexico. Industrial facilities along the Miami River include seafood processing and metal recycling. The navigable portion of the River is currently from the Miami International Airport through congested commercial and residential areas to Brickell Point, just south of downtown Miami.

The river varies in width from 150 to 250 ft, and navigable depths range from 15 ft at high water to 13 ft at low. The natural river extended only four miles west from Biscayne Bay into the Everglades (Gaby, 1990). It was fed by numerous fresh water springs. The major tributary of the natural Miami River was Wagner Creek which joined the river at about 8th Avenue. The rapids of the Miami River that were located near today's 27th Ave. were dynamited in 1908. In 1913, the river was dredged and the material removed was dumped on the current site of Cloughton Island (now named Brickell Key) (Figure 38). In 1918, John Seybold dug the Seybold Canal from the Miami River north along 7th Avenue and northwest to a turning basin, and widened Wagner Creek. During the 1930s, the Army Corps of Engineers widened the Miami River and Canal and deepened them to 15 feet.

By the 1930s, the river was receiving contamination from commercial activities and sewage from the Miami area. In 1934 the first targets of an environmental campaign were cheaply built barge housing called "shanties". These houseboats were removed in 1941.

The inflow of salt water into the River is the result of tidal action from Biscayne Bay and changes in the water table resulting from the construction of the drainage canal system. Salt water intrusion and fresh water discharges in the River and canal system are controlled through a series of dams.

Figure 38. Miami River, Port of Miami. and Brickell Key (Note Miami river sediment plume. Some of the old channels are still visible to the east of Brickell Key.) [Aerial photograph 5WG68412, 1992. Scale 1:15000, azimuth 189.7, 25.77778° N, 80.17917° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WG68412.gif>. Black areas are artifacts in original photograph. Figures 38 and newb through newe were reduced to the same scale. See Figure 2 for identification details.] *See color version on p. 121.*

The Miami river is currently a slow moving body of water, still contaminated by untreated sewage effluents and urban runoff. Acute coliform bacteria contamination events are characterized by coliform concentrations hundreds of thousands of times higher than water quality standards (Markley *et al.,* 1990). These episodes affect widespread areas of the River itself, its tributaries and adjacent portions of the Bay, and are the result of raw sewage discharge from emergency overflows and from manholes during flow conditions that exceed pump station capacity. Chronic contamination of the River is characterized by coliform levels tens of times higher than standards and is primarily caused by contamination of storm drains by raw sewage.

The sediments of the Miami River are contaminated. Arsenic, Cd Hg, Pb and Ag are above natural levels (Ryan *et al.*, 1985; Ryan and Cox, 1985). In general, contaminant concentrations at the two farthest upstream (at the salinity barrier) locations were lower than those downriver. Corcoran *et al.* (1984) found similar trends for organic contaminants. Results indicated that there is considerable input of pollutants from the river into adjacent areas of Biscayne Bay. Compared to other Florida navigation system studies, sediments from the Port of Miami and the Intracoastal Waterway were in general the most contaminated of all samples analyzed. Particle bound pollutants appeared to be accumulating in deep dredge holes.

6.1.1.2. Oleta River

The Oleta River State Recreation Area is the largest urban park in Florida, occupying almost 1000 acres (Florida Department of Environmental Protection, 2000b). The most prominent natural feature of the park is the Oleta River. Tequesta* sites dating as far back as 500 BC have been found along the river. When Spaniards first visited the area they encountered bear, deer, panthers, bobcats, wolves, alligators, manatees and numerous birds and small animals. In 1841, the river was named Big Snake Creek and was used by southern-moving Federal troops during the Second Seminole War. In 1881, Captain William Hawkins Fulford explored the river and settled further inland in the area known today as North Miami Beach. Once "discovered", other settlers ventured north from Miami and by the 1890s, pineapple and vegetable farms had sprung up along the river. An Indian trading post was established at what is now Greynolds Park. In 1922, Big Snake Creek was renamed the Oleta River. Waterbirds feed along the mangrove-lined shoreline and West Indian manatees find refuge in the area. The Phase I of the wetlands enhancement effort at the Oleta River State Recreation Area, completed in 1990, was funded by Miami-Dade with matching funds from the Dade County Seaport Dept. Phase II is ongoing. The mangrove enhancement effort in the area was also completed in 1990 and was funded by Miami-Dade with matching funds from the South Florida Water Management District. The restoration effort is described in Milano (1999).

6.1.1.3. Arch Creek

Arch Creek was an underground stream carrying water from the Everglades into Biscayne Bay that eventually became exposed (Kleinberg, 1989). It was well known for a natural bridge, which was part of the road from Fort Dallas (present day Miami) to Fort Lauderdale in the 1850s. It is an archeological site of Tequesta Native People. Chrysler Corporation bought the property in 1972 and planned to build an auto dealership on the site. The State of Florida bought the site from Chrysler in 1973. Within hours of the purchase, the natural bridge collapsed. The site is currently a state park.

* The Tequestas were part of the Calusa Nation that dominated the Florida peninsula between fifteen hundred and two thousand years ago (Blank, 1996).

6.1.2. Channels and cuts

6.1.2.1. Safety Valve

The Safety Valve is a complex carbonate tidal bar belt extending approximately 10 miles southward of Key Biscayne to Soldier Key (Figures 39 and 40). The belt is composed of about 10 east-west trending bars separated by tidal channels. Sediment thickness varies from 4-5 m in the north to 1 m in the southern end. Carbon dating indicates that the northern section began forming in the northern end about 3600 BP at about the time Biscayne Bay was reflooded by the rise in sea level (Plescia and Stipp, 1975). Stiltsville, a cluster of homes set on pilings, is located at the northern end of the Safety Valve.

6.1.2.2. Bear Cut

Bear Cut is a natural channel connecting the northern part of Biscayne Bay to the Atlantic Ocean (Figure 3). There is strong tidal flow through this channel. The University of Miami's Rosenstiel School of Marine and Atmospheric Science is located on the northern side of the Cut and some of the School's research vessels are docked on the Cut. The bridge across Bear Cut is the only connection between Key Biscayne and the mainland.

6.1.2.3. Norris Cut

Norris Cut was apparently formed by the passage of a hurricane prior to 1887, probably the storm of 1835 (Chardon, 1977) (Figure 6). Norris Cut is not open to large vessel traffic.

6.1.2.4. Government Cut

Government Cut is a man-made channel providing access to the Port of Miami from the ocean (Figure 10). Construction of Government Cut began in 1902 when the Port was still in the Miami River (Michel, 1976). Since then, a series of deepening and widening projects have taken place as the size of the vessels using port facilities increased. Material dredged during the construction of the Cut was used to create the MacArthur Causeway and Dodge and Lummus Islands, the current site of the Port of Miami.

6.1.2.5. Bakers Haulover Cut

Bakers Haulover Cut, built in 1924 - 1925, connects North Bay with the Atlantic Ocean (Figure 41) (Michel, 1976; Toner, 1979). Prior to opening of the Cut, North Bay was estuarine. Reasons for construction of the Cut included decrease in the residence time of water in North Bay thereby decreasing bacterial contamination and faster access to the Atlantic Ocean.

6.1.2.6. Caesar's Creek, Broad Creek, and Angelfish Creek

Caesar's Creek, Broad Creek, and Angelfish Creek provide tidal exchange for South Bay and Card Sound (Figures 42 and 43). These channels are shallow passages through the upper islands of the Florida Keys chain. Caesar's Creek was named after Black Caesar, an escaped African slave, who became a pirate and operated out of Elliott Key (Atkinson, 1970).

Figure 39. The Safety Valve. (The southern end of Key Biscayne is at the top. Soldier Key is at the bottom right.) [Aerial photograph 5WGS3280, Jan. 2, 1992. Scale 1:48000, azimuth 208.8, 25.62889° N, 80.17889° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGQ2991.gif>. Black area at the top of the image is an artifact in original photograph. See Figure 3 for identification details.] *See color version on p. 122.*

Figure 40. Ragged Keys, Sands Key and the northern end of Elliott Key. (The southern end of the Safety Valve is north of the Ragged Keys.) [Aerial photograph 5WGN2919, Jan. 17, 1992. Scale 1:48000, azimuth 11.3, 25.52917° N, 80.14528° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos /5WGN2919.gif>. See Figure 3 for identification details.] *See color version on p. 123.*

Figure 41. Bakers Haulover Cut. (The Oleta River is just off the image at the upper right. The Munisport Landfill site is almost directly east of Bakers Haulover Cut. Note sediment deltas on either side of the cut. Delta inside the Bay appears to have formed prior to dredging of the Intercoastal Waterway.) [Aerial photograph 5WPA1416, 1999. Scale 1:40000, azimuth 31.1, 25.88965° N, 80.16151° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http:// mfproducts.nos.noaa.gov/images/Photos/5WPA1416.gif>. See Figure 2 for identification details.] *See color version on p. 124.*

Figure 42. Elliott Key, Caesar's Creek and Old Rhodes Key. (Biscayne Bay and Card Sound are to the right of the image.) [Aerial photograph 5WGN2887, 1992. Scale 1:48000, azimuth 209.2, 25.37861° N, 80.23139° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGN2887.gif>. See Figure 2 for identification details.] *See color version on p. 125.*

Figure 43. Broad Creek and Angelfish Creek. (Biscayne Bay and Card Sound are to the right of the image.) [Aerial photograph 5WGN2889, 1992. Scale 1:48000, azimuth 209.2, 25.34333° N, 80.25306° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGN2889.gif>. See Figure 2 for identification details.] *See color version on p. 126.*

6.1.3. Canals and the Biscayne Aquifer

The canal drainage system of South Florida is managed by the South Florida Water Management District and the US Army Corps of Engineers (Figure 44). Construction of canals to drain land for urban and agricultural uses began during the 1900s. The canal system encompasses most of South Florida. No chronological record of construction of the canal system could be found as of this writing.

The Biscayne Aquifer is a highly permeable unconfined aquifer more than 200 feet thick in north Broward County, that thins to an edge 40 miles inland in the Everglades (Klein and Hull, 1978) (Figure 40). The aquifer is composed of limestone, sandstone and sand. Generally the sand proportion increases as the aquifer thickens to the north and east. The Biscayne Aquifer is primarily independent of the Everglades and recharges by local rainfall. Discharge is by evaporation, canal drainage, coastal seepage and pumping. Prior to 1900, discharge into Biscayne Bay occurred through well-known solution holes in the Miami oolite and this flow produced numerous freshwater springs (Figure 8) (see Section 4.1). Since then, anthropogenic changes to the natural flow reduced or eliminated spring flow. Recent changes to the drainage canal system may have reversed this effect.

Saltwater intrusion along the southeastern boundary of the Biscayne Aquifer has been documented since 1904, shortly after the construction of drainage canals began in the area (Halley *et al.*, 1998; and others) (Figure 32). Since the 1940s, the salt intrusion has been regionally arrested although localized problems exist (Halley *et al.*, 1998). Willard *et al.* (1999) investigated hydrologic changes over the past century using floral and faunal assemblages in sediment cores as proxies for vegetation and environmental parameters and found indications that the major, system-wide biotic changes occurred by 1940. This date coincides with the construction of the major canals in the area. Several authors have suggested that the increased salinity in Florida Bay, the salt water intrusion into the Biscayne Aquifer and the reduction of the offshore freshwater springs are the result of the drainage canals. The greater head potential of the Biscayne Aquifer acted as a salinity barrier (Reich, 1998).

Contaminants can enter the aquifer by direct infiltration from land surface or controlled canals, septic tanks and other drainfields, drainage wells, and solid waste dumps. Most of the contamination is concentrated in the upper 20 to 30 feet of the aquifer.

6.1.3.1. Mowry Canal

The Mowry Canal (C-103) is located approximately 25 mi south of Miami and plays an important role in flood protection and the salt water intrusion control network. It is one of the major canals draining into Biscayne Bay.

6.1.3.2. Military Canal

Military Canal connects Homestead Air Reserve Base (ARB) to Biscayne Bay providing a conduit for storm water drainage (US Air Force, 1998). A series of small canals and ditches in the base drain into Boundary Canal and flow into a reservoir that discharges into Military Canal via natural flow or pumping. Military Canal and Boundary Canal were constructed before 1942 and modified in 1942. Military Canal is managed by the South Florida Water Management District.

EPA conducted sediment analysis, toxicity tests and ecological risk assessments of Military Canal and found no significant contamination or ecological risk (US Air Force, 1998). EPA and the US Air Force have drafted plans to clean up the canal (Zaneski, 1999). Yet, polycyclic aromatic hydrocarbons (PAHs) in the sediment of the Canal may be the result of illicit dumping

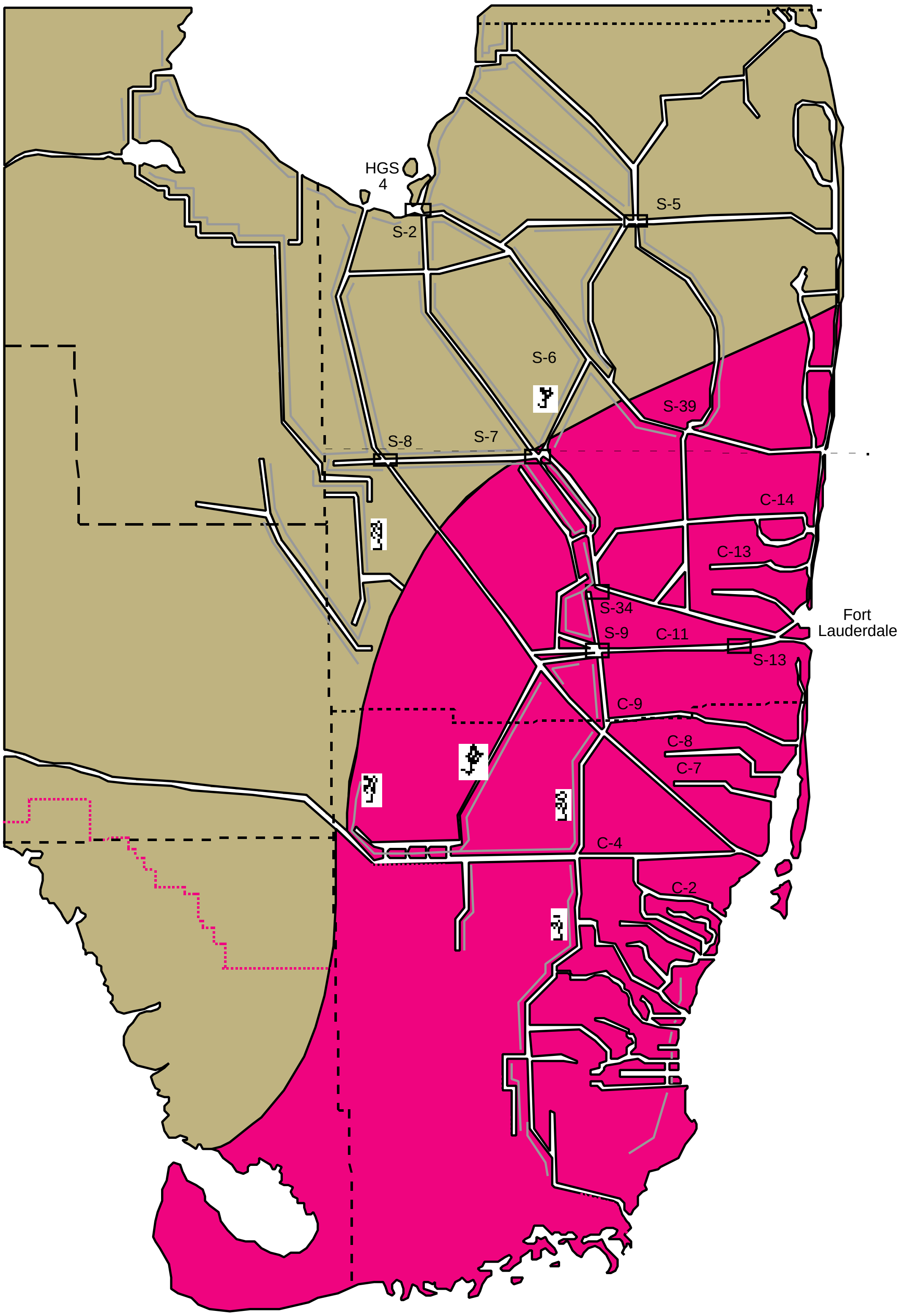

Figure 44. Hydrologic structures and hydrologic features of the South Florida Water Management District. [Redrawn from Klein and Hull (1978).]

activities of organic debris, an old boat, and asphalt shingles. Pesticides and petroleum products were commonly mixed before application to open water bodies to control human disease vectors such as mosquitoes and may be the source for the pesticides detected in the sediment of the Canal. The anomalous trace metal concentrations in the sediment can be linked to recreational fishing (lead sinkers), illicit solid waste dumping and car disposals.

6.1.3.3. Miami Canal

The Miami Canal is a part of the canal system of South Florida. The Miami Canal ran from Lake Okeechobee in the north, through the Everglades, to the Miami river between 1916 and 1923. At that time, there was shallow draft boat traffic through the canal. After a flood in 1923, a dam was constructed across the canal east of the South New River Canal thus ending water traffic.

6.2. Islands

6.2.1. Miami Beach

Miami Beach was a barrier island between Biscayne Bay and the Atlantic Ocean. There were natural channels between the Atlantic and Biscayne Bay across Miami Beach. These channels were probably opened and closed as the result of tropical storms. In 1904, Government Cut was built to provide fast access to the Port of Miami (see Section 6.1.2.4). Government Cut separated the southern end of the barrier islands from the rest thus creating Fisher Island (see Section 6.2.5). During the 1920s, development of the barrier islands began and as a result the mangrove forests covering the islands were removed beginning in 1913 (Figure 9). The Collins Canal through part of Miami Beach was built in 1912. In 1924, a channel was cut across a narrow section of the barrier island to provide access between the Atlantic and North Bay thus avoiding the trip south to exit the Bay via Government Cut. This channel is Bakers Haulover Cut (see Section 6.1.2.5). Miami Beach is now completely urban and very few areas of vegetation remain.

6.2.2. Key Biscayne

Key Biscayne is the largest natural island in Biscayne Bay. It is the southern-most of the sand keys, and for a greater part of its length a sand bar lies off shore about 1500 ft. This sand bar affects the beach by reducing the heavy surf and undertow. During the 1940s, seagrasses took root along various sections of Crandon Park beach and it was decided to dredge the fine silt of the seagrass beds and replace it with clean sand.

There have been settlements in Key Biscayne since the 1700s and evidence of occupation of the island by Native Peoples before that. An account of the history of Key Biscayne from the Spanish Conquista to the date of publication can be found in Blank (1996).

The Bill Baggs Cape Florida Recreation Area is located at the southern portion of Key Biscayne (see Section 6.3.2). Crandon Park is located on the Atlantic coast of Key Biscayne (see Section 6.3.2).

Hurricane Andrew destroyed the forest of Australian pines (*Causarina*) that covered Cape Florida and the northeast end of the island. These areas have been revegetated with native plants (Figures 45 and 46). The restoration effort in the Cape Florida area is described in Section 6.3.2. The Bear Cut Preserve Wetlands Restoration, completed in 1996, was funded by

Figure 45. Virginia Key and Key Biscayne prior to Hurricane Andrew. (Note extensive Australian pine cover at the southern end of Key Biscayne.) [Aerial photograph 5WGQ2991, Jan. 17, 1992. Scale 1:48000, azimuth 191.1, 25.70722° N, 80.15889° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGQ2991.gif>. Black area at the bottom of the image is an artifact in original photograph. See Figure 3 for identification details.] *See color version on p. 127.*

Figure 46. Key Biscayne after Hurricane Andrew. (Note difference in plant cover at the southern end of Key Biscayne. Restoration sites are the light colored areas on the Atlantic site just south of Bear Cut and the area to the south on the Bay side.) [Aerial photograph 5WPA1342, 1999. Scale 1:40000, azimuth 187.6, 25.70489° N, 80.16356° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WPA1342.gif>. See Figure 3 for identification details.] *See color version on p. 128.*

Miami-Dade County with matching funds from Miami-Dade Water and Sewer and the Biscayne Bay Environmental Enhancement Trust Fund. The effort is described in Milano (1999 and 2000).

6.2.2.1. Fossil mangrove forest

Along the southern shore and northeastern shore of Key Biscayne there is a small rock reef approximately 400 yds long and extending out for 115 yds seaward (Hoffmeister and Multer, 1965) (Figure 45). This reef is composed of a framework of fossilized black mangrove (*Avicennia nitida*) roots. The mangrove swamp probably extended seaward beyond the present edge of the reef and landward over at least the northern part of what is now Key Biscayne. The reef is barely awash at high tide and it is exposed at low tide. The roots turned into calcareous rods and are embedded in a friable calcareous-quartzitic sand which can be washed away by wave action thus exposing the lattice work of the root systems. Part of the reef has been hardened and protected by coatings of barnacles. Marine algae also cover part of the reef but it is not as effective as the barnacle coating in protecting the area from erosion. Radiocarbon dating indicates the age of the rods to be between 1000 and 2000 yrs old. This is believed to be the first reported occurrence of fossilization of mangrove roots.

6.2.2.2. Biscayne Nature Center

The site of the new Biscayne Nature Center is in the northeast corner of Crandon Park. The Center is sponsored by Dade County Public Schools, the Marjorie Stoneman Douglas Biscayne Nature Center organization (a private non-profit organization), and the Miami-Dade County Parks and Recreation Department. Part of the project's program includes replanting native plants to repair the extensive damage suffered from Hurricane Andrew. The sand dunes nearby are an evolving natural community which will become a living interpretive display. The Center will also act as a park visitor center and as a gateway to the Bear Cut Preserve to the north, currently under restoration.

6.2.3. Virginia Key

Virginia Key, one of the three natural islands in North Bay, was created in the 19th Century when a hurricane formed the channel now known as Norris Cut (Figures 4 and 5). Until then, Virginia Key was the southern tip of the barrier islands that is now Miami Beach. Virginia Key is separated from Key Biscayne by Bear Cut, another of the natural channels of Biscayne Bay.

In 1945, Virginia Beach, on the Bear Cut side of Virginia Key, was designated as the county's only beach for African Americans (Bragg, 1999). It was accessible only by ferry until 1947 when the Rickenbacker Causeway was built. A hurricane in the mid 1960s destroyed many of the buildings. Virginia Beach is not open to the public at this time.

Facilities on the island are Virginia Key Sewage Treatment Plant (see Section 6.3.2.1), the Miami Seaquarium, the Miami Marine Stadium (severely damaged by Hurricane Andrew and currently unusable), the NOAA Atlantic Oceanographic and Meteorological Laboratory, the NOAA National Marine Fisheries Southeast Fisheries Science Center, and the University of Miami Rosenstiel School of Marine and Atmospheric Science (RSMAS) and the Maritime and Science Technology High School.

RSMAS maintains private docking facilities for research vessels on Bear Cut south of Rickenbacker Causeway The Seaquarium Flats are located south of the Rickenbacker Causeway and across from the Miami Marine Stadium. This area has been the subject of several research projects by RSMAS faculty and students.

There have been numerous plans to use the land between the treatment plant and Virginia Beach (City of Miami, 1987). None have been put into effect. The area is used as training facilities for law enforcement agencies and a common location for movie making.

The Virginia Key Dune/Wetland Restoration project is ongoing and is funded by Miami-Dade with matching funds from City of Miami, Biscayne Bay Environmental Enhancement Trust Fund, and the Florida Dept. of Environmental Protection. The effort is described in Milano (1999).

6.2.4. Port of Miami

At the turn of the century, port activities in the Miami area were centered in the Miami River. Henry Flagler funded construction of the Port and began collecting dockage fees in 1896 (Miami-Dade County, 2000). A shallow channel was dredged between Cape Florida and the river to provide access to larger vessels. In 1915, Government Cut was constructed through Miami Beach, providing port access to larger vessels and creating Fisher Island and spoils banks on the side of the cut. In 1918, the County Cswy, later known as MacArthur Causeway, linking Miami and Miami Beach, was built parallel to Government Cut.

During the 1920s, the Port of Miami became the primary hub for all shipping to South Florida. Passenger service to Baltimore and New York began at this time (Miami-Dade County, 2000).

Burlingame Island was built with dredge material from deepening of the Miami River port site in 1923. In 1925 the western edge of the Bay was dredged to provide fill for Bayfront Park, the area on the east side of the City of Miami (Figure 47). In this same year, Government Cut was deepened and broadened. Port facilities moved to a site north of Bayfront Park. The Port remained at that location until the construction of the Dodge Island Seaport in the 1960s. Shipping activities declined after the Land Boom, Stock Market Crash and Hurricane of 1926. Cruise service to Havana began during the 1930s (Miami-Dade County, 2000). During World War II, the US Navy assumed control of the Port (see Section 4.4 for wartime activities in Biscayne Bay). In 1956, the Port selected Dodge Island for future expansion. The City of Miami transferred port administration to Dade County in 1960 and work began on the Dodge Island Seaport in 1962. Port operations at the new site began in 1963. By 1968, a cruise port record was set with four maiden voyages in one month (Miami-Dade County, 2000). The Port of Miami was the first in history to record more than one million passengers in a year. Oceanographic research vessels of NOAA and the University of Miami Rosenstiel Institute of Marine Sciences used the Port of Miami as home. The Seaport was expanded in the 1980s by joining Dodge and Lummus Islands (Miami-Dade County, 2000). Passenger and cargo records continued to be set. In 1991, a record 3.9 million tons of cargo were handled in one year. One of the last modifications to the Port was the infilling of small ship basins on the perimeter of Dodge-Lummus Islands (Figure 48).

The area around the Biscayne Blvd. port facilities was one of the most heavily polluted with coliform bacteria in the Bay (Voss, 1972). McNulty repeated the pollution study of the area after pollution abatement measures began in the late 1950s. Little change was noted in the port facility area. Organic matter was present in large amount and benthic animals were few. High turbidity, water depth, lack of mixing and flushing, and input from the Miami River were also reported (Voss, 1972). The aesthetic quality of the Biscayne Blvd. port facilities was poor.

The various stages of Port construction since the turn of the century increasingly constricted water flow in the Bay, and dredging operations resulted in a severely impacted bottom ecosystem (Voss, 1972).

Figure 47. Aerial view of the Port of Miami off Biscayne Blvd. (1928). (The city of Miami is at the center of the image. The Miami River entrance is beyond the city and to the left of the image. The spoil island that became Cloughton Island is just beyond the river entrance. [Photo negative, black and white, 8 x 10 in. PR06894. Print Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

6.2.5. Fisher Island

Fisher Island, once the southern-most part of Miami Beach before it was severed by the construction of Government Cut in 1905, covered 33 acres before it was expanded with sediment from the Cut (Figures 10 and 36). Its first name was Rat Island and then Peninsula Island. The present form of the island is the result of bulkheading and filling during the 1920s. It is now 200-plus acres. The geological history of the island can be found in Hannan *et al.* (1972). Fisher Island is currently the site of high-end residential housing.

6.2.6. Venetian Islands and Pelican Island

The Venetian Islands are man-made islands with a characteristic elongated oval shape located between the mainland and Miami Beach (Figures 16, 29 and 36). Real estate on the Venetian Islands sold quickly and plans to build an additional series of islands north of Di Lido Island were proposed. Isola Dilolando was supposed to be part of the northward extension of the Venetian Islands. Today it is known as Pelican Island, located between the Julia Tuttle Causeway and the Venetian Causeway It is not a true island but a network of pillings outlining a rectangular area of the Bay bottom about 3 feet deep. In 1944, the City of Miami Beach purchased the land inside the pillings (Kleinberg, 1989). Although several plans were considered for the site, no further development took place.

Figure 48. Belle Isle, the Venetian Islands, Watson Island, and the Port of Miami. [Miami Beach is at the top left of the image, and Fisher Island is at the top right. Note that the rectangular ship berthing basins have been filled in (see Figure 38).] [Aerial photograph 5WPB1537, 1999. Scale 1:20000, azimuth 290.2, 25.78139° N, 80.15513° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WPB1537.gif>. Black areas are artifacts in original photograph. See Figure 2 for identification details.] *See color version on p. 129.*

Figure 49. Aerial view of Belle Isle (193-). (Miami Beach is to the left of the image.) [Photonegative, black and white, 8 x 10 in. PR09460. Print Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Figure 50. Aerial view of Belle Isle and the Venetian Causeway (196-). (Miami Beach is to the left of the image.) [Photonegative, black and white, 8 x 10 in. PR07001. Print Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

6.2.7. Watson Island

Watson Island is located at the western end of the MacArthur Causeway and was constructed during dredging operations (Figure 36). The island has been the site of Chalks Airlines, the Goodyear blimp facilities, a helicopter charter service, and the Japanese garden. Voss (1973) found that the area from the mouth of the Miami River north to the west end of the MacArthur Causeway was contaminated and was expected to remain so until major changes were made in the Miami River. The waters of the area were turbid, reducing illumination and limiting the growth of marine plants. Bottom sediments were very fine grained. There were indications of eutrophication. Surveys in 1954-57 and 1959 showed the area to be almost totally devoid of attached benthic life. Fishing in the area is minimal. The waters of the ship basins are traps for the collection and sinking of debris and garbage.

6.2.8. Belle Isle

Belle Isle, one of the three natural islands in North Bay, is the eastern most of the Venetian Islands and was so named by Carl Fisher. Belle Isle was originally known as Bull's Island. It was a tidal flat, mucky at low tide, when John Collins built the bridge to it in 1912 as part of the causeway connecting Miami to Miami Beach. The bridge was eventually rebuilt as the Venetian Causeway and the tidal flat was filled forming an island. During the 1920s, Fisher extended it to 32 acres and sold lots to millionaires. The shape of the island has changed little since the 1930s (Figures 49 and 50).

6.2.9. Fair Isle

Fair Isle is a man-made island south of the Mercy Hospital grounds. The major and initial dredge and fill damage occurred in 1924 when seagrass beds were covered by the spoil bank (Voss, 1974). Possible damage may have occurred in the area due to dredge and fill since the 1970s.

6.2.10. Elliott Key

Elliott Key is the northernmost of the Florida Keys. Pioneering families settled on Elliott Key by the beginning of the 20th century (Niemiec, 1996; Niedhauk, 1969 and 1973) (Figures 40 and

42). Charles Brookfield built the Ledbury Lodge on Elliott Key in 1936 using primarily driftwood and cypress washed up on the island. Many notable people stayed at the Lodge (Shroeder, 1986). After World War II, it became derelict.

During the 1960s, Elliott Key became the focus of developers and conservationists since the proposed Islandia development centered on the northern part of the Key. Islandia was conceived as the "last sparkling jewel of the ocean", a city in the style of Miami Beach. Extensive development of Elliott Key and the smaller keys in the area and a causeway connecting Cape Florida with Elliott Key were planned. As a first step, Islandia was incorporated as a city in 1960 (Shroder, 1986). In opposition to the development, the US Department of the Interior recommended Federal purchase of the island and the Bay bottom in 1967 for preservation as a natural area. The Mayor of Islandia vowed to continue development and proceeded to build Elliott Key Blvd. which would eventually connect with the planned causeway between Key Biscayne and Elliott Key. In 1968 bulldozers cut through the vegetation and construction began. Opposition to Islandia increased and discussions became heated.[Δ] Islandia was declared a "National Monument", a designation just short of that of National Park. In 1980, Biscayne National Monument was expanded from 104,700 to 175,000 acres and designated a National Park. The City of Islandia still exists but development never occurred.

The eye of Hurricane Andrew passed very close to Elliott Key. The effects of the storm are discussed in Section 5.3.5.

6.2.11. Chicken Key

Chicken Key is one of the six natural islands in the Central Bay. Legend has it that it was thus named because sailors trying to escape pirates and too "chicken" to confront their foes would hide in this small island (Rabin, 1996). Most of the island's vegetation was destroyed in the 1940s when the government dredged a channel just north of the island so military barges would reach Chapman Field. More than 30,000 cubic yards of fill were pumped onto the Key, and this material eventually eroded and reached the Bay. Australian pines and Brazilian pepper trees invaded the key displacing native vegetation. Hurricane Andrew destroyed the vegetation of the Key and provided an opportunity to restore the Key. Chicken Key will be managed by the Deering Estate for the Metro Parks and Recreation Department. The Chicken Key Bird Rookery Restoration effort, completed in 1997, was funded by Miami-Dade with matching funds from the Florida Dept. of Environmental Protection, the South Florida Water Management District and the Biscayne Bay Environmental Enhancement Trust Fund. The effort is described in Milano (1999).

6.2.12. Ragged Keys

The Ragged Keys are five small islands located north of Elliott Key (Figure 40). These keys are the northern-most end of the Florida Keys. During the 1950s, it was proposed that the Ragged Keys be consolidated as part of a bulkhead and fill project (Tabb, 1958). The project was not put into effect. The Ragged Keys were also part of the planned Islandia development (see Section 6.2.9).

6.2.13. Soldier Key

Soldier Key is a very small island located in the Safety Valve (Figure 39). The key was so named because, according to legend, a soldier was stranded there. Soldier Key was devastated by Hurricane Andrew. All vegetation and the caretakers house were razed from the key. The

[Δ] A newspaper account described the result of one of the public meetings: "The wife of an Islandia property owner ended a discussion with a conservationist by clobbering the bird watcher on the head with her purse" (Shroeder, 1986).

National Park Service bought the key in 1993 after plans to develop the property into a resort fell through (Dewar, 1993). Restoration of the key is underway.

6.2.14. Spoil islands

The spoil islands created during the construction of the Intercoastal Waterway have been or are currently undergoing restoration. These islands in North Bay are: Flagler Memorial Island, Teachers Island, Morningside Island*, Mangrove Islands (two islands), Legion Island, Pelican Island, Quayside Island, Helkers Island, Crescent Islands (two islands), Little Sandspur Island, and Sandspur Island (Figures 51 - 54) (Milano, 2000). These islands were used by the environmental artist Christo Javacheff for his <u>Surrounded Islands: project for Biscayne Bay, Greater Miami, Florida, 1980-1983</u> (see Section 9.2).

6.3. Parks and reserves

6.3.1. Biscayne National Park

Biscayne National Monument was established in 1968 (Markley and Milano, 1985; Flik, 1993). Park boundaries expanded in 1974 and 1980, changing its name to Biscayne National Park. The Park encompasses most of southern Biscayne Bay and extends seaward to the 10 fathom line, encompassing 49 acres of keys and 20 miles of reef (Voss *et al.,* 1969). The largest keys are Elliott Key, Old Rhodes Key, Sands Key, Totten Key, Long Arsenicker Key, Swan Key and Adams Key. Biscayne National Park has 47 documented resource sites. The Park is unique in that it is 95% water.

6.3.2. Bill Baggs Cape Florida Recreation Area

The Bill Baggs Cape Florida State Recreation Area is located on the southern part of Key Biscayne and was named after the late Miami newspaper editor who championed this area for a state park.

Ponce de Leon visited the Biscayne Bay area in 1513 and named the southern end of Key Biscayne "Cape of Florida" (Hurley, 1989; Florida Department of Environmental Protection, 2000c). When Florida became a U.S. Territory in 1821 the national network of lighthouses was extended and in 1825 the Cape Florida Lighthouse was built. The lighthouse is still there and is the oldest building in south Florida. In 1836 during the Second Seminole War the lighthouse was attacked and damaged by fire. It was restored in 1846 and placed back in service in 1847. In 1861, Confederate sympathizers removed the lamps and burners and smashed the crucial center prism so it could not be used by the Union sailors. The lighthouse was repaired and re-lit again in 1866. When the Fowey Rocks Light was placed into service in 1878, the lens and illuminating apparatus atop the Cape Florida lighthouse were removed and shipped to Staten Island, NY. A century passed and in 1978, the light was reinstalled by the U. S. Coast Guard to again serve as a navigational aid.

Hurricane Andrew destroyed the Australian pines that once covered the area thus providing an opportunity to restore the natural plant communities and systems historically associated with the island (Figures 45 and 46)) (Colon, 1998; Florida Department of Environmental Protection, 2000c). Seventy five acres of mangroves, beach dunes, the maritime hammock and the freshwater wetland are also being restored. The Bill Baggs Cape Florida State Recreation Area

* Morningside Key, previously known as Spoil Island No. 2, was cleaned and converted into a recreation area during Baynanza 1997 (Tomb, 1997).

Figure 51. North Bay, Harbor and Treasure Islands. [Note spoil islands and Intercoastal Waterway.] [Aerial photograph 5WJ68404, 1992. Scale 1:15000, azimuth 189.7, 25.87195° N, 80.16028° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/ 5WJ68404.gif>. Black areas are artifacts in original photograph. Figures 38 and newb through newe were reduced to the same scale. See Figure 2 for identification details.] *See color version on p. 130.*

Figure 52. Bird, Legion, Mangrove and Morningside Keys. [North Bay, Harbor and Treasure Islands are at the top of the image. Note channels cutting across seagrass bed.] [Aerial photograph 5WJ68406, 1992. Scale 1:15000, azimuth 189.7, 25.84833° N, 80.165° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WJ68406.gif>. Black areas are artifacts in original photograph. Figures 38 and newb through newe were reduced to the same scale. See Figure 2 for identification details.] *See color version on p. 131.*

Figure 53. Morningside Key and 36th Street Causeway [Teachers Key is at the bottom of the image.] [Aerial photograph 5WJ68408, 1992. Scale 1:15000, azimuth 189.5, 25.825° N, 80.16672° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WJ68408.gif>. Black areas are artifacts in original photograph. Figures 38 and newb through newe were reduced to the same scale. See Figure 2 for identification details.] *See color version on p. 132.*

Figure 54. Teachers, Biscayne, San Marco, and Watson Islands, and Port of Miami. [Oblong shapes on the north side of the Port are cruise ships.] [Aerial photograph 5WJ68410, 1992. Scale 1:15000, azimuth 189.7, 25.80139° N, 80.17445° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/ mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts. nos.noaa.gov/images/Photos/5WJ68410.gif>. Black areas are artifacts in original photograph. Figures 38 and newb through newe were reduced to the same scale. See Figure 2 for identification details.] *See color version on p. 133.*

Wetlands Restoration, completed in 1999 was funded by Miami-Dade County with matching funds from the Florida Inland Navigation District, South Florida Water Management District, Miami-Dade Water and Sewer, Biscayne Bay Environmental Enhancement Trust Fund, US Department of Agriculture/Forest Service and the Village of Key Biscayne. The effort is described in Milano (1999).

6.3.3. Crandon Park

Crandon Park opened in 1948 and is located along the northeastern shore of Key Biscayne, between the fossil mangrove forest and the Bill Baggs Cape Florida Recreation Area. Crandon Park was the last public beach development in the Metropolitan Dade County area. Bonds for initial development were sold in 1940 but active construction did not take place until the end of World War II. Rickenbacker Causeway connecting the mainland to Virginia Key and Key Biscayne was started early in 1942. Construction was delayed due to the war. The causeway was opened in 1949 providing access to the Park.

In 1948, a one-truck traveling menagerie in financial difficulties consisting of a couple of bears, some monkeys, ocelots and a goat became the nucleus of the Crandon Park Zoo, the predecessor of the current Metrozoo. The animals were housed in Key Biscayne until they were moved to the mainland facility in 1978.

6.3.4. Matheson Hammock Park

Matheson Hammock Park[*] , the oldest in Miami-Dade County, is a man-made Atoll Pool which is flushed naturally with the tidal action of Biscayne Bay (Figure 55). The Park was named after Commodore W. J. Matheson, a New York chemical and dye manufacturer, who arrived in Dade County in 1902. Upon his death in 1930, 100 acres of mangrove and hammock were willed to Dade County and became the basis of the Park, built during the 1930s by the Civilian Conservation Corps. The Atoll Pool is fed from Biscayne Bay through four aluminum-grated gates and aerated to reduce bacterial levels.

6.3.5. Deering Estate and Vizcaya

The Deering Estate is located on the shore of Biscayne Bay and some of South Florida's earliest buildings, dating to 1896, are found in the site (Miami-Dade County, 2000) (Figure 55). Fossil bones have been found in the area dating as far back as 50,000 years. Tequesta Indians lived on the site from about 2000 years ago to the late 1700s. In 1838, the US awarded a provisional land grant, the Perrine Grant, to Dr. Henry Perrine for the propagation of commercially valuable tropical plants, in what is currently the Deering Estate. Perrine was killed during the Second Seminole War and never settled in the area. After the Second and Third Seminole Wars, several settlers established home sites in the area. By the 1890s, the area became known as "Cutler". In 1900, the Richmond family added a structure to their 1896 house and opened the "Richmond Cottage," the first hotel between Coconut Grove and Key West. The Richmond family home and the Richmond Cottage are two of the most significant historic buildings on the Estate. Industrialist Charles Deering bought the Richmond property in 1913 and remodeled it into his private winter residence. His brother, James Deering, built Vizcaya in 1916, an Italian Renaissance-style villa and formal gardens as a winter residence (Figure 56).[*]

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[*] Information from upublished material provided by Matheson Hammock Park (2000).
[*] Vizcaya is just south of the present day Rickenbacker Cswy.

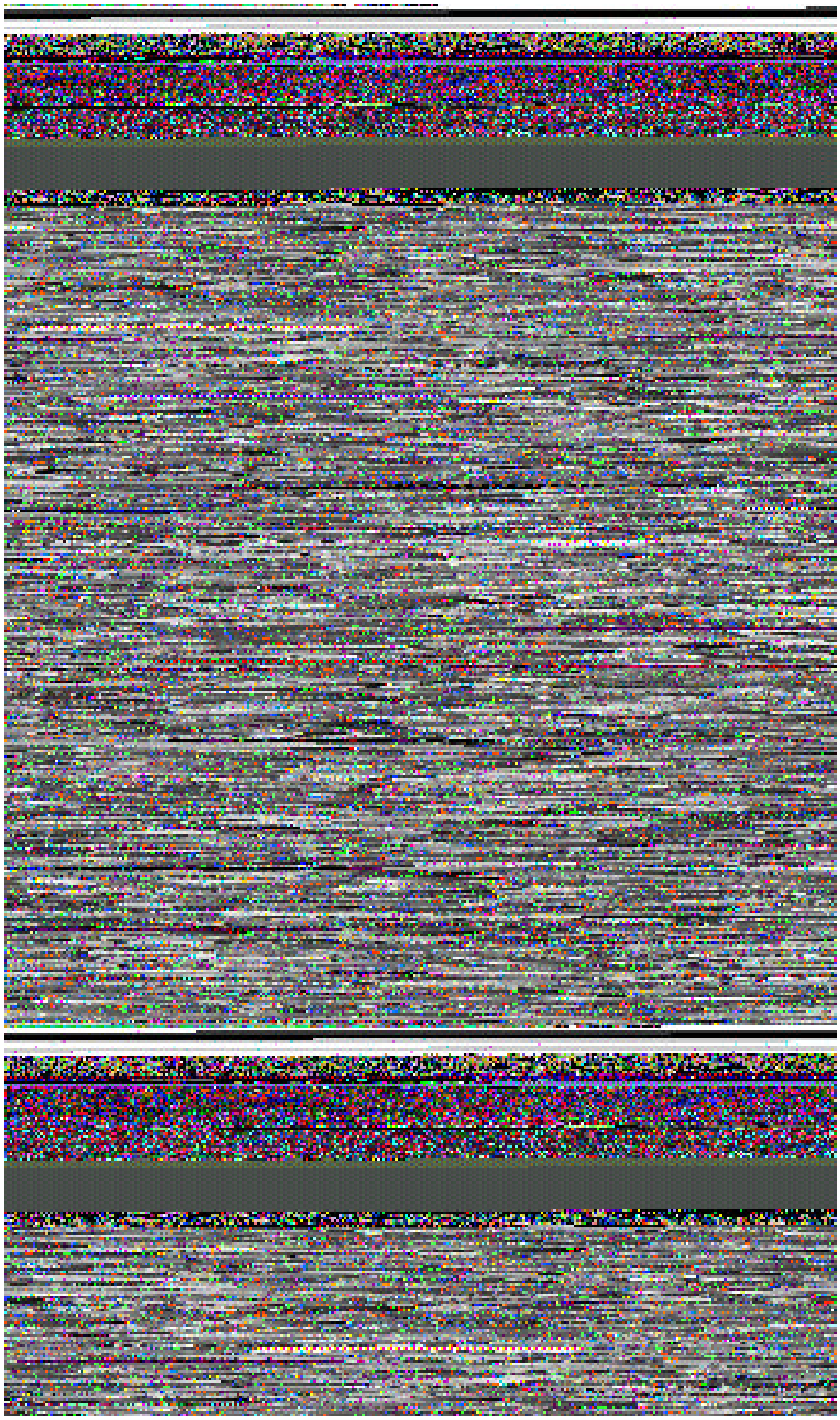

Figure 55. Matheson Hammock, ITT Hammock, the Deering Estate and Chicken Key. [The Matheson Hammock Atoll Pool is the circular feature at the top left of the image. The Snapper Creek Canal (C-2) passes through the ITT Hammock. The Deering Estate is to the right (west) of Chicken Key at the bottom left of the image.] [Aerial photograph 5WGQ2977, 1992. Scale 1:48000, azimuth 11.2, 25.65028° N, 80.29361° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGQ2977.gif>. See Figure 2 for identification details.] *See color version on p. 134.*

Figure 56. Vizcaya and Mercy Hospital. [Vizcaya is near the top center of the image. The old access channel leading to the stone "boat" (the small oval-shaped island) built on the water at the back of the house can be seen. The Mercy Hospital complex is south of Vizcaya. The Rickenbacker Causeway is at the top left of the image.] [Aerial photograph 5WJ68378, 1992. Scale 1:15000, azimuth 9.5, 25.73583° N, 80.21333° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WJ68378.gif>. See Figure 2 for identification details.] *See color version on p. 135.*

Construction of the Estate's keyhole-shaped Boat Basin began in 1916 and was completed in 1918. The Boat Basin was built directly on an axis with the Richmond Cottage, as a focal point for the arrival of his yacht, the "Barbee," schooners bringing construction materials, and other vessels. Deering descendants inhabited the property until 1980. The Estate was purchased by the State of Florida and Miami-Dade County in 1985. The Estate is managed by the Miami-Dade Park & Recreation Department, in partnership with the Deering Estate Foundation.

The Estate contains over 115 acres of coastal tropical hardwood hammocks and 150 acres of globally endangered pine rockland forests. A variety of wildlife such as grey foxes, spotted skunks, squirrels, bobcats and birds inhabit the area. Mangroves, salt marshes and the offshore island of Chicken Key occupy 130 acres of the Estate and are accessible by canoe.

The Deering Estate was seriously damaged by Hurricane Andrew in 1992 and restoration efforts are in progress.

6.3. Municipal facilities

6.3.1. Power plants

6.3.1.1. Turkey Point Nuclear Power Plant

The Florida Power and Light Turkey Point Nuclear Power Plant is located in Homestead and covers 22,295 acres (Ho, 1998). The facility is a combination of two fossil fuel and two nuclear units, and it is linked to the statewide electrical power transmission system. The fossil fuel units began operation in 1967 and 1968, and the nuclear units in 1972 and 1973. The fossil fuel storage units hold 554,000 barrels of low sulfur oil. The fossil fuel units consume 20,000 barrels of oil and 4,000 barrels of natural gas daily. Approximately 300 tons of uranium are required to produce a year's supply of fuel for both nuclear units.

The effect of thermal pollution on the fauna and flora of southern Biscayne Bay and Card Sound were extensively studied during the 1970s before and after cooling canals were installed. In 1972, a 2700 ft/min thermal effluent flowed directly into Card Sound at a point 6 miles south of the Florida Power and Light Company's Turkey Point site (Thorhaug and Bach, 1973). In March 1973, a self-circulating canal system was opened and effluent stopped entering Card Sound (Figure 57).

During the period when effluent was discharged into Card Sound, the maximum temperature rise was about 1° C over ambient in an area of about one acre directly in front of the canal mouth. This same area was covered to about 30 cm depth with suspended matter from the canal. A two-year study of attached algae in Card Sound revealed no significant changes in the normal seasonal pattern of productivity and standing crops of four major calcareous macro-algae (*Penicillus, Halimeda, Udotea,* and *Rhipocephalus)* and green algae except in the area of deposition of suspended matter directly in front of the canal mouth where the plants were apparently smothered (Thorhaug *et al.*, 1979). The distribution of the red algal macrophyte association was affected by flow from the canal since this group, predominantly *Laurencia poitei,* forms large rolling mats that are subject to influence by currents.

The self-circulating cooling canal system has affected the fauna and flora of the area. About 64% of the system is water and about 36% is spoil berm (Gaby *et al.*, 1985). The berms were created from material dredged during the construction of the canals and support a variety of vegetation. While vegetation of the surroundings is dominated by mangrove swamp, the dominant vegetation of the cooling canals is Widgeon grass (*Ruppia maritima*).

Figure 57. Turkey Point cooling canals. [Composite image prepared from aerial photographs 5WGS3233 and 5WGS3235, Jan. 2, 1992. Scale 1:48000; azimuth 191 and 192.1; 25.40778° N, 80.31194° W and 25.37195° N, 80.31972° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGS3235.gif> and <http://mfproducts.nos.noaa.gov/images/Photos/5WGS3233.gif>. Black areas on the left of the image are artifacts in original photographs. See Figure 3 for identification details.] *See color version on p. 136.*

Chemistry studies of Biscayne Bay were non existent prior to the building of Turkey Point (Roessler and Tabb, 1974). The construction of the canal system and potential thermal pollution resulted in comprehensive studies of southern Biscayne Bay and Card Sound (e.g., Bader, 1969; Bader and Tabb, 1970; Gerchakov *et al.*, 1971; Gilio and Segar, 1976; Segar *et al.*, 1971; and others).

No changes were observed in salinity, nutrients, dissolved oxygen, Fe, Cu, and alkalinity of the cooling water itself during a two-year monitoring effort (Gerchakov *et al.*, 1971).

Gaby *et al.* (1985) found that the American crocodile used the berms of the cooling canals as nesting sites. The Turkey Point population contributes 10% of the annual production of hatchlings in south Florida. The resident population exhibits differential habitat preference according to size class, and shows seasonal changes in distribution. Salinity was a factor in these trends. Ecology and population structure were similar to those of the population residing in the more pristine habitat of Everglades National Park.

6.3.1.2. Cutler Ridge Power Plant

The Cutler Ridge Plant is a fossil fuel power plant that discharges heated water into a small, shallow, partially enclosed portion of central Biscayne Bay. A study was conducted of water and sediment temperatures, sediment character and benthic plants (Smith and Teas, 1977). Analysis of aerial photographs showed that there had been an increase in the area of denuded seafloor near the thermal discharge point from 8.5 ha in 1956 to 35 ha in 1973, when full capacity of the plant was reached. Ground truth checks indicated that the bare region at the effluent canal was an area of macrophyte loss, which corresponded to the highest temperatures of the thermal effluent.

Cutler Bay has considerable protection from the wave action of Biscayne Bay and thus appears to be a sump for fine sediments. Some of the fine material could be the result of materials in the water that are precipitated or coagulated by passage through the power plant cooling condensers. Aerial photographs show an increase in macrophyte cover in Cutler Bay since 1938 probably associated with the deposition of sediment associated with deepening the boat channel and dredging of the power plant effluent canal. Macrophyte standing crop in Cutler Bay is positively correlated with sediment depth.

In 1963, Florida Power and Light (FP&L) proposed to expand the Cutler Plant by adding two conventional units (Atkinson, 1970). Miami refused to grant the license. In 1964, FP&L proposed building a new plant at Turkey Point. In 1966, FP&L applied to the Atomic Energy Commission to build two nuclear units to supplement the existing two conventional units. In 1967, the Dept. of the Interior Fish and Wildlife Service voiced concern about thermal pollution generated by the cooling system needed for the nuclear units.

6.3.2. Sewage treatment plants and waste disposal sites

6.3.2.1. Virginia Key Sewage Treatment Plant and the Cross Bay Line

During the 1950s, discharge of raw sewage into the Bay was eliminated or reduced by collecting sewage at large pumping stations and sending it under pressure through the Cross Bay Line to a treatment plant in Virginia Key. This system was completed in 1956 (Stone and Suman, 1995). Currently there are three wastewater collection zones (North, Central and South Districts) in Dade County. The North and South Districts have regional wastewater treatment plants that provide secondary treatment of the sewage before it is discharged into the ocean via outfalls. The sewage from the Central District continues to be sent to the Virginia Key facility through the Cross Bay Line.

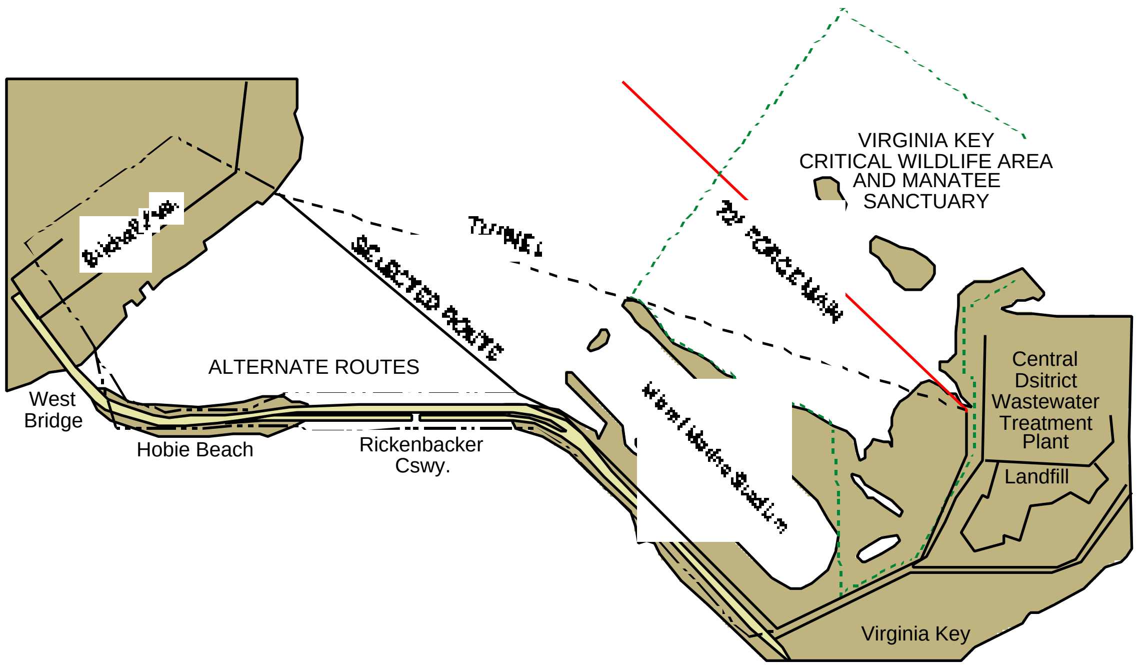

Figure 58. Alternate and final routes for the Cross Bay sewer line. [Redrawn from Swakon *et al.* (1995).]

The Cross Bay Line, in operation since 1956, is a 72-in diameter reinforced concrete cylinder pipe (Figure 58) (Wilson, 1993; Miami-Dade Water and Sewer Department, 1994; Stone and Suman, 1995). The line crosses under Biscayne Bay from Bayside to the shore of Virginia Key, a distance of approximately 14,400 ft. Building specifications required the pipe to be buried below the bottom to a minimum cover of 5 ft. The invert elevation at Bayside is 28 ft below mean sea level and rises to a depth of 15.5 ft at Virginia Key. There are nine manhole covers along the crossing. The manholes rise from the pipe to the top of the sediment. Additionally, there is a 16-in sludge force main from the North District Plant paralleling the Cross Bay Line.

In recent years, leaks have developed in the Cross Bay Line due to corrosion* /scouring, joint leaks, and pipe segment break. Pipe and manhole failures can occur independently or in combination and may result from internal or external events. Contingency plans are in place in case of line rupture, but 90 million gallons of raw sewage could flow into the Bay every day for at least two weeks resulting in severe damage to the ecosystem (Wilson, 1995). There were several years of ongoing discussions to replace the Cross Bay Line before failure. The options considered for replacement of the pipe had severe environmental restrictions since Biscayne Bay is now a protected Aquatic Preserve. Permits for replacement of the pipe were issued in 1993 and the in-water portion of pipeline replacement was completed in 1994. By 1995, some natural re-growth of seagrasses was noted in the disturbed bottoms area (Swakon *et al.*, 1995).

The Cross Bay Line Contingency Plan Update detailed the course of action for the Miami-Dade Water and Sewer Department in the event of a Cross Bay Line failure resulting in the discharge of pollutants to Biscayne Bay (Miami-Dade Water and Sewer Department, 1994). Of primary importance was the minimization of adverse effects on human health and welfare by users of

* Corrosion can occur from the formation of sulfuric acid from the hydrogen sulfide in the saw sewage.

the Bay and the beaches. Preservation of water quality and protection of environmentally sensitive areas were also essential concerns.

6.3.2.2. Munisport

Munisport is 290-acre inactive municipal landfill owned by the City of North Miami. A detailed description of the site can be found in Florida Department of Health and Rehabilitative Services (1998) (Figure 41). The landfill operated from 1974 through 1981. The site received several million cubic yards of solid waste including clean fill, construction debris, municipal and hospital refuse and drums containing tricresol phosphate, ethyl cyanoacetate and acetate (Hicks, 1989). Groundwater associated with the landfill is contaminated with high concentrations of ammonia and low levels of trace metals, pesticides and volatile organics. Movement of the groundwater is towards a residential canal, a Florida State Mangrove Preserve and Biscayne Bay. The Florida Mangrove Preserve is approximately 130 acres and is subjected to daily tidal exchange with North Bay. Tidal exchange takes place through two culverts. A dike separates the landfill from the mangrove preserve. In 1983, the Environmental Protection Agency (EPA) added this site to the Superfund National Priorities List. There has been no remediation at this site since landfill operations ceased in 1980. EPA is considering removing the Munisport landfill site from the Superfund list (Park, 1998).

Despite its contamination, Interama, an international business concern, proposed to locate at the site. It did not but the site became the Bay Vista Campus Florida International University. The Bay Vista Campus Wetland Restoration project, completed in 1995, was funded by Miami-Dade with matching funds from the Dade County Public Works Dept. The effort is described in Milano (1999).

6.4. Defense facilities

6.4.1. Homestead Air Force Base

During the 1940s, Pan American Ferries, Inc. constructed a landing strip in rural Dade County that was turned over to the US Government before the beginning of World War II. Shortly after the attack on Pearl Harbor, Army Air Corps officials decided the site would serve defense needs as a maintenance stopover point for aircraft being ferried to the Caribbean and North Africa and construction of a fully operational military base, the Homestead Army Air Field (AAF), began. By 1943, the base assumed a more vital role with the activation of the 2nd Operational Training Unit that provided advance training for air crews. As the need for trained transport pilots grew, the entire base was transferred to Air Transport Command's (ATC) Ferrying Division, with the sole mission of preparing C-54 air crews to fly from Burma to China.

After World War II in September 1945, a massive hurricane passed through the area causing such destruction the base was shut down in December of that year (see Section 5.1.3). The base property was then turned over to Dade County and was managed by the Dade County Port Authority for the next eight years. During this period, the runways were used by crop dusters and the buildings housed a few small industrial and commercial operations.

In the early 1950's, as the Korean conflict was winding down, defense officials once again looked toward Homestead as a key site in continental defense. In mid-1954, an advance party arrived at the old base to begin clean up, and in February 1955, it was reactivated as Homestead AFB. The base quickly became home for the 823rd Air Division, an umbrella organization encompassing the 379th and the 19th Bomber Wings. By this time, Homestead AFB represented the largest four-engine transport training operation in the entire ATC. In 1962, the 31st Tactical Fighter Wing (TFW), a tactical air fighter unit, was moved from George AFB, CA, to Homestead in response to the growing Communist threat from Cuba. In October of that year, it was discovered that the Soviet Union was placing medium-range missiles on the island. Troops and aircraft were sent to Homestead, swelling its population to tens of thousands. Though still nominally a Strategic Air Command base, Homestead then had the dual mission to stand ready to project air power around the world, and to maintain an operationally ready tactical air force. With the presence of the 31st TFW made permanent, the role of the Tactical Air Command (TAC) at Homestead AFB increased rapidly throughout the 1960s. In late 1966, the 31st TFW was deployed to Vietnam, and the 4531st TFW was activated to maintain TAC's presence at Homestead. In 1968, TAC officially took control of the base. In 1970, the 31st TFW returned from Vietnam and became the host unit. In 1981, the 31st TFW became the 31st Tactical Training Wing and took the task of training F-4 air crews. Training remained the Base's primary mission until 1985, when the first F-16 arrived. With that event, the host unit again reclaimed the designation of the 31st TFW.

Hurricane Andrew struck Homestead AFB in 1992, the base was home to the 31st and the 482nd Fighter Wings. Both units flew F-16s. Other units in the base were the 301st Rescue Squadron, Air Force Reserve; the Det 1, 125th Fighter Interceptor Group, Florida Air National Guard; and the US Customs Miami Air Branch. The storm caused such severe damage that all these units were relocated during the salvage and recovery phase. Even though the 301st Rescue Squadron along with the Coast Guard provided the only emergency medical rescue capability in south Dade County immediately after the hurricane, it too was removed.

In 1993, the Department of Defense Base Realignment and Closure Commission recommended the conversion of the base to a military/civilian joint use airfield. The Commission recommended that the host unit, the 31st Fighter Wing, be activated and that the 482nd Fighter Wing, the 301st Rescue Squadron, and the 125th Fighter Interceptor Group be returned to the base. The US Customs unit was scheduled to return. Other units were transferred elsewhere. Approximately one third of the base was to remain a military installation, the Homestead Air Reserve Base (ARB), and the rest will eventually be transferred to Dade County.

It has been proposed that the Homestead ARB be converted into an international airport ten times the size of the original base. The proposed action is to transfer the 1,632 acres of now surplus property, including the runway, to Miami-Dade County for use as a commercial airport. Alternative plans, including a commercial spaceport, are under consideration (US Air Force and Federal Aviation Administration, 1999).

Biscayne National Park is directly connected to the Homestead ARB by Military Canal, which carries storm run-off from the base into the Bay (Zaneski, 1999; Heinrich, 1997) (see Section 6.1.3.2). The canal is considered a Superfund site. Additional run-off from the airport could include jet fuel, solvents and other hazardous materials which could result in harmful effects on the Bay's ecosystem.

There are concerns about the impact of increasing aircraft noise from initial activity level up to the maximum capacity of the existing one runway (Heinrich, 1997; Mackay, 1998; Landrum and Brown, 1999). Alternative traffic routing has been proposed to modify or reduce noise within properties owned and operated by the National Park Service and the Fish and Wildlife Service.

6.4.2. Richmond Naval Air Station

The Richmond Naval Air Station (NAS) was the Navy's largest Airship Station, short of the one in Lakehurst (Friends of Naval Air Station - Richmond, 2000; Atwood, 1996). It was built in 1942, 20 miles south of Miami. Three large airship hangars and all of an active navy base's support buildings and barracks were built quickly and by the summer of 1942 the first airship arrived at the base. Richmond NAS was home to ZP-21, the largest squadron of airships in the Navy. Five more squadrons and a dozen smaller K-Ship bases reported to NAS Richmond. Its three hangars were the largest wooden buildings on earth at that time (16 stories). The Navy's first giant M-Class Airships were assigned to NAS Richmond for testing and deployment. From its headquarters, NAS Richmond oversaw the defense of the Panama Canal, and anti-submarine warfare in the Battle of the Atlantic and the Gulf Sea Frontier. PBYs, fighters, and other HTAs (Heavier than Air aircraft) routinely landed at NAS Richmond's airstrip.

As the Hurricane of 1945 approached, 14 K-Ships stood moored in the cavernous hangars. Another 11 airships were deflated and crated for space. Aircraft from NAS Fort Lauderdale, NAS Opa Locka, and NAS Key West, and TBMs, F-4 Hellcats, Widgeons, patrol and cargo planes arrived at NAS Richmond and were brought into the hangars totalling in all 213 naval aircraft. Eastern Air Lines requested hangar space for its aircraft. Embry-Riddle Aviation School, which had trained thousands of military aviators, also appealed for safe haven for its fleet of Steerman trainer biplanes. The Base granted permission and 152 more planes joined the Navy blimps and aircraft in the hangars. One hundred automobiles and trucks were also stored in the hangars. About mid afternoon the hurricane came ashore and NAS Richmond was directly in its path. Shortly after 5 PM, a fire broke out in Hangar One. High winds spread the fire to the other hangars and within minutes, all three hangars were ablaze. The hangars and their contents were a total loss. It was the largest fire of 1945, assessed at $30 million (in 1945 dollars). The damage constitutes the largest peacetime loss of federal property, in the shortest time, on record.

6.7. Artificial reefs

Florida is the leading state in number of artificial reefs (Pybas, 1997). The first artificial reef permit on file is dated 1918. Heaviest reef construction took place from 1987 to 1991. Within the boundaries of Dade County, there are 21 artificial reef sites, most with more than one structure and located outside the barrier islands. The seven artificial reefs located within Biscayne Bay proper are listed in Table 4. Additional reefs have been constructed since 1997.

Table 4. Artificial reefs within Biscayne Bay (Pybas, 1997).

Year	Name	Depth (ft.)	Location [Latitude (N), longitude (W)]	Composition
1982	North Bayshore Park Reef	7	25° 53.2', 80° 9.0'	Concrete rubble, pipe
1991	San Souci Reef	25	25° 52.9', 80° 8.5'	3611 tons limerock boulders
1979	Pelican Harbor Reef	7	25° 50.5', 80° 10.0'	Concrete culvert
1982	Julia Tuttle Artificial Reef	28	25° 48.8', 80° 10.2'	133 Autos, 12 vessels, 27 tanks, 2540 tons concrete
1991	Brickell Area Reef	12	25° 44.9, 80° 11.2'	3370 Tons limerock boulders
1986	Rickenbacker Causeway Reef	10	25° 44.8, 80° 10.9'	Concrete piles, limestone boulders
1984	Mercy Hospital Reef	10	25° 44.3', 80° 12.7'	Concrete rubble, bicycle racks, vessels, habitats

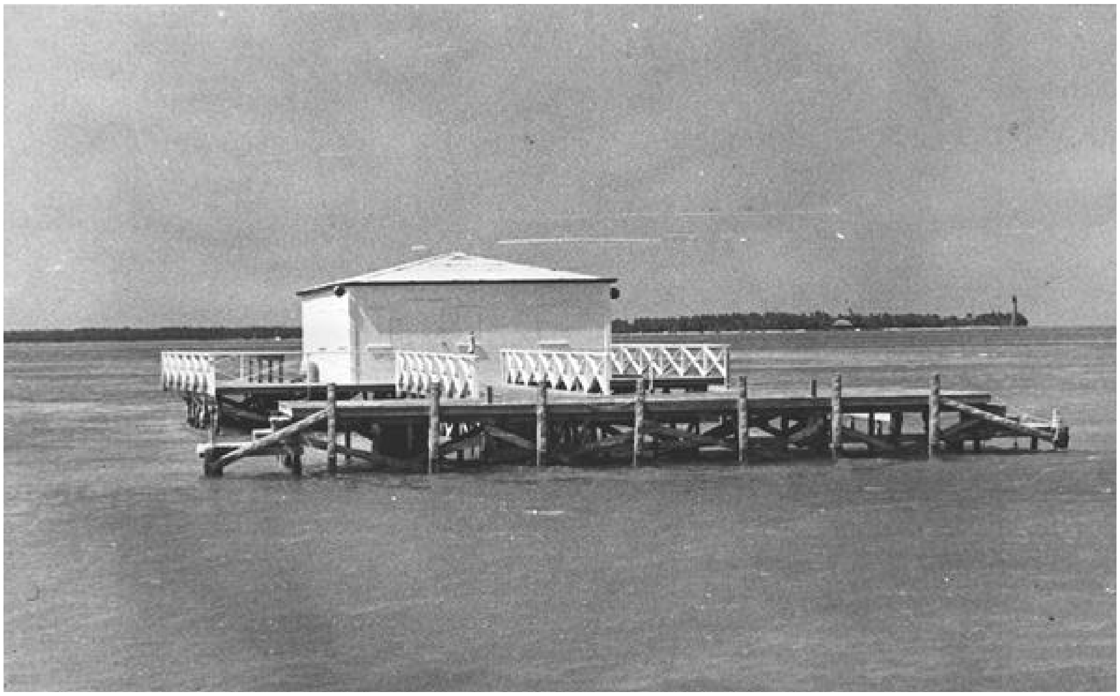

Figure 59. Second fishing shack that belonged to the Ruskin and Orovitz families (194-). [The Cape Florida Lighthouse is on the far right of the photograph.] [Photonegative, black and white (4 x 5 in). ms25975. MOSAIC Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

6.6. Stiltsville

Stiltsville is the local name for a group of houses built on pilings approximately a mile offshore in Biscayne Bay. The first structure was Crawfish Eddie's bait shack built in the 1930s on a barge that had run aground about one mile south of the Cape Florida lighthouse (Semple, 1997). During the 1930s and 1940s, houseboats and barges were towed to the sand flats and either moored or sunk and houses built atop (Williams, 1990). Later on, these structures were replaced by more permanent houses on stilts (Figure 59). Stiltsville's heyday was in the 1950s with 25 or so residences and two nightclubs. Regulars of the two nightclubs could sit on a barstool and fish right through the floor. The lack of liquor licenses and outhouse sanitation resulted in regular raids by the Police, and the clubs closed in the 1960s. Soon after that hurricanes Cleo and Betsy destroyed all but thirteen structures. Hurricane Andrew destroyed six of the remaining thirteen houses in 1992.

Stiltsville has seven surviving houses. No new houses are permitted on the site. It is currently within the jurisdiction of the Biscayne Bay National Park. Stiltsville could be demolished, preserved, or left as is until the houses are destroyed by natural causes. Under Park rules, all structures were scheduled to be removed by July 1, 1999. As of this writing, negotiations regarding the fate of Stiltsville will continue until December 2000 (Morgan, 1999).

Stiltsville has served as an unofficial navigation aid to the inexperienced boater: "No body of water in North America attracts more certifiable morons in high powered yachts and speedboats than Biscayne Bay. Most of them don't know the difference between a channel marker and a lobster pot, but they do know a double-decker house when they see one looming off their bow" (Hiaasen, 1999) (Figure 60).

Figure 60. Vessel aground, Biscayne Channel, Biscayne National Park (1998). [Note prop scarring in the seagrass bed. One of the houses of Stiltsville is seen at the upper left of the image.] (Photo by Karen Battle, Biscayne National Park.) *See color version on p. 137.*

6.7. Archeological sites and the Miami Circle

During routine excavations in June 1998 prior to construction of a planned apartment building, the Miami-Dade County Historic Preservation Division uncovered a 38-foot diameter circle of holes cut into the limestone of Brickell Point (Milanich, 1999; Miami-Dade Parks, 2000). The site is known as the Miami Circle. Brickell Point is the southern side of the Miami River where it flows into Biscayne Bay (see Figures 6, 7 and 17 for site location). The Circle site is part of the village of Tequesta, once located on both the north and south banks of the Miami River in what is now downtown Miami. Shell middens, Glades pottery, shell, stone and bone artifacts, and human and animal remains have been uncovered at the site. Archeological activities in the area prior to the discovery of the Miami Circle can be found in Laxon (1959 and 1968). The discovery of the site halted construction and triggered a complex legal and media battle between the County, the City of Miami, the builders and the public. Controversy about the site continues. A detailed description of the site can be found in Miami-Dade Parks (2000).

7. ECOSYSTEM CHANGES

The rare, endangered and species of special concern found in the Biscayne Bay Aquatic Preserve are listed in Table 5 (Florida Department of Environmental Protection, 2000a).

7.1. Flora

7.1.1. Seagrasses

The major vascular plants found in Biscayne Bay are *Thalassia testudinum* (turtle grass), *Halodule wrightii* (Cuban shoal grass), and *Syringodium filiforme* (manatee grass). *Thalassia* is dominant in many areas of the Bay and *Thalassia* beds support a rich animal community (Zieman, 1982). These plants function as a food source, provide shelter and protection, stabilize sediments, and act as a chemical sink (Thorhaug, 1976). There is a progression of these seagrasses with distance from shore in non-disturbed areas of Biscayne Bay. Intertidally, there is a band of *Halodule*. From sublittoral, there is a band of *Thalassia* interspersed with *Halodule* and *Syringodium*. This thins out into green alga and a sand bottom towards mid-Bay. Seagrasses in the northern part of the Bay have been heavily impacted by man's activities and the normal *Thalassia* community is not observed north of the Port of Miami.

Sediment is generated by *Thalassia* communities and major disruptions to the seagrass beds result in modifications to the sediments.

Attempts were made in 1982 and 1984 to rehabilitate approximately 110 ha of barren sea bed with seagrass (Thorhaug, 1977; Thorhaug, 1980; Thorhaug, 1987; and others). Efforts have been carried out to revegetate areas of Biscayne Bay with seagrasses and currents, wave action and turbidity difficulties in these efforts.

The effect of the thermal effluent released by the Turkey Point Nuclear Power Plant on *Thalassia* beds has been studied extensively. *Thalassia* disappeared in areas of water 5° C above ambient, and declined by 50% in waters 3-4° C above ambient temperature (Thorhaug *et al.*, 1973). Environmental stress caused by temperature or salinity changes may make *Thalassia* more susceptible to disease.

An increasing problem in Biscayne Bay is the scarring of seagrass beds, commonly made when a boat's propeller tears and cuts up roots, stems and leaves (Sargent *et al.*, 1995; Zaneski, 1998). The greatest acreage of moderate to severe scarring occurred in areas of dense human population and a large number of registered boats. An assessment of the degree of seagrass bed scarring statewide indicated that approximately 8% of the seagrass beds in Dade County were scarred, and approximately 6% were rated with moderate/severe scarring (Figures 61 and 62).

7.1.2. Mangroves

The information in this section was found in Hanlon *et al.* (1975). A thorough discussion of mangrove forest ecology can be found in Odum *et al.* (1982).

The most common mangrove species in the tropical coastlines of North America are: the red mangrove (*Rhizophora mangle*); the black mangrove (*Avicennia germinans*); the white mangrove (*Laguncularia racemosa*); and the buttonwood (*Conocarpus erectus*). The mangroves characterize and dominate a large portion of the world's tropical coastal margins and their

Table 5. Rare (R), endangered (E) and species of special concern (SSC) found in Biscayne Bay (Florida Department of Environmental Protection, 2000a).

		State designation	Federal designation
FISH			
Common snook	*Centropomus undecimalis*	SSC	
Mangrove rivulus	*Rivulus marmoratus*	SSC	
REPTILES			
American alligator	*Alligator mississippiensis*	SSC	
American crocodile	*Crocodylus acutus*	E	E
Atlantic green turtle	*Chelonia mydas mydas*	E	E
Atlantic hawksbill turtle	*Eretmochelys imbricata imbricata*	E	E
Atlantic loggerhead turtle	*Caretta caretta caretta*	T	
Atlantic ridley turtle	*Lepidochelys kempi*	E	
Eastern indigo snake	*Drymarchon corais couperi*	T	T
Gopher tortoise	*Gopherus polyphemus*	SSC	
Miami black-headed snake	*Tantilla oolitica*	T	
BIRDS			
Arctic peregrine falcon	*Falco peregrinus tundrius*	E	T
American oystercatcher	*Haematopus palliatus*	SSC	
Bald eagle	*Haliaeetus leucocephalus*	T	E
Brown pelican	*Pelecanus occidentalis*	SSC	
Burrowing owl	*Speotyto cunicularia*	SSC	
Cape Sable seaside sparrow	*Ammodramus maritimus mirabilis*	E	E
Least tern	*Sterna antillarum*	T	
Little blue heron	*Egretta caerulea*	SSC	
Limpkin	*Aramus guarauna*	SSC	
Osprey	*Pandion haliaetus*	SSC	
Piping plover	*Charadrius melodus*	T	T
Red-cockaded woodpecker	*Picoides borealis*	T	E
Reddish egret	*Egretta rufescens*	SSC	
Roseate spoonbill	*Ajaia ajaja*	SSC	
Snowy egret	*Egretta thula*	SSC	
Tricolored heron	*Egretta tricolor*	SSC	
White-crowned pigeon	*Columba leucocephala*	T	
Wood stork	*Mycteria americana*	E	E
MAMMALS			
Florida panther	*Felis concolor coryi*	E	E
West Indian manatee	*Trichechus manatus latirostris*	E	E

Figure 61. Grounding and prop scars, Featherbed Shoal, Biscayne National Park (1996). (Photo by Karen Battle, Biscayne National Park.) *See color version on p. 137.*

Figure 62. Grounding trench, Pelican Bank (1994). (Photo by Mark Nicholas, Gulf Islands National Seashore.) *See color version on p. 138.*

habitat is a unique blend of land and aquatic ecosystems. There is a natural succession of mangroves from seaward to landward. The red mangrove occurs at the seaward edge, the black mangrove occurs further landward, and the white mangrove occurs farthest from the shore.

The red mangrove, with its thick mass of prop roots, is particularly well established in the substrate, and only the most violent of hurricanes can disturb it. It forms a protective barrier along the coast, behind which the other mangroves and associated flora take root. The accumulation of sand, leaves, and debris which is caught in this web of roots eventually decomposes and raises soil levels. At the same time, red mangrove seedlings take root farther seaward as the soil level increases. In time, the result is a gradual seaward extension of the coastline. The landbuilding quality of the red mangrove is important. It does well on nearly all types of soil or substrate provided they are wet. The black mangrove does well on all soils, including some dry and salty ones. The white mangrove does best in sandy and drier soil, thus explaining its general occurrence on higher ground.

Until recently, mangrove forests in Florida were regarded as a wasteland suited only for development. However, these forests contribute in many ways to man's economic betterment. Ninety-five percent of the annual mangrove leaf production eventually enters the aquatic system. The fallen leaves from the mangroves collect between the roots and begin to be decomposed bacteria and fungi, which turn the leaves into detritus. The detritus, or plant debris, of mangrove origin accounts for 35-60% of the suspended material in estuarine waters. Most of the other detrital material comes from the sea grasses. This detritus is the basis of the estuarine food chain, contrary to previous thought which maintained that all estuarine food chains were based upon phytoplankton.

A host of small invertebrate animals, ranging from nematodes to small crabs and shrimp, feed on this detritus. They in turn are eaten by the larger predators, including commercial and game fish. It has been pointed out that the commercial shrimp of the Dry Tortugas are dependent upon the mangrove swamp as a nursery ground. Equally important is the fact that several other commercially valuable species, including mullet, gray snapper, red drum, blue crabs, tarpon, snook, and spotted sea trout, also rely on the mangrove swamp as a nursery and feeding ground. It is therefore evident that the destruction of mangroves would be tantamount to the removal of the primary food source upon which many animals of commercial and recreational importance depend.

The role of the mangroves in landbuilding, shore protection and stabilization, and reforestation is of paramount importance. The tropical belts of the world are subjected annually to tropical depressions and hurricanes and mangrove forests are well suited to protect the coastline against the force of these storms.

Mangroves along Biscayne Bay can be classified into five communities: Coastal Band, Dense Scrub, Sparse Scrub, White and Mixed, and Black Marsh (Teas, 1974). The Coastal Band of mature mangroves along the shore is the most productive, and the dwarfed Sparse Scrub the least. Red mangroves along Biscayne Bay suffer from infestation by the marine isopod *Sphaeroma* and from tumors, and all mangrove species suffer from lightning damage and storm erosion.

During the last few years, mangrove dieoffs have been observed. There is no evidence of seasonality. The dieoffs were first observed in black mangrove at higher elevations but are currently observed in red mangrove at lower elevations. There is a rough correlation with seagrass dieoffs suggesting possible correlation to high salinities (Brown and Ortner, 1994).

Davis (1940) reported that, in numerous instances, fishermen and guides pointed out changes they observed during the past 20 to 40 yrs in mangrove forests, and some of these observations, when checked against maps, were found to be reliable. Snedaker (1994) suggests that changes in precipitation and runoff are the most important factors concerning mangrove survival. Reduced rainfall and runoff would result in higher salinity and greater seawater exposure. This change would likely be associated with decreased primary production and increased sediment organic matter decomposition leading to subsidence. Higher rainfall and runoff would result in reduced salinity and exposure to sulfate, and also increase delivery of terrigeneous nutrients. Consequently, mangrove production would increase and sediment elevations would be maintained. Support for this scenario derives from studies of the high production in saline mangrove impoundments which are depleted in seawater sulfate.

In addition to changes in mangrove ecosystems due to climatic factors, mangrove forests along the shores of Biscayne Bay were destroyed beginning in the 1910s as the result of urbanization (Figures 9 and 23). The construction of the drainage canal system changed the hydrology of the area further changing the mangrove ecosystem.

7.2. Fauna

7.2.1. Sponges

The information in this section was found in Stevely *et al.* (1978). A historical account of the sponge fishery along the east coast of Florida can also be found in Shubow (1969).

Up until the 1940s, the sponge fishery was one of the most valuable fisheries in Florida. However, a combination of disease, heavy harvesting, and the introduction of synthetic sponges reduced the industry to a small fraction of its former importance. Low level sponging activities in Florida for the last 30 yrs indicates that the sponge industry, as it is currently structured, will probably never return to its former production levels. Production in the Tarpon Springs area, the traditional center for sponging in Florida, declined to extremely low levels and Dade County emerged as the center of the now much smaller industry.

In the 1880s, schooners harvested the sponge beds of Elliott Key, Soldiers Key and other parts of Biscayne Bay as far north as Miami. During the early part of the century, the sponges of Biscayne Bay were evaluated for commercial purposes and found to be of excellent quality. Sponge industry activities, however, remained low key as the main centers of the fisheries were in Tarpon Springs and Key West. During 1938 - 1939 sponge beds on both coasts of Florida were affected by a blight. The disease first appeared in the Bahama Islands and rapidly spread throughout the West Indies and the Gulf of Mexico. The progress of the mortality was recorded in a detailed manner and transmission of the disease was attributed to water currents. This disease has been attributed to the fungus *Spongiophaga communis*.

During 1947 - 1948, a disease affecting the commercial sponges along the west coast of Florida was reported. Investigation of this phenomenon by members of the Marine Laboratory, University of Miami, did not identify the cause of this sponge mortality. No evidence of fungal disease was found. Mortality of sponges due to the outbreak of red tide has been noted. Sponge fishermen have reported that sponges in shallow water are occasionally killed off by a phenomenon they call "mallee". This "mallee" is a heavy growth of fine algae that usually smothers sponges.

The sponge population recovered and during the 1960s, fishermen who had engaged in the sponge business in Cuba began to harvest the sponge beds of Biscayne Bay.

Sponge dieoffs were observed in 1992 in central Florida Bay to the southeast, adjacent to the Keys (Brown and Ortner, 1994). They were apparently related to microalgal blooms, with a time lag of 5-7 days after blooms.

Currently, highest sponge densities occur in Biscayne Bay in hard bottom areas with moderate currents, constant salinity, low sedimentation, shallow, coarse sediments and sparse vegetation (DiResta *et al.*, 1995). The highest densities are in a north-south cluster in Central Bay. To preserve the populations, Biscayne Bay was closed to commercial sponging in 1991.

Widespread mortality occurred during the passage of Hurricane Andrew in 1992 (DiResta *et al.*, 1995). Mortality was highest for the smaller sponges. Recovery of sponge populations has been noted at some sites in the Bay. It was recommended that Biscayne Bay remain closed to commercial sponge harvesting.

7.2.2. "Milk" shrimp syndrome

The dominant shrimp species in Biscayne Bay is the pink shrimp (*Penaeus duorarum*). Specimens have occasionally been observed with an opaque abdomen and thorax resulting from infection by the microsporidian species *Thelohania duorara* and Pleistophora spp. *Thelohania* were first observed in pink shrimp in 1958 (Schmale, 1998). In a 1998 study, less than 3% of the shrimp studied exhibited gross microsporidian infection. No conclusion can be made as to whether the percent of infected shrimp has changed since the problem was first noted in the 1950s. No regional differences were observed in the Bay.

7.2.3. Lobsters

The importance of Biscayne Bay to juvenile spiny lobster (*Panulirus argus*) has resulted in a large portion of the Bay (roughly from Cape Florida south through Card Sound) having been designated as a Lobster Sanctuary.

7.2.4. Abnormal fish

In 1968, Walter Kandrashoff moved to Miami from his native New York and started fishing commercially in Biscayne Bay. The fish were abundant and well formed (Wright, 1977; Skinner and Kandrashoff, 1988; Browder, 1990; Browder *et al.*, 1993; and others). By 1969, he began to take emaciated croakers and his concern about the state of the Bay began. By 1970 he was taking hundreds of fish that were just "skin and bones". Kandrashoff brought some of the abnormal fish to the biologists at the University of Miami Rosenstiel School of Marine and Atmospheric Science (UM/RSMAS), who were not able to assert that the emaciated condition of the fish as abnormal since no baseline data was available. By the following year, Kandrashoff began to find fish with tumors and deformities, and his efforts to determine what was causing the problem in fish began in earnest. By 1971, a croaker collected by Kandrashoff was diagnosed with lymphoblastoma, a form of leukemia. In 1973, UM/RSMAS received funding to study the abnormal fish.

Many of the fish collected by Kandrashoff were stored frozen at the NOAA/NMFS Southeast Fisheries Science Center in Virginia Key, and the documentation by Kandrashoff is kept at the UM/RSMAS Library.

7.2.5. Avifauna

Many species of birds are found in Biscayne Bay. Many are permanent residents while others use the Bay as a resting area during migration. Major bird rookeries include Bird Key and Chicken Key, the mangrove shoreline south of Matheson Hammock, Biscayne National Park, Key Biscayne, Virginia Key, and the mangrove islands in North Bay.

7.2.6. Crocodiles

Crocodiles are an endangered species throughout their range in South Florida which includes Biscayne Bay, Card Sound and Barnes Sound (South Florida Water Management District, 1995). The South Florida crocodile population represents a large part of the breeding population in the US. Currently, crocodiles are mostly found in South Bay and the Sounds. Nesting distribution in southern Biscayne Bay and northeastern Florida Bay is discussed in Kushlan and Mazzotti (1989). Nesting sites in Miami Beach and the upper Florida Keys have been lost to development. This loss has been compensated by the creation of artificial nesting sites on spoil banks along the cooling canals of southern Biscayne Bay. The general distribution of the crocodile in Florida is the same as that historically documented.

7.2.7. Manatees

The Florida manatee (*Trichechus manatus latirostris*), also known as the West Indian manatee, is regarded as a regional subspecies. Manatees are herbivores requiring access to vascular aquatic plants, freshwater sources, proximity to channels 1 to 2 m deep, and access to warm water during the winter. Manatees are found along most of the coast of Florida (Ashton, 1992). Their geographical distribution is seasonal. During the summer, they migrate to warmer waters and are known to aggregate in natural or industrial warm water sources. Man is the only predator of the manatee, and the greatest threat to these animals is collision with boats.

Concern for the survival of the manatee in Florida was recognized as early as the 1700s when the English Crown established all of Florida as a manatee refuge (Gimble 1986). By 1893, the State of Florida passed laws prohibiting the capture or killing of a manatee without a permit. In 1907, a $500 fine and three months in jail were added as penalties. The manatee was listed an endangered species in 1967 and thus came under the protection of the Endangered Species Preservation Act of 1966. A series of subsequent legislative actions to protect endangered species, including the manatee, took place and by the 1970s US Fish and Wildlife Service organized a Recovery Team to prepare an overall recovery plan for manatee. During this decade, further measures for manatee protection in Florida came into effect and the first manatee conceived in captivity was born at the Miami Seaquarium in 1975. Public education to increase awareness of manatee conservation increased during the 1980s and continues.

An important factor in conservation efforts has been the successful marketing of the manatee image. It has been said that manatees are so ugly they are cute. They evoke sympathy and support from the legislators, the media and the public.

Manatees continue to suffer a high degree of human induced mortality and injury. The latter are usually the result of wounds caused by boat propellers.

Biscayne Bay is a Federally Designated Critical Habitat for the Florida manatee (South Florida Water Management District, 1995). Surveys indicate a winter population of 80 to 100 animals in open waters and tributaries of the Bay. More than 100 manatees have been found dead in Dade County between 1974 and 1993, and more than 80 of these mortalities were directly caused by human activities (29 deaths were caused by boating activities and 41 were due to crushing or drowning in water control structures). The two major causes of manatee deaths have been addressed in order to reduce mortalities.

Table 6. Population of Dade County from 1900 to 1990 (Andriot, 1983; and Bureau of the Census, 1994).

Year	Dade
1900	4955
1910	11933
1920	42753
1930	142955
1940	267739
1950	495084
1960	936047
1970	1267792
1980	1629701
1990	1937094

7.3. Human population and corresponding pressures

7.3.1. Human population

The population of the southeast United States has increased in recent decades and is projected to continue to do so at the highest rate of all regions in the Nation (Culliton *et al.*, 1990) further stressing ecosystems within the Southeast. Eastern Florida counties are expected to grow at the fastest rate, and are projected to have the highest population density in the Southeast United States by 2010. The population in Dade County from 1900 to the present is listed in Table 6 and shown graphically in Figure 15.

7.3.2. Agriculture

Agricultural activities in and around the Everglades, south of Lake Okeechobee, began after the drainage projects of 1906 - 1927, and intensified after the water control projects of the early 1950s, which created the Everglades Agricultural Area (Snyder and Davidson, 1994). Currently, more than $750 million is earned annually from production of sugarcane, vegetables, sod, and rice and over 20,000 full-time equivalent jobs are provided by the agricultural industry of South Florida. The future of this industry is uncertain since the loss of organic soils, concerns over nutrients and pesticides drainage, and possible flooding of lands as part of the South Florida Ecosystem Restoration Project may result in a reduction of agricultural activities.

7.3.3. Boating

Boating activities by residents and tourists are an increasing problem in Biscayne Bay resulting in conflicts between recreational use and ecosystem health (Austin, 1976). There is competition for the same resource as, for example, between recreational and commercial fishermen, land developers and conservationists. Marinas occupy space along the shoreline that used to provide breeding and nursery habitats but are now sources of contaminants, especially petroleum-derived chemicals. Scarring of seagrass beds by boat propellers is significant in Biscayne Bay and the rest of Florida (Sargent *et al.*, 1995). Of the estimated 145,000 acres of seagrass beds in Dade County, almost 8% show scarring, and 5.8% show moderate to severe scarring.

7.3.4. Motion pictures, television and popular literature

Biscayne Bay has been featured in still photography, feature films, commercial production and television, and music videos. The motion picture "Moon Over Miami" (1941) was shot in South Florida during World War II and was instrumental in showing the attractions of Miami and Miami Beach to a wide audience. Recent motion pictures such as "The Birdcage" (1996)* were filmed in and around Biscayne Bay. Virginia Key Beach is often used as a set for generic tropical island scenes. The film industry is very active in South Florida.

During the 1960s, the television series "Flipper" was filmed in Biscayne Bay, and images of the Bay were thus shown worldwide. During the 1980s, the popular television series "Miami Vice" opened each episode with an aerial shot of a motor boat speeding past the city of Miami.

The restoration of South Beach in Miami Beach into a world class tourist attraction has brought the area to international attention through such diverse media activities as music videos and fashion photography.

During the past decade, there have been many popular literature works set in Biscayne Bay and South Florida. These include the works of C. Hiaasen, E. Buchanan, C. Garcia-Aguilera and many others.

8. LEGISLATION

8.1. Federal legislation

[Some of the information in this section is condensed from NOAA (1981), Hildreth and Johnson (1983), McClain (1991), and Wolf (1988) and checked in the 1999 General Index, United States Code Annotated (Anonymous, 1999).]

8.1.1. Clean Water Act

The Federal Water Pollution Control Act (FWPCA), originally enacted on June 30, 1948 (Publication 845, 62 Stat. 1155), is also called the Clean Water Act. It has been amended many times. The Act was enacted in 1972 to restore and maintain the chemical, physical and biological integrity of the nation's waters. The three objectives of the Act were: to eliminate the discharge of pollutants into navigable waters by 1985; to attain, whenever possible, water quality that allows for fishing and recreational use by 1983; and to prohibit the discharge of toxic pollutants in toxic amounts. The FWPCA also established a national policy for providing financial assistance to construct publicly owned waste water treatment plants. EPA was given the principal responsibility for administering the FWPCA. The National Pollutant Discharge Elimination System (NPDES) is part of the FWPCA. The FWPCA prohibits discharges into navigable waters unless authorized by an NPDES permit.

8.1.2. Clean Air Act

The Clean Air Act (CAA), also called the Air Pollution Control Act, was enacted on July 14, 1955 (Public Law 159, 69 Stat. 322) and extended and substantially amended in 1977. The

* Several scenes were filmed on MacArhur Cswy. facing Government Cut and the Port of Miami.

purpose of this act is to protect and enhance the quality of the nation's air resources in order to promote public health and welfare and the productive capacity of the population. The CAA provides for two principal ways of controlling air pollution: national ambient air standards, and point source emission limitations. EPA is required to publish a list of air pollutants which are subjected to ambient air standards.

8.1.3. Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) (Public Law 94-469, 90 Stat. 2003) was enacted on October 11, 1978 and its primary purpose is to regulate the chemical substances that present a hazard to human health or to the environment. This act greatly expanded regulation of chemicals. It is intended to control chemical hazards at the source. TSCA applies not only to pure chemical substances but also to the impurities contained in these materials.

8.1.4. Federal Insecticide, Fungicide and Rodenticide Act

The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) (Public Law 102, 61 Stat. 163) was originally enacted on June 25, 1947 and was amended significantly in 1972, 1978 and 1988. When first enacted, FIFRA was primarily a pesticide labeling law. The 1972 legislation required registration of all pesticides, constituting a premarket clearance for these substances. In order to approve registration of a pesticide, EPA must ensure that the substance will not affect the environment or the population. EPA must also determine that the benefits of using the pesticide outweigh the risks associated with its use.

8.1.5. Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act of 1976 (RCRA) (Public Law 94-580, 90 Stat. 2795), also known as the Solid Waste Disposal Act, was enacted on October 21, 1976. The Act substantially changed the Federal regulations for solid waste disposal and control of hazardous waste.

8.1.6. Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (Public Law 96-510, 94 Stat. 2767), also known as the Superfund Act, was enacted on December 11, 1980. It established a federally-directed program to clean up the nation's most hazardous waste and chemical contamination sites. CERCLA enabled the federal government to respond to actual or threatened releases of hazardous substances and to recover damages for the destruction or harm to natural resources. The original Superfund legislation was disappointing because EPA, which was responsible for the administration of the Act, was only able to begin clean up of a few sites of the thousands identified nationwide. The Superfund Amendments and Reauthorization Act (SARA) (Public Law 99-499, 100 Stat. 1613) of 1986 amended CERCLA and expanded and toughened the cleanup authority of the Federal government.

8.1.7. Emergency Planning and Community Right-to-Know Act

The Emergency Planning and Community Right-to-Know Act of 1986 (EPCRKA) (Public Law 99-499, Title III, 100 Stat. 1728) established emergency planning, reporting and notification requirements that were meant to protect the public in the event of a release of hazardous substances.

8.1.8. The Endangered Species Act

The Endangered Species Act (ESA) (Public Law 93-205, 87 Stat. 884) was approved on December 28, 1973 and last amended in 1988 (Public Law 100-707, Title I, 102 Stat. 3835). The purpose of this Act is to provide a program for the conservation of threatened and endangered species of plants and animals, and the habitats in which they are found. The Act provides the legislative authority to implement the treaties and conventions on endangered species to which the US is signatory. The endangered and threatened species found in Biscayne Bay are listed in Table 2.

8.1.9. National Marine Sanctuaries Act

The National Marine Sanctuaries Act (Public Law 95-532, Title III, 86 Stat. 1061) was approved on October 23, 1972 and last amended on October 11, 1996 (Public Law 104-283, 110 Stat. 3363). The purposes and policies of this Act are to identify marine areas of special significance, provide for their management, support research, enhance public awareness, and promote all public and private uses of the marine environment to the extent that these issues are compatible with resource protection. The Florida Keys National Marine Sanctuary was established in 1990 under this Act and implemented in 1994.

8.1.10. Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) of 1972 (Public Law 92-522, 86 Stat. 1027) was last amended in 1998 (Public Law 105-277, 112 Stat. 2681). The purpose of this Act is to protect, conserve, and encourage international research on marine mammals.

8.1.11. Coastal Zone Management Act

Congress passed the Federal Coastal Zone Management Act in 1972 (Public Law 92-583, 86 Stat. 1280) to further a national interest in the effective management, beneficial use, protection, and development of the coastal zone.

8.1.12. Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 (Public Law 94-265, 90 Stat. 331) authorizes the Federal government to conserve and manage all fishery resources, except tuna, within the US fishery conservation zone which extends from the seaward boundary of the territorial sea to 200 nmi from shore NOAA, 1981). The Act also provides for exclusive management authority over Continental Shelf fishery resources and over anadromous species beyond the US fishery conservation zone. The Act has been amended many times.

8.1.13. Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) was enacted on March 10, 1934 (Public Law 121, 48 Stat. 401) and subsequently broadened and modified by amendments in 1948, 1958, and 1965. The Act was originally named the Conservation of Wildlife, Fish and Game Act, and later renamed the Wild Life Conservation Act. Sections of this Act deal specifically with wildlife resources in relation to Federal water resource development actions. FWCA recognizes the importance of wildlife resources and mandates that wildlife conservation shall receive equal consideration and treatment as other features of water resources development.

8.1.14. Lead in gasoline ban

Use of alkyl lead in gasoline began after 1940 and ended in the early 1970s. Shen and Boyle (1987) used a sample of the coral *Montastrea annularis* collected 1 km from shore at 4 m depth at the Hens and Chickens Reef in 1978 and 1983, respectively, to reconstruct historical industrial Pb fluxes to the ocean surface. The Florida Keys maintained a surface water concentration of 38 pM Pb until about 1930, which was probably supported by shelf/resuspended Pb inputs. Levels grew gradually to a peak of 190 pM in 1977, followed by a decline to 142 pM in 1982. Relative to the Bermuda records, the Florida coral lacks a strong industrial revolution signal and exhibits a moderated post-World War II Pb increase and muted maximum. These patterns reflect dilution of US Pb sources and delayed response due to long-range horizontal transport.

8.1.15. DDT and metabolites

DDT (4,4'-DDT), or 1,1'-(2,2,2-trichloroethylidene)bis[4-chlorobenzene], was first described early in the century and resynthesized during the late 1930s as part of a research program at Geigy (Stetler, 1983). This program was a search for a contact insecticide characterized by a long duration of activity. Following the discovery of the pronounced insecticidal properties of the new agent and the registration of the first patents in 1940, the product, formulated in Switzerland, was introduced to the market in the spring of 1942 for use in crop protection and hygiene. The epidemic-promoting circumstances of World War II and the post-war years brought about increased and effective use of DDT in the field of medicinal hygiene. Malaria, typhus, typhoid fever, and cholera were drastically reduced by the effective control of *Anopheles* mosquitoes, lice, and flies of all types or, as in the case of malaria, were virtually eradicated in many countries. It has been estimated that almost 1 billion people in all parts of the world have been saved from malaria by the use of DDT. 4,4'-DDT is metabolized by the loss of a chlorine to yield the non-insecticidal 4,4'-DDE {(1,1'-(dichloroethylidene)bis[4-chlorobenzene]}, and by the substitution of a chlorine by a hydrogen to yield 4,4'-DDD {(1,1'-(2,2-dichloroethylidene)bis[4-chlorobenzene]}. DDT and some of its metabolites are toxicants, with long-term persistence in soil and water. They are widely dispersed by erosion, runoff, and volatilization, and accumulate in adipose tissue in wildlife and humans.

Restrictions introduced by most Western industrialized countries on the production of DDT and other chlorohydrocarbons at the start of the 1970s have reduced use of these chemicals to a fraction of the original quantities. The use of DDT was banned in the US in 1972. The special situation of the Third World countries, however, resulted in production peaks (on a worldwide basis) as late as the mid-1970s. Without sufficient quantities of DDT and dieldrin, the World Health Organization is unable to fulfill its vector-control programs.

8.1.16. Polychlorinated biphenyls ban

Polychlorinated biphenyls (PCBs) are widely distributed in the environment, and have no known natural source. PCBs were manufactured by Monsanto and were available in the US from 1930 to 1977 as a series of mixtures of congeners called Aroclors, having different average compositions of congeners. PCB concentrations have also been reported as Aroclors (EPA, 1993). There are 209 congeners, having from one to ten chlorines. Twenty of these congeners have non-ortho chlorine substitutions and so can attain a planar structure which makes them similar in structure to the highly toxic polychlorinated dibenzo-*p*-dioxins and dibenzofurans (McKinney *et al.*, 1985; Sericano *et al.*, 1991).

Figure 63. Chalks Flying Service on Biscayne Boulevard (19--). [Photoprint, black and white (8 x 10 in). Rc06653. Reference Collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

9. OTHER ACTIVITIES AND EVENTS

9.1. Aviation

9.1.1. Chalk's International Airlines

Red Arrow Flying Service began service from Biscayne Bay to Tampa and St. Petersburg in 1917, the first scheduled air service in the US (Chalk's International Airlines, 1999). The airline operated off the dock of the Royal Palm Hotel near the entrance to the Miami River. During World War I, the owner of Red Arrow, A. B. Chalk, joined the Air Corps and after the war returned to Miami and resumed the business under the name of Chalk's Flying Services in 1919. During prohibition, Chalk expanded service to the Bahamas. In 1926, Chalk built a small terminal on Watson Island, a newly built landfill island at that time (Figure 63). The airline has been sold several times since the 1920s and the seaplane fleet modernized as technology improved. Service continues to the present making it one of the oldest, continuously operating airlines in the world (Smith, 1982).

9.1.2. Pan American Airways

When Pan American Airways received the contract to fly US Mail between US and Cuba it was stipulated that operations begin no later than 1927 (Smith, 1982; Pan American World Airways Historical Foundation, 2000). Due to equipment limitations at that time, the base of operations had to be situated in Key West, the closest US airport to Havana. The flight to Havana was the first scheduled international flight by a United States airline. Once the airline received the longer range Fokker F-10 Trimotors, operations were moved to a barge off Dinner Key in Miami in 1928. In 1939, the barge was replaced by the Pan American flying boat terminal which is currently used as the Miami City Hall (Figure 27). During World War II, Pan American navigators served as instructors for pilots and navigators (see Section 4.4) (Figure 28). Airline operations ceased at Dinner Key when use of flying boats ended after World War II.

Figure 64 The Goodyear airship 'Mayflower' over Biscayne Bay (19--). (The Venetian Islands are to the left of the image. View is towards Miami Beach.) [C. Hansen, photographer. Photoprint, black and white, 8 x 10 in. WE054. Wendler collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

9.1.3. Embry-Riddle School of Aviation

The Embry-Riddle School of Aviation opened in 1939 in response to concerns about US entry into World War II (Mormino, 1997). The school operated from a site in MacArthur Causeway It is estimated that one tenth of all American World War II pilots were trained at Embry-Riddle. Aviation mechanics were also trained at the school. In 1965, the school moved to Daytona Beach and continues operations to this day as Embry-Riddle Aeronautical University (Embry-Riddle Aeronautical University, 2000).

9.1.4. Lighter than air ships

Lighter than air craft have been seen in the skies over Biscayne Bay since at least the 1920s (Figures 64 - 66). For many years, the Goodyear blimp terminal was located on Watson Island next to Chalks Airlines. The German "Graf Zeppelin" visited Miami in October 23, 1933 (caption for image Rc06268, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>). Lighter than air ships based in South Florida were used in anti-submarine warfare in the Atlantic Ocean and the Gulf of Mexico during World War II.

The Richmond Naval Air Station (NAS) contained the largest aircraft hangars in the world in order to house and service the large dirigibles that patrolled the Atlantic Ocean (Mormino, 1997; Friends of Naval Air Station - Richmond, 2000) (see Section 6.4.2). Richmond NAS was destroyed during the Hurricane of 1945 (see Section 5.3.3).

9.2. Christo's Surrounded Islands

Christo Javacheff is an environmental artist whose well-known works include Running Fence, Sonoma and Marin Counties Coast, 1972 - 1976, Wrapped Coast, Little Bay, Australia 1969, and Wrapped Walk Ways, Loose Park, Kansas City, Missouri, 1977 - 1978. Christo's work is temporary and leaves no mark upon the earth, and is public in that the community is involved in the plans from the beginning (Christo, 1986; Stewart, 1990). Surrounded Islands: project for Biscayne Bay, Greater Miami, Florida, 1980-1983 consisted of surrounding eleven small islands spread over 7 mi of Biscayne Bay with pink woven plastic fabric floating on the surface of the water for a period of two weeks, a work reminiscent of Monet's Water Lilies.* As with previous art projects, Surrounded Islands was entirely financed by the artist through the sale of the preparatory pastel and charcoal drawings, collages, lithographs and early works, and a $700,000 personal loan.

The eleven islands and the submerged lands that were used in the project were leased to the artist by the State of Florida for approximately $12,000. Three communities had to give their consent: the City of Miami, the Village of Miami Shores and North Miami City. State approval was given in 1982. Opposition reached critical proportions by 1983. Jurisdiction over the project was eventually given to Federal Court thus no other authority could touch Surrounded

* Photographs of Surrounded Islands can be seen at the Internet site <http://www.beakman.com/christo/xtojc/xtojc.html>.

Figure 65 Airship USN 'Los Angeles' over Biscayne Bay (January 13, 1929). (Downtown Miami is at the center of the image.) [Photoprint, black and white, 8 x 10 in. Rc09329. Reference collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Figure 66. US Navy airship 'Akron' over Biscayne Bay (January 4, 1933). (The 'Akron', built by Goodyear, was based west of Opa Locka and was destroyed next spring in a storm off the coast of New Jersey.) [Photoprint, black and white, 8 x 10 in. Rc15158. Reference collection, Florida State Photo Archive. <http://fpc.dos.state.fl.us/>]

Islands. Only the Justice of the Federal Supreme Court could stop the project. Permits were obtained from the following governmental agencies: The Governor of Florida and the Cabinet; the Dade County Commission; the Department of Environmental Regulation; the City of Miami Commission; the City of North Miami; the Village of Miami Shores; the U.S. Army Corps of Engineers; and the Dade County Department of Environmental Resources Management.

More than 40 tons of garbage including refrigerator doors, tires, kitchen sinks, plastic, bottles, cans, dead animals and an abandoned boat were removed from the islands prior to deployment of the pink fabric. Studies were carried out to determine if the placement of the fabric along the shoreline of the islands would have any adverse environmental effects especially on seagrasses (Thorhaug)*, algae, birds (Owre and Cummings)* and marine mammals (Odell)* . To determine if manatees would be affected by the project, Odell covered a tank at Orlando Sea World containing five manatees with the pink fabric. The US Fish and Wildlife Service was invited to observe that the manatees were neither panic stricken nor driven neurotic by the pink sky above them. The biologists were interested in observing that these mammals showed a predilection for seeking shelter in the new ambiance created by the fabric and once there were roused to sexual behavior.

Detailed surveys of the shape of each island were used to determine how the 6.5 million sq. ft of woven propylene mesh-like pink fabric were to be cut and sewn. Cutting and sewing of the 79 sections of fabric that followed the outline of the islands were done at the Opa Locka Blimp Hangar. A flotation strip was sewn in each seam. The fabric sections were accordion folded for transport to the Bay. Anchors were placed under the trees on the islands and 200 ft away on the Bay bottom, approximately 50 ft apart. A series of radial lines were deployed between the anchors forming a circle around each island. The folded fabric sections were towed to the sites and the sections hooked to the radial lines forming a pink ring around the islands. Blossoming Day, the day in which the folded fabric was unfurled, was May 4, 1983. Each fabric section was unfolded, the fabric pulled towards the anchors set in each island, and secured. The fabric covered the surface of the island beaches so only the dark green vegetation surrounded by bright pink could be seen. Fabric sections were laced together through grommets on the edge of the overlapping sections. By May 7, all eleven islands were completely surrounded by pink fabric and remained thus for two weeks. Surrounded Islands was tended by monitors in inflatable boats during that time. Surrounded Islands was best viewed from the air and the work focused world attention on South Florida and Biscayne Bay.

9.3. Baynanza

Baynanza is a public awareness effort begun in the 1980s to bring attention to the Biscayne Bay ecosystem. The event is sponsored by the Miami-Dade County Department of Environmental Resources Management and many organizations and businesses in South Florida including the Biscayne National Park, the Everglades National Park, the Florida Department of Environmental Protection, the Florida Marine Patrol, the Zoological Society of Florida and Florida Power and Light. Baynanza 2000 included teacher workshops on the marine environment, clean-ups of urban areas and shore lines, restoration work, and field trips to various places in the Bay such as the Fossil Reef in Key Biscayne and Boca Chita Key.

10. DISCUSSION

There exist significant numbers of documents and data related to the environment that for various reasons remain unpublished or are only available as internal reports. Such material is

* The reports produced by these investigators are unpublished (K. Hale, UM/RSMAS/ personal communication, 1999).

extremely difficult to obtain and is thus mostly unavailable to the scientific community and the public. These unique documents and data are important because they define the state of the marine environment in the past, and they are essential for estimating rate of change of ecosystems.

During the preparation of this document, many documents related to Biscayne Bay were available solely through the efforts of South Florida-based faculty and librarians, who saw the value of this material and stored copies in libraries or in their private files. Due to the nature of the materials on which they are printed and in some cases the conditions in which they are housed, they are in jeopardy of being lost.

An effort should be made to search for unpublished data and documents related to the Biscayne Bay and prepare a metadata file of the material. Information judged valuable to current activities can be converted to electronic and printed form, and archived and distributed electronically. Preliminary data and document rescue of Biscayne Bay-related materials has been done and the results are available on the Internet, at the NOAA/Miami Regional Library and at the Marine Library of the University of Miami Rosenstiel School of Marine and Atmospheric Science.*

Photographs proved extremely valuable in this work and in others. Efforts should continue to search, archive and make available images of the South Florida marine environment for future use.

Maps and charts of the area are also invaluable and old versions should be archived and made accessible through libraries or the Internet.

11. CONCLUSIONS

The changes observed in Biscayne Bay since the 1900s are the result of natural and anthropogenic factors. Over the past 200 years, Florida Bay and Biscayne Bay have been driven primarily by climatic and oceanographic factors and these factors were disrupted early in the 20th century by man's influence (Willard *et al.,* 1998). The anthropogenic disruptions resulted in changing salinity patterns, water circulation, benthic fauna and flora, levels of suspended particulates, and salt water intrusion. Recognition of the serious effects of the ecosystem disruption resulted in remediation efforts in the 1980s. There are indications that the Biscayne Bay ecosystem is recovering although conditions are not expected to return to those of the 1900s (Figure 67).

Briefly, major events related to the environment of Biscayne Bay are:

Prior to the 1920s, major changes to the Biscayne Bay ecosystem were caused by climatic events and changes (hurricanes, sea level changes, rainfall, etc).

During the 1920s, there were major changes in North Bay due to construction of artificial islands, bulkheading, dredging of channels and construction of Government Cut and Haulover Cut. Construction activities in and around the Bay slowed considerably after 1930.

Construction of drainage canals beginning at the turn of the century resulted in system-wide ecological changes.

* Coastal and Estuarine Data Rescue and Archeology (CEDAR) web site at <http://www.aoml.noaa.gov/general/lib/CEDAR.html>.

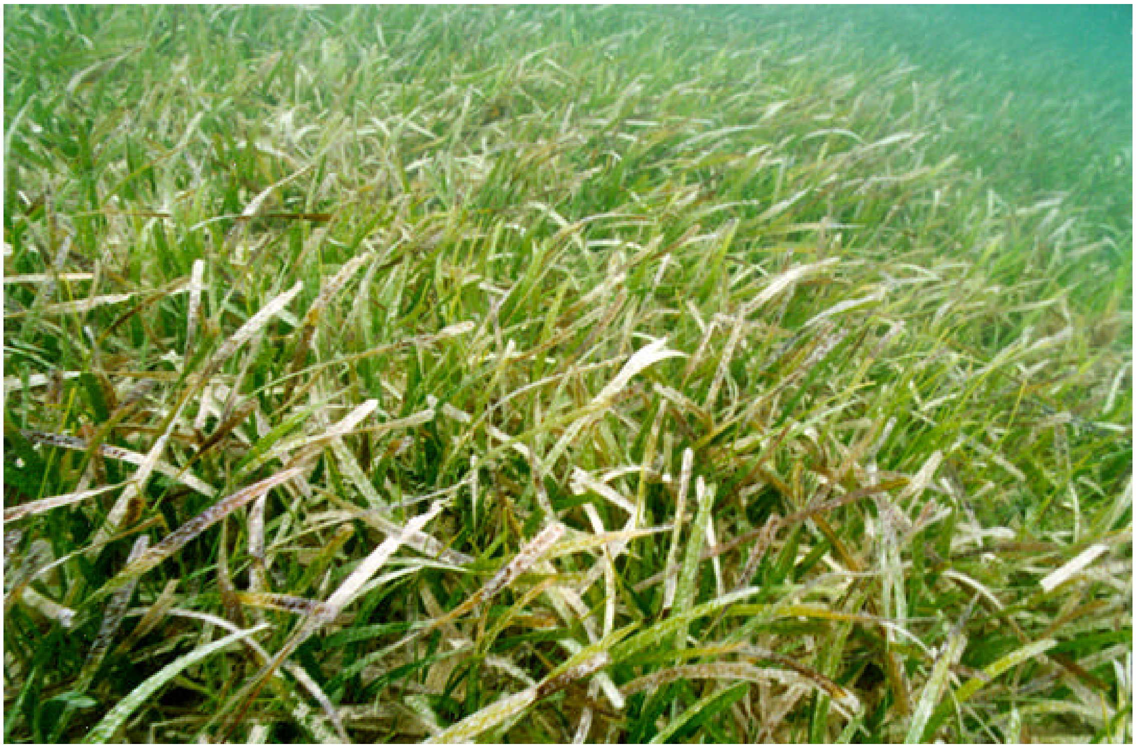

Figure 67. Healthy seagrass bed, Featherbed Shoal, Biscayne National Park (1997). (Photo by Karen Battle, Biscayne National Park.) *See color version on p. 138.*

Bacterial pollution due to untreated sewage discharge into the Bay began during the 1920s.

Bacterial pollution and turbidity reached maximum levels during the middle 1950s.

Major sewers discharging directly into the Bay were closed in the late 1950s.

Construction of Dodge Island in the 1970s and subsequent expansion of the Port of Miami again changed circulation patterns of North Bay.

Abatement measures to decrease turbidity began in the 1980s with changes in bulkheading practices and planting of mangroves.

Turbidity in the Bay decreased by the 1990s. Bottom communities returned. Sports fisheries improved.

Effects of hurricanes are localized and part of the South Florida ecosystem.

The Miami River remains polluted with sewage outfalls, hydrocarbons and trace metals.

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Zaneski, C. T. (1997) Honoring hero of the Bay: Hoover heir fought for environment. The Miami Herald, Miami, FL. March 15. Local. 1B.

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Color photographs

Figure 36. Central Biscayne Bay. [Some of the channels, such as the one between the Miami River and the Virginia Key Sewage Treatment Plant can be observed. The left-most rectangular indentation in the Port of Miami was home base to NOAA and University of Miami research vessels. The deep area north of the 36th Street Cswy. is the dark colored area. Note seagrass bed at the top left of the image.] [Aerial photograph 5WGQ2987, 1992. Scale 1:48000, azimuth 191.1, 25.76833° N, 80.14556° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/ mapfinderhtml3/ surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGQ2987.gif>. Black areas are artifacts in original photograph. See Figure 2 for identification details.]

Figure 37. North Biscayne Bay. [Note seagrass bed north of 36th Street Cswy. (Julia Tuttle Cswy.).] [Aerial photograph 5WPA1338, 1999. Scale 1:39800, azimuth 186.1, 25.82484° N, 80.14796° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WPA1338.gif>. See Figure 2 for identification details.]

Figure 38. Miami River, Port of Miami. and Brickell Key (Note Miami river sediment plume. Some of the old channels are still visible to the east of Brickell Key.) [Aerial photograph 5WG68412, 1992. Scale 1:15000, azimuth 189.7, 25.77778° N, 80.17917° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WG68412.gif>. Black areas are artifacts in original photograph. Figures 38 and newb through newe were reduced to the same scale. See Figure 2 for identification details.]

Figure 39. The Safety Valve. (The southern end of Key Biscayne is at the top. Soldier Key is at the bottom right.) [Aerial photograph 5WGS3280, Jan. 2, 1992. Scale 1:48000, azimuth 208.8, 25.62889° N, 80.17889° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGQ2991.gif>. Black area at the top of the image is an artifact in original photograph. See Figure 3 for identification details.]

Figure 40. Ragged Keys, Sands Key and the northern end of Elliott Key. (The southern end of the Safety Valve is north of the Ragged Keys.) [Aerial photograph 5WGN2919, Jan. 17, 1992. Scale 1:48000, azimuth 11.3, 25.52917° N, 80.14528° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos /5WGN2919.gif>. See Figure 3 for identification details.]

Figure 41. Bakers Haulover Cut. (The Oleta River is just off the image at the upper right. The Munisport Landfill site is almost directly east of Bakers Haulover Cut. Note sediment deltas on either side of the cut. Delta inside the Bay appears to have formed prior to dredging of the Intercoastal Waterway.) [Aerial photograph 5WPA1416, 1999. Scale 1:40000, azimuth 31.1, 25.88965° N, 80.16151° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http:// mfproducts.nos.noaa.gov/images/Photos/5WPA1416.gif>. See Figure 2 for identification details.]

Figure 42. Elliott Key, Caesar's Creek and Old Rhodes Key. (Biscayne Bay and Card Sound are to the right of the image.) [Aerial photograph 5WGN2887, 1992. Scale 1:48000, azimuth 209.2, 25.37861° N, 80.23139° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGN2887.gif>. See Figure 2 for identification details.]

Figure 43. Broad Creek and Angelfish Creek. (Biscayne Bay and Card Sound are to the right of the image.) [Aerial photograph 5WGN2889, 1992. Scale 1:48000, azimuth 209.2, 25.34333° N, 80.25306° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGN2889.gif>. See Figure 2 for identification details.]

Figure 45. Virginia Key and Key Biscayne prior to Hurricane Andrew. (Note extensive Australian pine cover at the southern end of Key Biscayne.) [Aerial photograph 5WGQ2991, Jan. 17, 1992. Scale 1:48000, azimuth 191.1, 25.70722° N, 80.15889° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGQ2991.gif>. Black area at the bottom of the image is an artifact in original photograph. See Figure 3 for identification details.]

Figure 46. Key Biscayne after Hurricane Andrew. (Note difference in plant cover at the southern end of Key Biscayne. Restoration sites are the light colored areas on the Atlantic site just south of Bear Cut and the area to the south on the Bay side.) [Aerial photograph 5WPA1342, 1999. Scale 1:40000, azimuth 187.6, 25.70489° N, 80.16356° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WPA1342.gif>. See Figure 3 for identification details.]

Figure 48. Belle Isle, the Venetian Islands, Watson Island, and the Port of Miami. [Miami Beach is at the top left of the image, and Fisher Island is at the top right. Note that the rectangular ship berthing basins have been filled in (see Figure 38).] [Aerial photograph 5WPB1537, 1999. Scale 1:20000, azimuth 290.2, 25.78139° N, 80.15513° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WPB1537.gif>. Black areas are artifacts in original photograph. See Figure 2 for identification details.]

Figure 51. North Bay, Harbor and Treasure Islands. [Note spoil islands and Intercoastal Waterway.] [Aerial photograph 5WJ68404, 1992. Scale 1:15000, azimuth 189.7, 25.87195° N, 80.16028° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WJ68404.gif>. Black areas are artifacts in original photograph. Figures 38 and newb through newe were reduced to the same scale. See Figure 2 for identification details.]

Figure 52. Bird, Legion, Mangrove and Morningside Keys. [North Bay, Harbor and Treasure Islands are at the top of the image. Note channels cutting across seagrass bed.] [Aerial photograph 5WJ68406, 1992. Scale 1:15000, azimuth 189.7, 25.84833° N, 80.165° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WJ68406.gif>. Black areas are artifacts in original photograph. Figures 38 and newb through newe were reduced to the same scale. See Figure 2 for identification details.]

Figure 53. Morningside Key and 36th Street Cswy. [Teachers Key is at the bottom of the image.] [Aerial photograph 5WJ68408, 1992. Scale 1:15000, azimuth 189.5, 25.825° N, 80.16672° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WJ68408.gif>. Black areas are artifacts in original photograph. Figures 38 and newb through newe were reduced to the same scale. See Figure 2 for identification details.]

Figure 54. Teachers, Biscayne, San Marco, and Watson Islands, and Port of Miami. [Oblong shapes on the north side of the Port are cruise ships.] [Aerial photograph 5WJ68410, 1992. Scale 1:15000, azimuth 189.7, 25.80139° N, 80.17445° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/ mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts. nos.noaa.gov/images/Photos/5WJ68410.gif>. Black areas are artifacts in original photograph. Figures 38 and newb through newe were reduced to the same scale. See Figure 2 for identification details.]

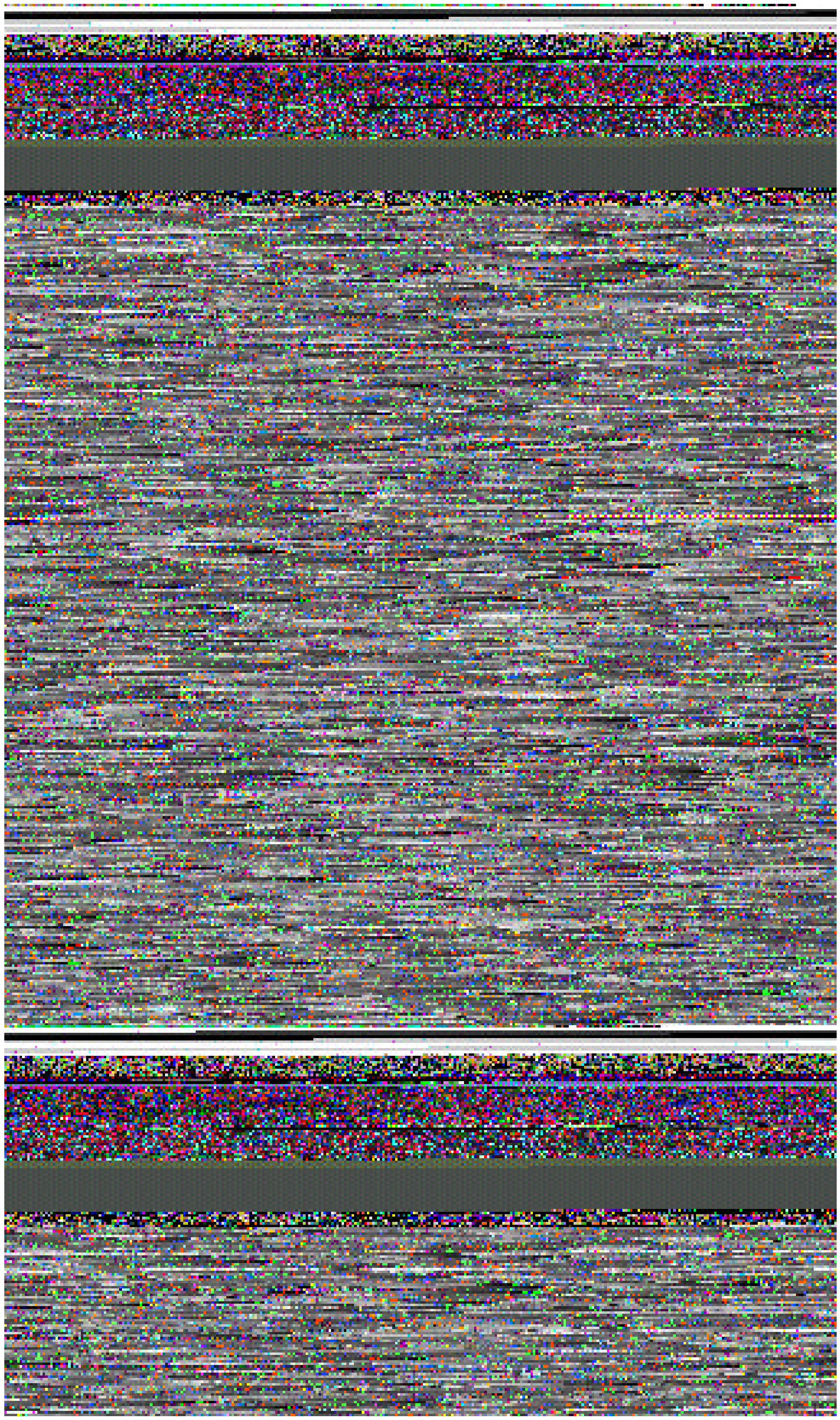

Figure 55. Matheson Hammock, ITT Hammock, the Deering Estate and Chicken Key. [The Matheson Hammock Atoll Pool is the circular feature at the top left of the image. The Snapper Creek Canal (C-2) passes through the ITT Hammock. The Deering Estate is to the right (west) of Chicken Key at the bottom left of the image.] [Aerial photograph 5WGQ2977, 1992. Scale 1:48000, azimuth 11.2, 25.65028° N, 80.29361° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGQ2977.gif>. See Figure 2 for identification details.]

Figure 56. Vizcaya and Mercy Hospital. [Vizcaya is near the top center of the image. The old access channel leading to the stone "boat" (the small oval-shaped island) built on the water at the back of the house can be seen. The Mercy Hospital complex is south of Vizcaya. The Rickenbacker Cswy. is at the top left of the image.] [Aerial photograph 5WJ68378, 1992. Scale 1:15000, azimuth 9.5, 25.73583° N, 80.21333° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WJ68378.gif>. See Figure 2 for identification details.]

Figure 57. Turkey Point cooling canals. [Composite image prepared from aerial photographs 5WGS3233 and 5WGS3235, Jan. 2, 1992. Scale 1:48000; azimuth 191 and 192.1; 25.40778° N, 80.31194° W and 25.37195° N, 80.31972° W. (Coastal Aerial Photography, NOAA/National Ocean Service, <http://mapfinder.nos.noaa.gov:80/mapfinderhtml3/surround/photos/photos.html>, <http://mfproducts.nos.noaa.gov/images/Photos/5WGS3235.gif> and <http://mfproducts.nos.noaa.gov/images/Photos/5WGS3233.gif>. Black areas on the left of the image are artifacts in original photographs. See Figure 3 for identification details.]

Figure 60. Vessel aground, Biscayne Channel, Biscayne National Park (1998). [Note prop scarring in the seagrass bed. One of the houses of Stiltsville is seen at the upper left of the image.] (Photo by Karen Battle, Biscayne National Park.)

Figure 61. Grounding and prop scars, Featherbed Shoal, Biscayne National Park (1996). (Photo by Karen Battle, Biscayne National Park.)

Figure 62. Grounding trench, Pelican Bank (1994). (Photo by Mark Nicholas, Gulf Islands National Seashore.)

Figure 67. Healthy seagrass bed, Featherbed Shoal, Biscayne National Park (1997). (Photo by Karen Battle, Biscayne National Park.)

Appendix I.
Biscayne Bay annotated bibliography

Time coverage is the date of sampling (if known) or in the case of calculated or inferred parameters by publication date (noted with a diamond). Geological studies describing formation of geological features in the area are listed by publication date. Author and subject indices are provided in Appendices II and III.

1
Abel, C. E. (1980) Hurricane surge stage-frequency analysis for Dade County, Florida. Technical report HL-80-14. U.S. Army Engineer District, Jacksonville, FL.
TIME COVERAGE: 1980 ◊
SUMMARY: A numerical investigation of hurricane surge stage-frequency relationship was performed for Dade County. Surface wind stress was the dominant forcing function for this application of the model.
KEY WORDS: Hurricanes, Storm surges, Mathematical models, Dade County

2
Abele, L. G., and W. Kim (1986) An Illustrated Guide to the Marine Decapod Crustaceans of Florida. Florida State University, Tallahassee, FL.
TIME COVERAGE: 1986 ◊
SUMMARY: This is a guide to the decapod crustaceans of Florida.
KEY WORDS: Decapod crustaceans, Identification keys, Organism morphology, Florida, Guide

3
Achmad, S. (1973) The influence of temperature on the early development of the lined sole (*Achirus lineatus* Linnaeus) reared in the laboratory. M.Sc. thesis. University of Miami, Coral Gables, FL. 62 pp.
TIME COVERAGE: 1971
SUMMARY: Naturally spawned pelagic eggs were collected in Virginia Key and reared in the laboratory and exposed to a variety of temperature levels. Many abnormalities were observed and frequency of occurrence was affected by temperature.
KEY WORDS: *Achirus lineatus*, Lined sole, Rearing, Temperature effects, Virginia Key

4
Ackerman, B. B. (1995) Aerial surveys of manatees: a summary and progress report. In: Population Biology of the Florida Manatee. T. J. O'Shea, B. B. Ackerman, and H. F. Percival (eds.). Information and technology report 1. National Biological Service, Washington, DC. 13-33.
TIME COVERAGE: 1991 - 1992
SUMMARY: Aerial surveys were used to document the distribution and relative abundance of manatees and to assess population trends.
KEY WORDS: Manatees, *Trichechus manatus latirostris*, Aerial surveys, Florida

5
Ackerman, B. B., S. D. Wright, R. K. Bonde, D. K. Odell, and D. J. Banowetz (1995) Trends and patterns in mortality of manatees in Florida, 1974-1992. In: Population Biology of the Florida Manatee. T. J. O'Shea, B. B. Ackerman, and H. F. Percival Information and technology report 1. National Biological Service, Washington, DC. 223-258.
TIME COVERAGE: 1974 - 1992

SUMMARY: Number of recovered manatee carcasses increased steadily during the years of this study while the size of the human population and the number of registered watercraft in Florida increased less rapidly. Deaths from collisions with watercraft increased at 9%/yr. Deaths of perinatal calves from any cause increased at 12%/yr. Two less common categories cause of death - crushing or drowning in flood control gates and canal locks and other human related causes - did not change significantly. However, deaths in these categories decreased more than deaths from other causes. Some deaths were attributed to severe cold and to red tide toxicity. Watercraft-related mortalities were highest in eastern Florida. Natural mortality was greatest in winter. Anthropogenic mortality was greatest in summer. Anthropogenic mortality was greater in the eastern coast and disproportionately affected adult manatees.
KEY WORDS: Manatees, *Trichechus manatus latirostris*, Mortality, Florida

6
Adams, J. A. (1958) A contribution to the biology and postlarval development of the Sargassum fish, *Histrio histrio* (Linnaeus), with a discussion of the Sargassum complex. M.Sc. thesis. University of Miami, Coral Gables, FL. 66 pp.
TIME COVERAGE: 1958 ◊
SUMMARY: This work is a general discussion of Sargassum fish, and includes post-larval and juveline series specimen documentation. Several specimens were obtained in Biscayne Bay.
KEY WORDS: *Histrio histrio*, Sargassum fish, Juveniles, Biological development

7
Adams, J. A. (1960) A contribution to the biology and postlarval development of the Sargassum fish, *Histrio histrio* (Linnaeus), with a discussion of the Sargassum complex. Bull. Mar. Sci. Gulf Caribb., 10(1):55-82.
TIME COVERAGE: 1951 - 1956
SUMMARY: The early development of *Histro* was described based on a collection of larval and juvenile specimens collected in the Florida Current and other areas including Miami. Growth, biology, feeding and relationship of the Sargassum complex were discussed.
KEY WORDS: Sargassum fish, *Histrio histrio*, Juveniles

8
Aftring, R. P. (1979) The bacterial degradation of phthalates emphasizing anaerobic catabolism linked to denitrification. M.Sc. thesis. University of Miami, Coral Gables, FL. 71 pp.
TIME COVERAGE: 1979 ◊
SUMMARY: Cultures that grew on phthlates were obtained by enrichment using sediments from the Miami River and Biscayne Bay as inocula. Suspensions of the cultures were used to study degradation of phthalates.
KEY WORDS: Biodegradation, Anaerobic bacteria, Phthalic acid, Isophthalic acid, Microbiology

9
Agassiz, A. (1896) The Florida elevated reef. With notes on the geology of southern Florida by Leon S. Griswold. Bulletin of the Museum of Comparative Zoology at Harvard College, 28(2):1-62.
TIME COVERAGE: 1896 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Coral reefs, Geology, South Florida

10
Agassiz, A. (1888) Three cruises of the United States Coast and Geodetic Survey Steamer "Blake" in the Gulf of Mexico, in the Caribbean Sea, and along the Atlantic Coast of the United States, from 1877 to 1880. Bull. Museum of Comparative Zoology at Harvard College, 14(-):xxii, 1-314.

TIME COVERAGE: 1877 - 1880
SUMMARY: This book contains a detailed description of the cruises of the "Blake" in the Gulf of Mexico, Caribbean Sea and Atlantic Coast. One of the chapters discusses the reefs of Florida.
KEY WORDS: Coral reefs, Geology, Pelagic environment, Cruise reports, Blake (Ship), Gulf of Mexico, Caribbean, Atlantic coast, Dry Tortugas, Marquesas, Florida Keys, Cape Florida

11
Agassiz, L. (1857) Extracts from the report of Professor Agassiz to the Superintendent of the Coast Survey, on the examination of the Florida reefs, Keys and coast. Report of the Superintendent of the United States Coast Survey, showing the progress of the Survey during the year 1857. Appendix no. 10. House of Representatives, Executive document no. 87, 39th Congress, 2d session. US Government Printing Office, Washington, DC. 145-160. 140 pp.
TIME COVERAGE: 1857 ◊
SUMMARY: This paper discusses the Florida Keys and parts of the coast in mainland Florida. A brief mention is made of Miami.
KEY WORDS: Coral reefs, Coastal oceanography, Florida Keys, Gulf Stream

12
Agassiz, L. (1869) Extracts from the report of Professor Agassiz to the Superintendent of the Coast Survey, on the examination of the Florida reefs, Keys and coast. Report of the Superintendent of the United States Coast Survey, showing the progress of the Survey during the year 1866. Appendix no. 19. House of Representatives, Executive document no. 87, 39th Congress, 2d session. US Government Printing Office, Washington, DC. 120-130. 140 pp.
TIME COVERAGE: 1869 ◊
SUMMARY: This paper discusses the Florida Keys and parts of the coast in mainland Florida. A brief mention is made of Miami.
KEY WORDS: Coral reefs, Coastal oceanography, Florida Keys, Gulf Stream

13
Agassiz, L. (1880) Memoirs of the Museum of Comparative Zoology at Harvard College., 7(1):-61.
SUMMARY: Report on the Florida reefs, accompanied by illustrations of Florida corals.
KEY WORDS: Coral reefs, Coral, Florida

14
Ahearn, D. G. (1964) A comparative physiological and morphological study of terrestrial- and marine-occurring carotenogenic yeasts. Ph.D. dissertation. University of Miami, Coral Gables, FL. 164 pp.
TIME COVERAGE: 1964 ◊
SUMMARY: Specimens of water, sediments, plants and animals were collected at sites in northern Biscayne Bay and in the Bahamas. Offshore water samples were also collected. Yeasts were isolated and identified, and the physiological and morphological characteristics determined.
KEY WORDS: Fungi, Rhodotorula, Dioszegia, Sporobolomyces, Yeasts, Northern Bay, Bahamas

15
Ahearn, D. G. (1959) A study of the isolation and occurrence of pink yeasts in Biscayne Bay, Florida and adjacent subtropical marine localities. M.Sc. thesis. University of Miami, Coral Gables, FL. 49 pp.
TIME COVERAGE: 1959 ◊
SUMMARY: Yeast specimens of five species were isolated from sediment and water samples and identified.

KEY WORDS: Fungi, Rhodotorula, Yeasts, Coot Bay, Northern Bay, Bear Cut, Dinner Key, Key Biscayne, Government Cut

16
Ahearn, D. G., F. J. Roth, and S. P. Meyers (1968) Ecology and characterization of yeasts from aquatic regions of south Florida. Mar. Biol., 1(4):291-308.
TIME COVERAGE: 1968 ◊
SUMMARY: A collection of more than 1000 yeasts, representing more than 50 taxa, were characterized and studied. Highest densities were found in fresh waters.
KEY WORDS: Yeasts, Fungi, Candida, Cryptococcus, Rhodotorula, *Debaryomyces hansenii*, South Florida, Key Biscayne, Virginia Key, Bear Cut, Miami River

17
Aigner, T. (1985) Storm sedimentation in nearshore skeletal banks, South Florida. In: Storm Depositional Systems: Dynamic Stratigraphy in Modern and Ancient Shallow-Marine Sequences. G. M. Friedman, H. J. Neugebauer, and A. Seilacher (series eds.). Lecture notes in earth sciences 3. Springer-Verlag, Berlin, Germany. 174 p.
TIME COVERAGE: 1985 ◊
SUMMARY: The object of this citation was to provide an actualistic example of storm sedimentation in nearshore skeletal banks and to document storm-generated sequences not known before from such settings; and to examine the role of storms in the development and growth of near-shore skeletal banks as a style of storm sedimentation that contrasts with more offshore level-bottom environments. The Safety Valve was the chosen study site.
KEY WORDS: Sedimentation, Biogenic sedimentary structures, Storm surge, Hurricanes, Banks (Topography), Safety Valve

18
Aigner, T. (1992) Storm sedimentation in nearshore skeletal banks, south Florida. In: Upper Ordovician (Cincinnatian Series) Kope, Fairview and Bellevue Formations: storm-dominated carbonate-ramp deposits. Keck Consortium GSA pre-meeting fieldtrip, October 25th, 1992. Geological Society of America, Cincinnati, OH? 42-48.
TIME COVERAGE: 1992 ◊
SUMMARY: This is a geological field guide to the Safety Valve.
KEY WORDS: Sediment transport, Storms, Nearshore sedimentation, Sand bars, Safety Valve, Field guide

19
Albertson, H. D. (1973) A comparison of the upper lethal temperatures of animals of fifty common species from Biscayne Bay. M.Sc thesis. University of Miami, Coral Gables, FL. 78 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: The upper lethal temperature of common species of animals collected in Biscayne Bay were determined. For most species, the interval between the temperature at which all specimens of a species were alive and all were dead ranged 1 - 2 °C only.
KEY WORDS: Temperature effects, Temperature tolerance, Animal physiology

20
Albertson, H. D. (1980) Long term effects of high temperatures and low salinities on specimens of *Melongena corona* and *Nassarius vibex*. Ph.D. dissertation. University of Miami, Coral Gables, FL. 222 pp.
TIME COVERAGE: 1972 - 1977
SUMMARY: The purpose of this study was to examine the long term exposure to constant high temperatures and unvarying low salinities on growth and survival in two gastropod species. Some specimens were collected in Biscayne Bay,

KEY WORDS: Temperature effects, Salinity effects, *Melongena corona*, *Nassarius vibex*, Animal physiology, Gastropods

21
Albertson, H. D., and R. F. Thomas (1974) The regular sea urchins of South Florida. Sea Frontiers, 20(6):352-358.
TIME COVERAGE: 1974 ◊
SUMMARY: This article describes the most common species of sea urchins found in South Florida.
KEY WORDS: Sea urchin, *Eucidaris tribuloides*, *Echinometra viridis*, *Echinometra lucunter*, *Lytechinus variegatus*, *Tripneustes ventricosus*, *Diadema antillarum*, South Florida

22
Alexander, T. R. (1974) Evidence of recent sea level rise derived from ecological studies on Key Largo, Florida. In: Environments of South Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 219-222.
TIME COVERAGE: 1974 ◊
SUMMARY: Pinus elliottii stumps were found in situ in a saltwater community where soil salt levels were too high for pines. Evidence was presented to indicate that the plant communities in that site reflect and support other evidence that the ocean level has been rising.
KEY WORDS: Sea level changes, Key Largo, *Pinus elliottii*, Plant populations, Key Largo

23
Alexander, T. R., and A. G. Crook (1974) Recent vegetational changes in Southern Florida. In: Environments of South Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 61-72.
TIME COVERAGE: 1974 ◊
SUMMARY: Vegetational change or plant succession was described for South Florida. Several significant shifts in species composition within communities, as well as the replacement of communities, were recognized. There were documented for a 16-30 yr period, and include a landward increase of mangrove forests, loss of coastal hardwood hammocks, both gain and loss of Everglades tree islands, replacement of sawgrass by shrubs, pine and hardwood invasion by cypress, and pineland succession to hammock. The specific impact of farming, canals, roads and exotic plants was also discussed.
KEY WORDS: Plant populations, Coastal zone, Trees, Key Largo

24
Alexander, T. R., and A. G. Crook (1984) Recent vegetational changes in southern Florida. In: Environments of South Florida: Present and Past II. P. J. Gleason (ed.). Miami Geological Society, Miami, FL. p.
TIME COVERAGE: 1984 ◊
SUMMARY: Vegetational succession is described for South Florida. Several shifts in species composition within communities as well as replacement of communities are noted. These are documented for a 16 - 30-yr period.
KEY WORDS: Plant populations, Coastal zone, Trees, South Florida

25
Al-Hoti, B. N. (1987) Development of a model to predict biofouling control with chlorine in steam electric power plant condenser tubes. Ph.D. dissertation. University of Miami, Coral Gables, FL. 302 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: A phenomenological model was developed to predict biofouling control in power plant condensers utilizing chlorine. The model was tested in Miami using Biscayne Bay water.

KEY WORDS: Fouling control, Models, Power plants, Chlorine, Tubing

26
Al-Hoti, B. N. (1989) A predictive model to find the optimum chlorine treatment scenario for biofouling control. Desalination, 74(-):227-241.
TIME COVERAGE: 1986 - 1987
SUMMARY: A phenomenological model was developed to predict biofouling control in power plant condensers utilizing chlorine. One of the studies of biofouling prevention was conducted in Miami using Biscayne Bay water.
KEY WORDS: Fouling control, Models, Power plants, Chlorine, Cooling water

27
Alleman, R. W. (1981?) Biscayne Bay: a survey of past mangrove mitigation/restoration efforts. Biscayne Bay Restoration and Enhancement Program. Dade County Department of Environmental Resources Management,, Miami, FL. 36 pp + appendices.
TIME COVERAGE: 1981 ◊
SUMMARY: This reports assessed ten sites where mangroves were either planted or naturally revegetated. Physical and biological conditions at these sites as well as planting methods utilized were described. The establishment of mangroves was successful when effective monitoring and replacement programs, proper substrate elevations, low wave energy and inaccessibility were combined.
KEY WORDS: Mangrove swamps, Restoration, Poinciana Island, Haulover easement, Mariners Bay, Villa Regina, Crandon Island, Cocoplum, No Name Harbor

28
Alleman, R. W. (1982) Biscayne Bay water quality: reporting period March 1981 - February 1982. No report number available. Dade Country Department of Environmental Resources Management, Miami, FL. 59 pp + appendices.
TIME COVERAGE: 1981 - 1982
SUMMARY: This report contains water quality data for surface waters collected in Biscayne Bay. Parameters measured include nutrients, dissolved oxygen, coliform bacteria and chlorophyll.
KEY WORDS: Water quality, Pollution monitoring, Pollution indicators, Nutrients, Dissolved oxygen, Coliform bacteria, Chlorophylls

29
Alleman, R. W. (1990) Surface water quality in the vicinity of Black Point, Dade County, Florida; March 1990. DERM technical report 90-14. Metro Dade Department of Environmental Resources Management, Miami, FL. 21 pp.
TIME COVERAGE: 1990
SUMMARY: This report contains water quality data for surface waters collected in Biscayne Bay. Parameters measured include nutrients, dissolved oxygen, coliform bacteria, chlorophyll, Cd, Cu, Pb, and Zn.
KEY WORDS: Surface water, Water quality, Black Point, Nutrients, Dissolved oxygen, Coliform bacteria, Chlorophyll, Cd, Cu, Pb, Zn

30
Alleman, R. W. (1991) A synopsis of the water quality and monitoring program in Biscayne Bay, Florida. In: The Light Requirements of Seagrasses. Proc., workshop to examine the capability of water quality criteria, standards and monitoring programs to protect seagrasses. W. J. Kenworthy, and D. E. Haunert (eds.). NOAA tech. memo. NMFS-SEFC 287. NOAA/NMFS, Beaufort Laboratory, Beaufort, NC. 181 pp. 152-159.
TIME COVERAGE: 1991 ◊

SUMMARY: In 1978 Metro-Dade County began a long term Bay-wide water quality monitoring program. Samples were collected and analyzed for color, turbidity, suspended solids and photosynthetically sensitive radiation (PAR). At the time of this writing, 15% of the bottom of the Bay was barren excluding naturally barren bottom habitats. Barren bottom types were associated with high average water column PAR values.
KEY WORDS: Water quality, Pollution monitoring, Color, Turbidity, Suspended particulate matter

31
Allen, D. M., and T. J. Costello (1966) Releases and recoveries of marked pink shrimp, *Penaeus duoraru*m Burkenroad, in south Florida waters, 1958-64. Data rep. 11. Contribution no 201. Bureau of Commercial Fisheries Biological Laboratory, Galveston, TX. US Fish and Wildlife Service, Washington, DC. 77 pp.
TIME COVERAGE: 1958 - 1964
SUMMARY: Pink shrimp were captured, stain-marked, released and recaptured during the study period. The study sites included three in Biscayne Bay. Practically all recaptures were by commercial shrimp boats. Less than 1% of the shrimp released in estuaries or near shore were recovered, whereas 23% of those released on offshore fishing grounds were. This may be explained by the greater amount of fishing in the offshore areas.
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Marking, Migrations, Growth, Florida Keys, Everglades

32
Allen, D. J., P. Kasibhatla, A. M. Thompson, R. B. Rood, B. G. Doddridge, K. E. Pickering, R. D. Hudson, and S. J. Lin (1996) Transport-induced interannual variability of carbon monoxide determined using a chemistry and transport model. J. Geophys. Res., 101(D22):28655-28669.
TIME COVERAGE: 1989 - 1993
SUMMARY: Transport-induced interannual variability of carbon monoxide was studied using the Goddard chemistry and transport model driven by assimilated data.
KEY WORDS: Carbon monoxide, Transport processes, Atmospheric circulation, Monitoring systems, Key Biscayne

33
Allen, G. W. (1967) A biologist's viewpoint of man-made changes in estuaries. Proc., Gulf Caribb. Fisheries Institute, xxth annual session. 1966. University of Miami, Coral Gables, FL. 69-74.
TIME COVERAGE: 1967 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Estuaries, Brackishwater environment, Man-induced effects, Environmental impact

34
Almasi, M. N. (1978) Ecology and color variation of benthic foraminifera in Barnes Sound, northeast Florida Bay. M.Sc. thesis. University of Miami, Coral Gables, FL. 144 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: The object of this study was to investigate the taxonomy and distribution of recent benthonic foraminifera in Barnes Sound and to determine factors which cause color variations in the foraminiferal tests.
KEY WORDS: Foraminifera, Benthos, Barnes Sound, Sediment, Florida Bay

35
Alt, D., and H. K. Brooks (1965) Age of the Florida marine terraces. J. Geol., 73(2):406-411.
TIME COVERAGE: 1965 ◊

SUMMARY: The landscape of Florida is dominated by abandoned marine shore lines and associated terraces. This paper discusses the age of such terraces.
KEY WORDS: Coastal landforms, Terraces, Sea level changes, Topographic features, Stratigraphy

36
Altschuler, Z. S., and C. S. Zen (1975) Reconnaissance of trace elements and pollution in Biscayne Bay, Miami, and the adjoining Everglades, Florida. Abstracts with programs, 7(7):973-974.
TIME COVERAGE: 1975 ◊
SUMMARY: A reconnaissance of the distribution and the pollution pathways of trace elements in Holocene sediments was documented by analyses of cores and bottom muds of Biscayne Bay, and of "soils" and surface sediments sampled in pairs, both for distance from highways and for depth. Lead and Hg showed clear patterns or regional metropolitan pollution was evaluated against data from Florida Bay and geochemical norms established from deeper and more remote samples. Pollution is clearly augmented along major highways and declines rapidly within 100 to 200 yds laterally. Biscayne Bay sediment exhibited contamination by Pb, Hg and Cu which areally was related to major canal effluents and largely reflected urban runoff and sediment discharge. Concentrations of these elements increased upward within the uppermost 20 in of sediment
KEY WORDS: Trace elements, Sediment pollution, Pb, Hg, Cu, Everglades, Florida Bay

37
Andersen, B. L. (1975) A population study of the benthonic foraminiferida in northern Biscayne Bay, Florida. Tulane Studies in Geology and Paleontology, 11(4):253-301.
TIME COVERAGE: 1973
SUMMARY: A portion of northern Biscayne Bay was investigated to determine the distribution of its benthonic foraminiferal assemblage. Percentages were calculated for the standing crop and total population from a count of all specimens present in aliquots of 26 samples from 15 stations. One hundred fifty-two species were identified. Areal distributions and abundance of certain species can be correlated with grain size distribution of the sediments.
KEY WORDS: Foraminifera, Benthos, Ecological distribution, Abundance, North Bay

38
Andree, S. W. (1981) Locomotory activity patterns and food items of benthic postlarval spiny lobsters, *Panulirus argus*. M.Sc. thesis. Florida State University, Tallahassee, FL. 50 pp.
TIME COVERAGE: 1980 - 1981
SUMMARY: This study examined post-larval locomotory activity, foraging, and diet in the field, as well as activity patterns in the laboratory.
KEY WORDS: Spiny lobster, *Panulirus argus*, Juveniles, Locomotion, Activity patterns, Food consumption

39
Anonymous (1970) Aquaculture comes to Turkey Point. American Fish Farmer & World Aquaculture News, 1(8):14-18, 27.
TIME COVERAGE: 1970 ◊
SUMMARY: This article describes shrimp aquaculture activities at the Turkey Point power plant.
KEY WORDS: Shrimp culture, Thermal aquaculture, Turkey Point

40
Anonymous (1907) Fishing records in Biscayne Bay. The Sunday Times-Union, Jacksonville, FL. Mar. 10.

TIME COVERAGE: 1907
SUMMARY: This article reported on the record breaking tarpon catches in the upper Bay.
KEY WORDS: Recreational fisheries

41
Anonymous (1965?) Islandia story. 10 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Land use, Islandia

42
Anonymous (1903) Souvenir of Miami and Biscayne Bay. Albertype Co., Brooklyn, NY. 11 pp.
TIME COVERAGE: 1903 ◊
SUMMARY: [NOT AVAILABLE.]
KEY WORDS: Description, Views

43
Anonymous (1907) Tarpon records in Biscayne Bay. The Sunday Times-Union, Jacksonville, FL. Mar. 3.
TIME COVERAGE: 1907
SUMMARY: This article discussed the record breaking tarpon catches in the upper Bay.
KEY WORDS: Recreational fisheries

44
Antonini, G. A., P. W. Box, E. Brady, M. Clarke, H. R. Ledesma, and J. L. Rahn (1993) Location and assessment of Hurricane Andrew damaged vessels on Biscayne Bay and adjoining shore areas. Vol. 1: Text and appendices. Tech. paper TP-70A. Florida Sea Grant College Program, Gainesville, FL. 58 pp.
TIME COVERAGE: 1992
SUMMARY: This report assessed damage to in-the-water vessels by Hurricane Andrew, to map the locations of the vessels, and to determine areas of potential impacts of vessel sinkings and wreckage on the environment. The project provides guidelines for developing hurricane vessel damage assessment strategies to cope with similar future natural hazards.
KEY WORDS: Boats, Marinas, Coastal structures, Damage, Hurricane Andrew

45
Antonini, G. A., and P. W. Box (1995) Location and assessment of Hurricane Andrew damaged vessels on Biscayne Bay and adjoining shore areas. In: Coastal Zone '95. Proc., 9th Conf. B. L. Edge, (ed.). American Society of Civil Engineers, New York. 169-170.
TIME COVERAGE: 1992
SUMMARY: Biscayne Bay experienced damage to shoreline boating facilities and docked/anchored vessels as the result of Hurricane Andrew. A GIS database of vessel locations and attributes as the result of the storm was created and the data interpreted.
KEY WORDS: Boats, Coastal structures, Damage, Hurricane Andrew, Ragged Keys

46
Applied Biology, I. (1982) Key Largo National Marine Sanctuary water quality assessment and modeling program: phase I. Contract no. NA81-GA-C-00047. Applied Biology, Inc., Atlanta, GA. (Various paging).
TIME COVERAGE: 1982 ◊
SUMMARY: This report described a mathematical model for managing the Key Largo National Marine Sanctuary and Biscayne National Park. Both geographical areas were treated differently.

KEY WORDS: Water quality, Coral reefs, Reef tract, Biscayne National Park, Key Largo National Marine Sanctuary

47
Aprieto, V. L. (1973) Early development of carangid fishes of the Gulf of Mexico and the south Atlantic coast of the United States. Ph.D. dissertation. University of Miami, Coral Gables, FL. 167 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: This work is a description of the early development stages of carangid fishes. Some specimens were collected in Biscayne Bay.
KEY WORDS: Carangidae, Fish larvae, Gulf of Mexico, Atlantic coast

48
Araujo, R. J., J. C. Jaramillo, and S. C. Snedaker (1997) LAI and leaf size differences in two red mangrove forest types in south Florida. Bull. Mar. Sci., 60(3):643-647.
TIME COVERAGE: 1997 ◊
SUMMARY: Leaf area indices (LAI) were evaluated for two different mangrove forest types (basin and dwarf) using the plumb line and canopy line interceptions methods. LAI and leaf size were found to be significantly different.
KEY WORDS: Red mangrove, *Rhizophora mangle*, Leaves, Matheson Hammock, Chapman Field

49
Armentano, T. V., R. F. Doren, W. J. Platt, and T. Mullins (1995) Effects of Hurricane Andrew on coastal and interior forests of southern Florida: overview and synthesis. In: Impacts of Hurricane Andrew on the Coastal Zones of Florida and Louisiana: 22-26 August 1992 (J. Coastal Res. Spec. Issue 21). G. W. Stone, and C. W. Finkl (eds.). Coastal Education and Research Foundation, Ft. Lauderdale, FL. 364 pp.
TIME COVERAGE: 1992
SUMMARY: This citation is a discussion of the effects of Hurricane Andrew upon inland forests in South Florida, most at the Everglades National Park. The discussion includes effects on the mangrove forests on the shore of Biscayne Bay
KEY WORDS: Mangrove swamps, Trees, Cypress, Vegetation, Hammocks, Hurricane Andrew, South Florida

50
Arnold, P. I., J. E. Serafy, M. E. Clarke, and D. R. Schultz (1996) An immunological study of predation on hatchery-reared juvenile red drum (*Sciaenops ocellatus*, Linnaeus): description of an ELISA and predator-prey studies in nature. J. Exp. Mar. Biol. Ecol., 199(1):26-44.
TIME COVERAGE: 1988 - 1994?
SUMMARY: This report is a continuation of an on-going study to develop immunological methods for eventual use in determining the predation mortality of newly released, hatchery-reared red drum. Using a specific goat antiserum produced to a purified 80 kDa red drum glycoprotein, the glycoprotein was determined routinely in extracts of red drum. After released of red drum fingerlings, great barracuda and redfin needlefish were collected, and the immunological tests used to identify the red drum specimens in the stomachs of these predators.
KEY WORDS: Red drum, *Sciaenops ocellatus*, Juveniles, Predation, Immunology, Hobie Beach, Matheson Hammock, Great barracuda, *Sphyraena barracuda*, *Strongylura notata*, Redfin needlefish

51
Ash, A. (1977) A view of Biscayne Bay; yachtsman's paradise. Arch. Digest, 34(4):118-121.
TIME COVERAGE: 1977 ◊

SUMMARY: This article describes the interior design of an apartment overlooking Biscayne Bay.
KEY WORDS: Art, Public access, Coastal zone management, Interior design

52
Ashton, R. E. (ed.) (1992) Rare and Endangered Biota of Florida. University Press of Florida, Gainesville, FL.
TIME COVERAGE: 1992 ◊
SUMMARY: These books discuss rare and endangered species found in Florida. Vol. I discusses mammals; Vol. 2, fishes; Vol. 3 amphibians and reptiles; and Vol. 4, birds.
KEY WORDS: Rare species, Biota, Mammals, Birds, Amphibians, Reptiles, Fish, Plants, Invertebrates, Florida, Guide

53
Aska, D. Y., and D. W. Pybas (1983) Atlas of artificial reefs in Florida. Sea Grant marine advisory bull. MAP-30. Florida Sea Grant College Program, Gainesville, FL. 15 pp.
TIME COVERAGE: 1983 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Artificial reefs, Atlases, Florida

54
Atkinson, B. (1970) Biscayne Bay: the splendor, the endless fight to save it. Audubon, 72(5):36-46.
TIME COVERAGE: 1970 ◊
SUMMARY: This article describes conditions in Biscayne Bay in the 1960s and some of the planned developments in the area that were not carried out.
KEY WORDS: Description, Biscayne National Park, Turkey Point, Environmental protection, Urbanization, Coastal zone management

55
Atkinson, B. (1972) This Bright Land: a Personal View. Doubleday/Natural History Press, Garden City, NY. 201 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: This book describes the history of the development of the area including southern Biscayne Bay.
KEY WORDS: Environmental protection, Urbanization, Coastal zone management, Nature conservation, Turkey Point

56
Atomic Energy Commission (1972) Draft detailed statement on the environmental considerations related to the proposed issuance of operating licenses to the Florida Power and Light Company for Turkey Point plant units 3 and 4. Report. US Atomic Energy Commission, Division of Radiological and Environmental Protection, Washington, DC. 115 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: This is the draft of the environmental statement regarding the Turkey Point Plant.
KEY WORDS: Environmental impact, Nuclear power plants, Turkey Point, Card Sound

57
Atomic Energy Commission (1972) Final environmental statement related to operation of Turkey Point Plant, Florida Power and Light Company. Final report. Dockets 50-250 and 50-251. US Atomic Energy Commission. Directorate of Licensing, Washington, DC. Various paging.
TIME COVERAGE: 1972 ◊
SUMMARY: This is the final environmental impact statement for the Turkey Point Plant.

KEY WORDS: Environmental impact, Power plants, Turkey Point

58
Atwood, A. D. (1996) The burning of Richmond. Naval Aviation, 78(4):36-39.
TIME COVERAGE: 1945
SUMMARY: Richmond Naval Air Station, one of the largest lighter than air ship base during the 1940s, was destroyed by fire during the Hurricane of 1945. The fire damage constitutes the biggest peacetime loss of federal property, in the shortest time, on record.
KEY WORDS: Richmond Naval Air Station, Lighter than air ships, Hurricane of 1945

59
Atwood, W. G., and A. A. Johnson (1924) Marine structures; their deterioration and preservation. Report of the Committee on Marine Piling Investigations of the Division of Engineering and Industrial Research of the National Research Council. National Research Council, Washington, DC. 534 pp.
TIME COVERAGE: 1922 - 1923
SUMMARY: This report describes the results of exposure of a test panel in Biscayne Bay. Little evidence of marine life was found.
KEY WORDS: Offshore structures, Boring organisms, Construction materials, Port installations

60
Ault, J. S., G. A. Diaz, S. G. Smith, J. Luo, and J. E. Serafy (1999) An efficient sampling survey design to estimate pink shrimp population abundance in Biscayne Bay, Florida. North Am. J. Fisheries Management, 19(3):696-712.
TIME COVERAGE: 1999 ◊
SUMMARY: An efficient sampling design-based approach using fishery-independent surveys to estimate population abundance of pink shrimp over time is described.
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Population number, Biological sampling

61
Ault, J. S., J. Luo, S. G. Smith, J. E. Serafy, J. D. Wang, R. Humston, and G. A. Diaz (1999) A spatial dynamic multistock production model. Canadian J. Fish. Aquatic Sci., 56(Suppl. 1):4-25.
TIME COVERAGE: BB 512
SUMMARY: 1999 ◊
KEY WORDS: Population dynamics, Trophodynamic cycle, Predation, Spatial variations, Models, Pink shrimp, *Penaeus duorarum*, Spotted seatrout, *Cynoscion nebulosus*

62
Ault, J. S., J. Serafy, D. DiResta, and J. Dandelski (1997) Impacts of commercial fishing on key habitats within Biscayne National Park. Ann. rep. on cooperative agreement no. CA-5250-6-9018. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 80 pp.
TIME COVERAGE: 1997 ◊
SUMMARY: The purpose of this study was to determine the extent of the effects of commercial activities on habitats of Biscayne National Park, namely bait shrimp trawling, and trapping of spiny lobster, stone crab, and blue crab. Rollerframe trawling for shrimp does not appear to damage seagrasses but damage to sessile invertebrates (sponges and corals) in hardbottom communities is conspicuous and may be long lasting. Damage to seagrasses due to trap fisheries depends on trap type and soak time.
KEY WORDS: Commercial fishing, Pink shrimp, Stone crab, Blue crab, Spiny lobster, Trap fishing, Trawling, Habitat, Biscayne National Park

63
Ault, J. S., S. G. Smith, G. Meester, G. Diaz, J. Luo, and J. A. Bohnsack (1999) Design-based sampling to assess fish and macroinvertebrate populations in Biscayne Bay and the adjacent coral reef system. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 220.
TIME COVERAGE: 1999 ◊
SUMMARY: The results of a sampling design-based approach using fishery-independent surveys to assess populations of fish and macroinvertebrates in Biscayne Bay and adjacent coral reefs are presented.
KEY WORDS: Coral reefs, Fish population, Macroinvertebrates, Biological sampling, Statistical sampling, Population structure, Grunts, Snappers, Pink shrimp, *Penaeus duorarum*

64
Austin, C. B. (1971) An economic inventory of the Miami river and its economic and environmental role in Biscayne Bay. Sea Grant Tech. Bull. 17. University of Miami Sea Grant Program, Coral Gables, FL. 106 pp.
TIME COVERAGE: 1971
SUMMARY: The purpose of this report was to provide an economic description of the Miami river and consider the river's influence on Biscayne Bay, including land usage, employment, shipping and water pollution.
KEY WORDS: Miami River, Economic analysis, Environment management, Land use, Boats, Water pollution

65
Austin, C. B. (1976) Recreational boating in Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 247-253.
TIME COVERAGE: 1976 ◊
SUMMARY: This paper reviewed some of the major conflicts among recreational boaters, and between recreational boating and other users of Biscayne Bay.
KEY WORDS: Boating, Recreational waters

66
Austin, C. B., R. Brugger, J. C. Davis, and L. Seifert (1976) Recreational boating in Dade County, 1975-76. University of Miami Sea Grant special report no. 9. University of Miami Sea Grant Program, Coral Gables, FL. 143 pp.
TIME COVERAGE: 1975 - 1976
SUMMARY: This citation contains statistics on recreational boating in Dade County.
KEY WORDS: Boating, Recreational waters, Dade County, Marinas

67
Bacescu, M. (1961) *Taphromysis bowmani*, n.sp., a new brackish water mysid from Florida. Bull. Mar. Sci. Gulf Caribb., 11(4):517-524.
TIME COVERAGE: 1961 ◊
SUMMARY: The new species of mysid was described and figured and comparisons made with other species.
KEY WORDS: Mysids, *Taphromysis bowmani*, Taxonomy, New species, Matheson Hammock

68
Bach, S. D. (1975) The distribution and production of calcareous macroalgae in Card Sound, Florida. Ph.D. dissertation. University of Michigan, Ann Arbor, MI. 234 pp.
TIME COVERAGE: 1973 - 1974

SUMMARY: This study examined the distribution and production of four species of calcareous marine macroalgae in Card Sound, and their importance in the *Thalassia* community.
KEY WORDS: Card Sound, Algae, *Halimeda incrassata*, *Penicillus capitatus*, *Rhipocephalus phoenix*, *Udotea flabellum*

69
Bach, S. D. (1979) Standing crop, growth and production of calcareous Siphonales (Chlorophyta) in a south Florida lagoon. Bull. Mar. Sci., 29(2):191-201.
TIME COVERAGE: 1973 - 1974
SUMMARY: Production estimates of four genera of calcareous algae were made in Card Sound. Growth was measured directly in the field by periodically harvesting plants which emerged through rectangular strips of monofilament staked on the bottom. Production was measured directly by collecting one meter square samples of algae which grew through the net and indirectly by combining standing crop and life span data. *Halimeda incrassata* accounted for more than one half of the total production by all four genera.
KEY WORDS: Primary production, Growth, Card Sound, Halimeda, Penicillus, Rhipocephalus, Udotea, Algae, Chlorophyta, Siphonales, Lagoons, *Halimeda incrassata*, *Halimeda monile*, *Penicillus capitatus*, *Rhipocephalus phoenix*, *Udotea flabellum*

70
Baddour, F. R. (1983) Petroleum hydrocarbons in the canals that drain the Miami International Airport. M.Sc. thesis. University of Miami, Coral Gables, FL. 134 pp.
TIME COVERAGE: 1983 ◊
SUMMARY: Sediment samples from the canals that drain the airport were analyzed for hydrocarbons, which ranged from 4 to 230,000 ppm. The majority of the hydrocarbons entered the surface water system by direct spillage.
KEY WORDS: Petroleum hydrocarbons, Miami Canal, Tamiami Canal, Biscayne Aquifer, Miami International Airport

71
Bader, R. G. (1969) An ecological study of south Biscayne Bay in the vicinity of Turkey Point. Progress report to the US Atomic Energy Commission, contract number AT-(40-1)-3801. Institute of Marine Sciences, University of Miami, Miami, FL. 63 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: This study was conducted to determine what the effects would be of incremental increases in thermal effluent from conventional and nuclear electrical generating power plants at Turkey Point.
KEY WORDS: Turkey Point, Thermal pollution, Baseline studies, Ecosystems, South Bay

72
Bader, R. G., M. A. Roessler, and A. Thorhaug (1972) Thermal pollution of a tropical marine estuary. In: Marine Pollution and Sea Life Marine Pollution and Sea Life. FAO Techn. Conf. on Marine Pollution and its Effects on Living Resources and Fishing. M. Ruivo, (ed.). Rome, Italy, 1970. Fishing News Books, West Byfleet, Surrey, UK. 425-428.
TIME COVERAGE: 1970 ◊
SUMMARY: The results of field and laboratory studies of Biscayne Bay clearly showed that sustained temperatures above 33 °C can cause extensive mortalities of some of the most important macroalgae and sea grasses. This, in turn, may eliminate the major food source and shelter for a great number of herbivores and detritus feeders.
KEY WORDS: Thermal pollution, Turkey Point, Seagrass, Algae

73
Bader, R. G., and D. C. Tabb (1970) An ecological study of south Biscayne Bay in the vicinity of Turkey Point. Progress report to the US Atomic Energy Commission. Institute of Marine Sciences, University of Miami, Miami, FL. 81 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: This study was conducted to determine what the effects would be of incremental increases in thermal effluent from conventional and nuclear electrical generating power plants at Turkey Point.
KEY WORDS: Turkey Point, Thermal pollution, Baseline studies, Ecosystems, South Bay

74
Baedeker, K. (1909) The United States With Excursions to Mexico, Cuba, Porto Rico, and Alaska. Charles Scribner and Sons, New York, NY.
TIME COVERAGE: 1909 ◊
SUMMARY: This is an early travelers handbook that includes a description of Biscayne Bay.
KEY WORDS: History, Travel

75
Baker, E. K., and M. L. Villanueva (1993) Analysis of Hurricane Andrew economic damage and recovery options for the boating, marina and marine service industries. Tech. paper 72. Florida Sea Grant College Program, Gainesville, FL. 100 pp.
TIME COVERAGE: 1992
SUMMARY: This study was undertaken to analyze the impact of Hurricane Andrew on three factors of recreational boating: boaters, marine storage facilities and marine services industries. The objectives were to evaluate the hurricane preparedness of boaters, marinas and other marine related businesses; to assess the damage caused by the hurricane to boats, marinas and other boating businesses; and to determine the future of boating activities and industry in Dade County.
KEY WORDS: Damage, Recovery, Boats, Marinas, Industries, Hurricane Andrew

76
Baker, E. K., and M. L. Villanueva (1995) Longitudinal study of hurricane evacuation plans of wet berthed boat owners before and after Hurricane Andrew. In: Coastal Zone '95. Proc., 9th Conf. B. L. Edge, (ed.). American Society of Civil Engineers, New York, NY. 270-271.
TIME COVERAGE: 1992
SUMMARY: After the passage of Andrew, an attempt was made to reach the original berthed boat owners who responded to the 1990 survey. After Andrew, 95% of berthed boat owners had hurricane plans. Prior to Andrew, 67% of the owners said they planned to evacuate, and 53% did.
KEY WORDS: Evacuation, Boats, Marinas, Berthing, Hurricane Andrew

77
Baker, J. (1993) A meteorological analysis of Hurricane Andrew. In: Excerpts, 15th Ann. National Hurricane Conf. L. S. Tait, (compiler). Orlando, FL, April 13 - 16, 1993. National Hurricane Conference, Tallahassee, FL.
TIME COVERAGE: 1992
SUMMARY: This citation describes the emergency preparedness of South Florida during Hurricane Andrew and the public response during the emergency.
KEY WORDS: Hurricane Andrew, Emergency preparedness

78
Baker, L. D. (1973) Ecology of the ctenophore *Mnemiopsis mccradyi* Mayer, in Biscayne Bay, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 131 pp.

TIME COVERAGE: 1973 ◊
SUMMARY: Seasonal abundance and distribution of this ctenophore were monitored in Biscayne Bay over a 17-month period and various aspects of its biology such as growth, egg production, feeding and oxygen consumption examined in the laboratory.
KEY WORDS: Ctenophores, *Mnemiopsis mccradyi*, Zooplankton

79
Baldwin, A. S. (1875) An address on the climatology of Florida. Ann. Mtg., Medical Association of the State of Florida. Jacksonville, FL, February 17-18, 1875. Walker, Evans & Cogswell, Charleston, SC.
TIME COVERAGE: 1875 ◊
SUMMARY: This paper contains a chart of average temperatures and rainfall at various sites in Florida including Key Biscayne.
KEY WORDS: Climatology

80
Bales, J. E., J. M. Fulford, and R. Swain (1996) Review and evaluation of a model for simulating the natural hydrology of south Florida. USGS fact sheet FS-180-96. US Geological Survey, Reston, VA. 4 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: This is a four-page fact sheet on Biscayne Bay.
KEY WORDS: Hydrology, Models, Water circulation, South Florida

81
Balido, Y. (1997) Cape Florida wetlands: restoration is bearing fruit: displaced by storm, fish, birds return. The Miami Herald, Miami, FL. January 5. Neighbors. 3.
TIME COVERAGE: 1997 ◊
SUMMARY: The Wetlands Restoration Project was design to restore the biological communities that thrived in the Cape Florida area during the 1920s. Much of the mangrove area was destroyed during development of the area. Hurricane Andrew leveled the region and toppled the large Australian pines that dominated the area. Vegetation is being restored using native plants. Numerous channels will connect the area to Biscayne Bay.
KEY WORDS: Cape Florida, Restoration, Hurricane Andrew

82
Ball, M. M. (1967) Carbonate sand bodies of Florida and the Bahamas. J. Sed. Petrol., 37(2):556-591.
TIME COVERAGE: 1967 ◊
SUMMARY: This paper classifies the sand bodies of Florida and the Bahamas in order to facilitate their description. The implication of the interrelationship of topography with sand body orientation, shape, internal structure, and composition is that knowledge of a sand body's topographic setting enables the prediction of its other attributes.
KEY WORDS: Carbonate sediment, Sand bars, Bahamas, Safety Valve, Biscayne Flats, Sedimentary structures

83
Ball, M. C. (1980) Patterns of secondary succession in a mangrove forest of southern Florida. Oecologia, 44(2):226-235.
TIME COVERAGE: 1928, 1938, 1945, 1958, 1974
SUMMARY: Successional patterns were studied in mangrove forests which had developed recently in response to salinization of areas formerly supporting freshwater marshes along northern Biscayne Bay. The population structures of these induced forests were compared with an adjacent historical forest which consisted of a nearly pure stand of *Rhizophora mangle*. A

mixed forest of *Rhizophora* and *Laguncularia racemosa* had developed in intertidal areas, while areas above the mean high water elevation supported a scrub community dominated by *Laguncularia*. Maximum growth of both species occurred in intertidal areas.
KEY WORDS: Mangrove swamps, *Laguncularia racemosa*, Ecological succession, South Florida, *Rhizophora mangle*

84
Ball, M. M., E. A. Shinn, and K. W. Stockman (1967) The geologic effects of Hurricane Donna in south Florida. J. Geol., 75(5):583-597.
TIME COVERAGE: 1960 ◊
SUMMARY: Hurricane Donna caused storm effects in an area where detailed data on prestorm sea floor conditions existed. The amount of boulder-sized rubble formed by hurricane surf on platform-edged reefs far exceeded the amount produced by day-to-day processes and death and deterioration. Large quantities of skeletal sand on the shoals behind the reefs and linear rock patches were transported and redeposited during the hurricane. The ebb of the storm tides left large amounts of layered lime mud stranded on the supratidal flats. The main conclusion of the study was that a bias exists for preservation of effects of higher-energy events. Although such events are catastrophic in terms of man's longest period of observation (a lifetime), they are only common place events in terms of geologic time.
KEY WORDS: Hurricane Donna, Hurricanes, Storm surge, Geology, South Florida

85
Bancroft, G. T., A. M. Strong, and M. Carrington (1995) Deforestation and its effects on forest-nesting birds in the Florida Keys. Conservation Biol., 9(4):835-844.
TIME COVERAGE: 1991
SUMMARY: By 1991, the extent of the seasonal coverage of deciduous forest in the upper Florida Keys had decreased by 41%, the number of fragments increased by an order of magnitude, and the acreage in the large fragments decreased by 84%. To examine the effects of fragment size on the presence of breeding birds of several species, a census was undertaken of singing males.
KEY WORDS: Vegetation, Deforestation, Birds, Key Largo, Ragged Keys, Florida Keys, Black-whiskered vireo, *Vireo altiloquos*, White-eyed vireo, *Vireo griseus*, Giant crested flycatcher, *Myiarchus crinitus*, Northern cardinal, *Cardinalis cardinalis*, Northern flickers, *Colaptes auratus*, Red-bellied woodpecker, *Melanerpes carolinus*, Yellow-billed cuckoos, *Coccyzus americanus*, Mangrove cuckoos, *Coccyzus minor*

86
Banks, A. (1990) The hero of Key Largo. Conde Nast traveler, -(March):178-181, 196-201.
TIME COVERAGE: 1990 ◊
SUMMARY: Capt. Ed Davidson, charter boat captain, challenged, denounced and litigated to keep condominium development away from Biscayne National Park.
KEY WORDS: Coral reefs, Resource conservation, Biscayne National Park, Davidson, E., Reef Rover (Ship), North Key Largo

87
Banner, A. (1968) Attraction of young lemon sharks, *Negaprion brevirostris*, by sound. Copeia, -(4):871-872.
TIME COVERAGE: 1967
SUMMARY: This is a short paper on preliminary studies of the attraction of lemon sharks to certain sounds.
KEY WORDS: Sound, Bioacoustics, Lemon shark, *Negaprion brevirostris*

88
Banner, A. (1971) Use of sound in predation by young lemon sharks, Negaprion brevirostris (Poey). Ph.D. dissertation. University of Miami, Coral Gables, FL. 100 pp.
TIME COVERAGE: 1967 - 1969
SUMMARY: The purpose of this study was to determine the nature and role of biological sounds in predation by young lemon sharks. Stomach content analysis showed that young lemon sharks at the test site fed primarily on mullet. The abundance of marine catfish and other efficient scavengers suggested that prey were usually captured alive. Sounds from prey and other species common to the site were analyzed and played back in the field and the behavior of sharks observed. Pulsed broadcast sound, produced by healthy and wounded mullet, catfish vocalization, and other sounds were found attractive. There was no relationship between attractiveness of sounds and importance of sources of prey.
KEY WORDS: Bioacoustics, Predation, Lemon shark, *Negaprion brevirostris*, Virginia Key

89
Banner, A. (1972) Use of sound in predation by young lemon sharks, *Negaprion brevirostris* (Poey). Bull. Mar. Sci., 22(2):251-283.
TIME COVERAGE: 1972 ◊
SUMMARY: The purpose of this study was to determine the role of hearing in predation by young lemon sharks. Responses to various sounds and their relative attractiveness were compared.
KEY WORDS: Bioacoustics, Predation, Lemon shark, *Negaprion brevirostris*, Virginia Key

90
Barbour, G. M. (1882) Florida for Tourists, Invalids, and Settlers. D. Appleton and Co., New, NY.
TIME COVERAGE: 1880
SUMMARY: This book contains descriptions of Florida including climate, soil, cities and towns, farming, sports and scenic locations.
KEY WORDS: Climate, Agriculture

91
Barbour, T. (1923) The crocodile in Florida. Occasional papers, Museum of Zoology, University of Michigan, 131(-):1-6.
TIME COVERAGE: 1923 ◊
SUMMARY: This paper reviews early account of crocodiles in Florida, including the Miami River.
KEY WORDS: Crocodiles, *Crocodylus acutus*, Miami River

92
Barbour, T. (1944) That Vanishing Eden. Little, Brown and Co., Boston, MA. 250 pp.
TIME COVERAGE: 1944 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Crocodiles

93
Barnes, A. D. (1949) Crandon Park: yesterday-now-tomorrow. Shore and Beach, 17(1):7-8.
TIME COVERAGE: 1949 ◊
SUMMARY: This description of Crandon Park, Key Biscayne, was published one year after the park opened.
KEY WORDS: Beaches, Public access, Crandon Park, Key Biscayne

94
Barnes, H. H., F. W. Meyer, and J. H. Hartwell (1968) Some hydrologic effects of Canal 111 near Homestead, Florida. Open file report 68002. US Geological Survey, Tallahassee, FL. 17 pp.
TIME COVERAGE: 1950 - 1965
SUMMARY: The feasibility of a salinity-control structure on the C-111 canal was examined.
KEY WORDS: Ground water, Water table, Saline intrusion, Canal C-111, Homestead

95
Barnett, M. R., and D. W. Crewz (1989) An introduction to planting and maintaining selected common coastal plants in Florida. Florida Sea Grant report no. 97. Florida Sea Grant College Program, Gainesville, FL. 108 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: This is a planting and maintenance guide to coastal plants including mangroves.
KEY WORDS: Coastal zone, Vegetation, Florida

96
Barrett, S. K. (1983) An oil spill priority protection response strategy for south Florida. M.A. thesis. University of Miami, Coral Gables, FL. 29 pp.
TIME COVERAGE: 1983
SUMMARY: The purposes of this study were to provide shoreline priorities and technical information for sound decision-making, and to develop a coordinative mechanism for agencies and interest groups that would involved in oil spill response. Biological, geomorphological and socioeconomic characteristics of several stations along the coast of South Florida were determined. Several of these stations are in Biscayne Bay.
KEY WORDS: Oil spills, Shore protection, Shipping lanes, Containment, Oil removal, South Florida

97
Barros, N. B. (1987) Food habits of bottlenose dolphins (*Tursiops truncatus*) in the southeastern United States, with special reference to Florida waters. M.Sc. thesis. University of Miami, Coral Gables, FL. 139 pp.
TIME COVERAGE: 1973 - 1987
SUMMARY: Stomach contents were preserved and contents identified. Samples were collected from stranded specimens in the southeastern US through the Southeastern US Marine Mammal Stranding Network. Some samples were collected from Biscayne Bay strandings.
KEY WORDS: Bottlenose dolphin, *Tursiops truncatus*, Food consumption, Feeding behavior, Prey selection, Florida

98
Barros, N. B., and D. K. Odell (1990) Food habits of bottlenose dolphins in the southeastern United States. In: The Bottlenose Dolphin. S. Leatherwood, and R. R. Reeves (eds.). Academic Press, San Diego, CA. 653 pp.
TIME COVERAGE: 1990 ◊
SUMMARY: Stomach contents were collected from stranded dolphins through the southeastern US and identified. The collection of stomach contents was opportunistic. Seventy five of the 76 dolphins in this study preyed on fish. In 28 individuals, cephalopods were also found. The study area included Biscayne Bay.
KEY WORDS: Bottlenose dolphin, *Tursiops truncatus*, Food consumption, Feeding behavior

99
Bartsch, P. (1936-37) An ecological cross-section of the lower part of Florida based largely upon its molluscan fauna. Excerpt from the Report of the Committee on Paleoecology. National

Research Council, Division of Geology and Geography, Washington, DC. 11-25 (mimeographed copy).
TIME COVERAGE: 1936?
SUMMARY: This report describes the most commonly found species of mollusks found various ecological niches in south Florida.
KEY WORDS: Ecology, Biota, Marine mollusks, Freshwater mollusks, Brackishwater mollusks, South Florida, Species list

100
Bartsch, P., and H. A. Rehder (1945) The west Atlantic boring mollusks of the genus *Martesia*. Smithsonian Misc. Coll., 104(11):1-16.
TIME COVERAGE: 1945 ◊
SUMMARY: This citation describes the species of *Martesia* occurring on the east coast of Florida. Illustrations are included.
KEY WORDS: Martesias, Boring organisms, Marine mollusks

101
Baxter, R. P. (1994) Trenchless pipe repair. Military Engineer, 86(-):46-47.
TIME COVERAGE: 1994 ◊
SUMMARY: This article described the in-situ rehabilitation of the sewer pipeline between Miami and Miami Beach using a trenchless pipe repair procedure.
KEY WORDS: Pipelines, Star Island, Miami Beach

102
Bayer, F. M. (1964) Littoral marine life of southern Florida. Guidebook for field trip no. 7, Geological Society of America Convention, Nov. 1964. Geological Society of America, [Boulder, CO].
TIME COVERAGE: 1964 ◊
SUMMARY: This is a field trip guide to the littoral marine life of South Florida.
KEY WORDS: Key Biscayne, Littoral zone, Biota, Field guide

103
Bayer, F. M. (1943) Observations on marine mollusca, with descriptions of new species. Nautilus, 56(4):109-124.
TIME COVERAGE: 1941
SUMMARY: This paper describes species of marine mollusks discovered as the result of dredging and shallow water collecting off Virginia Key, including some new species.
KEY WORDS: Marine mollusks, Pecten, Marginella, Chamas, Chamidae, New species

104
Bayer, F. M. (1963) Observations on pelagic mollusks associated with the siphonophores *Velella* and *Physalia*. Bull. Mar. Sci., 13(3):454-466.
TIME COVERAGE: 1963 ◊
SUMMARY: Specimens of three species of the violet snail and of a nudibranch, all of which fed on siphonophores, were collected and during strandings of *Velella* and studied in an aquarium. Observations were made upon float building and feeding behavior of the snails, and upon feeding, growth and reproduction of the nudibranch.
KEY WORDS: Siphonophores, Velella, Physalia, Porpita, Marine mollusks, *Ianthina ianthina*, *Fiona pinnata*, *Ianthina pallida*, *Ianthina prolongata*

105
Bayer, F. M. (1961) The Shallow-Water Octocorallia of the West Indian Region: a Manual for Biologists. M. Nijhoff, The Hague, The Netherlands. 373 pp + plates.

TIME COVERAGE: 1961 ◊
SUMMARY: This is a comprehensive book of corals of the West Indies including species found in South Florida and the Florida Keys.
KEY WORDS: Octocorallia, Coral, Identification keys, Caribbean, Guide

106
Baynes, T. W. (1986) The effect of current on the sessile benthic community structure of an artificial reef. M.Sc. thesis. University of Miami, Coral Gables, FL. 117 pp.
TIME COVERAGE: 1985
SUMMARY: The effect of water flow and sedimentation on the cover and species diversity of a sessile benthic community encrusting an artificial reef off Key Biscayne was investigated. The predominantly northerly flow was attributed to the influence of Florida Current processes. The cover of the sessile benthic organisms was higher in areas of the wreck with high velocity flow. Similar trends were observed for diversity, evenness and richness. The deck exhibited less cover and a lower species diversity, the result of sedimentation. In general, areas of high velocity flow and low sedimentation around the wreck corresponded to regions of high cover and species diversity.
KEY WORDS: Artificial reefs, Sessile species, Benthos, Water currents, Sedimentation, Biscayne (Ship), Key Biscayne

107
Baynes, T. W., and A. M. Szmant (1988) Effect of current on the sessile benthic community structure of an artificial reef. Bull. Mar. Sci., 44(-):545-566.
TIME COVERAGE: 1985
SUMMARY: [SEE PREVIOUS CITATION FOR DESCRIPTION OF THE WORK.]
KEY WORDS: Artificial reefs, Sessile species, Benthos, Water currents, Sedimentation, Biscayne (Ship)

108
Beacon Council (The) (1991) The Miami River: a valuable assest. Reprot. The Beacon Council, Miami, FL.
TIME COVERAGE: 1991 ◊
SUMMARY: This report provides statistics on the economic impact of the Miami River on the economy of Miami.
KEY WORDS: Miami River, Transportation, Economy

109
Beaven, T. R., and F. W. Meyer (1978) Record of wells in the Floridan Aquifer in Dade and Monroe Counties, Florida. US Geological Survey, Tallahassee, FL. 30 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: The Floridan Aquifer underlies all of Florida and parts of adjacent states. The use of the Floridan Aquifer for subsurface storage of freshwater and as an industrial water supply for Dade and Monroe Counties was considered. Information obtained from 67 wells drilled into the Floridan Aquifer is presented.
KEY WORDS: Wells, Floridan Aquifer, Dade County, Monroe County

110
Beeler, I. E., and T. J. O'Shea (1988) Distribution and mortality of the West Indian manatee (*Trichechus manatus*) in the southeastern United States: a compilation and review of recent information. Vol. I: The Atlantic Coast, and Vol. II: The Gulf of Mexico Coast. Report 88-09 (NTIS PB88-207980) prepared for the US Army Corps of Engineers. Sirenia Project, National Ecology Research Center, Gainesville, FL. 613 pp.
TIME COVERAGE: 1988 ◊

SUMMARY: This report summarizes data on manatee distribution and mortality in the southeastern US.
KEY WORDS: West Indian manatee, *Trichechus manatus*, Geographical distribution, Mortality, Florida

111
Benson, M. A., and R. A. Gardner (1974) The 1971 drought in south Florida and its effect on the hydrologic system. Water resources investigations 12-74. US Geological Survey, Tallahassee, FL.
TIME COVERAGE: 1971
SUMMARY: The rainfall in South Florida during 1971 was very low resulting in drought conditions. Canal flow and ground-water levels reflected the drought conditions but no record lows were set.
KEY WORDS: Droughts, Ground water, Rainfall, South Florida

112
Bentley, T. B. (1989) Attempts at breeding Kemp's ridley sea turtles at Miami Seaquarium. In: Proc., First Internatl. Symp. on Kemp's Ridley Sea Turtle Biology, Conservation and Management. C. W. Caillouet, and A. M. Landry, (eds.). TAMU-SG-89-105. Texas A&M University, Sea Grant College Program, Galveston, TX. 233-236.
TIME COVERAGE: 1984 - 1985
SUMMARY: A breeding program for the endangered Kemp's ridley sea turtle was initiated by the Miami Seaquarium to investigate breeding behavior and induce successful reproduction in captivity. The attempt was unsuccessful.
KEY WORDS: Turtle culture, Breeding, Kemp's ridley sea turtle, *Lepidochelys kempi*, Miami Seaquarium

113
Berg, C. J., and R. A. Glazer (1991) Current research on queen conch (*Strombus gigas*) in Florida waters. In: Proc., 40th Ann. Gulf and Caribbean Fisheries Institute. G. T. Waugh, and M. H. Goodwin, (eds.). Curacao, Netherlands Antilles, 1987. Gulf and Caribbean Fisheries Institute, Charleston, SC. 303-306.
TIME COVERAGE: 1987 ◊
SUMMARY: Florida stocks of the queen conch decreased markedly during the last decade and a moratorium on all harvest was set into effect. This research effort was initiated to measure stock size, population dynamics and reproductive activity.
KEY WORDS: Queen conch, *Strombus gigas*, Depleted stocks, Florida Keys, Key Biscayne, Boca Grande Key

114
Berg, C. J., R. A. Glazer, J. Carr, J. Krieger, and S. Acton (1992) Status of the queen conch, *Strombus gigas*, in Florida waters. In: Proc., 41st Ann. Gulf Caribb. Fisheries Institute. G. T. Waugh, and M. H. Goodwin, (eds.). St. Thomas, USVI, November 1988. Gulf and Caribbean Fisheries Institute, Charleston, SC. 439-443.
TIME COVERAGE: 1987 - 1988
SUMMARY: A transect research program was conducted for one year to determine the abundance of the queen conch in the Florida Keys, from Key Biscayne to Boca Grande Key. Highest densities were found in Marathon and adjacent waters. Values obtained are far lower than those reported for similar studies in the Bahamas and the Caribbean.
KEY WORDS: Queen conch, *Strombus gigas*, Abundance, Florida Keys, Key Biscayne, Boca Grande Key

115
Berkeley, S. A. (1972) Some factors affecting the abundance and distribution of *Cerithium muscarum* (Say) and *Neopanope packardii* (Kingsley) in south Biscayne Bay, Florida, in the vicinity of Turkey Point. M.Sc. thesis. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1968 - 1971
SUMMARY: The major factor determining the abundance and distribution of the gastropods studied was the amount of benthic macroalgae, with *Laurencia poitei* being the most productive. Temperature and salinity were not limiting factors in the study area.
KEY WORDS: *Cerithium muscarum*, *Neopanope packardii*, Gastropods, Xanthid crabs, Abundance, Geographical distribution, Turkey Point, South Bay

116
Berkeley, S. A., and W. L. Campos (1984) Fisheries assessment of Biscayne Bay. Final draft. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 58 pp + appendices.
TIME COVERAGE: 1982 - 1983
SUMMARY: This report contains the seasonal distribution of recreational catch and effort in Biscayne Bay. Seagrass communities was the most important factor in determining the abundance of the most important species of fish in the Bay.
KEY WORDS: Fisheries, Fishery resources, Fishery surveys, Species list

117
Berkeley, S. A., and E. D. Houde (1978) Biology of two exploited species of halfbeaks, *Hemiramphus brasiliensis* and *H. balao* from southeast Florida. Bull. Mar. Sci., 28(4):624-644.
TIME COVERAGE: 1974 - 1976
SUMMARY: This paper describes the biology and life history of two species of halfbeaks (ballyhoo) obtained in Biscayne Bay.
KEY WORDS: Halfbeaks, Ballyhoo, *Hemiramphus brasiliensis*, *Hemiramphus balao*, Life history

118
Berkeley, S. A., E. D. Houde, and F. Williams (1975) Fishery and biology of ballyhoo on the southeast Florida coast. Sea Grant special report 4. University of Florida, Coral Gables, FL. 15 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: This citation is a description of the general biology and fisheries of the ballyhoo. The ballyhoo commercial fishery, centered in South Florida, provides an important bait for sports anglers.
KEY WORDS: *Hemiramphus brasiliensis*, *Hemiramphus balao*, Fisheries, Fishery biology, Ballyhoo, Southeast Florida

119
Berkeley, S. A., D. W. Pybas, and W. L. Campos (1985) Bait shrimp fishery of Biscayne Bay. Florida Sea Grant Program tech. paper 40. Florida Sea Grant College Program, Gainesville, FL. 16 pp.
TIME COVERAGE: 1971 - 1983
SUMMARY: The value of the Biscayne Bay shrimp fishery is considerable. Possible detrimental effects of bait shrimp fishing operations on the biota or the environment are potentially of great consequence. Species composition and community structure of juvenile fish in Biscayne Bay appears to have remained unchanged since the mid-1960s. However, it does not follow that effects of the bait shrimp fishing operations are non-existent.
KEY WORDS: Shrimp fisheries, *Fosjeru omdistru*, Bait fish, Fishery statistics, Fishery economics

120
Bert, T. M. (1985) Geographic variation, population biology, and hybridization in *Menippe mercenaria* and evolution in the genus *Menippe* in the southwestern Atlantic Ocean. Ph.D. dissertation. Yale University, New Haven, CT. 306 pp.
TIME COVERAGE: 1985 ◊
SUMMARY: All species of the genus *Menippe* inhabiting southeastern US have relatively high levels of polymorphism and heterozygosity in allele frequencies compared to other decapod crustaceans, probably due to their tropic position and life history pattern. Stone crab population dynamics and biology were studied in the Everglades National Park and southern Biscayne Bay.
KEY WORDS: Stone crab, *Menippe mercenaria*, Population dynamics, Hybridization, Evolution, Southwest Atlantic Ocean, Biscayne National Park, Everglades National Park

121
Bert, T. M., J. Dodrill, G. E. Davis, and J. T. Tilmant (1983) The population dynamics of the stone crab (*Menippe mercenaria*) in Everglades and Biscayne National Parks. Florida Scient., 46(Suppl. 1):24.
TIME COVERAGE: 1983 ◊
SUMMARY: Data on population indicate that a major nursery area for stone crabs exists off shore from the two major terrestrial drainage systems in the area: Big Cypress Swamp and the Everglades. Stone crabs apparently disperse from the area southward toward the Florida Keys and into Florida Bay. The stone crabs in Biscayne National Park are apparently not locally recruited and may be dispersing from farther north along the east coast.
KEY WORDS: Stone crab, *Menippe mercenaria*, Population dynamics, Florida Keys, Florida Bay, Everglades National Park, Biscayne National Park

122
Bert, T. M., J. T. Tilmant, J. Dodrill, and G. E. Davis (1986) Aspects of the population dynamics and biology of the stone crab (*Menippe mercenaria*) in Everglades and Biscayne National Parks as determined by trapping. SFRC 86/04. South Florida Research Center, Everglades National Park, Homestead, FL. 77 pp.
TIME COVERAGE: 1979 - 1980
SUMMARY: Stone crabs were trapped during lunar cycles for an entire year to investigate the population biology and life history of the organisms. An array of morphometric and biological data was taken on each crab captured. Salinity, temperature, water clarity, principal fouling biota, and bottom type were recorded at each station during sampling.
KEY WORDS: Stone crab, *Menippe mercenaria*, Population dynamics, Trap fishing, Everglades National Park, Biscayne National Park, Water quality

123
Betz Environmental Engineers Inc. (1977) Dade County water quality analysis for Metropolitan Dade County, Florida, Environmental Resources Management. Vol. I: tech. rep. Beiswenger Hoch and Associates, Inc., North Miami Beach, FL. 80 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: This report presents the analyses of water quality conditions of Dade County. It principally addresses stormwater runoff impacts to surface and ground water quality,
KEY WORDS: Water quality, Stormwater runoff, Ground water, Canals, Dade County

124
Bielsa, L. M., W. H. Murdich, and R. F. Labisky (1983) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - pink shrimp. FWS/OBS-82/11.17. US Fish and Wildlife Service, National Coastal Ecosystems Team, Slidell, LA. 21 pp.

TIME COVERAGE: 1983 ◊
SUMMARY: This citation is species profile of the pink shrimp. One of the nursery areas of the pink shrimp in South Florida is Biscayne Bay. This report is one in a series on the life histories of marine life.
KEY WORDS: Pink shrimp, *Penaeus duorarum duorarum*, Florida Bay, Dry Tortugas, Ten Thousand Islands

125
Biffar, T. A. (1969) A study of the genus *Callianassa* (Crustacea, Decapoda) in south Florida. M.Sc. thesis. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1969
SUMMARY: This work is a study of the genus *Callianassa.* Some specimens were collected in Biscayne Bay.
KEY WORDS: Crustaceans, Callianassa, Decapoda, South Florida

126
Bilhorn, T. W. (1975) Biscayne Bay and its environs: an analysis of its present and future uses for Metropolitan Dade County. Sea Grant special rep. 7. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1975 ◊
SUMMARY: Recommendations were made in this report to capitalize on the diversity that the Biscayne Bay region provides to Dade county and its municipalities.
KEY WORDS: Resource conservation, Resource management, Environment management

127
Bingham, F. O., and H. D. Albertson (1974) Observations on beach strandings of the *Physalia* (Portuguese-man-of-war) community. Veliger, 17(2):220-224.
TIME COVERAGE: 1971 - 1972
SUMMARY: Data presented in this work represent the species, their sizes and numbers in ten strandings of the Physalia community.
KEY WORDS: *Physalia physalis*, Portuguese man-of-war, Stranding, Crandon Park

128
Biosystems Research, I. (1984) Benthic sampling program in Biscayne Bay. Final report to Dade County Department of Environmental Resources Management. Biosystems Research, Inc, Miami, FL. 481 pp.
TIME COVERAGE: 1981 - 1982
SUMMARY: This sampling program consisted of two phases. During Phase I, 60 stations representing diverse habitats were sampled in Biscayne Bay, Dumfoundling Bay and Card Sound. At each station, several parameters were determined including freshwater flow, bottom type, current, dissolved oxygen, salinity and water clarity. Sediment cores were also collected at each site. During Phase II, 15 stations were selected and dredge samples obtained.
KEY WORDS: Benthos, Zoobenthos, Phytobenthos, Seafloor sampling, Dumfoundling Bay, Card Sound, Dissolved oxygen, Salinity, Sediment, Currents, Species list

129
Birdsong, R. S. (1969) A systematic review of the gobiid fish genus *Microgobius* with special emphasis on osteology. Ph.D. dissertation. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1969 ◊
SUMMARY: This work reviews the systematics of gobies. Some samples were collected in Biscayne Bay.
KEY WORDS: Microgobius, Gobies, Osteology

130
Birnhak, B. I. (1974) An examination of the influence of freshwater canal discharges on salinity in selected southeastern Florida estuaries. NTIS #PB-231 610. National Technical Information Service, Springfield, VA. 40 pp.
TIME COVERAGE: 1971 - 1972
SUMMARY: The purpose of this study was to collect baseline data on existing salinity patterns in six southeast coastal areas that receive discharges from major canals including Biscayne Bay. During the study period, freshwater discharge by the Miami River was not sufficient to dilute the salt content of Bay waters.
KEY WORDS: Estuaries, Saline water, Salinity, Canals, Water quality, River discharge, Miami Canal, Miami River, New River Canal

131
Biscayne Bay Yacht Club (1948) Biscayne Bay Yacht Club, Miami, Florida, 1948. Biscayne Bay Yacht Club, Miami, FL.
TIME COVERAGE: 1948 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Boating, Yachting, Biscayne Bay Yacht Club

132
Biscayne Bay Management Committee (1983) State of the Bay; annual report 1983. Biscayne Bay Management Committee, Miami, FL. 14 pp.
TIME COVERAGE: 1983
SUMMARY: This is one of the annual state of the Biscayne Bay reports.
KEY WORDS: Natural resources, Water management, Environmental protection

133
Biscayne Bay Management Committee (1983) State of the Bay; annual report 1983. Issued as a map. Biscayne Bay Management Committee, Miami, FL.
TIME COVERAGE: 1983
SUMMARY: This is one of the annual state of the Biscayne Bay reports.
KEY WORDS: Natural resources, Water management, Environmental protection

134
Biscayne Bay Management Committee (1984) State of the Bay; annual report 1984. Biscayne Bay Management Committee, Miami, FL.
TIME COVERAGE: 1984
SUMMARY: This is one of the annual state of the Biscayne Bay reports.
KEY WORDS: Natural resources, Water management, Environmental protection

135
Biscayne Bay Management Committee (1986) State of the Bay; annual report 1985/86. Biscayne Bay Management Committee, Miami, FL.
TIME COVERAGE: 1985 - 1986
SUMMARY: This is one of the annual state of the Biscayne Bay reports.
KEY WORDS: Natural resources, Water management, Environmental protection

136
Biscayne Bay Management Committee (1988) State of the Bay; annual report 1987/88. Issued as a map. Biscayne Bay Management Committee, Miami, FL.
TIME COVERAGE: 1988
SUMMARY: This is one of the annual state of the Biscayne Bay reports.
KEY WORDS: Natural resources, Water management, Environmental protection

137
Biscayne Bay Management Committee (1988) State of the Bay; annual report 1987-88. Issued as a map. Biscayne Bay Management Committee, Miami, FL.
TIME COVERAGE: 1987 - 1988
SUMMARY: This is one of the annual state of the Biscayne Bay reports.
KEY WORDS: Natural resources, Water management, Environmental protection

138
Biscayne Bay Management Committee (1991) State of the Bay; annual report 1990 - 1991. Biscayne Bay Management Committee, Miami, FL.
TIME COVERAGE: 1991
SUMMARY: This is one of the annual state of the Biscayne Bay reports.
KEY WORDS: Natural resources, Water management, Environmental protection

139
Biscayne Bay Management Committee (1992) State of the Bay; annual report 1991 - 1993. Biscayne Bay Management Committee, Miami, FL.
TIME COVERAGE: 1991 - 1993
SUMMARY: This is one of the annual state of the Biscayne Bay reports.
KEY WORDS: Natural resources, Water management, Environmental protection

140
Bishop, E. W., and N. C. Landrum (1963) Control of salt water intrusion in Dade County for protection of the Biscayne Aquifer. Report. State Board of Conservation, Division of Water Resources and Conservation, Tallahassee, FL. 13 pp.
TIME COVERAGE: 1963 ◊
SUMMARY: This report discusses suggested applications of the salt water barrier line principle for the control of salt water intrusion.
KEY WORDS: Saline intrusion, Biscayne Aquifer, Dade County

141
Black, A. P., and E. Brown (1951) Chemical character of Florida's waters 1951. Water Survey & Research paper 6. Florida State Board of Conservation, Division of Water Survey & Research, Tallahassee, FL. 119 pp.
TIME COVERAGE: 1951
SUMMARY: This report contains chapters by various authors on geology, fresh water quality, strontium, fresh water treatment and fresh water analysis.
KEY WORDS: Surface water, Subsurface water, Water analysis, Chemical analysis, Florida, Sr

142
Black, D. W. (1994) Protecting the water quality of Biscayne Bay. Florida Scient., 57(Suppl. 1):51-52.
TIME COVERAGE: 1994 ◊
SUMMARY: This abstracts briefly discusses the Future Land Use Plan Map for Metro-Dade County, which projected substantially increased development in the county by 2010. Much of the stormwater in the Biscayne Bay watershed enters canals which carry it directly to the bay without the sheetflow through wetlands that purified such water before the area was developed.
KEY WORDS: Water quality, Urbanization, Stormwater runoff

143
Black, N. A., A. M. Szmant, and R. S. Tomchik (1994) Planulae of the scyphomedusa *Linuche unguiculata* as a possible cause of seabather's eruption. Bull. Mar. Sci., 54(3):955-960.
TIME COVERAGE: 1992
SUMMARY: Plankton tows were done coincident with outbreaks of seabather's eruption or "sea lice" in 1992 along several beaches in southeast Florida. Several of the tows contained large number of zooxanthellate green and brown planulae, *Trichodesmium* and copepods. The panulae were identified as the benthic stage of the coronatescyphozoan *Linuche unguiculata* . Evidence was found to support *Linuche* planulae as the source of "sea lice".
KEY WORDS: Seabather's eruption, "Sea lice", Thimble jellyfish, *Linuche unguiculata*

144
Blaha, J. P. (1984) Fluctuations of monthly sea level as related to the intensity of the Gulf Stream from Key West to Norfolk. J. Geophys. Res., 89(C5):8033-8042.
TIME COVERAGE: 1955 - 1975
SUMMARY: Tide gauge data from Key West to Norfolk were used to identify a monthly signal in sea level that is uncorrelated with local shelf-trapped processes. One of the measurement sites is in Biscayne Bay.
KEY WORDS: Tidal records, Sea level measurement, Gulf Stream

145
Blaha, J. P., and W. Sturges (1987) Slope of sea level from Miami to Atlantic City. J. Phys. Oceanogr., 17(2):177-183.
TIME COVERAGE: 1987 ◊
SUMMARY: Results of land leveling do not agree with oceanographers concerning coastal slopes of sea level. Recent studies have shown that along the west coast of the US this discrepancy can be explained by the vertical movement of leveling benchmarks.
KEY WORDS: Sea level measurement, Surface slope, Atlantic coast

146
Blair, S. M. (1993) Reef areas of southeastern Florida: hardbottom reef communities of Dade, Broward, and Palm Beach counties. In: Proc. First Ann. Conf., Coral Reef Coalition. A. D. Merow, (ed.). Key West, FL, 1992. Center for Marine Conservation, Washington, DC. 67-78.
TIME COVERAGE: 1993 ◊
SUMMARY: The benthic reef habitats found offshore of Miami and Palm Beach lack the coral development commonly associated with the coral reefs further south in the Florida Keys. However, the hard bottom reef areas of Dade, Broward and Palm Beach counties are thriving habitats which mark the northern extent of numerous hard coral species and serve as a transition zone between tropical, subtropical and warm temperate species.
KEY WORDS: Coral reefs, Reef tract, Dade County, Broward County, Palm Beach County

147
Blair, S. M., B. S. Flynn, and S. M. Markley (1990) Characteristics and assessment of dredge related mechanical impact to hard-bottom reef areas off northern Dade County, Florida. In: Diving for Science 1990. Proc., Amer. Acad. of Underwater Sciences, 9th Ann. Scientific Diving Symp. W. C. Jaap, (ed.). American Academy of Underwater Sciences, Costa Mesa, CA. 5-20.
TIME COVERAGE: 1988
SUMMARY: During the summer of 1988, Dade County sponsored a beach erosion control project to renourish a segment of the northern Dade County shoreline. Near the time of completion, areas of mechanical impact to the reef adjacent to the borrow area were discovered. Detailed assessments were made of the 2.2-acre area with severe damage. Approximately 1.5 acres of benthic hard bottom communities were destroyed. This destruction represents a significant

impact to the hard bottom community within the region by reducing habitat quality, density of organisms, reef structural complexity and the overall productivity of the area.
KEY WORDS: Dredging, Beach nourishment, Benthic environment, Environmental impact, Damage, Reefs, North Bay, Sunny Isles

148
Blair, S. M., T. L. McIntosh, and B. J. Mostkoff (1994) Impacts of Hurricane Andrew on the offshore reef systems of central and northern Dade County, Florida. Bull. Mar. Sci., 54(3):961-973.
TIME COVERAGE: 1992
SUMMARY: Qualitative visual surveys and quantitative photogrammetric surveys were used to estimate the impact of Hurricane Andrew on natural reefs of Biscayne Bay. The algal community showed the greatest loss of benthic cover. Hard corals were the least affected.
KEY WORDS: Coral reefs, Artificial reefs, Hurricane Andrew, Dade County

149
Blake, N. M. (1980) Land into water - water into land; a history of water management in Florida. Tallahassee University Presses of Florida, Tallahassee, FL. 344 pp.
TIME COVERAGE: 1980 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water supply, Water management, Florida

150
Bland, R. A., H. W. Hiser, S. S. Lee, and S. Sengupta (1977) Aerial remote sensing of thermal plumes. In: Proc., Conf. on Waste Heat Management and Utilization. S. S. Lee, and S. Sengupta, (eds.). Miami Beach, FL, 1977. University of Miami, Department of Mechanical Engineering, Miami, FL. Vol. 2: IV.B.55-IV.B.65.
TIME COVERAGE: 1975
SUMMARY: Thermal remote sensing data from Biscayne Bay and Hutchinson Island were used in the development and initial application of a three-dimensional thermal plume mathematical model.
KEY WORDS: Thermal plumes, Remote sensing, Mathematical models, Power plants, Hutchinson Island, Cutler Ridge

151
Blank, J. G. (1996) Key Biscayne: a History of Miami's Tropical Island and the Cape Florida Lighthouse. Pineapple Press, Sarasota, FL. 212 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: This book is a historical account of Key Biscayne from the Spanish Conquista to the date of publication.
KEY WORDS: History, Lighthouses, Key Biscayne, Cape Florida

152
Bock, W. D., D. R. Moore, A. C. Neumann, and P. R. Supko (1969) Late Pleistocene geology in an urban area. 3rd annual field trip, July, 1969. Miami Geological Society, Miami, FL. 26 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: This is a field trip guide to the Late Pleistocene geology of South Florida.
KEY WORDS: Geology, Carbonate rocks, Mangrove swamps, Pleistocene, Miami limestone, Field guide

153
Bodge, K. R. (1992) Beach nourishment with aragonite and tuned structures. In: Coastal Engineering Practice '92. Proc., Specialty Conf. on Planning, Design, Construction, and

Performance of Coastal Engineering Projects. S. A. Hughes, (ed.). Long Beach, CA, 1992. American Society of Civil Engineers, New York. 73-89.
TIME COVERAGE: 1990 - 1991
SUMMARY: The first full scale use in the US of imported aragonite sand was undertaken at Fisher Island. About 20,000 cy of rubble and sand were excavated from the project beach, and 30,000 cy of aragonite fill barged from the Bahamas, placed by truck, and stabilized using rock structures, Six-month monitoring suggested the project performed as predicted and no adverse impacts or physical decay of he aragonite had been observed.
KEY WORDS: Beach nourishment, Aragonite, Fisher Island

154
Bodge, K. R., and E. J. Olsen (1992) Aragonite beachfill at Fisher Island, Florida. Shore and Beach, 60(1):3-8.
TIME COVERAGE: 1992 ◊
SUMMARY: This citation describes the beach fill project at Fisher Island.
KEY WORDS: Aragonite, Beach nourishment, Restoration, Fisher Island

155
Bodge, K. R., and D. S. Rosen (1988) Offshore sand sources for beach nourishment in Florida: Part 1: Atlantic coast. In: Proc., Beach Preservation Technology 88: Problems and Advancements in Beach Nourishment. L. S. Tait, (comp.). Florida Shore & Beach Preservation Association, Tallahassee, FL. 175-189.
TIME COVERAGE: 1988 ◊
SUMMARY: This paper discusses sources of sand potentially available for beach nourishment offshore and along the Atlantic coast of Florida including the Florida Keys.
KEY WORDS: Beach nourishment, Sand, East Florida

156
Bogart, D. B. (1946) Some surface-water relationships in south Florida. Proc., Soil Science Society of Florida. Soil Science Society of Florida, Hollywood, FL. 60-71.
TIME COVERAGE: 1946 ◊
SUMMARY: This paper discusses some of the surface-water phases of the cooperative investigations between the USGS and Miami, Miami Beach, Coral Gables and Dade County.
KEY WORDS: Surface water, Water table, Evapotranspiration, Everglades, South Florida

157
Bohlke, J. E., and C. C. G. Chaplin (1968) Fishes of the Bahamas and Adjacent Tropical Waters. Livingston, Wynnewood, PA. 771 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: This is a guide to the fishes of the Bahamas and south Florida.
KEY WORDS: Fish, Bahamas, Guide

158
Böhlke, J. E., and C. R. Robins (1960) A revision of the gobioid fish genus Coryphopterus. Proc. Acad. Nat. Sci. Phila., 112(5):103-128.
TIME COVERAGE: 1960 ◊
SUMMARY: This is a taxonomic study of gobies. Some specimens were caught in Biscayne Bay.
KEY WORDS: Gobies, Coryphopterus, Taxonomy, Florida Keys

159
Bohlke, J. E., and C. R. Robins (1968) Western Atlantic seven-spined gobies, with descriptions of the new species and a new genus, and comments on Pacific relatives. Proc. Acad. Nat. Sci. Phila., 120(-):45-174.

TIME COVERAGE: 1968 ◊
SUMMARY: This citation is a taxonomic study of gobies.
KEY WORDS: Gobies, Gobiosoma, Risor, Ginsburgellus, Nes, Aruma, Enypnias, Barbulifer, Eleotrica, Gymneleotris, Pycnomma, Taxonomy, New genera, New species

160
Bohnsack, J. A., D. E. Harper, D. B. McClellan, M. W. Hulsbeck, T. N. T. N. Rutledge, M. H. Pickett, and A. M. Eklund (1992) Quantitative visual assessment of fish community structure in Biscayne National Park. Draft final report. NOAA/NMFS/SEFSC, Miami, FL.
TIME COVERAGE: 1992 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Stock assessment, Population dynamics, Reef fish, Biological sampling, Biscayne National Park

161
Bohnsack, J. A., D. B. McClellan, D. E. Harper, G. S. Davenport, G. J. Konoval, A. M. Eklund, J. P. Contillo, S. K. Bolden, P. C. Fischel, G. S. Sandorf, J. C. Javech, M. W. White, M. H. Pickett, M. W. Hulsbeck, J. L. Tobias, J. S. Ault, G. A. Meester, S. G. Smith, and J. Luo (1999) Baseline data for evaluating reef fish populations in the Florida Keys, 1979 - 1998. NOAA Tech. Memo. NMFS-SEFSC-427. NOAA/NMFS/SEFSC, Miami, FL. 61 pp.
TIME COVERAGE: 1979 - 1998
SUMMARY: This report provides a summary of a 20-year historical data base that will be the baseline for assessing future changes in reef fish communities in the Florida Keys National Marine Sanctuary. A total of 263 fish taxa from 54 families were observed at 188 sites. The ten most abundant species accounted for 59% for all individuals observed. The study area extends from Key Biscayne to the Dry Tortugas.
KEY WORDS: Fishes, Florida Keys, Dry Tortugas

162
Bohnsack, J. A., D. B. McClellan, D. E. Harper, S. K. Bolden, A. M. Eklund, and S. Sandorf (1994) Effects of Hurricane Andrew on reef fishes in Biscayne National Park. Bull. Mar. Sci., 54(3):1072.
TIME COVERAGE: 1992
SUMMARY: Reef fish have been monitored in Biscayne Bay for the past several years. Hurricane Andrew passed directly over some of the study sites. Most reef fishes showed no injuries or effects from the storm. Large numbers of the newly settled ocean sturgeon were observed in some disturbed sites.
KEY WORDS: Reef fish, Hurricane Andrew, Biscayne National Park

163
Boldrick, S. J. (1975) The ship that stopped the Boom. South Florida History Magazine, 2(5):8-9.
TIME COVERAGE: 1926
SUMMARY: This is an account of the grounding of the Prinz Valdemar in Government Cut and the ultimate fate of the ship.
KEY WORDS: Prinz Valdemar, Government Cut, Land Boom

164
Booker, F., A. Thorhaug, G. L. Beardsley, and B. Flynn (1982) Seagrass species, density and theoretical productivity off Key Biscayne, Florida. Florida Scient., 45(Suppl. 1):23.
TIME COVERAGE: 1982 ◊
SUMMARY: This abstract describes the fauna and flora of a seagrass bed off Key Biscayne.

KEY WORDS: Seagrass, *Thalassia testudinum*, *Syringodium filiforme*, *Halodule wrightii*, Population density, Biological production, Key Biscayne

165
Borkowski, T. V. (1970) The biology and ecology of some tropical western Atlantic Littorinidae (Gastropoda: Prosobranchia). Ph.D. dissertation. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1970 ◊
SUMMARY: Growth, spawning, mortality and productivity have been studied for several representatives of the Family Littorinidae.
KEY WORDS: Littorinidae, Gastropods, *Littorina lineata*, *Littorina lineolata*, *Littorina ziczac*, *Nodilittorina tuberculata*, *Tectarius muricatus*, *Echininus nodulosus*

166
Borkowski, T. V. (1974) Growth, mortality, and productivity of south Floridian Littorinidae (Gastropoda: Prosobranchia). Bull. Mar. Sci., 24(2):409-438.
TIME COVERAGE: 1974 ◊
SUMMARY: This is the second paper of a series of papers on the reproduction, growth, mortality, productivity, distribution, and zonational dynamics of some south Floridian Littorinidae.
KEY WORDS: Littorinidae, *Tectarius muricatus*, *Nodilittorina tuberculata*, *Echininus nodulosus*, *Littorina lineata*, *Littorina lineolata*, *Littorina ziczac*, Growth, Mortality, Biological production, Government Cut

167
Borkowski, T. V. (1971) Reproduction and reproductive periodicities of south Floridian Littorinidae (Gastropoda: Prosobranchia). Bull. Mar. Sci., 21(-):826-840.
TIME COVERAGE: 1971 ◊
SUMMARY: This is the first of a series of papers on the reproduction, growth, mortality, productivity, distribution, and zonational dynamics of some south Floridian Littorinidae.
KEY WORDS: Littorinidae, *Tectarius muricatus*, *Nodilittorina tuberculata*, *Echininus nodulosus*, *Littorina lineata*, *Littorina lineolata*, *Littorina ziczac*, Reproduction, Spawning seasons, Government Cut

168
Bortone, S. A., and J. L. Williams (1986) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - gray, lane, mutton, and yellowtail snappers. Biological rep. 82 (11.52). US Fish and Wildlife Service, National Coastal Ecosystem Team, Slidell, LA. 18 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: The life history, growth characteristics, fishery, ecological role, environmental requirements, and morphology of four snapper species are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Gray snapper, *Lutjanus griseus*, Lane snapper, *Lutjanus synagris*, Mutton snapper, *Lutjanus analis*, Yellowtail snapper, *Ocyurus chrysurus*, Snappers, South Florida

169
Boucher, G. C. (1974) Parasites of the checkered puffer, *Sphoeroides testudineus*, in Biscayne Bay, Florida, with an analysis of host-parasite relationships. M.Sc. thesis. University of Miami, Coral Gables, FL. 69 pp.
TIME COVERAGE: 1973 - 1974
SUMMARY: Checkered puffers parasites were identified, and their location in the host, incidence and intensity of infection noted. Thirteen species of parasites were observed.

KEY WORDS: Pufferfish, Checkered puffer, *Sphoeroides testudineus*, Parasites, *Argulus varians*, *Tagia ecuadori*, *Bianium plicitum*, *Bucephalus* sp., Virginia Key

170
Bouchet, G. C. (1985) Redescription of *Argulus varians* Bere, 1936 (Branchiura, Argulidae) including a description of its early development and first larval stage. Crustaceana, 49(1):30-35.
TIME COVERAGE: 1985 ◊
SUMMARY: This citation is a redescription of species based on specimens collected during a parasitology study.
KEY WORDS: Parasites, Animal morphology, Males, Crustacean larvae, *Argulus varians*

171
Bowman, H. H. M. (1917) Ecology and physiology of the red mangrove. Proceedings of the American Philosophical Society, 56(-):589-672.
TIME COVERAGE: 1915-1916
SUMMARY: This citation is a comprehensive review of the state of knowledge about mangroves, including historical references going as far back as 325 BC.
KEY WORDS: Rhizophora, Red mangrove, Ecophysiology, Miami River, Arch Creek

172
Boyer, J. N., and J. D. Jones (1999) Modeling the southeast Florida coastal ecosystem - Hydrodynamic transport, salinity, and trophodynamics. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 212.
TIME COVERAGE: 1999 ◊
SUMMARY: Water quality of the Florida Keys National Marine Sanctuary is influenced by the Florida Current, the Gulf of Mexico Loop Current, currents of the Southwest Shelf, and by tidal exchange with Florida Bay and Biscayne Bay. Quarterly sampling of stations in the Florida Keys, Biscayne Bay, Florida Bay, the Shelf and mangrove estuaries is being used to study the spatial component of water quality in the area.
KEY WORDS: Florida Bay, Water quality, Nutrients

173
Bragg, R. (1999) Developers covet a Florida island beach that was born of racism. The New York Times, New York, NY. March 28. National Report. 19.
TIME COVERAGE: 1999
SUMMARY: This article discusses the history of Virginia Beach.
KEY WORDS: Virginia Beach, Virginia Key

174
Brand, L. E. (1988) Assessment of plankton resources and their environmental interactions in Biscayne Bay, Florida. Final report to Dade County Department of Environmental Resources Management. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 125 pp.
TIME COVERAGE: 1988 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Plankton, Environmental conditions, Species list

175
Brand, L. E., M. D. Gottfried, C. C. Baylon, and N. S. Romer (1991) Spatial and temporal distribution of phytoplankton in Biscayne Bay, Florida. Bull. Mar. Sci., 49(1-2):599-613.
TIME COVERAGE: 1986 - 1987

SUMMARY: Phytoplankton at 24 stations were examined monthly for one year. Abundances were high in north Biscayne Bay and even higher near canal mouths, and reached the highest levels during the rainy season. Eutrophication from freshwater runoff was the probable cause of the high abundances in the northern part of the Bay. Phytoplankton abundance showed virtually no seasonality in the southern part of the bay.
KEY WORDS: Phytoplankton, Geographical distribution, Temporal distribution

176
Brandt, L. A., F. J. Mazzotti, J. R. Wilcox, P. D. Barker, G. L. Hasty, and J. Wasilewski (1995) Status of the American crocodile (*Crocodylus acutus*) at a power plant site in Florida, USA. Herpetological Natural History, 3(1):29-36.
TIME COVERAGE: 1983 - 1993
SUMMARY: Surveys for distribution and nesting of the American crocodile at the Turkey Point Nuclear Power Plant were conducted from 1983 - 1993. The number of nests, hatchlings and non-hatchlings observed per survey have increased over the time of the survey. The percentage of animals of each size class fluctuated from year to year.
KEY WORDS: *Crocodylus acutus*, American crocodile, Turkey Point

177
Branyon, M. (1988) Florida Saltwater Fishing Guide. Orlando Sentinel, Orlando, FL. 143 pp.
TIME COVERAGE: 1988 ◊
SUMMARY: This is a fishing guide to Florida.
KEY WORDS: Fishing, Marine fish, Florida, Guide

178
Breaker, L. C., L. D. Burroughs, J. F. Culp, N. L. Guinasso, R. L. Teboulle, and C. R. Wong (1993) Surface and near-surface marine observations during Hurricane Andrew. NMC Office note no. 398; OPC contribution no. 68. NOAA/NWS, Washington, DC. 37 pp.
TIME COVERAGE: 1992
SUMMARY: This report includes marine observations obtained from two buoys and two C-MAN stations close to the storm track, storm surges, currents, temperature and salinities, and sea surface temperature maps.
KEY WORDS: Temperature, Salinity, Time series analysis, Surface topography, Sea level measurement, Hurricane tracking, Meteorological observations, Hurricane Andrew, Southeast Florida, Bahamas, Gulf of Mexico

179
Brice, J. J. (1898) The fish and fisheries of the coastal waters of Florida. Report of the Commissioner (US Commission of Fish and Fisheries) for the year ending June 30, 1896. Report. US Commission of Fish and Fisheries, Washington, DC (?). 263-342.
TIME COVERAGE: 1898 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Fish, Coastal fisheries, Turtles, Crustaceans, Sponges, Florida

180
Briggs, J. C. (1958) A list of Florida fishes and their distribution. Bull. Florida State Museum, Biol. Sci., 2(8):223-318.
TIME COVERAGE: 1958 ◊
SUMMARY: This paper lists fishes found in Florida. The greatest variety of fish occurs in the Florida Keys.
KEY WORDS: Fish, Geographical distribution, Florida, Species list

181
Brook, I. M. (1978) Comparative macrofaunal abundance in turtlegrass (*Thalassia testudinum*) communities in south Florida characterized by high blade density. Bull. Mar. Sci., 28(1):212-217.
TIME COVERAGE: 1973
SUMMARY: Five *Thalassia* communities with high blade density were sampled by suction dredge and macrofaunal abundance evaluated. A high standing crop of seagrass may not be the primary determining factor in faunal abundance.
KEY WORDS: *Thalassia testudinum*, Seagrass, Population density, Abundance, Turtle grass, Aquatic communities

182
Brook, I. M. (1982) The effect of freshwater canal discharge on the stability of two seagrass benthic communities in Biscayne National Park, Florida. In: (Oceanologica Acta; supplement to vol. 4, December 1982.) Proc., Internat. Symp. on Coastal Lagoons. P. Lasserre, and H. Postma, (eds.). Bordeaux, France, 1981. Gauthier Villars, Montreuil. 63-72.
TIME COVERAGE: 1979 - 1980
SUMMARY: A two-year study of western Biscayne National Park examined two benthic communities affected by fresh water canal discharge of Mowry and Moody Canals. The Moody Canal community evolved into a new moderately abundant community, with mollusks replacing amphipods. The Mowry Canal community, with a more diverse vegetation than that of the Moody Canal site, proved to be resilient, maintaining composition and only moderately lower levels of abundance.
KEY WORDS: River discharge, Pollution effects, Seagrass, Marine invertebrates, Population number, Biomass, Species diversity, Salinity, Phytobenthos, Embryophyta, *Halodule wrightii*, *Thalassia testudinum*, *Syringodium filiforme*, *Laurencia poitei*, *Digenea simplex*, Biscayne National Park, Mowry Canal, Moody Canal

183
Brook, I. M. (1981) Epibenthic and benthic sampling survey of western Biscayne National Park. Final report, Part I. NPS contract no. CXS 280-9-159. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 62 pp + appendices.
TIME COVERAGE: 1979 - 1980
SUMMARY: This study examined the four distinct benthic communities near the western shoreline of Biscayne Bay and how these were affected by changes in salinity.
KEY WORDS: Benthos, Biological surveys, Biscayne National Park, Moody Canal, Mowry Canal, Grand Canal, Mangrove Key, Species list

184
Brook, I. M. (1979) A portable suction dredge for quantitative sampling in difficult substrates. Estuaries, 2(-):54-58.
TIME COVERAGE: 1979 ◊
SUMMARY: This paper describes a suction dredge for use in benthic sampling of difficult substrates including *Thalassia* beds.
KEY WORDS: Samplers, Dredges, *Thalassia testudinum*, Seagrass

185
Brook, I. M. (1975) Some aspects of the trophic relationships among the higher consumers in a seagrass community (*Thalassia testudinum* König) in Card Sound, Florida. Ph.D. dissertation, University of Miami, Coral Gables, FL.
TIME COVERAGE: 1972 - 1973
SUMMARY: The most important interaction between the primary consumers in *Thalassia* flats and higher trophic level consumers is via polychaetes and peracaridean crustaceans which were

the preferred food of all but two of fishes examined. The population of resident predators is low and limited by the small standing stock of polychaetes and peracaridean crustaceans. The majority of the fishes captured were foragers.
KEY WORDS: *Thalassia testudinum*, Seagrass, Turtle grass, Trophic relationships, Card Sound, Aquatic communities, Benthos, Biomass, Predation, Food chains, Arsenicker Key

186
Brook, I. M. (1977) Trophic relationships in a seagrass community (*Thalassia testudinum*), in Card Sound, Florida. Fish diets in relation to macrobenthic and cryptic faunal abundance. Trans. Am. Fish. Soc., 106(3):219-229.
TIME COVERAGE: 1972 - 1973
SUMMARY: The trophic interaction between fishes, and the macrobenthic and cryptic fauna in seagrass communities was examined. The principal interaction between primary consumers and the higher trophic level predators was via polychaetes and peracaridean crustaceans. Mollusks were not a preferred food. The majority of the fishes captured were foragers over a wide area.
KEY WORDS: Aquatic communities, Trophic relationships, Card Sound, *Thalassia testudinum*, Seagrass, Benthos, Biomass, Predation, Food chains, *Floridichthys carpio*

187
Brooks, C. P., D. P. Dreves, and D. S. White (1998) New records of *Taphromysis louisianae* Banner, 1953 (Mysidae) with notes on its ecology. Crustaceana, 71(8):955-970.
TIME COVERAGE: 1998 ◊
SUMMARY: *Taphromysis* is a North American genus of opossum shrimps (Mysidae)
containing two species: *T. bowmani* Bacescu, 1961 which has been reported only from a brackish tidepool adjacent to a mangrove swamp in Biscayne Bay, and *T. louisianae* Banner, 1953 originally described from a roadside ditch in Gueydan, Louisiana. In this paper, new records for *T. louisianae* are added, indicating that it may be more widely distributed than originally thought.
KEY WORDS: Ecological distribution, Mysidae, *Taphromysis louisianae*, *Taphromysis bowmani*, Freshwater crustaceans

188
Browder, J. A. (1990) Briefing for viewing of Kandrashoff Collection. Unpublished manuscript. NOAA/NMFS/SEFC, Miami, FL.
TIME COVERAGE: 1990 ◊
SUMMARY: This paper describes the collection of diseased or abnormal fish and crabs collected by the Kandrashoffs (father and son). The fish were mostly collected in the northern part of the Bay. Frequently occurring problems in fish are: scale disorientation, missing dorsal fins spines, missing pectoral fins and skin ulcerations. Frequently occurring problems in crabs are: ulcerated carapaces, abnormal lateral and/or anterio-lateral spines on carapaces, and brown spots on carapaces.
KEY WORDS: Fish diseases, Crabs, Pathology, Tumors

189
Browder, J. A., C. B. Littlejohn, and D. L. Young (1976) South Florida: seeking a balance of man and nature; land, water and energy use for long range economic vitality in south Florida. The South Florida Study. In cooperation with the National Park Service. Center for Wetlands, University of Florida, Gainesville, FL. 117 pp.
TIME COVERAGE: 1900 - 1976
SUMMARY: This report discusses the energy systems of the South Florida environment.
KEY WORDS: Environment management, Regional planning, Water resources, Land use, Energy resources, South Florida

190
Browder, J. A., D. B. McClellan, D. E. Harper, M. G. Kandrashoff, and W. Kandrashoff (1993) A major developmental defect observed in several Biscayne Bay, Florida, fish species. Environ. Biol. Fishes, 37(2):181-188.
TIME COVERAGE: 1989 - 1990
SUMMARY: Roughly 43,000 fish were caught mainly by hook and line and scanned for abnormalities. This activity took place mainly north of the Rickenbacker Causeway. Most fish were measured (fork length). Abnormalities were recorded in 17 species from 12 families. Saddleback was the most common abnormality.
KEY WORDS: Abnormalities, Pathology, Fish physiology, Scales, Fins, Saddleback syndrome, North Bay, *Haemulon sciurus*, *Haemulon parrai*, *Haemulon plumieri*, *Lagodon rhomboides*, *Archosargus rhomboidalis*, *Diplodus argenteus*, *Lutjanus griseus*, *Kyphosus sectatrix*, *Sphoeroides testudineus*, *Lactrophyrys quadricornis*, *Abudefduf saxatilis*

191
Brown, J. W. (1988) Fractionation studies of aquatic fatty acids from coastal & off-shore marine environments of southern Florida. J. Coastal Res., 4(4):565-572.
TIME COVERAGE: 1988 ◊
SUMMARY: The nature, quantity and distribution of dissolved and particulate-adsorbed fatty acids in seawater were studied in different coastal marine environments of South Florida. The total fatty acid concentration increased in surface waters as sampling proceeded from off-shore to terrestrial-influenced areas.
KEY WORDS: Fatty acids, Lipids, Sea water, Marco Island, Islamorada, Key West, Gulf Stream

192
Brown, J. W. (1987) Studies of humic and fulvic acid dynamics in coastal marine waters of south Florida. Mar. Environ. Res., 21(3):163-174.
TIME COVERAGE: 1979 - 1981
SUMMARY: Humic and fulvic acid concentrations were monitored in different areas of Biscayne and Florida Bays to determine the fluctuations in the nature and chemical nature of humic substances in productive coastal environments in South Florida. Fluctuations were found to be as much as eleven-fold and appeared to follow the artificially-controlled input of water from the South Florida mainland. In all marine locations studied, coarse particulate humic substances were low in comparison to the dissolved component of this chemical class.
KEY WORDS: Florida Bay, Humic acids, Fulvic acids, Coastal waters, Dynamics, Key West

193
Brown, R. H., and G. G. Parker (1945) Salt water encroachment in limestone at Silver Bluff, Miami, Florida. Economic Geol. and the Bull. Soc. Economic Geologists, 40(4):235-262.
TIME COVERAGE: 1945 ◊
SUMMARY: Silver Bluff is past of a low coastal ridge that averages approximately 8 ft above sea level. IT is composed of oolitic limestone. Construction of drainage canals has lowered the water table by several feet allowing salt water intrusions. This study investigated salt water intrusion at Silver Bluff.
KEY WORDS: Saline intrusion, Ground water, Limestone, Canals, Silver Bluff, Miami

194
Bruun, P., R. Dorrestein, and F. Gerritsen (1960) Storm tide problems with special reference to Biscayne Bay. University of Florida, College of Engineering, Engineering and Industrial Experiment Station, Gainesville, FL. Various paging.
TIME COVERAGE: 1960 ◊
SUMMARY: [COPY NOT AVAILABLE.]

KEY WORDS: Storm surge, Sea walls, Shore protection

195
Buchanan, T. J., and H. Klein (1976) Effects of water management on fresh-water discharge to Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 271-277.
TIME COVERAGE: 1947 - 1976?
SUMMARY: This paper discusses the effect of the flood and water control measures and water management practices instituted in South Florida after the flooding of 1947 on fresh water flow to Biscayne Bay. Since 1953 annual fresh water flow to the Bay was reduced by about 20% and the duration of storm water runoff was also reduced.
KEY WORDS: Drainage water, Urban runoff, Water management, Miami Canal, Tamiami Canal, Saline intrusion

196
Buck, J. (1979) Biscayne sketches at the far south. Tequesta, 39(-):70-86.
TIME COVERAGE: 1877
SUMMARY: James Buck moved to South Florida in 1877 from his home in Cambridge, MA and settled in what is now south Coconut Grove. His stay in Florida only lasted 6 months. He wrote an account of his experiences, discouraging his fellow co-workers at the Riverside Press in Cambridge from moving to South Florida.
KEY WORDS: Historical

197
Buck, J. D. (1965) A comparative study of selected marine pseudomonads with special reference to antiyeast activity. Ph.D. dissertation. University of Miami, Coral Gables, FL. 162 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: Pseudomonad bacteria samples were obtained in Biscayne Bay and Bimini and cultured in the laboratory in various media.
KEY WORDS: Pseudomonads, Bacteriology, Yeasts, Key Biscayne, Soldier Key

198
Buck, J. D. (1976) Pollution microbiology of Biscayne Bay beaches. Florida Scient., 39(-):111-120.
TIME COVERAGE: 1972
SUMMARY: Water, sediment and sand from recreational and other areas in southern Biscayne Bay were examined for the presence of "indicator" and potentially pathogenic bacteria and yeasts. The Miami River was the most significant source of pollution. Bathing beaches showed low densities of all microorganisms sought.
KEY WORDS: Microbial contamination, Water pollution, Beaches, Public health, Recreational waters, Pollution monitoring, Indicator species, Sediment, Water, Key Biscayne, Virginia Key, Miami River

199
Buck, J. D., and L. J. Greenfield (1964) Calcification in marine-occurring yeasts. Bull. Mar. Sci. Gulf Caribb., 14(2):239-245.
TIME COVERAGE: 1964 ◊
SUMMARY: Five species of yeasts including three of marine origin were tested for their ability to induce calcium carbonate crystal formation in four different artificial media. Round or bundle-shaped crystals were formed after 18 days in cultures of washed "exhausted" cells or

two marine yeasts. Cell debris of a sediment isolate and of a terrestrial form showed roundish crystals after two days.
KEY WORDS: Yeasts, Calcification, *Rhodotorula aurea*, *Cryptococcus albidus*, *Rhodotorula glutinis*

200
Budd, A. E., K. G. Johnson, and D. C. Potts (1994) Recognizing morphospecies in colonial reef corals: I. Landmark-based methods. Paleobiol., 20(4):484-505.
TIME COVERAGE: 1989
SUMMARY: Morphological discrimination of species of scleractinian corals has been plagued by a shortage of independent characters and by high ecophenotypic plasticity. This paper presented a newly developed protocol for the morphometric recognition of species.
KEY WORDS: Coral, Organism morphology, Porites, Soldier Key, Sands Key, Bache Shoal, St. Croix, Belize

201
Bulger, A. J., T. A. Lowery, and M. E. Monaco (1995) Estuarine-catadromy: a life history strategy coupling marine and estuarine environments via coastal inlets. ELMR report no. 14. NOAA/NOS Strategic Environmental Assessments Division, Silver Spring, MD. 110 pp.
TIME COVERAGE: 1995 ◊
SUMMARY: This report was undertaken to develop a better understanding of 12 estuarine-catadromous species ' larval utilization of estuaries along the US East Coast including Biscayne Bay.
KEY WORDS: Catadromous species, Life history, Estuaries, Marine environment, Coastal inlets

202
Bunt, J. S. (1971) Microbiology. in: An Ecological Study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler (eds.). Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. VIII:1-11.
TIME COVERAGE: 1971 ◊
SUMMARY: The microbial community of Card Sound is of major importance in the production and turnover of organic materials. Photosynthetic pigments, particulate organic carbon, plate counts of heterotrophic microorganisms, and carbon and nitrogen fixation were studied.
KEY WORDS: Microbiology, Photosynthetic pigments, Carbon fixation, Nitrogen fixation, South Bay

203
Bunt, J. S. (1969) Observations on photoheterotrophy in a marine diatom. J. Phycol., 5(1):37-42.
TIME COVERAGE: 1969 ◊
SUMMARY: An unidentified species of a diatom of the genus Cocconeis was isolated from Biscayne Bay mud. The organism was capable of utilizing a variety of organic substrates in the light. Data obtained on the kinetics of uptake of lactate and glucose raise questions on the possible ecological significance of photoheterotrophy along marine microalgae.
KEY WORDS: Cocconeis, Diatoms, Heterotrophy

204
Bunt, J. S., and E. R. Anang (1976) Hydrological, productivity and nutrient data near Miami, the Bahamas and Haiti. UM data report 76-2. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 32 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: [COPY NOT AVAILABLE.]

KEY WORDS: Primary production, Hydrology, Photosynthetic pigments, Chlorophylls, Miami, Bahamas

205
Bunt, J. S., C. C. Lee, and E. Lee (1972) Primary productivity and related data from tropical and subtropical marine sediments. Mar. Biol., 16(-):28-36.
TIME COVERAGE: 1971
SUMMARY: Measurements in situ were made of oxygen exchange and carbon-14 fixation in calcareous sediments In Biscayne Bay and at various sites in the Caribbean. Sediment samples were analyzed for total organic carbon, nitrogen and photosynthetic pigments.
KEY WORDS: Primary production, Carbon fixation, Carbonate sediment, Photosynthetic pigments, Key Biscayne, Caribbean, Long Reef

206
Bunt, J. S., C. C. Lee, B. F. Taylor, P. Rost, and E. Lee (1970-1971) Quantitative studies on certain features of Card Sound as a biological system. RSMAS technical report 72011. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 13 pp.
TIME COVERAGE: 1970 - 1971 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Carbon fixation, Photosynthetic pigments, Chlorophylls, Bacteriology, Card Sound

207
Bureau of Sport Fisheries and Wildlife (1970) National estuary study. Report. Seven volumes. US. Government Printing Office, Washington, DC. Various paging.
TIME COVERAGE: 1970 ◊
SUMMARY: This is a comprehensive report on estuaries.
KEY WORDS: Estuaries, Estuary Protection Act

208
Burns, L. A. (1976) Ecosystem models of mangrove communities in Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 113-132.
TIME COVERAGE: 1976 ◊
SUMMARY: This paper discusses ecosystem models of mangrove communities. The models emphasize productivity, interception and filtration of runoff, detrital production, and nursery and breeding aspects of mangrove ecosystems.
KEY WORDS: Mangroves, Models, Productivity, Nursery grounds

209
Burrus, E. C. (1984) A history of the islands and waters of the Biscayne National Park -- a multi-media interpretive program. D.A. thesis. University of Miami, Coral Gables, FL. 165 pp.
TIME COVERAGE: 1700s - 1980s
SUMMARY: This thesis is a multi-media presentation on the history of the area encompassing Biscayne National Park.
KEY WORDS: History, Turtle fisheries, Sponge fisheries, Wrecks, Biscayne National Park

210
Bursey, C. R., and C. E. Lane (1971) Ionic and protein concentration changes during the molt cycle of *Penaeus duorarum*. Comparative Biochem. Physiol., 40A(-):155-162.
TIME COVERAGE: 1971 ◊
SUMMARY: Sodium, K, Ca and protein concentrations were determined throughout the molt cycle of pink shrimp. Sodium, K and Ca are greatest at molting and fall to a relatively stable

level during the intermolt period. Protein concentration rises during the premolt phase, falls at molt, and rises to an intermediate level during intermolt.
KEY WORDS: Molting, Proteins, Biochemistry, Pink shrimp, *Penaeus duorarum*, Na, K, Ca

211
Burton, E. A. (1986) Gradients in carbonate mineralogy, Biscayne Bay, SE Florida: a reassessment of XRD analysis. In: SEPM annual midyear mtg. abstracts. Raleigh, NC, 1986. Society of Economic Paleontologists and Mineralogists, Tulsa, OK. 16-17.
TIME COVERAGE: 1986 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Carbonate minerals, Calcite, Aragonite, X-ray diffraction analysis

212
Burzycki, G. W., and D. L. Drum (1992) Environmental/regulatory planning for the SW Biscayne Bay wetlands (advance identification of disposal areas). Final draft, tech. summary document. Wetlands Planning Unit, US Environmental Protection Agency, Atlanta, GA. (Various paging).
TIME COVERAGE: 1992 ◊
SUMMARY: This report is an effort to identify wetlands potentially suitable for development.
KEY WORDS: Wetlands, Land use, Resource development, Resource conservation, Waste disposal

213
Bush, J. (1958) The foraminifera and sediments of Biscayne Bay, Florida and their ecology. Ph.D. dissertation. University of Washington, Seattle, WA. 128 pp.
TIME COVERAGE: 1948
SUMMARY: Foraminiferal fauna in Biscayne Bay is provincial in nature due to adaptation to the rigorous changes in salinity and temperature, and to geographical isolation. Thirteen biotopes were recognized and shown to be influenced in their faunal composition by currents, salinity and temperature.
KEY WORDS: Foraminifera, Sedimentation, Carbonate sediment, Quartz

214
Bush, J. (1949) A preliminary report on the foraminifera of Biscayne Bay, Florida and their ecological relations. M.A. thesis. Indiana University, Bloomington, IN. 50 pp.
TIME COVERAGE: BB RSMAS
SUMMARY: 1949 ◊
KEY WORDS: Foraminifera, Ecological distribution

215
Bush, L. F. (1966) Distribution of sand fauna in beaches at Miami, Florida. Bull. Mar. Sci., 16(1):58-75.
TIME COVERAGE: 1966 ◊
SUMMARY: This paper is a brief survey of the sand fauna of some beaches in Miami.
KEY WORDS: Beaches, Psammon, Sand, Copepods, Turbellarians, Virginia Key, Key Biscayne

216
Butler, M. J., W. F. Herrnkind, and J. H. Hunt (1994) Sponge mass mortality and Hurricane Andrew: catastrophe for juvenile spiny lobsters in south Florida? Bull. Mar. Sci., 54(3):1073.
TIME COVERAGE: 1991 - 1992
SUMMARY: The sponges, macroalgae and octocorals are prime settlement and juvenile nursery habitat for the spiny lobster. During 1991 - 1992, a massive sponge die off occurred in Florida

Bay, and in 1992 Hurricane Andrew passed over Biscayne Bay. These events provided opportunities to study the impact of such disturbances on juvenile spiny lobsters.
KEY WORDS: Sponges, Mortality causes, Hurricane Andrew, Spiny lobster, *Panulirus argus*, South Florida

217
Byrne, J. D. (1976) Thermal infrared studies in the Biscayne Bay area. M.Sc. thesis. University of Miami, Coral Gables, FL. 154 pp.
TIME COVERAGE: 1975
SUMMARY: Thermal infrared images of surface water were obtained by low flying aircraft. A time series of thermal discharge from a power plant was prepared and analyzed to define the structural features of the thermal anomaly area. Surface water temperatures were obtained from a boat to establish ground truth conditions.
KEY WORDS: Infrared detectors, Thermal pollution, Surface temperature, Cutler Power Plant, Card Sound

218
Byrne, M., and J. F. Meeder (1997) Ground water delivery to Biscayne Bay. Proc., First Ann. Conf. of the Walt Dineen Society. Florida International University, 1997. Walt Dineen Society, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Ground water, Nutrients (Mineral), Water motion

219
Byrne, M., and J. Meeder (1999) Groundwater discharge and nutrient loading to Biscayne Bay. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 221-222.
TIME COVERAGE: 1999 ◊
SUMMARY: Two transects of wells were drilled between the outlets of Military and Mowry Canals and nutrient levels were determined. Preliminary results were presented.
KEY WORDS: Groundwater, Nutrients, Military Canal, Mowry Canal

220
Cable, J. E., W. C. Burnett, J. P. Chanton, D. R. Corbett, and P. H. Cable (1997) Field evaluation of seepage meters in the coastal marine environment. Estuar. Coast. Shelf Sci., 45(3):367-375.
TIME COVERAGE: 1997 ◊
SUMMARY: The response of seepage meters was evaluated in a nearshore marine environment where water motion effects are more pronounced than in lake settings.
KEY WORDS: Hydrology, Tidal dynamics, Seepages, Groundwater

221
Cai, C. (1993) Miami River environmental management and planning. Masters thesis. University of Miami, Coral Gables, FL. 185 pp. 185 pp.
TIME COVERAGE: 1993 ◊
SUMMARY: This study identifies and evaluates the existing environmental and regulatory conditions of the Miami River.
KEY WORDS: River basin management, Environment management, Regional planning, Urbanization, Miami River

222
Caillouet, C. W., G. L. Beardsley, and N. Chitty (1971) Notes on size, sex ratio, and spawning of the spiny lobster *Panulirus guttatus* (Latreille), near Miami Beach, Florida. Bull. Mar. Sci., 21(4):944-951.
TIME COVERAGE: 1970
SUMMARY: Spiny lobsters were collected along the jetties bordering the ship channel near Miami Beach. Observations on size distribution, sex ratio, and proportion of ovigerous females were presented.
KEY WORDS: Spiny lobster, *Panulirus guttatus*, Size, Sex ratio, Spawning, Government Cut

223
Cairns, S. D. (1976) Guide to the commoner shallow-water gorgonians (sea whips, sea feathers and sea fans) of Florida, the Gulf of Mexico, and the Caribbean region. Field guide series 6. University of Miami Sea Grant College Program, Coral Gables, FL. 74 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This is a field guide to common gorgonians of Florida, the Gulf coast and the Caribbean.
KEY WORDS: Gorgonians, Sea whips, Sea feathers, Sea fans, Identification keys, Florida, Gulf of Mexico, Caribbean, Field guide

224
Calas, E. L., and D. K. Valdes (1988) Miami River stormwater drainage basin prioritization. Metro Dade DERM technical report 88-2. Metro Dade Department of Environmental Resources Management, Miami, FL. 4 pp + appendices.
TIME COVERAGE: 1988 ◊
SUMMARY: This report described improvements that could be made to improve the environmental quality of stormwater runoff discharge into the Miami River.
KEY WORDS: Stormwater runoff, Drainage water, Pollutants, Miami River

225
Camilleri, J. C., and G. Ribi (1986) Leaching of dissolved organic carbon (DOC) from dead leaves, formation of flakes from DOC, and feeding on flakes by crustaceans in mangroves. Mar. Biol., 91(-):337-344.
TIME COVERAGE: 1986 ◊
SUMMARY: Organic matter was released into seawater from dead mangrove leaves under both biotic and abiotic conditions. Particulate matter (flakes) formed in the leachates under both conditions. Flakes cultured in the laboratory and flakes obtained from natural environments were colonized by microbiol organisms and were utilized as food by copepods, amphipods, isopods, crabs and shrimps.
KEY WORDS: Mangrove swamps, *Rhizophora mangle*, Dissolved organic carbon, Leaves, Detritus feeders

226
Camp Dresser & McKee, I. (1988) Munisport Landfill site, North Miami, Florida. Draft focused feasibility study. Final report. Unpublished manuscript. Camp Dresser & McKee, Inc., Atlanta, GA. (Various paging).
TIME COVERAGE: 1988 ◊
SUMMARY: This report is a feasibility study of five remedial actions to be applied to the Munisport Landfill site in North Miami, an area immediately adjacent to Biscayne Bay. The remedial actions were designed to minimize, contain and control contaminant migration and to protect human health and the environment.
KEY WORDS: Feasibility studies, Environmental restoration, Chemical pollutants, Munisport Landfill, North Miami

227
Campbell, C. S. (1974) 1-^{14}C-linoleic acid utilization in female pink shrimp, *Penaeus duorarum* Burkenroad. M.Sc. thesis. University of Miami, Coral Gables, FL. 55 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: Pink shrimp were obtained from local fishermen, kept in aquariums and fed ^{14}C-labeled food. Radioactivity was determined in various tissues of the shrimp and the distribution of the radiolabeled material determined with time within the specimens.
KEY WORDS: *Penaeus duorarum*, Pink shrimp, Linoleic acid

228
Campos, W. L. (1985) Distribution patterns of juvenile epibenthic fish in south Biscayne Bay, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 109 pp.
TIME COVERAGE: 1982 - 1983
SUMMARY: This study examined the distribution of juvenile epibenthic fish in relation to the abiotic environmental factors in southern Biscayne Bay. The composition and spatial distribution of the species assemblages remained consistent from one season to another, although abundances were generally lower during winter. Habitat differences throughout the study period were consistently displayed on physical factors such as bottom type and salinity. The results showed that the topographical heterogeneity of the Bay, along with the interior circulation pattern, regulate the seasonal distribution of the species assemblages. The most important habitat factors were grassland density and salinity.
KEY WORDS: Marine fish, Juveniles, Ecological distribution, Benthos, South Bay, Central Bay, Species list

229
Campos, W. L., and S. A. Berkeley (1986) Impact of the commercial fishery on the population of bait shrimp (Penaeus spp.) in Biscayne Bay. Final report to Dade County dept. of Environmental Resources Management. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 46 pp.
TIME COVERAGE: 1984 - 1985
SUMMARY: Pink shrimp were found to exhibit a mean residence time in the Biscayne Bay nursery area of approximately 21 weeks. It was estimated that 23% and 26% of the male and female monthly population size respectively was absorbed by both the fishery and ecosystem monthly. Fishing mortality represented only 8-9% of the losses to the shrimp population. The biggest loss was emigration suggesting that shrimp beyond the size at recruitment are not utilized for food while in the Bay. Thus it appeared that the direct impact of the fishery on the bait shrimp population was relatively small.
KEY WORDS: Commercial fishing, Bait fishing, Shrimp, Penaeus, Population dynamics

230
Campton, D. E., C. J. Berg, L. M. Robison, and R. A. Glazer (1992) Genetic patchiness among populations of queen conch *Strombus gigas* in the Florida Keys and Bimini. Fishery Bull., 90(2):250-259.
TIME COVERAGE: 1992 ◊
SUMMARY: Spatial and temporal genetic patchiness among populations of queen conch were found, most likely the result of presettlement stochastic events and processes in the marine environment. The populations were very similarly genetically presumable reflecting high levels of gene flow due to larval drift.
KEY WORDS: Queen conch, *Strombus gigas*, Population genetics, Florida Keys, Bimini

231
Cantillo, A. Y., G. G. Lauenstein, and T. P. O'Connor (1997) Mollusc and sediment contaminant levels and trends in south Florida coastal waters. Mar. Pollut. Bull., 34(7):511-521.
TIME COVERAGE: 1986 - 1994
SUMMARY: Concentrations of organic and inorganic contaminants in sediments and mollusks collected in South Florida from 1986 to 1994 show temporal and spatial trends that reflect anthropogenic influence in areas removed from large population centers. Generally, contaminant levels found in South Florida sites are low compared to those found nationwide or as low as any found in the Western Hemisphere.
KEY WORDS: Oysters, *Crassostrea virginica*, Sediment pollution, Anthropogenic factors, Princeton Canal, Goulds Canal, South Florida

232
Cantillo, A. Y., G. G. Lauenstein, and T. P. O'Connor (1999) Oyster and sediment contaminant levels and trends in South Florida. Proc., 1995 Florida Bay Science Conf. Gainesville, FL, October 17-18, 1995. University of Florida, Gainesville, FL. 33.
TIME COVERAGE: 1986 - 1994
SUMMARY: A summary of the Mussel Watch Project findings regarding concentrations of contaminants in South Florida was discussed. Two Mussel Watch sites are located in Biscayne Bay.
KEY WORDS: Mussel Watch, *Crassostrea virginica*, Maule Lake, Goulds canal, PAHs, PCBs, Trace elements

233
Cantillo, A. Y., G. G. Lauenstein, T. P. O'Connor, and W. E. Johnson (1999) Status and trends of contaminant levels in biota and sediments of south Florida. NOAA Regional reports series 2. NOAA/NOS/NCCOS, Silver Spring, MD. 40 pp.
TIME COVERAGE: 1986 - 1997
SUMMARY: The results of the NOAA National Status and Trends Program Mussel Watch Project in South Florida are described.
KEY WORDS: Chemical pollutants, Aromatic hydrocarbons, PCBs, Pesticides, Butyltins, Trace elements, Sediment pollution, Oysters, Crassostrea virginica, South Florida, Florida Keys, Naples, Rookery Bay, Everglades

234
Cantillo, A. Y., G. G. Lauenstein, T. P. O'Connor, and W. E. Johnson (1999) Update of results of the Mussel Watch Project in South Florida and the Caribbean. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 235.
TIME COVERAGE: 1986 - 1997
SUMMARY: A summary of the Mussel Watch Project findings regarding concentrations of contaminants in South Florida and Puerto Rico was presented. At some sites, the NS&T results were compared with those obtained in the Caribbean by the International Mussel Watch Program. The Mussel Watch Project determines the concentrations of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyl (PCB) congeners, several pesticides, butyltins, and selected trace elements in sediment and mollusk samples from U.S. coastal waters. Mollusks and sediments are collected at each Mussel Watch Project site. Several species of mollusks are collected: eastern oysters (*Crassostrea virginica*) from the South Atlantic and the Gulf of Mexico; smooth-edge jewelbox (*Chama sinuosa*) from the Florida Keys; and Caribbean oyster (*C. rhizophorae*) from Puerto Rico. The results at the South Florida and Caribbean sites are shown and compared to the nationwide levels of several contaminants.
KEY WORDS: Mussel Watch, *Crassostrea virginica*, Maule Lake, Goulds canal, PAHs, PCBs, Trace elements, Bahia Honda, Puerto Rico

235
Cantillo, A. Y., T. P. O'Connor, and G. G. Lauenstein (1993) South Florida environmental quality. NOAA technical memorandum NOS ORCA 75. NOAA/National Ocean Service, Silver Spring, MD. 82 pp.
TIME COVERAGE: 1986 - 1991
SUMMARY: This document is a summary of the environmental conditions of Florida Bay, Biscayne Bay, and the southern portion of the Gulf Coast of Florida; the levels of contaminants found at the NOAA National Status and Trends (NS&T) Program sites in the area; and how these levels compare with those found in other NS&T sites nationwide.
KEY WORDS: Environmental conditions, Pollution monitoring, Florida Bay, South Florida

236
Cantril, J., and J. Bowman (1975) Field study of wave environment vs. boating activity for seven sites in the eastern U. S. Work performed under contract DOT-CG-40,672-A Task 58901-03. Wyle Laboratories, Huntsville, AL. Various paging.
TIME COVERAGE: 1975 ◊
SUMMARY: This work describes the measurement of the wave environment at seven sites including Miami to determine if a series of water conditions could be identified which would act as threshold barriers for the presence of various classes of recreational power boat.
KEY WORDS: Wave height, Surface water waves, Recreation, Boating

237
Capone, D. G. (1978) Dinitrogen fixation in subtropical seagrass and macroalgal communities. Ph.D. dissertation. University of Miami, Coral Gables, FL. 93 pp.
TIME COVERAGE: 1974 - 1978
SUMMARY: The purpose of this work was to resolve the controversy regarding the significance of nitrogen fixation in *Thalassia* communities. Nitrogen fixation was found to be highly variable spatially and temporally. High rates of foliar nitrogen fixation were correlated with the presence of a heterocystous cyanobacterium, *Calothrix* sp. The seasonal and diurnal variations in nitrogenase activity, where noted, were probably attributable to responses by there photosynthetic procaryotes to environmental fluctuations.
KEY WORDS: Nitrogen fixation, Seagrass, Thalassia, Algae, Microdictyon, Laurencia, Calothrix, Soldier Key

238
Capone, D. G., R. S. Oremland, B. F. Taylor, and H. B. Stewart (1977) Significance of N_2 fixation to the production of *Thalassia testudinu*m communities. Symp. on Progress in Marine Research in the Caribbean and Adjacent Regions. Papers on fisheries, aquaculture and marine biology. H. B. Stewart, (ed.). Caracas, Venezuela, 1976. FAO fisheries report no. 200. Food and Agriculture Organization of the United Nations, Rome, Italy. 71-85.
TIME COVERAGE: 1977 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: *Thalassia testudinum*, Bacteria, Photosynthesis, Seasonal variations, Calothrix, Turtle grass, Bahamas, Bimini

239
Capone, D. G., and B. F. Taylor (1980) N_2 fixation in the rhizosphere of *Thalassia testudinum*. Canadian J. Microbiol., 26(-):998-1005.
TIME COVERAGE: 1980 ◊ (lab study)
SUMMARY: N_2 fixation (acetylene reduction) associated with the roots, rhizomes and sediments of *Thalassia* were measured at sites in Soldier Key and the Bahamas. The results

suggested significant inputs of nitrogen into the rhizosphere of *Thalassia* by N_2 fixation but the value of these inputs could not be fully assessed until more is known about the total nitrogen cycle in the community.
KEY WORDS: Nitrogen fixation, *Thalassia testudinum*, Seagrass, Soldier Key, Bimini

240
Capone, D. G., and B. F. Taylor (1977) Nitrogen fixation (acetylene reduction) in the phyllosphere of *Thalassia testudinum*. Mar. Biol., 40(-):19-28.
TIME COVERAGE: 1977 (lab study)
SUMMARY: N_2 fixation (acetylene reduction) associated with *Thalassia* leaves was investigates at five sites in Biscayne Bay and one site in Bimini. Significant activities were correlated with the occurrence of a heterocystous blue-green alga on the leaves. Methylene reduction was not stimulated by organic compounds. Diurnal and seasonal variations in nitrogen fixation were noted.
KEY WORDS: Nitrogen fixation, *Thalassia testudinum*, Seagrass, Calothrix, Bimini, Soldier Key

241
Capriotti, A. (1962) Yeasts of the Miami, Florida, area. I. From Key Biscayne soils. Archiv. für Mikrobiologie, 41(-):142-146.
TIME COVERAGE: 1960
SUMMARY: This paper describes yeasts found in Key Biscayne soils
KEY WORDS: Yeasts, Soils, Key Biscayne, Species list

242
Capriotti, A. (1962) Yeasts of the Miami, Florida, area. II. From the Miami River. Archiv. für Mikrobiologie, 41(-):147-153.
TIME COVERAGE: 1960
SUMMARY: More than 300 yeast cultures collected from Miami River samples demonstrated the presence of 18 yeasts. Comparison of Miami River samples with those collected in Key Biscayne soils as well as Biscayne Bay revealed common species in all three habitats.
KEY WORDS: Yeasts, River water, Miami River, Key Biscayne, Species list

243
Capriotti, A. (1962) Yeasts of the Miami, Florida, area. III. From sea water, marine animals and decaying materials. Archiv. für Mikrobiologie, 42(-):407-414.
TIME COVERAGE: 1960
SUMMARY: The isolation and examination of yeasts from seawater, marine animals and decaying material demonstrated different patterns of distribution and speciation among these substrates. Yeast species were found with low frequency in intestinal tracts of marine animals, occurring with greater abundances in other environs. Interchange of species between terrestrial and inshore marine locales was apparent.
KEY WORDS: Yeasts, Sea water, Marine organisms, Biodegradation

244
Carballo, J. C., L. M. Valdez, M. Chacken, and J. R. Montague (1993) Analyses of decay and parrot fish bites along attached blades of turtle grass (*Thalassia testudinum*) from two sites in Biscayne Bay. Florida Scient., 56(Suppl. 1):17-18.
TIME COVERAGE: 1988 - 1989, 1990 - 1992
SUMMARY: Samples of *Thalassia* blades collected at the Crandon Marina and at Bear Cut showed the same patterns and proportions of fresh and decayed tissues. Parrot fish tended to graze selectively on completely decayed portions near the tips of the blades. Earlier data from 1988 - 1989 suggested grazing by parrot fish in Bear Cut had decreased. The establishment of an

artificial reef near Bear Cut in 1988 may have had an influence on abundance of parrot fish. The 1992 collection occurred after Hurricane Andrew.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Parrot fish, Crandon Marina, Bear Cut, Hurricane Andrew

245
Carder, K., R. Steward, P. Betzer, D. Johnson, and J. M. Prospero (1983) Chronology of an aeolian input event to the Sargasso Sea. Eos, 64(45):729.
TIME COVERAGE: 1980
SUMMARY: A major outbreak of Saharan dust passed over the Sargasso Sea in 1980. The flux of aeolian dust across the sea-air interface was calculated based on a free-floating sediment trap held at 30 m. Large aeolian particles were found in the trap during the middle of the event. These giant particles were not found in aerosol samples filtered at Key Biscayne.
KEY WORDS: Aerosols, Aeolian dust, Air-water interface, Sargasso Sea

246
Cardozo, Y., and B. Hirsch (1985) Florida artificial reefs - alive and growing. Sea Frontiers, 31(6):324-333.
TIME COVERAGE: 1985 ◊
SUMMARY: This articles describes the artificial reefs of Florida including the process of sinking ships destined to become reef material and fish colonization.
KEY WORDS: Artificial reefs, Attracting techniques, Habitat improvement, Dade County

247
Cardozo, Y., and B. Hirsch (1991) Tidal creeks and scuba gear. Sea Frontiers, 37(4):32-36.
TIME COVERAGE: 1991 ◊
SUMMARY: This article describes scuba diving in the creeks and canals of Biscayne Bay.
KEY WORDS: Mangrove swamps, Tidal inlets, Scuba diving

248
Carlton, J. M. (1974) Land-building and stabilization by mangroves. Environmental Conserv., 1(4):285-294.
TIME COVERAGE: 1974 ◊
SUMMARY: This paper reviews land-building and shore stabilization by mangroves, and transplantation of these plants.
KEY WORDS: Mangrove swamps, *Rhizophora mangle*, *Avicennia germinans*, *Laguncularia racemosa*, Florida Bay

249
Carlton, J. M. (1972) A preliminary survey of mangrove communities in Florida. Quart. J. Fla. Acad. Sci., 35(Suppl. 1):12.
TIME COVERAGE: 1972 ◊
SUMMARY: This work investigated the revegetated mangrove communities of the Bay.
KEY WORDS: Mangrove swamps, *Rhizophora mangle*, Virginia Key

250
Carpenter, J. H. (1977) Chemistry of copper and chlorine introduced into marine systems during energy production. NTIS DE85004334/XAB. Sponsored by Department of Energy. National Technical Information Service, Springfield, VA. 18 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: This study describes Cu and chlorine species in seawater. Decreasing Cu complexing capacity was found with distance from shore.

KEY WORDS: Cu, Coastal waters, Chemical oceanography, Sea water, Gulf Stream, Turkey Point Power Plant, Chlorine

251
Carpenter, J. H., and C. A. Smith (1978) Reactions in chlorinated sea water. In: Water Chlorination: Environmental Impact and Health Effects. Proc., 2nd Conf. on the Environmental Impact of Water Chlorination. R. L. Jolley, H. Gorchev, and H. Hamilton, (eds.). Gatlinburg, TN, 1977. Ann Arbor Science, Ann Arbor, MI. 195-207.
TIME COVERAGE: 1977 ◊
SUMMARY: This citation reviews reactions that take place in chlorinated seawater including the formation of bromates and halogenated organic compounds, and copper complexing capacity.
KEY WORDS: Chlorination, Sea water, Halogen compounds, Bromine compounds, Cu

252
Carpenter, J. H., C. A. Smith, and R. G. Zika (1980) Reaction products from the chlorination of seawater. In: Water chlorination: environmental impact and health effects. Vol. 3. Proc., 3rd Conf. on Water Chlorination: Environmental Impact and Health Effects. R. L. Jolley, W. A. Brungs, and R. B. Cumming, (eds.). Colorado Springs, CO, 1979. Ann Arbor Science, Ann Arbor, MI. 379-385.
TIME COVERAGE: 1979 ◊
SUMMARY: This paper discusses the chemical species formed during the chlorination of seawater.
KEY WORDS: Chlorination, Sea water, Halogen compounds, Bromine compounds, Port Everglades Power Plant

253
Carpenter, J. H., C. A. Smith, and R. G. Zika (1981) Reaction products from chlorination of seawater. EPA 600/4-81-010. NTIS report PB81-172280. EPA, Environmental Research Laboratory, Gulf Breeze, FL. 52 pp.
TIME COVERAGE: 1981 ◊
SUMMARY: Chlorination of seawater in the presence of light produces bromate ions which can influence standard analytical procedures and represent an unknown factor in estuarine and coastal waters. The Cu complexing capacity of Biscayne Bay water was reduced with the addition of chlorine. Thus chlorination of seawater may produce toxicity and growth reduction through the indirect mechanism of Cu release and/or reduced binding capacity. Chloroform extracts of chlorinated Biscayne Bay water were found to contain halogenated compounds which are uncommon and posed unusual analytical problems.
KEY WORDS: Chlorination, Sea water, Halogen compounds, Bromine compounds, Port Everglades Power Plant, Cu

254
Carr, R. S., and J. G. Beriault (1984) Prehistoric man in southern Florida. In: Environments of South Florida: Present and Past II. P. J. Gleason (ed.). Miami Geological Society, Coral Gables, FL. 551 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: Man has lived in South Florida for at least the last 10,000 yrs. This citation synthesizes significant research in the region as well as the area's basic subsistence and settlement patterns.
KEY WORDS: Archaeology, Prehistoric man, South Florida

255
Carson, R. B. (1951) The Florida tropics. Econ. Geography, 27(4):321-339.
TIME COVERAGE: 1951 ◊

SUMMARY: This paper is a general discussion of the climate of Florida.
KEY WORDS: Climate, Tropical environment, Temperature effects, Florida

256
Carter, L. J. (1974) The Florida Experience: Land and Water Policy in a Growth State. John Hopkins University Press, Baltimore.
TIME COVERAGE: 1974 ◊
SUMMARY: Chapter 6 of this book discusses Dade County.
KEY WORDS: Regional planning, Land use, Coastal zone management, Water policy, Environmental protection, Florida

257
Carter, R. W. G., and J. D. Orford (1982) When hurricanes sweep Miami Beach. Geographical Mag., 54(8):442-448.
TIME COVERAGE: 1982 ◊
SUMMARY: This article describes the effects of hurricanes on Miami Beach and what can be done to lessen damages.
KEY WORDS: Hurricanes, Miami Beach

258
Carver, J. R. (1962) Survey of Biscayne Bay (east of Homestead and Homestead Air Base): April 32 - May 15, 1962.
TIME COVERAGE: 1962
SUMMARY: The results of this survey indicated that the area of Biscayne Bay covered by this survey was chemically the equivalent of good clean ocean water. Some fresh water influence was apparent at the sampling points in the general vicinity of canal outfalls.

259
Casagrande, D. J. (1970) Geochemistry of amino acids in selected Florida peats. Ph.D. dissertation. Pennsylvania State University, University Park, PA. 245 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: Peat samples were collected from various locations in South Florida and analyzed for amino acids. Attempts were also made to culture the microorganisms found in the peat samples.
KEY WORDS: Peat, Amino acids, Geochemistry, Everglades, Sediment

260
Causaras, C. R. (1982) Annotated bibliography of the geology and hydrology of the surficial aquifers in Dade, Broward, and Palm Beach counties, Florida. Open file report 82-154. US Geological Survey, Tallahassee, FL. 59 pp.
TIME COVERAGE: 1982 ◊
SUMMARY: This is a bibliography of citations related to aquifers in South Florida.
KEY WORDS: Bibliographies, Aquifers, Hydrology, Geology, Dade County, Broward County, Palm Beach County

261
Causaras, C. R. (1987) Geology of the surficial aquifer system, Dade County, Florida: lithologic logs. Water resources investigations rep. 86-4126. US Geological Survey, Tallahassee, FL. 240 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: This report contains lithologic logs of material found during well excavation.
KEY WORDS: Aquifers, Geological structures, Surface water, Dade County

262
Chalk's International Airlines (1999?) Chalk's International Airlines: the craftsmanship of yesterday - the technology of today. Company history. Chalk's International Airlines, Miami, FL. Various paging.
TIME COVERAGE: 1919 - 1999
SUMMARY: This report is a history of Chalks International Airlines, which has been in operation in Biscayne Bay using mostly seaplanes since 1919.
KEY WORDS: Chalk's International Airlines, Seaplanes, Air transportation, Aircraft

263
Chapman, A. (1993) "Watch the Port of Miami". Tequesta, 53(-):7-30.
TIME COVERAGE: 1842 - 1993?
SUMMARY: This citation is a history of the development of the Port of Miami.
KEY WORDS: History, Harbors, Port installations, Miami

264
Chapman, V. J. (1962) Respiration studies of mangrove seedlings. I. Material and some preliminary experiments. Bull. Mar. Sci. Gulf Caribb., 12(1):137-167.
TIME COVERAGE: 1962 ◊
SUMMARY: The morphology of seedlings of three genera of mangroves was studied in this paper: *Avicennia nitida*, *A. marina*, *Rhizophora mangle*, *R. conjugata*, and *Brughieria gymnorhiza*. Initial experiments were designed to give some information about different types of treatment such as exposure to different levels of salinity. Respiration in *Avicennia* and *R. mangle* was lower in sea water than in distilled water, which may be due to the great excess of dissolved salts in sea water. There was also a difference in respiration rate between material floating in medium or on filter moistened paper which simulates a humid atmosphere. In *Rhizophora* the difference disappears with increasing age of the seedling. Specimens of *A. marina* were collected in the Miami area.
KEY WORDS: Mangrove swamps, *Avicennia nitida*, *Rhizophora mangle*, *Rhizophora conjugata*, *Brughiera gymnorhiza*, Respiration, *Avicennia marina*

265
Chapman, V. J. (1962) Respiration studies of mangrove seedlings. II. Respiration in air. Bull. Mar. Sci. Gulf Caribb., 12(2):245-263.
TIME COVERAGE: 1962 ◊
SUMMARY: This paper is a continuation of the respiration study reported in Chapman (1962).
KEY WORDS: Mangrove swamps, *Avicennia nitida*, *Rhizophora mangle*, *Rhizophora conjugata*, *Brughiera gymnorhiza*, Respiration, *Avicennia marina*

266
Chardon, R. E. (1982) A best-fit evaluation of De Brahm's 1770 chart of northern Biscayne Bay, Florida. Amer. Cartographer, 9(1):47-67.
TIME COVERAGE: 1770
SUMMARY: A description and evaluation of De Brahm's 1770 chart of northern Biscayne Bay was presented for the purpose of reconstruction of the area's natural environment in the 1770s. Current shorelines are compared to those in the 1770 chart.
KEY WORDS: Mapping, Coastal landforms, Geography, De Brahm, W. G., North Bay

267
Chardon, R. E. (1975) The Cape Florida Society of 1773. Tequesta, 35(-):1-36.
TIME COVERAGE: 1773

SUMMARY: The Cape Florida Society was formed to develop the land given to Lord Dartmouth by King George III. The Society was the result of the efforts of two Swiss entrepeneurs, W. G. de Brahm and Lord Dartmouth. The proposed settlement never materialized.
KEY WORDS: De Brahm, W. G., Cape Florida Society, Mapping, Natural resources

268
Chardon, R. E. (1977) Cartographic analysis of coastal change: natural and urban. In: Research Techniques in Coastal Environments. H. J. Walker (ed.). Geoscience and Man. Vol. 18. School of Geoscience, Louisiana State University, Baton Rouge, LA.
TIME COVERAGE: 1977 ◊
SUMMARY: Historical maps were used to evaluate coastal change in northern Biscayne Bay and Norris Cut. Historical maps permitted the dating of the formation of a tidal inlet to within a nine year period. Nautical charts from 1887 and 1974 were used to compile a map of open-water dredge and fill in northern Biscayne Bay.
KEY WORDS: Coastal landforms, Coastal zone, Mapping, Dredging, Norris Cut

269
Chardon, R. E. (1978) Coastal barrier changes, 1779-1867, Biscayne Bay area, Florida. Geology, 6(6):333-336.
TIME COVERAGE: 1770 - 1867
SUMMARY: Examination of historical maps of the pre-urban sedimentary barrier bordering northern Biscayne Bay indicated that there was a net shore retreat in the northern Atlantic portion of the barrier, and a net spit accretion in two areas to the south.
KEY WORDS: Coastal morphology, Barriers

270
Chardon, R. E. (1976) Evaluating portions of three late 18th-century maps by core-boring analysis. National Geographic Society Res. Rep., 17(-):281-299.
TIME COVERAGE: 1976 ◊
SUMMARY: This report summarizes the results of efforts to determine, using core techniques and boring log data, the accuracy of three late 18th century maps of the northern Biscayne Bay region. In some areas, the 18th century maps exhibit a high degree of geographic correspondence with later and modern charts, other portions of the maps are incompatible with the vegetation or shoreline patterns depicted on later charts.
KEY WORDS: Mapping, Coring, Coastal landforms, Geography, De Brahm, W. G., Key Biscayne, North Bay

271
Chardon, R. E. (1976) A geographical history of the Biscayne Bay area. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 235-245.
TIME COVERAGE: 1763 - 1976?
SUMMARY: This paper describes the geographical history of Biscayne Bay which is said to start ca. 1100 BCE. Small human settlements in the area began ca. 300 ACE and the indigenous people utilized local available resources until ca. 1763. After an uninhabited but exploitative 40-yr period, pioneer agricultural colonization began. Founding of Miami in 1896 and an expanding national economy led to continued intense urbanization leading to major modifications of the environment.
KEY WORDS: Geography, Natural resources, Coastal zone

272
Chardon, R. E. (1975) Northern Biscayne Bay in 1776. Tequesta, 35(-):37-74.

TIME COVERAGE: 1776
SUMMARY: This paper describes northern Biscayne Bay, then called Dartmouth Stream, population and uses during the late 18th century.
KEY WORDS: Geography, De Brahm, W. G., Mapping, Romans, B. A., North Bay

273
Chardon, R. E. (1977) Notes on south Florida place names: Norris Cut. Tequesta, 37(-):51-61.
TIME COVERAGE: 1977 ◊
SUMMARY: Early maps suggest that Norris Cut was created between 1829 and 1838 due to natural causes, quite possibly by the Hurricane of 1835. Previous names for the cut were Narrows Cut, Narrow Cut, Narres's Cut and Norez Cut. Norris Cut first appears by that name in 1862.
KEY WORDS: Norris Cut, Mapping, Hurricane of 1835

274
Charles McKay and Associates (1973) An evaluation: the FEC ocean terminal; a special purpose port serving Miami and South Florida. Charles McKay and Associates, Miami, FL. 76 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Florida East Coast Railway, Cargoes, Shipping, Port installations, Miami

275
Charles, R. (1975) Aspects of the biology of the mojarra, *Eucinostomus gula* (Quoy and Gaimard), in Biscayne Bay, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 107 pp.
TIME COVERAGE: 1973 - 1974
SUMMARY: Catch per haul varied seasonally, the highest levels being in August and September. There were two major recruitment peaks, May through July, and November. Mojarra consumed benthic invertebrates, and some seasonal changes in feeding habits were observed.
KEY WORDS: Mojarra, *Eucinostomus gula*, Life history, Key Biscayne

276
Cheung, T. S. (1969) The environmental and hormonal control of growth and reproduction in the adult female stone crab, *Menippe mercenaria* (Say). Biol. Bull., 136(3):327-346.
TIME COVERAGE: 1966 - 1967
SUMMARY: This citation is a study of the reproduction of stone crabs. Specimens were collected in Biscayne Bay.
KEY WORDS: Stone crab, *Menippe mercenaria*, Growth, Reproduction, Hormones, Seasonal variations

277
Chin, D. A. (1990) A method to estimate canal leakage to the Biscayne Aquifer, Dade County, Florida. Water - Resources Investigations rep. 90-4135. US Geological Survey, Tallahassee, FL. 32 pp.
TIME COVERAGE: 1989
SUMMARY: This report describes the development of a quantitative relation between canal leakage and canal and aquifer characteristics in Dade County. Leakage characteristics were described in terms of reach transmissivity defined as the volume flow rate out of the channel per unit length of the channel per unit drawdown. Drawdown is defined as the difference in altitude between the water surface in the canal and the water table in the adjacent aquifer.
KEY WORDS: Seepages, Canals, Channel flow, Snapper Creek Extension Canal, L-31N Canal, Biscayne Aquifer, Dade County

278
Chin Fatt, J. (1986) Canal impact on Biscayne Bay salinities. M.Sc. thesis. University of Miami, Coral Gables, FL. 229 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: A two-dimensional finite element numerical model to simulate transport in an advection dominated shallow estuarine bay was developed. The model predicts the salinity distribution in the bay for any prescribed rate of fresh water inflow and initial salinity distribution.
KEY WORDS: Salinity, Canals, Runoff, Mowry Canal, Military Creek, Black Creek, Moody Canal, Snapper Creek, Cutler Drain

279
Chin Fatt, J., and J. D. Wang (1987) Canal discharge impacts on Biscayne Bay salinities, Biscayne National Park. Research/resources management rep. SER-89. National Park Service, Southeast Regional Office, Atlanta, GA. 229 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: A two-dimensional Finite element numerical model to simulate transport in an advection-dominated shallow estuarine bay was developed. The model predicts the salinity distribution in the bay for any prescribed rate of freshwater inflow and initial salinity distribution. The model was used to investigate the impact of contemplated doubling of freshwater inflow rates into Biscayne Bay.
KEY WORDS: Canals, Fresh water, Salinity, Central Bay, Biscayne National Park

280
Chin Fatt, J., and J. D. Wang (1986) Canal impact on Biscayne Bay salinities. Tech. rep. 86-005. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 228 pp.
TIME COVERAGE: 1985
SUMMARY: A two-dimensional Finite Element numerical model was developed to simulate transport in an advection dominated shallow estuarine bay such as Biscayne Bay. The model predicts salinity distribution in the Bay for any prescribed rate of fresh water inflow and initial salinity distributions.
KEY WORDS: Stormwater runoff, Canals, Salinity, Fresh water, Mowry Canal, Military Creek, Black Creek, Moody Canal, Snapper Creek, Cutler Drain

281
Chitty, N. (1973) Aspects of the reproductive biology of the spiny lobster, *Panulirus guttatus* Latreille. M.Sc. thesis. University of Miami, Coral Gables, FL. 60 pp.
TIME COVERAGE: 1970 - 1971
SUMMARY: Sexual development was investigated in relation to season, size, molt cycle, spermatophoric mass deposition and eggbearing for the spiny lobster.
KEY WORDS: Spiny lobster, *Panulirus guttatus*, Reproduction, Government Cut

282
Chow, S., M. E. Clarke, and P. J. Walsh (1993) PCR-RFLP analysis on thirteen western Atlantic snappers (subfamily Lutjaninae): a simple method for species and stock identification. Fishery Bull., 91(4):619-627.
TIME COVERAGE: 1993 ◊
SUMMARY: Amplification of two mitochondrial genes using fresh or frozen samples, ethanol-preserved embryos and larvae, and alcohol-preserved museum samples of thirteen western Atlantic snapper species, and results of restriction fragment length polymorphism (RFLP) on these two DNA fragments were described within and between species.
KEY WORDS: Population genetics, Stock identification, Stock assessment, Snappers, Lutjanidae

283
Chow, S., and P. J. Walsh (1992) Biochemical and morphometric analyses for phylogenic relationships between seven snapper series (subfamily Lutjaninae) of the western Atlantic. Bull. Mar. Sci., 50(3):508-519.
TIME COVERAGE: 1992 ◊
SUMMARY: Electrophoretic and skull morphometric comparisons among seven species were performed. Cluster and additive tree analyses based on the genetic distance indicated that: 1) there were at least two distinct groups (gray and red snapper groups) within the genus *Lutjanus*; 2) the lane snapper has a closer relationship with the red snapper group then with the gray snapper group; 3) there is a closer relationship between *Lutjanus* and *Ocyurus chrysurus* than between *Rhomboplites aurorubens* and Lutjanus or *O. chrysurus*.
KEY WORDS: Phylogenetics, Animal morphology, Snappers, Lutjanidae, *Ocyurus chrysurus*, *Rhomboplites aurorubens*, *Lutjanus analis*, Mutton snapper, *Lutjanus apodus*, School master snapper, *Lutjanus griseus*, Gray snapper, *Lutjanus synagris*, Lane snapper, *Lutjanus vivanus*, Silk snapper, Yellow tail snapper, Vermillion snapper

284
Christo (1986) Christo: Surrounded Islands: Biscayne Bay, Greater Miami, Florida, 1980-83. Harry N. Abrams, New York, NY. 162 pp.
TIME COVERAGE: 1983
SUMMARY: This book describes the Surrounded Islands Project by artist Christo. Eleven islands were surrounded with 6 million square feet of pink woven polypropylene fabric covering the surface of the water, floating and extending 200 feet from the island into Biscayne Bay. The fabric was sewn in patterns to follow the contours of the islands. The Surrounded Islands Project remained in place for two weeks in 1983.
KEY WORDS: Barrier islands, Art

285
Chulamanis, S., and C. Chulamanis (1978) Fossil mangrove reef of Key Biscayne. Sea Frontiers, 24(2):108-114.
TIME COVERAGE: 1978 ◊
SUMMARY: This paper describes the fossil mangrove reef found by Hoffmeister on the northern tip of Key Biscayne.
KEY WORDS: Vegetal fossils, Reefs, Mangrove swamps, Erosion, Black mangrove, *Avicennia nitida*, Key Biscayne

286
Chung, G. S. (1988) Application of nuclear fission track mapping of uranium to the study of diagenesis in carbonate rocks. Ph.D. dissertation. University of Miami, Coral Gables, FL. 375 pp.
TIME COVERAGE: 1988 ◊
SUMMARY: Detailed spatial U distributions were investigated in modern carbonates and submarine cements, and in young ooid and reef limestones using the fission track techniques. Pleistocene Miami limestone was used in the study.
KEY WORDS: U, Carbonate rocks, Diagenesis, Coral, Ooids, Limestone

287
Ciardelli, A. (1967) The anatomy of the feeding mechanism and the food habits of *Microspathodon chrysurus* (Pisces: Pomacentridae). Bull. Mar. Sci., 17(4):845-883.
TIME COVERAGE: 1967 ◊
SUMMARY: The morphology and action of the bones, ligaments and muscles involved in feeding by demoiselles were described.

KEY WORDS: Demoiselle, *Microspathodon chrysurus*, Feeding, Food consumption, Ajax Reef

288
Ciardelli, A. (1966) Food and feeding of *Microspathodon chrysurus* (Pisces: Pomacentridae). M.Sc. thesis. University of Miami, Coral Gables, FL. 114 pp.
TIME COVERAGE: 1966 ◊
SUMMARY: Feeding behavior of the demoiselle fish was studied using stomach contents.
KEY WORDS: Demoiselle, *Microspathodon chrysurus*, Feeding, Food consumption, Ajax Key, Bahamas

289
Clapp, R. B., R. C. Banks, D. Morgan-Jacobs, and W. A. Hoffman (1982-1983) Marine birds of the southeastern United States and Gulf of Mexico. Biological Services Program FWS/OBS-82/01; 82/20; 83/30. US Fish and Wildlife Service, Office of Biological Services, Washington, DC.
TIME COVERAGE: 1982 ◊
SUMMARY: This is a guide to the birds of the southeastern US including Florida.
KEY WORDS: Marine birds, Southeast United States, Gulf of Mexico, Guide

290
Clark, R. R. (1989) Beach conditions in Florida - a statewide inventory and identification of the beach erosion problem areas in Florida for beach management planning. In: Beach Preservation Technology '89: Strategies and Alternatives in Erosion Control. L. S. Tait, (comp.). Tampa, FL, 1989. Florida Shore and Beach Preservation Association, Tallahassee. 219-228.
TIME COVERAGE: 1989 ◊
SUMMARY: This citation is a statewide survey of beach erosion problems.
KEY WORDS: Beach erosion, Barrier beaches, Restoration, Florida

291
Clark, R. R. (1990) Beach conditions in Florida: a statewide inventory and identification of the beach erosion problem areas in Florida. Beaches and shores technical and design memorandum 89-1. Florida Department of Natural Resources, Division of Beaches and Shores, Tallahassee, FL. 185 pp.
TIME COVERAGE: 1990 ◊
SUMMARY: This document presented the results of an investigation of beach erosion conditions in Florida, and updates the beach length data provided in the National Shoreline Study of 1971.
KEY WORDS: Beach erosion, Barrier beaches, Restoration, Florida

292
Clark, R. R. (1993) Hurricane Andrew's impact on southeast Florida's beaches. Abstracts with programs (Geological Society of America), 25(4):8.
TIME COVERAGE: 1992
SUMMARY: This abstract briefly describes the impact of Hurricane Andrew on South Florida Beaches. In Dade County, erosion conditions worsened towards the south and on Key Biscayne which was completely inundated by a 9- to 10-foot storm tide, beach lowering occurred along the island with erosion balanced with both offshore sand losses and extensive washover deposits inland of the beach.
KEY WORDS: Beach erosion, Storm surge, Hurricane Andrew, Southeast Florida, Elliott Key, Key Biscayne

293
Clarke, T. L. (1983) Transverse doppler current profilers. In: Proc., Oceans '83. Institute of Electrical and Electronics Engineers, New York, NY. 194-198.

TIME COVERAGE: 1983 ◊
SUMMARY: A prototype transverse Doppler current profiler was used in Bear Cut and the Chesapeake Bay. The profiler can provide real time current monitoring and shipping channels.
KEY WORDS: Doppler effect, Profilers, Acoustic current meters, Bear Cut

294
Clemente, A. J. (1986) The need to streamline the erosion control process: a decade of experience at Key Biscayne, Florida. In: Ann. Conf. on Beach Preservation [1984-1985]. L. Tait, (ed.). Florida Shore & Beach Preservation Association, Tallahassee, FL. 114-121.
TIME COVERAGE: 1986 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Beach erosion, Key Biscayne

295
Cleo, J., and H. Mesouf (1964) Florida, Polluted Paradise. Chilton Books, Philadelphia, PA. 183 pp.
TIME COVERAGE: 1964 ◊
SUMMARY: This book discusses the problems of Florida. One chapter discusses pollution in Biscayne Bay.
KEY WORDS: Land use, Water pollution, Sociological aspects, Development projects, Florida

296
Coastal Technology Corporation (1993) Effects of Hurricane Andrew on Dade County's artificial reefs, Florida. Submitted to Metro-Dade Dept. of Environment Resources Management. Coastal Technology Corporation, Coral Gables, FL. 17 pp.
TIME COVERAGE: 1992 ◊
SUMMARY: The purpose of this study was the evaluate the impact of Hurricane Andrew on the marine artificial reefs located on the east side of the barrier islands. Damage to the reefs was mainly due to 30- to 35-foot storm waves generated by the hurricane. Movement of deployed reefs followed the direction of the storm waves, mainly west in Dade County. Orienting reef structures in an east-west direction would minimize such movement.
KEY WORDS: Artificial reefs, Hurricane Andrew

297
Coastal Technology Corporation (1989) Miamarina at Bayside wave agitation study. Prepared for the City of Miami. Coastal Technology Corporation, Coral Gables, FL. 44 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: The purpose of this study was to evaluate cost effective modifications to the Miamarina towards reducing the wave agitation within the site.
KEY WORDS: Wave height, Wave effects, Marinas, Miamarina

298
Cocking, S. (1997) Bay watchers aglow: record catches. Sea trout. Tarpon. S. Florida's aquatic back yard is back. The Miami Herald, Miami, FL. Mar. 23. Outdoors. Section C. 17C.
TIME COVERAGE: 1997
SUMMARY: This article describes the improved recreational fisheries of Biscayne Bay.
KEY WORDS: Recreational fisheries

299
Cocking, S. (1996) A dive without the drive for diving, Biscayne Park remains well-kept secret. The Miami Herald, Miami, FL. July 5. Sports. 8C.
TIME COVERAGE: 1996 ◊
SUMMARY: This article describes diving at Biscayne National Park.

KEY WORDS: Biscayne National Park

300
Cocking, S. (1999) Reel in the new year with easy catch: trout. The Miami Herald, Miami, FL. Jan. 1.
TIME COVERAGE: 1999
SUMMARY: Trout fishery in north Biscayne Bay has improved since the sharp decline in the 1980s. The water quality as improved and seagrass beds in the area support the trout. The state-wide ban that took effect in 1995 also helped boost the bait supply and prevent large ocean-going trout from being caught before they could spawn.
KEY WORDS: Fisheries, Trout

301
Cocoanut Grove Development Company (1910) Cocoanut Grove by Bay Biscayne: the land of perpetual June. Cocoanut Grove Development Co., Coconut Grove, FL. 55 pp.
TIME COVERAGE: 1910 ◊
SUMMARY: [NOT AVAILABLE.]
KEY WORDS: Coconut Grove, Real estate development, Description

302
Cody, E. (1983) Wrapping with Christo: the artist begins putting the pink on Biscayne Bay, but nature squalls. The Washington Post, Washington, DC. May 5. 1.
TIME COVERAGE: 1983
SUMMARY: Account of the deployment of the pink polypropylene fabric around the Biscayne Bay islands.
KEY WORDS: Christo, Surrounded Islands

303
Cofer-Shabica, S. V., and J. D. Wang (1989) The effects of freshwater canal discharges on salinities in Biscayne National Park. In: Coastal Zone '89. Proc., 6th Symp. on Coastal and Ocean Management. O. T. Magoon, H. Converse, D. Miner, L. T. Tobin, and D. Clark, (eds.). Charleston, SC, 1989. American Society of Civil Engineers, New York. 2738-2753.
TIME COVERAGE: 1989 ◊
SUMMARY: A high correlation exists between canal discharge and Biscayne Bay salinities in the vicinity of Mowry Canal. Intermittent canal discharges lower the salinity near the mouth of the canal for several hours. The possible effects of this changes in salinity were discussed.
KEY WORDS: Canals, Fresh water, Salinity, Mowry Canal, South Bay, Biscayne National Park

304
Cohen, A. D., and W. Spackman (1974) The petrology of peats from the Everglades and coastal swamps of southern Florida. In: Environments of south Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 233-255.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation describes the peats formed in various wetland environments of South Florida.
KEY WORDS: Peat, Florida, Mangroves, Everglades

305
Cohn, J. P. (1994) Restoring the Everglades. Bioscience, 44(9):579-583.
TIME COVERAGE: 1994 ◊
SUMMARY: Approximately 1400 miles of canals divert water from the Everglades, sending most of it east into the Atlantic Ocean or south into Biscayne Bay. The US Army Corps of Engineers built most of the canals, pumps, and gates during the past 50 years and manages

them in cooperation with the South Florida Water Management District, an independent state agency that controls virtually all water flow in the southern part of the state. Designed to prevent flooding and to open land for development, the canals have broken up what was once a single ecosystem into separate compartments.
KEY WORDS: Everglades, Water management, Food control, Canals, Ecological effects, Urbanization

306
Cole, C. A. (1989) Effects of salinity upon the leaf morphology and leaf growth rate of the dwarf form of the red mangrove (*Rhizophora mangle* L.) in southern Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 130 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: Leaf morphology of dwarf red mangroves can be related to the growing conditions experienced by leaves during the first 100 days of their existence when growth is most rapid. Increasing salinity increased the variability in leaf shapes and sizes within trees rather than simply decreasing lead sizes as had been hypothesized. This was attributed to differences in osmotic potential within tree branches.
KEY WORDS: Red mangrove, *Rhizophora mangle*, Salinity, Biscayne National Park

307
Cole, S. A. (1974) The effect of thermal stress conditions on benthic foraminifera in Biscayne Bay, Florida. M.Sc. thesis. University of Illinois, Urbana, IL. 106 pp.
TIME COVERAGE: 1973
SUMMARY: Sediment samples were obtained from a shallow lagoon east of the Old Cutler area. The lagoon is adjacent to the Cutler Power Plant of Florida Power and Light. Under thermal stress conditions, the dominant species of foraminifera was found to comprise a large percentage of the total population, whereas under normal conditions more species could compete successfully. High temperatures will also result in malformed tests.
KEY WORDS: Foraminifera, Thermal pollution, Cutler Power Plant

308
Collins, M. R. (1985) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - striped mullet. Biological rep. 82 (11.34). US Fish and Wildlife Service, National Coastal Ecosystems Team, Slidell, LA. 11 pp.
TIME COVERAGE: 1985 ◊
SUMMARY: The nomenclature, taxonomy, morphology, life history, growth characteristics, fishery, ecological role, and environmental requirements of stripped mullet are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Striped mullet, Mullet, *Mugil cephalus*, South Florida

309
Collins, M. R. (1985) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - white mullet. Biological rep. 82 (11.39). US Fish and Wildlife Service, National Coastal Ecosystems Team, Slidell, LA. 7 pp.
TIME COVERAGE: 1985 ◊
SUMMARY: The nomenclature, taxonomy, morphology, life history, growth characteristics, fishery, ecological role, and environmental requirements of white mullet are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: White mullet, Mullet, *Mugil curema*, South Florida

310
Colon, Y. (1998) Armed volunteers battle to restore state park. The Miami Herald, Miami, FL. April 22. Section B, 4B.

TIME COVERAGE: 1998
SUMMARY: This article describes the ongoing efforts to restore the vegetation of the Cape Florida State Recreation Area to its original state after the passage of Hurricane Andrew.
KEY WORDS: Cape Florida, Hurricane Andrew, Flora

311
Comp, G. S., and W. Seaman (1985) Estuarine habitat and fishery resources of Florida. In: Florida Aquatic Habitat and Fishery Resources. W. Seaman (ed.). Florida Chapter, American Fisheries Society, Kissimmee, FL. 543 pp.
TIME COVERAGE: 1985 ◊
SUMMARY: This citation describes the estuarine habitats of Florida. Descriptions of the major estuaries in the state are included.
KEY WORDS: Estuaries, Estuarine fisheries, Estuarine dynamics, Florida

312
Compton, G. (1970) Beautiful blue Biscayne Bay. The Miamian, -(October):28-30.
TIME COVERAGE: 1970 ◊
SUMMARY: This is a short outline of how the Biscayne Bay shoreline changed with time.
KEY WORDS: Urbanization, Pollution

313
Compton, M. J. M. (1999) Environmental benefits and impacts of dredging the Miami River. M.A. report. University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. Various paging.
TIME COVERAGE: 1999 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Dredging, Environmental impact, Miami River

314
Conley, W. J., and B. A. Hoffman (1987) Nesting activity of sea turtles in Florida, 1979-1985. Florida Scient., 50(-):201-210.
TIME COVERAGE: 1979 -1985
SUMMARY: Loggerhead and leatherback turtle nesting activities remained fairly stable during the seven year period of the study, while green turtle nesting increased markedly during the 1985 season.
KEY WORDS: Turtles, Loggerhead turtle, *Caretta caretta*, Nesting, Leatherback turtle, Green turtle, *Dermochelys coriacea*, *Chelonia mydas*

315
Connell Associates, Inc. (1975) Florida Power and Light Company biological field survey; preliminary vegetation map with sampling station locations at the South Dade plant site. Report. Connell Associates, Inc., Miami, FL.
TIME COVERAGE: 1975 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Vegetation cover, Maps, Turkey Point, South Bay

316
Connet-Richards, R. (1995) When blimps were warships. S. Florida Hist. Mag., 23(1):30-32.
TIME COVERAGE: 1939-1945
SUMMARY: The activities of lighter than air ships in South Florida during World War II are described.
KEY WORDS: Lighter than air ships, History, Richmond Naval Air station

317
Conover, D. O., and G. K. Reid (1975) Distribution of the boring isopod *Sphaeroma terebrans* in Florida. Florida Scient., 38(2):65-72.
TIME COVERAGE: 1975 ◊
SUMMARY: Distribution of this isopod was recorded by measuring its relative density at stations around the state of Florida. The species was found continuously on the west coast as far down as Flamingo; and on the east coast intermittently from New Smyrna Beach to Jupiter, and continuously from Jupiter to Card Sound. The organism was absent in the Florida Keys. *Sphaeroma* was usually found on the prop roots of red mangroves and other tress exposed to water.
KEY WORDS: Boring organisms, *Sphaeroma terebrans*, Mangrove swamps, Geographical distribution, Florida

318
Continental Shelf Associates Inc. (1989) A biological assessment of a proposed beach restoration project at Fisher Island, Florida. Prepared for Olsen Associates Inc. Continental Shelf Associates Inc., Jupiter, FL. 22 pp.
TIME COVERAGE: 1988
SUMMARY: The purpose of the study was to describe and delineate the inshore habitats along the east coast of Fisher Island in preparation for a proposed beach restoration program. The east coast of the island is on the Atlantic Ocean and is community is influenced by oceanic factors.
KEY WORDS: Beach nourishment, Aragonite, Biota, Habitat, Fisher Island

319
Continental Shelf Associates Inc. (1990/91) Synthesis of available biological, geological, chemical, socioeconomic, and cultural resource information for the south Florida area. Continental Shelf Associates Inc., Jupiter, FL. 33 pp + appendix.
TIME COVERAGE: 1990-1991
SUMMARY: Because there have been no major oil spills studies in South Florida, results from similar environments elsewhere were reviewed. The largest recorded oil spill in a similar environment was the one that took place in 1986 at Bahía Las Minas, Panama.
KEY WORDS: Natural resources, Geology, Oil and gas exploration, South Florida, Florida Keys, Florida Bay, Reef Tract, Panama

320
Continental Shelf Associates Inc. (1983) Technical report on the availability of data on marinas that are located on Biscayne Bay, Dade County, Florida. Final Rep. US Army Corps of Engineers, contract no. DACW17-83-C-00025. Continental Shelf Associates Inc., Jupiter, FL. Vol. I, Report, 168 pp. Vol. II, Data appendices, various paging.
TIME COVERAGE: 1983 ◊
SUMMARY: This report describes data availability on the zones of influence and threshold levels of water quality, sediment and selected biological data for marinas in Biscayne Bay. A majority of the data available were associated with pre-permit baseline surveys and permit compliance monitoring studies. Of the 83 marinas, 28 had available data. Eleven of the marinas were constructed before 1970. For most marinas there were not data to support the supposition that water quality was degraded as the result of marine activities. This did not necessarily indicate that marinas do not impact water quality but that data are inadequate.
KEY WORDS: Marinas, Water quality, Sediment chemistry, Seagrass, Oil spills, Pollution

321
Cook, C. (1979) A field study of the interrelationship of *Bostrychia* and *Rhizophora mangle*. In: Marine Science Teachers Research Experience. B. Burke, and A. Volker (eds.). Sea Grant special rep. no. 17. University of Miami Sea Grant, Coral Gables, FL. 35-56.
TIME COVERAGE: 1974 - 1979
SUMMARY: This study determined the growth of red mangroves as a function of the increase in their diameter at breast high. Diatoms, microinvertebrates, protozoans and worms associated with the red alga *Bostrychia* which grows on the mangrove roots were identified.
KEY WORDS: Red algae, Bostrychia, Red mangrove, *Rhizophora mangle*

322
Cooke, C. W. (1945) Geology of Florida. Geol. Bull. 29. Florida Geological Survey, Tallahassee, FL. 339 pp.
TIME COVERAGE: 1945 ◊
SUMMARY: This citation is a comprehensive description of the geology of Florida.
KEY WORDS: Geology, Landforms, Florida

323
Cooke, C. W. (1939) Scenery of Florida interpreted by a geologist. Geol. Bull. 17. State Geological Survey, Tallahassee, FL. 118 pp.
TIME COVERAGE: 1939 ◊
SUMMARY: This citation is a comprehensive description of geological features of Florida.
KEY WORDS: Geology, Landforms, Coastal landforms, Florida, Florida Keys, Dry Tortugas, Rainfall, Marquesas, Florida Bay

324
Cooke, C. W., and S. Mossom (1929) Geology of Florida. In: 20th Ann. Rep. of the Florida State Geological Survey. Report. Florida State Geological Survey, Tallahassee, FL. 29-228.
TIME COVERAGE: 1929 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Geology, Landforms, Florida

325
Cooksey, K. E., B. Cooksey, P. M. Evans, and E. L. Hildebrand (1976) Benthic diatoms as contributors to the carbon cycle in a mangrove community. In: Proc., 10th European Symp. on Marine Biol. G. Persoone, and E. Jaspers, (eds.). Ostand, Belgium, 1975. Institute for Marine Scientific Research, Bredene, Belgium. Vol. 2: 165-178.
TIME COVERAGE: 1976 ◊
SUMMARY: Soluble organic matter in sediment porewater from a mangrove community increased during the dry season and decreased in the wet part of the year. The biological activity of soluble material extracted from the sediment was measured using the growth yield of two diatoms as indicators of the presence of assimilable organic carbon.
KEY WORDS: Diatoms, Amphora, Mangrove swamps, Carbon cycle, Card Sound

326
Cooksey, K. E., and B. Cooksey (1978) Growth-influencing substances in sediment extracts from a subtropical wetland: investigation using a diatom bioassay. J. Phycol., 14(3):347-352.
TIME COVERAGE: 1975
SUMMARY: A biological assay using two varieties of *Amphora coffeaeformis* was used to investigate the changes in the properties of soluble organic carbon in sediments taken from a coastal wetland. During January to May sediment extracts became increasingly inhibitory to diatom growth. After the onset of the spring rains, the inhibitory properties of the extracts disappeared. Substances capable of promoting mixotrophic growth and heterotrophic growth

were found in extracts taken in July and December. These positive responses took place at the time of mangrove leaf fall.
KEY WORDS: Mangrove swamps, Benthos, Diatoms, Sediment, Detritus, Little Card Sound, *Rhizophora mangle*, *Amphora coffeaeformis*, Growth inhibition

327
Cooksey, K. E., E. L. Hildebrand, and B. Cooksey (1976) The role of microorganisms as indicators of changing environmental conditions in mangrove and marsh communities. Final report (section B) on a research project in South Dade County. Submitted to Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 130 pp.
TIME COVERAGE: 1973 - 1976
SUMMARY: The purpose of this study was to determine the role of plant litter systems in the Florida Power and Light study site in south Dade County. This is the final study report.
KEY WORDS: Microorganisms, Diatoms, Dissolved organic carbon, Detritus, Mangrove swamps, Marshes, Indicators, Little Card Sound, Sediment, Salinity, Interstitial waters

328
Cooper, D. J. (1986) Variability in biogenic hydrogen sulfide emissions from selected Florida ecosystems. M.Sc. thesis. University of Miami, Coral Gables. 164 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: Hydrogen sulfide emission fluxes by a variety of Florida ecosystems were studied. One of the study sites was in Virginia Key.
KEY WORDS: Hydrogen sulfide, Emission sources, Biogenic materials, Marshes, Tidal flats, Wetlands, Florida, Everglades, Merritt Island, Virginia Key

329
Cooper, R. M., and J. Lane (1987) An atlas of eastern Dade County surface water management basins. Tech. memo. South Florida Water Management District, Resource Planning Department, Water Resources Division, West Palm Beach, FL. 97 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: This report is an atlas of the 17 surface water management basins of eastern Dade County.
KEY WORDS: Water management, Flood control, River basins, Drainage water, Canals, Dade County

330
Corcoran, E. F. (1983?) Report on the analyses of five (5) Biscayne Bay sediments. Unpublished manuscript. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1983 ◊
SUMMARY: Five sediment samples collected in Biscayne Bay were analyzed for hydrocarbons, pesticides and trace metals.
KEY WORDS: Sediment analysis, Hydrocarbons, Pesticides, Herbicides, PCBs, Cd, Cu, Hg, Pb, Zn, As

331
Corcoran, E. F., M. S. Brown, F. R. Baddour, S. A. Chasens, and A. D. Freay (1983) Biscayne Bay hydrocarbon study. Final rep. Florida Department of Natural Resources, St. Petersburg, FL. 327 pp.
TIME COVERAGE: 1982 - 1983
SUMMARY: The purpose of this study was to prepare a court-competent database on the distribution of petroleum and naturally-occurring hydrocarbons in water, surface sediments,

sediment cores and organisms collected in Biscayne Bay. The samples with the highest concentrations of hydrocarbons in water and sediments were collected in the Miami River. The sediments with the highest hydrocarbons levels were associated with boats and ships, and with land runoff.
KEY WORDS: Hydrocarbons, Oil pollution, Hazard assessment, Baseline studies, Sediment, Body burden, Radiocarbon dating, Grain size, Organic carbon

332
Corcoran, E. F., M. S. Brown, and A. D. Freay (1987) Organic pollution of the water in the Black Creek vicinity, Biscayne National Park. Research/resources management rep. SER-86. National Park Service, Southeast Regional Office, Atlanta, GA. 18 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: The purpose of this study was to investigate possible causes for the changes that occurred in the Black Creek area. This report discusses organic pollution of water and sediment pore waters in the area. Existing bottom communities were described in Froelich (1955).
KEY WORDS: Hydrocarbons, Water pollution, Insecticides, Herbicides, PCBs, Black Creek, Biscayne National Park

333
Corcoran, E. F., M. S. Brown, and A. D. Freay (1984) The study of trace metals, chlorinated pesticides, polychlorinated biphenyls and phthalic acid esters in sediments of Biscayne Bay. In-house rep. Dade County Environmental Resources Management, Miami, FL. 59 pp.
SUMMARY: The purpose of this study was to establish baseline data regarding levels of synthetic organic materials and trace metals in Biscayne Bay sediments. The sediments analyzed were collected as part of the study described in Corcoran *et al.* (1983). In general, highest levels of the organic compounds and metals analyzed were found in the northern Bay.
KEY WORDS: As, Cd, Cr, Cu, Hg, Pb, Zn, Insecticides, PCBs, Phthalate esters, Sediment analysis

334
Corcoran, E. F., M. S. Brown, and S. C. Snedaker (1988) Water quality characteristics of a southeast Florida Sewage Treatment and Bioeffects Laboratory. Florida Scient., 51(1):49-55.
TIME COVERAGE: 1988 ◊
SUMMARY: Untreated wastewater was supplied to the lab from the Virginia Key Sewage Treatment Plant for processing using primary and secondary treatment methods yielding different effluents. The effluents were diluted with seawater and organisms exposed to the diluted effluent in bioeffects tanks. The wastewater and seawater were analyzed for a variety of contaminants.
KEY WORDS: Water quality, Sewage disposal, Sewage Treatment and Bioeffects Laboratory (STABEL), Virginia Key, Nutrients, Cd, Cr, Cu, Pb, Zn, Pesticides, PCBs, Phthalic acid esters

335
Corrales, J., L. B. Nye, S. Baribeau, N. J. Gassman, and M. C. Schmale (2000) Characterization of scale abnormalities in pinfish, *Lagodon rhomboides*, from Biscayne Bay. Environmental Biology of Fishes, 57(-):205-220.
TIME COVERAGE: 2000 ◊
SUMMARY: Scale disorientation was studied in pinfish. Scale disorientation was more prevalent in North Bay. Observations of pinfish in the laboratory revealed that scale disorientation can appear spontaneously in normal juvenile and adult fish, developed rapidly, did not require prior scale and remained stable in size after the first appearance.
KEY WORDS: Fish diseases, Scales, Environmental diseases, Scale disorientation, Pinfish, *Lagodon rhomboides*

336
Correa, D. D. (1960) Two new marine turbellaria from Florida. Bull. Mar. Sci. Gulf Caribb., 10(2):208-216.
TIME COVERAGE: 1960 ◊
SUMMARY: This paper described two new species of turbellaria collected in Miami.
KEY WORDS: Turbellaria, *Probursa moei*, *Hofstenia miamia*, Virginia Key

337
Cory, C. B. (1896) Hunting and Fishing in Florida, Including a Key to the Water Birds Known to Occur in the State. Estes & Lauriat, Boston, MA.
TIME COVERAGE: 1896 ◊
SUMMARY: {COPY NOT AVAILABLE.]
KEY WORDS: Fishing, Aquatic birds, Hunting, Florida

338
Cory, C. B. (1896) Key to the Water Birds of Florida. Bradlee Whidden, Boston, MA. 172 pp.
TIME COVERAGE: 1896 ◊
SUMMARY: This is an identification guide to Florida birds.
KEY WORDS: Aquatic birds, Florida, Guide

339
Cosper, T. C. (1973) Aspects of the biology of *Sagitta hispida* (Chaetognatha), with emphasis on feeding, digestion, and defecation. Ph.D. dissertation. University of Florida, Coral Gables, FL. 168 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: This paper is a description of the biology of the planktonic species *Sagitta hispida* . Some samples were collected in Biscayne Bay.
KEY WORDS: *Sagitta hispida*, Chaetognaths, Digestive system, Feeding

340
Costanza, R. (1975) The spatial distribution of land use subsystems, incoming energy and energy use in south Florida from 1900 to 1973. M.A. thesis. University of Florida, Gainesville. 204 pp.
TIME COVERAGE: 1900 - 1973
SUMMARY: This study attempted to empty energy as the common denominator of all systems to achieve a comprehensive understanding of the processes which drive regional evolution and thereby increase predictive capability.
KEY WORDS: Energy budget, Energy flow, Land use, Kissimmee-Everglades Basin

341
Costello, T. J. (1959) Marking shrimp with biological stains. Proc., Gulf Caribb. Fisheries Institute, 11th annual session. Miami Beach, FL, 1958. University of Miami, Coral Gables, FL. 1-6.
TIME COVERAGE: 1959
SUMMARY: Field experiments were carried out to: test the longevity of stains on shrimp under natural conditions; learn how rapidly shrimp could be stained; learn how rapidly stained shrimp could be identified; and study the movement of stained shrimp within Biscayne Bay.
KEY WORDS: Staining, Marking, Pink shrimp, *Penaeus duorarum*

342
Costello, T. J., and D. M. Allen (1965) Migrations and geographic distribution of pink shrimp, *Penaeus duorarum*, of the Tortugas and Sanibel grounds, Florida. Fishery Bull., 65(-):449-459.
TIME COVERAGE: 1958 - 1962

SUMMARY: The migration routes and geographical distribution of pink shrimp in the Dry Tortugas and Sanibel grounds were studied using mark-recovery experiments. Marked shrimp were released in Biscayne Bay, Flamingo, the Florida Keys, the Dry Tortugas and Sanibel.
KEY WORDS: *Penaeus duorarum*, Pink shrimp, Migrations, Geographical distribution, Shrimp fisheries, Dry Tortugas, Sanibel, Florida Keys, Florida Bay, Flamingo

343
Courtenay, W. R. (1965) Atlantic fishes of the genus *Rypticus* (Grammistidae): systematics and osteology. Ph.D. dissertation. University of Miami, Coral Gables, FL. 148 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: This is a systematics and osteologocal study of the soapfishes. Some specimens were collected in Biscayne Bay.
KEY WORDS: Rypticus, Soapfishes, Taxonomy, Osteology

344
Courtenay, W. R. (1967) Atlantic fishes of the genus *Rypticus* (Grammistidae). Proc. Acad. Nat. Sci. Phila., 119(-):241-293.
TIME COVERAGE: 1967 ◊
SUMMARY: This citation is a taxonomic study of soapfishes found in the Atlantic coast.
KEY WORDS: Rypticus, Soapfishes, Taxonomy, Osteology

345
Courtenay, W. R. (1960) Western Atlantic fishes of the genus *Haemulon* (Pomadasyidae): systematic status and juvenile pigmentation. M.Sc. thesis. University of Miami, Coral Gables, FL. 191 pp.
TIME COVERAGE: 1960 ◊
SUMMARY: This is a taxonomical study of grunts. Some specimens were collected in Biscayne Bay.
KEY WORDS: Haemulon, Grunts, Taxonomy, Juveniles, Pigments

346
Courtenay, W. R. (1961) Western Atlantic fishes of the genus Haemulon (Pomadasyidae): systematic status and juvenile pigmentation. Bull. Mar. Sci. Gulf Caribb., 11(1):66-149.
TIME COVERAGE: 1961 ◊
SUMMARY: Thirteen species of the genus *Haemulon* collected in the western Atlantic are described.
KEY WORDS: Haemulon, Grunts, Taxonomy, Juveniles, Pigments

347
Cox, C., J. H. Hunt, W. G. Lyons, and G. E. Davis (1996) Nocturnal foraging in the Caribbean spiny lobster, *Panulirus argus*. Proc., 24th Benthic Ecology Mtg. Columbia, SC, March 1996. University of South Carolina, Columbia, SC. 30.
TIME COVERAGE: 1996 ◊
SUMMARY: Spiny lobsters (*Panulirus argus*) were observed during the night by diving along randomly selected transects across sand, seagrass, and rubble zones within the reef flat in the Looe Key National Marine Sanctuary. Lobsters from dens on the fore reef were repeatedly observed foraging on the reef flat during the night. Gut contents of 75 intermolt lobsters caught in Biscayne Bay and Dry Tortugas consisted of a myriad of prey items dominated by molluscs, especially gastropods (48%), chitons (14%) and bivalves (11%), and by crabs (11%).
KEY WORDS: Marine crustaceans, *Panulirus argus*, Feeding behavior, Coral reefs, Stomach content, *Cerithium litteratum*, Looe Key National Marine Sanctuary, Dry Tortugas

348
Cox, J., R. Kautz, M. MacLaughlin, and T. Gilbert (1994) Closing the gaps in Florida's wildlife habitat conservation system: recommendations to meet minimum conservation goals for declining wildlife species and rare plant and animal communities. Report. Florida Game & Fresh Water Fish Commission, Office of Environmental Services, Tallahassee, FL. 239 pp.
TIME COVERAGE: 1994 ◊
SUMMARY: This report identified and makes recommendations for closing gaps in Florida's wildlife habitat. The status of several individual species, such as the American crocodile, and regions, including South Florida, were discussed.
KEY WORDS: Nature conservation, Environmental protection, Rare species, Florida

349
Craighead, F. C. (1964) Land, mangroves and hurricanes. Fairchild Tropical Garden Bull., 19(4):1-28.
TIME COVERAGE: 1964 ◊
SUMMARY: This paper reviews the role of mangroves in the building of new land and the effects of hurricanes on mangrove forests.
KEY WORDS: Mangrove swamps, Hurricanes, Coastal landforms, Florida Bay, Florida Keys, Hurricane Donna

350
Craighead, F. C. (1971) The Trees of South Florida. Vol. I [no more published]. University of Miami Press, Coral Gables, FL.
TIME COVERAGE: 1971 ◊
SUMMARY: This is a guide to the trees of South Florida.
KEY WORDS: Trees, Botanical resources, South Florida, Everglades, Guide

351
Craighead, F. C., and V. C. Gilbert (1962) The effects of Hurricane Donna on the vegetation of southern Florida. Quart. J. Fla. Acad. Sci., 25(1):1-28.
TIME COVERAGE: 1960
SUMMARY: The damage caused by Hurricane Donna was evaluated shortly after the passage of the storm over South Florida. Hurricane damage to vegetation was generally most severe in the mangrove belt and on the Florida Keys.
KEY WORDS: Hurricane Donna, Hurricanes, Botanical resources, Mangrove swamps, South Florida, Everglades

352
Creager, D. B. (1962) A new *Cercospora* on *Rhizophora mangle*. Mycologia, 54(-):536-539.
TIME COVERAGE: 1962
SUMMARY: This paper describes a leafspot fungus found in 1962 on red mangroves.
KEY WORDS: *Cercospora rhizophorae*, *Rhizophora mangle*, Red mangrove, Fungal diseases

353
Croker, R. A. (1960) A contribution to the life history of the gray (mangrove) snapper *Lutjanus griseus* (Linnaeus). M.Sc. thesis. University of Miami, Coral Gables, FL. 93 pp.
TIME COVERAGE: 1960 ◊
SUMMARY: This work describes the life history of the gray snapper. Most specimens studied were collected in the Everglades National Park.
KEY WORDS: Gray snapper, Mangrove snapper, *Lutjanus griseus*, Life history

354
Croker, R. A. (1962) Growth and food of the gray snapper, *Lutjanus griseus*, in Everglades National Park. Trans. Amer. Fisheries Soc., 91(-):379-383.
TIME COVERAGE: 1959 - 1960
SUMMARY: A study of the biology of the gray snapper was based on specimens collected primarily in Everglades National Park. Gray snappers ranged from 1 to 5 years of age. All Everglades Park fish were immature. Crustaceans made up to 62% of the food items by number and 77% by volume.
KEY WORDS: Gray snapper, Mangrove snapper, *Lutjanus griseus*, Life history, Food consumption, Everglades

355
Cropper, W. P., and D. DiResta (1999) Simulation of a Biscayne Bay, Florida commercial sponge population: effects of harvesting after Hurricane Andrew. Ecological Modeling, 118(-):1-15.
TIME COVERAGE: 1992
SUMMARY: A size-based population matrix of the dominant commercial sponge species was developed as a tool to aid in assessing sponge population viability and management. Tagged sponges were repeatedly measured for growth, survival and fragmentation. Fecundity was estimated. Harvest simulations indicated that modest levels of removal could reduce the population at Billy's Point significantly. Hurricane Andrew impacted the sponge population primarily through a reduction in the numbers of the smallest size classes.
KEY WORDS: Sponge fisheries, *Spongia graminea*, Population number, Hurricane Andrew, Billy's Point, Biscayne National Park

356
Cross, C. I. (1953) Some aspects of beach erosion on the southeast Florida coast. Quart. J. Fla. Acad. Sci., 16(1):95-101.
TIME COVERAGE: 1953 ◊
SUMMARY: This paper discusses beach erosion in South Florida. A brief mention was made of Baker's Haulover Cut.
KEY WORDS: Beach erosion, Coast defenses, Shore protection, Southeast Florida, Bakers Haulover Cut

357
Cross, W. P., and S. K. Love (1942) Ground water in southeastern Florida. J. Amer. Water Works Assoc., 34(4):490-504.
TIME COVERAGE: 1942 ◊
SUMMARY: This paper describes the environment of South Florida and water-bearing formations.
KEY WORDS: Ground water, Wells, Southeast Florida

358
Culp, J. F., and C. R. Wong (1992) Effects of Hurricane Andrew on water levels in coastal Florida and Louisiana: data report. NOAA tech. memo. NOS OES 004. NOAA/National Ocean Service, Rockville, MD. Various paging.
TIME COVERAGE: 1992
SUMMARY: Data collected by the National Water Level Observation Network was used to determine water level changes during the passage of Hurricane Andrew.
KEY WORDS: Storm surge, Water levels, Hurricane Andrew, Louisiana

359
Cummings, M. V. (1987) The feeding energetics of the double-crested cormorant in Biscayne Bay, Florida. Ph.D. dissertation. University of Miami, Coral Gables, FL. 143 pp.

TIME COVERAGE: 1986 - 1987

SUMMARY: The purpose of this study was to determine the annual energy requirement of cormorants and to identify the fish species and the numbers of each which these birds consume.

KEY WORDS: Double-crested cormorant, *Phalacrocorax auritus auritus*, *Phalacrocorax auritus floridanus*, Food consumption, Bioenergetics

360

Cundell, A. M., M. S. Brown, R. L. Stanford, and R. Mitchell (1979) Microbial degradation of *Rhizophora mangle* leaves immersed in the sea. Est. Coastal Mar. Sci., 9(3):281-286.

TIME COVERAGE: 1976

SUMMARY: The leaching and degradation of senescent red mangrove leaves immersed in the water column adjacent to a mangrove stand were investigated. During the first 70 days, the C:N ratio decreased. Readily leachable carbohydrates and tannin-like compounds were lost from the leaf material by the 14th and 28th days respectively. A microbial population slowly built up on the leaf surface after the tannin was lost and the degradation of the structural material was observed using scanning microscopy. Changes in the caloric content of the leaves reflected their microbial degradation.

KEY WORDS: Red mangrove, *Rhizophora mangle*, Leaves, Biodegradation, Detritus, Virginia Key

361

Cunningham, K. J., D. F. McNeill, L. A. Guertin, P. F. Ciesielski, T. M. Scott, and L. de Verteuil (1998) New Tertiary stratigraphy for the Florida Keys and southern peninsula of Florida. Geol. Soc. Amer. Bull., 110(2):231-258.

TIME COVERAGE: 1998 ◊

SUMMARY: Seven lithogic formations ranging in age from Oligocene to Pleistocene were recently penetrated by core holes in southernmost Florida. The formations were described.

KEY WORDS: Tertiary, Stratigraphy, Florida Keys, Everglades, Soldier Key, Elliott Key

362

Curry, R. W. (1975) The concentration and distribution of nitrate-nitrogen and nitrite-nitrogen in the sediments of Biscayne Bay. M.Sc. thesis. University of Miami, Coral Gables, FL. 129 pp.

TIME COVERAGE: 1975 ◊

SUMMARY: Nitrate and nitrite were measured in the interstitial waters of sediments collected in Biscayne Bay. Only the littoral sample clearly demonstrated active sub-surface nitrification. Two types of redox profiles and color trends were observed and these correlated well with the vertical and horizontal distribution of the ionic oxides of nitrogen.

KEY WORDS: Nitrogen cycle, Sediment analysis, Sediment, Nutrients, Card Sound, Virginia Key

363

Dachnowski-Stokes, A. P. (1928) A preliminary note on blue-green algal marl in southern Florida in relation to the problem of coastal subsidence. J. Washington Acad. Sciences, 18(-):476-480.

TIME COVERAGE: 1928 ◊

SUMMARY: This paper discusses the role of blue-green algal mats in the formation of marl in South Florida.

KEY WORDS: Algal mats, Marl, Coastal landforms

364

Dade County (1980) Biscayne Bay management plan. Technical supplement. Dade County. Department of Environmental Resources Management and Dade County Planning Department, Miami, FL.

TIME COVERAGE: 1980 ◊

SUMMARY: This technical supplement contains results of water analysis, surveys of biota and discussions of proposed construction projects.
KEY WORDS: Water quality, Biota, Boating, Marinas, Coastal zone management

365
Dade County (1981) Biscayne Bay management plan. Dade County Department of Environmental Resources Management and Dade County Planning Department, Miami, FL.
TIME COVERAGE: 1981 ◊
SUMMARY: This is a management plan for Biscayne Bay.
KEY WORDS: Ecosystem management, Resource management, Recreational waters, Water use, Environment management, Coastal zone management

366
Dade County (1985) Biscayne Bay water quality: baseline data and trend analysis report, 1979-1983. Dade County. Department of Environmental Resources Management, Miami, FL. 78 pp.
TIME COVERAGE: 1979-1983
SUMMARY: This report contains a description of data collected on a monthly basis from 1979 to 1983. Aspects of the physical properties, clarity, nutrient load and sanitary quality of the Bay water were summarized.
KEY WORDS: Water quality, Pollution monitoring, Pollution indicators, Baseline studies, Nutrients, Turbidity, Color, Cd, Cu, Fe, Pb, Zn

367
Dade County (1987) Biscayne Bay and Miami River: a water quality summary, Biscayne Bay through 1984 and Miami River through 1985. DERM technical report 1987. Dade County. Department of Environmental Resources Management, Miami, FL. 38 pp.
TIME COVERAGE: 1984 - 1985
SUMMARY: This report is a data summary through 1994 for Biscayne Bay and 1995 for the Miami River.
KEY WORDS: Water quality, Pollution monitoring, Salinity, Dissolved oxygen, Turbidity, Chemical pollutants, Bacteria, Miami River, Nutrients, Cd, Cu, Fe, Pb, Zn

368
Dade County (1983) Bottom communities of Biscayne Bay. Map no. 013, 27" x 39"; 1:40,000. Dade County. Department of Environmental Resources Management, Miami, FL.
TIME COVERAGE: 1983 ◊
SUMMARY: This map shows the various types of bottom communities in Biscayne Bay.
KEY WORDS: Bottom topography, Aquatic communities, Maps

369
Dade County (1979) Comprehensive development master plan for Metropolitan Dade County. 275 pp. Dade County. Planning Department, Miami, FL.
TIME COVERAGE: 1979 ◊
SUMMARY: This report is the official guide for managing growth and development in the Metropolitan Dade County area including the area's environmental resources.
KEY WORDS: Resource development, Resource management, Environmental protection, Dade County

370
Dade County (1978) Dade County's planning process and factors for evaluating amendments. Proc., Planning Advisory Board's workshop no. 1. Miami, FL, February 2, 1978. Dade County. Planning Department, Miami, FL.

TIME COVERAGE: 1978 ◊
SUMMARY: These proceedings discuss population, economic growth, and natural resources.
KEY WORDS: Urbanization, Land use, Natural resources, Coastal zone management, Dade County

371
Dade County (1977-1978) Dade County 208 areawide water quality management plan. Chapter I: Executive summary; Chapter X: Non point source water quality assessment; Chapter XVII: Environmental, social and economic baseline (interim report); Chapter XXI: Inventory, sampling, and analyses of raw water from the major public water supply wells in Dade County for selected volatile organic compounds and organochlorine insecticides; Chapter XXII: Mass emission inventory and development of a nearshore monitoring program; Water quality analysis (preliminary report). Dade County. Department of Environmental Resources Management, Miami, FL.
TIME COVERAGE: 1977 - 1978
SUMMARY: The water management plan for Dade County, including Biscayne Bay, was described in this report.
KEY WORDS: Water quality, Water supply, Water use, Water management, Dade County

372
Dade County (1993) Dade County environmental protection ordinance coastal and freshwater wetlands regulations, sections 24-58 and 24-59. Dade County. Department of Environmental Resources Management, Miami, FL. Various paging.
TIME COVERAGE: 1993 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Wetlands, Environmental legislation, Coastal waters, Dade County

373
Dade County (1986) Draft Biscayne Bay Aquatic Preserve management plan. Executive summary. Metropolitan Dade County, Miami, FL. 68 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: This document is the draft management plan for the Biscayne Bay Aquatic Preserve established by the Florida Legislature in 1974.
KEY WORDS: Natural resources, Water circulation, Water quality, Conservation, Environmental protection, Biscayne Bay Aquatic Preserve

374
Dade County (1981) An inventory of stormwater pollutant discharges and their loadings into major surface water bodies within Dade County, Florida. Report. Dade County. Department of Environmental Resources Management, Miami, FL. 30 pp.
TIME COVERAGE: 1981 ◊
SUMMARY: The purpose of this study was to locate critical areas where excessive stormwater pollutant loads discharged into surface waters.
KEY WORDS: Stormwater runoff, Drainage water, Pollution data, Canals, Dade County

375
Dade County (1989) Metro-Dade County comprehensive development master plan for 2000 and 2010: coastal management element support component. Report. Dade County. Planning Department, Miami, FL. 222 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: This report is the master development plan for Dade County.
KEY WORDS: Coastal zone management, Resource conservation, Resource management, Regional planning

376
Dade County (1984) Overview of the Biscayne Bay Aquatic Preserve management area. Unpublished draft manuscript. Dade County. Planning Advisory Board, Miami, FL. 63 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: This draft report is the management plan for the Biscayne Bay Aquatic Preserve which includes all the publicly owned uplands and all submerged lands within Biscayne Bay from the Sunny Isles Causeway to Card Sound Road.
KEY WORDS: Natural resources, Environment management, Biscayne Bay Aquatic Preserve

377
Dade County (1959) Planning review report of the Miami seaport location. Project report no. 1. Dade County. Planning Department, Miami, FL. 70 pp.
TIME COVERAGE: 1959 ◊
SUMMARY: The objectives of this report were to determine whether a seaport was needed for the Miami area, determine the best location for such a facility, prepare a plan for the existing port site, and determine if a redeveloped Miami port would be metropolitan in character and if so which governmental agencies would take responsibility for it.
KEY WORDS: Port installations, Shipping, Trade, Cruises, Merchant ships, Miami

378
Dade County (1974) Proposed metropolitan development guide for metropolitan Dade County. Part 3 of the Comprehensive Development Master Plan, July 1974. Dade County. Planning Department, Miami, FL. 248 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: This is the proposed 1974 development guide for Dade County. The proposed guidelines were to provide functioning ecosystems in a state approximating natural conditions; provide assurance that the quality and quantity of the natural water supply was not threatened by urban growth; and insure that the carrying capacity of given natural areas is not exceeded by resulting development based on hydrological condition, soil suitability and vegetative viability and character.
KEY WORDS: Regional planning, Land use, Dade County

379
Dade County (1974) Recommended metropolitan development policies. Part 1. Comprehensive Development Master Plan for Metropolitan Dade County. Dade County. Planning Advisory Board, Miami, FL. 27 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: This document contains policies for growth management, services, environmental protection, transportation, and other areas.
KEY WORDS: Resource development, Resource management, Environmental protection, Dade County

380
Dade County (1968) Review of the bulkhead line on the west side of Biscayne Bay from Coral Gables south to the Monroe County line. Report. Dade County. Public Works Department, Miami, FL. Various paging.
TIME COVERAGE: 1968 ◊
SUMMARY: Florida's law defines the bulkhead line as the limit beyond which any extension creating or filling of land outwards into the water shall be deemed an interference with the servitude in favor of commerce, navigation and conservation of natural resources. The 1967 amendment to the 1957 law states that biological and ecological reports be considered in determining the proposed location of the bulkhead line.
KEY WORDS: Bulkhead Act, Shore protection, Coastal structures, Dredging, Navigational channels, Sea walls

381
Dade County (1968) Seaports and waterways master plan. Dade County. Planning Department, Miami, FL. 57 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: This report is one of five comprehensive transportation master plan reports which have been prepared by Dade County as part of the Miami Urban Area Transportation Study. The goals of the plan included maintaining and improving the Port of Miami and ensuring the compatibility of port and waterway development and activity with tourism and the area's natural assets.
KEY WORDS: Transportation, Shipping, Public access, Passenger ships, Navigational channels, Harbors, Miami

382
Dade County (1970) South Bay area study. Report. Dade County. Planning Department, Miami, FL. 28 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: This purpose of this report is to develop a detailed land use policy plan for the area.
KEY WORDS: Land use, Regional planning, Coastal zone management, South Bay

383
Dade County (1987) State of the environment 1987-88. Report. Dade County. Department of Environmental Resources Management, Miami, FL. 22 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: This document is a description of the County's natural environment, and summarizes local activities and programs to protect, manage, enhance and restore Dade's natural resources.
KEY WORDS: Environmental protection, Water management, Coastal zone management, Resource conservation, Environmental conservation, Dade County

384
Dade County (1970) Supplementary report on review of the bulkhead line on the west side of Biscayne Bay from Coral Gables south to the Monroe County line. Report. Dade County, Public Works Department, Miami, FL. 5 pp + charts.
TIME COVERAGE: 1970 ◊
SUMMARY: This report provides addition information on the bulkhead line along Biscayne Bay.
KEY WORDS: Bulkhead Act, Shore protection, Coastal structures, Navigational channels, Dredging, Sea walls, Black Point, Mangrove Point, Card Point

385
Dade County (1978) A water quality assessment of Metropolitan Dade County Florida. Report. Dade County. Department of Environmental Resources Management, Miami, FL. 224 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: The purpose of this summary report is to highlight the objectives, methods, and conclusions of the Water Quality Assessment of Dade County.
KEY WORDS: Water quality, Pollution monitoring, Ground water, Canals, Dade County

386
Dalrymple, G. H., J. S. Hampp, and D. J. Wellins (1985) Male-biased sex ratio in a cold nest of a hawksbill sea turtle (*Eretmochelys imbricata*). J. Herpetology, 19(1):158-159.
TIME COVERAGE: 1982
SUMMARY: This paper discusses the effects of temperature on the sex ratio of hawkbill sea turtles. Nestlings from a clutch deposited in Soldier Key were collected, mostly still in the eggs, after the animals died. Sexual differentiation is affected by incubation temperature

KEY WORDS: Sex ratio, Temperature effects, Turtles, Hawksbill sea turtle, *Eretmochelys imbricata*, Soldier Key

387
Daly, R. J. (1966) A systematic study of southern Florida anchovies (Pisces: Engraulidae). M.Sc. thesis. University of Miami, Coral Gables, FL. 72 pp.
TIME COVERAGE: 1966 ◊
SUMMARY: The systematics of several species of anchovy collected in Florida were described. Some specimens were collected in Biscayne Bay.
KEY WORDS: Anchovy, Engraulis, Anchoviella, Anchoa, Taxonomy

388
Daly, R. J. (1970) Systematics of southern Florida anchovies (Pisces: Engraulidae). Bull. Mar. Sci., 20(-):70-104.
TIME COVERAGE: 1970 ◊
SUMMARY: This is a taxonomy study of anchovies. Some specimens were collected in Biscayne Bay.
KEY WORDS: Anchovy, *Anchoa lamprotaenia*, *Anchoa hepsetus*, *Anchoa nasuta*, *Anchoa mitchilli*, *Anchoviella perfasciata*, Taxonomy

389
D'Amato, R. (1973) The movement of effluent from the City of Miami sewage ocean outfall. Sea Grant Tech. Bull. 27. University of Miami Sea Grant Program, Coral Gables, FL. 91 pp.
TIME COVERAGE: 1972
SUMMARY: The purpose of this study was to trace the path taken by the effluent from the Miami Sewage Treatment Plant in Virginia Key when it leaves the outfall pipe in the Atlantic coastal waters. Dye studies and water quality measurements were performed and a mathematical model developed.
KEY WORDS: Outfalls, Sewage disposal, Wastes, Miami Sewage Treatment Plant, Virginia Key, Bear Cut, Norris Cut, Nutrients, Bacteria, Suspended particulates, Salinity, Water quality

390
D'Amato, R., and T. N. Lee (1977) A kinematic model of the City of Miami ocean outfall plume behavior. Ecological Modeling, 3(-):227-243.
TIME COVERAGE: 1977 ◊
SUMMARY: A kinematic model was developed to predict the movement of effluent from the City of Miami ocean outfall. The outfall terminates at the 5 m isobath in the vicinity of three tidal inlets opening into Biscayne Bay. Local wind records suggested that sewage effluent entered the Bay on about 80% of the flood tides or roughly 11 times per week.
KEY WORDS: Outfalls, Sewage disposal, Wastes, Government Cut, Bear Cut, Norris Cut, Virginia Key, Models

391
Dames & Moore (1975) Floridan aquifer water supply investigation, Turkey Point area, Dade County, Florida. 4598-050-26. Dames & Moore, Boca Raton, FL.
SUMMARY: The objective of this study was to evaluate in detail the water supply potential of the brackish Floridan aquifer for large volume, long-term withdrawals for use as a cooling medium for power plants in southern Dade County.
KEY WORDS: Floridan Aquifer, Brackishwater, Ground water, Water supply, Turkey Point

392
Dames & Moore (1976) Surface water investigation, South Dade biological study, South Dade area. Report to Florida Power and Light Company. Dames & Moore, Boca Raton, FL. Various paging.
TIME COVERAGE: 1974
SUMMARY: This surface water investigation was part of an integrated study sponsored by Florida Power & Light to determine the nutrient exchange between Card Sound and the South Dade area, the area south of the cooling canal system at the Turkey Point Generating Station.
KEY WORDS: Surface water, Water quality, Hydraulic models, Card Sound, South Bay, Turkey Point

393
Damsgaard, A., and A. F. Dinsmore (1975) Numerical simulation of storm surges in bays. In: Symposium on Modeling Techniques. 2nd Ann. Symp. of the Waterways, Harbors and Coastal Engineering Division of ASCE. San Francisco, CA, 1975. American Society of Civil Engineers, New York, NY. 1535-1551.
TIME COVERAGE: 1975 ◊
SUMMARY: A two-stage approach for numerical simulation of storm surges in complex coastal areas was tested for Biscayne Bay.
KEY WORDS: Storm surge, Mathematical models, Coastal waters, Hurricanes

394
D'Asaro, C. N. (1967) The comparative embryogenesis and early organogenesis of *Bursa caelata*, *Distorsio clathrata* and *Thais haemastoma* (Gastropoda: Prosobranchia). Ph.D. dissertation. University of Miami, Coral Gables, FL. 163 pp.
TIME COVERAGE: 1967 ◊
SUMMARY: This is a study of the development of embryos of Prosobranchs. Some specimens were collected in Biscayne Bay.
KEY WORDS: Prosobranchs, *Bursa caelata*, *Distorsio clathrata*, *Thais haemastoma*, Oyster drill, Embryonic development, Organogenesis, Bear Cut

395
D'Asaro, C. N. (1966) The egg capsules, embryogenesis, and early organogenesis of a common oyster predator, *Thais haemastoma floridiana* (Gastropoda: Prosobranchia). Bull. Mar. Sci., 16(4):884-914.
TIME COVERAGE: 1966 ◊
SUMMARY: Communal spawning, egg capsule formation, oviposition, and the morphology of the egg capsule were described. Embryogenesis is outlined from the maturation divisions through the first torsional stage.
KEY WORDS: Oyster drill, Rock-shell, *Thais haemastoma*, Embryonic development, Veligers, Organogenesis, Prosobranchs

396
Davis, C. C. (1949) Observations of plankton taken in marine waters of Florida in 1947 and 1948. Quart. J. Fla. Acad. Sci., 12(2):67-103.
TIME COVERAGE: 1947 - 1948
SUMMARY: This paper describes the plankton collected during 1947 and 1948 throughout Florida including several sites in Biscayne Bay.
KEY WORDS: Plankton, Florida, Species list

397
Davis, C. C. (1947) Two monstrilloids from Biscayne Bay, Florida. Trans. Amer. Microscopical Soc., 66(-):390-395.

TIME COVERAGE: 1947
SUMMARY: Two male specimens of monstrilloids were encountered in plankton tows taken at Shoal Point and Chicken Key. Both belonged to difference genera and appeared to be new to science.
KEY WORDS: *Monstrilla rugosa*, *Cymbasoma quadridens*, Monstrilloids, Copepods, Shoal Point, Chicken Key

398
Davis, G. E. (1985) Artificial structures to mitigate marina construction impacts on spiny lobster, *Panulirus argus*. Bull. Mar. Sci., 37(1):151-156.
TIME COVERAGE: 1975 - 1976
SUMMARY: Concrete block structures were placed in Biscayne Bay adjacent to a marina prior to its rehabilitation. A population of juvenile lobsters moved in before rehabilitation began and the lobster stayed in the structures during construction. The structures were placed in the marina and the lobsters moved back into them.
KEY WORDS: Lobster culture, *Panulirus argus*, Marinas, Shelters, Spiny lobster

399
Davis, G. E. (1981) Effects of injuries on spiny lobster, *Panulirus argus*, and implications for fishery management. Fishery Bull., 78(-):979-984.
TIME COVERAGE: 1976 - 1977
SUMMARY: More than 7000 spiny lobsters were captured and tagged. Growth of spiny lobsters takes place as the result of a series of molts, during which discontinuous size changes occur. The rate of growth is dependent on both magnitude of change in size with each molt and the length of the intermolt period. In this study, growth rate was expressed as change in carapace length per week since nearly all observations of marked lobsters were made as weekly intervals.
KEY WORDS: Spiny lobster, *Panulirus argus*, Injuries, Lobster fisheries

400
Davis, G. E. (1978) Field evaluation of a tag for juvenile spiny lobsters, *Panulirus argus*. Transactions of the American Fisheries Society, 107(-):100-103.
TIME COVERAGE: 1976
SUMMARY: Spaghetti tags for marking juvenile lobsters were evaluated for retention. The tags effectively marked specimens as small as 35-mm carapace for up to 27 months.
KEY WORDS: Juveniles, Tagging, *Panulirus argus*, Spiny lobster

401
Davis, G. E. (1978) Management recommendations for juvenile spiny lobsters, *Panulirus argus* in Biscayne National Monument, Florida. Report M-530. Everglades National Park, South Florida Research Center, Homestead, FL. 32 pp.
TIME COVERAGE: 1976 - 1977
SUMMARY: The purposes of this report were to document the effects of fishery harvest on the juvenile spiny lobster population in the Biscayne Bay area of the Biscayne National Monument; and to recommend a management strategy that will conform with Park Service policy to perpetuate naturally functioning native ecosystems and support the Florida lobster fishery in accordance with the intent of public law.
KEY WORDS: Spiny lobster, Juveniles, *Panulirus argus*, Biscayne National Monument

402
Davis, G. E. (1978) National Park Service spiny lobster fishery research in Florida; a progress report. In: Proc., Spiny Lobster Research Review. R. E. Warner, (ed.). Key West, FL, 1976. Tech. paper no. 4. Florida Sea Grant College Program, Gainesville, FL.

TIME COVERAGE: 1978 ◊

SUMMARY: Recreational harvest alone effectively reduced a previously unfinished lobster population by 50% in a single season. Creation of a nursery sanctuary in Biscayne National Monument was proposed to increase fishery production. Biscayne Bay was identified as a nursery of the Keys lobster fishery.

KEY WORDS: Spiny lobster, *Panulirus argus*, Elliott Key, Biscayne National Monument, Dry Tortugas, Florida Keys

403

Davis, G. E., and J. W. Dodrill (1980) Marine parks and sanctuaries for spiny lobster fisheries management. In: Proc. 32nd Ann. Gulf and Caribbean Fisheries Institute, Miami Beach, 1979. J. B. Higman, (ed.). Gulf and Caribbean Fisheries Institute, Miami, FL. 194-207.

TIME COVERAGE: 1971 - 1979

SUMMARY: More than 14,000 spiny lobsters were tagged and another close to 6,000 were measured and examined at the Fort Jefferson National Monument, Biscayne National Monument and the Florida Keys. Growth rates, reproductive biology and movement patterns were examined.

KEY WORDS: Spiny lobster, *Panulirus argus*, Fishery management, Fort Jefferson National Monument, Biscayne National Monument, Florida Keys, Florida Bay, Dry Tortugas

404

Davis, G. E., L. L. Loope, C. T. Roman, G. Smith, J. T. Tilmant, and M. Soukup (eds.) (1996) Effects of Hurricane Andrew on natural and archeological resources; Big Cypress National Preserve, Biscayne National Park, Everglades National Park. Tech. rep. NPS/NRGCC/NRTR/96-02. National Park Service, Natural Resource Program Center, Natural Resource Information Division, Denver, CO. 150 pp.

TIME COVERAGE: 1992

SUMMARY: This report describes the conditions of the resources and the effects of Hurricane Andrew on the resources of the national park system units in South Florida.

KEY WORDS: Natural resources, Hurricane Andrew, Big Cypress National Preserve, Biscayne National Park, Everglades National Park

405

Davis, J. H. (1940) The ecology and geologic role of mangroves in Florida. Papers from Tortugas Laboratory, 32(-):303-412.

TIME COVERAGE: 1940 ◊

SUMMARY: This investigation attempted to include many phases of the ecology of the mangrove swamps, some phases of the ecology of associated organisms, the migration and establishment of the plants, the nature of the soils, marine factors of the habitat, and the soil accretions, with accurate determination of coastal and insular changes. One of the regions studied was southern Biscayne Bay.

KEY WORDS: Mangrove swamps, Coastal landforms, Florida Keys, Florida Bay, Dry Tortugas, Ten Thousand Islands, Tampa, Cape Canaveral

406

Davis, J. H. (1943) The Natural Features of Southern Florida, Especially the Vegetation, and the Everglades. Geological bulletin 25. Florida Geological Survey, Tallahassee, FL. 311 pp.

TIME COVERAGE: 1943 ◊

SUMMARY: This book describes the natural history of southern Florida including geology, flora and fauna.

KEY WORDS: Natural resources, Botanical resources, Landforms, Biota, Everglades, Geology

407
Davis, S. M., and J. C. Ogden (1994) Towards ecosystem restoration. In: Everglades: the Ecosystem and its Restoration. S. M. Davis, and J. C. Ogden (eds.). St. Lucie Press, Delray Beach, FL. 769-?
TIME COVERAGE: 1994 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Restoration

408
Davis, W. P. (1964) The western Atlantic fishes of the family Callionymidae. M.Sc. thesis. University of Miami, Coral Gables, FL. 93 pp.
TIME COVERAGE: 1964 ◊
SUMMARY: This work is a description of the dragonet fish family. Some specimens were collected in Biscayne Bay.
KEY WORDS: Callionymus, Dragonetta, Callionymidae, Taxonomy, Dragonets

409
Day, S. (1953) Horizontal convergence and the occurrence of summer precipitation at Miami, Florida. Monthly Weather Rev., 81(-):155-161.
TIME COVERAGE: 1951
SUMMARY: The general diurnal pattern and the extent of the sea-breeze effect were established and graphed. Data was too sparse to permit definition of rules correlating divergence values and precipitation.
KEY WORDS: Rainfall, Thunderstorms, Convergence, Sea breezes, Summer, Miami

410
De Brahm, J. G. W. (1974) The Atlantic Pilot. (Facsimile reproduction of the 1772 edition, with introduction and index by L. De Vorsey.) University Presses of Florida, Gainesville, FL. 25 pp + index.
TIME COVERAGE: 1772 ◊
SUMMARY: This book is an early survey of Florida conducted by the English Crown. Maps of the area are included.
KEY WORDS: Surveying, History, Florida, Dry Tortugas, Florida Keys, Cape Florida

411
De la Lanza, G., and Arenas F. V. (1978) Naturaleza quimica de las hojas y rizomas de los pastos marinos y su ambiente sedimentario. Rev. Biol. Trop., 26(2):277-289 (Spanish).
TIME COVERAGE: 1978 ◊
SUMMARY: Biodegradation of *Thalassia* and its energy flow throughout the food chain via detritus exhibited a close relationship to the surrounding sedimentary substratum. The chemical composition of the biotic and abiotic material was analyzed and evaluated.
KEY WORDS: Turtle grass, Thalassia, Biodegradation, Detritus, Sediment analysis, Virginia Key, Soldier Key, Cutler

412
de Laubenfels, M. W. (1953) A guide to the sponges of eastern North America. Special publication of The Marine Laboratory. University of Miami Press, Coral Gables, FL.
TIME COVERAGE: 1953 ◊
SUMMARY: This report is a taxonomical guide to the sponges of the east coast of the US.
KEY WORDS: Sponges, Identification, Atlantic coast, Taxonomy, Species list

413
de Laubenfels, M. W., and J. F. Storr (1958) The taxonomy of American commercial sponges. Bull. Mar. Sci. Gulf Caribb., 8(2):99-117.
TIME COVERAGE: 1958 ◊
SUMMARY: The taxonomy of commercial sponges was revised and four new species and one new subspecies described.
KEY WORDS: Sponges, Spongia, Hippospongia, Taxonomy, Species list

414
de Sylva, D. P. (1984) A bibliography and index of the Biscayne Bay ecosystem. Unpublished manuscript. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 91 pp.
TIME COVERAGE: 1964 ◊
SUMMARY: This report is a bibliography of Biscayne Bay.
KEY WORDS: Bibliographies, Ecosystems

415
de Sylva, D. P. (1994) Distribution and ecology of ciguatera fish poisoning in Florida, with emphasis on the Florida Keys. Bull. Mar. Sci., 54(3):944-954.
TIME COVERAGE: 1994 ◊
SUMMARY: Ciguatera fish poisoning cases in South Florida were investigated. This paper documents the species, locations, and size of fish.
KEY WORDS: Ciguatera, Florida Keys

416
de Sylva, D. P. (1970) Ecology and distribution of postlarval fishes of Southern Biscayne Bay, Florida. Progress report to the EPA Water Quality Office. Contract FWQA 18050 DIU, covering the period 1 June 1969 - 30 September 1970. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1969 - 1970
SUMMARY: This report presented the physical, chemical and biological data collected at 39 stations in southern Biscayne Bay, Card Sound and adjacent waters. These data include information on monthly distribution of surface and bottom measurements of temperature, salinity, dissolved oxygen and turbidity. Biological information includes plankton collections. Larvae of 33 of the 71 teleost fish known from the area were found in the plankton samples. Larval fishes were less common and were represented by fewer families in the plume of heated effluent from Turkey Point as well as in area receiving sewage wastes.
KEY WORDS: Fish, Juveniles, Geographical distribution, Ecological distribution, South Bay, Turkey Point, Sewage wastes, Temperature, Salinity, Dissolved oxygen, Turbidity, Card Sound, Species list

417
de Sylva, D. P. (1976) Ecology and distribution of larval fishes of Biscayne Bay, Florida. Prepared for the EPA Office of Research and Monitoring. Project R 800996-03, Program Element 1B1022; EPA-000/0-00-000. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 412 pp.
TIME COVERAGE: 1970
SUMMARY: Plankton tows and hydrographic studies were made in Biscayne Bay and Card Sound to determine the numbers and kinds of larval fishes occurring at various locations, in different seasons, and in a variety of habitats. Surface and bottom measurements of temperature, salinity, dissolved oxygen and turbidity were also obtained. A positive correlation was found between the volume of zooplankton collected the number of fish larvae. A correlation was found between the volume of zooplankton plus turbidity with the number of fish larvae. The largest

numbers occurred in May and the fewest in August. The highest numbers came from around the effluent of the Turkey Point Power Plant and in northern Biscayne Bay between Coconut Grove and Key Biscayne, while the fewest were behind Elliott Key and in Card Sound. Diversity was lowest in the Turkey Point region and highest in Coconut Grove, around Virginia Key and in parts of Card Sound.
KEY WORDS: Fish larvae, Geographical distribution, Ecological distribution, Thermal pollution, Turkey Point, Card Sound

418
de Sylva, D. P. (1975) Fisheries assessment of south Biscayne Bay, Florida. Unpublished manuscript. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 18 pp.
TIME COVERAGE: 1975 - 1979
SUMMARY: The objectives of this report were to determine which economically important species occur in south Biscayne Bay, their geographical and seasonal distributions, and to provide baseline data for managers.
KEY WORDS: Fisheries, Resource conservation, South Bay

419
de Sylva, D. P. (1976) Fishes of Biscayne Bay, Florida. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 181-202.
TIME COVERAGE: 1976 ◊
SUMMARY: This paper describes the fish species of Biscayne Bay. More than 500 species have been recorded. Tropical fishes prevalent in the summer are partially replaced in the winter by temperate species. Their ecological relationships are also associated with the freshwater runoff from western Biscayne Bay.
KEY WORDS: Fish, Geographical distribution, Ecological distribution, Species list

420
de Sylva, D. P. (1975) Natural resources of Biscayne Bay -- research and needs. Presented at the Public Hearing on Biscayne Bay, Session of Bay Bottom Problems, Biscayne Bay Management Task Force. Miami, FL, November 20, 1975. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1975 ◊
SUMMARY: This paper outlines research needs in Biscayne Bay.
KEY WORDS: Natural resources, Resource management

421
de Sylva, D. P. (1953) Notes on mullet (*Mugil*) swimming upside down. Copeia, -(4):240-241.
TIME COVERAGE: 1952
SUMMARY: This is a short account of observations of a mullet specimen swimming upside down.
KEY WORDS: Mullet, *Mugil cephalus*, Mugil, Swimming, Key Biscayne, Fisher Island

422
de Sylva, D. P. (1963) Systematics and life history of the great barracuda, *Sphyraena barracuda* (Walbaum). Studies in Tropical Oceanography 1. University of Miami Press, Coral Gables, FL. 134 pp.
TIME COVERAGE: 1963 ◊
SUMMARY: This citation is a detailed description of the biology of the great barracuda.
KEY WORDS: Barracuda, *Sphyraena barracuda*, Taxonomy, Life history, Florida Bay, Florida Keys, Ten Thousand Islands, Dry Tortugas

423
de Sylva, D. P. (1969) Theoretical considerations of the effects of heated effluents on marine fishes. In: Biological Aspects of Thermal Pollution. Proc., Natl. Symp. on Thermal Pollution. P. A. Krenkel, and F. L. Parker, (eds.). Vanderbilt University Press, Nashville, TN. 229-293.
TIME COVERAGE: 1969 ◊
SUMMARY: This citation discussed the complex problem of the effects of heated effluents on marine fish.
KEY WORDS: Thermal pollution, Temperature effects, Waste disposal, Power plants, Fish

424
de Sylva, D. P., and L. N. Scotton (1972) Larvae of deep-sea fishes (Stomiatoidea) from Biscayne Bay, Florida, USA, and their ecological significance. Mar. Biol., 12(1):122-128.
TIME COVERAGE: 1972 ◊
SUMMARY: Larvae of twenty deep sea fishes were collected in plankton nets in Biscayne Bay. The adults were mesopelagic in the open water of the Florida Current and therefore, these larvae were presumably advected in parcels of high salinity water into the shallows of the Bay.
KEY WORDS: Stomiatoids, Bathophilus, Stomias, Cyclothone, Fish larvae, Deep water

425
de Sylva, D. P., H. B. Stearns, and D. C. Tabb (1956) Populations of the black mullet *(Mugil cephalu*s L.) in Florida. Technical series 19, Florida State Board of Conservation. Marine Laboratory, University of Miami, Coral Gables, FL. 45 pp.
TIME COVERAGE: 1956 ◊
SUMMARY: Thirty proportional measurements were made of mullet collected in Florida. There were highly significance differences in these characteristics in mullets from different localities. Four subpopulations of black mullet were identified: east coast, west coast, the northwest coast, and a single population in Pensacola Bay.
KEY WORDS: Black mullet, *Mugil cephalus*, Population structure, Pensacola Bay, Apalachicola Bay, St. Marks, Steinhatchee, Cedar Key, Homosassa, Pass-a-grille, Englewood, Lemon Bay, Marco, Salerno, Allenhurst, New Berlin, Trout River

426
Dean, R. G. (1993) Terminal structures at ends of littoral systems. In: Beach/Inlet Processes and Management: a Florida Perspective (J. Coastal Res. Spec. Issue 18). A. J. Mehta (ed.). Coastal Education and Research Foundation, Ft. Lauderdale, FL. 398 pp.
TIME COVERAGE: 1993 ◊
SUMMARY: The interaction of deepened navigation channels with the adjacent shorelines was examined with the conclusion that the effect is to cause sediment transport from and draw down of the adjacent beaches thereby contributing to two undesirable effects: erosion on the adjacent shorelines, and accelerated deposition in the deepened channel. One of the sites studied was Bakers Haulover Inlet.
KEY WORDS: Inlets (Waterways), Navigational channels, Sediment transport, Shore protection, Bakers Haulover Inlet

427
Dean, R. G., J. Cheng, and S. Malakar (1998) Characteristics of shoreline change along the sandy beaches of the State of Florida: an atlas. UFL/COEL-98/015. University of Florida, Department of Coastal and Oceanographic Engineering, Gainesville, FL. Various paging.
TIME COVERAGE: 1998 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Beach morphology, Coasts, Florida

428
Dean, R. G., and T. Y. Chiu (1981) Combined total storm tide frequency analysis for Dade County, Florida. Report. University of Florida, Department of Coastal and Oceanographic Engineering, Gainesville, FL. 55 pp.
TIME COVERAGE: 1981 ◊
SUMMARY: The objective of this study was to develop, verify and apply a procedure that would yield valid estimates of total storm tides for various return periods at the vicinity of the shoreline of Dade County.
KEY WORDS: Storm surge, Hurricanes, Frequency analysis, Tides, Dade County

429
Dean, R. G., and R. B. Taylor (1972) Numerical modeling of constituent transport in bay systems. In: Proc., 13th Coastal Engineering Conf. Vancouver, B. C., Canada, 1972. American Society of Civil Engineers, New York. 2227-2249.
TIME COVERAGE: 1972 ◊
SUMMARY: This citation describes the results of a numerical modeling study of lower Biscayne Bay designed to predict the effects of cooling water intake and discharge associated with the Turkey Point Nuclear Power Plant.
KEY WORDS: Mathematical models, Bay dynamics, Tidal mixing, Winds, Waste discharge, Turkey Point, Card Sound

430
Dearborn, B. B. (1983) Municipal boundaries in Biscayne Bay: evolution and conflict potential. M.A. thesis. University of Miami, Coral Gables, FL. 130 pp.
TIME COVERAGE: 1896 - 1983?
SUMMARY: This thesis examined the evolution of political boundaries in Biscayne Bay from 1896 when the first municipality was incorporated to the time of writing (1983).
KEY WORDS: Boundaries, Urbanization, History

431
Deichmann, E. (1938) Holothurians from Biscayne Bay, Florida. Proc. Florida Academy of Sciences, 3(-):128-137.
TIME COVERAGE: 1937
SUMMARY: This paper describes the holothurians of Biscayne Bay.
KEY WORDS: Holothurians, Echinoderms, Taxonomy, Species list

432
Delfino, J. J., D. Frazier, and J. Nepshinsky (1984) Contaminants in Florida's coastal zone: a review of present knowledge and proposed research strategies. Florida Sea Grant rep. SGR-62. Florida Sea Grant College Program, Gainesville, FL. 176 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: The objectives of this project were to hold a workshop to discuss research issues and priorities with representatives from Florida's scientific, regulatory and private organizations, and to conduct a literature review for research related to the topic of contaminants in Florida's coastal zone.
KEY WORDS: Pollutants, Coastal waters, Coastal zone management, Florida

433
Dennis, J. V. (1959) Oil pollution survey of the United States Atlantic coast with special reference to southeast Florida coast conditions. Report. American Petroleum Institute, Division of Transportation, Washington, DC. Various paging.
TIME COVERAGE: 1958

SUMMARY: Daily observations of the number of pieces and weights of oil found at the three study sites were made during one year. A description of the oil and other types of debris found on the beaches is included.
KEY WORDS: Oil pollution, Coastal zone, Beaches, Atlantic coast, Hallandale Beach, Golden Beach, Haulover Beach

434
Dennis, J. V. (1960) Oil pollution conditions of the Florida east coast. Report. American Petroleum Institute, Division of Transportation, Washington, DC. 7 pp.
TIME COVERAGE: 1959
SUMMARY: This report is a continuation of the work described in Dennis (1959).
KEY WORDS: Oil pollution, Beaches, Hallandale Beach, Golden Beach, Haulover Beach, Key Biscayne, Crandon Park

435
Dennis, R. E. (1981) The role of the seagrass *Syringodium filiforme* and sediment stability on benthic harpacticoid copepods. M.Sc. thesis. Florida State University, Tallahassee, FL. 27 pp.
TIME COVERAGE: 1981 ◊
SUMMARY: The composition of the harpacticoid copepod community found in *Syringodium* seagrass beds is believed to result from the presence of the seagrass and sediment characteristics. The two influences are not mutually exclusive since the presence of the seagrass determines in part the composition of the sediment.
KEY WORDS: Seagrass, *Syringodium filiforme*, Sediment stability, Copepods, Ecological zonation, Turkey Point

436
Derr, M. (1989) Some Kind of Paradise: a Chronicle of Man and the Land in Florida. William Morrow and Company, Inc., New York, NY. 416 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: This historical account of Florida includes some material on Biscayne Bay.
KEY WORDS: History, Florida

437
Dewar, H. (1993) Paradise lost finds buyer. The Miami Herald, Miami, FL. September 12. 1-B.
TIME COVERAGE: 1993 ◊
SUMMARY: This article discusses the purchase of Soldier Key by the National Park Service.
KEY WORDS: Soldier Key, Restoration

438
DiResta, D., B. Lockwood, and R. Curry (1995) Monitoring of the recruitment, growth and mortality of commercial sponges in Biscayne Bay National Park. Final report. SFWMD contract C91-2547. Biscayne National Park, Miami, FL. 26 pp + appendices.
TIME COVERAGE: 1992 - 1995
SUMMARY: This report is a study of the growth, mortality and recruitment of the commercial sponges *Hippospongia lachne, Spongia barbara, Spongia graminea* and *S. tubulifera*. The Bay was closed to commercial sponge fishing in 1991.
KEY WORDS: Sponges, Biscayne Bay National Park, *Hippospongia lachne*, *Spongia barbara*, *Spongia graminea*, *Spongia tubulifera*, Yellow sponge, Sheepswool sponge, Glove sponge, Grass sponge, Sponge fisheries, Pelican Bank, Billy's Point, Black Point, Black Ledge

439
Dobkin, S. (1965) Abbreviated larval development in caridean shrimps with the description of the larval stages of some species from South Florida. Ph.D. dissertation. University of Miami, Coral Gables, FL. 228 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: The larval development of several species of caridean shrimp was studied. Specimens of *Thor floridanus* were collected in Bear Cut. Loggerhead sponges were collected at Soldier Key, cut open, and specimens of *Synalpheus brooksi* removed.
KEY WORDS: Caridean shrimp, Larval development, *Palaemonetes paludosus*, *Synalpheus brooksi*, *Glyphocrangon spinicauda*, *Thor floridanus*, Bear Cut

440
Dobkin, S. (1968) The larval development of a species of *Thor* (Caridea, Hippolytidae) from South Florida, U.S.A. Crustaceana, Supplement II(-):1-18.
TIME COVERAGE: 1961
SUMMARY: A species of Thor was collected in seagrass beds in Bear Cut and the larval development of this shrimp described based on larvae from one of the collected specimens.
KEY WORDS: Larval development, Caridean shrimp, Thor floridanus, Bear Cut

441
Dodge, C. R. (1987) Subtropical Florida. In: Tales of Old Florida. Castle, Secaucus, NJ. 477 pp.
TIME COVERAGE: 1894
SUMMARY: This article describes travel in South Florida including Biscayne Bay and Miami.
KEY WORDS: Natural resources, History, South Florida, Florida Keys

442
Dole, R. B. (1914) Some chemical characteristics of sea-water at Tortugas and around Biscayne Bay, Florida. Papers from the Tortugas Laboratory of the Carnegie Institution of Washington, 5(-):69-78.
TIME COVERAGE: 1913
SUMMARY: Chemical tests were performed to determine the soluble effect, if any, carbon dioxide in seawater might have on coral and other deposits of calcium carbonate. Tests of Biscayne Bay waters were made to ascertain the differences in concentration of seawater in the Bay and the diluting effect of the Miami River.
KEY WORDS: Carbon dioxide, Chlorine, Salinity, Alkalinity, Water analysis, Sea water, Dry Tortugas, Cape Florida, Miami River, Soldier Key, Featherbed Bank, Black Ledge

443
Dombrowski, M. R., and A. J. Mehta (1993) Inlets and management practices: southeast coast of Florida. In: Beach/Inlet Processes and Management: a Florida Perspective (J. Coastal Res. Spec. Issue 18). A. J. Mehta (ed.). Coastal Education and Research Foundation, Ft. Lauderdale, FL. 308 pp.
TIME COVERAGE: 1993 ◊
SUMMARY: Management practices for bypassing sand have been examined at eight tidal inlets with respect to existing engineering protocols and recommendations for future changes made through previous and ongoing engineering studies at these inlets which include Bakers Haulover Inlet and Government Cut.
KEY WORDS: Beach erosion, Inlets (Waterways), Sediment transport, Bakers Haulover Inlet, Southeast Florida, Government Cut

444
Domeier, M. L. (1994) Speciation in the serranid fish *Hypoplectrus*. Bull. Mar. Sci., 54(1):103-141.

TIME COVERAGE: 1994 ◊
SUMMARY: The species status of individual color morphs of fishes of the genus *Hypoplectrus* was examined.
KEY WORDS: Hamlets, Hypoplectrus, Biological speciation

445
Doochin, H. D. (1949) The morphology of *Balanus improvisus* Darwin and *Balanus amphitrite niveus* Darwin during initial attachment and metamorphosis. M.Sc. thesis. University of Miami, Coral Gables, FL. 63 pp.
TIME COVERAGE: 1949 ◊
SUMMARY: This is a study of barnacles fouling test panels deployed in the channel between Belle Isle and Miami Beach.
KEY WORDS: Barnacles, *Balanus improvisus*, *Balanus amphitrite niveus*, Larval settlement, Metamorphosis, Biological attachment

446
Doochin, H. D. (1951) The morphology of *Balanus improvisus* Darwin and *Balanus amphitrite niveus* Darwin during initial attachment and metamorphosis. Bull. Mar. Sci. Gulf Caribb., 1(1):15-39.
TIME COVERAGE: 1951 ◊
SUMMARY: This paper described the morphology of barnacles during attachment and metamorphosis.
KEY WORDS: Barnacles, *Balanus improvisus*, *Balanus amphitrite niveus*, Biological attachment, Metamorphosis, Larval settlement

447
Doochin, H. D., and F. G. W. Smith (1951) Marine boring and fouling in relation to velocity of water currents. Bull. Mar. Sci. Gulf Caribb., 1(2):196-208.
TIME COVERAGE: 1949
SUMMARY: Experiments were conducted to determine the effects of current velocity upon the intensity of attack of wood boring worms.
KEY WORDS: Boring organisms, Fouling organisms, Current velocity, MacArthur Causeway

448
Dowgiallo, M. J., I. C. Sheifer, F. G. Everdale, K. B. Pechmann, M. C. Predoehl, and T. W. Waltz (1987) Marine environmental assessment, southeastern U. S., 1986 annual summary. Report. NOAA, Marine Environmental Assessment Division, Marine Assessment Branch, Washington, DC. 134 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Marine environment, Brackishwater environment, Climate, Oceanography, Hydrology, Fisheries, Recreation, Transportation, Pollution, North Carolina, South Carolina, Georgia, Florida

449
Duane, D. B., and E. P. Meisburger (1969) Geomorphology and sediments of the nearshore continental shelf, Miami to Palm Beach, Florida. Tech. memo. 29. US Army Corps of Engineers, Coastal Engineering Research Center, Washington, DC. 120 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: The continental shelf between Palm Beach and Miami was surveyed to locate and evaluate sand deposits usable for shore protection and restoration projects. South of Boca Raton to Miami, much of the shelf is essentially rocky with a thin sediment veneer. In terms of

potential use as beach sand, the sand size sediment from the shelf in the study area was of marginal quality.
KEY WORDS: Continental shelves, Sediment, Geomorphology, Sand, Seismic profiles, Miami, Palm Beach

450
Duellman, W. E., and A. Schwartz (1958) Amphibians and reptiles of southern Florida. Bulletin of the Florida State Museum, Biological Sciences, 3(5):1-324.
TIME COVERAGE: 1958 ◊
SUMMARY: This book describes the amphibians and reptiles found in South Florida.
KEY WORDS: Amphibians, Reptiles, South Florida

451
Duerr, E. O. (1976) Oxygen consumption studies on the pink shrimp, *Penaeus duorarum*, as a function of activity, size, water temperature, and flow, with notes on starvation and sand substrate effects. M.Sc. thesis. University of Miami, Coral Gables, FL. 119 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This study of oxygen consumption rates showed that resting consumption rates occurred during the day and an active rate was measured at night. Rates were measured in the laboratory using pink shrimp obtained from a commercial trawler operating in southern Biscayne Bay.
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Oxygen consumption

452
Dunn, G. E., and Staff (1965) The hurricane season of 1964. Monthly Weather Review, 93(3):175-187.
TIME COVERAGE: 1964
SUMMARY: Hurricane Cleo passed near Key Biscayne August 27. Meteorological information on the storm can be found in this article.
KEY WORDS: Hurricanes, Hurricane Cleo

453
Dunn, G. E., and B. I. Miller (1960) Atlantic Hurricanes. Louisiana State University Press, Baton Rouge, LA. 326 pp.
TIME COVERAGE: 1960 ◊
SUMMARY: This book is a general discussion on hurricanes and how to prepare for them. Florida hurricanes are briefly discussed.
KEY WORDS: Hurricanes, Tropical meteorology

454
Duplaix, N. (1990) South Florida water: paying the price. National Geographic Magazine, 178(1):89-113.
TIME COVERAGE: 1990 ◊
SUMMARY: This article is a historical summary of water usage in South Florida and the alteration of the hydrology of the area.
KEY WORDS: Water supply, Water quality, Water management, South Florida

455
Durako, M. J. (1993) Photosynthetic utilization of $CO_{2(aq)}$ and HCO_3^- in *Thalassia testudinum* (Hydrocharitaceae). Mar. Biol., 115(-):373-380.
TIME COVERAGE: 1988 (lab study)

SUMMARY: The effects of total dissolved organic carbon, free carbon dioxide and bicarbonate on net photosynthetic oxygen evolution of *Thalassia* collected in Biscayne and Tampa Bays were studied.
KEY WORDS: Carbon dioxide, Bicarbonates, Dissolved inorganic matter, Photosynthesis, *Thalassia testudinum*, Tampa Bay

456
Durako, M. J., R. C. Phillips, and R. R. Lewis (eds.) (1987) Proc., Symp. on Subtropical-Tropical Seagrasses of the Southeastern United States. Gainesville, FL, 1985. Florida marine research publications 42. Florida Department of Natural Resources, Bureau of Marine Research, St. Petersburg, FL.
TIME COVERAGE: 1985 ◊
SUMMARY: This publication contains chapters on generalized topics related to the seagrass ecosystem in the southeast US such as biology, trace metals cycling, invertebrate and fish communities, historic trends and restoration.
KEY WORDS: Seagrass, Subtropical zones, Tropical environment

457
Durako, M., and F. Wettstein (1994) Johnson's seagrass: the Rodney Dangerfield of seagrasses (gets no respect, survives harsh conditions, little or no known sex). The Palmetto Winter, Winter(-):3-5.
TIME COVERAGE: 1994 ◊
SUMMARY: Johnson's seagrass is a small rare seagrass that is known to occur only in lagoons along the southeast coast of Florida. This paper is a general description of the genus Halophila and of *Halophila johnsonii.*
KEY WORDS: Seagrass, Halophila, Johnsons seagrass, *Halophila johnsonii*

458
Earl, A. W. (1989) Sediment mixing on a modern coastal sandflat by tidal, longshore and storm currents, Key Biscayne, Florida. Abstracts with programs (Geological Society of America), 21(6):A161.
TIME COVERAGE: 1989 ◊
SUMMARY: A complex mixture of carbonate and clastic sediment is presently accumulating on an intertidal-subtidal sandflat of Key Biscayne. Grains of five different origins were recognized. Since its origin 1000 - 2000 yrs BP, the sandflat has propagated laterally.
KEY WORDS: Sediment mixing, Sand bars, Tidal currents, Longshore currents, Key Biscayne

459
Earl, A. W. (1989) Sedimentology of a recent mixed carbonate-clastic sandflat, Key Biscayne, Florida. M.Sc. thesis. West Virginia University, Morgantown, /WV.
TIME COVERAGE: 1989 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Tidal flats, Grain properties, Carbonate sediment, Clastics, Quartz, Key Biscayne

460
Earley, C. F. (1967) The sediments of Card Sound, Florida. Contribution - Sedimentological Research Laboratory, no. 18. M.Sc. thesis. Florida State University, Tallahassee, FL. 72 pp.
TIME COVERAGE: 1967 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Sediment, Carbonate sediment, Card Sound

461
Earley, C. F., and H. G. Goodell (1968) The sediments of Card Sound, Florida. J. Sed. Petrol., 38(4):985-999.
TIME COVERAGE: 1968 ◊
SUMMARY: Surface sediments of Card Sound and southern Biscayne Bay were found to differ considerably from those found in the continental shelf.
The shelf sediments are entirely carbonate, composed primarily if aragonite, high-magnesium calcite, and lesser amounts of low-magnesium calcite. The sediments of Card Sound and southern Biscayne Bay are composed of detrital quartz and low-magnesium calcite. Sediment transport is primarily by waves and wave-generated currents, and secondarily by tidal currents.
KEY WORDS: Sediment, Carbonate sediment, Card Sound

462
Ebbs, N. K. (1966) The coral-inhabiting polychaetes of the northern Florida reef track. Part I. Aphroditidae, Polynoidae, Amphinomidae, Eunicidae, and Lysaretidae. Bull. Mar. Sci., 16(3):485-555.
TIME COVERAGE: 1961 - 1963
SUMMARY: This paper is part of a series of studies carried out in Margot Fish Shoal, just east of Elliott Key. The polychaetes found in the coral reef are described.
KEY WORDS: Polychaetes, Coral reefs, Margot Fish Shoal, Elliott Key, Aphroditidae, Polynoidae, Amphinomidae, Eunicidae, Lysaretidae

463
Ebbs, N. K. (1964) Some errant polychaetous annelids of the coral patches of Margot Fish Shoal (off Elliott Key, Miami, Florida,) excluding the Syllidae. M.Sc. thesis. University of Miami, Coral Gables, FL. 209 pp.
TIME COVERAGE: 1961 - 1963
SUMMARY: Coral heads were collected, taken to the laboratory and broken up. All the errant polychaetes were collected, preserved and identified.
KEY WORDS: Polychaetes, Coral reefs, Polynoidae, Aphroditidae, Amphinomidae, Eunicidae, Lysaretidae, Margot Fish Shoal, Elliott Key, Taxonomy, Species list

464
Ebbs, N. K., and J. C. Staiger (1965) Some osmotic adaptations of *Onuphis magna* (Polychaeta: Onuphidae). Bull. Mar. Sci., 15(4):835-849.
TIME COVERAGE: 1965 ◊
SUMMARY: Microcryoscopic comparisons of freezing-point depressions in paired coelomic fluid and diluted sea water samples show that this polychaete is a hyperosmotic regulator with an osmoregulation curve inhibiting a distinct leveling. The polychaete fails to survive at greater dilutions indicating a probable lack of tolerance to dilution in its tissues.
KEY WORDS: Onuphis magna, Polychaetes, Osmotic adaptations, Osmoregulation, Virginia Key, Bear Cut, Key Biscayne

465
Edwards, C. E. (1980) Giant shrimp in Biscayne Bay. Of Sea and Shore, 11(1):74-75.
TIME COVERAGE: 1980 ◊
SUMMARY: This brief article describes the shrimp fishery by local people including reports of giant species of pink shrimp
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Shrimp fisheries

466
Edwards, R. E. (1977) Respiration of a shallow-water benthic community associated with the seagrass *Halodule wrightii*. M.Sc. thesis. University of Miami, Coral Gables, FL. 85 pp.
TIME COVERAGE: 1976
SUMMARY: The ecology of a shallow-water, benthic, marine community associated with *Halodule* was analyzed by partitioning total community respiration measured by oxygen consumption. Macrofuanal composition was also described.
KEY WORDS: Seagrass, *Halodule wrightii*, Oxygen consumption, Benthos, Microorganisms, Respiration, Shoal Point, Species list

467
Egler, F. E. (1948) The dispersal and establishment of red mangrove, Rhizophora in Florida. Caribbean Forester, 9(-):299-319.
TIME COVERAGE: 1948 ◊
SUMMARY: The purpose of this report was to draw attention to two phenomena of the mangrove swamp: 1) the strong curvature of the hypooctyl in young seedlings recently established; and 2) the discontinuous age-class groups of pioneer communities fronting the sea.
KEY WORDS: Red mangrove, Rhizophora, Seeds, Florida

468
Eichler, L. W. (1977) Benthic infaunal assemblages associated with turtlegrass (*Thalassia testudinum* Konig) in Biscayne Bay, Florida. M.Sc. thesis. Florida Atlantic University, Boca Raton, FL. 67 pp.
TIME COVERAGE: 1976
SUMMARY: Benthic organisms associated with *Thalassia* beds were studied at four sites in Virginia Key and Key Biscayne. A total of 109 species were collected. The major taxa were Polychaeta, Amphipoda, Bivalvia, Gastropoda, Isopoda and Sipunculida. Sediment cores were collected for particle size and organic carbon determination. Differences in faunal densities at the sampling sites were discussed in relation to sediment type and current velocity.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Zoobenthos, Aquatic communities, Virginia Key, Key Biscayne, Sediment

469
Eidman, M. (1967) Contribution to the biology of needlefishes, *Strongylura* spp., in south Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 84 pp.
TIME COVERAGE: 1963
SUMMARY: This work is a study of the biology of needlefishes. Some specimens were collected in Biscayne Bay.
KEY WORDS: Needlefish, Timucu, Strongylura, Buttonwood Canal, Virginia Key

470
Einziger, W. L. (1983?) Biscayne Bay restoration and enhancement program. Report. Dade County. Department of Environmental Resources Management, Miami, FL. 39 pp.
TIME COVERAGE: 1983 ◊
SUMMARY: The goal of the Biscayne Bay restoration and enhancement program is to maintain, restore, enhance and provide those physical, chemical, biological and aesthetic qualities of Biscayne Bay that provide the basic character and value of the resource.
KEY WORDS: Environmental restoration, Resource management, Biscayne Bay Restoration and Enhancement Program

471
Eiseman, N. J. (1970) The green alga *Chalmasia antillana* from the Florida Keys. Phycologia, 9(-):45-47.

TIME COVERAGE: 1968 - 1969
SUMMARY: Four species of the marine green algal subfamily Acetabularieae were found in the same habitat between the Florida Keys and Biscayne Bay. The species are described.
KEY WORDS: Algae, *Chalmasia antillana*, Lake Surprise, Florida Keys

472
Eiseman, N. J., and C. McMillan (1980) A new species of seagrass, *Halophila johnsonii*, from the Atlantic coast of Florida. Aquatic Botany, 9(1):15-19.
TIME COVERAGE: 1974
SUMMARY: A new species of seagrass was described in this citation. This plant had been previously described as *Halophila decipiens.*
KEY WORDS: New species, *Halophila johnsonii*, Johnson's seagrass, Norris Cut, Aquatic plants, Seagrass

473
Eklund, A. M. (1997) The importance of post-settlement predation and reef resource limitation on the structure of reef fish assemblages. In: Proc., 8th Internatl. Coral Reef Symp. H. A. Lessios, and I. G. Macintyre, (eds.). Panama, 1996. Smithsonian Tropical Research Institute, Balboa, Panama. 1139-1142.
TIME COVERAGE: 1997 ◊
SUMMARY: Reef resources and predation pressure were controlled in a series of experiments to test whether the structure and production of coral reef fish assemblages could be affected by resource limitation rather than recruitment limitation.
KEY WORDS: Reef fish, Population density, Predation, Key Biscayne, Palm Beach

474
Eldred, B. (1960) A note on the occurrence of the shrimp, *Penaeus brasiliensis* Latreille, in Biscayne Bay, Florida. Quart. J. Fla. Acad. Sci., 23(2):164-165.
TIME COVERAGE: 1960
SUMMARY: This paper describes the occurrence of the *Penaeus brasiliensis* , a species closely related to *Penaeus duorarum* in Biscayne Bay.
KEY WORDS: Shrimp, *Penaeus duorarum*, *Penaeus brasiliensis*

475
Eldred, B., C. R. Futch, and R. M. Ingle (1972) Studies of juvenile spiny lobsters, *Panulirus argus*, in Biscayne Bay, Florida. Special scientific report 35. Florida Department of Natural Resources, Marine Research Laboratory, St. Petersburg, FL. 15 pp.
TIME COVERAGE: 1968 - 1969
SUMMARY: Young spiny lobsters were captured in commercial bait shrimp trawls from Biscayne Bay. Size frequencies were consistent with those found for juvenile lobsters from similar habitats elsewhere. Only immature lobsters were associated with the inshore sand/mud, alga/phanerogam habitat.
KEY WORDS: Spiny lobster, *Panulirus argus*, Juveniles

476
Ellicott, A. (1978) From Tampa Bay to Biscayne Bay in 1799. Reprinted from The journal of Andrew Ellicott, 1803, with an introduction by Charlton W. Tebeau. Tequesta, 38(-):72-82.
TIME COVERAGE: 1799
SUMMARY: This is an account of the trip undertaken by Ellicott from Tampa to Biscayne Bay across Florida Bay.
KEY WORDS: Exploration, Florida Bay, Florida Keys, Key Biscayne

477
Ellis, R. W., A. Rosen, and A. W. Moffett (1958) A survey of the number of anglers and of their fishing effort and expenditures in the coastal recreational fishery of Florida. Florida Board of Conservation technical series 14. Marine Laboratory, University of Miami, Miami, FL. 50 pp.
TIME COVERAGE: 1958 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Angling, Sport fishing statistics, Recreation, Costs, Florida

478
Emin, J. (1997) Dune vegataion [vegetation] and erosion. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Dunes, Beach erosion, Virginia Key

479
Emmel, T. C. (1992) Mother Nature reeks havoc on endangered habitats: a field survey of endangered species habitats and tropical hardwood hammocks in south Florida following Hurricane Andrew, August 28-30, 1992. Florida Naturalist, 65(3):12-13,15,21-22.
TIME COVERAGE: 1992
SUMMARY: This paper is the account of the field survey undertaken after the passage of Hurricane Andrew.
KEY WORDS: Hammocks, Habitat, Rare species, Tree snails, Schaus swallowtail, Hurricane Andrew, Key Biscayne

480
Engstrom, N. A. (1980) Development, natural history and interstitial habits of the apodous holothurian *Chiridota rotifera* (Pourtales, 1851) (Echinodermata: Holothuroidea). Brenesia, 17(-):85-96.
TIME COVERAGE: 1969
SUMMARY: This holothurian broods its young in the coelum. Development is thus vivaparous and all the young from an adult are apparently released simultaneously. Reproduction occurs year round and upon release, the young burrow in soft sediment and fine sand.
KEY WORDS: Reproduction, Larval development, Life history, Chirodota rotifera, Holothurians, Crandon Park Marina, Key Biscayne

481
Engstrom, N. A. (1970) The reproductive cycles, systematic status and general biology of *Holothuria* (*Halodeima*) *floridana* Pourtales, 1851 and H. (H.) *mexicana* Ludwig, 1875. M.Sc. thesis. University of Miami, Coral Gables, FL. 92 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: Holothurians were collected for one year in Biscayne Bay and the Florida Keys and held in aquarium. Their biology and systematics were studied.
KEY WORDS: Holothurians, *Holothuria (Halodeima) floridana*, *Holothuria (Halodeima) mexicana*, Reproductive cycle, Taxonomy, Bear Cut, Key Biscayne, Soldier Key, West Point

482
Enos, P., and R. D. Perkins (1977) Quaternary sedimentation in south Florida. Geological Society of America memoir 147. Geological Society of America, Boulder, CO. 198 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Sedimentation, Quaternary, Geology, South Florida

483
Environmental Protection Agency (1973) Central Dade County, Florida. Final environmental impact statement. EIS-FL-73-1489-F. National Technical Information Service, Springfield, VA. 295 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: [ONLY MICROFICHE AVAILABLE.]

484
Environmental Protection Agency (1971) Industrial waste sources inventory and evaluation: Dade County, Florida. PB-258 404. EPA/330/2-71/003. National Technical Information Service, Springfield, VA.
TIME COVERAGE: 1971 ◊
SUMMARY: [ONLY MICROFICHE AVAILABLE.]
KEY WORDS: Waste sources

485
Environmental Protection Agency (1988) Munisport toxicity and bioaccumulation studies. Final report. The Agency, Environmental Services Division, Ecological Support Branch, Athens, GA. Various paging.
TIME COVERAGE: 1987
SUMMARY: Samples of lake and well water were collected at the Munisport Landfill and analyzed for Hazardous Substance List chemicals and assessed for toxics and mutagens. Bioaccumulation studies were also carried out.
KEY WORDS: Toxicity tests, Bioaccumulation, Chemical pollutants, Ammonia, Munisport Landfill, North Miami

486
Environmental Protection Agency (1973) Ocean outfalls and other methods of treated wastewater disposal in southeast Florida. Transcript of proceedings held in Lake Worth, Florida, January 24, 1973, Miami Beach, Florida, January 26, 1973, Fort Lauderdale, Florida, January 27, 1973. EIS-FL-0491-F-1 and EIS-FL-0491-F-2. Environmental Protection Agency, Region IV, Atlanta, GA. Various paging.
TIME COVERAGE: 1973 ◊
SUMMARY: [ONLY MICROFICHE AVAILABLE.]
KEY WORDS: Outfalls, Waste water, Waste disposal, Palm Beach County, Broward County, Dade County

487
Environmental Protection Agency (1973) Ocean outfalls and other methods of treated wastewater disposal in southeast Florida. Public hearing on draft environmental impact statement. National Technical Information Service, Springfield, VA. 624 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: This environmental impact statement identified adverse and beneficial environmental effects resulting from a proposed action regarding wastewater disposal.

488
Environmental Protection Agency (1973) South Dade County, Florida. Final environmental impact statement. EIS-FL-1490-F. National Technical Information Service, Springfield, VA. 295 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: [ONLY MICROFICHE AVAILABLE.]

489
Environmental Protection Agency (1990) Superfund record of decision: Munisport Landfill, FL. PB91-921525. National Technical Information Service, Springfield, VA. Various paging.
TIME COVERAGE: 1990 ◊
SUMMARY: This report describes the remedial actions to be taken at the Munisport Landfill.
KEY WORDS: Groundwater pollution, Water quality, Chemical pollution, Munisport Landfill, State Mangrove Preserve, North Miami

490
Environmental Protection Agency (1994) Technical summary document for the advance identification of possible future disposal sites and areas generally unsuitable for disposal of dredged or fill material in wetlands adjacent to southwest Biscayne Bay, Dade County, Florida. Prepared in cooperation with the Metro-Dade Department of Environmental Resources Management and the US Army Corps of Engineers, Jacksonville District. DERM tech. rep. 94-2, EPA 904/R-94/007. Environmental Protection Agency, Atlanta, GA.
TIME COVERAGE: 1994 ◊
SUMMARY: Future disposal sites along the southwest shore of Biscayne Bay were identified. Coast habitats, wildlife, soil types, jurisdiction and other parameters were examined.
KEY WORDS: Waste disposal sites, Dredge spoil, Site surveys, Wetlands, South Bay

491
Erickson, J. T. (1985) Age-specific respiration in larval Queen conch, *Strombus gigas* Linnaeus, determined by open gradient diver microrespirometry. M.Sc. thesis. University of Miami, Coral Gables, FL. 137 pp.
TIME COVERAGE: 1983
SUMMARY: Queen conch larvae were collected in Biscayne Bay and reared in the laboratory. Open gradient diver microrespirometry was developed to measure age-specific respiration in individual Queen conch larvae with a precision of ±7-10%.
KEY WORDS: Queen conch, *Strombus gigas*, Larvae, Respiration

492
Ernst, I., I. D. Whittington, and M. K. Jones (2000) Three new species of Polyclithrum Rogers, 1967 (Gyrodactylidae: Monogenea) from mugilid fishes from Australia and Brazil, with a redescription of *P. mugilini* Rogers, 1967. Systematic Parasitology, 45(-):61-73.
TIME COVERAGE: 2000 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Striped mullct, *Mugil cephalus*, Parasites, Polyclithrum spp., *Micropolyclithrum parvum* Skinner

493
Escalante Fontaneda, H. d' (1944) Memoir of Do. d'Escalente Fontaneda Respecting Florida. (Written in Spain, about the year 1575. Translated from the Spanish with notes by Buckingham Smith, Washington, 1854. Reprinted, with revisions; edited by David O. True.) University of Miami and the Historical Association of Southern Florida, Miami, FL.
TIME COVERAGE: 1575 ◊
SUMMARY: This is a short and early account of Florida.
KEY WORDS: Florida, Geographical exploration

494
Eschmeyer, W. N. (1967) A systematic review of the scorpionfishes of the Atlantic Ocean. Ph.D. dissertation. University of Miami, Coral Gables, FL. 241 pp.
TIME COVERAGE: 1967 ◊

SUMMARY: Scorpionfish species from the Atlantic Ocean were described. Several specimens were collected in Biscayne Bay.
KEY WORDS: Scorpionfish, Scorpaenidae, Taxonomy, Elliott Key, Florida Keys

495
Espejo-Beshers, O. (1992) The map collection of the archives and special collections department, Otto G. Richter Library, University of Miami. Tequesta, 52(-):39-50.
TIME COVERAGE: 1992 ◊
SUMMARY: The map collection of the Richter Library is described. Included in the collection are maps of Biscayne Bay.
KEY WORDS: Charts, Maps

496
Esteves, L. S. (1997) Evaluation of shore protection measures applied to eroding beaches in Florida. M.Sc. thesis. Florida Atlantic University, Boca Raton, FL. 181 pp.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Beach erosion, Shore protection, Coast defenses, Florida

497
Esteves, L. S., and C. W. Finkl (1998) The problem of critically eroded areas (CEA): an evaluation of Florida beaches. In: Proc., Palm Beach International Coastal Symp. (J. Coastal Res. special issue 26). C. W. Finkl, and P. Bruun, (eds.). Nov. 18, 1998. Coastal Education & Research Foundation, Royal Palm Beach, FL.
TIME COVERAGE: 1998 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Beach erosion, Shore protection, Florida

498
Estevez, E. D., and J. L. Simon (1975) Systematics and ecology of *Sphaeroma* (Crustacea: Isopoda) in the mangrove habitats of Florida. In: Proc., Internatl. Symp. on Biol. and Management of Mangroves. G. E. Walsh, S. C. Snedaker, and H. J. Teas, (eds.). Honolulu, HI, 1974. Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. 286-304.
TIME COVERAGE: 1975 ◊
SUMMARY: This citation describes the systematics of the wood-boring isopod genus *Sphaeroma.*
KEY WORDS: Isopods, *Sphaeroma walkeri*, *Sphaeroma terebrans*, *Sphaeroma quadridentatum*, Mangrove swamps, *Rhizophora mangle*, Florida

499
Evans, C. C. (1982) Aspects of the depositional and diagenetic history of the Miami Limestone: control of primary sedimentary fabric over early cementation and porosity development. M.Sc. thesis. University of Miami, Coral Gables, FL. 233 pp.
TIME COVERAGE: 1982 ◊
SUMMARY: This study utilized a series of core borings made for the engineering concerns associated with the Metrorail Rapid Transit System as well as some cores provided by the USGS in studying deposits immediately underlying the Miami Limestone in addition to the depositional and diagenetic history of the Miami Limestone.
KEY WORDS: Ooids, Miami Limestone, Sedimentation, Diagenesis

500
Evans, C. C. (1987) Facies, sedimentary structures, and topography of the late Pleistocene Miami Limestone. In: Symposium on South Florida Geology. F. J. R. Maurrasse, (ed.). Memoir 3. Miami Geological Society, Coral Gables, FL. 7-8.
TIME COVERAGE: 1987 ◊
SUMMARY: The use of cores from closely spaced borings in combination with both natural and man made outcrops allowed the refinement of the depositional history of the Miami limestone. Contrary to complications of previous studies, the ooid sand shoal complex of the eastern part of the Miami limestone was built up in place and did not migrate backward over earlier platform interior deposits of the brozoan facies. The distribution of cross-bedding in the shoal and channel system confirms the bar and channel origin for his morphology. The seaward barrier is a more complex feature than suggested by its morphology, probably the result of coalescing tidal deltas.
KEY WORDS: Ooids, Miami Limestone, Facies, Sedimentary structures, Topography (Geology)

501
Evans, C. C. (1987) The relationship between the topography and internal structure of an ooid shoal sand complex: the upper Pleistocene Miami Limestone. In: Symposium on South Florida Geology. F. J. R. Maurrasse, (ed.). Memoir 3. Miami Geological Society, Coral Gables, FL. 18-41.
TIME COVERAGE: 1987 ◊
SUMMARY: The revision of previous speculations on the depositional history of the Miami limestone proposed in the previous citation is using cores from closely spaced borings in combination with both natural and man made outcrops.
KEY WORDS: Ooids, Miami Limestone, Topography (Geology), Facies

502
Evermann, B. W. (1898) The fish fauna of Florida. Bulletin of the United States Fish Commission, 17(-):201-208.
TIME COVERAGE: 1898 ◊
SUMMARY: This paper describes the fish families found in Florida waters.
KEY WORDS: Fish, Florida

503
Evermann, B. W., and W. C. Kendall (1900) Check-list of the fishes of Florida. Report of the Commissioner [of Fish and Fisheries] for the year ending June 30,1899. Government Printing Office, Washington, DC. 35-103.
TIME COVERAGE: 1899
SUMMARY: This citation is a list of fish species found in Florida
KEY WORDS: Fish, Species list, Florida

504
Evoy, J. H. (1978) An evaluation of the use of environmental information for dredge and fill decisions in Biscayne Bay, Dade County, Florida. Thesis, Masters in Urban and Regional Planning. University of Miami, Coral Gables, FL. 220 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: The way in which environmental information was used to make dredge and fill decisions at the Federal, state and local level was evaluated and compared with the availability of scientific data and pertinent statutory requirements. Three case studies in Dade County were examined: Miamarina, South Cutler Bay and Munisport.
KEY WORDS: Dredging, Environment policy, Information handling, Decision making, Miamarina, South Cutler Bay, Munisport

505
Ewald, J. J. (1965) The larval development of *Tozeuma carolinense* Kingsley from Florida waters, with notes on the biology of the species. M.Sc. thesis. University of Miami, Coral Gables, FL. 122 pp.
TIME COVERAGE: 1961 - 1963
SUMMARY: The larval development and taxonomy of the ghost shrimp is described. Some of the samples were collected in Biscayne Bay.
KEY WORDS: Phantom shrimp, Grass shrimp, *Tozeuma carolinensis*, Crustacean larvae, Larval development, Biological development, Florida, Bear Cut

506
Ewald, J. J. (1969) Observations on the biology of *Tozeuma carolinense* (Decapoda, Hippolytidae) from Florida, with special reference to larval development. Bull. Mar. Sci., 19(3):510-549.
TIME COVERAGE: 1969 ◊
SUMMARY: Aspects of the biology of the phantom shrimp, one of the most common shrimp species found in grass beds, were discussed. Data were presented which suggested the effect of temperature and genetic constitution on the number of larval intermolts and on the length of larval life.
KEY WORDS: Phantom shrimp, Grass shrimp, *Tozeuma carolinensis*, Crustacean larvae, Larval development, Biological development, Florida, Bear Cut, Soldier Key

507
Fairbridge, R. W. (1974) The Holocene sea-level record in South Florida. In: Environments of south Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 223-232.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation describes the gradual Holocene sea level rise continuing up to the present in Florida.
KEY WORDS: Sea level rise, Florida

508
Farmer, L. L. (1974) A budget for p,p'DDT in a static aquarium with a simple marine food chain. M.Sc. thesis. University of Miami, Coral Gables, FL. 38 pp.
TIME COVERAGE: 1974
SUMMARY: The purpose of this investigation was to account quantitatively for the distribution of DDT over a 96-hr period through a controlled three-level laboratory food chain consisting of algae, a herbivore and a carnivore. An average of 79% of the DDT was recovered from the system during the 96-hr period. Equilibrium between water concentrations and algal tissue was established with three hours. Specimens were collected in Bear Cut.
KEY WORDS: DDTs, Toxicity, Food chains, Bioaccumulation, Bear Cut

509
Farmer, L. L. (1977) Physiological adaptations to salinity change in the calanoid copepod *Acartia tonsa*. Ph.D. dissertation. University of Miami, Coral Gables, FL. 83 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: Two physiological mechanisms were examined that may account for the demonstrated ecological success of this copepod species: cell volume regulation and haemolymph sodium regulation. Studies were done in the laboratory using specimens collected in Bear Cut.
KEY WORDS: Copepods, *Acartia tonsa*, Salinity tolerance, Acclimatization, Bear Cut

510
Farmer, L. L., and M. R. Reeve (1978) Role of the free amino acid pool of the copepod *Acartia tonsa* in adjustment to salinity change. Mar. Biol., 48(-):311-316.
TIME COVERAGE: 1978 ◊
SUMMARY: The free amino acid pool of this copepod was reduced in proportion to the decrease in external salinity within 24 hr, with a corresponding increase in ammonia excretion and a transient rise in oxygen consumption. The free amino acid pool was not increased in response to increased salinity. Antagonistic demands of osmotic preservation and nutritional metabolism on the free amino acid pool may limit the production of the species in waters of higher salinity.
KEY WORDS: Copepods, *Acartia tonsa*, Salinity tolerance, Amino acids

511
Feddern, H. A. (1968) Hybridization between the western Atlantic angelfishes, *Holocanthus isabelita* and *H. ciliaris*. Bull. Mar. Sci., 18(2):351-382.
TIME COVERAGE: 1968 ◊
SUMMARY: Two species of angelfish were studied to determine the status of angelfishes that possess coloration intermediate between the two species. Analysis was primarily accomplished by using portions of the general color pattern of adults, but gonads, behavior and relative populations were also investigated.
KEY WORDS: Blue angelfish, Queen angelfish, *Holocanthus isabelita*, *Holocanthus ciliaris*, Hybridization

512
Feddern, H. A. (1967) Larval development of the neon goby, *Elacatinus oceanops*, in Florida. Bull. Mar. Sci., 17(2):367-375.
TIME COVERAGE: 1962
SUMMARY: The larval development of the neon goby is described. Some specimens were caught near Miami.
KEY WORDS: Neon goby, *Elacatinus oceanops*, Larval development

513
Federal Emergency Management Agency (1993) Andrew, Iniki, Omar: FEMA evaluation of federal response and recovery efforts. In: Excerpts, 15th Ann. National Hurricane Conf. L. S. Tait, (compiler). Orlando, FL, April 13 - 16, 1993. National Hurricane Conference, Tallahassee, FL.
TIME COVERAGE: 1992
SUMMARY: This citation evaluated the federal response during the aftermath of Hurricanes Andrew, Iniki and Omar.
KEY WORDS: Hurricane Andrew, Hurricane Iniki, Hurricane Omar, Emergency preparedness

514
Federal Water Quality Administration (1970) Pollution of the waters of Dade County, Florida. Lower Florida Estuary Study, report. Department of the Interior, Federal Water Quality Administration, Ft. Lauderdale, FL. 44 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: This report is an assessment of the effect of Dade County's sewage treatment on the quality of the water in the aquifer and canals discharging into Biscayne Bay.
KEY WORDS: Waste disposal, Water pollution, Sewage disposal, Groundwater pollution, Snake Creek, Snapper Creek, Little River, Tamiami Canal, Biscayne Canal, Taylor Slough, Miami Canal, Oleta River, Opa Locka Canal, Coral Gables Waterway

515
Federal Water Pollution Control Administration (1970) Proc., Conference in the Matter of Pollution of the Navigable Waters of Biscayne Bay and its Tributaries in the State of Florida. Miami, FL, 1970. US Dept. of the Interior, Federal Water Pollution Control Administration, Washington, DC.
TIME COVERAGE: 1970 ◊
SUMMARY: This are the proceedings of a conference on Biscayne Bay.
KEY WORDS: Thermal pollution, Pollution control, Turkey Point

516
Federal Water Quality Administration (1970) Proc., Conf. in the Matter of Pollution of the Navigable Waters of Dade County Florida and Tributaries Embayments and Coastal Waters. Miami, FL, 1970. US Dept. of the Interior, Federal Water Quality Administration, Washington, DC.
TIME COVERAGE: 1970 ◊
SUMMARY: This document is a transcript of the conference proceedings.
KEY WORDS: Pollution control, Waste disposal, Sewage

517
Federal Water Pollution Control Administration (1970) Report on thermal pollution of intrastate waters, Biscayne Bay, Florida. Lower Florida Estuary Study, report. US Department of the Interior, Federal Water Pollution Control Administration,, Ft. Lauderdale, FL. 44 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: This report discusses the effects of heated effluent from the Turkey Point Power Plant on Biscayne Bay.
KEY WORDS: Thermal pollution, Temperature effects, Turkey Point

518
Feigenbaum, D. L. (1977) Nutritional ecology of the Chaetognatha with particular reference to external hair patterns, prey detection, and feeding. Ph.D. dissertation. University of Miami, Coral Gables, FL. 106 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: Chaetognaths are plankton predators that apparently rely in external sensory hairs to receive prey-produced vibrations. Hair fan patterns were mapped in several species. Feeding experiments were conducted in the laboratory. Some specimens were collected in Biscayne Bay.
KEY WORDS: Chaetognaths, Sagitta, Spadella, Food consumption, Feeding behavior, Predation

519
Feigenbaum, D. L. (1973) Parasites of the commercial shrimp, *Penaeus vannamei* Boone and *Penaeus brasiliensis* Latreille. M.Sc. thesis. University of Miami, Coral Gables, FL. 84 pp.
TIME COVERAGE: 1972
SUMMARY: Parasites found in juvenile shrimp were described. Specimens of *Penaeus brasiliensis* were collected in Biscayne Bay.
KEY WORDS: Shrimp, *Penaeus vannamei*, *Penaeus brasiliensis*, Parasites

520
Feigenbaum, D. L. (1975) Parasites of the commercial shrimp *Penaeus vannamei* Boone and *Penaeus brasiliensis* Latreille. Bull. Mar. Sci., 25(4):491-514.
TIME COVERAGE: 1972
SUMMARY: This paper describes ten species of parasites reported in two commercial species of shrimp from Sinaloa, Mexico. One of the shrimp species was also collected in Biscayne Bay and the parasites found in those specimens identified.

KEY WORDS: Shrimp, *Penaeus vannamei*, *Penaeus brasiliensis*, Parasites, Mexico

521
Feigenbaum, D. L., and J. Carnuccio (1976) Comparison between the trypanorhynchid cestode infections of *Penaeus duorarum* and *Penaeus brasiliensis* in Biscayne Bay, Florida. J. Invertebr. Pathol., 28(-):127-130.
TIME COVERAGE: 1974
SUMMARY: Two species of shrimp from Biscayne Bay were found to be infected with four species of trypanorhynchid cestode larvae. The two shrimp species contained cestodes in significantly different proportions. Female pink shrimp had different proportions of cestodes than male shrimp.
KEY WORDS: Shrimp, *Penaeus duorarum*, *Penaeus brasiliensis*, Cestodes, *Parachristianella monomegacantha*, *Parachristianella heteromegacanthus*, *Prochristianella penaei*, *Renibulbus penaeus*

522
Feingold, J. S. (1987) Ecological studies of a cyanobacterial infection of the sea plume *Pseudopterogorgia acerosa* (Pallas) (Coelenterata: Octocorallia). M.Sc. thesis. University of Miami, Coral Gables, FL. 61 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: Some scleractinian corals are susceptible to a cyanobacterial infection called black band disease. The disease agent has been discovered in colonies of two species of sea plumes. Affected colonies were found in the northern Florida Keys.
KEY WORDS: Sea plume, *Pseudopterogorgia acerosa*, Bacterial diseases, Black band disease, Coral, Biscayne National Park, Sands Key, Soldier Key, Ragged Keys

523
Fell, J. W. (1965) Bionomics and physiological taxonomy of marine occurring yeasts. Ph.D. dissertation. University of Miami, Coral Gables, FL. 181 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: Water samples, sediment and associated fauna and flora were examined for yeasts. Yeast specimens were evaluated taxonomically and physiologically.
KEY WORDS: Yeasts, Candida, Cryptococcus, Taxonomy, Ecology, Bahamas, Key Biscayne, Elliott Key, Indian Ocean

524
Fell, J. W. (1961) A new species of *Saccharomyces* isolated from a subtropical estuary. Antonie van Leeuwenhoek, 27(-):27-30.
TIME COVERAGE: 1958
SUMMARY: This citation describes a new species of yeast found in Biscayne Bay.
KEY WORDS: Yeasts, *Saccharomyces aesttuarii*

525
Fell, J. W. (1966) Sterigmatomyces, a new fungal genus from marine areas. Antonie van Leeuwenhoek, 32(-):99-104.
TIME COVERAGE: 1966 ◊
SUMMARY: A new species of fungus isolated from samples collected in the Indian Ocean and Biscayne Bay was described.
KEY WORDS: Fungi, *Sterigmatomyces halophilus*

526
Fell, J. W. (1970) *Sterigmatomyces* Fell. In: The yeasts: A Taxonomic Study. J. Lodder (ed.). North-Holland, Amsterdam, Holland. 1385 pp.

TIME COVERAGE: 1970 ◊
SUMMARY: This citation describes *Sterigmatomyces halophilus* Fell based on three strains, one of which was isolated from Biscayne Bay.
KEY WORDS: Yeasts, *Sterigmatomyces halophilus*, *Sterigmatomyces indicus*

527
Fell, J. W. (1976) The study of fungi in Biscayne Bay - a synopsis. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 157-166.
TIME COVERAGE: 1976 ◊
SUMMARY: This paper reviews the roles of fungi emphasizing available information on Biscayne Bay. Three aspects were considered of primary importance to the ecology of the Bay: possible role of fungi as indicators of pollution, the impact on the sponge industry, and the decomposition of submerged and intertidal plants.
KEY WORDS: Fungi, Fungal diseases, Sponges, Pollution indicators, Biodegradation, Seagrass, Thalassia, Mangrove swamps, *Rhizophora mangle*

528
Fell, J. W. (1959) A survey and taxonomic study of some yeasts from Biscayne Bay, Florida, and adjacent subtropical marine localities. M.Sc. thesis. University of Miami, Coral Gables, FL. 81 pp.
TIME COVERAGE: 1958
SUMMARY: This work studied yeasts found in Biscayne Bay including their taxonomy, ecology and physiology.
KEY WORDS: Yeasts, Taxonomy, Sediment, Water, Bear Cut, Key Biscayne

529
Fell, J. W., D. G. Ahearn, S. P. Meyers, and F. J. Roth (1960) Isolation of yeasts from Biscayne Bay, Florida and adjacent benthic areas. Limnol. Oceanogr., 5(-):366-371.
TIME COVERAGE: 1960 ◊
SUMMARY: Investigations of the yeasts present in Biscayne Bay indicated the occurrence of various yeast taxa representing 179 isolates. The collection and isolation of the yeasts is described in this paper. A yeast biota, with many species similar to those isolated from the Bay, was collected in deep sea sediments from the Bahamas.
KEY WORDS: Yeasts, Benthos, Bahamas

530
Fell, J. W., R. C. Cefalu, I. M. Master, and A. S. Tallman (1975) Microbial activities in the mangrove (*Rhizophora mangle*) leaf detrital system. In: Proc., Internatl. Symp. on Biol. and Management of Mangroves. G. E. Walsh, S. C. Snedaker, and H. J. Teas, (eds.). Honolulu, HI, 1974. Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. 661-679.
TIME COVERAGE: 1974 ◊
SUMMARY: This report describes some of the microbial population associated with decaying mangrove leaf litter. Specific aspects studied during the degradation process were the sequence of fungal infestation, alterations in lead dry weights, the carbon and nitrogen content, and quantitative and qualitative aspects of the meiofunal populations.
KEY WORDS: Fungi, Biodegradation, Mangrove swamps, *Rhizophora mangle*, Leaves, Detritus

531
Fell, J. W., and K. E. Cooksey (1974) The role of microorganisms as indicators of changing environmental conditions in mangrove and marsh communities. Literature reviews, project

reports and proposal. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. Various paging.
TIME COVERAGE: 1974 ◊
SUMMARY: The purpose of this study was to determine the role of plant litter systems in the Florida Power and Light study site in south Dade County. This is a continuation of previous studies.
KEY WORDS: Mangrove swamps, Detritus, Microorganisms, Fungi, Marshes, Indicators, Card Sound, South Bay

532
Fell, J. W., R. C. Hendrix, I. L. Hunter, S. Y. Newell, and A. S. Tallman (1976) The role of microorganisms as indicators of changing environmental conditions in mangrove and marsh communities. Faculty File. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 350 pp.
TIME COVERAGE: 1973 - 1976
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Bacteria, Fungi, Indicators, Environmental conditions, Mangrove swamps, Red mangrove, *Rhizophora mangle*, Salt marshes, Black rush, Needle rush, *Juncus roemerianus*, Detritus, Biodegradation, Card Sound, South Bay

533
Fell, J. W., B. Hopper, R. C. Cefalu, and I. M. Master (1972) Mangrove detrital system. In: An ecological study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. VII:1-27.
TIME COVERAGE: 1971 ◊
SUMMARY: The objective of this program was to investigate the microbiological activities associated within benthic mangrove detrital communities, to identify species of organisms associated with mangrove leave degradation, to determine the functional role of there organisms in the conversion and transfer to lead organic material to organisms of higher trophic levels, and to assess the effects of normal and abnormal environmental factors on the individual organisms and on their roles within the detrital community.
KEY WORDS: Mangrove swamps, Leaves, Biodegradation, Fungi, Detritus, *Rhizophora mangle*, Turkey Point, Card Sound

534
Fell, J. W., and I. L. Hunter (1979) Fungi associated with the decomposition of the black rush, *Juncus roemerianus*, in South Florida. Mycologia, 71(-):322-342.
TIME COVERAGE: 1979 ◊
SUMMARY: A total of 123 fungal taxa were observed on black rush leaves. The observed community structure was affected by the condition of the leaves, position on the leaf, season of the year, and culture technique.
KEY WORDS: Fungi, Biodegradation, Detritus, Black rush, *Juncus roemerianus*, Leaves, Little Card Sound

535
Fell, J. W., and I. M. Master (1980) The association and potential role of fungi in mangrove detrital systems. Botanica Marina, 23(-):257-263.
TIME COVERAGE: 1980 ◊
SUMMARY: Field examination of the decomposition of mangrove leaves demonstrated a sequence of fungal populations. During this period, an increase in nitrogen and a decrease in carbon were observed.

KEY WORDS: Red mangrove, *Rhizophora mangle*, Leaves, Fungi, Decomposers, Detritus

536
Fell, J., I. M. Master, R. Cefalu, and S. Newell (1971) Fungi. In: An Ecological Study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. IX:1-14.
TIME COVERAGE: 1971 ◊
SUMMARY: A major portion of the organic material in Biscayne Bay is contributed by the mangrove leaf fall that is converted by microbial activity into detrital particles that support large populations of animals. The aims of this study included the determination on a seasonal basis the fungi associated with the degradation of the mangrove leaves; and the examination the protein production and ascertain which specific fungi are instrumental in the conversion process.
KEY WORDS: Turkey Point, Card Sound, Fungi, Mangroves, Detritus

537
Fell, J. W., and I. M. Master (1973) Fungi associated with the degradation of mangrove (*Rhizophora mangle* L.) leaves in South Florida. In: Estuarine Microbial Ecology. L. H. Stevenson, and R. R. Colwell (eds.). University of South Carolina Press, Columbia, SC. 536 pp.
TIME COVERAGE: 1969 - 1970
SUMMARY: This paper reports the mycoflora of mangrove leaf degradation at different locations in South Florida. Further research is needed the determine the specific role of these organisms in the food web.
KEY WORDS: Fungi, Mangrove swamps, *Rhizophora mangle*, Biodegradation, Leaves, Turkey Point, Florida Bay, Florida Keys

538
Fell, J. W., I. M. Master, and S. Y. Newell (1980) Laboratory model of the potential role of fungi in the decomposition of red mangrove (*Rhizophora mangle*) leaf litter. In: Marine Benthic Dynamics. K. R. Tenore, and B. C. Coull (eds.). University of South Carolina Press, Columbus, SC. 451 pp.
TIME COVERAGE: 1973 - 1974
SUMMARY: A laboratory model was developed to examine the role of fungi in the decomposition of mangrove leaf litter. Mangroves leaves were collected at two sites at different times of the year and fungal degradation studied.
KEY WORDS: Fungi, Mangrove swamps, *Rhizophora mangle*, Biodegradation, Leaves, Detritus, Card Sound, Fahkahatchee Strand

539
Fell, J. W., and I. M. Master (1975) Phycomycetes (*Phytophthora* spp. nov. and *Pythium* sp. nov.) associated with degrading mangrove (*Rhizophora mangle*) leaves. Can. J. Bot., 53(-):2908-2922.
TIME COVERAGE: 1975 ◊
SUMMARY: Fungi of the genus *Phytophthora* were found associated with the initial stages of leaf litter decay of mangroves, and appears to be an important component of the litter degradation system in the Tropics. Descriptions of the new varieties of fungi were provided.
KEY WORDS: Fungi, Phycomycetes, Phytophthora, Pythium, Biodegradation, Leaves, Mangrove swamps, *Rhizophora mangle*, Detritus, Bear Cut, West Point, Matheson Hammock, Turkey Point, Mangrove Point, Card Sound, Florida Keys, Flamingo, Ten Thousand Islands

540
Fell, J. W., and A. S. Tallman (1980) *Rhodosporidium paludigenum* sp. nov., a basidiomycetous yeast from intertidal waters of south Florida. Internatl. J. of Systematics Bacteriology, 30(4):658-659.
TIME COVERAGE: 1973
SUMMARY: A new species of yeast was described.
KEY WORDS: Yeasts, *Rhodosporidium paludigenum*, Taxonomy, Card Sound

541
Fell, J. W., and N. Van Uden (1963) Yeasts in marine environments. In: Symp. on Marine Microbiology. C. H. Oppenheimer, (ed.). 1961, Chicago, IL. Charles C. Thomas, Springfield, IL. 329-340.
TIME COVERAGE: 1963 ◊
SUMMARY: This citation describes yeasts found in the marine environment including Biscayne Bay. In regions of high organic matter and current boundaries, a quantitative increase in the yeast population has been observed. Due to low organic content in the open ocean, the resident yeasts rely mainly on oxidative metabolic processes. The exterior surfaces of marine algae do not sustain a significant yeast population. With rare exceptions, yeasts encountered in this study represent terrestrial species of transitory status in the marine environment or adaptive forms which survive in both environments.
KEY WORDS: Yeasts, Marine environment, Bimini

542
Fenchel, T. (1970) Studies on the decomposition of organic detritus derived from the turtle grass *Thalassia testudinum*. Limnol. Oceanogr., 15(-):14-20.
TIME COVERAGE: 1970 ◊
SUMMARY: This paper describes the quantitative composition of microbial communities living on detrital particles derived from *Thalassia*. The number of organisms on and the rate of oxygen consumption of the detritus are approximately proportional to the total surface area. Amphipods decrease the particle size of the detritus thus increasing the surface area and microbial activity.
KEY WORDS: Degradation, Detritus, Turtle grass, *Thalassia testudinum*, Seagrass, Bear Cut

543
Finefrock, D. (1997) Old sewage pipe to be replaced. The Miami Herald, Miami, FL. January 24. Local. 6B.
TIME COVERAGE: 1997 ◊
SUMMARY: The old sewage pipeline that carries saw sewage from Miami to the Virginia Key treatment plant is scheduled to be replaced. Construction was expected to destroy up to two acres of submerged habitat.
KEY WORDS: Seagrasses, Cross Bay Line, Sewage

544
Finkl, C. W. (1985) Definition & interpretation of Holocene shorelines in the south Atlantic coastal zone, southeast Florida. Abstracts with programs (Geological Society of America), 17(7):582.
TIME COVERAGE: 1985 ◊
SUMMARY: Because the natural sequence of shorelines in the urban coastal corridor from Miami to Beach is partly obscured by dredge and fill operations initiated is early 1920's, some coastal segments are subject to reinterpretation. Analysis of early aerial photographs, old coastal charts and bore log data locates a much more complicated sequence of Recent coastlines than is generally appreciated. Before development, much of the coastal zone contained complicated networks of freshwater marshes and lakes with lagoons, bays, and sounds lying

behind extensively developed spits. The larger spits prograded southward (downdrift) forming long coastal-wise sounds that eventually led into freshwater marshes such as Lake Mabel (now Port Everglades). When new inlets were cut to link the ICW with the sea, the spits were beheaded to form what are now called "barrier islands." After subsequent inlet stabilization with inadequate sand bypassing, some spits became welded to the shore and others eroded away.
KEY WORDS: Holocene, Geomorphology, Coastal landforms, Southeast Florida, Key Biscayne, Port Everglades, Dredge and fill

545
Finkl, C. W. (1994) Management strategies for enhanced sand bypassing and beach replenishment in the southeast Florida coastal zone: potentials for application of new technologies. In: Proc., MTS 94: Challenges and Opportunities in the Marine Environment. Marine Technology Society, Washington, DC. 107-114.
TIME COVERAGE: 1994 ◊
SUMMARY: The advantage of beach artificial replentishment combined with new technologies for sand bypassing is a pre-emptive strategy over conventional beach restoration techniques.
KEY WORDS: Beach nourishment, Erosion control, Sand, Southeast Florida, Bakers Haulover Cut, Government Cut

546
Finkl, C. W. (1996) Potential impacts of a federal policy promoting "no new beach replenishment activities" on U.S. shorelines: iterations from SE Florida. In: Proc., 9th Natl. Conf. on Beach Preservation Technology. The Future of Beach Nourishment. L. S. Tait, (comp.). St. Petersburg, FL, 1996. Florida Shore & Beach Preservation Association, Tallahassee, FL. 281-296.
TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Beach nourishment, Government policy, Beach erosion, Shore protection, Broward County, Southeast Florida

547
Finkl, C. W. (1995) Pre-emptive strategies for enhanced sand bypassing and beach replenishment activities in southeast Florida: a geological perspective. In: Beach/Inlet Processes and Management: a Florida Perspective (J. Coastal Res. Spec. Issue 18). A. J. Mehta (ed.). Coastal Education and Research Foundation, Ft. Lauderdale, FL. 364 pp.
TIME COVERAGE: 1995 ◊
SUMMARY: It matters little what methodologies are considered "acceptable" if shoreline stabilization techniques do not operate in harmony with natural coastal processes. The purpose of this paper was to briefly identify some relevant aspects of the geological evolution and framework of the southeast Florida coastal belt that may influence strategies for coastal management, and to indicate some new sand management techniques that may be compatible with environmental conditions along this coast.
KEY WORDS: Beach erosion, Coastal erosion, Shore protection, Sand, Environmental monitoring, Southeast Florida

548
Fish and Wildlife Service (1958) A report on the fish and wildlife resources in relation to plans for protection from hurricane tides, Biscayne Bay, Florida. Report. Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, Vero Beach, FL. 20 pp.
TIME COVERAGE: 1958 ◊
SUMMARY: This report examined the fish and wildlife resources of Biscayne Bay as related to various plans for hurricane protection.

KEY WORDS: Fish, Sport fishing, Commercial fishing, Hurricanes, Levees, Environmental protection

549
Fitzgerald, I. Y., and R. C. Muirhead (1973) Airborne remote sensing calibration and correlation data. In: Proc., American Society of Photogrammetry Fall Convention. Lake Buena Vista, FL, 1973. American Society of Photogrammetry, Falls Church, VA. 424-430.
TIME COVERAGE: 1973 ◊
SUMMARY: Airborne remote sensing surveys were described including objectives, sensors and methods used to collect correlation data. One of the surveys was conducted in Biscayne Bay.
KEY WORDS: Aerial photography, Remote sensing equipment, Infrared detectors, Mangrove swamps

550
Fitzsimmons, K. (1996) Cycles of gonadal development in six common gorgonians from Biscayne National Park in the northern Florida Keys. M.Sc. thesis. University of South Florida, Tampa, FL. 61 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Animal reproductive organs, Gorgonians, *Plexaura homomalla*, *Plexaura flexuosa*, *Muricea atlantica*, *Muriceopsis flavida*, *Gorgonia ventalina*, *Pseudopterogorgia americana*, Dome Reef, Star Reef, Schooner Reef, Elkhorn Reef, Biscayne National Park

551
Fleming, M., G. Lin, and L. da S. L. Sternberg (1990) Influence of mangrove detritus in an estuarine ecosystem. Bull. Mar. Sci., 47(3):663-669.
TIME COVERAGE: 1986 - 1987
SUMMARY: This study determined the relationship and extent of mangrove reduced carbon flow and its contribution to the diet of higher consumers in nearby seagrass beds. Seagrass detritus and other marine sources of carbon are the major contributors of reduced carbon. Mangroves make only localized contributions.
KEY WORDS: Mangrove swamps, Detritus, Estuarine organisms, Seagrass, Food chains, Matheson Hammock Park, Bill Baggs State Park

552
Flik, Y. M. (1993) Biscayne National Park: an examination of submerged cultural resource management. M.A. internship report. Rosenstiel School of Marine and Atmospheric Science, Division of Marine Affairs, Miami, FL. Various paging.
TIME COVERAGE: 1993 ◊
SUMMARY: This report is an introduction to Biscayne National Park and its marine affairs.
KEY WORDS: Resource management, Marine parks, Archaeology, Wrecks, Biscayne National Park

553
Florida Bureau of Sanitary Engineering (1949) Biscayne Bay pollution survey, Biscayne Bay, Dade County, Florida, May-October, 1949. Florida State Board of Health, Jacksonville, FL. 78 pp.
TIME COVERAGE: 1940 - 1947
SUMMARY: The entire Bay area from south of the Miami River northward to 79th Street was found to be grossly polluted. Deterioration of water quality from 1941 to the time of publication was noted. The rivers were found to act as open sewers. The area south of the Rickenbacker Cswy. was relatively free of sewer pollutants. Diluted sewage reached the ocean

through Government Cut and to the bathing beaches of Miami Beach. A prediction was made for continued deterioration of the Bay unless remedial actions were taken.
KEY WORDS: Pollution surveys, Waste disposal, Public health, Water resources, Coliform bacteria, Dissolved oxygen

554
Florida Department of Natural Resources (1991) Biscayne Bay Card Sound - Aquatic Preserve management plan. Cabinet draft. Florida Department of Natural Resources, Tallahassee, FL. 180 pp.
TIME COVERAGE: 1991 ◊
SUMMARY: This report describes a proposed management plan for Card Sound which is part of the Biscayne Bay Aquatic Preserve of the State of Florida.
KEY WORDS: Natural resources, Water quality, Environmental protection, Card Sound, Biscayne Bay Aquatic Preserve

555
Florida International University (1995) Biscayne Bay: water quality monitoring. Annual report. Florida International University, Miami, FL. Unpaginated.
TIME COVERAGE: 1993 - 1995
SUMMARY: This report is the second annual report of data collected as part of the Biscayne Bay water quality monitoring network.

556
Florida Coastal Coordinating Council (1971) Coastal zone management in Florida - 1971. Status report to the Governor, Cabinet and the 1972 Legislature. Florida Coastal Coordinating Council, Tallahassee, FL. 11 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: This is the 1971 coastal zone management plan for Florida.
KEY WORDS: Coastal zone management, Florida

557
Florida Department of Community Affairs (1994) Coastal infrastructure policy report; a report on the State's coastal barrier areas. Rep. 9. Florida Department of Community Affairs, Tallahassee, FL. 46 pp.
TIME COVERAGE: 1994 ◊
SUMMARY: The intent of the coastal policy and related infrastructure strategies is to decrease state subsidy of inappropriate coastal development.
KEY WORDS: Coastal zone, Barrier islands, Environmental policy, Florida

558
Florida Department of Community Affairs (1995) Coastal infrastructure policy report; a report on the State's coastal barrier areas. Rep. 10. Florida Department of Community Affairs, Tallahassee, FL. 20 pp.
TIME COVERAGE: 1995 ◊
SUMMARY: The intent of the coastal policy and related infrastructure strategies is to decrease state subsidy of inappropriate coastal development.
KEY WORDS: Coastal zone, Barrier islands, Environmental policy, Florida

559
Florida Hurricane Damage Study Committee (1965) Florida hurricane survey report 1965. Florida Hurricane Damage Study Committee, Tallahassee, FL. 81 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Hurricanes, Shore protection, Coast defenses, Storm surge, Flooding, Florida

560
Florida Department of Natural Resources (1976) Florida regional coastal zone management atlas. Region 10: South Florida. Florida Department of Natural Resources, Division of Resource Management, Bureau of Coastal Zone Planning, Tallahassee, FL. 260 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Coastal zone management, Land use, Regional planning, South Florida

561
Florida Department of Environmental Regulation (1980) Florida coastal management program state hearing draft. Florida Department of Environmental Regulation, Tallahassee, FL. Various paging.
TIME COVERAGE: 1980 ◊
SUMMARY: This document is the hearing draft for the state of Florida coastal management program.
KEY WORDS: Coastal zone management, Environment management, Resource conservation

562
Florida Conservation Foundation (1993) Guide to Florida environmental issues and information. Florida Conservation Foundation, Winter Park, F. 364 pp.
TIME COVERAGE: 1993 ◊
SUMMARY: This report is an environmental guide to Florida including coastal and marine ecosystems.
KEY WORDS: Environmental conditions, Environmental management, Directories

563
Florida Division of Water Survey and Research (1952) Information on beach protection in Florida. Water Survey & Research paper 8. Florida Division of Water Survey and Research, Tallahassee, FL. 41 pp.
TIME COVERAGE: 1952 ◊
SUMMARY: This report discusses the erosion and protection problems of sea-fronting beaches composed mostly of sand and shell.
KEY WORDS: Beach erosion, Shore protection, Coast defenses, Florida

564
Florida Department of Health and Rehabilitative Services (1993) Public health assessment, Munisport Landfill, North Miami, Dade County, Florida. Report. Florida Department of Health and Rehabilitative Services, Tallahassee, FL. 45 pp + appendices.
TIME COVERAGE: 1993 ◊
SUMMARY: This is a health assessment of the Munisport location which is adjacent to Biscayne Bay.
KEY WORDS: Public health, Landfill, Pollution effects, Munisport Landfill

565
Florida Institute of Technology (1991) SEAKEYS Phase I: Sustained ecological research related to management of the Florida Keys seascape. Final report. Florida Institute of Technology, St. Petersburg, FL. 67 pp.
TIME COVERAGE: 1991 ◊
SUMMARY: This report is a description of the Phase I of the SEAKEYS Program which incorporates a framework for long-term studies in a large geographical scale.
KEY WORDS: SEAKEYS, Environmental monitoring, Physical oceanography, Coral reefs, Nutrient cycles, Florida Keys, Biscayne National Park

566
Florida Department of Transportation (1991) US 1 hydrology study: US 1/SR 5 from Key Largo to Card Sound Road. State project no. 87010-1512, federal aid project no. F-485-2(51), work program item no. 6113527. Florida Department of Transportation, District 6, Miami, FL.
TIME COVERAGE: 1988
SUMMARY: A computer model of the study area was developed and calibrated to field data. The model was used to simulate the spatial distributions and patterns of water elevations resulting from flow converted across US 1 to the basin between US 1 and Card Sound Road.
KEY WORDS: Hydrology, Environmental impact, Transportation, Key Largo, Card Sound

567
Florida Department of Transportation (1992?) Wetland evaluation report: US 1/SR 5 from Key Largo to Card Sound Road, Florida City: Dade and Monroe counties, Florida. Work program item no. 6113527, 6113533, 6116801, 6116800; State project no. 87010-1512, -1509, 90060-1585, -1590; federal aid project no. F-4 85-2(5). Florida Department of Transportation, District 6, Miami, FL.
TIME COVERAGE: 1992 ◊
SUMMARY: The proposed project will impact more than 164 acres of wetland throughout the 20.4 mi corridor and the FDOT Conceptual Mitigation Plan is believed to be the most practical means of impact minimization and compensation. The improvements include restoration and enhancement of crocodile habitat creation of tidal creeks, eradication of undesired plant species, establishment of appropriate grades for the enhancement of tidal movements and natural vegetation, and supplemental flood control.
KEY WORDS: Wetlands, Transportation, Key Largo, Card Sound, Environmental impact

568
Florida Power and Light Company (1987) Atlas of environmental jurisdictions in Florida. Environmental Affairs. Florida Power and Light Company, Florida. Unpaged.
TIME COVERAGE: 1987 ◊
SUMMARY: This publication contains a series of maps showing the jurisdictions of various federal, state, local and industrial organizations.
KEY WORDS: Environment management, Jurisdiction, Atlases, Florida

569
Florida Power and Light Company (1967) Turkey Point plant; reprints from Sunshine Service News. Report. Florida Power and Light Company, Miami, FL.
TIME COVERAGE: 1967 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Nuclear power plants, Turkey Point

570
Flynn, B. S. (1992) Beach nourishment, sea turtle nesting, and nest relocation in Dade County, Florida. In: New directions in beach management. Proc., 5th Ann. Natl. Conf. on Beach Preservation Technology. L. S. Tait, (comp.). 1992, St. Petersburg, FL. Florida Shore & Beach Preservation Association, Tallahassee, FL. 381-394.
TIME COVERAGE: 1992 ◊
SUMMARY: This paper describes two Dade County sea turtle protection programs representing highly urbanized (Miami Beach) and relatively natural (Key Biscayne) areas. Data indicate that since 1980 sea turtle nesting in Dade County has increase more than ten-fold. This increase may be due in part to beach restoration efforts.
KEY WORDS: Turtles, Nesting, Beach nourishment, Protected resources, Miami Beach, Key Biscayne

571
Flynn, B. S., S. M. Blair, and S. M. Markley (1991) Environmental monitoring of the Key Biscayne Beach Restoration Project. In: Preserving and Enhancing our Beach Environment. Proc., 4th Ann. Natl. Beach Preservation Technology Conf. L. S. Tait, (comp.). Charleston, SC, 1991. Florida Shore & Beach Preservation Association, Tallahassee, FL. 234-248.
TIME COVERAGE: 1991 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Environmental monitoring, Seagrass, Key Biscayne Beach Restoration Project

572
Fong, P., M. E. Jacobson, M. C. Mescher, D. Lirman, and M. C. Harwell (1997) Investigating the management potential of a seagrass model through sensitivity analysis and experiments. Ecol. Appl., 7(1):300-315.
TIME COVERAGE: 1997 ◊
SUMMARY: Loss of seagrass-dominated ecosystems worldwide has been attributed to anthropogenic modifications of watersheds. In this paper, sensitivity analysis and comparison of model predictions to field observations identified conditions under which a subtropical to tropical seagrass ecosystem model would be a useful management tool. Sensitivity analysis indicated that under low-nutrient conditions, physical factors such as temperature, light, and salinity controlled model predictions of seagrass and epiphyte biomass, but that when nutrients were abundant control shifted to biological interactions. Model predictions matched the seasonal abundance of seagrasses measured in three distinct seagrass communities in Biscayne Bay suggesting that in its present form the model could be useful to managers to run "what-if" scenarios in order to make long-term decisions about upstream water management practices.
KEY WORDS: Seagrasses, Ecosystem management, Seagrasses, Habitat, Ecosystem disturbance

573
Fortman, P., and A. Tuggle (1981) Key Biscayne Yacht Club: 25 years of memories. Key Biscayne Yacht Club, Key Biscayne, FL.
TIME COVERAGE: 1981 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Fishing, Boating, Yachting, History, Key Biscayne Yacht Club

574
Fowler, H. W. (1941) Notes on Florida fishes with descriptions of seven new species. Proc. Acad. Nat. Sci. Phila., 93(-):81-106.
TIME COVERAGE: 1940
SUMMARY: This citation describes fishes found in Florida including seven new species.
KEY WORDS: Fish, Taxonomy, New species, Florida

575
Franks, B. J. (ed.) (1987) Principal aquifers in Florida. Water resources investigations open-file report 82-255. US Geological Survey, Tallahassee, FL. 4 sheets.
TIME COVERAGE: 1987 ◊
SUMMARY: This report contains charts of the principal aquifers of Florida.
KEY WORDS: Aquifers, Water supply, Water table, Florida

576
Fraser, T. H. (1968) Comparative osteology of the Atlantic snooks (Pisces, *Centropomus*). Copeia, -(3):433-460.
TIME COVERAGE: 1968 ◊
SUMMARY: The osteology of snook is described in detail. Some specimens were collected in Biscayne Bay.

KEY WORDS: Snook, Centropomus, Osteology

577
Fraser, T. H. (1967) Contributions to the biology of *Tagelus divisus* (Tellinacea: Pelecypoda) in Biscayne Bay, Florida. Bull. Mar. Sci., 17(1):111-132.
TIME COVERAGE: 1964 - 1965
SUMMARY: This citation describes the biology of *Tagelus divisus.*
KEY WORDS: *Tagelus divisus*, Clams, Biological development, Seaquarium Flats

578
Frazier, J. C. (1975) Samuel Touchett's Florida plantation, 1771. Tequesta, 35(-):75-88.
TIME COVERAGE: 1771
SUMMARY: This paper describes the South Florida land grant given by the English government to Samuel Touchett for development.
KEY WORDS: History, Landforms, Surveying

579
Freiberger, H. J. (1972) Nutrient survey of surface waters in southern Florida during a wet and a dry season, September 1970 and March 1971. Open file report 72008. US Geological Survey, Tallahassee, FL. 29 pp.
TIME COVERAGE: 1970 - 1971
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Nutrients (Mineral), Nitrogen, Phosphorus, South Florida

580
Froggatt, J. L. (1979) Seasonal zooplankton diversity, abundance, and biomass across Biscayne Bay, Florida. Unpublished M.Sc. thesis. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 55 pp.
TIME COVERAGE: 1977 - 1978
SUMMARY: Five stations were samples along a west-east transect extending across the central basin of Biscayne Bay from Shoal Point outwards beyond Fowey Rocks into the Florida Current. Species distributions and yearly means were determined.
KEY WORDS: Zooplankton, Seasonal variations, Abundance, Shoal Point, Fowey Rocks, Soldier Key, Black Ledge

581
Frohling, N. M. (1986) The Dade County beach vegetation project: creation of an eight mile erosion control park. In: Ann. Conf. on Beach Preservation [1984-1985]. L. Tait, (ed.). Florida Shore & Beach Preservation Association, Tallahassee, FL. 122-128.
TIME COVERAGE: 1986 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Beach erosion, Dune stabilization, Vegetation, Dade County

582
Frohling, N. M. (1986) The new beach in Dade County: its impact on the community. In: Ann. Conf. on Beach Preservation [1984-1985]. L. Tait, (ed.). Florida Shore & Beach Preservation Association, Tallahassee, FL. 114-121.
TIME COVERAGE: 1986 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Beach erosion, Environmental impact, Dade County

583
Fry, B., A. L. Bern, M. S. Ross, and J. F. Meeder (2000) $\delta^{15}N$ studies of nitrogen use by the red mangrove, *Rhizophora mangle* L. in south Florida. Est. Coastal Shelf Sci., 50(2):291-96.
TIME COVERAGE: 2000 ◊
SUMMARY: To help define N sources and patterns of processing in mangrove ecosystems, mangrove leaf nitrogen content and d values were assayed in three marshes in South Florida. Highest percent N and $\delta^{15}N$ occurred in marshes along Biscayne Bay where canals draining agricultural lands deliver high nitrate waters. High mangrove $\delta^{15}N$ may be a good indicator of anthropogenic N loading.
KEY WORDS: Nitrogen isotopes, Red mangrove, *Rhizophora mangle*, Sugarloaf Key, Key Largo Mowry Canal

584
Gaby, D. C. (1988) The early years upriver. Tequesta, 48(-):6-24.
TIME COVERAGE: 1890s-1920s
SUMMARY: This article describes the Miami River, canals, and changes made to the riverbed.
KEY WORDS: Miami River, History

585
Gaby, D. C. (1990) An historical guide to the Miami River and its tributaries. Historical Association of Southern Florida, Miami, FL. 40 pp.
TIME COVERAGE: 1880s - 1991
SUMMARY: This booklet is a historical guide to the Miami River.
KEY WORDS: Rivers, History, Miami River

586
Gaby, D. C. (1993) The Miami River and its Tributaries. Historical Association of Southern Florida, Miami, FL. 193 pp.
TIME COVERAGE: 1880s - 1991
SUMMARY: This book is a detailed history of the development of the Miami River.
KEY WORDS: Rivers, History, Miami River

587
Gaby, D. C. (1974) Miami's earliest known great hurricane. Tequesta, 34(-):64-67.
TIME COVERAGE: 1824
SUMMARY: In 1824, Miami Beach was battered by a severe hurricane. Although no written records have been found, there is evidence to suggest that a powerful storm passed over the area in September of that year.
KEY WORDS: Hurricanes, Miami, Hurricane of 1824, Miami Beach

588
Gaby, R., S. Langley, and R. F. Keough (1986) Port of Miami seagrass restoration: analysis of management and economics of a large scale dredge mitigation project. In: XIth World Dredging Congress. Brighton, UK, 1986. Central Dredging Association, Delft, Netherlands. 550-561.
TIME COVERAGE: 1986 ◊
SUMMARY: As a condition to obtain the dredge and fill permit for the construction of the Post of Miami extension, the Seaport was required to plant 251 acres of seagrasses in Biscayne Bay. Success was extremely limited. Management issues of this seagrass restoration effort are discussed.
KEY WORDS: Seagrass, Revegetation, Port of Miami

589
Gaby, R., and S. Langley (1985) Seagrass mitigation in Biscayne Bay, Florida. In: Proc., Coastal Zone '85, 4th Symp. Coastal and Ocean Management. O. T. Magoon, H. Converse, D. Miner, D. Clark, and L. T. Tobin, (eds.). Baltimore, MD, 1985. American Society of Civil Engineers, New York, NY. 904-919.
TIME COVERAGE: 1982
SUMMARY: This paper describes the large scale seagrass revegetation pilot project undertaken by the Port of Miami in 1982. The pilot project covered 38 acres. The planned effort would cover 251 acres. Seagrass mean survival for the entire project was 12%.
KEY WORDS: Seagrass, Revegetation, *Thalassia testudinum*, *Syringodium filiforme*, *Halodule wrightii*, Port of Miami

590
Gaby, R., M. P. McMahon, F. J. Mazzotti, W. N. Gillies, and J. R. Wilcox (1985) Ecology of a population of *Crocodylus acutus* at a power plant site in Florida. J. Herpetology, 19(2):189-198.
TIME COVERAGE: 1978 - 1982
SUMMARY: This paper presented the status and ecology of a population of crocodiles associated with the Turkey Point power plant. Distribution, habitat preference, reproduction, population size and structure, and recruitment and dispersal were discussed. Nesting occurred on the spoil berms of the cooling canal system. The Turkey Point population contributes 10% of the annual production of hatchlings in south Florida. The resident population exhibits differential habitat preference according to size class, and shows seasonal changes in distribution. Salinity was a factor in these trends. Ecology and population structure were similar to those of the population residing in the more pristine habitat of Everglades National Park.
KEY WORDS: American crocodile, *Crocodylus acutus*, Ecological distribution, Habitat, Population structure, Power plants, Turkey Point

591
Gaiser, E., M. Ross, J. Meeder, and M. Lewin (1999) Multi-taxon analysis of the "white zone," a common ecotonal feature of South Florida coastal wetlands. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 229.
TIME COVERAGE: 1999 ◊
SUMMARY: A common feature of South Florida coastal areas is the "white zone" of low plant cover between the more densely vegetated mangrove and interior ecosystems. The distribution of plants, diatoms and mollusks in relation to several environmental parameters along a coastal transect adjacent to Biscayne Bay and south of Turkey Point were examined. Plant, diatom and mollusk assemblages correlated strongly with coastal gradient. Diatom distribution correlated strongly with salinity. Plants and mollusks integrate a variety of environmental variables correlated to distance.
KEY WORDS: Turkey Point, Vegetation, Diatoms, Mollusks, Assemblages, Mangroves, Wetlands, Coastal waters, Mangrove swamps, Ecosystem disturbance, South Bay

592
Galliher, C. F., and J. E. Hull (1969) Hydrologic conditions during 1967 in Dade County, Florida. Open file report 69001. US Geological Survey, Tallahassee, FL. 46 pp.
TIME COVERAGE: 1969
SUMMARY: This report is one in a series designed to describe the annual hydrologic conditions in Dade County.
KEY WORDS: Hydrology, Rainfall, Ground water, Surface water, Water use, Snake Creek Canal, Miami Canal, Snapper Creek Canal, Biscayne Canal, Tamiami Canal

593
Gantz, C. O. (1971) A Naturalist in Southern Florida. University of Miami Press, Coral Gables, FL. 256 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: This book contains descriptions of several environments in Florida including Key Biscayne.
KEY WORDS: Natural resources, Environmental protection, South Florida, Key Biscayne

594
Garlock, M. (1994) Crocodile comeback at Turkey Point. Florida Naturalist, 67(1):13-15.
TIME COVERAGE: 1994 ◊
SUMMARY: The cooling canals of the Turkey Point Power Plant are an ideal place for crocodile breeding since they provide circulating seawater and an abundant food source. The number of nests in the canals has been increasing over the past few years. A surge in breeding was noted after Hurricane Andrew.
KEY WORDS: Crocodiles, *Crocodylus acutus*, Turkey Point, Hurricane Andrew

595
Gassman, N. J., L. B. Nye, and M. C. Schmale (1994) Distribution of abnormal biota and sediment contaminants in Biscayne Bay, Florida. Bull. Mar. Sci., 54(3):929-943.
TIME COVERAGE: 1994 ◊ (various years)
SUMMARY: Hook and line, and crab trap surveys were used to determine the nature an distribution of abnormalities and diseases in fish and blue crabs. The prevalence of abnormalities for all fish surveyed was correlated with concentration of total and aromatic hydrocarbons in sediment. No correlations were found with levels of aliphatic hydrocarbons, polychlorinated biphenyls, Cd, Cu, Pb, Hg and Zn in sediment.
KEY WORDS: Abnormalities, Fish diseases, Pathology, Sediment pollution, Sea bream, *Archosargus rhomboidalis*, Blue striped grunt, *Haemulon sciurus*, Pinfish, *Lagodon rhomboides*, Gray snapper, *Lutjanus griseus*, Blue crab, *Callinectes sapidus*

596
Gelsanliter, S. (1993) Modifications to the mangrove environment and coastlines of south Florida as a result of Hurricane Andrew. Abstracts with programs (Geological Society of America), 25(4):17.
TIME COVERAGE: 1992
SUMMARY: Hurricane Andrew flattened over 70,000 acres of mangrove forest on the east and west coasts of south Florida. This flattening was primarily caused by wind, although onshore storm surges were important near the coastline. The areas of severe mangrove destruction were Soldier Key to Caesar's Creek on the Eastern Islands, south of Matheson Hammock on the mainland Biscayne Bay shore, and the mangrove belt between north Ponce de Leon Bay and Chatham River on the west coast. The northern and southern portions of these areas generally had less complete destruction than in the middle. Areas such as Highland Beach on southwest Florida, subjected to direct onshore surge and maximum winds, suffered nearly complete knockdown of the 15 - 30 in high mangrove forest. Limb breakage and uprooting are both important. The extensive uprooting of the larger mangroves has left an extremely irregular swamp surface with over one meter of relief.
KEY WORDS: Mangrove swamps, Storm surge, Hurricane Andrew, South Florida

597
Gentile, J. H. (ed.) (1996) Workshop on "South Florida ecological sustainability criteria", 1996. Final report. Center for Marine and Environmental Analyses (CMEA), Rosenstiel School of Marine and
Atmospheric Science, University of Miami and The Everglades Partnership,

TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Ecosystem management, Hydrology, Environmental restoration, Nature conservation, Sociological aspects, Everglades, South Florida

598
Gentle, E. C. (1977) The charterboat sport fishery of Dade County, Florida, March, 1976 to February, 1977. M.Sc. thesis. University of Miami, Coral Gables, FL. 162 pp.
TIME COVERAGE: 1976 - 1977
SUMMARY: The objectives of this study were to determine: fishing effort, species and size composition of the catch, catch per unit effort, and total catch; customer residence; fishing experience and catch frequency; and economic impact of the charter boat fishery of Dade County.
KEY WORDS: Sport fishing statistics, Fishing vessels, Boating, Dade County

599
Gentry, R. C. (1974) Hurricanes in South Florida. In: Environments of South Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 73-81.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation describes the effects of hurricane passing through South Florida and their effects.
KEY WORDS: Hurricanes, Everglades, Hurricane Donna, Hurricane of 1935, Hurricane of 1926, Lake Okeechobee, Hurricane of 1928, Hurricane of 1945, Ft. Lauderdale Hurricane of 1947, Palm Beach Hurricane of 1949, Hurricane Betsy

600
Gerchakov, S. M., D. S. Marszalek, F. J. Roth, and L. R. Udey (1976) Succession of periphytic microorganisms on metal and glass surfaces in natural seawater. Report prepared for Office of Naval Research. NTIS AD-AO25 592. National Technical Information Service, Springfield, VA. 24 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: Stainless steel and glass substrates were exposed to Biscayne Bay seawater for several months. Samples were removed at regular intervals and examined for periphytic microorganisms. The major changes occurred during the first five weeks of exposure. The first fouling organisms were bacteria followed by fungi. Within one week of exposure, the assemblage was modified by the appearance of numerous unidentified filamentous microorganisms. After two weeks, the fungi became scarce, bacteria became more numerous, and diatoms, filamentous algae and protozoa appeared. Three to five weeks of exposure produced thick fouling layers composed mainly of diatoms and bacteria. Invertebrates and other macroscopic organisms became more conspicuous with continued exposure.
KEY WORDS: Fouling organisms, Microorganisms, Metals, Glass, Sea water

601
Gerchakov, S. M., C. Rooth, D. A. Segar, and R. D. Stearns (1973) Rapid delineation of the mean plume intensity pattern from the sediment temperatures underlying a thermal discharge. Bull. Mar. Sci., 23(3):496-509.
TIME COVERAGE: 1973 ◊
SUMMARY: The heat conduction process in the bottom sediments tends to generate a vertical temperature distribution which is increasingly smoothed in time as one penetrates into deeper layers. Thermal outfall areas generate a hot plume which is often variable in both location and intensity. Thus one would expect that bottom-sediment temperatures would yield more reliable estimates of sustained thermal stress on benthic communities than instantaneous observations in the water column.

KEY WORDS: Thermal plumes, Thermal pollution, Sediment temperature, Turkey Point

602
Gerchakov, S. M., D. A. Segar, and R. D. Stearns (1971) Chemical and hydrological investigations in the vicinity of a thermal discharge into a tropical marine estuary. In: Radionuclides in ecosystems. Proc. 3rd Natl. Symp. on Radioecology. D. J. Nelson, (ed.). Oak Ridge, TN, 1971. Oak Ridge National Laboratory, US Atomic Energy Commission, Oak Ridge, TN. 603-618.
TIME COVERAGE: 1969 - 1970
SUMMARY: Chemical and hydrological investigations were conducted in the vicinity of the thermal discharge from the Turkey Point plant. Major changes in the chemical parameters were not apparent. Profiles of the bottom sediment temperatures were found to closely correlate with the average thermal plume observed in the overlying water.
KEY WORDS: Thermal plumes, Thermal pollution, Chemical analysis, Salinity measurement, Water temperature, Turkey Point, Nutrients, Fe, Cu, Water quality

603
Getter, C. D. (1982) Temperature limitations to the distribution of mangrove mosquitofish in Florida. Florida Scient., 45(3):196-200.
TIME COVERAGE: 1973 - 1980
SUMMARY: An intensive survey of southern Florida revealed a limited coastal distribution of the mangrove mosquitofish. Temperature limitations to distribution may be controlled by fertility which, for this species, is known to be correlated with temperature.
KEY WORDS: Mangrove mosquitofish, *Gambusia rhizophorae*, Temperature tolerance, Geographical distribution, Florida

604
Getter, C. D., J. F. Michel, G. I. Scott, and J. L. Sadd (1981) The sensitivity of coastal environments and wildlife to spilled oil in South Florida. RPI/R/81/9-1. South Florida Regional Planning Council, Miami, FL. 126 pp.
TIME COVERAGE: 1981 ◊
SUMMARY: A shoreline assessment was conducted throughout Florida by means of overflights, ground stations and literature reviews. A series of maps, this report, and six data supplements were produced. The maps show Environmental Sensitivity Index values which are an indication of shoreline and wildlife sensitivity to spilled oil.
KEY WORDS: Oil spills, Shore protection, Nature conservation, Florida Keys, South Florida

605
Getter, C. D., J. F. Michel, and T. G. Ballou (1983) The sensitivity of coastal environments and wildlife to spilled oil in Florida. RPI/R/83/3/18-8. Research Planning Institute, Columbia, SC. 331 pp.
TIME COVERAGE: 1983 ◊
SUMMARY: [THIS REPORT IS AN UPDATE OF GETTER *ET AL.* (1981).]
KEY WORDS: Oil spills, Shore protection, Nature conservation, Florida

606
Getter, L. (1992) What went wrong: a disaster long in the making. The Miami Herald, Miami, FL. December 20. Special Report.
TIME COVERAGE: 1992
SUMMARY: This article examined Hurricane Andrew's wind damage to dwellings and the building practices in Dade County with an emphasis on the inadequacies of the building codes and inspection programs.
KEY WORDS: Hurricane Andrew

607
Getter, L. (1993) What went wrong: a disaster long in the making. In: Excerpts, 15th Ann. National Hurricane Conf. L. S. Tait, (compiler). Orlando, FL, April 13 - 16, 1993. National Hurricane Conference, Tallahassee, FL.
TIME COVERAGE: 1992
SUMMARY: [THIS IS ARE EXCERPTS OF THE MIAMI HERALD ARTICLE.]
KEY WORDS: Hurricane Andrew

608
Gifford, C. A. (1962) Some observations on the general biology of the land crab, *Cardisoma guanhumi* (Latreille), in south Florida. Biol. Bull., 123(1):207-223.
TIME COVERAGE: 1962 ◊
SUMMARY: This citation describes the biology of land crabs from South Florida.
KEY WORDS: Land crab, *Cardisoma guanhumi*, Life cycle, Habitat

609
Gilbert, C. (1986) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - Florida pompano. Biological rep. 82 (11.42). US Fish and Wildlife Service, National Coastal Ecosystems Team, Slidell, LA. 14 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: The nomenclature, taxonomy, life history, growth characteristics, fishery, ecological role, and environmental requirements of the Florida pompano are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Florida pompano, Pompano, *Trachinotus carolinus*, South Florida

610
Gilbert, C. R. (1986) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - southern, gulf, and summer flounders. Biological report 32 (11.54). US Fish and Wildlife Service, National Wetlands Research Center, Slidell, LA. 27 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: The life history, growth characteristics, fishery, ecological role, environmental requirements, and morphology of three species of flounder are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Flounders, Southern flounder, *Paralichthys lethostigma*, Gulf flounder, *Paralichthys albigutta*, Summer flounder, *Paralichthys dentatus*, South Florida

611
Gilio, J. L., and D. A. Segar (1976) Biogeochemistry of trace elements in Card Sound, Florida: inventory and annual turnover. NTIS, PB-257 522. NOAA Office of Sea Grant, Rockville, MD. 17 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: Concentrations of V, Fe, Cu, Cd, Zn and Pb were determined in organisms, water and sediment of Card Sound. Multiplication of these specific concentrations by the amount of organisms, water and sediment led to an inventory of Card Sound for these elements. Highest amounts of each element were found in sediment, followed by water and living organisms. *Thalassia* had the highest inventory for all the elements, followed closely by sponges, with large rooted algae approximately an order of magnitude lower. Phytoplankton, epiphytes and invertebrates constituted a minor part of the biological trace element inventory.
KEY WORDS: V, Fe, Cu, Cd, Zn, Pb, Biogeochemical cycle, Sediment chemistry, Card Sound, South Bay, Flora, *Thalassia testudinum*

612
Gill, A. M. (1971) The literature on mangroves: an incomplete compilation of titles. Bibliography. Fairchild Tropical Garden, Miami, FL. 62 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: This is a compilation of citations on mangroves worldwide.
KEY WORDS: Mangrove swamps, Bibliographies

613
Gillette, D. A., and A. T. Steele (1983) Selection of CO_2 concentration data from whole-air sampling at three locations between 1968 and 1974. J. Geophys. Res., 88(C2):1349-1359.
TIME COVERAGE: 1968 - 1973
SUMMARY: Three methods for rejection of carbon dioxide data were used to obtain concentration versus time at three stations including one in Key Biscayne. From examination of the results it was concluded that short-term variation and error were not large for the station North Atlantic station. There was suggestion of occasional contamination at Key Biscayne, and more frequent contamination at Niwot Ridge.
KEY WORDS: Key Biscayne, Air pollution, Carbon dioxide, Marine pollution, Pollution monitoring, Shipboard analysis, North Atlantic, Niwot Ridge, Station Charlie

614
Gimble, E. (1986) West Indian manatees in Florida: a case study of endangered species conservation. Report. Yale School of Forestry and Environmental Studies, New Haven, CT. 77 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: This report provides a history of manatee conservation in South Florida.
KEY WORDS: Manatees, *Trichechus manatus*, Rare species, Nature conservation, Florida

615
Ginsburg, R. N. (1953) Intertidal erosion on the Florida Keys. Bull. Mar. Sci. Gulf Caribb., 3(1):55-69.
TIME COVERAGE: 1953 ◊
SUMMARY: Intense erosion of calcareous shore rocks produced honeycombed brittle rock. Examples of this erosion in South Florida were described. Physio-chemical solution of calcium carbonate was considered only of local importance in intertidal erosion. It was suggested that the activities of boring and burrowing organisms were a major factor in this erosion.
KEY WORDS: Carbonate rocks, Intertidal environment, Erosion, Florida Keys

616
Ginsburg, R. N. (1990?) South Florida Quaternary carbonates. Comparative Sedimentology Laboratory, Division of Marine Geology and Geophysics, Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1990 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Carbonates, Quaternary, Coral reefs, Sedimentary structures, South Florida, Florida Keys, Florida Bay

617
Ginsburg, R. N. (1987) Structural control of the morphology of southeast Florida. In: Symposium on South Florida Geology. F. J. R. Maurrasse, (ed.). Memoir 3. Miami Geological Society, Coral Gables, FL. 8.
TIME COVERAGE: 1987 ◊
SUMMARY: The striking feature of terrestrial and submarine morphology of Southeast Florida is the family of arcuate trends that are convex towards the southeast. From northwest to

southeast, these trends are: 1) the southern extension of the Atlantic Coastal Ridge composed of oolitic limestone of the Lake Pleistocene Miami Formation; 2) the Upper Florida Keys, a chain of islands composed of the Late Pleistocene Key Largo Limestone; 3) the break in slope of the Florida Reef Track marked by discontinuous living reefs, rocky shoals, and piles of coral rubble; 4) the Pourtales Escarpment of the Late Tertiary age that marks the edge of the Pourtales Terrace in depths of 360 to 540 m; and 5) the Mitchell Escarpment in depths from 720 - 1000 m that is probably early Tertiary.
KEY WORDS: Geomorphology, Southeast Florida

618
Ginsburg, R. N., and H. A. Lowenstam (1958) The influence of marine bottom communities on the depositional environment of sediments. J. Geol., 66(-):310-318.
TIME COVERAGE: 1958 ◊
SUMMARY: Physical forces and topography control the depositional environments of shelf and shallow-water sediments. However, certain bottom communities are capable of modifying water circulation and bottom conditions sufficiently to produce recognizably different sediments than those deposited without the organisms. The organisms responsible for such modifications may or may not be sediment contributors, and their sphere of influence can be limited to their habitat or can extend well beyond it.
KEY WORDS: Reefs, Shelf sedimentation, Shallow water, Algal mats, Sedimentary environments

619
Ginsburg, R. N., and E. A. Shinn (1994) Preferential distribution of reefs in the Florida Reef Tract: the past is the key to the present. In: Proc., Colloquium on Global Aspects of Coral Reefs: Health, Hazards and History. R. N. Ginsburg, (comp.). Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. H21-H26.
TIME COVERAGE: 1994 ◊
SUMMARY: In the Florida Reef tract, shelf-margin and patch reefs occur preferentially seaward of islands of Pleistocene limestone. Where these islands are absent or separated by wide passes, the shelf is open and reefs are absent or poorly developed. The principal reason for the lack of reefs where there are not islands is the inimical effect of water from restricted Florida Bay that moves out across the open shelf areas. A secondary reason is that the open shelf areas have extensive areas of mobile calcareous sends.
KEY WORDS: Coral reefs, Geological distribution, Islands, Reef Tract, Florida Keys, Florida Bay

620
Ginsburg, R. N., and E. A. Shinn (1994) South Florida's environments are geological inheritances: the past is the key to the present. Bull. Mar. Sci., 54(3):1075-1076.
TIME COVERAGE: 1994 ◊
SUMMARY: The geography and bathymetry of South Florida's marine and terrestrial environments are inherited from geologic events extending back millions of years. This abstract describes these events.
KEY WORDS: Geomorphology, Reef tract, Shoals, Topographic features, Florida Bay, Florida Keys

621
Gleason, D. K. (1990) Over Miami. Louisiana State University Press, Baton Rouge, LA. 136 pp.
TIME COVERAGE: 1990 ◊
SUMMARY: This is a book of aerial photographs of Miami and nearby areas.
KEY WORDS: Aerial photography, Miami, Florida Keys, Key Biscayne, Miami Beach, Government Cut

622
Gleason, P. J., and W. Spackman (1974) Calcareous periphyton and water chemistry in the Everglades. In: Environments of South Florida: Present and Past. P. J. Gleason (ed.). Miami Geological Society memoir 2. Miami Geological Society, Miami, FL. 146-181.
TIME COVERAGE: 1974 ◊
SUMMARY: Calcareous blue-green algal periphyton covers large areas of wetland within South Florida, and appears to give rise to the fresh water calcitic marl within the lower Everglades as indicated by numerous crystal-algal filament relationships.
KEY WORDS: Periphyton, Algae, Cyanophyta, Carbonate sediment, Calcium carbonates, Everglades

623
Glynn, P. W., A. M. Szmant, E. F. Corcoran, and S. V. Cofer-Shabica (1989) Condition of coral reef cnidarians from the northern Florida Reef Tract: pesticides, heavy metals, and histopathological examination. Mar. Pollut. Bull., 20(11):568-576.
TIME COVERAGE: 1985
SUMMARY: Scleractinian corals and octocorals from two reefs within Biscayne National Park were compared with respect to relative abundance, gross field condition, concentrations of pesticides and heavy metals, and histopathological condition. The northern most site, Bache Shoal, is near Miami and potentially receives pollutants from that source. The southern most site, Alina's Reef, is less likely to be influenced by Miami but may receive runoff from agricultural activities in Homestead. No consistent differences between the communities were found. High frequencies of blemishes and abnormalities, and of pesticides, As, Cu and Pb were detected in several of the reef coelenterates at both sites.
KEY WORDS: Coral reefs, Scleractinians, Octocorals, Pesticides, As, Cu, Pb, Cd, Fe, Hg, Pollution, Histopathology, Biscayne National Park, Bache Shoal, Alina's Reef, Reef Tract, DDTs

624
Godcharles, M. F., and M. D. Murphy (1986) Species profiles: life history and environmental requirements of coastal fishes and invertebrates (South Florida) - king mackerel and Spanish mackerel. Biological report 82 (11.58). US Fish and Wildlife Service, National Coastal Ecosystems Team, Slidell, LA. 18 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: The life history, growth characteristics, fishery, ecological role, environmental requirements, and morphology of two species of mackerel are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Mackerel, King mackerel, *Scomberomorus cavalla*, Spanish mackerel, *Scomberomorus maculatus*, South Florida

625
Goldstein, S. T. (1976) The distribution and ecology of benthic foraminifera in a south Florida mangrove environment. M.Sc. thesis. University of Florida, Gainesville, FL. 111 pp.
TIME COVERAGE: 1974
SUMMARY: The ecology and distribution of benthic foraminifera in a mangrove and salt marsh environment in the vicinity of Turkey Point were investigated. Samples of sediment and epiphytic algae were collected along a transect and a total of 67 species belonging to 37 genera of foraminifera were found. Diversity, equitability and density of living individuals followed the increase in water depth, salinity, pH and organic carbon in the seaward direction.
KEY WORDS: Foraminifera, Benthos, Ecological distribution, Mangrove swamps, Salt marshes, Turkey Point

626
Gomon, M. F. (1971) Comparative osteology of the western Atlantic species of *Halichoeres* (Pisces, Labridae). M.Sc. thesis. University of Miami, Coral Gables, FL. 193 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: The purpose of this study was to compare the osteology of grasses to obtain a clearer picture of phylogenetic relationships. These relationships are further supported by similar patterns in distribution and ecology.
KEY WORDS: Wrasses, Halichoeres, Osteology

627
Gongora, A., and R. Jaffe (1997) Characterization and speciation of organic pollutants in the Miami River. In: Conf. program and abstracts, First annual conference of the Walt Dineen Society. 1997. Florida International University, Miami, FL. 15.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Miami River, Pollution

628
Goodman, L. R., M. A. Lewis, J. M. Macauley, R. Smith, and J. C. Moore (1999) Preliminary survey of chemical contaminants in water, sediment, and aquatic biota at selected sites in northeastern Florida Bay and Canal C-111. Gulf of Mexico Sci., 17(1):1-16.
TIME COVERAGE: 1995
SUMMARY: Contaminant concentrations in surface water, sediment and biota were determined prior to major changes in water management at the C-111 canal. Water samples were analyzed for selected organochlorine pesticides and metals; sediments for those compounds and PAHs; and fish filets and oysters for selected organochlorine pesticides, PCBs and metals. Concentrations in sediments were generally low.
KEY WORDS: Florida Bay, Canal C-111, Sediment, Water, Biota, Chemistry, Barnes Sound, Organochlorine pesticides, Metals, PAHs, Oysters, Fish, PCBs, Chemical pollutants, Water analysis, Sediment pollution, Biota, Manatee Bay

629
Gordon, D. P. (1942) Plankton at Miami Beach, Florida. M.Sc. thesis. Duke University, Durham, NC. 77 pp.
TIME COVERAGE: 1941 - 1942
SUMMARY: The purpose of this thesis was to provide a list of plankters in Miami Beach waters. Drawings and species lists are provided.
KEY WORDS: Plankton, Miami Beach, Species list

630
Gordon, H. R., and J. Dera (1969) Irradiance attenuation measurements in sea water off southeast Florida. Bull. Mar. Sci., 19(2):279-285.
TIME COVERAGE: 1969 ◊
SUMMARY: The irradiance attenuation was measured in Biscayne Bay and other locations. The results of these measurements and their temporal variations were discussed.
KEY WORDS: Irradiance, Light attenuation, Sea water, Optical properties

631
Gordon, H. R., and J. M. Smith (1972) A time series study of beam transmittance in Biscayne Bay. Eos, 53(4):400.
TIME COVERAGE: 1970
SUMMARY: Continuous observation of beam transmittance at 530 nm over a 23-day period was carried out in Bear Cut. Pressure filtration through a 0.47 μ filter was used to determine

suspended particle loads. Power spectra showed strong diurnal and semidiurnal peaks. Using current velocity at the study location, net transport of particulate matter was estimated.
KEY WORDS: Beam transmittance, Time series analysis, Bear Cut, Suspended particulates

632
Gore, R. (1993) Andrew aftermath. National Geographic, 183(April):2-37.
TIME COVERAGE: 1992
SUMMARY: This is a pictorial account of the aftermath of Hurricane Andrew.
KEY WORDS: Hurricane Andrew, Hurricanes

633
Gore, R. H. (1972) A comparative study of larval characters in the family *Porcellanidae* (Crustacea: Decapoda: Anomura). Ph.D. dissertation University of Miami, Coral Gables, FL. 249 pp.
TIME COVERAGE: 1968
SUMMARY: The larval development of the crab family *Porcellanidae* was described. Specimens were reared from ovigerous females collected in Norris Cut.
KEY WORDS: Crabs, Porcellanidae, Crustacean larvae, Zoeae, Larval development, Norris Cut

634
Gore, R. H. (1967) The larval development of *Polyonyx gibbesi* (Crustacea: Porcellanidae) with investigations of the initial establishment of the commensal relationship with the polychaete worm *Chaetopterus variopedatus*. M.Sc. thesis University of Miami, Coral Gables, FL. 99 pp.
TIME COVERAGE: 1967 ◊
SUMMARY: Worm tubes most containing crabs were collected in the Bay and studied in aquariums. Ovigerous female crabs were also collected and crabs reared in aquariums. Studies were made of the relationship and behavior of the worm and the crabs.
KEY WORDS: Crabs, *Polyonyx gibbesi*, Crustacean larvae, Larval development, Commensals, Polychaetes, *Chaetopterus variopedatus*, Hurricane Harbor, Virginia Key

635
Gore, R. H. (1968) The larval development of the commensal crab *Polyonyx gibbesi* Haig, 1956 (Crustacea: Decapoda). Biol. Bull., 135(1):111-129.
TIME COVERAGE: 1968 ◊
SUMMARY: The larval development of this crab species was described based on the larvae produced by ovigerous females collected in Biscayne Bay.
KEY WORDS: Crabs, *Polyonyx gibbesi*, Larval development, Crustacean larvae, Cape Florida, Key Biscayne

636
Gore, R. H. (1970) *Petrolisthes armatus*: a redescription of larval development under laboratory conditions (Decapoda, Porcellanidae). Crustaceana, 18(1):75-89.
TIME COVERAGE: 1970 ◊
SUMMARY: The larval development of this species of crab was described based on the larvae produced by ovigerous females collected in Norris Cut.
KEY WORDS: Crabs, Petrolisthes armatus, Larval development, Crustacean larvae, Norris Cut

637
Gotto, J. W. (1976) Nitrogen fixation in the red mangrove (*Rhizophora mangle*) leaf detrital system. M.Sc. thesis. University of Miami, Coral Gables, FL. 67 pp.
TIME COVERAGE: 1976 ◊

SUMMARY: The objective of this study was to investigate the occurrence of nitrogen fixation associated with decaying leaves of the red mangrove in order to estimate possible importance of this activity in the estuarine food web based on mangrove detritus.
KEY WORDS: Red mangrove, *Rhizophora mangle*, Nitrogen fixation, Leaves, Detritus, Key Biscayne

638
Gould, W. R. (1965) The biology and morphology of *Acyrtops beryllinus*, the emerald clingfish. Bull. Mar. Sci., 15(1):165-188.
TIME COVERAGE: 1962 - 1963
SUMMARY: The taxonomy and biology of the emerald clingfish, a little known member of *Thalassia* communities, are described in this paper. Specimens were collected during the various studies conducted by the University of Miami in Biscayne Bay and in other areas of Florida, Bimini and The Bahamas.
KEY WORDS: Emerald clingfish, *Acyrtops beryllinus*, Life cycle, Taxonomy

639
Graber, H. G. (1995) Measurement and detection of ocean surface features with an HF Doppler radar. In: Proc., WMO/IOC Workshop on Operational Ocean Monitoring using Surface Based Radars. Geneva, Switzerland, 1995. Report no. 32; WMO/TD-No. 694. World Meteorological Organization, Geneva, Switzerland. 53-59.
TIME COVERAGE: 1994
SUMMARY: An exploratory deployment of the OSCR system in the VHF mode was conducted in Biscayne Bay to assess the usefulness of this radar to measure surface flow patterns in shallow bays and estuaries which often have low amplitude Bragg waves and numerous shoals and small islands.
KEY WORDS: Surface currents, Doppler effect, Radar, Current measurement, Cape Hatteras, Florida Keys, Bear Cut

640
Gray, R. W. (1916) Summer temperatures at Miami. The Tropic Magazine, 4(6):158-160.
TIME COVERAGE: 1911 - 1916
SUMMARY: This article described summer temperatures in Miami and compares them to those in the midwest.
KEY WORDS: Temperature, Weather

641
Greater Miami Chamber of Commerce (1974) A rational plan for the development and conservation of Biscayne Bay. Part I. An environmental description. Draft. Greater Miami Chamber of Commerce. Environmental Quality Committee, Miami, FL. Various paging.
TIME COVERAGE: 1974 ◊
SUMMARY: This is a draft plan for development and conservation activities in Biscayne Bay.
KEY WORDS: Conservation

642
Greater Miami Chamber of Commerce (1975) Who manages Biscayne Bay? Report. Greater Miami Chamber of Commerce. Environmental Quality Action Committee, Miami, FL. 71 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: These are the proceedings of a summit meeting that revealed that there was an excess of bureaucracy in the management of the Bay.
KEY WORDS: Resource management, Environmental protection, Pollution monitoring

643
Green, F. M. (1877) The navigation of the Caribbean Sea and the Gulf of Mexico. Vol. I. The West India Islands, including the Bahama Banks and island and the Bermuda Islands. No. 63. US Hydrographic Office, Government Printing Office, Washington, DC.
TIME COVERAGE: 1877 ◊
SUMMARY: This is a description of navigation beacons, hazards and such for the Caribbean, the Gulf of Mexico and the east coast of Florida.
KEY WORDS: Navigation

644
Green, J. M. (1964) Studies on the swim bladder of *Eucinostomus gula* and *E. argenteus* (Pisces: Gerridae). M.Sc. thesis. University of Miami, Coral Gables, FL. 70 pp.
TIME COVERAGE: 1964 ◊
SUMMARY: This study presented a description of the swim bladder of the mojarra and of its physiology.
KEY WORDS: Mojarra, *Eucinostomus gula*, *Eucinostomus argenteus*, Swim bladder

645
Green, J. T. (1979) A survey of habitat of *Crocodylus acutus* in south Florida. In: Marine science teachers research experience. B. Burke, and A. Volker (eds.). Sea Grant special rep. no. 17. University of Miami Sea Grant, Coral Gables, FL. 1-33.
TIME COVERAGE: 1979 ◊
SUMMARY: A six-month survey of South Florida determined that there is potentially more suitable habitat for crocodiles than the limited number of individuals occupied.
KEY WORDS: Crocodiles, *Crocodylus acutus*, Florida Bay, Interama, Black Point, Turkey Point

646
Greenberg, I. (1977) Guide to Corals & Fishes of Florida, the Bahamas and the Caribbean. Seahawk Press, Miami, FL. 64 pp.
TIME COVERAGE: 1977
SUMMARY: This is a field guide to corals and fishes.
KEY WORDS: Coral, Reef fish, Florida, Bahamas, Caribbean, Guide

647
Greene, J. (1982) Biscayne Bay is alive and, well, not doing so badly. The Miami Herald, Miami, FL. October 3. B-1.
TIME COVERAGE: 1982 ◊
SUMMARY: This article discusses the state of Biscayne Bay.
KEY WORDS: Pollution

648
Greenfield, L. J. (1951) The distribution of marine borers in the Miami area in relation to ecological conditions. M.Sc. thesis. University of Miami, Coral Gables, FL. 81 pp.
TIME COVERAGE: 1950 - 1951
SUMMARY: Attempts were made to identify all organisms attacking test piles and panels deployed at the study sites. The distribution of the attacking organisms was dependent upon time of the year, salinity, amount of wood available and other factors.
KEY WORDS: Boring organisms, Bankia, Teredo, Limnoria, Ecological distribution, Miami, Northern Bay, Key Biscayne, Hurricane Harbor, Chicken Key, Elliott Key

649
Greenfield, L. J. (1953) The distribution of marine borers in the Miami area in relation to ecological conditions. Bull. Mar. Sci. Gulf Caribb., 2(2):448-464.

TIME COVERAGE: 1948 - 1951
SUMMARY: Ecological observations were made on marine wood-borers found in the Miami area. The most abundant organism was *Teredo pedicellata*. An increase in attack was noted in early summer and earl autumn. Maximum growth rate was observed in midsummer. Variation in *Limnoria lignorum* attack was the same as that *T. pedicellata* during the first period but occurred in bi-monthly cycles in the second period of study. High seawater summer temperatures increase the growth and boring rates of *T. pedicellata*. In stations of uniform high salinity, *L. lignorum* was concentrated near the bottom because of a negative photic response.
KEY WORDS: Boring organisms, Bankia, Limnoria, Ecological distribution, Miami, *Teredo pedicellata*, *Limnoria lignorum*

650
Greenfield, L. J. (1953) Observations on the nitrogen and glycogen content of *Teredo* (Lyrodus) *pedicellata* De Quatrefages at Miami, Florida. Bull. Mar. Sci. Gulf Caribb., 2(3):486-496.
TIME COVERAGE: 1951 - 1952
SUMMARY: Monthly rates of glycogen and nitrogen content of *Teredo* were determined and changes in body composition with body weight noted. No seasonal change was noted.
KEY WORDS: Shipworms, *Teredo pedicellata*, Boring organisms, Nitrogen, Glycogen, Miami

651
Greenleaf/Telesca Planners, Engineers, Architects, Inc. (1979) Comprehensive marina development study, City of Miami. Report. Greenleaf/Telesca Planners, Engineers, Architects, Inc., Miami, FL.
TIME COVERAGE: 1979 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Marinas, Recreational waters, Miami

652
Greenleaf/Telesca Planners, Engineers, Architects, Inc. (1973) Proposed marina feasibility study and master plan, Miami Beach, Fla. Report. Greenleaf/Telesca Planners, Engineers, Architects, Inc., Miami, FL.
TIME COVERAGE: 1973 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Marinas, Recreational waters, Miami Beach

653
Greenleaf/Telesca Planners, Engineers, Architects, Inc. (1974) Utility study for Elliott Key, Biscayne National Monument. Report. Greenleaf/Telesca Planners, Engineers, Architects, Inc., Miami, FL.
TIME COVERAGE: 1974 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water supply, Waste disposal, Sewage disposal, Elliott Key, Biscayne National Monument

654
Greer, B. F., and I. J. Cohen (1954) Summary of Florida commercial marine fish landings for 1953. Mimeographed reports. Marine Laboratory, University of Miami, Coral Gables, FL. 28 pp.
TIME COVERAGE: 1954 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Commercial fishing, Landing statistics, Florida

655
Gregg, W. H., and J. Gardner (1902) Where, when, and how to catch fish on the east coast of Florida. Matthews-Northrup, Buffalo, NY. 268 pp.
TIME COVERAGE: 1902 ◊
SUMMARY: This is a fishing guide to the east coast of Florida.
KEY WORDS: Fish, Sport fishing, Angling, East Florida, Guide

656
Gruber, M. A. (1971) The development of the brain in *Octopus briareus* Robson. M.Sc. thesis. University of Miami, Coral Gables, FL. 60 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: This is a study of the development of the brain in the octopus. All embryos used came from the eggs of a single female captured at Soldier Key.
KEY WORDS: Brain, *Octopus briareus*, Biological development, Soldier Key

657
Gruber, S. H. (1969) The physiology of vision on the lemon shark, *Negaprion brevirostris* (Poey): a behavioral analysis. Ph.D. dissertation. University of Miami, Coral Gables, FL. 104 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: This is a study of the physiology of sight in the lemon shark. Specimens used were captured in Biscayne or Florida Bays.
KEY WORDS: Lemon shark, *Negaprion brevirostris*, Vision, Visual stimuli

658
Grymes, J. M., and G. W. Stone (1995) A review of key meteorological and hydrological aspects of Hurricane Andrew. In: Impacts of Hurricane Andrew on the Coastal Zones of Florida and Louisiana: 22-26 August 1992 (J. Coastal Res. Spec. Issue 21). G. W. Stone, and C. W. Finkl (eds.). Coastal Education and Research Foundation, Ft. Lauderdale, FL. 364 pp.
TIME COVERAGE: 1995 ◊
SUMMARY: This citation is a description of the meteorological and hydrological characteristics of Hurricane Andrew.
KEY WORDS: Beach erosion, Coastal erosion, Shore protection, Sand, Environmental monitoring, Southeast Florida

659
Guala, G. F. (1993) The flora of Chicken Key, Dade County, Florida; before and after Hurricane Andrew. SIDA, 15(3):519-526.
TIME COVERAGE: 1992
SUMMARY: Complete lists of the species of vascular plants in the flora of Chicken Key were generated during surveys on five occasions over a period of five years, including surveys just before and after Hurricane Andrew. The short term effect on the species richness was dramatic, the post hurricane species richness was still well within the known range for the island, indicating that the long term effects on the species composition may not be significant.
KEY WORDS: Vegetation, Hurricane Andrew, Chicken Key

660
Guarin, H. (1996) Phased array sonar for three dimensional near field acoustic imaging. Ph.D. dissertation. University of Miami, Coral Gables. 152 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: A technique was developed and its hardware constructed to generate three-dimensional images of targets located in the near field. By merging a planar phase array of omnidirectional hydrophones with a beamformer and a back projection technique, it was

possible to generate a volumetric representation of the targets. Field tests were done in Bear Cut.
KEY WORDS: Acoustic imagery, Sonar arrays, Virginia Key, Bear Cut

661
Guertin, L. A., D. F. McNeill, B. H. Lidz, and K. J. Cunningham (1999) Chronologic model and transgressive-regressive signatures in the late Neogene siliciclastic foundation (Long Key Formation) of the Florida Keys. J. Sedimentary Res., 69(3):653-66.
TIME COVERAGE: 1999 ◊
SUMMARY: The biostratigraphy of the area was described using two sediment cores.
KEY WORDS: Biostratigraphy, Clastics, Neogene, Cores, Lake Surprise, Long Key, Card Sound

662
Gulick, L., and R. W. Alleman (1993) Ammonia levels in the Biscayne Bay watershed. Florida Scient., 56(Suppl. 1):39.
TIME COVERAGE: 1993 ◊
SUMMARY: A network of sampling stations was established and samples collected monthly for ammonia analyses. Elevated ammonia concentrations were found in the western reaches of the Bay tributary canals, lower levels in the middle reaches, and highest concentrations in the eastern reaches near the highly developed mouths of the canals. This pattern suggested two ammonia sources: one associated with drainage from the Everglades and the other associated with urban development.
KEY WORDS: Water quality, Ammonia, SWIM Plan

663
Ha, S. J. (1968) Masking effects on the hearing of the lane snapper, *Lutjanus synagris* (Linneus). M.Sc. thesis University of Miami, Coral Gables, FL. 51 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: The purpose of this study was to determine whether ambient noise can mask the hearing of fishes. All tests were done in the laboratory using fish collected by rod and reel.
KEY WORDS: Lane snapper, *Lutjanus synagris*, Audition, Noise (Sound)

664
Haag, K. H., R. L. Miller, L. A. Bradner, and D. S. McCulloch (1996) Water-quality assessment of southern Florida: an overview of available information on surface- and ground-water quality and ecology. Water-resources investigation rep. 96-4177. USGS, Tallahassee, FL. 42 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: This report summarized water quality conditions, issues of concern, and management efforts underway in southern Florida.
KEY WORDS: Water quality, Florida, Nutrients, Ground water, Surface water, Biscayne Aquifer, Everglades

665
Hagan, J. E. (1972) Estuarine surveys in the Southeast. In: Proc. Symp., Coastal Zone Pollution Management. B. L. Edge, (ed.). Charleston, SC, 1972. Clemson University, Clemson, SC. 155-174.
TIME COVERAGE: 1972 ◊
SUMMARY: A brief description of the environmental condition of southern Biscayne Bay is included in this paper.
KEY WORDS: Estuaries, Water pollution, Water quality, Coastal zone management, Florida, Georgia, South Carolina, Alabama

666
Hale, K. K. (1993) Biscayne Bay: a bibliography of the marine environment. Tech. paper no. 67. Florida Sea Grant College Program, Gainesville, FL. 115 pp.
TIME COVERAGE: 1700 - 1992
SUMMARY: This bibliography covers from the earliest accounts of Biscayne Bay to 1992.
KEY WORDS: Marine environment, Bibliographies

667
Hale, K. K. (1996) Biscayne Bay: a bibliography of the marine environment. Supplement May 1993 - December 1996. Unpublished report. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 115 pp.
TIME COVERAGE: 1700 - 1992
SUMMARY: This bibliography covers literature about Biscayne Bay from 1993 to 1996.
KEY WORDS: Marine environment, Bibliographies

668
Halley, R. B., T. M. Cronin, G. L. Wingard, and S. E. Ishman (1998) Increased salinity of Florida Bay and saltwater intrusion of the Biscayne Aquifer during the early 20th century: simultaneous consequences of falling water tables along the margins of the Everglades. <u>Proc., 1998 Florida Bay Science Conf.</u> Miami, FL, May 12-14, 1998. University of Florida, Gainesville, FL.
TIME COVERAGE: 1904-1950s?
SUMMARY: Saltwater intrusion along the southeastern boundary of the Biscayne Aquifer has been documented since 1904. The salt water front exhibits timing similar to that of the salinity increase in Florida Bay. Since World War II, intrusion has been regionally arrested although local problems exist.
KEY WORDS: Paleoecology, Biscayne Aquifer, Salt water intrusion, Florida Bay

669
Halley, R. B., and C. C. Evans (1983) The Miami Limestone. A guide to selected outcrops and their interpretation (with a discussion of diagenesis in the formation). Miami Geological Society, Miami, FL. 67 pp.
TIME COVERAGE: 1983 ◊
SUMMARY: This is a field guide to outcrops of the Miami Limestone in Dade County. The report includes historical photographs of features no longer existing in the area.
KEY WORDS: Ooids, Miami Limestone, Field guide

670
Halley, R. B., E. A. Shinn, J. H. Hudson, and B. H. Lidz (1977) Pleistocene barrier bar seaward of ooid shoal complex near Miami, Florida. <u>AAPG Bull.</u>, 61(4):519-526.
TIME COVERAGE: 1977 ◊
SUMMARY: An ooid sand barrier bar of Pleistocene age was deposited along the seaward side of an ooid shoal complex southwest of Miami at Black Creek.
KEY WORDS: Nearshore bars, Pleistocene, Ooids, Miami Limestone, Shoals, Black Creek, Miami

671
Hamilton, R. D., and L. J. Greenfield (1965) Observations on the entrapment of organic matter within the particle structure of calcareous sediments. <u>Nature</u>, 207(4997):627-628.
TIME COVERAGE: 1965 ◊
SUMMARY: Calcareous sediments have been shown to possess weak affinities for certain nitrogen compounds of low molecular weight. This weak ability of act as adsorbents, retardants or concentrators of organic matter is probably due to other classes of organic compounds

rather than the mineral itself. The calcareous sediment used for this study were collected in Biscayne Bay.
KEY WORDS: Carbonate sediment, Particulate organic matter

672
Handbury, T. H. (1896) Report on a preliminary examination of Biscayne Bay. In: H. M. Smith Notes on Biscayne Bay, Florida, with reference to its adaptability as the site of a marine hatching and experiment station. Report of the Commissioner [US Commission of Fish and Fisheries] for the year ending June 30, 1895. 189-191.
SUMMARY: 21
KEY WORDS: Geographical exploration, Bear Cut, Norris Cut, Shipping, Navigational channels

673
Hanlon, R. T. (1975) A study of growth in *Octopus briareus*, with notes on its laboratory rearing, mating, and field behavior. M.Sc. thesis. University of Miami, Coral Gables, FL. 111 pp.
TIME COVERAGE: 1972 - 1974
SUMMARY: Individuals of *Octopus briareus* were collected in the field and maintained until they mated and laid eggs. The hatchlings were reared through a complete life cycle. Descriptions of the rearing method, growth and development of the octopi, and field observations were described.
KEY WORDS: *Octopus briareus*, Growth, Rearing, Reproduction, Behavior, Soldier Key, Card Sound

674
Hanlon, R. T., F. M. Bayer, and G. L. Voss (1975) Guide to the mangroves, buttonwood, and poisonous shoreline trees of Florida, the Gulf of Mexico, and the Caribbean region. Sea Grant field guide series 3. University of Miami Sea Grant College Program, Coral Gables, FL. 29 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: This is a field guide to mangroves, buttonwood, and poisonous shoreline trees.
KEY WORDS: Mangrove swamps, Buttonwood, Poisonwood, Manchineel, Trees, Identification keys, Florida, Gulf of Mexico, Caribbean, Field guide

675
Hannan, E. M., C. W. Harrington, S. C. Harstrom, G. F. Nowak, and R. D. Rosenbaum (1972) Sedimentation history of Fisher Island, Biscayne Bay, Florida. Geology of Tropical Environments, contribution no 1. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 26 pp.
TIME COVERAGE: 1848 - 1967
SUMMARY: Fisher Island was once the southern-most part of Miami Beach before it was severed by the construction of Government Cut in 1905. The present form of the island is the result of bulkheading and filling during the 1920s. This study is a survey of the geological history of the island.
KEY WORDS: Sediment analysis, Beach profiles, Sedimentation, Fisher Island

676
Hannan, J. V. (1973) Aspects of osmoregulation in selected crustaceans and *Limulus*. Ph.D. dissertation. University of Miami, Coral Gables, FL. 57 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: This is a study of the osmoregulation mechanisms of some crustaceans. Specimens were collected in North Carolina and Biscayne Bay and maintained in aquaria.
KEY WORDS: Marine crustaceans, *Limulus polyphemus*, *Uca minax*, *Uca rapax*, *Uca pugilator*, *Penaeus duorarum*, Osmoregulation

677
Hanson, P. J., and D. W. Evans (1991) Metal contaminant assessment for the southeast Atlantic and Gulf of Mexico coasts: results of the National Surveillance Project over the first four years 1984-87. NOAA technical memorandum NMFS-SEFC 284. NOAA/NMFS, Beaufort Laboratory, Beaufort, NC. 18 pp.
SUMMARY: 1984 - 1987
KEY WORDS: Trace metals, Sediment analysis, Fish liver, National Status and Trends Program, Southeast Atlantic, Gulf of Mexico

678
Harlem, P. W. (1979) Aerial photographic interpretation of the historical changes in northern Biscayne Bay, Florida: 1925 to 1976. Sea Grant tech. bull. 40. University of Miami Sea Grant Program, Coral Gables, FL. 155 pp.
TIME COVERAGE: 1925 - 1976
SUMMARY: This report documents recent environmental history of northern Biscayne Bay using aerial photography combined with field studies.
KEY WORDS: Aerial photography, Coastal morphology, Land use, Resource development, Dredging, Environmental impact, History, Mangrove swamps, Spoil, Waste disposal, Turbidity, North Bay, Hurricane of 1926, Hurricane of 1929, Hurricane of 1935

679
Harlem, P. W. (1979) Aerial photographic interpretation of the historical changes in northern Biscayne Bay, Florida: 1925 to 1976. M.Sc. thesis. University of Miami, Coral Gables, FL. 152 pp.
TIME COVERAGE: 1925 - 1976
SUMMARY: The purpose of this study was to document historical changes in the terrestrial, shoreline and submerged environments of northern Biscayne Bay. [Reprinted as Sea Grant Tech. Bull. no. 40.]
KEY WORDS: Aerial photography, Coastal morphology, Land use, Resource development, Dredging, Environmental impact, History, Mangrove swamps, Spoil, Waste disposal, Turbidity, North Bay

680
Harper, R. M. (1927) Natural resources of southern Florida. 18th ann. rep. Florida State Geological Survey, Tallahassee, FL. 206 pp.
TIME COVERAGE: 1927 ◊
SUMMARY: This is a comprehensive report on the natural resources of south Florida. Included are geological and biological resources. A bibliography of pre-1925 materials in included.
KEY WORDS: Geology, Climate, Vegetation, Fauna, Bibliographies

681
Harrington, M. E. (1997) Behavior patterns and sexual dimorphism in the spotted dragonet, *Diplogrammus pauciradiatus* (Pisces: Callionymidae). Bull. Mar. Sci., 60(3):872-893.
TIME COVERAGE: 1993 - 1994
SUMMARY: Dragonets exhibit high degrees of sexual dimorphism. This study presented a detailed description of sexual dimorphism in the spotted dragonet and of the behavior patterns involved in courtship, spawning and agonistic interactions.
KEY WORDS: Sexual dimorphism, Behavior, Spotted dragonet, *Diplogrammus pauciradiatus*, Key Biscayne, Virginia Key

682
Harrington, M. E. (1996) Sexual selection in the spotted dragonet, *Diplogrammuc pauciradiatus* (Pisces: Callionymidae). University of Miami, Coral Gables, FL. 154 pp.
TIME COVERAGE: 1993 - 1994
SUMMARY: Results from the first study of sexual selection in dragonets were presented. Males have longer bodies and longer first dorsal fins than females. Males also obtain black pigment on the lower jaw and orange pigmentation on the head, two color patterns not observed in the female.
KEY WORDS: Dragonet, *Diplogrammus pauciradiatus*, Virginia Key, Key Biscayne, Bear Cut

683
Harrington, M. E., and J. E. Serafy (1998) An apparatus for testing the effects of episodic stressors on juvenile and adult fishes. Mar. Freshwater Behaviour Physiol., 31(2):81-91.
TIME COVERAGE: 1998 ◊
SUMMARY: We describe an apparatus designed to deliver pulsed changes in water quality with variable (and controlled) magnitudes, rates and durations used to simulate the dramatic changes in salinity associated with freshwater canal discharge into Biscayne Bay. Its application on juvenile bluestriped grunts is presented.
KEY WORDS: Water quality, Salinity, Canals, Osmoregulation, Apparatus, Bluestriped grunts, *Haemulon sciurus*

684
Harris, D. L. (1982) The prediction of hurricane storm surges: a state-of-the-art survey. Florida Sea Grant report SGR-49. Florida Sea Grant College Program, Gainesville, FL. 42 pp.
TIME COVERAGE: 1982 ◊
SUMMARY: This document was prepared to give a non-specialist an understanding of the problems involved in the prediction of coastal floods resulting from storm surge in Florida, the available technology for solving those problems, and ongoing efforts to improve technology.
KEY WORDS: Hurricanes, Storm surge prediction, Florida

685
Harris, L. E., B. J. Mostkoff, and G. Zadikoff (1996) Artificial reefs: from waste to resources. Proc., Oceans 96: Prospects for the 21st century. Fort Lauderdale, FL, 1996. Marine Technology Society, Washington, DC. 754-759.
TIME COVERAGE: 1996 ◊
SUMMARY: Waste materials have been the primary components used in the construction of artificial reefs. Ships, barges, airplanes, automobiles, concrete debris, tires and other waste items have been used successfully. The latest development is the use of custom designed reef units. Examples of these units are described.
KEY WORDS: Artificial reefs, Waste utilization

686
Harshbarger, J. C., and J. B. Clark (1990) Epizootiology of neoplasms in bony fish of North America. Sci. Total Environ., 94(1):1-32.
TIME COVERAGE: 1990 ◊
SUMMARY: This citation is a compilation of fish tumor epizootics in North America. The locations, fish species and types of tumor are listed.
KEY WORDS: Tumors, Fish diseases, Chemical pollution

687
Harshberger, J. W. (1914) The vegetation of south Florida, south of 27° 30' north, exclusive of the Florida Keys. Trans., Wagner Free Inst. Sci. Phila., 7(3):51-189.
TIME COVERAGE: 1914 ◊

SUMMARY: This is a comprehensive study of the vegetation of South Florida including the area surrounding Biscayne Bay.
KEY WORDS: Vegetation, Botanical resources, Biogeography, South Florida

688
Harwell, M. A. (1997) Ecosystem management of south Florida; developing a shared vision of ecological and societal sustainability. BioScience, 47(8):499-512.
TIME COVERAGE: 1997 ◊
SUMMARY: A case study of ecosystem management practices needed to achieve ecological sustainability of the South Florida ecosystem has been underway for the past five years as part of the U.S. Man and the Biosphere effort. This paper describes the results.
KEY WORDS: Ecosystem management, Sustainability, Everglades, South Florida

689
Harwell, M. C. (1993) Reciprocal transplants of *Thalassia testudinum* and *Halodule wrightii* in Biscayne Bay, Florida. Honors thesis. University of South Florida, Tampa, FL. 44 pp.
TIME COVERAGE: 1993
SUMMARY: The primary objective of this study was to determine if *Thalassia* was the dominant species in the region since it out-competes *Halodule* for light.
KEY WORDS: Seagrass, Transplantation, *Thalassia testudinum*, *Halodule wrightii*, Biscayne National Park

690
Harwell, M. A. (1998) Science and environmental decision making in south Florida. Ecological Applications, 8(3):580-590.
TIME COVERAGE: 1998 ◊
SUMMARY: The dominant anthropogenic stressor to the South Florida environment has been hydrological modifications instituted to provide flood protection for land selected for agriculture and urban development. Thus major re-design of the hydrologic system is necessary to restore and sustain the ecosystem.
KEY WORDS: Ecosystem management, Risks, Decision making, Sustainability, Everglades, South Florida

691
Harwell, M. A., V. Myers, T. Young, A. Bartuska, N. Gassman, J. H. Gentile, C. C. Harwell, S. Appelbaum, J. Barko, B. Causey, C. Johnson, A. McLean, R. Smola, P. Templet, and S. Tosini (1999) A framework for an ecosystem integrity report card; examples from south Florida show how an ecosystem report card links societal values and scientific information. BioScience, 49(7):543-556.
TIME COVERAGE: 1999 ◊
SUMMARY: This paper discusses ways of determining the effectiveness of management decisions by ecosystem managers.
KEY WORDS: Ecosystem management, Performance assessment, Sociological aspects, Environmental monitoring, South Florida

692
Hatfield, E. B. (1977) Aspects of the population ecology of *Anachis avara* (Say) (Gastropoda: Prosobranchia) from Bear Cut, Miami, Florida. Ph.D. dissertation. University of Miami, Coral Gables, FL. 183 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: This study examined feeding, growth and longevity of individuals, reproduction, abundance, size structure, demography and productivity of snails collected from seagrass flats in Bear Cut.

KEY WORDS: Snails, *Anachis avara*, Population dynamics, Bear Cut

693
Hatfield, E. B. (1979) Food sources for *Anachis avara* (Columbellidae) and a discussion of feeding in the family. Nautilus, 93(-):40-43.
TIME COVERAGE: 1979 ◊
SUMMARY: Snails specimens collected in Bear Cut were maintained in the laboratory on carrion, epibiota of seagrass, organics in sediment and organics in a flow through system. Snails grew best on a diet of epibiota.
KEY WORDS: Snails, Columbellidae, *Anachis avara*, Food consumption, Bear Cut

694
Hatfield, E. B. (1980) Natural history and population fluctuation of the gastropod *Anachis avara* (Say) in a tropical seagrass habitat, Miami, Florida. Bull. Mar. Sci., 30(3):604-612.
TIME COVERAGE: 1970 - 1975
SUMMARY: Seasonal fluctuations of the population of *Anachis avara* at Bear Cut were studied. Periodic differences could be due to predation by mobile species present in Bear Cut. Results of temperature and salinity tolerances suggest *A. avara* was not under physiological stress during the duration of the work. Shoaling of the Thalassia bed towards the end of the study probably contributed to the drastic decrease in abundance of *A. avara.*
KEY WORDS: Snails, *Anachis avara*, Population dynamics, Turtle grass, *Thalassia testudinum*, Bear Cut

695
Haus, B. K., and R. Lhermitte (1996) Coherent sonar measurements of water motion and turbulence in a tidal inlet. In: Proc., Oceans 96: Prospects for the 21st Century. MTS/IEEE, Fort Lauderdale, FL, 1996. Marine Technology Society, Washington, DC. 436-441.
TIME COVERAGE: 1996 ◊
SUMMARY: Vertical profiles of water motion and turbulence were obtained using Doppler sonar installed in Bear Cut.
KEY WORDS: Doppler sonar, Vertical water movement, Turbulence measurement, Bear Cut

696
Heald, E. J., and W. E. Odum (1970) The contribution of mangrove swamps to Florida fisheries. Proc., Gulf Caribb. Fisheries Institute, 22nd annual session. Miami Beach, FL, 1969. University of Miami, Coral Gables, FL. 130-135.
TIME COVERAGE: 1970 ◊
SUMMARY: This citation describes the biological pathways of energy flow in the mangrove community and assessed the value of mangrove material to the ecosystem.
KEY WORDS: Mangrove swamps, Detritus, Fisheries, Energy flow

697
Heald, E. J., W. E. Odum, and D. C. Tabb (1974) Mangroves in the estuarine food chain. In: Environments of South Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 182-189.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation discusses the different roles of red and black mangroves in estuarine food chains. Red mangroves produce a large quantity of detrital material upon which is based a food chain from microorganisms to top carnivores of sport and commercial value. Black mangroves, by virtue of their location, are probably not significant exporters of detritus to adjacent estuaries. Their importance lies apparently in the mosquito-killifish food chain culminating in the same top level carnivores as the red mangrove-based system.
KEY WORDS: Mangrove swamps, Food chains, Estuaries, Estuarine organisms

698
Heald, E. J., W. E. Odum, and D. C. Tabb (1984) Mangroves in the estuarine food chain. In: Environments of South Florida: Present and Past II. P. J. Gleason (ed.). Miami Geological Society, Coral Gables, FL. 551 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: This citation describes the seemingly different roles of red and black mangroves in estuarine food chains. Red mangroves produce large amounts of detrital material upon which is based a food chain. Many black mangrove communities by virtue of their location are not significant exporters of detritus to adjacent estuaries. Their importance lies apparently in the mosquito-killifish food chain culminating in the same top level carnivores as the red mangrove-based system.
KEY WORDS: Mangrove swamps, Food chains, Estuaries, Estuarine organisms

699
Heath, R. C., and C. S. Conover (1981) Hydrologic almanac of Florida. Open file report 81-1107. US Geological Survey, Tallahassee, FL. 239 pp.
TIME COVERAGE: 1981 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water resources, Hydrology, Florida

700
Heemstra, P. C. (1965) A field key to the Florida sharks. Florida Board of Conservation technical series 45. Florida Board of Conservation Marine Laboratory, St. Petersburg, FL. 11 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Sharks, Identification keys, Florida, Guide

701
Heinrich, M. K. (1997) Airport plans affect parks: international airports proposed near Florida, Hawaii parks. National Parks, 71(3-4):24-25.
TIME COVERAGE: 1997 ◊
SUMMARY: This paper describes the proposed conversion of the Homestead Air Force Base airport to accommodate international commercial air traffic.
KEY WORDS: Environmental impact, Homestead Air Force Base, Military Canal, Biscayne National Park, Everglades National Park, Kahului Airport, Haleakala National Park, Noise abatement

702
Hela, I. (1951) Remarks on the climate of southern Florida. Bull. Mar. Sci. Gulf Caribb., 2(2):438-447.
TIME COVERAGE: 1951 ◊
SUMMARY: The climate of the state was discussed and the distribution of continentally analyzed, The unexpectedly high degree of continentality of the Florida Keys is explained in terms of the prevailing winds.
KEY WORDS: Climate, Tropical environment, South Florida

703
Hela, I., C. A. Carpenter, and J. K. McNulty (1957) Hydrography of a positive, shallow, tidal bar-built estuary (report on the hydrography of the polluted area of Biscayne Bay). Bull. Mar. Sci. Gulf Caribb., 7(1):47-99.
TIME COVERAGE: 1957 ◊

SUMMARY: The summer pollution situation in the Bay north of Rickenbacker Cswy. during the summer of 1954 was compared to that of 1949, is was found that due to abnormally high river water discharge in 1954, pollution was less severe than expected.
KEY WORDS: Hydrography, Tidal inlets, Estuarine dynamics, Flushing, Water circulation, River discharge, Miami River, Water pollution

704
Hela, I., C. A. Carpenter, and J. K. McNulty (1955) Water exchange studies. In: Report on preliminary studies of pollution in Biscayne Bay. H. B. Moore, I. Hela, E. S. Reynolds, J. K. McNulty, S. M. Miller, and C. A. Carpenter Progress report 55-3. Report to Federal Security Agency, Public Health Service, National Institutes of Health, under grant E-510. Marine Laboratory, University of Miami, Coral Gables, FL. Various paging.
TIME COVERAGE: 1955 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Hydrography, Water exchange, Estuarine dynamics, Miami River, Tidal dynamics, Water pollution, Salinity

705
Henderson-Rosenberg & Associates (1974) Status of environmental management and planning in south Florida's coastal zone. Henderson-Rosenberg & Associates, Miami, FL. 77 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Environment management, Coastal zone management, Regional planning, South Florida

706
Hendrix, G. Y. (1968) A review of the genus Phascolion (Sipuncula) in the tropical western Atlantic and Caribbean with the descriptions of three new species. M.Sc. thesis. University of Miami, Coral Gables, FL. 77 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: This is a taxonomic study of Phascolion worms. Some specimens were collected in Biscayne Bay.
KEY WORDS: Sipunculids, *Phascolion cryptus*, *Phascolion grastis*, *Phascolion caupo*, *Phascolion strombus*, Taxonomy, Virginia Key, Key Biscayne

707
Hendrix, G. Y. (1971) A systematic study of the genus *Alpheus* (Crustacea: Decapoda: Alpheidae) in south Florida. Ph.D. dissertation. University of Miami, Coral Gables, FL. 184 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: This is a systematics study of caridean shrimp. Some specimens were collected in Biscayne Bay.
KEY WORDS: Caridean shrimp, Alpheus, Taxonomy, Identification keys, Key Biscayne, Florida Keys

708
Henry, H. R., and F. A. Kohout (1972) Circulation patterns of saline groundwater affected by geothermal heating - as related to waste disposal. In: Proc. Symp., Underground Waste Management and Environmental Implications. T. D. Cook, (ed.). Houston, TX, 1971. American Association of Petroleum Geologists memoir 18. American Association of Petroleum Geologists, Tulsa, OK. 201-221.
TIME COVERAGE: 1972 ◊
SUMMARY: This paper discusses the potential use of deep saline aquifers as reservoirs for the disposal of liquid wastes. Mathematical models of the Floridan aquifer were under development.

KEY WORDS: Saline water, Ground water, Geothermal gradient, Waste disposal, Floridan Aquifer

709
Henshall, J. H. (1888) Camping and Cruising in Florida: an Account of Two Winters Passed in Cruising Around the Coasts of Florida as Viewed from the Standpoint of an Angler, a Sportsman, a Yachtsman, a Naturalist and a Physician. R. Clarke, Cincinnati, OH. 248 pp.
TIME COVERAGE: 1888◊
SUMMARY: This is an account of two winters spent by the author in Florida. The book includes a brief description of Biscayne Bay.
KEY WORDS: Cruises, Natural resources, Biota, Florida

710
Henshall, J. A. (1891) Report upon a collection of fishes made in southern Florida during 1889. Bulletin of the U.S. Fish Commission, 9(-):371-389.
TIME COVERAGE: 1889
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Marine fish

711
Herreid, C. F. (1963) Observations on the feeding behavior of *Cardisoma guanhumi* (Latreille) in southern Florida. Crustaceana, 5(3):176-180.
TIME COVERAGE: 1963 ◊
SUMMARY: This citation describes the feeding behavior and some of the plants eaten by land crabs at the Miami Plant Introduction Station.
KEY WORDS: Land crab, *Cardisoma guanhumi*, Feeding behavior

712
Herreid, C. F. (1967) Skeletal measurements and growth of the land crab, *Cardisoma guanhumi* Latreille. Crustaceana, 13(1):39-44.
TIME COVERAGE: 1961 - 1962
SUMMARY: This citations describes the skeletal measurements, color variations and sexual dimorphism of land crab collected in Biscayne Bay.
KEY WORDS: Land crab, *Cardisoma guanhumi*, Growth, Skeleton

713
Herrnkind, W. F. (1968) Ecological and ontogenetic aspects of visual orientation in the sand fiddler crab, *Uca pugilator* (Bosc). Ph.D. dissertation. University of Miami, Coral Gables, FL. 144 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: Extensive observations at the study site revealed specific behavior patterns involving directional orientation including responses to polarized and sunlight and landmarks.
KEY WORDS: Sand fiddler crab, *Uca pugilator*, Orientation behavior, Vision, Life cycle, Virginia Key, Key Biscayne

714
Herrnkind, W. F. (1965) Investigations concerning homing, directional orientation, and insight in the sand fiddler crab, *Uca pugilator* (Bosc). M.Sc. thesis. University of Miami, Coral Gables, FL. 146 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: Homing activities of the sand fiddler crab were observed in several habitats. Crabs moved either singly for short distances or in large groups traveling as far as 50 yds from the

burrow area. Individual crabs would more up to two yards away from the burrow and return directly to it.
KEY WORDS: Sand fiddler crab, *Uca pugilator*, Homing behavior, Orientation behavior, Virginia Key

715
Herrnkind, W. (1994) Spiny lobster recruitment. Unpublished final report and addendum. Florida State University, Tallahassee, FL.
TIME COVERAGE: 1994 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Spiny lobster, Panulirus argus, Recruitment, Florida Bay, Florida Keys

716
Herrnkind, W. F., and W. C. Cummings (1964) Single file migrations of the spiny lobster, *Panulirus argus* (Latreille). Bull. Mar. Sci. Gulf Caribb., 14(1):123-125.
TIME COVERAGE: 1961, 1963
SUMMARY: Underwater observations were made of mass movements of spiny lobsters in single file chains.
KEY WORDS: Spiny lobster, *Panulirus argus*, Migrations

717
Hess, S. C. (1978) Guide to the commoner shallow-water asteroids (starfish) of Florida, the Gulf of Mexico, and the Caribbean region. Sea Grant field guide series 7. University of Miami Sea Grant College Program, Coral Gables, FL. 37 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: This is a field guide to shallow water starfish of Florida.
KEY WORDS: Asteroids, Starfish, Identification keys, Florida, Gulf of Mexico, Caribbean, Guide

718
Hessinger, D. A., H. M. Lenhoff, and L. B. Kahan (1973) Haemolytic, phosphilipase A and nerve-affecting activities of sea anemone nematocyst venom. Nature New Biology, 241(-):125-127.
TIME COVERAGE: BB 491
SUMMARY: Specimens of sea anemone were culture in the laboratory from original specimens collected in Biscayne Bay. Undischarged nematocysts were collected and the venom released. The venom was found to be extremely effective in lysing red blood cells. Two proteins were isolated from the venom and the physiological effects of these compounds was studied.
KEY WORDS: Stinging organs, Sea anemone, *Aiptasia pallida*, Biological poisons

719
Hiaasen, C. (1999) Stiltsville is useful. The Miami Herald, Miami, FL. June 17.
TIME COVERAGE: 1999 ◊
SUMMARY: This article describes the usefulness of Stiltsville as a navigation aid to the inexperienced boater.
KEY WORDS: Stiltsville, Navigation aid

720
Hibler, J. (1995) Temperature dependent emergence and social behavior in loggerhead sea turtle (*Caretta caretta*) hatchlings. Florida Scientist, 58(Suppl. 1):30.
TIME COVERAGE: 1994
SUMMARY: Hatchling loggerhead sea turtles were observed at a beach in Key Biscayne. A correlation was found between nest temperature and emergence events. Potential vocal communication among the hatchlings was observed.
KEY WORDS: Loggerhead turtle, *Caretta caretta*, Hatching, Temperature effects, Key Biscayne

721
Hicks, D. B. (1989) Water quality and toxic assessment study, mangrove preserve, Munisport Landfill site, North Miami, Florida. Report. EPA, Environmental Services Division, Athens, GA. Various paging.
TIME COVERAGE: 1989
SUMMARY: The purpose of this study was to determine whether leachates from the Munisport landfill would affect the Florida State Mangrove Preserve located near the landfill site. The toxicity of the leachates will severely impair the ecological functions of the preserve and preclude development and maintenance of a balance aquatic community.
KEY WORDS: Water quality, Chemical pollutants, Ammonia, Mangroves, Tides, Toxicity, Groundwater pollution, Munisport Landfill, Florida State Mangrove Preserve, North Miami, Munisport, Black Point, Biscayne Creek, Dania Cutoff Canal

722
Higer, A. L., and M. C. Kolipinski (1970) Sources of pesticides in Florida waters. Open file rep. 70005. US Geological survey, Water Resources Division, Tallahassee, FL. 20 pp.
TIME COVERAGE: 1966 - 1967
SUMMARY: Information on pesticide use was assembled for use in designing programs to monitor the hydrobiological system of Florida.
KEY WORDS: Pesticides, Ground water, Surface water, Florida

723
Higer, A. L., M. C. Kolipinski, N. S. Thomson, and L. Purkerson (1971) Use of processed multispectral scanner data with a digital simulation model for forecasting thermally induced changes in benthic vegetation in Biscayne Bay, Florida. In: Proc., 7th International Symp. on Remote Sensing of Environment,. 1971. Infrared and Optics Laboratory, Institute of Science and Technology, University of Michigan, Ann Arbor, MI. 2055-2056.
TIME COVERAGE: 1971 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Multispectral scanners, Simulators, Thermal pollution, Seagrass, Card Sound, Turkey Point, South Bay

724
Higman, J. B. (1955) The behavior of pink shrimp, *Penaeus duorarum* Burkenroad, in a direct current electrical field. M.Sc. thesis. University of Miami, Coral Gables, FL. 49 pp.
TIME COVERAGE: 1955 ◊
SUMMARY: The purpose of this study was to determine if shrimp could be made to react directionally to an electric current and if so, what the optimum electrical conditions would be. No attempt was made to determine the physiological basis for this behavior. Specimens were collected in Biscayne and Florida Bays.
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Electric fields, Behavioral responses, Florida Bay

725
Higman, J. B. (1952) Preliminary investigation of the live bait shrimp fishery of Florida Bay and the Keys. Mimeographed report 52-20. Marine Laboratory, University of Miami, Coral Gables, FL. 7 pp.
TIME COVERAGE: 1952 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Bait, Shrimp fisheries, Florida Bay, Florida Keys

726
Hildebrand, E. L. (1977) Mangrove sediments in south Florida: soluble organic carbon and the growth physiology of an epipelic diatom. M.Sc. thesis. University of Miami, Coral Gables, FL. 171 pp.
TIME COVERAGE: 1974 - 1975
SUMMARY: Levels of dissolved organic carbon (DOC) in shallow waters and pore waters were determined and found to be high relative to values in other natural waters. In general, an increase of DOC levels was found with increasing distance from the shoreline. An epipelic diatom was isolated from peat sediments. It has a very low light saturation intensity and is eurohaline. The potential ability of this diatom species to use organic compounds for growth in the dark or more luxurious growth in the light was investigated.
KEY WORDS: Mangrove swamps, Sediment, Organic carbon, Diatoms, Amphora, Little Card Sound

727
Hine, A. E. (1971) Reproduction of *Caulerpa* Lamouroux with notes on the life history of certain American species. Ph.D. dissertation. University of Miami, Coral Gables, FL. 236 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: Reproduction and life histories of some of the American species of this algal genus were described. Some specimens were collected in Biscayne Bay.
KEY WORDS: Algae, Caulerpa, Reproduction, Life history

728
Hiser, H. W., S. S. Lee, T. N. Veziroglu, and S. Sengupta (1975) Application of remote sensing to thermal pollution analysis. In: Remote Sensing of Earth Resources. Proc., 4th annual Conf. on Earth Resources. Tullahoma, TN, 1975. University of Tennessee, Tullahoma, TN. 481-497.
TIME COVERAGE: 1975 ◊
SUMMARY: A comprehensive numerical model development program for near-field thermal plume discharge and far field general circulation in coastal regions was developed with the objective of developing a generalized, three-dimensional, predictive model for thermal pollution studies. One of the regions of specific application was the power plant site in Biscayne Bay.
KEY WORDS: Remote sensing, Thermal pollution, Infrared detectors, Power plants, Hutchinson Island

729
Hixon, R. (1976) Studies on the abundance of animals captured in artificial habitats in Card Sound, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 116 pp.
TIME COVERAGE: 1971 - 1972
SUMMARY: An artificial habitat (cage) was designed to simultaneously sample small invertebrates, fishes and lobsters and deployed in Card Sound. All animals collected were identified and counted.
KEY WORDS: Abundance, Benthos, Marine mollusks, Marine crustaceans, Fish, Spiny lobster, *Panulirus argus*, Waste disposal, Card Sound, Turkey Point, Species list

730
Ho, W. (1998) FP&L: the history of Florida Power and Light. South Florida History Mag., 26(4):Various paging.
TIME COVERAGE: 1925 -
SUMMARY: This article describes the history of Florida Power and Light.
KEY WORDS: Florida Power and Light, Turkey Point

731
Hobbs, A. (1988) Historical overview of federal beach nourishment projects in Florida. In: Proc., Beach Preservation Technology 88: Problems and Advancements in Beach Nourishment. L. S. Tait, (comp.). Florida Shore & Beach Preservation Association, Tallahassee, FL. 41-46.
TIME COVERAGE: 1988 ◊
SUMMARY: This paper is a compilation and update of previous papers presented to the Florida Shore & Beach Preservation Association on beach nourishment projects.
KEY WORDS: Beach nourishment, Government policy, Florida

732
Hoberg, C. M. (1975) Responses of mature male blue crabs, *Callinectes sapidus* Rathbun, to laboratory thermal gradients, with notes on mature female stone crabs, *Menippe mercenaria* (Say). M.Sc. thesis. University of Miami, Coral Gables, FL. 134 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: Crabs were exposed to thermal gradients and thermal avoidance, preference, sensitivity, differentiation and control responses examined.
KEY WORDS: Blue crab, *Callinectes sapidus*, Stone crab, *Menippe mercenaria*, Temperature effects, Ft. Myers, Card Sound

733
Hoffman, K. (1997) Institutional framework. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Environmental legislation, Legal aspects, Water use regulations, Virginia Key

734
Hoffmeister, J. E. (1974) Land From the Sea: the Geologic Story of South Florida. University of Miami Press, Coral Gables, FL. 143 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: This is a concise description of the geology of South Florida including the Key Biscayne petrified mangrove forest.
KEY WORDS: Geology, Oolites, Ooids, Barrier islands, Coral, Coral reefs, Reef tract, Florida Bay, Florida Keys, Water resources, Key Biscayne

735
Hoffmeister, J. E., J. I. Jones, J. D. Milliman, D. R. Moore, and H. G. Multer (1964) Living and fossil reef types of south Florida. Guidebook for the Geological Society of America convention field trip no. 3, November 1964. Miami Geological Society, Miami, FL. 28 pp.
TIME COVERAGE: 1964 ◊
SUMMARY: This is a field guide to living and fossil reefs. Biscayne Bay is briefly discussed.
KEY WORDS: Reefs, Limestone, Oolites, Coral reefs, Reef tract, Florida Keys, Field guide, Florida Bay

736
Hoffmeister, J. E., and H. G. Multer (1965) Fossil mangrove reef of Key Biscayne, Florida. Geological Soc. America Bull., 76(-):845-852.
TIME COVERAGE: 1965 ◊
SUMMARY: A small rock reef along the north shore of Key Biscayne was found to be composed of a frame-work of fossilized black mangrove roots. The roots, now turned into calcareous rods, are embedded in a friable calcareous-quartzitic sand which may be quickly washed away by wave action along the seaward edge of the reef. Radiocarbon dating indicates the age of the rods to be between 1000 and 2000 years.

KEY WORDS: Mangrove swamps, Fossils, Roots, Avicennia nitida, Reefs, Key Biscayne

737
Hoffmeister, J. E., and H. G. Multer (1968) Geology and origin of the Florida Keys. Geological Soc. America Bull., 79(11):1487-1501.
TIME COVERAGE: 1968 ◊
SUMMARY: The Florida Keys are composed of two main formations of Pleistocene age - the Key Largo Limestone and the Miami Limestone. The former is an elevated coral reef rock, and the latter is an oolitic limestone. The Key Largo Limestone is the surface rock of the Upper Keys, and the Miami Limestone covers the Lower Keys. The Key Largo extends for the total length of the Keys, underlying the Miami Limestone in the Lower Keys. The Keys may have formed as a line patch reef in a back reef area which was bordered on its seaward edge by an outer reef which has since been lowered, chiefly by erosion, and covered by more recent material.
KEY WORDS: Geology, Limestone, Oolites, Reef tract, Florida Keys, Elliott Key

738
Hoffmeister, J. E., K. W. Stockman, and H. G. Multer (1967) Miami limestone of Florida and its recent Bahamian counterpart. Geological Soc. America Bull., 78(-):175-189.
TIME COVERAGE: 1967 ◊
SUMMARY: A large underwater mound of unstable oölite is forming in the Bahamas and east of the mount in the shallow lagoon, massive, tubular bryozoans are growing. The oölite from the mound is slowly encroaching over the bryozoan beds. The bathymetric and ecologic conditions now extant in this area are probably similar to those which existed during the Pleistocene to form the units of the Miami Limestone.
KEY WORDS: Geology, Limestone, Oolites, Bryozoa, Great Bahama Bank

739
Hofstetter, R. H. (1974) The effect of fire on the pineland and sawgrass communities of southern Florida. In: Environments of South Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 201-212.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation discusses the role of fire in terrestrial and wetland communities of South Florida.
KEY WORDS: Fire, Marshes, Wetlands, Pinelands, Sawgrass, *Cladium jamaicense*, Everglades

740
Holder, J. B. (1987) Along the Florida reef. In: Tales of Old Florida. Castle, Secaucus, NJ. 477 pp.
TIME COVERAGE: 1890s
SUMMARY: This is a series of articles describing the adventures of the author during the reconaissance of South Florida for the purpose of installing the telegraph cable to Cuba.
KEY WORDS: Natural resources, History, South Florida, Florida Keys

741
Hollingsworth, T. (1936) History of Dade County, Florida. Glade House, Coral Gables, FL. 151 pp.
TIME COVERAGE: 1936 ◊
SUMMARY: This book is a history of Dade County. Development along Biscayne Bay is discussed briefly.
KEY WORDS: Dade County, History, Biographies

742
Hollingsworth, T. (1949) History of Dade County, Florida. Miami Post, Miami, FL. 192 pp.

TIME COVERAGE: 1949 ◊
SUMMARY: This book contains short descriptions of major aspects of the history of Dade County such as the Perrine Grant, early industries and settlements, aviation, and the 1920s Boom. Also included are short biographies of important people in Dade County.
KEY WORDS: Dade County, History, Biographies, Perrine Grant, Aviation, 1920s Boom

743
Holm, R. F. (1975) The community structure and diversity of a nearshore tropical marine lagoon. Ph.D. dissertation. Northwestern University, Evanston, IL. 305 pp.
TIME COVERAGE: 1973 - 1974
SUMMARY: The community structure and diversity of a near-shore tropical marine lagoon in the Upper Florida Keys was examined. Two areas along the intertidal-subtidal gradients were examined.
KEY WORDS: Lagoons, Benthos, Biota, Community composition, Old Rhodes Key, Species list

744
Holm, R. F. (1978) The community structure of a tropical marine lagoon. Est. Coastal Mar. Sci., 7(4):329-345.
TIME COVERAGE: 1973 - 1974
SUMMARY: The structure of the benthic community in Old Rhodes Key was examined. Water depth, tides, current, water temperature, salinity, pH, sediment depth and particle size were monitored. The amount of vegetation present and the stability of the sediment modified the abundance and diversity of the benthic macrofauna.
KEY WORDS: Lagoons, Benthos, Biota, Community composition, Old Rhodes Key, Species list

745
Holm, R. F. (1981) Snapper Creek Canal discharge monitoring program. Report. Dade County. Department of Environmental Resources Management, Miami, FL. 52 pp + maps.
TIME COVERAGE: 1980
SUMMARY: Discharge from Snapper Creek was monitored to examine its effect on water quality of Biscayne Bay. Of all the parameter examined, bacteria from the canal had the major influence on the Bay.
KEY WORDS: Water quality, Stormwater runoff, Drainage water, Pollution monitoring, Snapper Creek Canal, Salinity, Coliform bacteria, Turbidity, Color, Nutrients, Oil and grease, BOD, Cd, Cu, Pb, Zn, Suspended solids

746
Holmes, D. S. (1969) A contribution to the ecology of *Cardita floridana*. M.Sc. thesis. University of Miami, Coral Gables, FL. 47 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: The general biology of *Cardita* was examined. Samples of this clam species were collected off Rickenbacker Cswy.
KEY WORDS: Clams, *Cardita floridana*, Life history, Florida Bay, Rickenbacker Causeway

747
Hoover, H. W. (1969) Results of the coliform sampling program for Biscayne Bay, December 7, 1969. Unpublished manuscript. Hoover Environmental Legal Defense Fund, Miami, FL. 4 pages + remarks.
TIME COVERAGE: 1969
SUMMARY: This report contains the results of coliform determination in many sites in Biscayne Bay.
KEY WORDS: Bacteria, Sewage, Water pollution, Bear Cut, Turkey Point, Key Biscayne, Crandon Park, Cape Florida State Park, Miami River, Matheson Hammock

748
Hopkins, T. E., J. E. Serafy, and P. J. Walsh (1997) Field studies on the ureogenic gulf toadfish, in a subtropical bay. II. Nitrogen excretion physiology. J. Fish Biol., 50(6):1271-1284.
TIME COVERAGE: 1993 - 1994
SUMMARY: Several biochemical and physiological measurements relating to urea synthesis and excretion were measured in samples taken from freshly collected gulf toadfish from a subtidal population of Biscayne Bay. This indirect approach was used instead of direct measurements of nitrogen excretion because excretion patterns of gulf toadfish are altered markedly during the first 24 hrs of capture disturbance or laboratory confinement.
KEY WORDS: Ornithine-urea cycle, Urea, Gulf toadfish, *Opsanus beta*, Turkey Point, Black Point, Matheson Hammock, Rickenbacker Causeway

749
Hopkins, T. E., C. M. Wood, and P. J. Walsh (1999) Nitrogen metabolism and excretion in the intertidal population of the gulf toadfish (*Opsanus beta*). Marine and Freshwater Behaviour and Physiology, 33(1):21-34.
TIME COVERAGE: 1993 - 1994
SUMMARY: This study was undertaken to assess the ability of toadfish to make and excrete urea as nitrogenous waste products. Some specimens used in the study were collected off Turkey Point.
KEY WORDS: Toadfish, *Opsanus beta*, Urea, Excretion, Panacea, Turkey Point

750
Hopper, B. E. (1967) Free-living marine nematodes from Biscayne Bay, Florida, II. Oncholaimidae: descriptions of five new species and one new genus (*Meyersia*). Mar. Biol., 1(-):145-151.
TIME COVERAGE: 1965
SUMMARY: A new genus and five species of the nematode family Oncholaimidae were described from Biscayne Bay.
KEY WORDS: Nematodes, Oncholaimidae, *Metoncholaimus pelor*, *Metoncholaimus amplus*, *Meyersia major*, *Meyersia minor*, *Filoncholaimus prolatus*, Taxonomy, Key Biscayne

751
Hopper, B. E. (1970) Free-living marine nematodes from Biscayne Bay, Florida, III. Eurystominidae: *Pareurystomina bissonettei* sp. n. from Biscayne Bay and other locations. Proc. Helminthological Soc. Washington, 37(2):175-178.
TIME COVERAGE: 1970 ◊
SUMMARY: The nematode, *Pareurystomina bissonettei*, is described from sandy locations in Biscayne Bay and other locations.
KEY WORDS: Nematodes, *Pareurystomina bissonettei*, Taxonomy

752
Hopper, B. E. (1972) Free-living marine nematodes from Biscayne Bay, Florida. IV. Cyatholaimidae: on the occurrence of *Marilynia* n. gen. and *Longicyatholaimus* Micoletzky, 1924 in Biscayne Bay, with a description of *L. longicaudatus* (de Man,1876) from the type locality. Zoologischer Anzeiger, 189(1/2):64-88.
TIME COVERAGE: 1972 ◊
SUMMARY: This paper is a discussion of nematode species identification.
KEY WORDS: Nematodes, Cyatholaimidae, Marilynia, *Longicyatholaimus longicaudatus*

753
Hopper, B. E. (1973) Free-living marine nematodes from Biscayne Bay, Florida, VI. Ceramonematidae: systematics of Pselionema annulatum var. beauforti Chitwood, 1936, and a note on the production and transport of an egg capsule. Proc. Helminthological Soc. Washington, 40(2):265-272.
TIME COVERAGE: 1973 ◊
SUMMARY: *Pselionema annulatum* is redescribed from specimens collected from Card Sound and Biscayne Bay.
KEY WORDS: Nematodes, *Pselionema annulatum var. beauforti*, Eggs, Taxonomy, Card Sound

754
Hopper, B. E., and R. C. Cefalu (1973) Free-living marine nematodes from Biscayne Bay, Florida, V. Stilbonematinae: contributions to the taxonomy and morphology of the genus Eubostricus Greeff and related genera. Trans. Amer. Micros. Soc., 92(4):578- 591.
TIME COVERAGE: 1973 ◊
SUMMARY: Four species of stilbonematid nematodes were recorded in Florida waters, two of which were new to science.
KEY WORDS: Nematodes, Stilbonematinae, *Eubostrichus dianeae*, *Eubostrichus parasitiferus*, *Catanema porosum*, *Robbea tenax*, Taxonomy

755
Hopper, B. E., and R. C. Cefalu (1973) Free-living marine nematodes from Biscayne Bay, Florida. VII. Enoplidae: Enoplus species in Biscayne Bay with observations on the culture and bionomics of *E. paralittoralis* Wieser, 1953. Proc. Helminthological Soc. Washington, 40(2):275-280.
TIME COVERAGE: 1973 ◊
SUMMARY: Two species of nematodes are described from species collected in Biscayne Bay.
KEY WORDS: Nematodes, *Enoplus geminivelatus*, *Enoplus paralittoralis*, Taxonomy

756
Hopper, B. E., J. W. Fell, and R. C. Cefalu (1973) Effect of temperature on life cycles of nematodes associated with the mangrove (*Rhizophora mangle*) detrital system. Mar. Biol., 23(-):293-296.
TIME COVERAGE: 1973
SUMMARY: The effect of temperature on the life history of various representatives of the meiofauna associated with decaying mangrove leaves was investigated. In general, life cycles of nematodes become shorter with increased temperatures. However, as temperatures approach the upper limits which support reproduction, life cycles become slightly lengthened.
KEY WORDS: Temperature effects, Nematodes, Mangrove swamps, *Rhizophora mangle*, Detritus, *Rhabditis marina*, Diplolaimelloides, *Diplolaimella ocellata*, *Enoplus paralittoralis*, Oncholaimus, *Haliplectus dorsalis*

757
Hopper, B. E., and S. P. Meyers (1966) Aspects of the life cycle of marine nematodes. Helgolander wissenschaftliche Meeresuntersuchungen, 13(-):444-449.
TIME COVERAGE: 1966 ◊
SUMMARY: The life cycles of six species of marine nematodes collected from a seagrass community were studied.
KEY WORDS: Nematodes, Life cycle

758
Hopper, B. E., and S. P. Meyers (1967) Foliicolous marine nematodes on turtle grass, *Thalassia testudinum* König, in Biscayne Bay, Florida. Bull. Mar. Sci., 17(2):471-517.

TIME COVERAGE: 1964
SUMMARY: The ecology and taxonomy of foliicolous nematodes living in *Thalassia* were studied at four sites in Biscayne Bay. Differences in speciation and population levels between sites and within individual sites as affected by physical and seasonal factors are noted.
KEY WORDS: Nematodes, Turtle grass, *Thalassia testudinum*, Population dynamics, Taxonomy

759
Hopper, B. E., and S. P. Meyers (1966) Observations on the bionomics of the marine nematode, *Metoncholaimus* sp. Nature, 209(-):899-900.
TIME COVERAGE: 1964 - 1965
SUMMARY: The bionomics of the nematode *Metoncholaimus* found in *Thalassia testudinum* communities in Biscayne Bay was studied. Data on biological characteristics of the animal, including movement, egg deposition and development are discussed.
KEY WORDS: Nematodes, Metoncholaimus, Ecology, *Thalassia testudinum*

760
Hopper, B. E., and S. P. Meyers (1967) Population studies on benthic nematodes within a subtropical seagrass community. Mar. Biol., 1(-):85-96.
TIME COVERAGE: 1965 - 1966
SUMMARY: This is a study of the benthic nematode fauna of the soft surface sediments of a *Thalassia* bed in Bear Cut. A high degree of homogeneity was exemplified by the dominance of four species out of approximately 100 nematode taxa in the area. Physiographic changes in the environment were reflected in species composition. Population densities were found to vary during the year.
KEY WORDS: Nematodes, Benthos, Turtle grass, *Thalassia testudinum*, Population dynamics, Key Biscayne, Bear Cut

761
Horvitz, C. C., S. McMann, and A. Freedman (1995) Exotics and hurricane damage in three hardwood hammocks in Dade County parks, Florida. In: Impacts of Hurricane Andrew on the Coastal Zones of Florida and Louisiana: 22-26 August 1992 (J. Coastal Res. Spec. Issue 21). G. W. Stone, and C. W. Finkl (eds.). Coastal Education and Research Foundation, Ft. Lauderdale, FL. 364 pp.
TIME COVERAGE: 1992
SUMMARY: This citation discussed the effects of Hurricane Andrew on three hammocks in South Florida: Matheson Hammock, the Deering Estate, and the Castellow Park.
KEY WORDS: Hammocks, Trees, Vegetation, Hurricane Andrew, Dade County

762
Houde, E. D. (1971) Developmental abnormalities of the flatfish *Achirus lineatus* reared in the laboratory. Fishery Bull., 69(1):537-544.
TIME COVERAGE: 1971 ◊
SUMMARY: Of 31 specimens of lined sole reared in the laboratory, 26 were found to be have abnormalities which are rare in nature. The rearing tank environment may have resulted in the abnormal development.
KEY WORDS: Lined sole, *Achirus lineatus*, Flatfishes, Abnormalities, Biological development, Laboratory culture

763
Houde, E. D. (1989) Subtleties and episodes in the early life of fishes. J. Fish Biol., 35(Suppl. A):29-38.
TIME COVERAGE: 1989 ◊

SUMMARY: Fluctuations in abundance of fishes may be caused by episodic mortalities or by more subtle variabilities in the daily growth and mortality rates of eggs and larvae. This paper is based on data from Biscayne and Chesapeake Bays.
KEY WORDS: Mortality, Fish eggs, Fish larvae, Variability, Bay anchovy, *Anchoa mitchilli*, Chesapeake Bay

764
Houde, E. D. (1971) Survey of the literature relating to sport and commercial fishes of South Florida. Final report to NOAA NMFS, St. Petersburg Beach, FL. Contract no. NOAA NO42 2 71 N. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 95 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: This report is an annotated bibliography of papers on sport and commercial fishes of South Florida.
KEY WORDS: Fish, Fisheries, South Florida, Bibliographies

765
Houde, E. D., S. A. Berkeley, J. J. Klinovsky, and R. C. Schekter (1976) Culture of larvae of the white mullet, *Mugil curema* Valenciennes. Aquaculture, 8(4):365-370.
TIME COVERAGE: 1975 ◊
SUMMARY: Planktonic eggs were collected in Biscayne Bay and successfully reared in the laboratory demonstrating the feasibility of aquaculture of the species.
KEY WORDS: White mullet, *Mugil curema*, Larvae, Rearing

766
Houde, E. D., C. R. Futch, and R. Detwyler (1970) Development of the lined sole, *Achirus lineatus*, described from laboratory-reared and Tampa Bay specimens. Technical series no. 62. Florida Department of Natural Resources, Division of Marine Resources, St. Petersburg, FL. 43 pp.
TIME COVERAGE: 1969
SUMMARY: Larvae of lined sole were collected in Bear Cut and reared in the laboratory. The reared specimens were compared with larvae collected in Tampa Bay and the juveniles with those collected in Tampa and Biscayne Bays.
KEY WORDS: Lined sole, *Achirus lineatus*, Biological development, Laboratory culture, Tampa Bay, Bear Cut

767
Houde, E. D., and J. D. A. Lovdal (1985) Patterns of variability in ichthyoplankton occurrence and abundance in Biscayne Bay, Florida. Est. Coastal Shelf Sci., 20(1):79-103.
TIME COVERAGE: 1976 - 1979
SUMMARY: Within-day variability in ichthyoplankton and microzooplankton abundances was examined at a single station in Biscayne Bay using replicate tows and Niskin bottles to determine the time (minutes to hours) and space (10 - 1000 m) characteristics of patchiness.
KEY WORDS: Ichthyoplankton surveys, Anchovy, *Anchoa mitchilli*, Copepod nauplii, Fish eggs, Fish larvae, Stock assessment, Population dynamics, Abundance, Diurnal variations

768
Houde, E. D., and J. D. A. Lovdal (1984) Seasonality of occurrence, foods and food preferences of ichthyoplankton in Biscayne Bay, Florida. Est. Coastal Shelf Sci., 18(4):403-419.
TIME COVERAGE: 1976 - 1977
SUMMARY: Ichthyoplankton and microzooplankton were collected twice a month at a single station in Biscayne Bay. High microzooplankton densities combined with low seasonal variability indicated that feeding conditions for fish larvae were usually good in the Bay. Copepods were the predominant food for fish larvae.

KEY WORDS: Bay anchovy, *Anchoa mitchilli*, Spotted dragonet, *Callionymus pauciradiatus*, Thread herring, *Opisthonema oglinum*, Gobies, Gobiidae, Copepods, Tintinnids, Ichthyoplankton surveys, Population density, Food availability, Seasonal variations

769
Houde, E. D., and J. D. A. Lovdal (1982) Variability in ichthyoplankton and microzooplankton abundances and feeding by fish larvae in Biscayne Bay, Florida. International Council for the Exploration of the Sea, Council meeting 1982/L:521-22.
TIME COVERAGE: 1982 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Ichthyoplankton surveys, Food preferences, *Anchoa mitchilli*, *Callionymus pauciradiatus*, Gobiidae, *Opisthonema oglinum*, *Orthopristis chrysoptera*

770
Houde, E. D., and L. J. Swanson (1975) Description of eggs and larvae of yellowfin menhaden, *Brevoortia smithi*. Fishery Bull., 73(-):660-673.
TIME COVERAGE: 1972
SUMMARY: Development of yellowfin menhaden was described from egg and larvae reared in the laboratory from eggs collected in Biscayne Bay.
KEY WORDS: Yellowfin menhaden, *Brevoortia smithi*, Larvae, Eggs

771
Houston, J. R. (1996) The economic value of beaches. In: Proc., 9th Natl. Conf. on Beach Technology, The Future of Beach Nourishment. L. S. Tait, (comp.). St. Petersburg, FL, 1996. Florida Shore & Beach Preservation Association, Tallahassee, FL. 271-280.
TIME COVERAGE: 1996 ◊
SUMMARY: The economic value of beaches is discussing using Miami Beach as an example.
KEY WORDS: Economic analysis, Beaches, Tourism, Miami Beach

772
Houston, R. S., and E. B. Hatfield (1981) The reproductive system of the Western Atlantic *Anachis avara* (Gastropods:Columbellidae). Nautilus, 95(3):136-139.
TIME COVERAGE: 1981 ◊
SUMMARY: The reproductive system of dove shells were studied using specimens collected in Biscayne Bay.
KEY WORDS: Dove-shells, Reproductive organs, Histology, Anatomy, *Anachis avara*, *Anachis brasiliana*

773
Houston, S. H., and M. D. Powell (1994) Hurricane Andrew and related research issues. In: Florida Coastal Ocean Sciences Symposium (FCOSS). Miami, FL, 1994. Coastal Ocean Pollution Center, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 25.
TIME COVERAGE: 1992
SUMMARY: Research related to wind measurements during the passage of Hurricane Andrew is discussed.
KEY WORDS: Wind speed, Hurricane Andrew

774
Houston, S. H., W. A. Shaffer, M. A. Powell, and J. Chen (1999) Comparisons of HRD and SLOSH surface wind fields in hurricanes: implications for storm surge modeling. Weather and Forecasting, 14(5):671-86.
TIME COVERAGE: 1992

SUMMARY: Surface winds observations were compared to those computed by the parametric wind model's storm surge computations for seven storms including Hurricane Andrew.
KEY WORDS: Hurricane Andrew, Modeling, Storm surge

775
Howe, M. A. (1904) Collections of marine algae from Florida and the Bahamas. J. New York Botanical Garden, 5(-):164-166.
TIME COVERAGE: 1904
SUMMARY: This paper is an account of a botanical expedition to Biscayne Bay and the Bahamas.
KEY WORDS: Algae, Acetabulum, Coccocladus, Bahamas, New Providence Island, Virginia Key, Key Biscayne, Soldier Key, Sandy Key, Elliott Key, Caesar's Key, Bahamas

776
Howze, J. A. (1950) A study of beach erosion in Florida. M.Sc. thesis. University of Florida, Gainesville. pp.
SUMMARY: Borrowed from Univ. Florida
KEY WORDS: Beach erosion, Shore protection, Florida

777
Hoy, N. D., and M. C. Schroeder (1952) Age of subsurface "Tamiami" formation near Miami, Florida. J. Geol., 60(3):283-286.
TIME COVERAGE: 1952 ◊
SUMMARY: This paper discusses the age of the Tamiami formation near Biscayne Bay.
KEY WORDS: Limestone, Tamiami formation, Oolites, Pleistocene, Miami

778
Huck, R. B. (1995) A centennial review: the historic natural landscape of Key Biscayne, Dade County, Florida. Florida Scient., 58(4):335-351.
TIME COVERAGE: 19th and 20th C
SUMMARY: Patterns of historic native vegetation and vascular flora of Key Biscayne were reviewed from 19th and 20th century documents. A recently discovered hardwood hammock was inventoried.
KEY WORDS: Vegetation, History, Key Biscayne, Species list, Flora

779
Huck, R. B., and J. G. Blank (1994) Historic native flora and early settlement agriculture of Cape Florida, Key Biscayne, Florida. ASB Bull., 41(2):91-92.
TIME COVERAGE: 1992
SUMMARY: After the passage of Hurricane Andrew, an effort was made to determine the composition of the native flora of Cape Florida. During this assessment, it was discovered that Key Biscayne had been covered with three to five feet of fill during the 1950s. A dune-and-swale topography typical of barrier spits, a fresh-water spring and what appears to be a large mound at the end of the Cape suggest a diverse flora far richer and more tropical than the 116 species documented for the Upper Sandy Keys in 1913 for the Keys and the more than 200 species for Key Biscayne in 1935 - 1938. The historic vegetation profile can be reconstructed to include beach-dune, coastal strand, maritime hammock and marine tidal swamp communities, with *Coccoloba uvifera*, *Metopium toxiferum*, *Serenoa repens*, *Annona glabra*, and mangroves *Avicennia germinans* and *Rhizophora mangle* important.
KEY WORDS: Vegetation, Agriculture, Cape Florida, Key Biscayne, Mangroves, Flora

780
Hudson, J. H., K. J. Hanson, R. B. Halley, and J. L. Kindinger (1994) Environmental implications of growth rate changes in *Montastrea annularis*: Biscayne National Park, Florida. Bull. Mar. Sci., 54(3):647-669.
TIME COVERAGE: 1986
SUMMARY: Long-term annual growth rates were determined in 25 *Montastrea annularis* colonies at eight sites in Biscayne Bay. Chronologies averaged 113 years in length. Waxing and waning growth rates were discussed in relation to natural and anthropogenic perturbations that impact this high latitude reef ecosystem.
KEY WORDS: Coral, *Montastrea annularis*, Growth, Environmental effects, Biscayne National Park

781
Hull, F. E. (1972) Hydrologic conditions during 1970 in Dade County, Florida. Report. US Geological Survey, Water Resources Division, Tallahassee, FL. 80 pp.
TIME COVERAGE: 1970
SUMMARY: This report is one in a series describing hydrological conditions in Dade County.
KEY WORDS: Hydrology, Rainfall, Ground water, Surface water, Water quality, Saline intrusion, Dade County, Snake Creek Canal, Miami Canal, Snapper Creek Canal, Little River Canal, Biscayne Canal, Taylor Slough, Tamiami Canal

782
Hull, J. E. (1971) Hydrologic conditions during 1969 in Dade County, Florida. US Geological Survey, Tallahassee, FL. 50 pp.
TIME COVERAGE: 1969
SUMMARY: This report is one in a series describing annual hydrological conditions in Dade County.
KEY WORDS: Hydrology, Rainfall, Ground water, Surface water, Water quality , Saline intrusion, Snake Creek Canal, Miami Canal, Snapper Creek Canal, Little River Canal, Biscayne Canal, Taylor Slough, Tamiami Canal

783
Hull, J. E. (1975) Summary of hydrologic data collected during 1974 in Dade County, Florida. Open file report FL-75012. US Geological Survey, Tallahassee, FL. 128 pp.
TIME COVERAGE: 1974
SUMMARY: This report is one in a series describing hydrological conditions in Dade County.
KEY WORDS: Hydrology, Rainfall, Ground water, Surface water, Saline intrusion, Water quality, Dade County, Snake Creek Canal, Miami Canal, Snapper Creek Canal, Biscayne Canal, Little River Canal, Taylor Slough, Tamiami Canal

784
Hull, J. E. (1978) Summary of hydrologic data collected during 1976 in Dade County, Florida. Open file report 78-833. US Geological Survey, Tallahassee, FL. 83 pp.
TIME COVERAGE: 1976
SUMMARY: This report is one in a series describing hydrological conditions in Dade County.
KEY WORDS: Hydrology, Water supply, Ground water, Surface water, Water quality, Dade County

785
Hull, J. E. (1979) Summary of hydrologic data collected during 1977 in Dade County, Florida. Open file report 79-514. US Geological Survey, Tallahassee, FL. 91 pp.
TIME COVERAGE: 1977
SUMMARY: This report is one in a series describing hydrological conditions in Dade County.

KEY WORDS: Hydrology, Water supply, Ground water, Surface water, Water quality, Dade County

786
Hull, J. E., and T. R. Beaven (1977) Summary of hydrologic data collected during 1975 in Dade County, Florida. Open file report 77-803. US Geological Survey, Tallahasseee, FL. 120 pp.
TIME COVERAGE: 1975
SUMMARY: This report is one in a series describing hydrological conditions in Dade County.
KEY WORDS: Hydrology, Water supply, Ground water, Surface water, Water quality, Dade County

787
Hull, J. E., D. J. McKenzie, and F. W. Meyer (1973) Summary of hydrologic data collected during 1972 in Dade County, Florida. Open file report 73032. US Geological Survey, Tallahassee, FL. 109 pp.
TIME COVERAGE: 1972
SUMMARY: This report is one in a series describing hydrological conditions in Dade County.
KEY WORDS: Hydrology, Water supply, Ground water, Surface water, Water quality, Dade County

788
Hull, J. E., and D. J. McKenzie (1974) Summary of hydrologic data collected during 1973 in Dade County, Florida. Open file report 74029. US Geological Survey, Tallahassee, FL. 122 pp.
TIME COVERAGE: 1973
SUMMARY: This report is one in a series describing hydrological conditions in Dade County.
KEY WORDS: Hydrology, Water supply, Ground water, Surface water, Water quality, Dade County

789
Hull, J. E., and F. W. Meyer (1973) Salinity studies in East Glades Agricultural Area, southeastern Dade County, Florida. Open file report 73005. US Geological Survey, Tallahassee, FL. 84 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: Saline soils in the East Everglades Agricultural Area are caused chiefly by brackish ground water moving upward from the water table during dry periods. Brackish ground water is caused by infiltration of salt water from nearby coast-normal canals and by inland movement of salt water through the deep parts of the Biscayne Aquifer.
KEY WORDS: Saline intrusion, Soils, Groundwater pollution, East Glades Agricultural Area, Biscayne Aquifer

790
Hull, J. E., and E. T. Wimberly (1972) Hydrologic conditions during 1971 in Dade County, Florida. US Geological Survey, Tallahassee, FL. 104 pp.
TIME COVERAGE: 1971
SUMMARY: This report is one in a series describing hydrological conditions in Dade County.
KEY WORDS: Hydrology, Rainfall, Ground water, Surface water, Water quality, Saline intrusion, Snake Creek Canal, Miami Canal, Snapper Creek Canal, Biscayne Canal, Taylor Slough, Tamiami Canal

791
Humm, H. J. (1944) Agar resources of the south Atlantic and east Gulf coasts. Science, 100(-):209-212.
TIME COVERAGE: 1942 - 1943

SUMMARY: This citation is an evaluation of sources of agar in the south Atlantic and Gulf coasts sponsored by the War Production Board.
KEY WORDS: Seaweeds, Gracilaria, *Hypnea musciformis, Eucheuma isiforme*, *Agardhiella tenera*, *Digenea simplex*, Florida, North Carolina, Gulf Coast

792
Humm, H. J. (1976) The benthic algae of Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1976 ◊
SUMMARY: Benthic algal habitats in Biscayne Bay support more than 330 species representing a tropical shallow water year around flora and a small group of winter-spring species. There were 46% red algae, 30% greens, 14% browns and 11% bluegreens.
KEY WORDS: Algae, Bluegreen algae, Red algae, Brown algae, Green algae, Species list

793
Humm, H. J. (1969) Distribution of marine algae along the Atlantic coast of North America. Phycologia, 7(1):43-53.
TIME COVERAGE: 1969 ◊
SUMMARY: Inshore waters of continental North America in the western Atlantic are populated by only two major geographical floral units. One of these originated and is centered in the tropics and the upper boundary is Cape Canaveral.
KEY WORDS: Algae, Geographical distribution, Atlantic coast

794
Humm, H. J. (1964) Epiphytes of the sea grass, *Thalassia testudinum*, in Florida. Bull. Mar. Sci. Gulf Caribb., 14(2):306-341.
TIME COVERAGE: 1964 ◊
SUMMARY: One hundred and thirteen species of algae were reported occurring as epiphytes on *Thalassia*. Each species listed is annotated and a key to the species known to occur as epiphytes on *Thalassia* in South Florida is provided.
KEY WORDS: Epiphytes, Algae, *Thalassia testudinum*, Seagrass, Identification keys, Taxonomy, Species list

795
Humm, H. J. (1963) Some new records and range extensions of Florida marine algae. Bull. Mar. Sci. Gulf Caribb., 13(4):516-526.
TIME COVERAGE: 1963 ◊
SUMMARY: Nineteen species of marine algae were newly reported for Florida and the known range of eight others expanded.
KEY WORDS: Algae, Cyanophyta, Chlorophyta, Phaeophyta, Rhodophyta

796
Humphreys, J., S. Franz, and W. Seaman (1993) Florida's estuaries: a citizen's guide to coastal living and conservation. Extension bulletin SGEB-23. Florida Sea Grant College Program, Gainesville, FL. 25 pp.
TIME COVERAGE: 1993 ◊
SUMMARY: This is a guide to Florida estuaries written for the general public.
KEY WORDS: Estuaries, Shore protection, Environment management, Florida

797
Hunt, E. B. (1864) On the origin, growth, substructure, and chronology of the Florida reef. In: Report 1862. House of Representatives, Executive document 22, 37th Congress, 3rd session. The US Coast Survey. US Government Printing Office, Washington, DC. 241-248.
TIME COVERAGE: 1864 ◊
SUMMARY: This report is a description of navigation from Key Biscayne to the Florida Keys and the Dry Tortugas including Florida Bay.
KEY WORDS: Coral reefs, Florida Keys, Florida Bay, Cape Florida, Card Sound, Barnes Sound, Dry Tortugas

798
Hurley, N. E. (1989) An Illustrated History of Cape Florida Lighthouse. Historic Lighthouse Publishers, Camino, CA. 37 pp.
TIME COVERAGE: 1825 - 1989 (time of publication)
SUMMARY: This is a history of the Cape Florida Light, located on the southern tip of Key Biscayne.
KEY WORDS: History, Lighthouses, Cape Florida

799
Hurst, J. T. (1948) Interim report on the Florida crawfish investigations. Mimeographed report 48-3. Marine Laboratory, University of Miami, Miami, FL. 4 pp.
TIME COVERAGE: 1948 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Spiny lobster, Panulirus argus, Tagging, Florida

800
Husar, S. L. (1977 ◊) The West Indian manatee (*Trichechus manatus*). Wildlife research rep. 7. Fish and Wildlife Service, Washington, DC. 22 pp.
TIME COVERAGE: 1977
SUMMARY: This report discusses the biology and distribution of the West Indian manatee.
KEY WORDS: West Indian manatee, *Trichechus manatus*

801
Hutton, R. F. (1951) An investigation of the seabather's eruption problem. M.Sc. thesis. University of Miami, Coral Gables, FL. 125 pp.
TIME COVERAGE: 1951
SUMMARY: This investigation was carried out by determining the geographical distribution and seasonal occurrence of this dermatitis which is produced by *Cercaria J.*
KEY WORDS: Bathing, Cercariae, Trematodes, Dermatitis, Species list

802
Hutton, R. F. (1952) *Schistosome cercariae* as the probable cause of seabather's eruption. Bull. Mar. Sci. Gulf Caribb., 2(2):346-359.
TIME COVERAGE: 1952 ◊
SUMMARY: Seabather's eruption is an acute form of dermatitis occurring in people bathing in certain beaches. It was demonstrated that a species of marine *Schistosome cercaria* was capable of producing dermatitis.
KEY WORDS: Bathing, Cercariae, Trematodes, Dermatitis

803
Idyll, C. P. (1968) Economically important marine organisms in Biscayne Bay. Unpublished manuscript. Institute of Marine Sciences, University of Miami, Miami, FL.
TIME COVERAGE: 1968 ◊

SUMMARY: This report describes the economically important marine organisms of Biscayne Bay and include landing statistics
KEY WORDS: Commercial species, Marine fish, Marine invertebrates, Landing statistics, Species list

804
Idyll, C. P. (1968?) In defense of the Islandia National Monument. Unpublished manuscript. Institute of Marine Sciences, University of Miami, Miami, FL. 15 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: This report discusses the advantages of creating a national monument in what is now the Biscayne National Park.
KEY WORDS: Protected resources, Resource conservation, Recreational waters, Islandia, Biscayne National Park

805
Idyll, C. P., D. C. Tabb, B. Yokel, R. A. Wade, and D. R. Moore (1965) Conservation in Biscayne Bay. Faculty file. Institute of Marine Sciences, University of Miami, Miami, FL. 13 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: The ideal condition of Biscayne Bay is described in this paper. Such a description would be useful in determining conservation measures for the Bay.
KEY WORDS: Resource conservation, Environment management

806
Idyll, C. P., D. C. Tabb, and B. Yokel (1967) Conservation in Biscayne Bay. Florida Naturalist, 40(-):77-81.
TIME COVERAGE: 1967 ◊
SUMMARY: [THIS ARTICLE IS SIMILAR TO IDYLL ET AL, 1965.]
KEY WORDS: Resource conservation, Environment management

807
Incze, M. L. (1981) Episodic detrital organic carbon export from south Biscayne Bay, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 84 pp.
TIME COVERAGE: 1979 - 1980
SUMMARY: Seasonal high wind energy events appear to play an important role in the export of detrital organic carbon from shallow subtropical lagoons by altering circulation and tidal flushing patterns coincident with increased resuspension, erosion and saltation. Detrital organic carbons accumulates in the sediments during the summer months.
KEY WORDS: Organic carbon, Detritus, Seasonal variations, Estuarine dynamics, South Bay

808
Incze, M. L., and M. R. Roman (1983) Carbon production and export from Biscayne Bay, Florida. II. Episodic export of organic carbon. Est. Coastal Shelf Sci., 17(1):61-72.
TIME COVERAGE: 1979 - 1980
SUMMARY: Seasonal meteorological events of high wind energy are important in the export of organic carbon from the Bay by altering circulation and tidal flushing patterns coincident with high resuspension. The accumulation of detrital organic carbons in the Bay during the summer months was reversed at the onset of the winter months, resulting in an outwelling of dissolved and particulate organic carbon.
KEY WORDS: Suspended particulate matter, Particulate organic carbon, Dissolved organic carbon, Nearshore dynamics, Transport processes

809
Ingle, R. M., and F. G. W. Smith (1949) Sea turtles and the turtle industry of the West Indies, Florida and the Gulf of Mexico, with annotated bibliography. A special publication of the Marine Laboratory, University of Miami in cooperation with the Caribbean Research Council. University of Miami Press, Coral Gables, FL. 107 pp.
TIME COVERAGE: 1949 ◊
SUMMARY: This report describes sea turtle biology and fisheries, and includes a brief mention of sea turtle fisheries in Biscayne Bay at the turn of the century.
KEY WORDS: Turtles, Turtle fisheries, West Indies, Florida, Gulf of Mexico, Bibliographies

810
Irlandi, E. A. (1998) Interactions between seagrass, drift algae, and epiphytes in subtropical seagrass meadows of Biscayne Bay, FL. Proc., Ann. Mtg., American Society of Limnology and Oceanography Ecological Society of America. St. Louis, MO, 1998. American Society of Limnology and Oceanography, Waco, TX.
TIME COVERAGE: 1998 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Sea grass, Thalassia testudinum, Algae, Epiphytes, Biological drift

811
Irlandi, E. A. (1999) Potential consequences of eutrophication to *Thalassia* meadows in Biscayne Bay, FL. 15th Biennial Internal. Conf. Estuarine Research Federation. New Orleans, LA, 1999. Estuarine Research Federation, Lafayette, LA.
TIME COVERAGE: 1999 ◊
SUMMARY: The short term consequences of increased sediment nutrients and macroalgal cover on the structure and function of *Thalassia* were investigated. Nutrient additions to the sediment produced no short term changes but resulted in increased leaf elongation rates. Drift algal cover had to impact on short term growth rates.
KEY WORDS: Eutrophication, Sea grass, *Thalassia testudinum*

812
Irlandi, E. A., and M. A. Harwell (1996) Mesocosm studies of Biscayne Bay seagrass communities and the relevance to Florida Bay seagrass dynamics. In: Florida Bay Science Conf. Key Largo, FL, 1996. University of Florida, Institute of Food and Agricultural Sciences, Gainesville. 39-41.
TIME COVERAGE: 1996 ◊
SUMMARY: The mesocosm facility located at the Rosenstiel School of Marine and Atmospheric Science sustains an ecosystem similar to that of Biscayne Bay. The mesocosm is described.
KEY WORDS: Sea grass, *Thalassia testudinum*, Mesocosms, Florida Bay

813
Irlandi, E., S. Macia, and J. Serafy (1997) Salinity reduction from freshwater canal discharge: effects on mortality and feeding of an urchin (*Lytechinus variegatus*) and a gastropod (*Lithopoma tectum*). Bull. Mar. Sci., 61(3):869-79.
TIME COVERAGE: 1997 ◊
SUMMARY: Laboratory experiments were conducted to study the effects of rapid salinity fluctuations associated with canal discharge on survival and feeding of a common gastropod and a sea urchin. Urchins suffered 100% mortality when subjected to a salinity change of 36 to 2 to 36 ^{o}/oo. Gastropod survival was unaffected.
KEY WORDS: Salinity effects, Fresh water, Canals, Sea urchin, *Lytechinus variegatus*, *Lithopoma tectum*

814
Irvine, A. B., and H. W. Campbell (1978) Aerial census of the West Indian manatee, *Trichechus manatus*, in the southeastern United States. J. Mammalogy, 59(-):613-617.
TIME COVERAGE: 1976
SUMMARY: An aerial census was taken covering mostly south Florida. The winter focus of abundance was found to be further south than previously determined. Approximately 26% of the sightings were in Palm Beach, Broward and Monroe Counties, and almost 18% in Monroe County.
KEY WORDS: West Indian manatee, *Trichechus manatus*, Aerial surveys, Census, Florida

815
Isham, L. B. (1952) The marine algae of Dade County, Florida. I. Chlorophyceae. II. Phaeophyceae. M.Sc. thesis. University of Miami, Coral Gables, FL. 44 pp.
TIME COVERAGE: 1952 ◊
SUMMARY: The taxonomy of the Chlorophyceae and Phaeophyceae algae were described.
KEY WORDS: Algae, Chlorophyceae, Phaeophyceae, Identification keys, Taxonomy

816
Isham, L. B., H. B. Moore, and F. G. W. Smith (1951) Growth rate measurement of shipworms. Bull. Mar. Sci. Gulf Caribb., 1(2):136-147.
TIME COVERAGE: 1949 - 1950
SUMMARY: Measurements of Teredo worms were used to compare burrow length and body weight as indices of seasonal growth rate fluctuation. Growth was shown to be more rapid during midsummer, with a secondary maximum in March.
KEY WORDS: Shipworms, *Teredo pedicellata*, *Bankia fimbriatula*, Phyloteredo, Boring organisms, Growth, Miami Beach

817
Isham, L. B., F. G. W. Smith, and V. G. Springer (1952) Marine borer attack in relation to conditions of illumination. Bull. Mar. Sci. Gulf Caribb., 1(1):46-63.
TIME COVERAGE: 1952 ◊
SUMMARY: Experiments carried out upon *Teredo* larvae indicated that in darkness, the larvae are negatively geotropotactic. When illuminated the behavior was modified by a weak negative phototropotaxis and a stronger negative photokinesis.
KEY WORDS: Shipworms, *Teredo pedicellata*, Boring organisms, Light effects

818
Isham, L. B., and J. Q. Tierney (1953) Some aspects of the larval development and metamorphosis of *Teredo* (Lyrodus) pedicellata De Quatrefages. Bull. Mar. Sci. Gulf Caribb., 2(4):574-589.
TIME COVERAGE: 1953 ◊
SUMMARY: The anatomy of *Teredo* worms studied and the free-swimming and crawling stages described. The speed of swimming and crawling was measured, and descriptive data concerning locomotion noted.
KEY WORDS: Shipworms, *Teredo pedicellata*, Larval development, Metamorphosis, Boring organisms

819
Ishman, S. E. (1997) Ecosystem history of South Florida: Biscayne Bay sediment core descriptions. USGS open-file report 97-437. US Geological Survey, Reston, VA. 13 pp.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Sediment cores

820
Ishman, S. E. (1997) A paleosalinity record from Manatee Bay, Barnes Sound, Florida. In: Proc., US Geological Survey Program on the South Florida Ecosystem. Ft. Lauderdale, FL, August 25-27, 1997. US Geological Survey open file report 97-385. US Geological Survey, Tallahassee, FL. 38-39.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Paleosalinity, Manatee Bay, Barnes Sound

821
Ishman, S. E., G. L. Brewster-Wingard, T. M. Cronin, and D. A. Willard (1999) Temporal salinity and seagrass changes in Biscayne Bay. Proc., South Florida Restoration Science Forum. S. Gerould, and A. Higer, (eds.). Boca Raton, FL, May 17-19,1999. Open-file report 99-181. US Geological Survey Program on the South Florida Ecosystem, Tallahassee, FL.
TIME COVERAGE: 1999 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Salinity, Seagrass

822
Ishman, S. E., T. M. Cronin, G. L. Brewster-Wingard, D. A. Willard, and D. J. Verardo (1998) A record of ecosystem change, Manatee Bay, Barnes Sound, Florida. J. Coastal Res., Spec. Issue 26(Proc., Palm Beach Coastal Symp.):125-138.
TIME COVERAGE: 1998 ◊
SUMMARY: This paper presents the results of analyses of a 120-cm core collected in Manatee Bay to infer environmental changes. Three stages of ecosystem change were interpreted from the data. The mid-1800s represented a time of oligohaline transgressing to mesohaline conditions. The turn of the century was marked by a significant faunal and floral shift to more euhaline to polyhaline conditions and shows an early predominance of seagrass. At about 1940, another faunal shift occurred indicating change to a highly fluctuating annual salinity conditions with episodic periods of hypersalinity. Seagrasses remained persistent during this period. From the 1980s to the present, a slight increase in relative annual salinity and reduced seagrass density was noted. The faunal and floral events observed indicate a progressive increase in salinity through time related to sea level rise. The trend is punctuated by discreet events attributed to the construction of the Flagler Railway, and water management practices in South Florida.
KEY WORDS: Manatee Bay, Barnes Sound, Ecosystem assessment, Flagler Railroad, Seagrasses, Salinity, Sediment cores

823
Ishman, S. E., I. Graham, and J. D'Ambrosio (1997) Modern benthic foraminifer distributions in Biscayne Bay: analogs for historical reconstructions. USGS open-file report 97-34. US Geological Survey, Reston, VA. 22 pp.
TIME COVERAGE: 1997 ◊
SUMMARY: Twenty-three sampling sites were sampled for surficial sediments and water quality. A sediment grab sample collected in the Bay typically represents accumulation of the past 5 years or less. A total of 72 taxa of benthic foraminifera were identified in the sediments samples. Three dominant foraminiferal assemblages were identified and these were dominated by calcareous forms with agglutinated taxa constituting a minor component in most of the assemblages.
KEY WORDS: Foraminifera, Benthos, Barnes Sound, Sediment, Water quality

824
Iversen, E. S. (1969) Preliminary description of the biological zones of Card Sound, lower Biscayne Bay, Florida. Preliminary report to Florida Power and Light Company. Institute of Marine Sciences, University of Miami, Miami, FL. Various paging.
TIME COVERAGE: 1969 ◊
SUMMARY: This citation is a preliminary study of the ecology of Card Sound based on diving observations and aerial photographs. Based on the estimates of number of species present and abundance of individuals, Card Sound appeared to be an area of relatively low productivity compared to other Florida ecosystems. Five major ecological zones were identified and described.
KEY WORDS: Ecological distribution, Community composition, Card Sound

825
Iversen, E. S., and S. P. Bannerot (1984) Artificial reefs under marina docks in southern Florida. North Amer. J. Fisheries Management, 4(-):294-299.
TIME COVERAGE: 1981 - 1982
SUMMARY: Placement of large rocks under three recently constructed docks at a new marina provided additional habitat to a stressed area. The bottom consisted of an accumulation of black, flocculent mud supporting few or no fish or macroinvertebrates prior to placing the habitat under the docks. After placement, numerous fish and macroinvertebrates became associated with the habitat.
KEY WORDS: Artificial reefs, Marinas, Attracting techniques

826
Iversen, E. S., and G. L. Beardsley (1974) Impact of sand dredging on the fauna of a submerged bar south of Key Biscayne, Florida. Unpublished manuscript. Report to the Des Rocher Sand Co., Inc. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 14 pp.
TIME COVERAGE: 1973
SUMMARY: This study examined the site of a dredging operation south of Cape Florida and evaluated the impact on the biota.
KEY WORDS: Dredging, Environmental impact, Marine organisms, Nearshore bars, Key Biscayne, Cape Florida

827
Iversen, E. S., and J. F. Kelly (1976) Microsporidiosis successfully transmitted experimentally in pink shrimp. J. Invertebrate Pathology, 27(3):407-408.
TIME COVERAGE: 1976
SUMMARY: Microsporidiosis infections are responsible for the "cotton" or "milk" syndrome in common shrimp. The objective of this study was to find a method of transmission of microsporidiosis infection parasitizing shrimp in Biscayne Bay. Spotted seatrout seem to prime spores for infection during passage of the spores through the gut after eating infected shrimp. Shrimp fed seatrout feces became infected with the parasites. Shrimp specimens were obtained from a hatchery.
KEY WORDS: Disease transmission, Parasitic diseases, "Milk" shrimp, *Thelohania duorara*, *Thelohania penaei*, Pleistophora, Pink shrimp, *Penaeus duorarum*

828
Iversen, E. S., J. F. Kelly, and D. Alzamora (1987) Ultrastructure of *Thelohania duorara* Iverson & Manning, 1959 (Microspora, Thelohaniidae) in the pink shrimp, *Penaeus duorarum* Burkenroad. J. Fish Diseases, 10(4):299-307.
TIME COVERAGE: 1987 ◊

SUMMARY: The structure of early development stages of this pink shrimp parasite were described.
KEY WORDS: Parasites, "Milk" shrimp, *Thelohania duorara*, Pink shrimp, *Penaeus duorarum*

829
Iversen, E. S., and M. A. Roessler (1969) Survey of the biota of Card Sound. Report to the Florida Power and Light Company. Institute of Marine and Atmospheric Sciences, University of Miami, Miami, FL. Various paging.
TIME COVERAGE: 1969
SUMMARY: The purpose of this study was to map the Card Sound ecological zones and to estimate the relative abundance of the more obvious and ecologically important plants and animals. Results of this survey indicated that Card Sound was an area with a relatively low standing crop compared with other south Florida ecosystems.
KEY WORDS: Ecological distribution, Biota, Community composition, Card Sound, Species list

830
Iversen, E. S., D. C. Tabb, and R. Hixon (1972) Dinner Key master plan study: marine ecological survey. Faculty file. Includes P. W. Larsen, "Preliminary investigation of Dinner Key circulation", 1972, 8 pp. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. Various paging.
TIME COVERAGE: 1971 - 1972
SUMMARY: The biota, water quality, sediments and currents around Dinner Key were investigated as part of the preliminary study of a proposed dredge and fill operation in the area. The number of species and abundance of plants and animals were very low close to the marina. Bottom sediments near the marina suggested organic overloading conditions and resultant decomposition which does not allow the attachment of sessile plants and animals. Water quality was poorer near the marina. Any alteration of the spoil bank islands involving increasing their size at the expense of the grass flats will further reduce the biological productivity of the area. The fine mud associated with future dredging and filling will endanger the *Thalassia* and *Diplanthera* flats just outside the marine area.
KEY WORDS: Ecological distribution, Water quality, Pollution, Water circulation, Marinas, Dinner Key, Species list, Nutrients, Currents, Sediment, Biota

831
Iversen, E. S., and N. N. Van Meter (1967) A new myxosporidian (Sporozoa) infecting the Spanish mackerel. Bull. Mar. Sci., 17(2):268-273.
TIME COVERAGE: 1967 ◊
SUMMARY: This citation contains a description of a new species of myxosporidian parasite found in the musculature of the Spanish mackerel.
KEY WORDS: Parasitic diseases, *Kudoa crumena*, Spanish mackerel, *Scomberomorus maculatus*, Myxosporidia, Sporozoa

832
Iversen, E. S., and N. N. Van Meter (1964) A record of the microsporidian, *Thelohania duorara*, parasitizing the shrimp, *Penaeus brasiliensis*. Bull. Mar. Sci. Gulf Caribb., 14(4):549-553.
TIME COVERAGE: 1964 ◊
SUMMARY: A microsporidian parasite, *Thelohania duorara*, on the grooved shrimp, *Penaeus brasiliensis*, was found in Biscayne Bay. This was a new recorded host for *P. brasiliensis*.
KEY WORDS: Parasites, Microsporidians, *Thelohania duorara*, Shrimp, *Penaeus brasiliensis*

833
Iverson, E. (1979) Preserve the Bay? How, and for whom? The Miami Herald, Miami, FL. April 22. A.

TIME COVERAGE: 1979 ◊
SUMMARY: This article discusses preservation of Biscayne Bay.
KEY WORDS: Pollution, Preservation

834
Jaap, W. C. (1984) The ecology of the south Florida coral reefs: a community profile. FWS/OBS-82/08. Minerals Management Service, Gulf of Mexico OCS Region, Metairie, LA. 138 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: This citation describes the South Florida coral reef community. The coral reefs closest to Biscayne Bay are to the east of the barrier islands (Soldier Key, Elliott Key, etc.).
KEY WORDS: Coral reefs, Community composition, Ecosystems, Reef fish, Aquatic animals, South Florida

835
Jaap, W. C., and P. Hallock (1990) Coral reefs. In: Ecosystems of Florida. University of Central Florida, Orlando, FL.
TIME COVERAGE: 1990 ◊
SUMMARY: This citation describes coral reefs of Florida.
KEY WORDS: Florida Keys, Biscayne Bay, Ecosystems, Florida, Coral reefs

836
Jachowski, R. L. (1967) Reproductive behavior of the emerald clingfish, *Acyrtops beryllinus*. M.Sc. thesis. University of Miami, Coral Gables, FL. 37 pp.
TIME COVERAGE: 1966 - 1967
SUMMARY: The reproductive behavior of the emerald clingfish was studied using specimens collected in Biscayne Bay and kept in aquariums.
KEY WORDS: Emerald clingfish, *Acyrtops beryllinus*, Reproductive behavior

837
Jewett-Smith, J., C. McMillan, W. J. Kenworthy, and K. Bird (1997) Flowering and genetic banding patterns of *Halophila johnsonii* and conspecifics. Aquatic Botany, 59(3-4):323-331.
TIME COVERAGE: 1997 ◊
SUMMARY: *Halophila johnsonii* is a seagrass that is restricted from Sebastian Inlet on the north to Biscayne Bay on the south, and currently being considered for listing as a rare/endangered species. At the time it was described as a new species in 1980, no staminate flowers had been reported. After numerous searches in the Indian River in the late 1980s and early 1990s and after culture in the laboratory, only pistillate flowers are known. DNA testing indicates that H. johnsonii is distinct from *H. decipiens* Ostenfeld. *H. johnsonii* may represent the vegetative development of a single pistillate clone.
KEY WORDS: Chromosomes, Population genetics, Plant reproductive structures, Seagrass, Sexual reproduction, Random amplified polymorphic DNA, *Halophila johnsonii*, *Halophila decipiens*

838
Jilek, R., and J. L. Crites (1982) Comparative morphology of the North American species of Spinitectus (Nematoda:Spirurida) analyzed by scanning electron microscopy. Trans. Amer. Microscopical Soc., 101(2):126-134.
TIME COVERAGE: 1982 ◊
SUMMARY: Morphological examination by SEM of the surface of four species of nematodes revealed distinct patterns of structures which may be useful in identification and differentiation of members of this genus. Some specimens were obtained from bonefish collected in Biscayne Bay.

KEY WORDS: Nematodes, Spinitectus, Animal morphology, Bonefish, *Albula vulpes*

839
Johnson, D. R., and T. N. Lee (1977) Density-induced motions in shallow lagoons. Sea Grant technical bulletin 38. University of Miami Sea Grant Program, Coral Gables, FL. 29 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: This report uses simple mathematical models to investigate the influence of horizontal density gradients on the residence time in shallow well-stirred lagoons such as Biscayne Bay and Card Sound. It was determined that density-induced motions do not contribute substantially to the flushing of lagoon waters.
KEY WORDS: Density gradients, Lagoons, Estuarine dynamics, Tidal mixing, Water motion, Card Sound

840
Johnson, D. R., and W. Seaman (1986) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - spotted seatrout. Biological rep. 82 (11.43). US Fish and Wildlife Service, National Wetlands Research Center, Slidell, LA. 18 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: The nomenclature, taxonomy, morphology, life history, growth characteristics, fishery, ecological role, and environmental requirements of spotted seatrout are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Spotted seatrout, *Cynoscion nebulosus*, South Florida

841
Johnson, R. A. (1992) Lithologic variation in the Miami Limestone of Florida. Open file report no. 48. Florida Geological Survey, Tallahassee, FL. 25 pp.
TIME COVERAGE: 1992 ◊
SUMMARY: The six lithofacies characteristics of the oolitic Miami Limestone are described.
KEY WORDS: Limestone, Miami Limestone, Oolites, South Florida

842
Johnson, R. A. (1993) Stratigraphy of the upper Pleistocene Miami limestone of Florida. Abstracts with programs (Geological Society of America), 25(4):24-25.
TIME COVERAGE: 1993 ◊
SUMMARY: The upper Pleistocene Miami limestone is probably the most stratigraphically-complex formation in the Cenozoic of Florida. The Miami overlies and vertically/laterally grades into the upper Pleistocene Ft. Thompson Formation to the west in southeast Palm Beach County; to the west in Broward County and to the north in south Broward County. The Miami overlies and very locally vertically grades into the Ft. Thompson in all of Dade County.
KEY WORDS: Stratigraphy, Pleistocene, Miami limestone, South Florida

843
Johnson, T. S., and Thomas D. Pemble (1974) Preoperational levels of environmental radioactivity in water sediment around Turkey Point nuclear power plants, Card Sound, Florida. Radiation Data and Reports, 15(3):117-123.
TIME COVERAGE: 1971 - 1972
SUMMARY: An investigation of the levels and distribution of gross alpha, gross beta and selected gamma-emitting radioisotopes present in water and sediment samples from Card Sound was performed. This was a baseline study prior to discharge into the Sound from the Turkey Point Nuclear Power Plant.
KEY WORDS: Radioactivity, Sea water, Sediment analysis, Turkey Point, Card Sound

844
Johnston, G. (1987) Diving and Snorkeling Guide to Florida's East Coast: Including Palm Beach, Ft. Lauderdale and Miami Areas. Pisces Books, New York, NY. 96 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: This is a diving guide to the east coast of Florida. Descriptions and photographs of some of the wrecks in Biscayne Bay are included.
KEY WORDS: Diving, Underwater exploration, Artificial reefs, Palm Beach, Fort Lauderdale, Miami, Southeast Florida

845
Jones, G. A. (1985) Health assessment for Munisport Landfill. CERCLIS no. FLD084535442, Miami, Florida. US Public Health Service, Agency for Toxic Substances and Disease Registry,, Atlanta, GA. 4 pp.
TIME COVERAGE: 1985
SUMMARY: This citation is a description of the Munisport Landfill and a discussion of de-listing of the site from the EPA Superfund list.
KEY WORDS: Munisport Landfill, Hazard assessment

846
Jones, J. A. (1968) Primary productivity by the tropical marine turtle grass, *Thalassia testudinum* Konig, and its epiphytes. Ph.D. dissertation. University of Miami, Coral Gables, FL. 196 pp.
TIME COVERAGE: 1966 - 1967
SUMMARY: The primary purpose of this study was the measurement of the rates of photosynthesis and respiration by *Thalassia* and its epiphytes. Other objectives included measuring and relating ecological conditions to the metabolic rates and establishing seasonal patterns for each.
KEY WORDS: Primary production, Turtle grass, *Thalassia testudinum*, Seagrass, Epiphytes, Bear Cut, Matheson Hammock, Caribbean

847
Jones, R. D., J. N. Boyer, and N. Black (1997?) The south Florida estuarine water quality monitoring network Florida Bay, Whitewater Bay, Ten Thousand Islands, Biscayne Bay, Southwest Florida Shelf. Part 2 - Appendices.1997 cumulative report to Everglades National Park and South Florida Water Management District. Florida International University, Unpaged.
TIME COVERAGE: 1991-1996
SUMMARY: [This is a companion volume to the report by Jones and Boyer (1997?).]
KEY WORDS: Florida Bay, Whitewater Bay, Ten Thousand Islands, Florida Shelf, Water quality, Nutrients, Salinity, Temperature, Dissolved oxygen

848
Jones, R. D., and J. N. Boyer (1998?) The south Florida estuarine water quality monitoring network Florida Bay, Whitewater Bay, Ten Thousand Islands, Biscayne Bay, Southwest Florida Shelf. 1997 cumulative report to Everglades National Park and South Florida Water Management District. Florida International University, Unpaged.
TIME COVERAGE: 1991-1996
SUMMARY: This report summarizes existing water quality data from the South Florida Estuarine Water Quality Monitoring Network. The most extensive dataset is for Florida Bay. Twenty-seven stations were samples in Biscayne Bay.
KEY WORDS: Florida Bay, Whitewater Bay, Ten Thousand Islands, Florida Shelf, Water quality, Nutrients, Salinity, Temperature, Dissolved oxygen

849
Jones, R. D., and J. N. Boyer (1999) The south Florida estuarine water quality monitoring network Florida Bay, Whitewater Bay, Ten Thousand Islands, Biscayne Bay, Southwest Florida Shelf. 1998 cumulative report to Everglades National Park and South Florida Water Management District. Florida International University, Unpaged.
TIME COVERAGE: 1999 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Florida Bay, Whitewater Bay, Ten Thousand Islands

850
Jory, D. E., and E. S. Iversen (1989) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - black, red, and Nassau groupers. Biological report 82 (11.110). US Fish and Wildlife Service, National Wetlands Research Center, Slidell, LA. 21 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: The life history, growth characteristics, fishery, ecological role, environmental requirements, and morphology of three species of groupers are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Groupers, Black grouper, *Mycteroperca bonaci*, Red grouper, *Epinephelus morio*, Nassau grouper, *Epinephelus striatus*, South Florida

851
Joseph, E. B., and F. E. Nichy (1955) Literature survey of the Biscayne Bay area. Part II: Algae, marine fouling and boring organisms. Supplement to "A literature survey of the Biscayne Bay area" by J. B. Morrill and F. C. W. Olson. Florida State University, Oceanographic Institute, Tallahassee, FL.
TIME COVERAGE: 1955 ◊
SUMMARY: This is a bibliographical supplement to a literature survey of Biscayne Bay emphasizing algae, and marine boring and fouling organisms.
KEY WORDS: Algae, Boring organisms, Fouling organisms, Bibliographies

852
Josselyn, M. N. (1975) The growth and distribution of two species of *Laurencia*, a red macroalga, in Card Sound, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 121 pp.
TIME COVERAGE: 1973 - 1974
SUMMARY: The seasonal changes in biomass and growth rates for two species of *Laurencia* were studied in Card Sound. Seasonal abundance and distribution was dependent upon actual plant growth, plant movement, fragmentation, and losses to other trophic levels.
KEY WORDS: Seaweeds, *Laurencia poitei*, *Laurencia obtuse*, Growth, Ecological distribution, Card Sound

853
Josselyn, M. N. (1977) Seasonal changes in the distribution and growth of *Laurencia poitei* (Rhodophyceae, Ceramiales) in a subtropical lagoon. Aquatic Botany, 3(3):217-229.
TIME COVERAGE: 1977 ◊
SUMMARY: Seasonal changes in biomass and growth rates of *Laurencia* were studied in Card Sound. Algal biomass increased late in spring and April and declined during the summer. Local distribution was found to be dependent upon water circulation patterns in the Sound.
KEY WORDS: Seaweeds, Biomass, Growth, Biological production, Seasonal variations, Card Sound, *Laurencia poitei*, Ecological distribution

854
Judge, R. M. (1976) A preliminary water quality reconnaissance of Fisher Island, Dade County, Florida. Report #1 Potamological Laboratory. Florida International University, Miami, FL.
TIME COVERAGE: 1976 ◊
SUMMARY: This is a preliminary analysis of water quality adjacent to Fisher Island. Water quality was found to be high.

855
Judge, R. M., and F. W. Curtis (1977) Heavy metal accumulation in mid-Biscayne Bay, Dade County, Florida. Unpublished manuscript. Florida International University, Miami, FL. 251 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Heavy metals, Cd, Pb, Hg, Zn, Central Bay

856
Judge, R. M., and F. W. Curtis (1979) Heavy metal distribution in Biscayne Bay sediments. Florida Scient., 42(-):242-248.
TIME COVERAGE: 1979 ◊
SUMMARY: [NOT AVAILABLE.]
KEY WORDS: Heavy metals, Sediment pollution, Marine pollution, Cd, Pb, Hg, Zn, Pollution surveys, Sediment, Pollution monitoring

857
Judge, R. M., and F. W. Curtis (1979) Heavy metal concentration in mid-Biscayne Bay sediments. Florida Scient., 42(Suppl. 1):40.
TIME COVERAGE: 1979 ◊
SUMMARY: The hypothesis that the environmental condition of the north Biscayne Bay is polluted, while the south bay is relatively clean, was examined by studying the distribution of Cd, Pb, Hg and Zn in the bottom sediments. Sediment samples were collected from the mid-Bay boundary area and the Intercoastal Waterway and analyzed for Cd, Pb, Hg and Zn. Samples were also collected on the Intercoastal Waterway. The concentrations showed no significant differences between the northern and southern samples.
KEY WORDS: Cd, Pb, Hg, Zn, Sediment

858
Jutare, T. V. (1962) Studies on the biology of *Bothus ocellatus* with a description of a related new species. M.Sc. thesis. University of Miami, Coral Gables, FL. 97 pp.
TIME COVERAGE: 1962 ◊
SUMMARY: This is a study of the biology of the eyes flounder. Some specimens were collected in Biscayne Bay.
KEY WORDS: Eyed flounder, *Bothus ocellatus*, *Bothus robinsi*, Biological development, Taxonomy

859
Kadel, B. C. (1926) An interpretation of the wind velocity record at Miami Beach, Fla., September 17-18, 1926. Mon. Weather Rev., 54(-):414-416.
TIME COVERAGE: 1926
SUMMARY: This citation describes the wind velocity measurements made during the passage of the Hurricane of 1926 over Miami. The maximum recorded velocity was 132 mph.
KEY WORDS: Hurricane of 1926, Wind speed, Miami Beach

860
Kalber, F. A. (1955) Some effects of extracts of the eyestalk of *Panulirus argus* on oxygen uptake by *Uca pugilator*. M.Sc. thesis. University of Miami, Coral Gables, FL. 128 pp.
TIME COVERAGE: 1954 - 1955
SUMMARY: Physical evidence suggests that neurosecretion exists within the brain and nervous tissue of the eyestalk of crustaceans. The effects of extracts of the eyestalks of lobsters on fiddler crabs were studied.
KEY WORDS: Neurosecretory system, Spiny lobster, *Panulirus argus*, Fiddler crab, *Uca pugilator*, Eyestalks, Endocrinology

861
Kapadia, A., and E. D. Swain (1996) South Florida Ecosystem Program: quantifying freshwater discharge for coastal hydraulic control structures in eastern Dade County, Florida. USGS fact sheet FS-123-96. US Geological Survey, Reston, VA. 3 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: This is a fact sheet describing the USGS involvement in the South Florida Ecosystem Restoration Program.
KEY WORDS: Fresh water, Hydraulic structures, Coastal structures, Dade County

862
Kaplan, M. N. (1937) Big Game Anglers' Paradise. Liveright, New York, NY.
TIME COVERAGE: 1937 ◊
SUMMARY: This is a fishing guide to South Florida. Included are description of large game fish and a manatee.
KEY WORDS: Game fish, Sport fishing, Florida, Florida Keys, Dry Tortugas, Manatees

863
Karplus, I. (1992) Obligatory and facultative goby-shrimp partnerships in the western tropical Atlantic. Symbiosis, 12(3):275-91.
TIME COVERAGE: 1981
SUMMARY: Goby-shrimp partnerships were studied. Continuous antenna contact was maintained between the shrimp and the gobies while outside the burrow. The shrimp retreated into the burrow in response to tail flick warning signals from the gobies. Free-living shrimp behaved differently than those associated with gobies.
KEY WORDS: Symbiosis, Associated species, Interspecific relationships, Goby, *Nes longus*, *Bathygobius curacao*, Shrimp, *Alpheus floridanus*, Key Biscayne

864
Kelly, J. F. (1975) A description of the histological structure of normal and microsporidan-infected pink shrimp, *Penaeus duorarum* Burkenroad. Ph.D. dissertation. University of Miami, Coral Gables, FL. 88 pp.
TIME COVERAGE: 1974 -1975
SUMMARY: The histological structure of post larval and juvenile pink shrimp and pathologies of pink shrimp infested with Microsporidia were described.
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Histology, Histopathology, Microsporidia, Parasitic diseases, *Thelohania duorara*, *Thelohania penaei*, Pleistophora

865
Kelly, J. F. (1979) Tissue specificities of *Thelohania duorara*, *Agmasoma penaei*, and Pleistophora sp., microsporidian parasites of pink shrimp, *Penaeus duorarum*. J. Invertebrate Pathology, 33(-):331-339.
TIME COVERAGE: 1979 ◊
SUMMARY: The pathology of shrimp infected with microsporidian parasites was described.

KEY WORDS: Microsporidians, *Thelohania duorara*, *Agmasoma penaei*, Pleistophora, Parasitic diseases, "Milk" shrimp, Pink shrimp, *Penaeus duorarum*

866
Kelly, M. G. (1969) Applications of remote photography to the study of coastal ecology in Biscayne Bay, Florida. Contribution to the Department of Biology. University of Miami, Coral Gables, FL. 24 pp.
TIME COVERAGE: 1968
SUMMARY: This report describes the use of aerial photography to the study of synoptic distribution of bottom biotic cover. The illustrations in the report are difficult to interpret.
KEY WORDS: Aerial photography, Bottom photographs, Coastal zone, Hydrography

867
Kelly, M. G. (1970) Patterns of distribution of coastal biota, remote sensing, and conservation of resources. In: Proc., Natl. Symp. on Hydrobiology, Bioresources of Shallow Water Environments. W. G. Wiest, and P. E. Greeson, (eds.). Miami Beach, FL, 1970. American Water Resources Association proceedings series 8. American Water Resources Association, Urbana, IL. 105-113.
TIME COVERAGE: 1970 ◊
SUMMARY: This citation explored the use of high altitude photography in the study of coastal biota and processes.
KEY WORDS: Coastal zone, Biota, Ecological distribution, Remote sensing, Aerial photography, Bottom photographs, Bahamas, Florida Keys

868
Kennedy, C. J., N. J. Gassman, and P. J. Walsh (1992) The fate of benzo[*a*]pyrene in the scleractinian corals *Favia fragum* and *Montastrea annularis*. Mar. Biol., 113(2):313-318.
TIME COVERAGE: 1990
SUMMARY: Corals collected in patch reefs in Biscayne Bay were exposed to labeled benzo[*a*]pyrene and uptake estimated from the rate of disappearance of benzo[*a*]pyrene from the water. Zooxanthellae were found to accumulate more than 50% of the benzo[*a*]pyrene present in the corals. Both corals metabolized benzo[*a*]pyrene slowly into various tetrols, triols, dihydrodiols, quinones and phenols. The pattern of metabolites differed between the species. Tetrols and triols were not present in the zooxanthellae. Elimination of benzo[*a*]pyrene from these corals was slow.
KEY WORDS: Aromatic hydrocarbons, Benzo[*a*]pyrene, Coral, Scleractinia, *Favia fragum*, *Montastrea annularis*, Biscayne National Park, Alina's Reef

869
Kennedy, C. J., and P. J. Walsh (1994) The effects of temperature on the uptake and metabolism of benzo[*a*]pyrene in isolated gill cells of the gulf toadfish, *Opsanus beta*. Fish Physiology Biochem., 13(2):93-103.
TIME COVERAGE: 1990
SUMMARY: The effects of acclamation temperature and acute temperature change on the uptake and metabolism of benzo[*a*]pyrene by gills cells of toadfish were studied. Benzo[*a*]pyrene accumulates in fill cells in direct proportion to the concentration of this chemical in the medium. Uptake rates, biotransformation enzymes and possible biochemical mechanisms were discussed.
KEY WORDS: Temperature effects, Metabolism, Benzo[*a*]pyrene, Gills, Toadfish, *Opsanus beta*

870
Kern, R. (1997) The Wonders of Biscayne National Park and the Florida Keys. Rich Kern's Nature Series. Film Ideas, Inc., Northbrook, IL. Videorecording, VHS, 45 min.
TIME COVERAGE: 1997 ◊

SUMMARY: This videorecording describes wildlife in the Biscayne National Park and the Florida Keys.
KEY WORDS: Protected resources, Rare species, Biscayne National Park, John Pennekamp Coral Reef State Park, Florida Keys

871
Kesselman, M. N. (1981) 1941 - 1950 decade: hurricanes. South Florida History Mag., 8(3):7-11.
TIME COVERAGE: 1941 - 1950
SUMMARY: This article describes hurricanes passing over South Florida during the decade of the 1940s.
KEY WORDS: Hurricanes, Hurricane of 1945

872
Key, K. W., G. H. Born, K. D. Leaman, and P. Vertes (1999) A new GPS data processing algorithm for the positioning of oceanographic experiments. J. Atmos. Oceanic Technol., 16(8):1127-37.
TIME COVERAGE: 1996
SUMMARY: New GPS algorithms were tested in Biscayne Bay by sinking a velocity profiler. Acoustic data were collected for a zero velocity profile.
KEY WORDS: GPS testing

873
Kieber, D. J. (1988) Marine biogeochemistry of [alpha]-keto acids. Ph.D. dissertation. University of Miami, Coral Gables, FL. 226 pp.
TIME COVERAGE: 1988 ◊
SUMMARY: α-Keto acids represent a potentially important component of dissolved organic carbon. A detailed investigation of processes affecting cycling of α-keto acids was described in this work.
KEY WORDS: Organic acids, Dissolved organic matter, Sea water, Biogeochemical cycle, Florida Bay

874
Kieber, D. J., and K. Mopper (1987) Photochemical formation of glyoxylic and pyruvic acids in seawater. Mar. Chem., 21(-):135-149.
TIME COVERAGE: 1987 ◊
SUMMARY: Cycling of alpha-keto acids and other organic metabolites in seawater is discussed. Production rates varied at sampling sites. Humic acid-rich Florida Bay waters exhibited rates higher than those of humic acid-poor Gulf Stream seawater.
KEY WORDS: Organic acids, Glyoxylic acid, Pyruvic acid, Sea water, Photochemical reactions, Florida Bay

875
Kieber, D. J., and K. Mopper (1986) Trace determination of [alpha]-keto acids in natural waters. Anal. Chim. A., 183(-):129-140.
TIME COVERAGE: 1986 ◊
SUMMARY: A procedure for the determination of [alpha]-keto acids in seawater and sediment interstitial waters was described and tested using samples collected in Biscayne Bay.
KEY WORDS: Organic acids, Sea water, Dissolved organic matter, Biogeochemical cycle

876
Kieber, D. J., G. M. Vaughan, and K. Mopper (1988) Determination of formate in natural waters by a coupled enzymatic/high-performance liquid chromatographic technique. Anal. Chem., 60(17):1654-1659.
TIME COVERAGE: 1988 ◊
SUMMARY: A procedure for the determination of formate in seawater and sediment interstitial waters was described and tested using samples collected in Biscayne Bay.
KEY WORDS: Formic acid, Dehydrogenases, Chemical analysis, Water samples, Chromatographic techniques

877
Kiene, R. P. (1991) Evidence for the biological turnover of thiols in anoxic marine sediments. Biogeochem., 13(2):117-135.
TIME COVERAGE: 1991 ◊
SUMMARY: Thiols bound in sediments may be exchangeable and pass to the interstitial water phase and therefore potentially available for microbial consumption. Slurries of anoxic sediments collected in Biscayne Bay were used in this study.
KEY WORDS: Thiols, Methanethiol, Mercaptans, Sulfate reduction, Bacteria, Anoxic sediment

878
Kiene, R. P., K. D. Malloy, and B. F. Taylor (1990) Sulfur-containing amino acids as precursors of thiols in anoxic coastal sediments. Applied Environ. Microbiol., 56(1):156-161.
TIME COVERAGE: 1990 ◊
SUMMARY: Sulfur-containing amino acids were examined as precursors for thiols, and were found to contribute to the range of thiols that occur in anoxic coastal sediments. New metabolic and environmental transformations were identified.
KEY WORDS: Amino acids, Sulfur compounds, Thiols, Anoxic sediment

879
Kiene, R. P., and B. F. Taylor (1988) Biotransformations of organosulphur compounds in sediments via 3-mercaptopropionate. Nature, 332(6160):148-150.
TIME COVERAGE: 1988 ◊
SUMMARY: 3-Mercaptopropionate is a major organic sulfur compound detected in anoxic pore waters of marine sediments from Bear Cut. This paper presented evidence that 3-mercaptopropionate is generated from the biotransformation of dimethylsulphonioproprionate. Findings suggested that 3-mercaptopropionate is a central metabolite in both catabolic and assimilatory metabolism in general.
KEY WORDS: Thiols, Organic sediment, Sulfur compounds, Sediment analysis, Bear Cut

880
Kilby, J. D., and D. K. Caldwell (1955) A list of fishes from the southern tip of the Florida peninsula. Quart. J. Fla. Acad. Sci., 18(3):195-206.
TIME COVERAGE: 1955 ◊
SUMMARY: This paper describes the fishes found in south Florida.
KEY WORDS: Fish, Florida Keys, Everglades, Species list

881
Kimball, M. C., and H. J. Teas (1975) Nitrogen fixation in mangrove areas of southern Florida. In: Proc., Internatl. Symp. on Biol. and Management of Mangroves. G. E. Walsh, S. C. Snedaker, and H. J. Teas, (eds.). Honolulu, HI, 1974. University of Florida, Institute of Food and Agricultural Sciences, Gainesville. 654-660.
TIME COVERAGE: 1974 ◊

SUMMARY: Nitrogen fixation by the soils of five mangrove communities was determined by the acetylene method. Nitrogen fixation was found to be low for all communities, and decreased with depth in the soil.
KEY WORDS: Mangrove swamps, Nitrogen fixation, Soils

882
King, D. B. (1997) Biogeochemical cycling of methyl bromide in the surface ocean. Ph.D. dissertation. University of Miami, Coral Gables, FL. 126 pp.
TIME COVERAGE: 1997 ◊
SUMMARY: The objective of this dissertation was to increase the current base of knowledge of the biogeochemical cycling of methyl bromide in the surface ocean and its impact on the atmospheric methyl bromide cycle.
KEY WORDS: Methyl bromide, Biogeochemical cycle, Sea water, Bromide

883
King, D. B., and E. S. Saltzman (1997) Removal of methyl bromide in coastal seawater: chemical and biological rates. J. Geophys. Res., 102(C8):18715-18721.
TIME COVERAGE: 1997 ◊
SUMMARY: A stable isotope tracer technique was used to investigate the loss rate of methyl bromide in Biscayne Bay surface seawater. Removal rates in unfiltered seawater were significantly higher than in the 0.2-µm filtered or autoclaved aliquants, indicating an association with particulate matter. Filtration experiments indicated bacteria may be responsible.
KEY WORDS: Methyl bromide, Coastal waters, Sea water

884
Kirtley, D. W. (1966) Intertidal reefs of sabellariidae (Annelida polychaeta) along the coasts of Florida. M.Sc. thesis. Florida State University, Tallahassee, FL. 96 pp.
TIME COVERAGE: 1966 ◊
SUMMARY: Sabellariid worms build extensive wave-deforming reefs along tropical and subtropical coasts. A stretch of worm reefs was studied in detail along the southeast coast of Florida as far south as Key Biscayne.
KEY WORDS: Tube dwellers, Honeycomb worm, Sabellariids, Reef formation, Key Biscayne

885
Kirtley, D. W. (1971) Reef-building worms. Sea Frontiers, 17(2):102-107.
TIME COVERAGE: 1971 ◊
SUMMARY: This article describes the reef-building activities of Sabellariid worms.
KEY WORDS: Tube dwellers, Honeycomb worm, Sabellariids, Reef formation

886
Kirtley, D. W., and W. F. Tanner (1968) Sabellariid worms: builders of a major reef type. J. Sed. Petrol., 38(1):73-78.
TIME COVERAGE: 1968 ◊
SUMMARY: Sabellariid worms build extensive wave-deforming reefs along tropical and subtropical coasts. A stretch of worm reefs was studied in detail along the southeast coast of Florida.
KEY WORDS: Polychaetes, *Phragmatopoma lapidosa*, Sabellariid worms, Reef formation

887
Klein, H. (1957) Interim report on salt-water encroachment in Dade County, Florida. Florida Geological Survey information circular 9. US Geological Survey, Tallahassee, FL. 17 pp.
TIME COVERAGE: 1957 ◊

SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Saline intrusion, Canals, Groundwater pollution, Dade County

888
Klein, H. (1970) Preliminary evaluation of availability of potable water on Elliott Key, Dade County, Florida. USGS open file report 70-188 (Microfiche). US Geological Survey, Tallahassee, FL. 15 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: This paper describes fresh water sources in Elliott Key.
KEY WORDS: Water resources, Ground water, Geology, Elliott Key

889
Klein, H. (1965) Probable effect of Canal 111 on salt-water encroachment, southern Dade County, Florida. Open file report 65002. US Geological Survey, Tallahassee, FL. 26 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: The C-111 canal is one of the main canals of the Central and Southern Flood Control Project and discharges into southern Biscayne Bay. It was constructed in 1964 - 1965 and has a gated control structure. This report is a evaluation of possible salt water intrusion as the result of this canal.
KEY WORDS: Ground water, Saline intrusion, Water table, Canal C-111, Dade County

890
Klein, H., J. T. Armbruster, B. F. McPherson, and H. J. Freiberger (1974) Water and the south Florida environment. Report. US Geological Survey, Miami, FL. 265 pp.
TIME COVERAGE: 1971 (and other years)
SUMMARY: National attention was focused on the ecological problems of south Florida when the Port Authority of Dade County began the construction of the Jetport at a 39-sq. mile tract 6 mi north of the Everglades National Park. A primary objective of the ecological study regarding the Jetport is to provide information that will assist in the formulation of land-use policy. As part of that investigation, the surface water and ground water resources were evaluated.
KEY WORDS: Water management, Land use, Environmental effects, South Florida, Jetport, Ground water, Surface water, Florida Bay, Florida Keys, Everglades National Park

891
Klein, H., and J. E. Hull (1978) Biscayne aquifer, southeast Florida. Water-resources investigation 78-107. US Geological Survey, Tallahassee, FL. 52 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: Recharge of the Biscayne Aquifer is primarily by local rainfall. Discharge is by evaporation, canal drainage, coastal seepage and pumping. Pollutants can enter the aquifer by direct infiltration from land surface or controlled canals, septic tanks and other drainfields, drainage wells, and solid waste dumps. Moat of the pollutants are concentrated in the upper 20 to 30 feet of the aquifer.
KEY WORDS: Hydrology, Water supply, Water quality, Groundwater pollution, Biscayne Aquifer

892
Klein, H., and C. B. Sherwood (1961) Hydrologic conditions in the vicinity of Levee 30, northern Dade County, Florida. Report of investigations no. 24, part 1. US Geological Survey and Florida Geological Survey, Tallahassee, FL. 24 pp.
TIME COVERAGE: 1961 ◊
SUMMARY: The thin layers of dense limestone of low permeability that occur near the top of the Biscayne Aquifer are of hydrologic importance because they retard the downward infiltration of ponded water in Conservation Area 2.
KEY WORDS: Hydrology, Ground water, Saline intrusion, Water quality, Levee 30, Biscayne Aquifer

893
Klein, H., and B. G. Waller (1985) Synopsis of saltwater intrusion in Dade County, Florida, through 1984. Water resources investigations report 85-4101. US Geological Survey, Tallahassee, FL. 1 sheet.
TIME COVERAGE: 1904, 1943, 1946, 1953, 1962, 1949-1984
SUMMARY: This paper contains the salt water intrusion charts for Dade County.
KEY WORDS: Saline intrusion, Biscayne Aquifer, Canals, Dade County

894
Kleinberg, H. (1997) Biscayne Bay islands, born of grains of sand. The Miami Herald, Miami, FL. Apr. 15.
TIME COVERAGE: 1997 ◊
SUMMARY: This article describes the creation of artificial islands in Biscayne Bay.
KEY WORDS: Artificial islands

895
Kleinberg, H. (1989) Miami: The Way We Were. Surfside Publishing, Tampa, FL. 176 pp.
TIME COVERAGE: 1770s - 1940s
SUMMARY: This book is a compilation of articles from the Miami News about the history of South Florida, specially Miami, Miami Beach and Coconut Grove.
KEY WORDS: Hurricane of 1926, Hurricane of 1906, Flagler Railroad, Coconut Grove, Punch Bowl, History, World War II, Arch Creek, Miami River

896
Klima, E. F. (1959) Aspects of the biology and the fishery for Spanish mackerel, *Scomberomorus maculatus* (Mitchill) of southeast Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 96 pp.
TIME COVERAGE: 1959 ◊
SUMMARY: This is a study of the biology of the Spanish mackerel. Specimens were obtained from commercial fishermen.
KEY WORDS: Spanish mackerel, *Scomberomorus maculatus*, Fishery biology, Fisheries

897
Kline, G. (1968) A study of the distribution of the interstitial fauna of three beaches. M.Sc. thesis. University of Miami, Coral Gables, FL. 95 pp.
TIME COVERAGE: 1966 - 1967
SUMMARY: Sediment cores were taken at three beach sites in Virginia Key and he animals identified and counted. Interstitial water chemistry and sediment characteristics were also determined.
KEY WORDS: Interstitial environment, Benthos, Virginia Key, Bear Cut

898
Klontz, S. W. (1989) Florida's aquatic preserves. Florida Environmental and Urban Issues, 15(-):14-18.
TIME COVERAGE: 1989 ◊
SUMMARY: [NOT AVAILABLE.]
KEY WORDS: Submerged shorelines, Resource management, Resource conservation, Aquatic Preserve Program, Florida

899
Knetsch, J., and P. S. George (1995) Flagler sets his sights on Biscayne Bay. South Florida History Mag., 23(1):20-25.

TIME COVERAGE: 1892 - 1899
SUMMARY: This paper describes the extension of Henry Flagler's railroad to Dade County.
KEY WORDS: Natural resources, Resource development, Shipping lanes, Florida East Coast Railway, Flagler, H. M.

900
Kohout, F. A. (1987) Aquifer-estuary fresh-salt water balance, Miami, Florida. In: Groundwater Problems in Coastal Areas. E. Custodio and G. A. Bruggeman (eds.). Unesco studies and reports in hydrology 45. Unesco, Paris, France. 582-596.
TIME COVERAGE: 1987 ◊
SUMMARY: This paper discusses the salt water intrusion that has taken place in the Biscayne aquifer.
KEY WORDS: Ground water, Fresh water, Salinity, Estuarine dynamics, Chlorinity, Hydrologic cycle, Water mixing, Biscayne Aquifer

901
Kohout, F. A. (1961) A case history of salt-water encroachment caused by a storm sewer in the Miami area, Florida. Am. Water Works Assoc. J., 53(11):1406-1416.
TIME COVERAGE: 1909 - 1930
SUMMARY: From 1909 to 1930 canals were constructed westward from the coast to drain low lying areas for urban and agricultural use. The canals have been the primary cause of salt water encroachment into the Biscayne Aquifer.
KEY WORDS: Biscayne Aquifer, Seawater encroachment, Canals

902
Kohout, F. A. (1960) Cyclic flow of salt water in the Biscayne aquifer of southeastern Florida. J. Geophys. Res., 67(7):2133-2141.
TIME COVERAGE: 1960 ◊
SUMMARY: Observations over a period of 20 yrs confirmed the fact that the salt-water front of the Biscayne Aquifer is dynamically stable at a position seaward of that computed according to the Ghyben-Hersberg principle.
KEY WORDS: Hydrologic cycle, Sea water, Fresh water, Water mixing, Biscayne Aquifer

903
Kohout, F. A. (1960) Flow pattern of fresh and salt water in the Biscayne aquifer of the Miami area, Florida. Internatl. Assoc. Scientific Hydrology, 52(-):440-448.
TIME COVERAGE: 1960 ◊
SUMMARY: Investigations showed that the dynamically stable salt-water front is as much as 8 mi seaward of the position computed according to the Ghyben-Herzberg principle. The discrepancy results largely from the fact that the salt water in the Biscayne aquifer is not static.
KEY WORDS: Biscayne Aquifer, Ground water, Saline intrusion, Fresh water, Sea water

904
Kohout, F. A. (1967) Ground-water flow and the geothermal regime of the Floridian Plateau. Trans. Gulf Coast Association of Geological Societies, 17(-):339-354.
TIME COVERAGE: 1967 ◊
SUMMARY: Temperature surveys done during oil exploration indicated an anomalous geothermal profile for the Floridian Plateau. The geothermal gradient is negative (ground water becomes colder) to a depth of 3000 ft below sea level. The geothermal regime is modified by cold seawater.
KEY WORDS: Ground water, Geothermal gradient, Saline water, Floridian Plateau

905

Kohout, F. A. (1965) A hypothesis concerning cyclic flow of salt water related to geothermal heating in the Floridan Aquifer. Trans. New York Academy of Sciences, Ser. 2, 28(2):249-271.

TIME COVERAGE: 1965 ◊

SUMMARY: This paper summarizes the hydrogeology of the thick carbonate-evaporate sequence that extends from the land surface to the oil horizons at depths of approximately 11500 ft.

KEY WORDS: Ground water, Geothermal gradient, Saline water, Floridan Aquifer

906

Kohout, F. A. (1962) Relation of seaward and landward flow of ground water to the salinity of Biscayne Bay at Miami, Florida. In: Proc., First Natl. Coastal and Shallow Water Research Conference,. D. S. Gorsline, (ed.). 1961. National Science Foundation and Office of Naval Research, Tallahassee, FL. 44.

TIME COVERAGE: 1961 ◊

SUMMARY: [SEE NEXT CITATION FOR DESCRIPTION OF WORK.]

KEY WORDS: Ground water, Water currents, Salinity, Saline intrusion, Biscayne Aquifer, Water mixing

907

Kohout, F. A. (1967) Relation of seaward and landward flow of ground water to the salinity of Biscayne Bay. M.Sc. thesis. University of Miami, Coral Gables, FL. 98 pp.

TIME COVERAGE: 1958, 1963 - 1966

SUMMARY: Ground water discharge contributed significantly to the offshore chlorinity gradient of Biscayne Bay. The seaward flow of relatively fresh ground water dilutes the Bay water to a distance greater than 2 mi from shore.

KEY WORDS: Ground water, Water currents, Salinity, Saline intrusion, Water mixing, Biscayne Aquifer

908

Kohout, F. A. (1966) Submarine springs: a neglected phenomenon of coastal hydrology. In: Central Treaty Organization Symposium on Hydrology and Water Resources Development. Ankara, Turkey, 1966. Office of United States Economic Coordinator for CENTO Affairs, Ankara, Turkey. 391-413.

TIME COVERAGE: 1966 °

SUMMARY: Fresh water spring found in several coastal areas worldwide, including Biscayne Bay, are described.

KEY WORDS: Submarine springs, Fresh water, Coastal waters

909

Kohout, F. A., and J. H. Hartwell (1967) Hydrologic effects of Area B flood control plan on urbanization of Dade County, Florida. Florida Geological Survey report of investigations 47. Florida State Board of Conservation, Division of Geology, Tallahassee, FL. 61 pp.

TIME COVERAGE: 1967 ◊

SUMMARY: [COPY NOT AVAILABLE.]

KEY WORDS: Flood control, Pump stations, Runoff, Hydrology, Water levels, Urbanization, Everglades

910

Kohout, F. A., and M. C. Kolipinski (1967) Biological zonation related to groundwater discharge along the shore of Biscayne Bay, Miami, Florida. In: Estuaries. G. H. Lauff (ed.). AAAS publication 83. American Association for the Advancement of Science, Washington, DC. 488-499.

TIME COVERAGE: 1967 ◊

SUMMARY: The distribution of fauna and flora along a shoreline is controlled by many factors including salinity. The distribution of organisms correlates strongly with underlying hydrological factors, and thus may be a function of the salinity related to groundwater discharge.
KEY WORDS: Ecological zonation, Ground water, Fresh water, Ecological distribution, Salinity, Water mixing, Cutler Area, Species list

911
Kohout, F. A., and S. D. Leach (1964) Salt-water movement caused by control-dam operation in the Snake Creek Canal, Miami, Florida. Rep. of investigations 24, part 4. Florida State Board of Conservation, Division of Geology, Tallahassee, FL. 49 pp.
TIME COVERAGE: 1961
SUMMARY: Salt water movement into the Biscayne Aquifer was investigated to establish criteria for the operation of the salt-water control dam in the Snake Creek Canal.
KEY WORDS: Sea water, Saline intrusion, Dams, Canals, Biscayne Aquifer, Snake Creek Canal

912
Kolipinski, M. C. (1964) The life history, growth, and ecology of four intertidal gastropods (genus *Nerita*) of southeast Florida. Ph.D. dissertation. University of Miami, Coral Gables, FL. 131 pp.
TIME COVERAGE: 1964 ◊
SUMMARY: This work is a description of the life history, growth, and ecology of four *Nerita* species from southeast Florida.
KEY WORDS: Intertidal environment, *Nerita fulgurans*, *Nerita peloronta*, *Nerita tessellata*, *Nerita versicolor*, Life history, Growth, Gastropods, Key Largo, Virginia Key

913
Kolipinski, M. C., and A. L. Higer (1970) Detection and identification of benthic communities and shoreline features in Biscayne Bay using multiband imagery. Earth Resources Prog. Rev., 3(47):1-16.
TIME COVERAGE: 1970 ◊
SUMMARY: This paper describes the use of multispectral imagery to identify and delineate benthic and shoreline communities in Biscayne Bay.
KEY WORDS: Imaging techniques, Benthos, Coastal landforms

914
Kouassi, A. M. (1986) Light induced alteration of the photophysical properties of dissolved organic matter in seawater. M.Sc. thesis. University of Miami, Coral Gables, FL. 148 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: This research provided additional evidence that seawater and its abiotic organic content undergo degradation under solar radiation. [SEE FOLLOWING ABSTRACT FOR DESCRIPTION OF THE RESULTS.]
KEY WORDS: Dissolved organic matter, Sea water, Light absorption, Humus

915
Kouassi, A. M., and R. G. Zika (1992) Light-induced destruction of the absorbance property of dissolved organic matter in seawater. Toxic. Environ. Chem., 35(-):195-211.
TIME COVERAGE: 1992 ◊
SUMMARY: The absorption spectra of marine humic substances decrease when they are exposed to a known intensity of monochromatic light at various wavelengths or to a polychromatic source such as sunlight. The results of studies of photochemical bleaching of absorption of marine humic substances were presented and compared to the characteristics of total dissolved organic matter to assess the contribution made by the humic fractions. From the

absorbance and apparent quantum efficiency data at specific wavelength and the solar fluxes, a model calculation was used to determine the rates of the change of the photoprocess in the Biscayne Bay seawater and humic substances collected in the Gulf of Mexico.
KEY WORDS: Sea water, Light, Dissolved organic matter, Virginia Key

916
Krantz, G. E., and J. P. Norris (1976) Culture of pink shrimp, *Penaeus duorarum* at the Turkey Point experimental mariculture laboratory. Sea Grant tech. bull. 36. University of Miami Sea Grant Program, Coral Gables, FL. 36 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This citation is a review and analysis of laboratory and pond studies on intensive culture of pink shrimp at Turkey Point since 1968.
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Shrimp culture, Turkey Point

917
Kreader, C. A. (1983) Analytical procedures for measuring protein, DNA, and RNA in *Acartia tonsa*. M.Sc. thesis. University of Miami, Coral Gables, FL. 102 pp.
TIME COVERAGE: 1983 ◊
SUMMARY: Recommended procedures for the measurement of protein, DNA and RNA in the copepod *Acartia tonsa* were described.
KEY WORDS: Copepods, *Acartia tonsa*, Proteins, DNA, RNA

918
Kreitman, A., and L. A. Wedderburn (1984) Hydrogeology of South Florida. In: Environments of South Florida: Present and Past II. P. J. Gleason (ed.). Miami Geological Society, Coral Gables, FL.
TIME COVERAGE: 1984 ◊
SUMMARY: This citation describes the aquifers of South Florida including the Biscayne Aquifer.
KEY WORDS: Biscayne Aquifer, Hydrology, Saline water, Ground water

919
Kremer, P. (1982) Effect of food availability on the metabolism of the ctenophore *Mnemiopsis mccradyi*. Mar. Biol., 71(2):149-156.
TIME COVERAGE: 1979
SUMMARY: Measurements of respiration and excretion for this ctenophore species were carried out under laboratory conditions. Freshly collected ctenophores from Biscayne Bay were used in this study.
KEY WORDS: Food consumption, Respiration, Excretion, Metabolism, *Mnemiopsis mccradyi*, Ctenophores

920
Krueger, J. F. (1973) The accumulation of dieldrin into the blood of pre- and post-ecdysis juvenile pink shrimp, *Penaeus duorarum*. M.Sc. thesis. University of Miami, Coral Gables, FL. 63 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: The levels of dieldrin in the blood of pink shrimp were determined. Specimens were obtained from fishermen operating in Biscayne Bay.
KEY WORDS: Insecticides, Dieldrin, Juveniles, Pink shrimp, *Penaeus duorarum*

921
Kushlan, J. A. (1988) Conservation and management of the American crocodile. Environ. Management, 12(6):777-790.
TIME COVERAGE: 1978 - 1982

SUMMARY: In an attempt to determine what factors might be limiting population growth of the crocodile, an extensive study was conducted. Factors included climate, hurricanes, population dispersion, nesting habitat, fertility, predation, nest chamber environment, juvenile survivorship, artificial mortality, disturbance, and environmental contamination. No single factor limited the population.
KEY WORDS: American crocodile, *Crocodylus acutus*, Resource conservation, Resource management, Florida Bay, Turkey Point

922
Kushlan, J. A. (1974) The ecology of the white ibis in southern Florida, a regional study. Ph.D. dissertation. University of Miami, Coral Gables, FL. 129 pp.
TIME COVERAGE: 1971 - 1973
SUMMARY: This study determined the ecological impact, in terms of prey consumption and energy requirements, and the adaptive strategy of the white ibis, the most abundant wading bird in South Florida.
KEY WORDS: White ibis, *Eudocimus albus*, Aquatic birds, Wood stork, *Mycteria americana*

923
Kushlan, J. A. (1982) The status of crocodilians in south Florida. In: Crocodiles; Proc., 5th Working Meeting of the Crocodile Specialist Group of the Species Survival Commission of the International Union for Conservation of Nature and Natural Resources. 1980. International Union for the Conservation of Nature and Natural Resources, Gland, Switzerland.
TIME COVERAGE: 1982 ◊
SUMMARY: Two species of crocodilians occur in South Florida: the American crocodile and the American alligator. The American crocodile is considered to be endangered and the American alligator is considered threatened. This report discusses the preliminary findings of recent and ongoing studies.
KEY WORDS: American crocodile, *Crocodylus acutus*, American alligator, *Alligator mississippiensis*, Turkey Point, South Florida

924
Kushlan, J. A., and F. J. Mazzotti (1989) Historic and present distribution of the American crocodile in Florida. J. Herpetol., 23(1):1-7.
TIME COVERAGE: 1870, 1884, 1891, 1896, 1923, 1944, 1970, 1980, 1977 - 1982
SUMMARY: The historic and recent distribution of the American crocodile in southern Florida were discussed. Its nesting distribution is southern Biscayne Bay and northeastern Florida Bay. Nesting sites in Miami Beach and the upper Florida Keys have been lost to development. This loss has been compensated by the creation of artificial nesting sites on spoil banks along the cooling canals of southern Biscayne Bay. The general distribution of the crocodile in Florida is the same as that historically documentable.
KEY WORDS: American crocodile, *Crocodylus acutus*, Geographical distribution, Florida Bay, South Bay, Florida Keys, Miami Beach

925
Kushlan, J. A., and F. J. Mazzotti Population biology and status of the American crocodile in south Florida. In: Crocodiles; Proc., 7th Working Meeting of the Crocodile Specialist Group of the Species Survival Commission of the International Union for Conservation of Nature and Natural Resources. Caracas, Venezuela, 1986. International Union for the Conservation of Nature and Natural Resources, Gland, Switzerland.
TIME COVERAGE: 1986 ◊
SUMMARY: The core range of the American crocodile extends into southern Biscayne Bay and Card Sound. Nesting occurs in northern Florida Bay, northern Key Largo and Turkey Point.

There is evidence that the population is increasing. The loss of habitat in northern Biscayne Bay may have been offset by the creation of new habitats in northern Key Largo and Turkey Point.
KEY WORDS: American crocodile, *Crocodylus acutus*, Population dynamics, South Florida, Card Sound, Florida Bay, Key Largo, Turkey Point

926
Kushlan, J. A., and D. A. White (1977) Nesting wading bird populations in southern Florida. Florida Scient., 40(1):65-72.
TIME COVERAGE: 1974 - 1975
SUMMARY: Wading birds, including ibises, herons and storks, once nested in southern Florida by the millions. A 1974 - 1975 survey located 41 colonies. White ibis and cattle egret were most abundant, and those of great egrets, little blue herons, Louisiana herons and snowy egrets were lower than expected. Wading birds nested year round but individual species had more circumscribed nesting seasons which differed seasonally and between inland and coastal colonies.
KEY WORDS: Aquatic birds, Nesting, Population density, South Florida, White ibis, *Eudocimus albus*, Roseate spoonbill, *Ajaja ajaja*, Wood stork, *Mycteria americana*, Great blue heron, *Ardea herodias*, Cattle egret, *Bubulcus ibis*, Great egret, *Casmerodius alba*, Little blue heron, Florida caerula, Louisiana herons, *Hydronassa tricolor*, Snowy egret, *Egretta thula*

927
La Gorce, J. O. (1930) Florida - the fountain of youth. Natl. Geographic Mag., 57(-):1-93.
TIME COVERAGE: 1930 ◊
SUMMARY: This article describes Florida in the late 1920s including South Florida. Many photographs are included.
KEY WORDS: History, Geography, Land use, Recreation, Florida

928
La Gorce, J. O. (1921) Treasure-house of the Gulf Stream: the completion and opening of the new aquarium and biological laboratory at Miami, Florida. Natl. Geographic Mag., 39(-):53-68.
TIME COVERAGE: 1921 ◊
SUMMARY: This paper describes the 1920s Miami Aquarium.
KEY WORDS: Aquaria, Biological institutions, Marine organisms, Miami Beach, Gulf Stream

929
La Plante, L. (1995) The sage of Biscayne Bay: Charles Torrey Simpson's love affair with South Florida. Tequesta, 55(-):60-82.
TIME COVERAGE: 1880s - 1932
SUMMARY: This article is a short biography of Charles Torrey Simpson, a botanist and malacologist who authored many books about South Florida.
KEY WORDS: History, Simpson, Charles Torrey

930
Lackey, J. B. (1974) Entrainment studies at Turkey Point on Biscayne Bay: have thermal effects affected the plankton of Biscayne Bay? In: Entrainment and Intake Screening. Proc., 2nd Entrainment and Intake Screening Workshop. L. D. Jensen, (ed.). Baltimore, MD, 1973. Electric Power Research Institute, Palo Alto, CA. 187-191.
TIME COVERAGE: 1972
SUMMARY: Seagrasses have persisted during the four years of the study as healthy dense beds in areas receiving plant effluent. The "bare spot" at the mouth of the Grand Canal, said to be caused by the effluents, was apparently present before there was thermal effluent. The sides of the canals have been colonized by mangroves. As long as the temperatures of thermal effluents does not exceed 34 °C over a long period of time, damage to organisms is negligible.

KEY WORDS: Thermal pollution, Power plants, Entrainment, Plankton, Turkey Point

931
Lackey, J. B., and E. W. Lackey (1972) Thermal effects at Turkey Point: a study. Report. Florida Power and Light Company, Miami, FL. Various paging.
TIME COVERAGE: 1968 - 1972?
SUMMARY: The purpose of this study is to study thermal effects related to the operation of a power plant specially to plankton and seagrasses.
KEY WORDS: Temperature effects, Marine organisms, Turkey Point

932
Landrum and Brown (1999) Aircraft noise considerations in the transfer of ownership of Homestead Air Reserve Base, Homestead, Florida, from the United States Air Force to Dade County, Florida. Final review draft. Prepared for the Federal Aviation Administration and the US Air Force. Various paging.
TIME COVERAGE: 1999 ◊
SUMMARY: This technical memorandum analyzes the potential aircraft noise impacts related to the proposal to use the former Homestead Air Force Base for a commercial service airport from its initial activity level up to the maximum capacity of the existing one runway. It evaluates alternative traffic routing proposals to modify or reduce noise within properties owned and operated by the National Park Service and Fish and Wildlife Service.
KEY WORDS: Homestead Air Reserve Base, Noise abatement, Biscayne National Park, Aircraft, Environmental impact

933
Landrum, L. W. (1990) Biscayne: The Story Behind the Scenery. KC Publications, Las Vegas, NV.
TIME COVERAGE: 1990 ◊
SUMMARY: This publication is a description of the Biscayne Bay National Park with color illustrations.
KEY WORDS: Natural resources, Biscayne National Park

934
Lane, C. E. (1959) Cobra of the sea. Sea Frontiers, 5(1):7-13.
TIME COVERAGE: 1959 ◊
SUMMARY: This citation describes the Portuguese man-of-war.
KEY WORDS: Portuguese man-of-war, *Physalia physalis*, Jellyfish, Stinging organs, Biological poisons

935
Lane, C. E., and E. Dodge (1958) The toxicity of *Physalia* nematocysts. Biol. Bull., 115(2):219-226.
TIME COVERAGE: 1958 ◊
SUMMARY: The general composition and conditions of reactivity of the nematocysts and nematocyst contents of *Physalia* were described.
KEY WORDS: Stinging organs, Biological poisons, Toxicity, Portuguese man-of-war, Jellyfish, *Physalia physalis*

936
Lane, C. E., G. S. Posner, and L. J. Greenfield (1952) The distribution of glycogen in the shipworm, *Teredo* (Lyrodus) pedicellata Quatrefages. Bull. Mar. Sci. Gulf Caribb., 2(3):385-392.
TIME COVERAGE: 1952 ◊

SUMMARY: Adult *Teredo* worms were shown to contain approximately 30% dry weight glycogen, most of it concentrated in the mantle, muscles and gills. This figure was achieved within six weeks after the borer first invades wood.
KEY WORDS: Shipworms, *Teredo pedicellata*, Boring organisms, Glycogen

937
Lane, C. E., and J. Q. Tierney (1951) Hydrodynamics and respiration in *Teredo*. Bull. Mar. Sci. Gulf Caribb., 1(2):104-110.
TIME COVERAGE: 1951 ◊
SUMMARY: Basal oxygen consumption of *Teredo* was determined and was found to be significantly reduced when the animal was removed from wood.
KEY WORDS: Shipworms, *Teredo pedicellata*, Boring organisms, Respiration, Oxygen consumption

938
Langevin, C. D. (1999) Ground-water flows to Biscayne Bay. Proc., South Florida Restoration Science Forum. S. Gerould, and A. Higer, (eds.). Boca Raton, FL, May 17-19,1999. Open-file report 99-181. US Geological Survey Program on the South Florida Ecosystem, Tallahassee, FL. 58-59.
TIME COVERAGE: 1996 - 1997
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Groundwater, Freshwater, Hydrology

939
Langley, S. P. (1974) A continuous-flow apparatus for marine zooplankton: uptake of dieldrin by glass and the chaetognath, *Sagitta hispida* Conant. M.Sc. thesis. University of Florida, Coral Gables, FL. 50 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: The update of dieldrin in a continuous flow apparatus was studied. Test animals and seawater were obtained from Biscayne Bay.
KEY WORDS: Zooplankton, Insecticides, Dieldrin, Test equipment, Toxicity tests, Chaetognaths, *Sagitta hispida*

940
LaRoe, E. T. (1967) A contribution to the biology of the Loliginidae (Cephalopoda: Myopsida) of the tropical western Atlantic. M.Sc. thesis. University of Miami, Coral Gables, FL. 220 pp.
TIME COVERAGE: 1967 ◊
SUMMARY: Five species of the Loliginidae squid family were examined. Some specimens were collected in Biscayne Bay.
KEY WORDS: Squid, Loliginidae, Life history, Animal morphology

941
Lasker, R. (1952) An analysis of the amino acids of *Teredo* by paper partition chromatography. M.Sc. thesis. University of Miami, Coral Gables, FL. 42 pp.
TIME COVERAGE: 1952 ◊
SUMMARY: The objective of this work was to provide information about possible sources of shipworm protein. The amino acid distribution of *Teredo* was compared with that of wood and nanoplankton.
KEY WORDS: Boring organisms, *Teredo pedicellata*, Amino acids, Chromatographic techniques

942
Lauredo, S. C. (1998) Co-existence: Stiltsville (Florida). Ph.D. dissertation. Florida International University, Miami, FL. 75 pp.

TIME COVERAGE: 1998 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Motorboats, Stiltsville

943
Laxon, D. D. (1968) The Dupont Plaza site. Florida Anthropologist, 21(-):55-60.
TIME COVERAGE: 1968 ◊
SUMMARY: Representative Tequesta material was salvaged from the area now occupied by the Dupont Plaza complex at the mouth of the Miami River. Large areas under the present-day parking lot may be excavated in the future.
KEY WORDS: Archaeology, Middens, Miami River, Tequesta

944
Laxon, D. D. (1959) Three salvaged Tequesta sites in Dade County, Florida. Florida Anthropologist, 12(-):57-65.
TIME COVERAGE: 1958 - 1959
SUMMARY: This paper describes material of the Tequesta culture collected at three sites in Dade County that were destroyed during construction projects.
KEY WORDS: Archaeology, Middens, Little River, Brickell Point, Florida Portland Cement Plant, Tequesta

945
Layne, J. N. (1965) Observations on marine mammals in Florida waters. Bull. Florida State Museum, Biological Ser., 9(4):131-181.
TIME COVERAGE: 1953 - 1963
SUMMARY: Data were presented on the distribution, measurements and weights, ecology, and other aspects of the biology of twelve species of cetaceans, one pinniped, and the manatee in Florida waters. Most records are for the period 1953 through 1963 although some for earlier years were included.
KEY WORDS: Marine mammals, Whales, Dolphins, Manatees, Pinnipeds, Stranding, Florida

946
Leach, C. W. (1969) Creosoted wood piles in Biscayne Bay are sound after eleven years of service - progress report. Proc., 65th Ann. Mtg. American Wood-Preservers' Association. Denver, CO, April 28 - 30, 1969. American Wood-Preservers' Association, Washington, DC. 272-275.
TIME COVERAGE: 1956-1957, 1967
SUMMARY: Creosoted wood piles were driven in 1956 and 1957 in the coastal water of Biscayne Bay as part of the small craft docking facilities of the University of Miami. After 11 years, the piles were found to be in excellent condition.
KEY WORDS: Piles, Preservatives, Wood, Virginia Key

947
Leach, S. D., and R. G. Grantham (1966) Salt-water study of the Miami River and its tributaries, Dade County, Florida. Florida Geological Survey rep. of investigations 45. Florida State Board of Conservation, Division of Geology, Tallahassee, FL. 36 pp.
TIME COVERAGE: 1904 - 1962
SUMMARY: This report discusses salt-water intrusion into the highly permeable Biscayne Aquifer. Saltwater pollution may be held at the current level or moved seaward by raising the freshwater table in the ground.
KEY WORDS: Saline intrusion, River discharge, Miami River, Miami Canal, Tamiami Canal

948
Leach, S. D., H. Klein, and E. R. Hampton (1972) Hydrologic effects of water control and management of southeastern Florida. Bureau of Geology report of investigations 60. Florida Department of Natural Resources, Bureau of Geology, Tallahassee, FL. 115 pp.
TIME COVERAGE: 1904 - 1969
SUMMARY: This report expands the one by Leach and Grantham (1966) with further discussion of salt-water intrusion into the highly permeable Biscayne Aquifer.
KEY WORDS: Water management, Flood control, Saline intrusion, Urbanization, Hydrologic cycle, Everglades, Lake Okeechobee

949
Leach, S. D., and C. B. Sherwood (1963) Hydrologic studies in the Snake Creek Canal area, Dade County, Florida. Rep. of investigations 24, part 3. Florida State Board of Conservation, Division of Geology, Tallahassee, FL. 33 pp.
TIME COVERAGE: 1961
SUMMARY: Snake Creek was constructed to drain water from northern Dade County and southern Broward County. During dry periods, it conveys water from the Everglades seaward. A salinity control structure at the mouth of the canal prevents the upstream movement of salt water and helps maintain upstream water levels high enough to prevent salt-water encroachment.
KEY WORDS: Hydrologic cycle, Canals, Saline intrusion, Drainage water, Biscayne Aquifer, Snake River Canal

950
Leadon, M. E. (1991) Littoral environmental considerations of a barrier island in beach fill design: Key Biscayne, Florida. In: <u>Coastal Sediments '91. Proc., Specialty Conference on Quantitative Approaches to Coastal Sediment Processes</u>. N. C. Kraus, K. J. Gingerich, and D. L. Kriebel, Seattle, WA, 1991. American Society of Civil Engineers, New York, NY. 2089-2100.
TIME COVERAGE: 1991 ◊
SUMMARY: A completed beach fill project along portions of Key Biscayne was monitored through a series of beach and nearshore surveys and aerial photography. An analysis of littoral processes affecting the beach fill project included application of a shoreline change model.
KEY WORDS: Beach nourishment, Beach morphology, Littoral zone, Coastal engineering, Key Biscayne

951
Leadon, M. E. (1992) Physical monitoring of the Key Biscayne beach restoration project with shoreline change modeling application. In: <u>Proc., 5th Ann. Natl. Conf. on Beach Preservation Technology: New Directions in Beach Management</u>. L. S. Tait, (comp.). St. Petersburg, FL, 1992. Florida Shore & Beach Preservation Association, Tallahassee, FL. 196-208.
TIME COVERAGE: 1992 ◊
SUMMARY: This citation describes monitoring efforts and modeling of the beach restoration of Key Biscayne
KEY WORDS: Beach nourishment, Coastal morphology, Littoral zone, Key Biscayne

952
Leak, J. C. (1984) <u>Growth and survival of bay anchovy (*Anchoa mitchilli*) larvae in north Biscayne Bay, Florida</u>. Ph.D. dissertation. University of Miami, Coral Gables, FL. 114 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: Abundance, age structure, growth, mortality, feeding and production of anchovy larvae in Biscayne Bay were estimated during field experiments.
KEY WORDS: Bay anchovy, *Anchoa mitchilli*, Fish larvae, Growth, Survival, North Bay

953
Leak, J. C. (1986) The relationship of standard length and otolith diameter in larval bay anchovy, *Anchoa mitchilli* (Val.). A shrinkage estimator. J. Exp. Mar. Biol. Ecol., 95(-):167-172.
TIME COVERAGE: 1986 ◊
SUMMARY: Anchovies were raised in the laboratory from eggs collected in Biscayne Bay. Standard length of the laboratory-reared and net-collected larvae were compared with diameter of sagittal otoliths. Otoliths of net-collected larvae were shorter than those of larvae that were laboratory reared.
KEY WORDS: Bay anchovy, *Anchoa mitchilli*, Larvae, Otoliths, Body length

954
Leak, J. C., and E. D. Houde (1987) Cohort growth and survival of bay anchovy *Anchoa mitchilli* larvae in Biscayne Bay, Florida. Mar. Ecol. (Progress series), 36(2/3):109-122.
TIME COVERAGE: 1979 - 1980
SUMMARY: Egg and larval abundance of bay anchovy from four field experiments in Biscayne Bay were analyzed to determine variability in growth and mortality rates of daily-spawned cohorts.
KEY WORDS: Mortality causes, Developmental stages, Size distribution, Survival, *Anchoa mitchilli*, Bay anchovy, North Bay, Indian Creek

955
Ledder, D. A. (1986) Food habits of the West Indian manatee, *Trichechus manatus latirostris*, in south Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 114 pp.
TIME COVERAGE: 1977 - 1981
SUMMARY: Gut contents were collected from dead manatees in order to describe their diet. *Halodule* comprised the largest portion of the diet followed by the freshwater species *Hydrilla verticillata.*
KEY WORDS: West Indian manatee, *Trichechus manatus*, Food consumption, Feeding behavior, South Florida

956
Lee, C., and J. L. Bada (1977) Dissolved amino acids in the equatorial Pacific, the Sargasso Sea, and Biscayne Bay. Limnol. Oceanogr., 22(3):502-510.
TIME COVERAGE: 1977 ◊
SUMMARY: Seawater was analyzed for dissolved free amino acids and dissolved combined amino acids by a ligand-exchange chromatography technique. A bacterial source was postulated for the origin of the amino acids. The Biscayne Bay samples were collected on a transect from Matheson Hammock to the Safety Valve. Levels of amino acids decreased with increasing distance from shore in Biscayne Bay.
KEY WORDS: Amino acids, Matheson Hammock Park, Water analysis, Biological production, Ecosystems, Food chains, Safety Valve

957
Lee, C. H., and R. T. S. Cheng (1974) On saltwater encroachment in coastal aquifers. Water Resources Res., 10(5):1039-1043.
TIME COVERAGE: 1974 ◊
SUMMARY: Seawater encroachment in the Biscayne aquifer was studied by means of a mathematical model. Results are in good qualitative agreement with field data.
KEY WORDS: Ground water, Saline intrusion, Aquifers, Biscayne Aquifer, Cutler Area

958
Lee, J. Y. (1997) Waste disposal of Virginia Key. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Waste disposal, Landfill, Virginia Key

959
Lee, S. S., S. Sengupta, N. L. Weinberg, and H. W. Hiser (1976) Calibration and verification of environmental models. In: Advances in Engineering Science. NASA, Langley Research Center, Hampton, VA.
TIME COVERAGE: 1976 ◊
SUMMARY: This paper describes calibration and verification procedures used in remote sensing studies of thermal pollution.
KEY WORDS: Thermal pollution, Calibration, Mathematical models, Remote sensing, Power plants, Hutchinson Island

960
Lee, S. S., and T. N. Veziroglu (1974) Remote sensing applied to thermal pollution. In: Symp. Proc., Remote Sensing Applied to Energy-related Problems. T. N. Veziroglu, (ed.). Miami, FL, 1974. Clean Energy Research Institute, University of Miami, Coral Gables, FL. S5:33-70.
TIME COVERAGE: 1974
SUMMARY: This paper reviews remote sensing of thermal plumes of power plants in Biscayne Bay and other sites.
KEY WORDS: Remote sensing, Thermal pollution, Power plants, Turkey Point, Cutler Ridge, Port St. Lucie Nuclear Power Plant

961
Lee, S. S., T. N. Veziroglu, S. Sengupta, and N. L. Weinberg (1975) Remote sensing applied to thermal pollution. In: Symp., Remote Sensing: Energy-related Studies. T. N. Veziroglu, (ed.). Miami, FL, 1974. Hemisphere Publishing Co., Washington, DC. 303-334.
TIME COVERAGE: 1975 ◊
SUMMARY: This paper reviews the use of remote sensing to study thermal pollution.
KEY WORDS: Remote sensing, Thermal pollution, Power plants, Turkey Point, Cutler Ridge, Port St. Lucie Nuclear Power Plant

962
Lee, T. N. (1974) Circulation. Progress report to Atomic Energy Commission, July 1, 1973-June 30, 1974 (AT-(40-1)-3801). University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 20 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Estuarine dynamics, Water circulation, Tidal mixing, Wind-driven circulation, Mathematical models, Flushing, Lagoons, Card Sound

963
Lee, T. N. (1975) Circulation and exchange processes in southeast Florida's coastal lagoons. Technical report 75-3. Contract no. AEC AT(40-1)-3801-sub. 4. ORO-3801-9. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 71 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: Field observations of circulation and exchange-inducing processes were used to develop a conceptual model of flushing in shallow coastal lagoons. Wind-induced circulation

coupled with tides in the inlets are the dominant exchange mechanism. Mean renewal times range from one to three months.
KEY WORDS: Water circulation, Wind-driven circulation, Tidal currents, Flushing, Lagoons, Density flow, Salinity profiles, Water exchange, Card Sound, Barnes Sound

964
Lee, T. N., and J. B. McGuire (1973) An analysis of marine waste disposal in southeast Florida's coastal waters. In: Proc., Sixth Internatl. Conf., Advances in Water Pollution Research. S. H. Jenkins, (ed.). Jerusalem, Israel, 1972. Pergamon Press, Oxford, UK. 865-880.
TIME COVERAGE: 1973 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Waste disposal, Outfalls, Coastal waters, Water pollution, Nearshore dynamics

965
Lee, T. N., and J. B. McGuire (1973) The use of ocean outfalls for marine waste disposal in southeast Florida's coastal waters. Sea Grant Coastal Zone Management Bull. 2. University of Miami Sea Grant Program, Miami, FL. 19 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: This citation evaluates the ocean outfall method of sewage disposal as practiced in South Florida at the time of writing. The method was found to be unsafe and a detriment to the ecology and aesthetics of the area. The City of Miami ocean outfall at Virginia Key is described.
KEY WORDS: Waste disposal, Outfalls, Coastal waters, Water pollution, Nearshore dynamics, Virginia Key

966
Lee, T. N., and C. Rooth (1971) Circulation. In: An Ecological Study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. II:1-46.
TIME COVERAGE: 1971 ◊
SUMMARY: The objectives of this study were to determine: the existing circulation patterns in Card Sound as a function of tide and wind; exchange characteristics of Card Sound with surrounding water; resident time and flushing rate; spatial and temporal patterns of water mass properties; and future alterations of flow patterns and water level with the planned discharge.
KEY WORDS: Water circulation, Tidal currents, Wind-driven circulation, Flushing, Water exchange, Thermal pollution, Card Sound, Turkey Point

967
Lee, T. N., and C. Rooth (1972) Circulation. In: An ecological study of south Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. II:1-36.
TIME COVERAGE: 1972 ◊
SUMMARY: Intensive investigations on a seasonal time scale coupled with semimonthly synoptic surveys of temperature and salinity were carried out in Card Sound.
KEY WORDS: Water circulation, Tidal currents, Wind-driven circulation, Flushing, Water exchange, Thermal pollution, Turkey Point, Card Sound

968
Lee, T. N., and C. Rooth (1976) Circulation and exchange processes in southeast Florida's coastal lagoons. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.).

Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Miami, FL.
TIME COVERAGE: 1970 - 1975
SUMMARY: A series of experiments and analytical studies geared toward identification of important circulation- and exchange-inducing processes, and understanding of their role in flushing shallow coastal lagoons over a period of five years began in 1970. Wind-induced circulation coupled with tides in the inlets was the dominant exchange mechanism in the shallow lagoons. Tidal exchange of interior waters is weak and concentrated in the direction of tidal flow which is aligned with the basin axis.
KEY WORDS: Water circulation, Water exchange, Flushing, Wind-driven circulation, Tidal currents, Salinity profiles, Density flow, Lagoons, Card Sound, Barnes Sound

969
Lee, T. N., and C. Rooth (1972) Exchange processes in shallow estuaries. In: Preprints, Fourth Ann. Offshore Technology Conf. Houston, TX, 1972. Offshore Technology Conference, Dallas, TX. Vol. 2: 777-788.
TIME COVERAGE: 1972 ◊
SUMMARY: A modular approach to the analysis of mixing and flow characteristics in shallow tidal estuaries is presented using Biscayne Bay and Card Sound as examples.
KEY WORDS: Water exchange, Water mixing, Estuarine dynamics, Shallow water, Tidal currents, Card Sound

970
Lee, T. N., and C. Rooth (1972) Exchange processes in shallow estuaries. Sea Grant special bull. 4. University of Miami Sea Grant Program, Miami, FL. 33 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: A modular approach to the analysis of mixing and flow characteristics in shallow tidal estuaries is presented using Biscayne Bay as an example. The method depends on isolating relatively simple characteristic flow regimes in different parts of an estuary.
KEY WORDS: Water exchange, Tidal currents, Estuarine dynamics, Water mixing, Shallow water

971
Lee, T. N., and C. Rooth (1972) Exchange processes in shallow estuaries. Quart. J. Fla. Acad. Sci., 35(Suppl. 1):31.
TIME COVERAGE: 1972 ◊
SUMMARY: A modular approach to the analysis of mixing and flow characteristics in shallow tidal estuaries was presented using Biscayne Bay as an example.
KEY WORDS: Water exchange, Water mixing, Estuarine dynamics, Shallow water, Tidal currents

972
Lee, T. N., and C. Rooth (1973) Water movements in shallow coastal bays and estuaries. Sea Grant Coastal Zone Management Bull. 3. University of Miami Sea Grant Program, Miami, FL. 19 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: Residence time of water in shallow bays was studied using Biscayne Bay and Card Sound as models. Shallow bays are poorly flushed by tidal mechanisms. Tidal residence time of interior waters was estimated at approximately one year. Wind-induced circulation was found to be capable of reducing the residence time by factors ranging from 10 to 100 depending upon the magnitude, direction and duration of the passage of cold fronts and accompanying winds.
KEY WORDS: Estuarine dynamics, Shallow water, Tidal currents, Wind-driven circulation, Water mixing, Waste disposal, Water pollution, Card Sound

973
Leitz, A. C. (1992) Altitude of the water table in the Biscayne Aquifer, Dade County, Florida, April 25-28, 1988. USGS open-file rep. 92-32. US Geological Survey, Tallahassee, FL. 2 map sheets.
TIME COVERAGE: 1988
SUMMARY: This report consists of two maps of the altitude of the water table in the aquifer.
KEY WORDS: Water table, Biscayne Aquifer

974
Lelkes, G. (1985 (pub. 1987)) Petrographical studies on recent tropical shallow-water carbonate deposits. II. Florida (Biscayne Bay, Key Largo and Marquesas Keys). M. All. Földtani Intézet évi jelentése (Ann. rep. Hungarian Geological Institute), -(-):309-342 (Hungarian).
TIME COVERAGE: 1985 ◊
SUMMARY: (English abstract) This paper reports the results of petrographic analyses of modern carbonate sediments from South Florida. At the inlet to Biscayne Bay in the vicinity of Soldier Key, Halilmeda-Mollusca-Foraminifera-corals-Corallinacea-bearing calcarenites of sizeable quartz sand content and muddy calcarenites are locally being deposited.
KEY WORDS: Lagoonal sedimentation, Carbonate sediment, Mud, X-ray diffraction analysis, Barrier reefs, Key Largo, Marquesas, Soldier Key, Rodriguez Key, Grecian Rock Reef

975
Lenderking, R. E. (1954) Some recent observations on the biology of *Littorina angulifera* Lam. of Biscayne and Virginia Keys, Florida. Bull. Mar. Sci. Gulf Caribb., 3(4):273-296.
TIME COVERAGE: 1952 - 1953
SUMMARY: Periwinkles showed a bilunar periodicity in spawning through ten months of the year. The reproductive processes of the animal are described.
KEY WORDS: Periwinkles, *Littorina angulifera*, Growth, Population structure, Key Biscayne, Virginia Key

976
Leonard, J. N. (1994) Ocean outfalls for wastewater discharges - meeting Clean Water Act 403C requirements. In: Proc., MTS 94: Challenges and Opportunities in the Marine Environment. 1994, Washington, DC. Marine Technology Society, Washington, DC. 115-120.
TIME COVERAGE: 1987 - 1990, 1990 - 1992
SUMMARY: Six ocean outfalls from Palm Beach to Miami were studied as part of the Southeast Florida Outfall Experiments I and II (SEFLOE). Effluent diffusion characteristics of the outfalls were studied in detail. The Miami Central ocean outfall extends 3.6 mi offshore from Virginia Key.
KEY WORDS: Outfalls, Waste water, Southeast Florida Outfall Experiments (SEFLOE), Clean Water Act

977
Lewis, A. G. (1958) The effects of light and temperature on the vertical distribution of some inshore copepods. M.Sc. thesis. University of Miami, Coral Gables, FL. 73 pp.
TIME COVERAGE: 1956 - 1957
SUMMARY: Plankton were exposed to controlled gradients of light and temperature and the vertical distribution of copepods determined.
KEY WORDS: Copepods, *Acartia spinata*, *Acartia bermudensis*, *Calanopia americana*, *Paracalanus parvus*, Vertical distribution, Temperature effects, Light effects, Plankton, Bear Cut

978
Lewis, G. (1957) The book of Florida fishing. Crown Publishers, New York, NY. 90 pp.
TIME COVERAGE: 1957 ◊
SUMMARY: This is a fishing guide to Florida.
KEY WORDS: Fishing, Fish, Florida, Guide

979
Lewis, J. B., H. B. Moore, and W. Babis (1952) The post-larval stages of the spiny lobster, *Panulirus argus*. Bull. Mar. Sci. Gulf Caribb., 2(1):324-337.
TIME COVERAGE: 1952 ◊
SUMMARY: Post-larval stages of the spiny lobster were described.
KEY WORDS: Spiny lobster, *Panulirus argus*, Juveniles

980
Lewis, M. B. (1973) Coastal zone water quality monitoring in the Biscayne Bay area. EPA Applied Technology Division. Contract 68-01-0160. Interstate Electronics Corp., Anaheim, CA. Various paging.
TIME COVERAGE: 1973 ◊
SUMMARY: This citation described water quality monitoring activities in Biscayne Bay.
KEY WORDS: Coastal zone, Water quality, Assessment

981
Lewis, R. R., R. G. Gilmore, D. W. Crewz, and W. E. Odum (1985) Mangrove habitat and fishery resources of Florida. In: Florida Aquatic Habitat and Fishery Resources. W. Seaman (ed.). Florida Chapter, American Fisheries Society, Kissimmee, FL. 543 pp.
TIME COVERAGE: 1985 ◊
SUMMARY: This citation reviews the mangrove habitat and fishery resources of Florida.
KEY WORDS: Mangrove swamps, Estuarine fisheries, Habitat selection, Brackishwater environment, Florida

982
Lidz, B. H., and E. A. Shinn (1991) Paleoshorelines, reefs, and a rising sea: south Florida, U.S.A. J. Coastal Res., 7(-):203-229.
TIME COVERAGE: 1991 ◊
SUMMARY: The porous limestone bedrock, thin sediment cover, and tectonic activity of the Florida Platform during the past 15 ka BP provide a suitable setting for the reconstruction of paleoshorelines and onshore projection of future shorelines in a rising-sea scenario. Projections of future shorelines showed that most of the land forming the Florida Keys would flood in a rise of 1 to 2 m and that a rise of 5 m would submerge all land. Offshore reefs would die and nearshore reefs would shift landward as the mainland shoreline migrated northward.
KEY WORDS: Paleoshorelines, Coral reefs, Sea level changes, Climatic changes, Reef tract, Florida Keys

983
Lietz, A. C. (1997) Determination of nutrient loads to Biscayne Bay, Dade County, Florida. In: Proc., U. S. Geological Survey Program on the South Florida Ecosystem. Ft. Lauderdale, FL, August 25-27, 1997. US Geological Survey open file report 97-385. US Geological Survey, Tallahassee, FL. 55.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Nutrients, Canals

984
Lietz, A. C. (1999) Methodology for estimating nutrient loads discharged from the east coast canals to Biscayne Bay, Miami-Dade County, Florida. USGS Water Resources Ivestigations Report 99-4094. US Geological Survey South Florida Ecosystem Program, Tallahassee, FL. 36 pp.
TIME COVERAGE: 1996 - 1997
SUMMARY: Nutrient loads discharged into Biscayne Bay from the east coast canals were estimated using 1996 and 1997 water years data. The maximum total phosphorus concentration of 0.31 mg/L was the only nutrient concentration to exceed EPA water-quality criteria. High concentrations of total phosphorus usually reflect contamination as a result of human activities. Five sites exceeded the fresh-water quality standard of 0.5 mg/L for ammonia concentration. Median total organic nitrogen concentrations were higher in urban and forested/wetland areas than in agricultural areas; median concentrations of nitrite, nitrate, and nitrite plus nitrate nitrogen were higher in agricultural areas than in urban and forested/wetland areas; and ammonia, total phosphorus, and orthophosphate concentrations were higher in urban areas than in agricultural and forested/wetland areas. These results coincide with expected differences in nutrient concentrations based on knowledge of point and nonpoint source influences and nutrient cycling.
KEY WORDS: Nutrients, Canals, Water analysis, Miami-Dade County

985
Lietz, A. C. (1999) Nutrient analysis and water-quality trends at selected sites in southern Florida. Proc., South Florida Restoration Science Forum. S. Gerould, and A. Higer, (eds.). Boca Raton, FL, May 17-19,1999. Open-file report 99-181. US Geological Survey Program on the South Florida Ecosystem, Tallahassee, FL. 64-65.
TIME COVERAGE: 1996 - 1997
SUMMARY: The USGS conducted a study designed to understand nutrient concentrations and distribution within the east coast canal system, compare sampling methods to determine which methods adequately represent stream cross-section water quality, and develop models for the estimation of nutrient loads from the canals to Biscayne Bay. Major findings are discussed.
KEY WORDS: Water quality, Miami Canal, Tamiami Canal, Everglades, Nutrients

986
Lietz, A. C. (1996) South Florida Ecosystem Program: methodology for the determination of nutrient loads from east coast canals to Biscayne Bay. USGS fact sheet FS-129-96. US Geological Survey, Reston, VA. 2 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: This fact sheet describes how the nutrient loads from the canals into Biscayne Bay are determined.
KEY WORDS: Nutrients (Mineral), Canals, Methodology

987
Liggett, M. L. (1997) Impacts of Virginia Key campground alternative plans on manatees and sea turtles. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Environmental impact, Land use, Manatees, *Trichechus manatus*, Loggerhead turtle, *Caretta caretta*, Virginia Key

988
Light, S. S., and J. W. Dineen (1994) Water control in the Everglades: a historical perspective. In: Everglades: the Ecosystem and its Restoration. S. M. Davis, and J. C. Ogden (eds.). St. Lucie Press, Delray Beach, FL. 826 pp. 47-84.
TIME COVERAGE: 1994 ◊
SUMMARY: This citation is a detailed description of the water control efforts in the Everglades.
KEY WORDS: Water resources, Water supply, Water conservation, Everglades

989
Lillycrop, L. S., and G. L. Howell (1996) The impacts of aragonite use in the nourishment of Dade County and other southeast Florida shore protection projects. In: Proc., 9th Natl. Conf. on Beach Preservation Technology, The Future of Beach Nourishment. L. S. Tait, (comp.). St. Petersburg, FL, 1996. Florida Shore & Beach Preservation Association, Tallahassee, FL. 60-74.
TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Aragonite, Beach nourishment, Turtles, Benthos, Dade County

990
Limouzy, C. B. (1987) Effect of incubation temperature on efficiency of yolk utilization of snook (*Centropomus undecimalis*) larvae. M.Sc. thesis. University of Miami, Coral Gables, FL. 58 pp.
TIME COVERAGE: 1985
SUMMARY: The success of hatchery programs to replenish snook populations by restocking of juveniles may be improved if larger and more energetic larvae were grown. Rearing temperature can have an important effect on larval fish development so the effects of temperature on the rates of development, growth and yolk conversion efficiency of larval snook were investigated. Some specimens were collected in Biscayne Bay.
KEY WORDS: Snook, *Centropomus undecimalis*, Larval development, Incubation, Temperature effects

991
Lin, G., and L. da S. L. Sternberg (1994) Utilization of surface water by red mangrove (*Rhizophora mangle* L.): an isotopic study. Bull. Mar. Sci., 54(1):94-102.
TIME COVERAGE: 1991
SUMMARY: Oxygen isotope ratios of possible water sources in different soil layers and stem water from red mangroves were determined whether mangroves utilize mostly surface water or not. The dependence of mangroves on surface water as their sole water source has significant implications for plant water relations and may explain growth form differentiations in some mangrove species in southern Florida.
KEY WORDS: Surface water, Red mangrove, *Rhizophora mangle*, Biscayne National Park

992
Lin, L. H., and H. Wang (1988) Nearshore wave information along the Florida coast. In: Proc., Beach Preservation Technology 88: Problems and Advancements in Beach Nourishment. L. S. Tait, (comp.). Florida Shore & Beach Preservation Association, Tallahassee, FL. 191-200.
TIME COVERAGE: 1988 ◊
SUMMARY: This paper summarizes the available nearshore wave information along the Florida Coast. Emphasis is placed upon measured wave data.
KEY WORDS: Nearshore currents, Wave height, Wave period, Wave direction, Florida

993
Lin, P. C. P., R. H. Sasso, and C. A. Spell (1997) Regional beach restoration plan for three consecutive barrier islands in south Florida. In: Proc.,10th Natl. Conf. on Beach Preservation

Technology, New Insights into Beach Preservation. L. S. Tait, (comp.). St. Petersburg, FL, 1997. Florida Shore & Beach Preservation Association, Tallahassee, FL. 290-303.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Beach nourishment, Barrier islands, Fisher Island, Virginia Key, Key Biscayne, Norris Cut, Bear Cut

994
Lindall, W. N. (1973) Alterations of estuaries of South Florida: a threat to its fish resources. Marine Fisheries Review, 35(10):26-33.
TIME COVERAGE: 1966 - 1970
SUMMARY: This paper reviews the fisheries of South Florida and how these resources are threatened by man's activities. Some of the major alterations are reduction of freshwater runoff, domestic and industrial pollution, pesticide contamination, thermal addition, and dredging and filling.
KEY WORDS: Estuarine organisms, Fisheries, Shellfish fisheries, Industrial wastes, Domestic wastes, Water pollution, Thermal pollution

995
Lindberg, W. J., and M. J. Marshall (1984) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - stone crab. FWS/OBS-82/11.21. US Fish and Wildlife Service, National Coastal Ecosystems Team, Slidell, LA. 17 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: The nomenclature, taxonomy, morphology, life history, growth characteristics, fishery, ecological role, and environmental requirements of stone crab are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Stone crab, *Menippe mercenaria*, South Florida

996
Lindeman, K. C. (1988) Coastal construction, larval settlement and early juvenile habitat use in grunts, snappers and other coastal fishes of southeast Florida. Bull. Mar. Sci., 44(2):1068.
TIME COVERAGE: 1988 ◊
SUMMARY: This paper discusses the larval settlement on and juvenile habitat use of new coastal construction. Consistent differences in species and life stage abundances occur among several common habitat types. Larval and juvenile porkfish and sergeant majors abundantly colonize vertical and oblique surfaces associated with pile and rip-rap habitats and can remain associated with these structures through reproductive maturity. Usage of construction-derived habitats by gray and schoolmaster snappers and other species appear to primarily occur in early juvenile and subadult stages when rip-rap and pile habitats are used as resting and foraging sites.
KEY WORDS: Artificial habitats, Coastal structures, Larval settlement, Juveniles, Grunts, Snappers, Marine fish, Attracting techniques, Habitat selection

997
Lindeman, K. C. (1997) Comparative management of beach systems of Florida and the Antilles: applications using ecological assessment and decision support processes. In: Managing beach resources in the smaller Caribbean islands; workshop papers. G. Cambers, (ed.). Coastal Region and Small Island Papers. Unesco, Paris, France. 134-64.
SUMMARY: 1997 ◊
KEY WORDS: Sediment movement, Beach nourishment, Aggregates, Ecosystem management Decision making, Southeast Florida, Antilles

998
Lindeman, K. C. (1997) Development of grunts and snappers of southeast Florida: cross-shelf distributions and effects of beach management alternatives. PHD. dissertation. University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: The economically important fish families Haemulidae and Lutjanidae (grunts and snappers) are valuable model systems for the comparative examination of development and habitat use. Over 20 species were used to assess: (a) variations in early life history attributes within and among basal percoid families, and (b) effects of ten beach management alternatives in southeast Florida. For the Biscayne Bay region, combining habitats and cross-shelf strata identified over 150 available habitats.
KEY WORDS: Beaches, Coastal zone management, Life history, Fishery management, Dredging, Environmental impact, Haemulidae, Lutjanidae, Grunts, Sea perches

999
Lindeman, K. C. (1989) Shoreline habitat use, cross-shelf distributions and nursery area evaluation of newly-settled coastal fishes of southeast Florida. In: Coastal Zone '89: Proc., 6th Symp. on Coastal and Ocean Management. O. T. Magoon, H. Converse, D. Miner, L. T. Tobin, and D. Clark, (eds.). Charleston, SC, 1989. American Society of Civil Engineers, New York, NY. 996.
TIME COVERAGE: 1989 ◊
SUMMARY: To comparatively evaluate complete spatial boundaries of larval settlement and early juvenile habitat use among more than 15 species of grunts and snappers, multi-scale distribution and abundance patterns were examined at Biscayne Bay and other locations. Scales examined included intertidal and subtidal habitats characteristic of cross-shelf physiographic gradients of barrier islands/key, mainland tidal creek and inshore reef environment.
KEY WORDS: Grunts, Snappers, Nursery grounds, Habitat, Larvae, Juveniles, Geographical distribution, Southeast Florida

1000
Lindeman, K. C., G. A. Diaz, J. E. Serafy, and J. S. Ault (1998) A spatial framework for assessing cross-shelf habitat use among newly settled grunts and snappers. Proc., 50th annual Gulf and Caribbean Fisheries Institute. R. L. Creswell, (ed.). Merida, Mexico, 1997. Gulf and Caribbean Fisheries Institute, Fort Pierce, FL. 385-416.
TIME COVERAGE: 1998 ◊
SUMMARY: The differential use of nursery habitats by grunts and snappers across a complex coastal seascape was examined using a cross-shelf habitat framework. The framework defined structural bottom types, cross-shelf physical strata, and associated spatial features. The hypothesis that utilization of cross-shelf habitats by grunts and snappers was uniform was not supported by 30 years of literature or museum materials, and new field surveys of the Biscayne Bay area. In terms of bottom types, newly settled stages of *Lutjanus griseus* and *Anisotremus surinamensis* were not recorded from hard structures and seagrasses, respectively. Distributions of newly settled *Lutjanus synagris* were broader; they occurred in both grassbeds and on hard structures. Structurally-identical habitats were often used differently based on their cross-shelf positioning. Habitat utilization patterns ranged from opportunistic to highly specialized.
KEY WORDS: Habitat, Nursery grounds, Grunts, Haemulidae, Snappers, Lutjanidae, *Lutjanus synagris*, *Anisotremus surinamensis*, *Lutjanus griseus*

1001
Lirman, D., and P. Fong (1997) Susceptibility of coral communities to storm intensity, duration and frequency. In: Proc., 8th Internatl. Coral Reef Symp. H. A. Lessions, and I. G. Macintyre, (eds.). Panama, 1996. Smithsonian Tropical Research Institute, Balboa, Panama. 561-566.

TIME COVERAGE: 1992, 1993, 1994
SUMMARY: The reefs of the northern portion of the Florida Reef Tract experienced three major storms of different intensities and duration during a period of 27 months. Hurricane Andrew caused damage almost exclusively to branching coral on Elkhorn Reef. The Storm of the Century (1993) remained over the area for 18 hrs and greatly reduced the cover of *Porites*, and compounded the effects of Andrew. Tropical storm Gordon (1994) further reduced the cover of Porites and fire corals in Elkhorn Reef. Coral rubble created by Gordon buried many of the elkhorn fragments that were already showing signs of regrowth.
KEY WORDS: Coral, Storms, Elkhorn Reef, Ball Buoy Reef, Biscayne National Park, Hurricane Andrew, Tropical Storm Gordon

1002
Little, E. L. (1978) Atlas of United States trees. Volume 5: Florida. US Department of Agriculture miscellaneous publication 1361. US Government Printing Office, Washington, DC.
SUMMARY: Richter Government Publications
KEY WORDS: Trees, Geographical distribution, Botanical resources, Florida

1003
Litz, J., J. Contillo, J. Tobias, and B. Mase (1996) Low-level monitoring of bottlenose dolphins (*Tursiops truncatus*) in Biscayne Bay, Florida. Unpublished report. NOAA/NMFS/SEFSC, Miami, FL.
TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Population dynamics, Photography, Monitoring, Dolphins, *Tursiops truncatus*

1004
Livingston, R. J. (1970) Circadian rhythms in the respiration of eight species of cardinalfishes (Pisces: Apogonidae): comparative analysis and adaptive significance. Ph.D. dissertation. University of Miami, Coral Gables, FL. 139 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: Volumetric respirometers were constructed to determine respiration rates under controlled conditions of light, temperature, salinity and oxygen tension. In addition to the laboratory studies, field studies were made at Alligator Reef, Long Reef, and Triumph Reef. Regular collections were made in Biscayne Bay and reefs in other areas.
KEY WORDS: Circadian rhythms, Respiration, Cardinalfish, *Astrapogon puncticulatus*, *Astrapogon alutus*, *Astrapogon stellatus*, *Phaeoptyx conklini*, *Apogon townsendi*, *Apogon lachneri*, *Apogon maculatus*, *Apogon pseudomaculatus*, *Apogon binotatus*, Alligator Reef, Long Reef, Triumph Reef

1005
Livingston, R. J. (1990) Inshore marine habitats. In: Ecosystems of Florida. University of Central Florida, Orlando, FL.
TIME COVERAGE: 1990 ◊
SUMMARY: This citation describes the inshore marine habitats of Florida, diverse, highly productive series of biological systems.
KEY WORDS: Florida Bay, Biscayne Bay, Ecosystems, Florida

1006
Livs Associates Inc. (1994) Virginia Key site assessment. Report. EAS Engineering, Inc., Coral Gables, FL. Various paging.
TIME COVERAGE: 1963, 1969, 1980, 1990, 1994
SUMMARY: This report is the assessment of the proposed site of a movie studio in Virginia Key.
KEY WORDS: Site surveys, Virginia Key

1007
Loeb, G. I., and N. Smith (1981) Slime analysis of painted steel panels immersed in Biscayne Bay, Miami Beach, Florida. NRL memorandum report 4411. Reproduced by NTIS (ADA 097 229). Naval Research Laboratory, Washington, DC. 30 pp.
TIME COVERAGE: 1978 - 1980
SUMMARY: Light microscopy was used to assess slime film formation on panels coated with Navy and commercial coatings subjected to static and dynamic exposure at Biscayne Bay.
KEY WORDS: Antifouling substances, Biodegradation, Light microscopy, Materials testing, Steel, Miami Beach

1008
Loftus, W. F., and J. A. Kushlan (1984) Population fluctuations of the Schaus swallowtail (Lepidoptera: Papilionidae) on the islands of Biscayne Bay, Florida, with comments on the Bahamian swallowtail. Florida Entomologist, 67(2):277-287.
TIME COVERAGE: 1979 - 1982
SUMMARY: Censuses of the Swallowtail butterfly were conducted in the islands of Biscayne Bay. Census populations varied by year and seemed to be related to the severity of the winter dry season.
KEY WORDS: Schaus swallowtail, *Heraclides aristodemus ponceanus*, Bahamian swallowtail, *Heraclides andraemon bonhotei*, Butterflies, Population number, Hammocks, Elliott Key, Old Rhodes Key, Biscayne National Park

1009
Loftus, W. F., and J. A. Kushlan (1982) The status of the Schaus swallowtail and the Bahama swallowtail butterflies in Biscayne National Park. Report M-649. South Florida Research Center, Homestead, FL. 18 pp.
TIME COVERAGE: 1979 - 1981
SUMMARY: Surveys of swallowtail butterflies were conducted in several keys of Biscayne National Park to determine number of adults present, to delineate emergence season and distribution, and to identify factors which affect their status.
KEY WORDS: Schaus swallowtail, *Heraclides aristodemus ponceanus*, Bahamian swallowtail, *Heraclides andraemon bonhotei*, Butterflies, Population number, Hammocks, Elliott Key, Old Rhodes Key, Totten Key, Biscayne National Park, Butterflies

1010
Long, E. R., A. Robertson, D. A. Wolfe, J. Hameedi, and G. M. Sloane (1996) Estimates of the spatial extent of sediment toxicity in major U.S. estuaries. Environ. Sci. Technol., 30(12):3585-3592.
TIME COVERAGE: 1996 ◊
SUMMARY: The results of biotoxicity studies conducted in several estuaries in the US are compared.
KEY WORDS: Sediment pollution, Estuaries

1011
Long, E. R., G. M. Sloane, G. I. Scott, B. Thompson, R. S. Carr, J. Biedenbach, T. L. Wade, B. J. Presley, K. J. Scott, C. Mueller, G. Brecken-Fols, B. Albrecht, J. W. Anderson, and G. T. Chandler (1999) Magnitude and extent of chemical contamination and toxicity in sediments of Biscayne Bay and vicinity. NOAA Technical Memorandum NOS NCCOS CCMA 141. NOAA/NOS/NCCOS, Silver Spring, /MD. 174 pp.
TIME COVERAGE: 1999 ◊
SUMMARY: This report discusses the results of a biotoxicity survey of Biscayne Bay.
KEY WORDS: Sediment pollution, Chemical pollutants, Trace metals, Organic compounds

1012
Longley, W. H., and S. F. Hildebrand (1941) Systematic catalogue of the fishes of Tortugas, Florida, with observations on color, habits, and local distribution. Papers from the Tortugas Laboratory, 34(-):1-331.
TIME COVERAGE: 1941◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Fish, Dry Tortugas, Taxonomy, Geographical distribution

1013
Lönnberg, E. (1894) List of fishes observed and collected in south Florida. Ofversigt af Kongl. Vetenskaps-Akademiens forhandlingar (Stockholm), -(3):109-131.
TIME COVERAGE: 1892 - 1893
SUMMARY: This paper contains a list of fishes collected in Florida.
KEY WORDS: Fish, South Florida, Florida Keys, Species list

1014
Loope, L., M. Duever, A. Herndon, J. Snyder, and D. Jansen (1994) Hurricane impact on uplands and freshwater swamp forest. BioScience, 44(4):238-246.
TIME COVERAGE: 1992
SUMMARY: This paper describes the effects of Hurricane Andrew on upland and freshwater forests. Large trees and epiphytes sustained the greatest damage.
KEY WORDS: Hurricanes, Vegetation, Swamps, Hurricane Andrew, Elliott Key

1015
Lorenz, J. J., J. C. Ogden, R. D. Bjork, and G. V. N. Powell (1999) Nesting patterns of roseate spoonbills in Florida Bay 1950 - 1999: implications of landscape scale anthropogenic impacts. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 55-56.
TIME COVERAGE: 1950 - 1999
SUMMARY: By 1935, the roseate spoonbill population in Florida Bay decreased to 15 breeding pairs located in Bottle Key. By the 1950s, the population began to recover. Fifty years of nesting data were analyzed in conjunction with foraging information in order to determine suitability of roseate spoonbills as an indicator species for Florida Bay. The primary foraging grounds for the northeastern Florida Bay roseate spoonbill population were the wetlands north of Florida Bay and east of southern Biscayne Bay from Terrapin Point to Turkey Point.
KEY WORDS: Roseate spoonbill, *Ajaja ajaja*, Florida Bay, Terrapin Point, Turkey Point, Population, Indicator species, Foraging

1016
Low, R. A. (1973) Shoreline grassbed fishes in Biscayne Bay, Florida, with notes on the availability of clupeoid fishes. M.Sc. thesis. University of Miami, Coral Gables, FL. 145 pp.
TIME COVERAGE: 1967 - 1969
SUMMARY: This survey of seagrass bed fishes reported at least 175 species representing 66 families. Large fishes such as sharks were not reported. The general ecology of the fish population in the seagrass beds is discussed.
KEY WORDS: Coastal fisheries, Clupeoid fisheries, Zoobenthos, Phytobenthos, Seagrass, Cape Florida, Bear Cut, Seaquarium flats, *Sardinella anchovia*, *Opisthonema oglinum*, *Harengula humeralis*, *Harengula pensacolae*, Species list

1017
Luce, G., and B. F. Greer (1955) Summary of Florida commercial marine fish landings for 1954. Mimeographed reports 55-25. Marine Laboratory, University of Miami, Coral Gables, FL. 44 pp.
TIME COVERAGE: 1954
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Commercial fishing, Landing statistics, Florida

1018
Lummus, J. N. (1944) The Miracle of Miami Beach. Miami Post, Miami, FL. 142 pp.
TIME COVERAGE: 1870 - 1944
SUMMARY: This book is a history of the development of Miami Beach. Most of the illustrations are photographs taken in 1913 and 1914.
KEY WORDS: History, Miami Beach

1019
Lutz, J. (1977) Water quality characteristics of several southeast Florida canals. Tech. publication 77-4. South Florida Water Management District, Resource Planning Department, West Palm Beach. Various paging.
TIME COVERAGE: 1974 - 1975
SUMMARY: Water quality data was used to compute nutrient loads from the basins of several canals in southeast Florida.
KEY WORDS: Water quality, Canals, Hillsboro Canal, North New River Canal, Tamiami Canal, Snapper Creek Canal, Western C-51 Canal, Water management, Flood control, Water drainage

1020
Lutz, P. L., and C. B. Austin (1983) Land crabs: a new resource potential. Proc., 35th annual Gulf and Caribbean Fisheries Institute, 1982, 35(-):6-16.
TIME COVERAGE: 1983 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Land crab, *Cardisoma guanhumi*, Crab culture, Food resources, Bahamas

1021
Lynn, W. R., and W. T. Yang (1960) The ecological effects of sewage in Biscayne Bay. Oxygen demand and organic carbon determinations. Bull. Mar. Sci. Gulf Caribb., 10(4):491-509.
TIME COVERAGE: 1960 ◊
SUMMARY: An evaluation of manometric techniques in measuring biochemical oxygen demand in bay-bottom sediments indicated limitations of the method. A wet-oxidation method for the determination of organic carbon was proposed and compared with other methods.
KEY WORDS: Oxygen demand, Organic carbon, Sediment analysis, Sewage, Water pollution

1022
Maass, H. (1992) Nature embraces artificial islands. The Miami Herald, Miami, FL. June 4. Neighbors. 16SE.
TIME COVERAGE: 1992
SUMMARY: Description of restoration efforts of the islands in northern Biscayne Bay which include removal of non-native plants such as Australian pines and planting of native species, such as mangroves, sea oats and gumbo limbo, that stabilize the shoreline and reduce runoff of fine sedimentary material. The islands suffered severe damage during Hurricane Andrew.
KEY WORDS: Elliott Key, Restoration, Artificial islands, Hurricane Andrew, Sands Key, Adams Key, Boca Chita Key, Biscayne National Park

1023
MacDonald, D. D. (1994) Approach to the assessment of sediment quality in Florida coastal waters. Report in two volumes. MacDonald Environmental Sciences Ltd., Ladysmith, B. C., Canada.
TIME COVERAGE: 1994 ◊
SUMMARY: Florida sediment chemical measurements indicated that contaminants were present in elevated levels in a number of coastal areas. However, this information alone is not sufficient to indicate potential biological harm associated with chemical levels. A cost-effective approach for screening chemical levels was needed to estimate potential biological effects. This report was prepared to provide the state of Florida with guidance on the development of effects-based sediment quality assessment guidelines.
KEY WORDS: Sediment analysis, Pollution monitoring, Coastal waters, Florida, Pesticides, PCBs, PAHs, Phthalate esters, Dioxins, Furans, As, Cd, Cr, Cu, Pb, Hg, Ni, Ag, TBT, Zn

1024
MacDonald, D. D. (1993) Development of an approach to the assessment of sediment quality in Florida coastal waters. Report prepared for the Florida Department of Environmental Regulation. MacDonald Environmental Sciences Ltd., British Columbia, Canada. Two volumes.
TIME COVERAGE: 1993 ◊
SUMMARY: This report was prepared to provide the Florida Department of Environmental Regulation (FDER) with guidance on the development of effects based sediment quality assessment guidelines (SQAGs) for Florida coastal waters. As such, a variety of approaches to the derivation of numerical SQAGs were reviewed and evaluated in light of Florida's unique requirements for sediment quality assessment guidelines. This approach was applied to Biscayne Bay.
KEY WORDS: Sediment analysis, Pollution monitoring, Coastal waters

1025
Macfie, D. (1977) Richmond Naval Air Station. Tequesta, 37(-):38-50.
TIME COVERAGE: 1942-1945
SUMMARY: This article describes the Richmond Naval Air Station which housed lighter than air ships.
KEY WORDS: Richmond Naval Air Station, Airships, Hurricane of 1945

1026
Macia, S. (2000) The effects of sea urchin grazing and drift algal blooms on a subtropical seagrass bed community. J. Experimental Marine Biol. Ecol., 246(1):53-67.
TIME COVERAGE: 2000 ◊
SUMMARY: Caging experiments were conducted to investigate direct herbivory and blooms of drift algae on *Thalassia* beds. Naturally occurring levels of grazing sea urchins do not appear to affect the Thalassia population. Experimentally increased sea urchin population in winter seagrass shoot density and biomass decreased. In winter, drift algal blooms form large mats that cover the seagrass canopy. Under normal grazing conditions the algal blooms do not have significant negative effects on the seagrass. With increased grazing pressure, there is a synergistic effect.
KEY WORDS: Sea urchin, *Lytechinus variegatus*, Algal blooms, Laurencia, Dictyota, Seagrass, *Thalassia testudinum*, Biological drift, West Point, Key Biscayne

1027
Macia, S. M., and E. Irlandi (1996) Salinity fluctuations and the survival of the sea urchin *Lytechinus variegatus* and the gastropod *Astraea tecta*. Proc., 24th Benthic Ecology Mtg. Columbia, SC, March 1996. University of South Carolina, Columbia, SC. 58.
TIME COVERAGE: 1996 ◊

SUMMARY: This abstract briefly discusses the effects of drastic changed in salinity caused by freshwater discharges from canals on sea urchins and the gastropod *Astraea tecta*. Results suggested that the stress from sudden severe drops in salinity may limits the distribution of some species.
KEY WORDS: Salinity, Sea urchin, *Lytechinus variegatus*, Gastropods, *Astraea tecta*

1028
Macintyre, I. G., and R. P. Reid (1995) Crystal alteration in a living calcareous alga (*Halimeda*): implications for studies in skeletal diagenesis. J. Sed. Res., A65(1):143-153.
TIME COVERAGE: 1995 ◊
SUMMARY: Reorganization of aragonite crystals occurs within living individuals of Halimeda. Detailed SEM observations of live *Halimeda* show that calcification occurred in two basic stages: uniform-sized, small aragonite needles are precipitated in inter-utrible spaces, and the needles are altered to anhedral equant aragonite.
KEY WORDS: Algae, *Halimeda incrassata*, Calcification, Calcium carbonates, Matheson Hammock

1029
Mackay, K. (1998) Airport imperils Florida parks: NPCA demands supplemental evaluation of expansion project. National Parks, 72(1-2):13-14.
TIME COVERAGE: 1998 ◊
SUMMARY: This paper describes the proposed conversion of the Homestead Air Force Base airport to accommodate international commercial air traffic.
KEY WORDS: Homestead Air Force Base, Everglades National Park, Noise abatement

1030
Madsen, M. N. (1981) Tidal flushing of a marina in Biscayne Bay. M.Eng. thesis. University of Florida, Gainesville, FL. 596 pp.
TIME COVERAGE: 1981
SUMMARY: A three-dimensional numerical model was developed to investigate the flushing capability of three canal/marina systems.
KEY WORDS: Flushing, Tidal inlets, Marinas, Canals, Homestead Bayfront Park, Chapman Field Park, Black Point Park

1031
Mago Leccia, F. (1957) The comparative osteology of the scombroid fishes of the genus *Scomberomorus* from Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 75 pp.
TIME COVERAGE: 1957 ◊
SUMMARY: This work is a study of the osteology of mackerel. Most specimens were obtained from local anglers.
KEY WORDS: Spanish mackerel, *Scomberomorus maculatus*, Cero, *Scomberomorus regalis*, Kingfish, *Scomberomorus cavalla*, Osteology, Florida, Bahamas

1032
Mahadevan, S., J. Sprinkel, D. Heatwole, and D. H. Wooding (1984) A review and annotated bibliography of benthic studies in the coastal and estuarine areas of Florida, with a selected compilation of worldwide benthic methodological references and southeastern United States benthic taxonomic references. Florida Sea Grant report SGR-66. Florida Sea Grant College Program, Gainesville, FL. 576 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: This is an annotated bibliography of benthic studies in Florida. The information is presented by counties.
KEY WORDS: Benthos, Estuarine organisms, Aquatic organisms, Methodology, Bibliographies, Florida

1033
Main, M. B., and W. G. Nelson (1988) Sedimentary characteristics of sabellariid worm reefs (*Phragmatopoma lapidosa* Kinberg). Est. Coastal Shelf Sci., 26(1):105-109.
TIME COVERAGE: 1984
SUMMARY: Sedimentary characteristics of worm reefs constructed by the sabellariid polychaete were examined to determine whether sediments of specific size and/or composition were selected for tube construction. Worm reefs and unconsolidated beach sediments were collected from six locations along the southeastern shore of Florida.
KEY WORDS: Tube dwellers, Phragmatopoma lapidosa, Sabellariids, Reef formation, Sediment texture, Key Biscayne

1034
Makemson, J. C. (1991) Adherence of *Vibrio harveyi* to cellulose, cellulose-NO_3, nylon, and glass fiber filters. In: Abstract, 91st general mtg. of the American Society for Microbiology. Dallas, TX, 1991. American Society for Microbiology, Washington, DC. 249.
TIME COVERAGE: 1991 ◊
SUMMARY: *Vibrio harveyi* is the principal planktonic luminous bacterium in Biscayne Bay. The adherence of these bacteria to various types of filters is briefly discussed.
KEY WORDS: Luminous organisms, *Vibrio harveyi*, Adhesion, Filters, Bahrain

1035
Mallery, C. H., and H. J. Teas (1984) The mineral ion relations of mangroves. I. Root cell compartments in a salt excluder and a salt secreter species at low salinities. Plant & Cell Physiology, 27(-):1123-1131.
TIME COVERAGE: 1984 ◊
SUMMARY: Effluex kinetics of red and black mangroves were documented. Estimates of the percent isotope distributed throughout the whole plant, the uptake rates, the amounts calculated to be present in the root cell compartments and the rate of constants and half-times of efflux were made.
KEY WORDS: Red mangrove, *Rhizophora mangle*, Black mangrove, *Avicennia germinans*, Salinity, Roots

1036
Man, E. H., and A. Thorhaug (1977) Development of rehabilitation techniques to promote recreational and commercial uses of deteriorated estuaries. In: Atlantic Offshore Users Workshop. Newark, DE, 1977. DEL-SG 11-77. University of Delaware Sea Grant Program, Newark, DE. 82-83.
TIME COVERAGE: 1977 ◊
SUMMARY: This paper discusses rehabilitation techniques that could be applied to northern Biscayne Bay.
KEY WORDS: Water reclamation, Recreational waters, Urbanization, Environmental protection

1037
Manker, J. P. (1975) Distribution and concentration of mercury, lead, cobalt, zinc, and chromium in suspended particulates and bottom sediments - upper Florida Keys, Florida Bay, and Biscayne Bay. Ph.D. dissertation. Rice University, Houston, TX. 114 pp.
TIME COVERAGE: 1974
SUMMARY: Sediment and suspended particulate samples were collected in southern Biscayne Bay, Florida Bay and the Florida Keys and the concentrations of Pb, Hg, Cr, Co and Zn determined. Highest metal concentrations were found in the 4 µ fraction of sediments and in suspended particulates. Low levels of trace metals were found in Biscayne Bay which is mainly

a sand-size quartz environment. In general, toxic metal concentrations in the study area were correlated with areas of dense population with associated high automobile and boat traffic.
KEY WORDS: Suspended particulate matter, Sediment analysis, Hg, Pb, Co, Zn, Cr, Toxicity, Pollution, Florida Keys, Florida Bay

1038
Manker, J. P. (1976) Toxic metal concentration and distribution in suspended particulates and bottom sediments of the Upper Florida Keys area. Abstracts with programs (Geological Society of America), 8(-):224.
TIME COVERAGE: Abstract
SUMMARY: Concentrations of Hg, Pb, Co, Zn, and Cr were determined in bottom sediments, the 4-µm fraction of bottom sediments, and suspended particulates from the Florida Keys and Biscayne Bay. Living coral specimens (*Siderastrea sidera*) collected from outer reefs in the study area were subjected to chemical analysis. Highest concentrations of toxic metals were found in the 4-µm fraction and suspended particulates. The 4-µm and simultaneously collected suspended particulates were similar in heavy metal concentration and particle assemblage/morphology, indicating the possible existence of equilibrium conditions (physical and chemical) between fractions. Because toxic metals were more concentrated in the 4-µm fraction as compared to bulk samples, a great potential exists during high winds for dispersal of this mobile fraction to areas of low concentration. High toxic metal concentrations could be correlated with areas of great human activity. Corals from reefs adjacent to densely populated areas show higher concentrations of Hg, Co, and Zn when compared to corals from reefs adjacent to sparsely populated areas. Reefs which display highest concentrations of these metals have undergone serious deterioration.
KEY WORDS: Suspended particulate matter, Sediment analysis, Hg, Pb, Co, Zn, Cr, Coral reefs, Pollution, Toxicity

1039
Manning, R. B. (1959) A checklist of the stomatopod crustaceans of the Florida - Gulf of Mexico area. Quart. J. Fla. Acad. Sci., 22(1):14-24.
TIME COVERAGE: 1959 ◊
SUMMARY: This paper describes the stomatopod crustaceans of Florida.
KEY WORDS: Stomatopods, Species list, Florida, Gulf of Mexico

1040
Manning, R. B. (1963) A monograph of the stomatopod crustaceans of the western Atlantic. Ph.D. dissertation. University of Miami, Coral Gables, FL. 389 pp.
TIME COVERAGE: 1963 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Stomatopods, Taxonomy, Western Atlantic

1041
Manning, R. B. (1961) Observations on *Microprosthema semilaeve* (Von Martens) (Decapoda, Stenopodidae) from Florida. Crustaceana, 2(1):81-82.
TIME COVERAGE: 1961 ◊
SUMMARY: This citation is a description of a shrimp based on a specimen collected in the Florida Keys. Specimens of this species were also collected in Biscayne Bay and the Dry Tortugas.
KEY WORDS: Shrimp, *Microprosthema semilaeve*, Long Reef, Florida Keys, Dry Tortugas

1042
Manning, R. B. (1959) A review of the genus *Squilla* (Crustacea, Stomatopoda) in the western Atlantic. M.Sc. thesis. University of Miami, Coral Gables, FL. 160 pp.

TIME COVERAGE: 1959 ◊
SUMMARY: The taxonomy of the stomatopod genus *Squilla* was reviewed. Some specimens were collected in seagrass beds in Biscayne Bay.
KEY WORDS: Stomatopods, Squilla, Taxonomy

1043
Manning, R. B. (1969) Stomatopod crustacea of the western Atlantic. Studies in tropical oceanography 8. University of Miami Press, Coral Gables, FL. 380 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Stomatopods, Taxonomy, Western Atlantic

1044
Manning, R. B., and H. E. Kumpf (1959) Preliminary investigation of the fecal pellets of certain invertebrates of the south Florida area. Bull. Mar. Sci. Gulf Caribb., 9(3):291-309.
TIME COVERAGE: 1959 ◊
SUMMARY: Representative invertebrates from the South Florida area were collected and their fecal pellets studied.
KEY WORDS: Fecal pellets, Marine mollusks, Gastropods, Florida Keys, Marco Island

1045
Manning, R. B., and A. J. Provenzano (1961) Occurrence of *Ucides cordatus* (Linnaeus, 1763) (Decapoda) in the United States. Crustaceana, 2(1):158-159.
TIME COVERAGE: 1960
SUMMARY: This short citation describes specimens of this large land crab collected in Biscayne Bay.
KEY WORDS: Land crab, *Ucides cordatus*, Virginia Key

1046
Marine Mammal Commission (1988) Preliminary assessment of habitat protection needs for West Indian manatees on the east coast of Florida and Georgia. Report. National Technical Information Service, Springfield, VA. 107 pp.
TIME COVERAGE: 1988 ◊
SUMMARY: Habitat protection for manatees, including the south Florida area are discussed. Recommendations include expansion and modification of boat speed regulation zones in protected areas.
KEY WORDS: Manatees, *Trichechus manatus*, Rare species, Biscayne National Park, Nature conservation, Florida, Georgia, Boat speed regulation, Cape Florida State Recreation Area, Deering Hammock, Black Creek, Oleta River State Recreation Area

1047
Marino, J. N., and A. J. Mehta (1988) Sediment trapping at Florida's east coast inlets. In: Hydrodynamics and sediment dynamics of tidal inlets. D. G. Aubrey, and L. Weishar (eds.). Lecture notes on coastal and estuarine studies 29. Springer Verlag, New York, NY. 456 pp.
TIME COVERAGE: 1988 ◊
SUMMARY: Sediment volumes associated with nineteen tidal inlets along the east coast of Florida were estimated. Significant regions examined were ebb and flood shoals, the adjacent beaches, and the sources and placement areas for dredged materials.
KEY WORDS: Sedimentation, Tidal inlets, Shoals, Government Cut, Bakers Haulover Inlet

1048
Markley, S. M. (1982) Photosynthesis and light-enhanced calcification in the calcareous green alga, *Halimeda opuntia*. Ph.D. dissertation. University of Miami, Coral Gables, FL. 118 pp.

TIME COVERAGE: 1982 ◊
SUMMARY: The mechanism of calcification was examined in the calcareous green algae *Halimeda opuntia*. Net calcification waters were determined following the course of radioisotope incorporation into calcium carbonated over several hours. Net deposition occurred primarily in the light.
KEY WORDS: Algae, *Halimeda opuntia*, Photosynthesis, Calcification, Soldier Key, Bimini

1049
Markley, S. M., and G. R. Milano (eds.) (1985) Biscayne Bay today: a summary report on its physical and biological characteristics. January. Metro-Dade County Environmental Resources Management, Biscayne Bay Restoration and Enhancement Program, Miami, FL. 78 pp.
TIME COVERAGE: 1979 - 1982
SUMMARY: This report summarizes the results and conclusions of comprehensive monitoring and studies of water quality, sediment, turbidity, circulation patterns, marine life and fisheries.
KEY WORDS: Benthos, Benthic environment, Water circulation, Fishery resources, Sediment, Water quality, Turbidity, Resource conservation, Environmental protection

1050
Markley, S. M., G. R. Milano, and E. Calas (1992) Biscayne Bay Restoration and Enhancement Program shoreline and habitat enhancement guide. In: Proc., 19th Ann. Conf. on Wetlands Restoration and Creation. F. J. Webb, (ed.). Plant City, FL, 1992. Hillsborough Community College, Plant City, FL. 111-120.
TIME COVERAGE: 1992 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Habitat improvement, Environmental restoration, Shore protection, Mangrove swamps, Aquatic plants

1051
Markley, S. M., D. K. Valdes, and R. Menge (1990) Sanitary sewer contamination of the Miami River. DERM tech. rep. 90-9. Metro Dade Department of Environmental Resources Management, Miami, FL. Various paging.
TIME COVERAGE: 1990
SUMMARY: The objectives of this report are to summarize the current sanitary quality of the river, present the results of investigations conducted to identify sources of raw sewage entering storm sewers, and to provide recommendations for continuing actions necessary to enhance the sanitary quality of the river.
KEY WORDS: Sewage, Drainage water, Water pollution, Miami River, Coliform bacteria

1052
Markowitz, A. (1997) Popular little island is back in business. The Miami Herald, Miami, FL. January 25. Local. 3B.
TIME COVERAGE: 1997 ◊
SUMMARY: Boca Chita Key was heavily damaged by Hurricane Andrew. The National Park Service restored the Key to resemble the 1930s - 1940s appearance. Natural vegetation and coconut palms (not native to the area but present in the 1940s) have been planted.
KEY WORDS: Boca Chita Key, Restoration, Hurricane Andrew

1053
Marmelstein, A. D., P. W. Morgan, and W. E. Pequegnat (1968) Photoperiodism and related ecology in *Thalassia testudinum*. Bot. Gazette, 129(1):63-67.
TIME COVERAGE: 1964 - 1965

SUMMARY: This study was conducted to determine whether *Thalassia* is responsive to photoperiodism. The observations led to a tentative classification of *Thalassia* as an "intermediate-day plant" with respect to flowering and vegetative growth.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Photoperiodicity, Flowering

1054
Marshall, A. R. (1956) A survey of the snook fishery of Florida, with studies of the biology of the principal species, *Centropomus undecimalis* (Bloch). M.Sc. thesis. University of Miami, Coral Gables, FL. 116 pp.
TIME COVERAGE: 1954 - 1955
SUMMARY: This work is a review of snook biology and fisheries in South Florida.
KEY WORDS: Snook, *Centropomus undecimalis*, Fisheries, Sport fishing, Life history

1055
Marshall, N. (1945) The molting without growth of spiny lobsters, *Panulirus argus*, kept in a live car. Trans. Amer. Fisheries Soc., 75(-):267-269.
TIME COVERAGE: 1945 ◊
SUMMARY: Tagging was tested on lobsters kept in a car. Little increase in weight or length was noted. Captivity conditions rather than tagging may have been the cause for the lack of weight or length increase.
KEY WORDS: Spiny lobster, *Panulirus argus*, Tagging, Molting

1056
Marszalek, D. S. (1984) Florida Reef Tract: marine habitats and ecosystems. 10 maps. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1984 ◊
SUMMARY: This is a set of ten maps, 1:30,000 scale, covering the marine habitats of the reef track from Miami to Key West. There are text and photographs on reverse side of the maps.
KEY WORDS: Reef Tract, Coral reefs, Bottom topography, Ecosystems, Ecotypes, Miami, Florida Keys, Maps, Elliott Key, Safety Valve, Key Biscayne, Virginia Key

1057
Marszalek, D. S. (1981) Impact of dredging on a subtropical reef community, southeast Florida, U.S.A. In: Proc., 4th Internatl. Coral Reef Symp., The Reef and Man. E. D. Gomez, C. E. Birkeland, R. W. Buddemeier, R. E. Johannes, J. A. Marsh, and R. T. Tsuda, (eds.). Manila, Philippines, 1981. Marine Sciences Center, University of the Philippines, Quezon City, Philippines. Vol. 1: 147-153.
TIME COVERAGE: 1977 - 1981
SUMMARY: This citation discusses the effect of the large-scale dredging project near Miami Beach on the local biota. The main impact was the deposition of a silt layer on portions of the limestone reefs. The most severely impacted were organisms susceptible to total burial, primarily encrusting coralline algae, encrusting and endolithid sponges, and the sessile micro- and meiofauna which inhabit the limestone reef surface. Sea whips appeared to be the least affects by dredging operations.
KEY WORDS: Dredging, Coral, Sponges, Beach nourishment, Damage, Environmental impact, Miami Beach, Bakers Haulover, Sea whips

1058
Martens, J. H. C. (1935) Beach sands between Charleston, South Carolina, and Miami, Florida. Bull. Geol. Soc. America, 46(-):1563-1596.
TIME COVERAGE: 1935 ◊
SUMMARY: This citation describes the beach sands of the southeastern coast as far south as Miami.

KEY WORDS: Sand, Beaches, Texture, Mineral composition, South Carolina, Georgia, East Florida

1059
Martens, J. H. C. (1931) Beaches of Florida. Annual report of the Florida State Geological Survey. 21/22 Report. Florida State Geological Survey, Tallahassee, FL. 67-119.
TIME COVERAGE: 1931 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Beaches, Coastal landforms, Sand, Florida

1060
Martin, J. F. (1987) The anaerobic reduction of nitrogenous oxides by bacteria from *Thalassia testudinum* sediments. Ph.D. dissertation. University of Miami, Coral Gables, FL. 178 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: Denitrification by *Thalassia testudinum* sediments was measured with the acetylene blockage assay. Denitrification was found to be variable and could counteract much of the nitrogen contributed by fixation. Sediment core samples were collected from seagrass beds in Biscayne Bay and Bimini.
KEY WORDS: Seagrass, *Thalassia testudinum*, Organic sediments, Anaerobic bacteria, Nitrogen cycle, Denitrification, Soldier Key, Virginia Key, Bimini

1061
Martin, T. R. (1995) Use of non-rubble structures for reducing shoreline erosion at Dade County, Florida. In: Coastal Zone '95. Proc., 9th Conf. B. L. Edge, (ed.). American Society of Civil Engineers, New York, NY. 527-528.
TIME COVERAGE: 1995 ◊
SUMMARY: This abstract briefly describes the measures recommended to reduce the erosion of the Sunny Isles Beach.
KEY WORDS: Beach nourishment, Breakwaters, Coast defenses, Sunny Isles

1062
Martinez, S. (1972) Fecundity, sexual maturation and spawning of scaled sardine (*Harengula pensacolae*). M.Sc. thesis. University of Miami, Coral Gables, FL. 51 pp.
TIME COVERAGE: 1963 - 1972
SUMMARY: Scaled sardines were collected on the east coast of Florida, mostly from Biscayne Bay. Fecundity and maturations of the specimens were studied.
KEY WORDS: Scaled sardine, *Harengula pensacolae*, Fecundity, Sexual maturity, Spawning, Bait fish

1063
Marx, J. M. (1986) Settlement of spiny lobster, *Panulirus argus*, puereli in south Florida: an evaluation from two perspectives. Canadian J. Fish. Aquatic Sci., 43(11):2221-2227.
TIME COVERAGE: 1986 ◊
SUMMARY: Puereli settle in various shallow water habitats including red alga, algal-covered mangrove roots and colonies of bryozoans. Settlement occurs year-round in South Florida but seasonal trends are not consistent. Recruitment peaks in spring but sometimes occurs in other seasons.
KEY WORDS: Spiny lobster, *Panulirus argus*, Larval settlement, Seasonal variations, Elliott Key, Florida Keys, Florida Bay

1064
Marx, J. M., and W. F. Herrnkind (1986) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - spiny lobster. Biological rep.

82 (11.61). US Fish and Wildlife Service, National Wetlands Research Center, Slidell, LA. 21 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: The life history, growth characteristics, fishery, ecological role and environmental requirements of the spiny lobster are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Spiny lobster, *Panulirus argus*, South Florida

1065
Mathews, C. W. (1980) Antifouling marine concrete. Report. Sponsored by the Dept. of Energy. Republished by NTIS. Naval Construction Battalion Center, Civil Engineering Laboratory, Port Hueneme, CA. 37 pp.
TIME COVERAGE: 1980 ◊
SUMMARY: Various agents were investigated for their ability to prevent attachment and growth of marine fouling organisms. Test specimens were exposed in Port Hueneme, CA, and Key Biscayne.
KEY WORDS: Antifouling substances, Concrete, Key Biscayne

1066
Mathis, K., J. C. Cato, R. L. Degner, P. D. Landrum, and F. J. Prochaska (1979) Commercial fishing activity and facility needs in Florida: Dade and Monroe Counties. Florida Agricultural Market Research Center. Industry report 79-3. University of Florida, Food and Resource Economics Department, Gainesville, FL. 68 pp.
TIME COVERAGE: 1979 ◊
SUMMARY: Information about commercial seafood industries of Dade and Monroe Counties was obtained from published reports and from a mail survey of commercial fishermen and seafood dealers. Total seafood landings increased from $14.6 million in 1971 to $26.6 million in 1976. Registration of commercial boats declined in Dade County but increased in Monroe County from 1963-1964 to 1977-1978, while pleasure coat registrations nearly tripled in the two counties together.
KEY WORDS: Commercial fishing, Fishing harbors, Landing statistics, Monroe County, Dade County

1067
Matthews, S. (2000) Hatchling success in loggerhead turtles. Florida Scientist, 63(Suppl. 1):44-45.
TIME COVERAGE: 2000 ◊
SUMMARY: This abstract describes research on the effects of sand type and nest temperature on hatching success of loggerhead turtles.
KEY WORDS: Loggerhead turtle, *Caretta caretta*, Nests, Hatching, Miami Beach

1068
Mattraw, H. C. (1975) Occurrence of chlorinated hydrocarbon insecticides, southern Florida, 1968-72. Pesticides Monit. J., 9(2):106-114.
TIME COVERAGE: 1968 - 1972
SUMMARY: The frequency with which chlorinated hydrocarbon insecticides appeared in South Florida surface waters decreased sharply between 1968 and 1972. Sediment analyses attested to the earlier widespread use of chlordane, DDT and dieldrin. Insecticide residues were more frequently detected in South Florida than in other US crop soils. Transport of pesticides from the agricultural areas into water conservation areas is facilitated by the water-management canals.
KEY WORDS: Surface water, Insecticides, DDTs, DDEs, Agricultural pollution, South Florida, Everglades

1069
Mauro, N. A. (1975) The premetamorphic developmental rate of *Phragmatopoma lapidosa* Kinberg 1867, compared with that in temperate sabellariids (Polychaeta: Sabellariidae). Bull. Mar. Sci., 25(3):387-392.
TIME COVERAGE: 1975 ◊
SUMMARY: Developmental rates of two species of tube dwellers collected in Biscayne Bay were determined and compared to those of another species.
KEY WORDS: Tube dwellers, *Phragmatopoma lapidosa*, Sabellariids, Biological development, Larval development, Key Biscayne

1070
Mauro, N. A. (1977) Variations in osmoregulatory capacity in two species of intertidal sabellariids (Annelida: Polychaeta) from tropical and mediterranean habitats. Comparative biochemistry and physiology, 56A(-):375-377.
TIME COVERAGE: 1977 ◊
SUMMARY: Response of tropical and mediterranean tube worms to salinity changes were compared to those of brackish water invertebrates. Tube worms were found to regulate and tolerate salinities ranging from 30 to 40 o/oo. One of the species studied was collected in Biscayne Bay.
KEY WORDS: Tube dwellers, Sabellariids, *Phragmatopoma lapidosa*, *Phragmatopoma californica*, Osmoregulation, Key Biscayne, Southern California

1071
Maxwell, S. L. (1968) The anatomy, histology, and electrophysiology of the eye of *Cardisoma guanhumi* (Latreille). M.Sc. thesis. University of Miami, Coral Gables, FL. 66 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Land crab, *Cardisoma guanhumi*, Compound eyes, Vision

1072
Maxwell, T., C. Carney, E. Tissue, T. Bjerstedt, and R. Smosna (1986) Sedimentation patterns of a small coastal-sand complex, Key Biscayne, Florida. Abstracts with program (Geological Society of America), 18(4):315.
TIME COVERAGE: 1986 ◊
SUMMARY: On north Key Biscayne, a complex system of interrelated environments consists of beach, sublittoral sand flat, and tidal channel. The sediment is a mixed carbonate/clastic sand, composed primarily of quartz, molluscs, and *Halimeda*. Textural and compositional differences among sediments of the various subenvironments reflect the availability of different grain types as well as the relative importance of waves and currents.
KEY WORDS: Sand, Grain size, Sediment texture, Key Biscayne

1073
Mayfield, M., L. Avila, and E. N. Rappaport (1994) Annual summaries: Atlantic hurricane season of 1992. Mon. Weather Rev., 122(3):517-538.
TIME COVERAGE: 1992
SUMMARY: This citation summarizes the hurricanes of 1992 including Hurricane Andrew.
KEY WORDS: Hurricanes, Tropical depressions, Hurricane Andrew

1074
Maynard, N. G. (1968) Aquatic foams as an ecological habitat. Zeitschrift fur allgemeine Mikrobiologie, 8(2):119-126.
TIME COVERAGE: 1968 ◊

SUMMARY: Foams of were collected from different aquatic habitats. In all instances, heavy concentrations of diatoms, and lesser amounts of dinoflagellates and green and blue-green algae were found. Adsorption of algae to the surface of bubbles takes place and the algae are carried to the surface.
KEY WORDS: Foams, Surface microlayer, Habitat, Diatoms, Dinoflagellates, Algae, Everglades, Bear Cut, Cape Florida, Key Biscayne, Florida Bay

1075
Mayo, C. A. (1968) Physiology and behavior of the man-of-war fish, *Nomeus gronovii*, in the Florida Current. M.Sc. thesis. University of Miami, Coral Gables, FL. 76 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: The physiology and behavior of the man-of-war fish were studied. These fish live and feed among the tentacles of the poisonous man-of-war jellyfish. Specimens were collected in Biscayne Bay and kept in aquariums.
KEY WORDS: Man-of-war fish, *Nomeus gronovii*, Fish physiology, Feeding behavior, Interspecific relationships, Florida Current, Bear Cut, Norris Cut, Cape Florida

1076
Mayo, K. E. (1995) Dade County manatee protection plan. DERM tech. rep. 95-5. Dade County. Department of Environmental Resources Management, Miami, FL. 141 pp.
TIME COVERAGE: 1995 ◊
SUMMARY: This report describes the Dade Manatee Protection Plan. Included are habitat, manatee-human interactions, land development, education and awareness and government coordination.
KEY WORDS: Manatees, *Trichechus manatus latirostris*, Dade County

1077
Maysles, A., C. Zwerin, and D. Maysles (1991) Islands. Maysles Films, New York, NY. Videorecording, VHS, 57 min.
TIME COVERAGE: 1986 ◊
SUMMARY: This videodocuments Surrounded Islands by Christo. Footage of other Christo projects are also included.
KEY WORDS: Surrounded Islands, Christo, Conceptual arts

1078
Mazzotti, F. J. (1983) The ecology of *Crocodylus acutus* in Florida; a thesis in ecology. Ph.D. dissertation. Pennsylvania State University, University Park, PA. 161 pp.
TIME COVERAGE: 1983 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: American crocodile, *Crocodylus acutus*, Barnes Sound, Card Sound, Turkey Point, Key Largo, Florida Bay

1079
Mazzotti, F. J., and M. S. Cherkiss (1998) Status and distribution of the American crocodile (*Crocodylus acutus*) in Biscayne Bay. Report. Everglades Research and Education Center, University of Florida, Belle Glade, FL. 29 pp.
TIME COVERAGE: 1998 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: American crocodile, Crocodylus acutus, South Bay

1080
McAllister, B. (1938) A study of the flora of Key Biscayne, Dade County, Florida. M.A. thesis. Duke University, Durham, NC. 54 pp.

TIME COVERAGE: 1935 - 1938
SUMMARY: The flora of Key Biscayne was found to be mostly tropical and subtropical species. Few of them are endemic to south Florida and were probably brought over by wind, water or birds. The plant communities were divided into three groups: coastal, palmetto bushland, and mangrove swamp. Cleared areas of Key Biscayne at the time of the study included vegetation of all types except mangroves, which were found only on the leeward shore of Biscayne Bay.
KEY WORDS: Vegetation, Botanical resources, Key Biscayne, Species list

1081
McBride, R. A. (1987) Tidal inlet history, morphology, and stability, eastern coast of Florida, USA. In: Coastal Sediments '87. Proc., Specialty Conf. on Advances in Understanding of Coastal Sediment Processes. N. C. Kraus, (ed.). New Orleans, LA, 1987. American Society of Civil Engineers, New York, NY. 1592-1607.
TIME COVERAGE: 1987 ◊
SUMMARY: The tidal inlet history of more than 40 tidal inlets along the eastern coast of Florida is described.
KEY WORDS: Inlets (Waterways), Tidal inlets, Bakers Haulover Inlet, Government Cut, Norris Cut, Bear Cut, East Florida

1082
McCluney, W. R. (ed.) (1971) The environmental destruction of south Florida; a handbook for citizens. University of Miami Press, Coral Gables, FL.
TIME COVERAGE: 1971 ◊
SUMMARY: This book contains a series of chapters about environmental problems in South Florida.
KEY WORDS: Environmental protection, Pollution, Man-induced effects, Urbanization, South Florida

1083
McCormick, H. W., T. Allen, and W. E. Young (1963) Shadows in the Sea: the Sharks, Skates and Rays. Weathervane Books, New York, NY. 415 pp.
TIME COVERAGE: 1963 ◊
SUMMARY: This book describes the general biology and fisheries of sharks. Some accounts of shark encounters in South Florida are included.
KEY WORDS: Sharks, Skates, Rays, Shark attacks, Shark fisheries, Shark utilization

1084
McCorquodale, D. S. (1987) An assessment of indicator bacteria and bacteriophages in surface waters and sediments of Biscayne Bay. Phase II report, 2nd quarter. Dade County Department of Environmental Resource Management, Miami, FL. 5 pp + tables.
TIME COVERAGE: 1986
SUMMARY: This study compared various water pollution indicator systems (coliform and other bacteria) at four sites in order to develop a standardized monitoring program.
KEY WORDS: Bacteria, Bacteriophages, Indicator species, Water quality, Sewage disposal, Liveaboards, Little River, King's Bay Marina, Dinner Key Marina, Biscayne Canal

1085
McCorquodale, D. S. (1987) Coliphage as an indicator of fecal pollution in marine waters: assay, validation, and application. Ph.D. dissertation. Nova University, Ft. Lauderdale, FL. 115 pp.
TIME COVERAGE: 1986

SUMMARY: *Escheria coli* cannot be used as an indicator microorganism in coastal areas because it is readily killed or inactivated in seawater. This work describes the use of coliphage, a virus that infects *E. coli*, was be used as an indicator of pollution in saline waters.
KEY WORDS: Coliphage, Pollution indicators, Microbial contamination, Marine pollution, Viruses, Miami River, Little River, Dinner Key Marina, King's Bay Marina, Biscayne Canal, Bahamas

1086
McCorquodale, D. S., and C. M. Burney (1993) Biscayne Bay sewage pollution indicators. Final report November 5, 1993. Contract C3242 of the South Florida Water Management District. Spectrum Laboratories, Ft. Lauderdale, FL. Various paging.
TIME COVERAGE: 1992
SUMMARY: A Miami River plume study indicated that there was no detectable die off or reproduction of coliphage when the river mixed with seawater. The coliphage counts simply decline with increasing salinity due to dilution. Results of the Virginia Key sewage outfall study lead to the same conclusion.
KEY WORDS: Sewage, Coliphage, Water pollution, Pollution indicators, Miami River, Virginia Key

1087
McCready, S. (1994) Looking for a link: abnormal fish and pollution. Sea Frontiers, 40(5):18-19.
TIME COVERAGE: 1994 ◊
SUMMARY: This article describes evidence of pollution as the cause of fish abnormalities in northern Biscayne Bay.
KEY WORDS: Abnormalities, Fish, Pollution

1088
McGoodwin, J. R., and C. L. Dyer (1993) Hurricane Andrew and south Florida's commercial fishing peoples; impacts and immediate needs. MAST, 6(1/2):205-219.
TIME COVERAGE: 1992
SUMMARY: The impact of Hurricane Andrew on commercial fishermen operating in South Florida was examined. There are no legislative mandates or standing operating procedures that require any agency to take the responsibility of assessing storm impact on the fisheries industry.
KEY WORDS: Commercial fishing, Fishery industry, Fishermen, Hurricane Andrew, South Florida, Florida Keys

1089
McGowan, M. F., F. Al-Yamani, and T. R. Capo (1991) Taxonomic composition and abundance of Biscayne Bay zooplankton in March, May, and August 1990. Tech. rep. TR-91-002. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 8 pp.
TIME COVERAGE: 1990
SUMMARY: This report presented the results of identification, enumeration, and analysis of zooplankton and microzooplankton samples to assess the suitability of the habitat for the release of hatchery-raised larvae and juvenile fishes.
KEY WORDS: Zooplankton, Check lists, Abundance, Ecological distribution

1090
McGregor, A. J. (1974) A ceramic chronology for the Biscayne Bay region of southeast Florida. M.A. thesis. Florida Atlantic University, Boca Raton, FL. 49 pp.
TIME COVERAGE: 1974 ◊

SUMMARY: A prehistory chronology of the Biscayne Bay region was determined based on ceramic material found in the area.
KEY WORDS: Archaeology, Ceramics

1091
McGuire, M. P., and A. M. Szmant (1997) Time course of physiological responses to NH_4 enrichment by a coral-zooxanthellae symbiosis. In: Proc., 8th Internatl. Coral Reef Symp. H. A. Lessios, and I. G. Macintyre, (eds.). Panama, 1996. Smithsonian Tropical Research Institute, Balboa, Panama. 909-914.
TIME COVERAGE: 1997 ◊
SUMMARY: It had been proposed that zooxanthellae *in vivo* are nitrogen-limited and that nitrogen enrichment results in a decrease in translocation to the host. Such decreased translocation was proposed as the cause of measured decreases in calcification by the coral. To test those relationships, the coral *Porites astreoides* was exposed to ammonia enrichment and the physiological responses measured in both animal and zooxanthellae.
KEY WORDS: Coral, *Porites astreoides*, Ammonia, Nutrients (Mineral), Zooxanthellae

1092
McIver, S. (1999) Boats on Biscayne Bay. South Florida History, 27(3):10-13.
TIME COVERAGE: 1887
SUMMARY: This short article describes the 1887 regatta organized by Ralph Munroe on Biscayne Bay.
KEY WORDS: Boats, Recreation, Coconut Grove, Biscayne Bay Yacht Club, Munroe, R. M.

1093
McIver, S. (1987) One hundred years on Biscayne Bay, 1887-1987. Biscayne Bay Yacht Club, Coconut Grove, FL. 148 pp.
TIME COVERAGE: 1887 - 1987
SUMMARY: This book is a history of Biscayne Bay Yacht Club.
KEY WORDS: Boating, Yachting, History, Biscayne Bay Yacht Club, Coconut Grove

1094
McKeever, N. M. (1975) A survey for toxin producing marine macroalgae in south Florida coastal waters. M.Sc. thesis. University of Miami, Coral Gables, FL. 93 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: Fish mortality, fish erythrocyte hemolysis, gastropod tentacle withdrawal and bacterial growth inhibition were used to survey for the presence of toxic principles in aqueous extracts of 19 species of marine macroalgae. Organic carbon, protein and dry weight determinations were used to standardize individual algae for intra as well as inter algal comparisons.
KEY WORDS: Algae, Biological poisons, Toxicology, Seaweeds, Card Sound, Turkey Point, Bear Cut

1095
McKenney, T. W. (1959) A contribution to the life history of the squirrel fish, *Holocentrus vexillarius* Poey. Bull. Mar. Sci. Gulf Caribb., 9(2):174-221.
TIME COVERAGE: 1959 ◊
SUMMARY: The early development of the squirrel fish was described based on larval, juvenile and adult specimens and a size sequence is illustrated. Changed during development, geographical distribution, vertical distribution, spawning, food, and general biology are discussed.
KEY WORDS: Squirrel fish, *Holocentrus vexillarius*, Life history

1096
McKenney, T. W. (1965) Young flyingfishes of the genera *Parexocoetus*, *Exocoetus*, *Hirundichthys*, and *Prognichthys* and some young stromateoid fishes from the western North Atlantic, with some comments on the pelagic life of the Exocoetidae and Stromateoidea. Ph.D. dissertation. University of Miami, Coral Gables, FL. 336 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: This work describes flyingfishes from various parts of the world. Some specimens were collected in Biscayne Bay.
KEY WORDS: Flyingfishes, Parexocoetus, Exocoetus, Hirundichthys, Prognichthys, Stromateoidea, Pelagic environment, Juveniles, Taxonomy

1097
McKenney, T. W., E. C. Alexander, and G. L. Voss (1958) Early development and larval distribution of the carangid fish, *Caranx crysos* (Mitchill). Bull. Mar. Sci. Gulf Caribb., 8(2):167-200.
TIME COVERAGE: 1886, 1930, 1937, 1951 - 1957
SUMMARY: The early development of the blue runner was described and the early stages illustrated. Food, spawning, growth, temperatures, salinities and depth of capture were discussed.
KEY WORDS: Blue runner, *Caranx crysos*, Biological development, Larvae, Geographical distribution

1098
McKenry, C. E. B. (1976) Consensus. Special report 6. Biscayne Bay Symposium II. University of Miami Sea Grant Program, Coral Gables, FL. 23 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: Two symposia were conducted in 1976 on the state of the Bay. Papers from the first symposium summarizing the status of the Bay were published in Biscayne Bay: Past / Present / Future. This report contains the consensus of the second symposium on technical and management issues raised by the first symposium.
KEY WORDS: Environmental protection, Environment management, Water quality, Water use

1099
McKenzie, D. J. (1983) Water quality at and adjacent to the south Dade County solid-waste disposal facility, Florida. Water resources investigations rep. 83-4003. US Geological Survey, Tallahassee, FL. 37 pp.
TIME COVERAGE: 1977 - 1978
SUMMARY: A water quality reconnaissance was conducted at the south Dade County solid waste landfill, located in the unconfined Biscayne Bay aquifer. Water quality beneath the landfill is highly variable with location and depth. Leachate was more evident in shallow wells and during the dry season.
KEY WORDS: Landfill, Waste disposal, Water quality, Leaching, Groundwater pollution, Biscayne Aquifer, Goulds, Cutler Ridge, Nutrients, Fe, Mn, Pb

1100
McKinley, E. (1995) Temporal and spatial variation in the abundance of penaeid shrimp in Biscayne Bay: environmental and anthropogenic influences. M.A. internship report. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1993 - 1994
SUMMARY: The goal of this project was to gain a greater understanding of the physico-chemical and environmental factors influencing the temporal and spatial variability of juvenile pink shrimp populations in Biscayne Bay.

KEY WORDS: Shrimp fisheries, Abundance, Spatial variations, Quantitative distribution, Environmental factors, Anthropogenic factors, Biscayne Canal, Little River, Sunset Harbor, Miami River, Rickenbacker Causeway, Matheson Hammock, Black Point, Turkey Point

1101
McKinney, E. C., and M. C. Schmale (1994) Damselfish with neurofibromatosis exhibit cytotoxicity toward tumor targets. Developmental Comparative Immuno., 18(4):305-313.
TIME COVERAGE: 1994 ◊
SUMMARY: This study was designed to determine whether fish in the early stages of damselfish neurofibromatosis have measurable immunological responses toward tumor cells. Damselfish neurofibromatosis is a malignant transmissible disease and is the only naturally occurring animal model of human neurofibromatosis type I.
KEY WORDS: Damselfish, Neurofibromatosis, Tumors, Fish diseases

1102
McLaughlin, P. A., and A. Thorhaug (1978) Restoration of *Thalassia testudinu*m: animal community in a maturing four-year-old site - preliminary results. In: Proc., 5th Ann. Conf. Restoration of Coastal Vegetation in Florida. D. P. Cole, (ed.). Tampa, FL, 1978. Hillsborough Community College, Tampa, FL. 149-161.
TIME COVERAGE: 1972
SUMMARY: The animal community in a maturing four-year-old site of seeded *Thalassia* at Turkey Point was evaluated. There were marked differences between restored and non-restored areas with respect to annelids, isopods, molluscs and penaid shrimp. Virtually no brachyuran crabs were found at any station in the area in contrast to previous studies.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Environmental restoration, Turkey Point

1103
McLaughlin, P. A., S. F. Treat, A. Thorhaug, and R. Lemaitre (1983) A restored seagrass (*Thalassia*) bed and its animal community. Environ. Conserv., 10(3):247-254.
TIME COVERAGE: 1977
SUMMARY: This study was undertaken to ascertain whether the recolonizing animal community associated with a restored *Thalassia* bed would establish itself with a similar community structure to that of "natural" communities. Seagrass bed planted in 1973, undisturbed beds and barren areas were sampled in 1977. Differences in species and abundances between restored and natural sites were not statistically different. Populations of certain groups were numerically far higher in the restored areas.
KEY WORDS: Thalassia, Seagrass, Thermal pollution, Turkey Point, Biocoenosis, Nature conservation, Habitat improvement, Colonization

1104
McMillan, R. T. (1984) Effective fungicides for the control of *Cercospora* spot on *Rhizophora mangle*. Internatl. J. Tropical Plant Diseases, 2(-):85-88.
TIME COVERAGE: 1984 ◊
SUMMARY: The population of *Cercospora rhizophorae* on red mangrove was higher from April through July. All fungicides gave significant control but benomyl was the most effective.
KEY WORDS: Red mangrove, *Rhizophora mangle*, *Cercospora rhizophorae*, Fungicides

1105
McMillan, R. T. (1964) Studies of a recently described Cercospora on *Rhizophora mangle*. Plant Disease Reporter, 48(-):909-911.
TIME COVERAGE: 1962

SUMMARY: Inoculation tests established that *Cercospora rhizophorae* was the primary pathogen of a leafspot disease of red mangrove. The leafspot causes moderate injury, specially during the warm, wet season and is widely distributed throughout the range of the host in Florida.
KEY WORDS: Red mangrove, *Rhizophora mangle*, *Cercospora rhizophorae*, Fungal diseases

1106
McNicoll, R. E. (1941) The Caloosa village Tequesta: a Miami of the sixteenth century. Tequesta, 1(-):11-20.
TIME COVERAGE: 1941 ◊
SUMMARY: This paper describes the Caloosa village located in the 16th century in what is now Miami.
KEY WORDS: Tequesta, Caloosas, History

1107
McNulty, J. K. (1961) Ecological effects of sewage pollution in Biscayne Bay, Florida: sediments and the distribution of benthic and fouling macro-organisms. Bull. Mar. Sci. Gulf Caribb., 11(3):394-447.
TIME COVERAGE: 1961 ◊
SUMMARY: Evidence was presented on both harmful and fertilizing effects of sewage in northern Biscayne Bay as determined by the quantitative distribution of benthic and fouling macro-organisms. Harmful effects as indicated by absence of benthic life were limited to 3 of 65 stations within 200 yds of sewage sources in greater than average depths. Fertilizing effects were most pronounced in a narrow band roughly 200 - 600 yds from sewage sources in shallow water with good tidal circulation where the bottom consisted of fine mud.
KEY WORDS: Sewage disposal, Pollution, Sediment, Benthos, Fouling organisms, Species list

1108
McNulty, J. K. (1970) Effects of abatement of domestic sewage pollution on the benthos, volumes of zooplankton, and the fouling organisms of Biscayne Bay, Florida. Studies in Tropical Oceanography no. 9. University of Miami Press, Coral Gables, FL. 107 pp.
TIME COVERAGE: 1956, 1960 - 1961
SUMMARY: The purpose of this study was to compare the benthos, sediment, plankton, fouling organisms of northern Biscayne Bay before and after pollution abatement. Care was taken to use the same sampling techniques at the many of the same stations sampled in 1956 before pollution abatement measures were instituted. Pollution consisted of 227 million liters per day of untreated domestic sewage. Various elements of the biota of northern Biscayne Bay were studied before the abatement of pollution. Four years after removal of pollution certain changes were noted. Populations of benthic macroinvertebrates declined from abnormally large numbers of species and individuals to normal numbers of each, while soft-bottom populations changed qualitatively but not quantitatively. Adjacent to outfalls, populations had increased in numbers of species and numbers of individuals in hard sandy bottoms only. Volumes of zooplankton decreased to about one-half the pre-abatement values in poorly flushed waters. Elsewhere they remained about the same. Abundance of amphipod tubes declined. Other fouling organisms remained about the same. There was no evidence of improved commercial and sports fishing.
KEY WORDS: Sewage disposal, Pollution control, Benthos, Zooplankton, Fouling organisms, Nutrients

1109
McNulty, J. K. (1955) Macroorganism studies. In: Report on preliminary studies of pollution in Biscayne Bay. H. B. Moore, I. Hela, E. S. Reynolds, J. K. McNulty, S. Miller, and C. A. Carpenter (ed.). Progress report to Federal Security Agency, Public Health Service, National Institutes of Health, under grant E-510. Mimeographed report 55-3. Marine Laboratory, University of Miami, Coral Gables, FL. Various paging.

TIME COVERAGE: 1955 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Pollution effects, Plankton, Fouling organisms, Boring organisms, Fish

1110
McNulty, J. K. (1957) Pollution studies in Biscayne Bay during 1956. Mimeographed report 57-8. ML 15711. Progress report to Federal Security Agency, Public Health Service, National Institutes of Health under grant RG-4062(C3). Marine Laboratory, University of Miami, Coral Gables, FL. 19 pp.
TIME COVERAGE: 1957 ◊
SUMMARY: Biological oxygen demand measurements were made using sediment samples from Central Bay. Maximum values were found in areas of maximum pollution. Minimum values were found in area with low pollution or high current velocities. Intermediate values indicating substantial organic deposition were found in central parts of the Bay.
KEY WORDS: Sewage disposal, Pollution, Fouling organisms, Mud

1111
McNulty, J. K. (1966) Recovery of Biscayne Bay from pollution. Ph.D. dissertation. University of Miami, Coral Gables, FL. 178 pp.
TIME COVERAGE: 1953 - 1956, 1960 - 1961,
SUMMARY: The purpose of this study was to compare the benthos before and after pollution abatement. Stations in northern Biscayne Bay sampled from 1953 to 1956 were re-occupied in 1960 to 1961. Two bottom communities were described: soft and hard bottom. Pollution affects the soft bottom communities less than the hard bottom one. After abatement, bottom macro-invertebrates adjacent to outfalls increase in numbers of species and individuals in hard bottoms only. At a distance from the outfalls, hard bottom populations dropped back to normal. Zooplankton volumes decreased to about half the pre-abatement levels in the poorly flushed northern Bay. Elsewhere they remained about the same.
KEY WORDS: Sewage disposal, Pollution, Benthos, Zooplankton, Fouling organisms, Pollution control

1112
McNulty, J. K. (1956) Report on additional studies of pollution in Biscayne Bay. Mimeographed report 56-6. Progress report to Federal Security Agency, Public Health Service, National Institutes of Health under grand RG-4062(C2). Marine Laboratory, University of Miami, Coral Gables, FL. 21 pp.
TIME COVERAGE: 1956
SUMMARY: This document is a preliminary report of measurements made in Biscayne Bay after the cessation of sewage flow. Some results are presented.
KEY WORDS: Sewage disposal, Pollution, Estuarine sedimentation, Mud, Fouling organisms

1113
McNulty, J. K., and N. N. Lopez (1969) Year-round production of ripe gametes by benthic polychaetes in Biscayne Bay, Florida. Bull. Mar. Sci., 19(4):945-954.
TIME COVERAGE: 1965 - 1966
SUMMARY: Four of the most abundant benthic polychaetes of Biscayne Bay contained ripe gametes through the one year of observations. The absence of recurring seasonal cycles of abundance of the benthic polychaetes was interpreted to be the result of steady year-round recruitment of young.
KEY WORDS: Polychaetes, *Lumbrineris impatiens*, *Leanira grubei*, *Owenia fusiformis*, *Chaetopterus variopedatus*, Zoobenthos, Sexual cells, Breeding

1114

McNulty, J. K., E. S. Reynolds, and S. M. Miller (1960) Ecological effects of sewage pollution in Biscayne Bay, Florida: distribution of coliform bacteria, chemical nutrients, and volumes of zooplankton. In: Trans., Second Seminar on Biological Problems in Water Pollution. C. M. Tarzwell, (ed.). Cincinnati, OH, 1959. US Dept. of Health, Education, and Welfare, Public Health Service, Bureau of State Services, Division of Water Supply and Pollution Control, Cincinnati, OH. 189-202.

TIME COVERAGE: 1960 ◊

SUMMARY: Ketchum's Intertidal Volume Concept was applied to the distribution of coliform bacteria. Due to irregularities of shoreline and bathymetry, segment boundaries follow section contours based on the observed mean excursion of a particle of water in the flood tide. The resulting segmentation pattern in interpreted to mean that river water in the main ship channel is flushed from the Bay in roughly 7 to 9 days, and in other parts of the Bay where flushing occurs at all in roughly 8 to 11 days.

KEY WORDS: Sewage disposal, Pollution, Coliform bacteria, Nutrients (Mineral), Zooplankton, Flushing

1115

McNulty, J. K., R. C. Work, and H. B. Moore (1962) Level sea bottom communities in Biscayne Bay and neighboring areas. Bull. Mar. Sci. Gulf Caribb., 12(2):204-233.

TIME COVERAGE: 1962 ◊

SUMMARY: Grab samples were taken at 180 stations in Biscayne Bay from level soft bottom areas free of seagrasses and shallow water. All species of infauna taken were recorded, together with their relative frequency in relation to the particle size of the sediment. Communities were distinguished and their significance discussed.

KEY WORDS: Community composition, Ocean floor, Sediment analysis, Ecological distribution, Aquatic communities, Species list, Key Biscayne, Elliott Key, Safety Valve, Sands Key, Featherbed Bank, Bear Cut, Infauna

1116

McNulty, J. K., R. C. Work, and H. B. Moore (1962) Some relationships between the infauna of the level bottom and the sediment in south Florida. Bull. Mar. Sci. Gulf Caribb., 12(3):322-332.

TIME COVERAGE: 1962 ◊

SUMMARY: This paper is a continuation of the work described on McNulty *et al.* (1962). Detritus feeders predominate in the finest sediments, and deposit and filter feeders at intermediate grades. From a comparison of a number of selected communities, there is a very close correlation between the body size of the deposit feeders and the particle size regardless of the type of animal concerned.

KEY WORDS: Community composition, Ocean floor, Sediment analysis, Ecological distribution, Infauna

1117

McPherson, B. F. (1964) Contributions to the biology of the sea urchin *Tripneustes ventricosus*. M.Sc. thesis. University of Miami, Coral Gables, FL. 96 pp.

TIME COVERAGE: 1962 - 1963

SUMMARY: The objectives of this work were to study the growth of sea urchins from individuals and from size frequency distribution, to determine the size at which ripe gametes are first formed, to determine the male to female ratio, and to define the spawning season.

KEY WORDS: White-spined sea urchin, *Tripneustes ventricosus*, Life history, Biological development, Sea urchin, Virginia Key, Boca Raton

1118
McPherson, B. F. (1965) Contributions to the biology of the sea urchin *Tripneustes ventricosus*. Bull. Mar. Sci., 15(1):228-244.
TIME COVERAGE: 1962 - 1963
SUMMARY: Growth of the white-spined sea urchin was studied using tagging, penning and size frequency analyses methods. Young urchins were found primarily in the summer. Growth was rapid during the first year. There was a significance departure from the 1:1 sex ratio in urchins larger than 80 mm.
KEY WORDS: White-spined sea urchin, *Tripneustes ventricosus*, Life history, Biological development, Sea urchin, Virginia Key, Key Biscayne, Boca Raton

1119
McPherson, B. F. (1968) Contributions to the biology of the sea urchin *Eucidaris tribuloides* (Lamarck). Bull. Mar. Sci., 18(2):400-443.
TIME COVERAGE: 1964 - 1967
SUMMARY: [SEE FOLLOWING CITATION FOR A DESCRIPTION OF THE WORK.]
KEY WORDS: Sea urchin, *Eucidaris tribuloides*, Life history, Biological development

1120
McPherson, B. F. (1968) The ecology of the tropical sea urchin *Eucidaris tribuloides*. Ph.D. dissertation. University of Miami, Coral Gables, FL. 147 pp.
TIME COVERAGE: 1964 - 1967
SUMMARY: The ecology of the sea urchin is described. Samples were collected in Biscayne Bay as well as in other parts of Florida and the world.
KEY WORDS: Sea urchin, *Eucidaris tribuloides*, Life history, Biological development, Ecophysiology, Virginia Key, Margot Fish Shoal, Long Reef

1121
McPherson, B. F. (1968) Feeding and oxygen uptake of the tropical sea urchin *Eucidaris tribuloides* (Lamarck). Biol. Bull., 135(2):308-321.
TIME COVERAGE: 1968 ◊
SUMMARY: Feeding and oxygen uptake of sea urchins collected at the Margot Fish Shoal were conducted in the laboratory.
KEY WORDS: Sea urchin, *Eucidaris tribuloides*, Metabolism, Oxygen consumption, Respiration, Margot Fish Shoal

1122
McPherson, B. F. (1994) National Water Quality Assessment Program - southern Florida. US open file report 94-57. US Geological Survey, Tallahassee, FL. 2 pp.
TIME COVERAGE: 1994 ◊
SUMMARY: This fact sheet describes the USGS National Water Quality Assessment Program in South Florida.
KEY WORDS: Water quality, Aquifers, South Florida

1123
McPherson, B. F. (1969) Studies on the biology of the tropical urchins, *Echinometra lucunter* and *Echinometra viridis*. Bull. Mar. Sci., 19(1):194-213.
TIME COVERAGE: 1965 - 1966
SUMMARY: This paper discussed the distribution and biology of two species of sea urchin at various locations in South Florida.
KEY WORDS: Sea urchin, *Echinometra lucunter*, *Echinometra viridis*, Life history, Biological development, Virginia Key, Margot Fish Shoal, Long Reef, French Reef, Florida Keys

1124
McPherson, B. F. (1973) Water quality in the conservation areas of the central and southern Florida flood control district. USGS open file report 73-174. US Geological Survey, Tallahassee, FL. 39 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: [ONLY MICROFICHE AVAILABLE.]
KEY WORDS: Water quality, Chemical indicators, Water levels, Pesticides, Nutrients, Everglades

1125
McPherson, B. F., and R. Halley (1996) The South Florida environment - a region under stress. USGS circular 1134. US Geological Survey, Denver, CO. 61 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: This reports describes the South Florida region and discusses environmental impacts in the area.
KEY WORDS: Florida Bay, Hydrology, Geology, Climate, Urbanization

1126
McPherson, B. F., G. Y. Hendrix, H. Klein, and H. M. Tyus (1976) The environment of south Florida, a summary report. US Government Printing Office, Washington, DC. 81 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This report is a description of the South Florida ecosystem and changes resulting from man's activities.
KEY WORDS: Natural resources, Environmental management, Ecosystems, Hydrology, Man-induced effects, South Florida

1127
McSweeny, E. S. (1982) A new *Pagurapseudes* (Crustacea: Tanaidacea) from Southern Florida. Bull. Mar. Sci., 32(2):455-466.
TIME COVERAGE: 1982 ◊
SUMMARY: A new species of shell-inhabiting tanaidacean was described from Key Largo and Biscayne Bay.
KEY WORDS: New species, Taxonomy, Organism morphology, Key Largo, *Pagurapseudes largoensis*

1128
McSweeny, E. S. (1968) A systematic study of five species of Tanaidacea (Crustacea: Malacostraca) collected in southern Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 172 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: The work is a study of the systematics of Tanaidacea. Some specimens were collected in Biscayne Bay.
KEY WORDS: Tanaidacea, Kalliapseudes, Apseudes, Pagurapseudes, *Tanais stanfordi*, Zuexo, Taxonomy, South Florida, Virginia Key

1129
Mearns, A. J., B. Benggio, and T. D. Waite (1999) Ballast water treatment during emergency response: the case of the M/T Igloo Moon. Proc., Riding the crest into the 21st century; Oceans '99. Marine Technology Society, Washington, DC.
TIME COVERAGE: 1999 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Ballast, Water treatment, Tanker ships, Environmental protection, Igloo Moon Biscayne National Park

1130
Meeder, J., B. Davis, J. Absten, and J. N. Boyer (1999) Influence of freshwater discharge and ammonia loading on inshore benthic community structure in Biscayne Bay. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 225-226.
TIME COVERAGE: 1999 ◊
SUMMARY: Total ammonia concentrations in soil, sediment, surface water and groundwater were surveyed in coastal mangrove ecosystems and adjacent Bay waters. Benthic community characteristics and physical parameters were also determined.
KEY WORDS: Ammonia, Soil, Sediment, Surface water, Groundwater, Fresh water, Benthic environment, Biscayne National Park

1131
Meeder, J., A. Renshaw, and Ross. M. (1999) Tidal creek flux studies, Biscayne National Park. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 223-224.
TIME COVERAGE: 1996 - 1997
SUMMARY: Two tidal creek basins along the western shore of the Bay between Military and Mowry Canals were studied. Tidal and nutrient levels were monitored. A net influx of organic carbon and nutrients into the coastal wetlands occurs during spring tides. Differences in nutrient cycling of nearshore and coastal ecosystems are discussed.
KEY WORDS: Tidal flux, Military Canal, Mowry Canal, Nutrients, Tidal dynamics, Water exchange, Coastal waters, Biscayne National Park

1132
Meeder, J. F., M. Ross, P. L. Ruiz, and G. Telesnicki (1997) The L-31E freshwater rediversion pilot project. In: Conf. program and abstracts, First annual conference of the Walt Dineen Society. 1997. Florida International University, Miami, FL. 11.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Levees, Fresh water, Nutrients, L-31E canal

1133
Menge, R., and I. Puente-Guibert (1994) The Wagner Creek Basin Assessment and Pollution Abatement Project. Metro-Dade DERM technical report 94-3. Metro Dade Department of Environmental Resources Management, Miami, FL. 48 pp.
TIME COVERAGE: 1994 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water quality, Pollution monitoring, Sewage disposal, Wagner Creek, Seybold Canal, Miami River

1134
Menzies, R. A. (1981) Biochemical population genetics and the spiny lobster, larval recruitment problem: an update. In: Proc., 33rd Ann. Gulf and Caribbean Fisheries Institute. J. B. Higman, (ed.). San Jose, Costa Rica, 1980. Gulf and Caribbean Fisheries Institute, Miami, FL. 230-243.
TIME COVERAGE: 1981 ◊
SUMMARY: A genetic study of spiny lobster populations was performed to determine larval recruitment. Preliminary results are reported.
KEY WORDS: Spiny lobster, *Panulirus argus*, Population genetics, Larvae, Elliott Key, Key West, Caribbean

1135
Menzies, R. A., J. M. Kerrigan, and P. Kanciruk (1978) Biochemical systematics and problems of larval recruitment in the spiny lobster, *Panulirus argus*. In: Proc., Spiny Lobster Research Review. R. E. Warner, (ed.). Key West, FL, 1976. Technical paper no. 4. Florida Sea Grant College Program, Gainesville, FL. 22-30.
TIME COVERAGE: 1978 ◊
SUMMARY: One of the goals of this study was to determine which genes might be influenced by physiological or environmental factors. Preliminary investigations were done with the Elliott Key lobster population.
KEY WORDS: Spiny lobster, *Panulirus argus*, Larvae, Population genetics, Elliott Key, Bahamas, Belize, Boca Raton, Florida Keys

1136
Menzies, R. A., and J. M. Kerrigan (1980) The larval recruitment problem of the spiny lobster. Fisheries, 5(4):42-46.
TIME COVERAGE: 1980 ◊
SUMMARY: The main difficulties in identifying lobster management units is their long pelagic planktonic phase and their transport by currents. An approach to this problem is to study protein variations as a reflection of genetic differences in populations.
KEY WORDS: Spiny lobster, *Panulirus argus*, Larvae, Recruitment, Florida Keys

1137
Meredith, S. B. (1995) Marine construction that survived Hurricane Andrew. In: Coastal Zone '95. Proc., 9th Conf. B. L. Edge, (ed.). American Society of Civil Engineers, New York, NY. 272-273.
TIME COVERAGE: 1992
SUMMARY: This paper reviews marine construction in Dade County that survived Hurricane Andrew.
KEY WORDS: Marinas, Construction, Hurricane Andrew, Grove Key Marina

1138
Merritt, M. L. (1994) A rewetting approximation for a simulator of flow in a surficial aquifer overlain by seasonally inundated wetlands. Ground water, 32(2):286-292.
TIME COVERAGE: 1962 - 1967
SUMMARY: An approximation is presented to rectify situations occurring as part of the three-dimensional simulation of surficial aquifer flows in which surface grid cells become dry and then cannot readily receive flows that would again partially saturate them. The rewetting procedure was tested in a recent transient simulation of flows in the surficial Biscayne aquifer.
KEY WORDS: Aquifers, Groundwater dynamics, Surface water, Simulation, Wetlands, Biscayne Aquifer

1139
Merritt, M. L. (1997) Tests of subsurface storage of freshwater at Hialeah, Dade County, Florida, and numerical simulation of the salinity of recovered water. USGS water-supply paper 2431. US Government Printing Office, Washington, DC. 114 pp.
TIME COVERAGE: 1997 ◊
SUMMARY: Injection and observation wells were drilled in late 1974 for the purpose of conducting tests of storage and recovery of potable water in the brackish Upper Floridian Aquifer. Results of the study were described.
KEY WORDS: Subsurface water, Groundwater storage, Aquifers, Water quality, Salinity, Hialeah-Miami Springs Well Field, Upper Floridian Aquifer

1140
Merzer, M. (1999) The Miami Circle. The Miami Herald, Miami, FL. Jan. 3.
TIME COVERAGE: 1998
SUMMARY: The Miami Circle was found on Brickell Point, where the Miami River flows into Biscayne Bay. The Circle, its probable purpose and the reaction of the South Florida community to the discovery of the site are discussed.
KEY WORDS: The Miami Circle, Archaeology

1141
Messing, C. G. (1983) Postmarsupial development and growth of *Pagurapseudes largoensis* McSweeny (Crustacea, Tanaidacea). J. Crustacean Biol., 3(-):380-408.
TIME COVERAGE: 1977 - 1978
SUMMARY: The postmarsupial development of gastropod shell-inhabiting crab is described. Specimens were reared in the laboratory
KEY WORDS: Crabs, *Pagurapseudes largoensis*, Growth, Biological development, Card Sound, Long Arsenicker Key

1142
Metropolitan Dade County (1974) Proposed environmental protection guide for metropolitan Dade County. Part 2 of the Comprehensive Development Master Plan, June 1974. Dade County Planning Department, Miami, FL. 181 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: This report is Part 2 of the proposed three-part Comprehensive Development Policies for Dade County.
KEY WORDS: Regional planning, Environmental protection, Environment management, Resource conservation, Dade County

1143
Metropolitan Dade County (1974) Proposed metropolitan development guide. Part 3 of the Comprehensive Development Master Plan, June 1974. Dade County Planning Department, Miami, FL. 248 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: This report is Part 3 of the proposed three-part Comprehensive Development Policies for Dade County.
KEY WORDS: Regional planning, Environmental protection, Environment management, Resource conservation, Dade County

1144
Meyer, F. W. (1984) Disposal of liquid wastes in cavernous dolostones beneath southeastern Florida. In: Hydrology of Karstic Terrains: Case Histories. International contributions to hydrogeology. Vol.1. Heise, Hannover, Germany.
TIME COVERAGE: 1984 ◊
SUMMARY: This paper explores the disposal of liquid wastes into deep dolostone formations.
KEY WORDS: Waste disposal, Boulder Zone, Southeast Florida

1145
Meyer, F. W. (1974) Evaluation of hydraulic characteristics of a deep artisian aquifer from natural water-level fluctuations, Miami, Florida. Report of investigations no. 75. Florida Bureau of Geology, Tallahassee, FL. 32 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water levels, Tidal dynamics, Boulder Zone, Miami

1146
Meyer, F. W. (1971) Preliminary evaluation of the hydrologic effects of implementing water and sewerage plans, Dade County, Florida. USGS open file report 71003. US Geological Survey, Tallahassee, FL. 110 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water use, sewage, Hydrology, Dade County

1147
Meyer, F. W., and J. E. Hull (1967) Hydrologic conditions in the Canal 111 area, southeastern Dade County, Florida. Provisional data. US Geological Survey, Tallahassee, FL.
TIME COVERAGE: 1967 ◊
SUMMARY: The purpose of this study is to observe and document changes in the hydrological regimen in the vicinity of the canal and its related water-control structures.
KEY WORDS: Ground water, Water table, Chlorinity, Everglades National Park, Canal C-111

1148
Meyers, S. P. (1968) Degradative activities of filamentous marine fungi. In: Proc.,1st Internatl. Biodeterioration Symp., Biodeterioration of Materials: Microbiological and Allied Aspects. A. H. Walters, and J. J. Elphick, (eds.). Southampton, England, 1968. Elsevier, Barking, Essex. 594-609.
TIME COVERAGE: 1968 ◊
SUMMARY: Gravimetric analyses of cellulytic activity of representative marine Ascomycetes and Deuteromycetes showed striking weight losses of a cellulose substrate concurrent with fungal growth.
KEY WORDS: Fungi, Biodegradation, Wood, Fouling organisms

1149
Meyers, S. P. (1953) Marine fungi in Biscayne Bay, Florida. Bull. Mar. Sci. Gulf Caribb., 2(4):590-601.
TIME COVERAGE: 1953 ◊
SUMMARY: A collection of various marine fungal forms, including several previously unreported, indicated the regular occurrence of marine fungi in warmer ocean waters. The consistent isolation of these fungi from submerged wood as well as their relative rapidity in the invasion of such wood suggests an economic role in the primary microfloral complex on wood surfaces in sea water heretofore given minor consideration.
KEY WORDS: Fungi, Halophiobolus, Fisher Island, Government Cut, Miami River, Virginia Key

1150
Meyers, S. P. (1954) Marine fungi in Biscayne Bay, Florida. II. Further studies of occurrence and distribution. Bull. Mar. Sci. Gulf Caribb., 3(4):307-327.
TIME COVERAGE: 1954 ◊
SUMMARY: Seven morphologically different marine halophilic wood-inhabiting fungi of the class Ascomycetes were found in Biscayne Bay.
KEY WORDS: Fungi, Halophiobolus, Ecological distribution, Abundance, Northern Bay, Virginia Key, Key Biscayne, Miami River, Matheson Hammock, Ascomycetes, Matheson Hammock, Cape Florida

1151
Meyers, S. P. (1968) Observations on the physiological ecology of marine fungi. Bull. Misaki Marine Biological Institute Kyoto University, 12(-):207-225.
TIME COVERAGE: 1968 ◊
SUMMARY: This paper is a review of the physiology and ecology of marine fungi.

KEY WORDS: Fungi, Ecology, Physiology

1152
Meyers, S. P. (1969) Thalassiomycetes XI. Further studies of the genus Lindra with a description of *L. marinera*, a new species. Mycologia, 61(3):486-495.
TIME COVERAGE: 1964
SUMMARY: A new species of Lindra is described. The fungus was isolated from leaves of *Thalassia* collected in Biscayne Bay.
KEY WORDS: Fungi, Thalassiomycetes, Lindra, *Lindra marinera*, New species, Taxonomy

1153
Meyers, S. P. (1966) Variability in growth and reproduction of the marine fungus, *Lulworthia floridana*. Helgolander wissenschaftliche Meeresuntersuchungen, 13(-):436-443.
TIME COVERAGE: 1966 ◊
SUMMARY: Growth and reproduction of Lulworthia were studied. The specimens were isolated from submerged wood, manila cordage and cellulose tape in Biscayne Bay.
KEY WORDS: Fungi, *Lulworthia floridana*, Growth, Reproduction

1154
Meyers, S. P., and B. E. Hopper (1966) Attraction of the marine nematode, *Metoncholaimus* sp., to fungal substrates. Bull. Mar. Sci., 16(1):142-150.
TIME COVERAGE: 1964 - 1965
SUMMARY: An extremely abundant omnivorous marine nematode, Metoncholaimus sp., was found to readily colonize mycelial-cellulose mats of marine fungi in the field. The meiofauna on the fungal substrate comprised almost entirely the single species of nematode with the majority of the large population being gravid females. Striking dissimilarities in nematode colonization was noted among closely situated test sites as well as at single sites at the same and different collections periods.
KEY WORDS: Nematodes, Metoncholaimus, Fungi, Interspecific relationships, Key Biscayne

1155
Meyers, S. P., B. E. Hopper, and R. C. Cefalu (1970) Ecological investigations of the marine nematode *Metoncholaimus scissus*. Mar. Biol., 6(1):43-47.
TIME COVERAGE: 1967 - 1968
SUMMARY: Significant concentrations of *Metoncholaimus scissus* were noted in seagrass beds. Activities of this nematode frequently show an indirect relationship to blooms of the benthic diatom *Pleurosigma balticum*.
KEY WORDS: Nematodes, Metoncholaimus scissus, Turtle grass, *Thalassia testudinum*, Interspecific relationships, *Pleurosigma balticum*

1156
Meyers, S. P., and B. E. Hopper (1967) Studies on marine fungal-nematode associations and plant degradation. Helgölander wiss. Meeresunters., 15(-):270-281.
TIME COVERAGE: 1967 (lab study)
SUMMARY: A diverse range of fungal infestation was found in *Thalassia*. Certain of the fungi initiate considerable degradation of leaf tissue and show a developmental cycle in nature related to the physiological state of the host plant. Fulgal-cellulose mats as a "trapping" substrate was extremely effective for discernment of ecologically significant shifts in nematode concentrations.
KEY WORDS: Fungi, Nematodes, Biodegradation, Turtle grass, *Thalassia testudinum*, Interspecific relationships

1157

Meyers, S. P., K. M. Kamp, R. F. Johnson, and D. L. Shaffer (1964) Thalassiomycetes IV. Analysis of variance of ascospores of the genus Lulworthia. Can. J. Botany, 42(-):519-526.

TIME COVERAGE: 1964 ◊

SUMMARY: Fungi were isolated from manila cordage submerged continuously on wooden racks at the University of Miami pier on Bear Cut. Significant variability in spores of the medial range group was found thus the use of ascospore length for accurate differentiation of species in this genus is questioned.

KEY WORDS: Fungi, Lulworthia, Thalassiomycetes, Spores, Bear Cut

1158

Meyers, S. P., and J. J. Kohlmeyer (1965) *Varicosporina ramulosa* gen.nov.sp.nov., an aquatic hyphomycete from marine areas. Can. J. Botany, 43(-):915-921.

TIME COVERAGE: 1962

SUMMARY: A new monotypic hyphomycetous genus was described. Isolation of the fungus from plant material from Biscayne Bay and North Carolina.

KEY WORDS: Fungi, *Varicosporina ramulosa*, New species, Hyphomycetes, North Carolina

1159

Meyers, S. P., P. A. Orpurt, J. Simms, and L. L. Boral (1965) Thalassiomycetes VII. Observations on fungal infestation of turtle grass, *Thalassia testudinum* König. Bull. Mar. Sci., 15(-):548-564.

TIME COVERAGE: 1963 - 1964

SUMMARY: This is a study of seasonal fungal infestation of *Thalassia* at four sites in Biscayne Bay: Bear Cut, Virginia Key, Matheson Hammock and Soldier Key.

KEY WORDS: Fungi, Infestation, Turtle grass, *Thalassia testudinum*, Bear Cut, Virginia Key, Matheson Hammock, Soldier Key

1160

Meyers, S. P., B. Prindle, and E. S. Reynolds (1960) Cellulolytic activity of marine fungi. Degradation of ligno-cellulose material. Tappi, 43(6):534-538.

TIME COVERAGE: 1960 ◊

SUMMARY: This citation is a discussion of the degradation of cellulytic material by fungi. Some fungi species studied were probably isolated from Biscayne Bay.

KEY WORDS: Fungi, Ascomycetes, Deuteromycetes, Cellulose, Yarns, Degradation

1161

Meyers, S. P., and E. S. Reynolds (1960) Cellulolytic activity of lignicolous marine ascomycetes and deuteromycetes. In: Proc., 16th general mtg. of the Society for Industrial Microbiology, Developments in Industrial Microbiology. Vol. 1. State College, PA, 1959. Plenum Press, New York, NY. 157-168.

TIME COVERAGE: 1960 ◊

SUMMARY: Manila twine, a lignocellulose material comparable to wood, was used to evaluate the enzymatic activity of marine fungi and their degradation of vascular tissue. Some fungi species studied were probably isolated from Biscayne Bay.

KEY WORDS: Fungi, Ascomycetes, Deuteromycetes, Wood, Fouling organisms, Enzymes, Biodegradation

1162

Meyers, S. P., and E. S. Reynolds (1963) Degradation of lignocellulose materials by marine fungi. In: Symp. on Marine Microbiology. C. H. Oppenheimer, (ed.). Chicago, IL, 1961. Charles C. Thomas, Springfield, IL. 315-328.

TIME COVERAGE: 1963 ◊

SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Fungi, Ascomycetes, Deuteromycetes, Wood, Fouling organisms, Biodegradation

1163
Meyers, S. P., and E. S. Reynolds (1959) Effects of wood and wood products on perithecial development by lignicolous marine ascomycetes. Mycologia, 51(-):138-145.
TIME COVERAGE: 1959 ◊
SUMMARY: Wood and wood products were used to stimulate perithecial production in seven genera of lignicolous marine Ascomycetes. The species examined were not fastidious in their requirements for mycelial growth.
KEY WORDS: Fungi, Wood, Fouling organisms, Reproduction, Growth

1164
Meyers, S. P., and E. S. Reynolds (1957) Incidence of marine fungi in relation to wood-borer attack. Science, 126(3280):969.
TIME COVERAGE: 1957 ◊
SUMMARY: This short paper discusses the role of fungi in wood degradation.
KEY WORDS: Fungi, Wood

1165
Meyers, S. P., and E. S. Reynolds (1957) Incidence of marine fungi in relation to wood-borer attack. Science, 126(3280):969.
TIME COVERAGE: 1957 ◊
SUMMARY: The role of marine fungi in the destruction of wood by wood borers was studied.
KEY WORDS: Fungi, Wood, Fouling organisms

1166
Meyers, S. P., and E. S. Reynolds (1958) A wood incubation method for the study of lignicolous marine fungi. Bull. Mar. Sci. Gulf Caribb., 8(4):342-347.
TIME COVERAGE: 1958 ◊
SUMMARY: Test panels of wood, submerged in various marine localities, often showed little or no visible lignicolous fungal development during the initial laboratory examination. Through of process of controlled incubation of the fungal infested wood, the incipient fungi developed the characteristic morphological features of the various marine ascomycetus species present.
KEY WORDS: Fungi, Wood, Fouling organisms

1167
Meyers, S. P., and E. Scott (1968) Cellulose degradation by *Lulworthia floridana* and other lignicolous marine fungi. Mar. Biol., 2(-):41-46.
TIME COVERAGE: 1968 ◊
SUMMARY: Gravimetric analysis of cellulose utilization by representative marine Ascomycetes showed noteworthy activity based on loss of weight of cellulose by the various fungi.
KEY WORDS: Fungi, Ascomycetes, *Lulworthia floridana*, Biodegradation, Wood, Fouling organisms, Enzymes

1168
Meyers, S. P., and E. Scott (1967) Thallassiomycetes [sic]. X. Variation in growth and reproduction of two isolates of *Corollospora maritima*. Mycologia, 59(-):446-455.
TIME COVERAGE: 1965
SUMMARY: Growth and reproduction of two isolates of this marine yeast were studied. One of the cultures was isolated from balsa wood submerged in Biscayne Bay.
KEY WORDS: Fungi, Ascomycetes, *Corollospora maritima*, Growth, Reproduction

1169
Meyers, S. P., and J. Simms (1965) Thalassiomycetes VI. Comparative growth studies of *Lindra thalassiae* and lignicolous ascomycete species. Canadian J. Bot., 43(-):379-392.
TIME COVERAGE: 1965 (lab study)
SUMMARY: Physiological studies of the fungus *Lindra thalassiae* showed a stimulating effect of leaf tissue on fungal reproduction. *L. thalassiae* shows a euryhaline growth response in the mycelial stage but requires higher salinities for maximal reproduction. The fungus was isolated from necrotic leaves of *Thalassia* collected in Biscayne Bay.
KEY WORDS: Fungi, Thalassiomycetes, *Lindra thalassiae*, Ascomycetes, Wood, Fouling organisms, Turtle grass, *Thalassia testudinum*, Growth

1170
Meylan, A., B. Schroeder, and A. Mosier (1995) Sea turtle nesting activity in the state of Florida 1979 - 1992. Florida marine res. pub. 52. Florida Marine Research Institute, St. Petersburg, FL. 51 pp.
TIME COVERAGE: 1979 - 1992
SUMMARY: Loggerhead turtles, green turtles and leatherback turtles nest regularly on Florida sand beaches. Approximately 90% of the nesting activity in the southeastern US occurs in Florida. This aggregation is the second largest in the world. This report contains number of nests found by year in various locations in Florida.
KEY WORDS: Loggerhead turtle, Green turtle, Leatherback turtle, *Chelonia mydas*, *Dermochelys coriacea*, *Caretta caretta*, Florida, Key Biscayne, Cape Florida, Fisher Island, Golden Beach, Miami Beach, Virginia Key, Nesting

1171
Miami, C. o. (1992) Miami River master plan. Final report. City of Miami. Department of Planning, Building and Zoning, Miami, FL. Various paging.
TIME COVERAGE: 1992 ◊
SUMMARY: This is the master development plan for the Miami River.
KEY WORDS: River basin management, Environment management, Regional planning, Urbanization, Miami River

1172
Miami, City of (1987) Virginia Key master plan. Report. City of Miami. Planning Department, Miami, FL. 46 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: This is the master development plan for Virginia Key.
KEY WORDS: Land use, Resource conservation, Resource development, Virginia Key

1173
Miami Department of Development & Housing Conservation (1995) Request for unified development proposals for the Virginia Key Campground, Virginia Key Beach, Miami, Florida. Request for proposals. Miami Department of Development & Housing Conservation. Development Division, Miami, FL.
TIME COVERAGE: 1995 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Land use, Development projects, Virginia Key

1174
Miami Herald (1941-1972) Miami Herald Fishing Guide. The Miami Herald, Miami, FL.
TIME COVERAGE: Published annually, 1941-1972; title varies
SUMMARY: Richter has 1941, 1948, 1951, 1953-4, 1962, 1964, 1967-1972
KEY WORDS: Fishing, Boats, Boating, Florida, Guide

1175
Miami River Quality Action Team (1999) Annual report. Miami River Quality Action Team, Miami, FL.
TIME COVERAGE: 1999 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Annual reports, Miami River

1176
Miami River Management Committee (1984) Final recommendations of the Miami River Management Committee. Presented to Governor Bob Graham. Miami River Management Committee, Miami, FL. 53 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: Recommendations of the Committee included increased police protection in the area, storm water outfalls evaluations and redesign, tax reform for water-front businesses, and unification of jurisdiction.
KEY WORDS: Miami River, Merchant ships, Water quality, Pollution, Resource management

1177
Miami-Dade Water and Sewer Department (1994) Cross Bay line contingency plan update. Report. Miami-Dade Water and Sewer Department, Miami, FL. Various paging.
TIME COVERAGE: 1994 ◊
SUMMARY: This is the contingency plan in case of failure of the Cross Bay Line failure. The Cross Bay Line is a concrete cylinder pipe which carries raw sewage from the Metropolitan Dade County to the Central District Water Treatment Plant in Virginia Key.
KEY WORDS: Sewage, Virginia Key, Cross Bay Line, Pipelines, Leaks

1178
Mianmanus, R. T. (1988) Induction of settlement and metamorphosis in larvae of *Aplysia brasiliana* and *Strombus gigas* (Mullusca: Gastropoda). Ph.D. dissertation. University of Miami, Coral Gables, FL. 171 pp.
TIME COVERAGE: 1988 ◊
SUMMARY: Induction of larval settlement and metamorphosis by macroalgae under laboratory conditions were investigated for the Queen conch and the sea hare. Queen conch egg masses were collected in Biscayne Bay, Turks and Caicos Islands. Adult sea hares were collected in Bear Cut and kept in aquariums. Specimens of both species were raised in aquariums.
KEY WORDS: Queen conch, *Strombus gigas*, Sea hare, *Aplysia brasiliana*, Larval settlement, Metamorphosis

1179
Michel, J. F. (1970) Addendum to technical report dated May 1970, Analysis of the physical effects of the discharge of cooling water into Card Sound by the Turkey Point plant of Florida Power and Light Company. Reports on grants and contracts 71001. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 4 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Thermal pollution, Intake temperature, Channel flow, Card Sound, Turkey Point, Florida Power and Light Company

1180
Michel, J. F. (1970) Analysis of the physical effects of the discharge of cooling water into Card Sound by the Turkey Point plant of Florida Power and Light Company. Technical report 70065. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 14 pp.

TIME COVERAGE: 1970 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Thermal pollution, Water circulation, Cooling water, Card Sound, Turkey Point, Florida Power and Light Company, South Bay

1181
Michel, J. F. (1972) The effect of a variable wind field from Hurricane Abby on water surface elevations of Biscayne Bay, Florida. Eos, 53(11):1019.
TIME COVERAGE: 1968
SUMMARY: The effect of the changing wind field on water surface elevation on two transects in Biscayne Bay as measured by recording tide gages was related to wind stress and bathymetry.
KEY WORDS: Hurricanes, Surface water waves, Wind fields, Hurricane Abby

1182
Michel, J. F. (1971) Hydrodynamic boundary conditions. In: An Ecological Study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler (eds.). Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. III:1-13.
TIME COVERAGE: 1971 ◊
SUMMARY: This citation defined the boundary conditions for a model of the area affected by the Turkey Point effluent discharge.
KEY WORDS: Tidal dynamics, Boundary conditions, Water circulation, Hydrodynamics, Card Sound, South Bay, Turkey Point

1183
Michel, J. F. (1976) The impact of works of man on the physical regime of Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 265-270.
TIME COVERAGE: 1919 - 1974
SUMMARY: This paper discusses the effect of construction of causeways and channels on the circulation of Biscayne Bay. The peak of development occurred between 1919 and 1926 with the construction of two causeways and Bakers Haulover Cut.
KEY WORDS: Man-induced effects, Environmental impact, Urbanization, Bridges, Circulation, Bakers Haulover Cut

1184
Michel, J. F. (1973) Investigation of hydrodynamic effects of the proposed marina for Miami Beach, Florida. Reports on grants and contracts 73076. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 31 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Marinas, Water circulation, Tidal dynamics, Hydrodynamics, Miami Beach

1185
Michel, J. F. (1968) A study of tidal transport and diffusion in Bear Cut, Dade County, Florida. Report to Department of the Army, Jacksonville District, Corps of Engineers, Jacksonville, FL. Institute of Marine Sciences, University of Miami, Miami, FL. 7 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: This study was designed to determine the disposition of suspended solids resulting from the deposition of hydraulic fill along the shore of Virginia Key. This fill was to be used in the proposed beach nourishment program undertaken by the Corps of Engineers. Attention was paid to the effect on salt water intakes at the NOAA and University of Miami facilities. It was

indicated that heavy concentrations of suspended material at these intakes might result in the death of many scientific valuable specimens.
KEY WORDS: Sediment transport, Tidal currents, Bear Cut, Virginia Key

1186
Michel, J. F., and J. D. Riege (1972) Hydrodynamic boundary conditions. In: An ecological study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. III:1-11.
TIME COVERAGE: 1972 ◊
SUMMARY: In order to improve numerical modeling techniques for areas such as Card Sound, a detailed analysis of the flow across the boundaries of a basin while treating the basin as a storage area acted upon only by the wind was made.
KEY WORDS: Tidal dynamics, Boundary conditions, Water circulation, Hydrodynamics, Card Sound, South Bay, Turkey Point

1187
Midboe, E. A. (1972) A study of Biscayne Bay, Florida. Unpublished B.Sc. thesis. University of Virginia, Charlottesville, VA. 48 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: The objectives of this study were to examine the flushing mechanisms throughout the northern Bay and to compare these with present methods used to model estuaries.
KEY WORDS: Water circulation, Flushing, Models, North Bay

1188
Mikulka, W. R. (1969) Nocturnal and lunar variation in the light response patterns of juvenile pink shrimp, *Penaeus duorarum*. M.Sc. thesis. University of Miami, Coral Gables, FL. 48 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: This work describes the light response patterns of juvenile pink shrimp. Pink shrimp are positively phototactic. The specimens were obtained from local bait fishermen operating in Biscayne Bay.
KEY WORDS: Light effects, Phototaxis, Pink shrimp, *Penaeus duorarum*

1189
Milanich, J. T. (1999) Much ado about a circle. Archaeology, 52(5):22-25.
TIME COVERAGE: 1999 ◊
SUMMARY: This paper discusses the possibility that the Miami Circle, located at the entrance to the Miami River, could be a 1950s septic tank drain.
KEY WORDS: Archaeology, Miami Circle

1190
Milano, G. R. (2000) Cape Florida State Recreation Area wetlands restoration. Proc., 25th Ann. Conf. on Ecosystem Restoration and Creation. P. J. Cannizzaro, (ed.). Hillsborough Community College, 1998. Hillsborough Community College, Plant City, FL.
TIME COVERAGE: 2000 ◊
SUMMARY: During the 1950s, over 80 ha of wetlands were destroyed in southern Key Biscayne through dredge and fill operations associated with failed developments. These wetlands were replaced with Australian pines which were destroyed by Hurricane Andrew. This paper describes the restoration effort to historic vegetation types present before the dredge and fill operation.
KEY WORDS: Wetlands, Restoration, Cape Florida State Recreation Area, Key Biscayne

1191
Milano, G. R. (1999) Restoration of coastal wetlands in southeastern Florida. Wetland J., 11(2):15-24, 29.
TIME COVERAGE: 1990 - 1999
SUMMARY: Ten wetland restoration projects in Biscayne Bay are described in this paper: Bear Cut, Cape Florida, Bay Vista Campus, Virginia Key, National Bulk Carrier site, Oleta River Phase I, Oleta River Phase II, Highland Oaks and Chicken Key. Size, completion date, location, scope of restoration, species planted and funding are provided for each site.
KEY WORDS: Wetlands, Coastal zone management, Land reclamation, Environmental restoration, Mangrove swamps, Salt marshes, Dade County, Bear Cut, Cape Florida, Bay Vista Campus, Virginia Key, National Bulk Carrier, Oleta River, Highland Oaks, Chicken Key

1192
Miles, C. J., and R. J. Pfeuffer (1997) Pesticides in canals of south Florida. Arch. Environ. Contam. Toxic., 32(4):337-345.
TIME COVERAGE: 1991 - 1995
SUMMARY: Atrazine, ametryn, bromacil, simazine and norflurazon were the most frequently detected pesticides in surface water samples collected in canals in South Florida, and DDE, DDD and ametryn were the most frequently detected pesticides in sediment samples. Many of the most frequently detected compounds were used in large amounts in the monitoring area based on pesticide usage estimates. Spatial trends in pesticide detections followed use patterns. The maximum atrazine detections occurred in winter to late spring and were associated with usage on turfgrass and agricultural products. Endosulfan residues above the Florida water quality criterion were occasionally observed in surface water in the Homestead area and most of the exceedences occurred in confined waters.
KEY WORDS: Canals, Pesticides, Water analysis, Sediment analysis

1193
Miller, E. M. (1940) Mortality of fishes due to cold on the southeast Florida coast, 1940. Ecology, 21(3):420-421.
TIME COVERAGE: 1940
SUMMARY: Cold temperatures were experienced in South Florida in January 1940, resulting in a fish kill. Water temperatures reached 51 °F. Fish species affected by the cold were listed in the paper.
KEY WORDS: Fish kill, Temperature effects, Miami, Key Largo, Florida Bay

1194
Miller, G. S. (1921) American records of whales of the genus Pseudorca. Proc. US National Museum, 57(-):205-208.
TIME COVERAGE: 1921 ◊
SUMMARY: This citation reviews records of the presence of Pseudorcas in the US. The remains of one specimen was found in southern Biscayne Bay.
KEY WORDS: False killer whale, *Pseudorca crassidens*, Skull

1195
Miller, G. C., and D. L. Sutherland (1978) Behavior of the spiny lobster, *Panulirus argus*, to baited Florida and prototype traps. In: Proc., Spiny Lobster Research Review. R. E. Warner, (ed.). Key West, FL, 1976. Tech. paper no. 4. Florida Sea Grant College Program, Gainesville, FL.
TIME COVERAGE: 1976
SUMMARY: Prototype lobster traps were evaluated at the Elliott Key Marina.
KEY WORDS: Spiny lobster, *Panulirus argus*, Elliott Key, Lobster traps

1196
Miller, H. P. (1984) Numerical three-dimensional free surface circulation model for the south Biscayne Bay, Florida. Applied Mathematical Modeling, 8(5):313-318.
TIME COVERAGE: 1984 ◊
SUMMARY: [NOT AVAILABLE.]
KEY WORDS: Nearshore dynamics, Transport processes, Finite difference method, Mathematical models, South Bay

1197
Miller, H. P. (1987) Some contributions to computational fluid dynamics. Ph.D. Dissertation. Columbia University, New York, NY.
TIME COVERAGE: 1992
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Tides

1198
Miller, H. P. (1984) Three-dimensional free-surface suspended particles transport in the South Biscayne Bay, Florida. Internatl. J. Numerical Methods in Fluids, 4(10):901-914.
TIME COVERAGE: 1984 ◊
SUMMARY: A three-dimensional, time-dependent free surface model was developed which takes account of topographical and meteorological parameters for application to suspended particles transport.
KEY WORDS: Suspended particulate matter, Particle settling, Nearshore dynamics, Transport processes, South Bay

1199
Miller, M. W., E. Weil, and A. M. Szmant (1996) Benthic community structure and differential effects of grazing on reefs in Biscayne National Park (BNP). In: 24th Benthic Ecology Meeting. Columbia, SC, March 1996. University of South Carolina, Columbia, SC. 61.
TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Coral reefs, Grazing, Biscayne National Park

1200
Miller, P. C. (1972) Bioclimate, leaf temperature, and primary production in red mangrove canopies in south Florida. Ecology, 53(1):22-45.
TIME COVERAGE: 1972 ◊
SUMMARY: A model of primary production and transpiration of forest canopies of red mangroves was developed to clarify some of the physical processes affecting primary production.
KEY WORDS: Red mangrove, *Rhizophora mangle*, Transpiration, Primary production, Models, South Florida

1201
Miller, P. C. (1975) Simulation of water relations and net photosynthesis in mangroves in southern Florida. In: Proc. Internatl. Symp. on Biol. and Management of Mangroves. G. E. Walsh, S. C. Snedaker, and H. J. Teas, (eds.). Honolulu, HI, 1974. University of Florida, Institute of Food and Agricultural Sciences, Gainesville, FL. 615-631.
TIME COVERAGE: 1975 ◊
SUMMARY: Field and laboratory data on water relations and photosynthesis of three mangrove species were synthesized in a simulation model to explore some of their implications to the ecology of the species.

KEY WORDS: Mangrove swamps, *Avicennia germinans*, *Laguncularia racemosa*, *Rhizophora mangle*, Photosynthesis, Water content, Turkey Point, Key Largo, Everglades

1202
Miller, P. C., W. A. Stoner, J. Hom, and D. K. Poole (1976) Potential influence of thermal effluents on the production and water-use efficiency of mangrove species in South Florida. In: Proc. Symp., Thermal ecology IIΩ. G. W. Esch, and R. W. McFarlane, (eds.). Augusta, GA, 1975. Technical Information Center, Energy Research and Development Administration, Oak Ridge, TN. 39-45.
TIME COVERAGE: 1976 ◊
SUMMARY: A simulation model of leaf energy exchange, water relations and photosynthesis for mangrove ecosystems was generated. The study area was in southern Biscayne Bay.
KEY WORDS: Mangrove swamps, Temperature effects, Photosynthesis, Thermal pollution, *Rhizophora mangle*, *Avicennia germinans*, *Laguncularia racemosa*

1203
Miller, S. S. (1973) Canals cool hot water for reuse. Environ. Sci. Technol., 7(1):20-21.
TIME COVERAGE: BB 343
SUMMARY: This citation describes the cooling canals of the Turkey Point Power Plant.
KEY WORDS: Thermal pollution, Cooling water, Turkey Point

1204
Miller, S. M. (1951) The distribution of phosphorus compounds in marine sediments and in the overlying sea water. M.Sc. thesis. University of Miami, Coral Gables, FL. 55 pp.
TIME COVERAGE: 1950
SUMMARY: Hurricane Harbor is an inlet in Biscayne Key, sheltered from wind and wave action. The water is similar to that of the Bay and is less susceptible to contamination by sewage so the site was chosen to study phosphorus compounds in sediment.
KEY WORDS: Phosphorus compounds, Sediment, Sea water, Hurricane Harbor, Key Biscayne

1205
Miller, S. (1931) Florida Fishing. G. Howard Watt, New York, NY. 320 pp.
TIME COVERAGE: 1931 ◊
SUMMARY: This is a fishing guide to Florida.
KEY WORDS: Fishing, Fish, Florida, Guide

1206
Miller, S. M. (1952) Phosphorus exchange in a sub-tropical marine basin. Bull. Mar. Sci. Gulf Caribb., 1(4):257-265.
TIME COVERAGE: 1950 - 1951
SUMMARY: The phosphorus concentrations of sediment and overlying water were determined to determine whether any exchange of P was taking place. Phosphorus in sediment was shown to decrease in summer and the level in water increases. The opposite effect was found during the winter months.
KEY WORDS: Phosphorus compounds, Sediment, Sea water, Hurricane Harbor, Key Biscayne, P

1207
Miller, S. (1938) Southern & Central Florida Fishing: the Blue Book 1938. Florida Fishing Inc., Miami, FL.
TIME COVERAGE: 1938 ◊
SUMMARY: Locations for fishing in Biscayne Bay and other sites in Florida are described in this guide.
KEY WORDS: Fishing, Fish, South Florida, Central Florida, Guide

1208
Miller, W. L. (1978) Effects of bottom sediments on infiltration from the Miami and tributary canals to the Biscayne Aquifer, Dade County, Florida. Water-resources investigations 78-36. US Geological Survey, Tallahassee, FL. 63 pp.
TIME COVERAGE: 1972 - 1973
SUMMARY: Canal bottom sediments impede downward infiltration from the canals. Filtration through bottom sediments reduced concentrations of coliform bacteria, pesticides, PCBs, metals and suspended materials. Filtration by the sandy upper part of the aquifer further reduced concentrations of these contaminants.
KEY WORDS: Canals, Saline intrusion, Ground water, Water supply, Sedimentation, Miami Canal, Biscayne Aquifer, PCBs, Pesticides, Coliform bacteria, Al, Ca, Cr, Cu, Fe, Pb, Hg, K, Na, Sr, As, Water quality

1209
Millero, F. J., S. Sotolongo, and M. Izaguirre (1987) The oxidation kinetics of Fe(II) in seawater. Geochim. Cosmochim. A., 51(4):793-801.
TIME COVERAGE: 1987 ◊
SUMMARY: The oxidation of Fe(II) was studied. Seawater of Biscayne Bay yielded slower half time values than those determined for water or Gulf Stream seawater. This may be the result of the presence of organic ligands that can complex Fe(II).
KEY WORDS: Fe, Sea water, Chemical oceanography

1210
Milliken, D. L. (1949) Report of investigation of water resources of Biscayne Bay, Florida, May - August 1949. Report in cooperation with the City of Miami. US Geological Survey, Miami, FL. 71 pp.
TIME COVERAGE: 1949
SUMMARY: The purpose of this investigation was to obtain data on tidal flow into and out of Biscayne Bay, the movement of water within the Bay, and water level elevations at various points. This data were to be used in the location and design on the proposed Miami sewage treatment plant.
KEY WORDS: Tidal dynamics, Water motion, Water levels

1211
Milton, S. L., S. Kabler-Leone, A. A. Schulman, and P. L. Lutz (1994) The effects of Hurricane Andrew on the sea turtle nesting beaches of South Florida. In: Proc., 14th Ann. Symp. on Sea Turtle Biol. and Conservation. K. A. Bjorndal, A. B. Bolten, D. A. Johnson, and P. J. Eliazar, (comps.). Hilton Head, SC, 1994. NOAA technical memorandum NMFS-SEFSC-351. NOAA/NMFS Southeast Fisheries Science Center, Miami, FL. 84.
TIME COVERAGE: 1992
SUMMARY: Hurricane Andrew affected turtle nests over 90 miles of beaches. Greatest mortality was due to beach flooding associated with storm surge, and was largest at beaches near the storm's eye. Post-hurricane hatching success, mortality and cause of death were collected on nests at Fisher Island which experienced flooding and changes in topography.
KEY WORDS: Turtles, Nests, Hurricane Andrew, Fisher Island

1212
Milton, S. L., S. Leone-Kabler, A. A. Schulman, and P. L. Lutz (1994) Effects of Hurricane Andrew on the sea turtle nesting beaches of south Florida. Bull. Mar. Sci., 54(3):974-981.
TIME COVERAGE: 1992
SUMMARY: Hurricane and sea turtle nesting seasons overlap in the Caribbean and northwest Atlantic Ocean. Hurricane Andrew affected seaturtle nests over a total of 90 miles of beaches.

Storm surge associated with the hurricane produced the greatest mortality through nest flooding. Further mortality occurred when surviving turtles suffocated in nests situated in areas where sand accumulated.
KEY WORDS: Turtles, Nests, Beaches, Storm surge, Hurricane Andrew, Virginia Key, Key Biscayne, Fisher Island, South Florida

1213
Milton, S. L., P. L. Lutz, and A. A. Schulman (1995) The suitability of aragonite sand as a nesting substrate for loggerhead sea turtles (*Caretta caretta*). In: Proc., 8th Natl. Conf. on Beach Preservation Technology. Sand Wars, Sand Shortages & Sand-Holding Structures. L. S. Tait, (comp.). St. Petersburg, FL, 1995. Florida Shore & Beach Preservation Association, Tallahassee, FL. 179-180.
TIME COVERAGE: 1991
SUMMARY: The suitability of aragonite sand was evaluated as a nesting substrate for loggerhead turtles.
KEY WORDS: Aragonite, Nesting, Loggerhead turtle, *Caretta caretta*, Fisher Island

1214
Milton, S. L., A. A. Schulman, and P. L. Lutz (1995) A comparison of Florida silicate and Bahamian aragonite sand as substrates for sea turtle nesting. In: Proc., 12th Ann. Workshop on Sea Turtle Biol. and Conservation. J. I. Richardson, and T. H. Richardson, (comps.). Jekyll Island, GA, 1992. NOAA technical memorandum NMFS-SEFSC-361. NOAA/NMFS Southeast Fisheries Science Center, Miami, FL. 128-131.
TIME COVERAGE: 1995 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Silicates, Aragonite, Nesting, Loggerhead turtle, *Caretta caretta*, Fisher Island

1215
Milton, S. L., A. A. Schulman, and P. L. Lutz (1997) The effect of beach nourishment with aragonite versus silicate sand on beach temperature and loggerhead sea turtle nesting success. J. Coastal Res., 13(3):904-915.
TIME COVERAGE: 1997 ◊
SUMMARY: This study was undertaken to examine the effects of oolitic aragonite on turtles which nest in the beaches of South Florida. Temperature, grain size distribution and hydric potential were measured, and the effects of these parameters on nest hatching and emergence success compared for nests buried in Bahama aragonite versus native Florida sand. The temperature regimes of the two types of sands differed significantly. Both sands, however, has similar high hatching and emergence rates.
KEY WORDS: Beach nourishment, Aragonite, Nesting, Incubation, Hatching, Loggerhead turtle, *Caretta caretta*, Fisher Island, Bahamas

1216
Minkin, J. L. (1949) Biscayne Bay pollution survey, May-October, 1949. Mimeographed report. Bureau of Sanitary Engineering, Jacksonville, FL. 78 pp.
TIME COVERAGE: 1949
SUMMARY: [COPY NOT AVAILABLE. CITED IN MCNULTY (1970).]
KEY WORDS: Pollution, Coliform bacteria

1217
Mitchell, C. L. (1926) The Florida Hurricane of September 18-20, 1926. US Weather Bureau. Department of Agriculture, Washington, DC. 23 pp.
TIME COVERAGE: 1926
SUMMARY: This report describes the hurricane that passed over South Florida in 1926.

KEY WORDS: Hurricanes, Hurricane of 1926

1218
Mitchell, C. L. (1926) The West Indian hurricane of September 14-22, 1926. Monthly Weather Rev., 54(-):409-414.
TIME COVERAGE: 1926
SUMMARY: This paper is the description of the 1926 hurricane that passed over Miami, where a barometric pressure of 27.6 barograms was recorded.
KEY WORDS: Hurricanes, Hurricane tracking, Hurricane of 1926

1219
Mitchell-Tapping, H. J. (1980) Depositional history of the oolite of the Miami Limestone Formation. Florida Scient., 43(2):116-125.
TIME COVERAGE: 1980 ◊
SUMMARY: A new division of the Miami Oolite based on field outcrops above and below the water, fossils, well cuttings and SEM study of ooids was proposed.
KEY WORDS: Oolites, Sedimentation, Miami Limestone, Pleistocene

1220
Mitchell, S. R. (1997) Draft EIS for the development of Virginia Key: impacts on cultural, archaeological resources and traditional human uses of the area. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Archaeology, Land use, Environmental impact, Virginia Key

1221
Moe, M. A. (1991) Lobsters; Florida, Bahamas, Caribbean. Green Turtle Publications, Plantation, FL.
TIME COVERAGE: 1991
SUMMARY: This book is a description of the lobster species of Florida, the Bahamas and the Caribbean, lobster culture and fisheries.
KEY WORDS: Spiny lobster, Panulirus argus, Life history, Nephropidae, Scyllaridae, Lobsters, Taxonomy, Identification, Lobster culture, Lobster fisheries, Florida, Bahamas, Caribbean, Guide

1222
Moffett, A. W. (1957) A key to some southern Florida fishes based on vertebral characters. M.Sc. thesis. University of Miami, Coral Gables, FL. 108 pp.
TIME COVERAGE: 1957 ◊
SUMMARY: This work describes a visual key based on vertebra for the identification of fish. Specimens were collected in Biscayne Bay.
KEY WORDS: Vertebrae, Fish, Identification keys

1223
Moffett, J. W. (1986) The photochemistry of copper complexes in seawater. Ph.D. dissertation. University of Miami, Coral Gables, FL. 164 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: The photochemistry of copper in seawater was studied to assess the role of sunlight in the speciation and redox chemistry of copper in the water column. Some seawater samples were collected in Biscayne Bay.
KEY WORDS: Cu, Sea water, Photochemistry

1224
Moffett, J. W., and R. G. Zika (1987) Photochemistry of copper complexes in sea water. In: Photochemistry of Environmental Aquatic Systems. R. G. Zika, and W. J. Cooper (eds.). ACS symposium series 327. American Chemical Society, Washington, DC. 288 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: [THIS CITATION REPORTS ON THE WORK DESCRIBED IN THE PREVIOUS RECORD.]
KEY WORDS: Cu, Sea water, Photochemistry

1225
Moffett, J. W., and R. G. Zika (1987) Solvent extraction of copper acetylacetonate in studies of copper (II) speciation in seawater. Mar. Chem., 21(4):301-313.
TIME COVERAGE: 1987 ◊
SUMMARY: Studies of Biscayne Bay seawater indicated two ligand types present, and speciation of Cu was dominated by one of these ligands.
KEY WORDS: Cu, Solvent extraction, Sea water

1226
Mohl, R. A. (1982) Changing economic patterns in the Miami Metropolitan area, 1940 - 1980. Tequesta, 42(-):63-73.
TIME COVERAGE: 1940 - 1980
SUMMARY: The economic pattern of the Miami metropolitan area changed from a tourist and retirement haven after World War II into a center of international trade and banking.
KEY WORDS: Economics

1227
Moler, P. E. (1991) American crocodile nest survey and monitoring. Report. Florida Game and Fresh Water Fish Commission, Tallahassee, FL. 10 pp.
TIME COVERAGE: 1991 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: American crocodile, *Crocodylus acutus*, Nesting, Key Largo, Barnes Sound.

1228
Montague, J. R., J. A. Aguinaga, K. L. Ambrisco, D. L. Vassil, and W. Collazo (1991) Laboratory measurement of ingestion rate for the sea urchin *Lytechinus variegatus* (Lamarck) (Echinodermata: Echinoidea). Florida Scient., 54(3/4):129-134.
TIME COVERAGE: 1988
SUMMARY: Sea urchins were fed unblemished or decayed blades of *Thalassia*. Decayed blades had nearly twice as much dry weight as green blades of the same size. Ingestion times for both types of blades were negatively correlated with sea urchin size (bigger urchins ate faster). Mean ingestion time were significantly different for the two types of blades (decayed < green). Sea urchins showed no preference when offered both types of blades.
KEY WORDS: Sea urchin, *Lytechinus variegatus*, Ingestion, Turtle grass, *Thalassia testudinum*

1229
Montague, J. R., J. L. Carballo, L. M. Valdes, and M. Chacken (1995) Analyses of decay and parrot fish grazing along attached blades of turtle grass (*Thalassia testudinum*) from two sites in Biscayne Bay. Florida Scient., 58(2):206-215.
TIME COVERAGE: 1988 - 1993
SUMMARY: Attached blades of *Thalassia* were collected in Bear Cut and other areas of Biscayne Bay over a period of five years. Some of the samples were collected after Hurricane Andrew. *Thalassia* samples collected before and after the hurricane showed no significant differences. Parrot fish tended to graze selectively on the decayed tips of the seagrass blades

KEY WORDS: Turtle grass, *Thalassia testudinum*, Grazing, Parrot fish, Crandon Marina, Bear Cut, Hurricane Andrew

1230
Montague, J. R., J. L. Carballo, W. P. Lamas, J. A. Sanchez, E. R. Levine, M. Chacken, and J. A. Aguinaga (1995) Population ecology of the sea urchin *Lytechinus variegatus* in relation to seagrass diversity at two sites in Biscayne Bay: pre- vs. post-Hurricane Andrew (1989-1992). Florida Scient., 58(2):234-246.
TIME COVERAGE: 1989 - 1992
SUMMARY: Collections of sea urchins were made in Bear Cut and near the Crandon Marina and significant differences were found in urchin densities. The percentage of *Thalassia* bottom cover differed among both sites. Little change was observed at the sites after the passage of Hurricane Andrew.
KEY WORDS: Sea urchin, *Lytechinus variegatus*, Seagrass, Hurricane Andrew, Crandon Marina, Bear Cut

1231
Montague, J. R., A. Morales, and I. Gonzalez (1995) Population density of sea urchins (*Lytechinus variegatus*) in relation to standing crop of seagrasses in Biscayne Bay. Florida Scientist, 58(Suppl. 1):13.
TIME COVERAGE: 1994 - 1995
SUMMARY: Sea urchins and benthic vegetation were collected from Bear Cut, Crandon Park and Virginia Key. Population densities and seagrass biomass were determined.
KEY WORDS: Sea urchin, *Lytechinus variegatus*, Population density, Sea grass, *Thalassia testudinum*, Bear Cut, Crandon Park, Key Biscayne, Virginia Key

1232
Montague, J. R., L. Ortiz, A. Arguelles, J. M. Millan, and L. Cardoch (1988) Density and dispersion estimates for sea urchins in a south Florida seagrass community. Florida Scient., 51(1):19-22.
TIME COVERAGE: 1986
SUMMARY: Sea urchins were collected in Key Biscayne and population density determined. The statistical dispersion of the urchins in the seagrass beds was random.
KEY WORDS: Sea urchin, *Lytechinus variegatus*, *Tripneustes ventricosus*, Seagrass, Abundance

1233
Mooney, M. J. (1978) Waterspout vs. marina. Sea Frontiers, 24(3):159-168.
TIME COVERAGE: 1968
SUMMARY: This is an account of a waterspout that passed over Dinner Key Marina.
KEY WORDS: Waterspouts, Dinner Key Marina

1234
Moore, D. R. (1963) Distribution of the sea grass, *Thalassia*, in the United States. Bull. Mar. Sci. Gulf Caribb., 13(-):329-342.
TIME COVERAGE: 1963 ◊
SUMMARY: This paper discusses the distribution of *Thalassia* in the US. The distribution depends upon a variety of factors including temperature, turbidity, water depth, salinity and wave action.
KEY WORDS: Seagrass, Thalassia, Ecological distribution, Turtle grass

1235
Moore, D. R. (1964) The family Vitrinellidae in south Florida and the Gulf of Mexico. Ph.D. dissertation. University of Miami, Coral Gables, FL. 235 pp.

TIME COVERAGE: 1964 ◊
SUMMARY: This work is a study of the mollusk family Vitrinellidae, small snails of the size range of foraminifera. Some specimens were collected in Biscayne Bay.
KEY WORDS: Vitrinellidae, Marine mollusks, Taxonomy, Gulf of Mexico

1236
Moore, H. B. (1972) Biology of tropical bottom invertebrates. Final report for the Water Quality Office, Environmental Protection Agency, Program #18050 DMV, Grant #WP-01433. University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 29 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: The infauna of the upper parts of Biscayne Bay were surveyed and the relation to sediment type described for 121 species. Accounts of the ecology of 33 local species were prepared. Upper lethal temperatures were determined for 50 species. Part of this citation is an annotated bibliography.
KEY WORDS: Tropical environment, Marine invertebrates, Ecological distribution, Infauna, Northern Bay, Sediment

1237
Moore, H. F. (1908) The commercial sponges and the sponge fisheries. Bull. US Bureau of Fisheries, Part 1, 28(-):399-512.
TIME COVERAGE: 1908 ◊
SUMMARY: This paper reviews species of commercial sponges, fishery methods, and the sponge fisheries of various areas worldwide including Biscayne Bay and the Florida Keys.
KEY WORDS: Sponges, Sponge fisheries, Florida keys, Card Sound

1238
Moore, H. B. (1965) The correlation of symmetry, color and spination in an urchin. Bull. Mar. Sci., 15(1):245-254.
TIME COVERAGE: 1964
SUMMARY: Two abnormal specimens of *Lytechinus variegatus* are described. The specimens showed a correlation between shape changes, reduction of spination, and disturbance of color pattern.
KEY WORDS: Sea urchin, *Lytechinus variegatus*, Bear Cut, Abnormalities

1239
Moore, H. B. (1972) An estimate of carbonate production by macrobenthos in some tropical, soft-bottom communities. Mar. Biol., 17(-):145-148.
TIME COVERAGE: 1972 ◊
SUMMARY: Productivity figures for most of the soft bottom communities of Biscayne Bay are known, and these values were converted to carbonate production. The highest values were found for intertidal areas.
KEY WORDS: Carbonates, Biological production, Benthos, Mud, Community composition, Ocean floor, Key Biscayne

1240
Moore, H. B. (1967) Miami sea temperatures. Technical report ML 67269. Institute of Marine Science, University of Miami, Miami, FL.
TIME COVERAGE: 1947 - 1967
SUMMARY: This report contains tables of sea temperatures in Biscayne Bay.
KEY WORDS: Water temperature, Miami, Virginia Key, Venetian Causeway

1241
Moore, H. B. (1970) Miami sea temperatures and salinities. Technical report 70038. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 9 pp.
TIME COVERAGE: 1947 - 1968
SUMMARY: This report contains salinities and water temperatures in Biscayne Bay.
KEY WORDS: Water temperature, Salinity, Miami

1242
Moore, H. B., H. D. Albertson, and S. M. Miller (1974) Long-term changes in the settlement of barnacles in the Miami area. Bull. Mar. Sci., 24(1):86-100.
TIME COVERAGE: 1943 - 1970
SUMMARY: Daily and monthly counts of barnacle settlement rates on test panels at Miami Beach were presented. The effects of various environmental factors such as sewage pollution and hurricanes are discussed. Changes in species composition due to the immigrations of two new species into the area were documented.
KEY WORDS: Barnacles, Biological settlement, Miami Beach, Environmental effects, Miami Beach

1243
Moore, H. B., and F. O. Bingham (1971) The effects of refuse dumps on the plant and animal life of adjacent shallows of Biscayne Bay. Special report prepared for Greenleaf/Telesca Engineers, Architects. University of Miami, Miami, FL.
TIME COVERAGE: 1971 ◊
SUMMARY: The objectives of this report were to suggest the use of procedures that would minimize the harmful effects of filling procedures on the marine life of the adjacent waters of Biscayne Bay; to note the recognizable effects of the filling of mangrove forests with garden and home refuse; and to recommend studies that would better describe the ecological problems related to the filling of low areas with suck refuse.
KEY WORDS: Waste disposal, Coastal waters, Pollution surveys

1244
Moore, H. B., L. T. Davies, T. H. Fraser, R. H. Gore, and N. N. Lopez (1968) Some biomass figures from a tidal flat in Biscayne Bay, Florida. Bull. Mar. Sci., 18(2):261-279.
TIME COVERAGE: 1965
SUMMARY: The dominant species of invertebrate macrofauna were sampled. Each species was discussed briefly in terms of its abundance, biomass, dispersion, and associations with tidal level, sediment texture and marine grass.
KEY WORDS: Biomass, Tidal flats, Marine invertebrates, Abundance, Mud flats, Virginia Key

1245
Moore, H. B., and A. C. Frue (1959) The settlement and growth of *Balanus improvisus*, *B. eburneus* and *B. amphitrite* in the Miami area. Bull. Mar. Sci. Gulf Caribb., 9(4):421-440.
TIME COVERAGE: 1943 - 1958
SUMMARY: Data for twelve years on the settlement, survival and growth of three species of barnacles in the Miami area were analyzed. Long period, seasonal and short period fluctuations were described, and the correlations of these with temperature and river discharge discussed. In two of the species there appeared to be three distinct spawning periods during the year, and it is possible that these coincide with the maturation of three successive generations since growth and maturation were very rapid.
KEY WORDS: Barnacles, *Balanus improvisus*, *Balanus eburneus*, *Balanus amphitrite*, Biological settlement, Growth

1246
Moore, H. B., I. Hela, E. S. Reynolds, J. K. McNulty, S. M. Miller, and C. A. Carpenter (1955) Report on preliminary studies of pollution in Biscayne Bay. Mimeographed report 55-3. Progress report to the Federal Security Agency, Public Health Service, National Institutes of Health under grant E-510. Marine Laboratory, University of Miami, Coral Gables, FL.
TIME COVERAGE: 1955
SUMMARY: This study was prepared to document conditions in Biscayne Bay before sewage effluents inputs into the Bay stopped in July 1956.
KEY WORDS: Sewage disposal, Water pollution, Hydrography, Chemical oceanography, Bacteriology, Marine organisms, Nutrients

1247
Moore, H. B., T. V. Jutare, J. C. Bauer, and J. A. Jones (1963) The biology of *Lytechinus variegatus*. Bull. Mar. Sci. Gulf Caribb., 13(1):23-53.
TIME COVERAGE: 1957 - 1959
SUMMARY: This species of sea urchin feeds largely on Thalassia and is eaten by various gastropods and birds. Growth rate showed a negative correlation with temperature. Spawning occurs throughout the summer at Miami but is briefer in Bermuda where it also exhibits a lunar rhythm. Following an usually cold winter in Miami, a large proportion were protendrous hermaphrodites and had an unusual test shape.
KEY WORDS: Sea urchin, *Lytechinus variegatus*, Life history, Bear Cut, Key Biscayne

1248
Moore, H. B., T. V. Jutare, J. A. Jones, B. F. McPherson, and C. F. E. Roper (1963) A contribution to the biology of *Tripneustes esculentus*. Bull. Mar. Sci. Gulf Caribb., 13(2):267-281.
TIME COVERAGE: 1959 - 1961
SUMMARY: The biology of this sea urchin was studied for several years in Miami and Bermuda. It spawns in the spring and summer but with different spawning patterns in different years. First spawning seems to be triggered by temperature and successive spawnings by attainment of a gonad size which increases during the season. Winter growth of the gonad and its rate of build up between spawnings is negatively correlated with temperature. Hermaphroditism was common in a year group which was in the immature stage during an unusually cold winter.
KEY WORDS: Sea urchin, *Tripneustes esculentus*, Life history

1249
Moore, H. B., and N. N. Lopez (1975) An additional study of the ecology of *Chione cancellata*. Bull. Mar. Sci., 25(1):126-130.
TIME COVERAGE: 1964 - 1972
SUMMARY: This citations expands on previous studies on *Chione cancellata.*
KEY WORDS: Venus clams, *Chione cancellata*, Ecophysiology, Seaquarium Flats, Bear Cut, Virginia Key

1250
Moore, H. B., and N. N. Lopez (1970) A contribution to the ecology of the lamellibranch *Dosinia elegans*. Bull. Mar. Sci., 20(4):980-986.
TIME COVERAGE: 1963 - 1970?
SUMMARY: This paper discusses aspects of *Dosinia elegans.*
KEY WORDS: Clams, Lamellibranchiata, Veneridae, *Dosinia elegans*, Growth, Biomass

1251
Moore, H. B., and N. N. Lopez (1970) A contribution to the ecology of the lamellibranch *Tellina alternata*. Bull. Mar. Sci., 20(4):971-979.

TIME COVERAGE: 1957 - 1959, 1964 - 1968
SUMMARY: This paper discusses the ecology of *Tellina alternata.*
KEY WORDS: Clams, *Tellina alternata*, Growth, Population density

1252
Moore, H. B., and N. N. Lopez (1972) A contribution to the ecology of the lamellibranch *Anodontia alba*. Bull. Mar. Sci., 22(2):381-390.
TIME COVERAGE: 1972 ◊
SUMMARY: This citation discusses the ecology of this clam.
KEY WORDS: Lucina clams, *Anodontia alba*, Ecophysiology, Virginia Key

1253
Moore, H. B., and N. N. Lopez (1966) The ecology and productivity of *Moira atropo*s (Lamarck). Bull. Mar. Sci., 16(4):648-667.
TIME COVERAGE: 1957 - 1959
SUMMARY: This paper discusses the ecology of the heart urchin in communities living at about 3 m in Biscayne Bay. After urchins reach a size of about 40 mm, growth stops and energy is directed towards spawn production usually in spring and summer, showing a possible correlation with moon phase.
KEY WORDS: Heart urchins, *Moira atropos*, Ecophysiology, Biological production

1254
Moore, H. B., and N. N. Lopez (1969) The ecology of *Chione cancellata*. Bull. Mar. Sci., 19(1):131-148.
TIME COVERAGE: 1964 - 1966
SUMMARY: This citation describes the biology of the Venus clam.
KEY WORDS: Venus clams, *Chione cancellata*, Ecophysiology, Habitat, Virginia Key

1255
Moore, H. B., and N. N. Lopez (1972) Factors controlling variation in the seasonal spawning pattern of *Lytechinus variegatus*. Mar. Biol., 14(-):275-280.
TIME COVERAGE: 1959, 1962 - 1971
SUMMARY: A population of sea urchins was sampled in Bear Cut and the gonad volume and test diameter recorded at monthly intervals for 10 yrs. Correlations were found between the appearance in successive years of a brood of young urchins on the shore and the temperature and rainfall.
KEY WORDS: Sea urchin, *Lytechinus variegatus*, Spawning seasons, Bear Cut

1256
Moore, H. B., and B. F. McPherson (1963) Colonization of the Miami area by the barnacle *Balanus trigonus* Darwin and a note on its occurrence on the test of an echinoid. Bull. Mar. Sci., 13(3):418-421.
TIME COVERAGE: 1963 ◊
SUMMARY: The occurrence of a barnacle new to the east coast was recorded. Data were given on its seasonal and vertical distribution,
KEY WORDS: Barnacles, *Balanus trigonus*, Colonization, Sea urchin, *Tripneustes esculentus*, *Lytechinus variegatus*

1257
Moore, H. B., and B. F. McPherson (1965) A contribution to the study of the productivity of the urchins *Tripneustes esculentus* and *Lytechinus variegatus*. Bull. Mar. Sci., 15(4):855-871.
TIME COVERAGE: 1963 - 1964

SUMMARY: Sea urchins were collected off the sewage treatment plant in Virginia and Key and off Bear Cut and kept in an aquarium. Rates of feeding, respiration and excretion were determined in summer and winter for the two species. Both show a complete seasonal adaptation of the feeding rate to a maximum at the optimum feeding temperatures. Young individuals feed three times as fast as the older ones. Respiratory rate was higher in the summer than in winter, and relatively high in small individuals.
KEY WORDS: Sea urchin, *Tripneustes esculentus*, *Lytechinus variegatus*, Biological production, Seasonal variations, Virginia Key, Bear Cut

1258
Moore, H. B., and D. R. Moore (1950) Key to the common gastropods of the Miami area. Report. Marine Laboratory, University of Miami, Miami, FL. 15 pp.
TIME COVERAGE: 1950 ◊
SUMMARY: This report lists the common gastropods in Biscayne Bay.
KEY WORDS: Gastropods, Identification keys, Miami, Species list

1259
Moore, J. C. (1953) Distribution of marine mammals to Florida waters. American Midland Naturalist, 49(-):117-158.
TIME COVERAGE: 1953 ◊
SUMMARY: This paper describes the distribution of marine mammals in Florida.
KEY WORDS: Marine mammals, Geographical distribution, Florida

1260
Moore, J. C. (1951) The range of the Florida manatee. Quarterly J. Florida Academy of Sciences, 14(1):1-19.
TIME COVERAGE: 1951 ◊
SUMMARY: This paper describes the distribution and behavior of manatees in Florida. The greatest number of animals in South Florida were found gathered on a cold morning near the warm outflow of a factory outlet located under the Miami river.
KEY WORDS: West Indian manatee, *Trichechus manatus latirostris*, Geographical distribution, Florida

1261
Moore, J. G. Thermal pollution. In: Proc., Natl. Symp. on Thermal Pollution: Engineering Aspects of Thermal Pollution. F. L. Parker, and P. A. Krenkel, Nashville, TN, 1968. Vanderbilt University Press 1969, Nashville, TN. 243-248.
TIME COVERAGE: 1968 ◊
SUMMARY: Possible effects of thermal pollution of Biscayne Bay from the Turkey Point power plant are discussed.
KEY WORDS: Thermal pollution, Cooling water, Turkey Point

1262
Moore, R. T., and S. P. Meyers (1962) Thalassiomycetes III. The genus Zalerion. Can. J. Microbiol., 8(4):407-416.
TIME COVERAGE: 1962 ◊
SUMMARY: This paper describes the taxonomy of this genus. Specimens were collected from seawater of Biscayne Bay.
KEY WORDS: Fungi, Zalerion, Deuteromycetes, Taxonomy

1263
Moore, R. T., and E. Scott (1967) Thalassiomycetes X. Variation in growth and reproduction of two isolates of *Corollospora maritima*. Mycologia, 59(3):446-455.

TIME COVERAGE: 1965
SUMMARY: The growth and reproduction of two isolates of *Corollospora* were studied. One of the isolates was obtained from a balsa wood panel submerged in Biscayne Bay.
KEY WORDS: Fungi, *Corollospora maritima*

1264
Mopper, K., and B. F. Taylor (1986) Biogeochemical cycling of sulfur: thiols in coastal marine sediments. In: Organic Marine Geochemistry. M. L. Sohn (ed.). ACS symposium series no. 305. American Chemical Society, Washington, DC.
TIME COVERAGE: 1984
SUMMARY: Intertidal Biscayne Bay sediments were periodically collected, and slurries prepared from these samples analyzed for thiols. Over 30 thiols were present at significant levels in anoxic intertidal Biscayne Bay sediments, and apparently arise as a result of interacting biotic processes and abiotic conditions.
KEY WORDS: Biogeochemical cycle, S, Coastal zone, Sediment

1265
Morell, V. (1997) First Floridians found near Biscayne Bay. Science, 2751258-59.
TIME COVERAGE: 1997 ◊
SUMMARY: Recently dated fish bones and artifacts found in Cutler Ridge indicate the presence of humans in South Florida almost 10,000 yrs ago.
KEY WORDS: Archaeology, Cutler Ridge

1266
Morgan, C. (1999) Standing up for Stiltsville. The Miami Herald, Miami, FL. June 22. 1.
TIME COVERAGE: 1999
SUMMARY: This article discusses the 5-month "stay of execution" for Stiltsville. The remaining structures were scheduled to be removed July 1.
KEY WORDS: Stiltsville, Biscayne National Park

1267
Morgan, C. (1999) Stiltsville gets second reprieve. The Miami Herald, Miami, FL. January 23.
TIME COVERAGE: 1999
SUMMARY: Federal authorities agreed to extend the discussions regarding the fate of Stiltsville until December 2000.
KEY WORDS: Biscayne National Park, Stiltsville

1268
Mormino, G. M. (1997) Midas returns: Miami goes to war, 1941 - 1945. Tequesta, 57(-):5-51.
TIME COVERAGE: 1941 - 1945
SUMMARY: This articles describes Miami during World War II. Biscayne Bay served as a training ground for sailors and pilots. Servicemen, including foreign troops, were stationed at hotels in Miami Beach during training and rehabilitation.
KEY WORDS: History, World War II

1269
Morrill, J. B., and F. C. W. Olson (1955) Literature survey of the Biscayne Bay area. Report prepared under contract N62306 - s - 287 with the US Navy Hydrographic Office. Oceanographic Institute, Florida State University, Tallahassee, FL. 143 pp.
TIME COVERAGE: 1955 ◊
SUMMARY: This bibliography has chapters summarizing the climate, morphology, geology, hydrology, currents, tides, temperature, salinity, transparency, and sea and swell in Biscayne

Bay. Some of the information sources are unpublished documents. Also included are rainfall data from 1901 to 1947
KEY WORDS: Climate, Geology, Hydrology, Water currents, Water temperature, Salinity, Water quality, Bibliographies

1270
Motte, J. R. (1953) Journey into Wilderness: an Army Surgeon's Account of Life in Camp and Field During the Creek and Seminole Wars,. Edited by J. F. Sunderman. University of Florida Press, Gainesville.
TIME COVERAGE: 1836-1838
SUMMARY: This account describes the journeys of J. R. Motte who went traveled as far Key Largo along the east coast of Florida.
KEY WORDS: History, Biographies, Geography

1271
Muir, H. (1953) Miami, U. S. A. Hurricane House Publishers, Coconut Grove, FL. 308 pp.
TIME COVERAGE: 1875 - 1950s
SUMMARY: This book describes the growth of the South Florida community.
KEY WORDS: Miami, History, Coconut Grove

1272
Multer, H. G. (compiler) (1969) Field guide to some carbonate rock environments, Florida Keys and western Bahamas. Farleigh Dickinson University, Madison, NJ. 159 pp. 159 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: This is a field guide to various types of carbonate environments in South Florida and the Bahamas.
KEY WORDS: Carbonate rocks, Florida Keys, Bahamas, Bear Cut, Florida Bay, Dry Tortugas, Card Sound, Barnes Sound, Virginia Key, Key Biscayne, Field guide

1273
Multer, H. G. (1977) Field guide to some carbonate rock environments, Florida Keys and western Bahamas. Field guide. Kendall/Hunt, Dubuque, IO. 415 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: This report is a field guide to carbonate rock environments including worm and mangrove reefs at Bear Cut, the thermal stress environment at Turkey Point, Pleistocene outcrops, and other areas of interest.
KEY WORDS: Carbonate rocks, Florida Keys, Bahamas, Bear Cut, Florida Bay, Card Sound

1274
Multer, H. G., and J. E. Hoffmeister (1968) Subaerial laminated crusts of the Florida Keys. Geol. Soc. America Bull., 79(-):183-192.
TIME COVERAGE: 1968 ◊
SUMMARY: Exposed Pleistocene marine limestone of the Florida keys are often coated by laminated calcitic crusts. There crusts were identified as marine algal stromatolites similar to the soft, marine, living algal stromatolitic mats of the Florida Keys which border and occasionally coast the encrusted bedrock. Such juxtaposition is now considered coincidental. Carbon-14 dating of crust samples reveals a time of formation during which the land surface was above sea level indicating a subaerial origin.
KEY WORDS: Limestone, Algal mats, Weathering, Sedimentary structures, Florida Keys

1275
Multer, H. G., and J. D. Milliman (1967) Geologic aspects of sabellarian reefs, southeastern Florida. Bull. Mar. Sci., 17(2):257-267.

TIME COVERAGE: 1967 ◊
SUMMARY: The tune-building marine polychaete Phragmatopoma lapidosa produces thick, wave resistant littoral reefs and encrustations along the southeastern coast of Florida. One such reef at Virginia Key is described.
KEY WORDS: Tube dwellers, *Phragmatopoma lapidosa*, Sabellariids, Reef formation, Sediment texture, Virginia Key, Key Biscayne, Vero Beach, Jupiter Beach

1276
Munroe, R. M. (1896) Account of sponge-cultural experiments in Biscayne Bay. In: Notes on Biscayne Bay, Florida, with reference to its adaptability as the site of a marine hatching and experiment station. H. M. Smith Report of the Commissioner [US Commission of Fish and Fisheries] for the year ending June 30, 1895.
TIME COVERAGE: 1895
SUMMARY: 187-188
KEY WORDS: Sponge culture

1277
Munroe, R. M., and V. Gilpin (1930) The Commodore's Story. Reprinted in 1974 by the Historical Association of Southern Florida, Miami, FL. 384 pp.
TIME COVERAGE: 1877 - 1926
SUMMARY: This book is a biography of Commodore R. M. Monroe, the founder of the Biscayne Bay Yacht Club and a long time resident of South Florida. His home, the Barnacle, stands to this day.
KEY WORDS: History

1278
Murphy, L. W., and T. G. Smith (1995) Submerged in the past: mapping the beguiling waters of Florida's Biscayne and Dry Tortugas National Parks. Geo Info Systems, 5(10):26-33.
TIME COVERAGE: 1995 ◊
SUMMARY: Since 1993, the National Park Service has been conducting surveys designed to provide a comprehensive, cumulative, natural and cultural resource inventory accessible through geographic database software. These underwater remote sensing surveys are some of the first to be designed specifically for GIS applications.
KEY WORDS: Hydrographic surveying, Underwater object location, Archaeology, Biscayne National Park, Dry Tortugas National Park

1279
Murray, M. H. (1994) Storm-tide elevations produced by Hurricane Andrew along the southern Florida coasts, August 24, 1992. Open-file report 94-116. US Geological Survey, Tallahassee, FL. 27 pp.
TIME COVERAGE: 1992
SUMMARY: The combined effects of Hurricane Andrew's storm tide (storm surge and astronomical tides) caused flooding over a large part of extreme southern Florida. High water marks were identified, described, surveyed and plotted in quadrangle maps. Storm tide elevations ranged from 4 to 6 feet in northern Biscayne Bay and increased to about 17 feet near the center of the Bay.
KEY WORDS: Storm surge, Flooding, Hurricane Andrew, Dade County, Collier County, Monroe County

1280
National Park Service (1966?) Biscayne National Monument: a proposal. Report. US National Park Service, Washington, DC.
TIME COVERAGE: 1966 ◊

SUMMARY: This is a short public oriented report on the proposed Biscayne National Monument. Most of the text is the same as that in US National Park Service (1965).
KEY WORDS: Environmental protection, Resource management, Biscayne National Monument

1281
National Park Service (1983) Biscayne National Park: general management plan, development concept plan, wilderness study and environmental assessment. Report. US Government Printing Office, Washington, DC. 133 pp.
TIME COVERAGE: 1983 ◊
SUMMARY: This is the proposed management plan for the Biscayne National Park.
KEY WORDS: Marine parks, Protected resources, Biscayne National Park

1282
National Park Service (1977) Draft general management plan, Biscayne National Monument. Report. US Government Printing Office, Washington, DC. 36 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Marine parks, Environment management, Nature conservation, Biscayne National Monument

1283
National Park Service (1977) Draft general management plan, Biscayne National Monument. Report. US National Park Service, Washington, DC. 39 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: This is the draft of the general management plan for Biscayne National Monument.
KEY WORDS: Marine parks, Environment management, Nature conservation, Biscayne National Monument

1284
National Park Service (1976) Environmental Assessment. General management plan for Biscayne National Monument, Florida. US Department of the Interior, National Park Service, Denver Service Center, Denver, CO. 261 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This report is a detailed management plan for the Biscayne National Monument.
KEY WORDS: Natural resources, Marine parks, Nature conservation, Environment management, Biscayne National Monument, Species list

1285
National Park Service (1978) Final environmental statement for general management plan, Biscayne National Monument, Florida. Report. National Park Service, Denver, CO. 349 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: This is the final environmental for the Biscayne National Monument.
KEY WORDS: Natural resources, Marine parks, Nature conservation, Environment management, Biscayne National Monument

1286
National Park Service (1965?) Florida coral reefs: Islandia. Report. US National Park Service, Washington, DC. 24 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: This is a description of the proposed national park in the northern Florida Keys.
KEY WORDS: Coral reefs, Florida Keys, Elliott Key, Islandia

1287
National Park Service (1978) General management plan, Biscayne National Monument. Report. US National Park Service, Washington, DC. 39 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: This is the general management plan for Biscayne National Monument.
KEY WORDS: Marine parks, Environment management, Nature conservation, Biscayne National Monument

1288
Nelson, D. R. (1962) An evaluation of the Columbia Obstruction Method for studying the behavior of the pink shrimp, *Penaeus duorarum* Burkenroad. M.Sc. thesis. University of Miami, Coral Gables, FL. 77 pp.
TIME COVERAGE: 1962 ◊
SUMMARY: The purpose of this study was to evaluate the use of the Columbia Obstruction Method to study the behavior of pink shrimp. The method has been used in the study of rats and other animals. Pink shrimp for the study were collected in Biscayne Bay.
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Behavior

1289
Nelson, D. R. (1965) Hearing and acoustic orientation in the lemon shark, *Negaprion brevirostris* (Poey), and other large sharks. Ph.D. dissertation. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1965 ◊
SUMMARY: The objectives of this study were to investigate the sense of hearing in the lemon shark, the unconditioned heart response of sound in the shark, and the response of sharks to sounds of possible biological significance. Field experiments were conducted in Biscayne Bay.
KEY WORDS: Audition, Bioacoustics, Sharks, Lemon shark, *Negaprion brevirostris*

1290
Nelson, D. M., M. E. Monaco, E. A. Irlandi, L. R. Settle, and L. Coston-Clements (1991) Distribution and abundance of fishes and invertebrates in southeast estuaries. ELMR report no. 9. NOAA/NOS/ORCA, Strategic Environment Assessments Division, Rockville, MD. 177 pp.
TIME COVERAGE: 1991
SUMMARY: This report is a summary of distribution and abundance of fishes and invertebrates in southeast estuaries including Biscayne Bay.
KEY WORDS: Estuarine organisms, Estuarine fisheries, Abundance, Geographical distribution, Southeast coast, Gulf of Mexico

1291
Nesbitt, S. A., J. C. Ogden, H. W. Kale, B. W. Patty, and L. A. Rowse (1982) Florida atlas of breeding sites for herons and their allies: 1976-78. Biological Services Program FWS/OBS-81/49. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, DC. 449 pp.
TIME COVERAGE: 1976 - 1978
SUMMARY: This document contains the results of aerial surveys of breeding sites for herons and their allies in peninsular Florida. The atlas includes information on 295 colonies including several located in Dade County. One of the colonies is located in West Arsenicker Key in southern Biscayne Bay.
KEY WORDS: Breeding sites, Aquatic birds, Marine birds, Florida, Arsenicker Key, Cutler

1292
Neumann, C. J., G. W. Cry, E. L. Caso, and B. R. Jarvinen (1978) Tropical cyclones of the North Atlantic Ocean, 1871-1977. NOAA/National Weather Service/National Climatic Center, Asheville, NC. 170 pp.

TIME COVERAGE: 1871 - 1977
SUMMARY: [UPDATED EDITION IS NEUMANN (1992).]
KEY WORDS: Hurricanes, North Atlantic

1293
Neumann, C. J., B. R. Jarvinen, C. J. McAdie, and J. D. Elms (1993) Tropical cyclones of the North Atlantic Ocean, 1871-1992. Historial climatology series 6-2. NOAA/National Weather Service/National Climatic Center, Asheville, NC. 193 pp.
TIME COVERAGE: 1871 - 1992
SUMMARY: This report is a series of maps showing the tracks of all known hurricanes from 1871 to 1992.
KEY WORDS: Hurricanes, North Atlantic

1294
Newell, S. Y. (1976) Mangrove fungi: the succession in the mycoflora of red mangrove (*Rhizophora mangle* L.) seedlings. In: Recent Advances in Aquatic Mycology. E. B. G. Jones (ed.). John Wiley, New York, NY. 749 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This citation discusses the succession of fungi on seedlings of red mangrove.
KEY WORDS: Fungi, Mangrove swamps, Red mangrove, *Rhizophora mangle*, Species list

1295
Newell, S. Y. (1974) The succession in the mycoflora of red mangrove (*Rhizophora mangle* L.) seedlings. Ph.D. dissertation. University of Miami, Coral Gables, FL. 103 pp.
TIME COVERAGE: 1970 - 1971
SUMMARY: This study describes the pattern of colonization of red mangrove seedlings by communities of fungi. Some samples were obtained in Biscayne Bay.
KEY WORDS: Fungi, Mangrove swamps, Red mangrove, *Rhizophora mangle*

1296
Newell, S. Y., J. W. Fell, and C. Miller (1986) Deposition and decomposition of turtlegrass leaves. Int. Revue ges. Hydrobiol., 71(3):363-369.
TIME COVERAGE: 1986 ◊
SUMMARY: Seagrasses are generally deposited on the shoreline. This study describes rates of input of dry matter, organic carbon, and nitrogen for turtle grass as it decays on the shoreline and is continuously submerged.
KEY WORDS: Degradation, Intertidal environment, Seagrass, Sedimentation, Organic carbon, Nitrogen, Biogeochemical cycle, Leaves, Manatee Bay, Las Roques, *Thalassia testudinum*, West Point

1297
Newell, S. Y., and J. W. Fell (1980) Mycoflora of turtlegrass (*Thalassia testudinum* König) as recorded after seawater incubation. Botanica Marina, 23(-):265-275.
TIME COVERAGE: 1977
SUMMARY: Samples of *Thalassia* were incubated in seawater and active mycoflora studies.
KEY WORDS: *Thalassia testudinum*, Mycoflora, Matheson Hammock Park, Fungi, Spores, Turtle grass

1298
Newell, S. Y., and J. W. Fell (1982) Near-ultraviolet light in incubation of marine leaf-litter samples. Mycologia, 74(-):508-510.
TIME COVERAGE: 1982 (lab study)

SUMMARY: This study reports the results of routine application of near ultraviolet light during incubation to samples of dead leaves of *Thalassia*. Exposure to the ultraviolet light had little effect on sporulation and thus identification of the three most prevalent fungi.
KEY WORDS: Fungi, Turtle grass, *Thalassia testudinum*, Spores

1299
Newell, S. Y., and J. W. Fell (1975) Preliminary experimentation in the development of natural food analogues for culture of detritivorous shrimp. Sea Grant technical bull. 30. University of Miami Sea Grant, Coral Gables, FL. 115 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: Fungal fermentation of agricultural by-products were conducted and attempts made to optimize fungal protein production. Resultant artificial detrital feeds were tested at pink shrimp aquaculture facilities located in south Dade County.
KEY WORDS: Fungi, Shrimp culture, Feed, Artificial feeding, Detritus feeders

1300
Newell, S. Y., and J. W. Fell (1982) Surface sterilization and the active mycoflora of leaves of a seagrass. Botanica Marina, 25(-):339-345.
TIME COVERAGE: 1976 - 1977
SUMMARY: *Thalassia* samples from the field and samples containing growing mycelliuim of known identity were used to study leaf surface sterilization techniques. Spores of potential dormant lead-surface inhabitors were applied. Frequencies of fungal species after surface sterilization were much higher in decaying leaves from sandy intertidal zones than in decaying leaves from submerged sites.
KEY WORDS: Fungi, Turtle grass, *Thalassia testudinum*, Sterilization

1301
Nicholas, J. C. (1975) The economy of the south Florida coastal zone. Report. FAU/FIU Joint Center for Environmental and Urban Problems, Miami (?), FL. 37 pp + tables.
TIME COVERAGE: 1975 ◊
SUMMARY: This is a study of the economies of Dade, Broward, Palm Beach, Martin and St. Lucie counties, in which 98% of the people and over 90% of the economic activity are found in the coastal zone.
KEY WORDS: Coastal zone, Economic analysis, South Florida

1302
Niedhauk, C. A. (1973) Charlotte's Story: Parts of an Updated Florida Key Diary: 1934-1935. C. A. Niedhauk, Islamorada, FL. 205 pp.
TIME COVERAGE: 1934 - 1935
SUMMARY: This is an account of the Niedhauk's life on Elliott Key.
KEY WORDS: Biographies, Elliott Key, Florida Keys

1303
Niedhauk, C. (1969) Pioneering on Elliott Key, 1934-1935. Tequesta, 29(-):27-45.
TIME COVERAGE: 1934 - 1935
SUMMARY: The experiences of the Niedhauks on Elliott Key during the Depression years are described in this paper. Most of the settlers were "Conchs" from Key West. Earlier inhabitants included farmers and ship builders. Elliott Key was mostly abandoned after the construction of the Florida East Coast Railroad. Aspects of the sponge fisheries and the Hurricane of 1935 are described.
KEY WORDS: Biographies, Elliott Key, Florida Keys, Sponge fisheries, Hurricane of 1935, Biographies, Florida Keys

1304
Niemiec, P. (1996) The Sweeting homestead on Elliott Key. Tequesta, 56(-):24-45.
TIME COVERAGE: 1882 - 1930
SUMMARY: The Sweeting family settled Elliott Key from 1882 to 1930. experiences of the family are described.
KEY WORDS: Elliott Key, Homesteading

1305
Nnaji, S. (1987) South Biscayne Bay water quality: a twelve year record for Biscayne National Park. Research/resources management report SER-88. National Park Service, Southeast Regional Office, Atlanta, GA. pp.
TIME COVERAGE: 1972 - 1982
SUMMARY: An observational study was performed on a set of water quality data obtained in Biscayne Bay over a period of about 12 years, and multivariate analysis of the data is presented.
KEY WORDS: Water quality, Fresh water, South Bay, Biscayne National Park, Salinity, Turbidity, pH, Dissolved oxygen, Nutrients

1306
NOAA (1973) Estuarine-dependent marine fishes. Appendix E: South Florida ecological study. NOAA/NMFS, Gulf Coastal Fisheries Center, St. Petersburg Beach, FL. Part I, 98 pp + Part II, various paging.
TIME COVERAGE: 1973 ◊
SUMMARY: Published and unpublished literature relative to the commercial and sport fishes of South Florida was reviewed for the purpose of documenting the importance of the estuarine zone to fish production.
KEY WORDS: Marine fish, Estuarine fisheries, South Florida

1307
NOAA (1990) Estuaries of the United States; vital statistics of a national resource base. NOAA/NOS/ORCA/SAB, Rockville, MD. 79 pp.
TIME COVERAGE: 1990 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Estuaries, Estuarine dynamics

1308
NOAA (1950 - to date) Tidal current tables; Atlantic coast of North America. NOAA/National Ocean Service, Washington, DC.
TIME COVERAGE: 1950 - to date
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Tidal currents, Tide tables, Atlantic Ocean, East coast

1309
NOAA (1949-to date) Tide tables, high and low water predictions, East coast of North and South America, including Greenland. NOAA/National Ocean Service, Washington.
TIME COVERAGE: 1949-to date
SUMMARY: [Title varies as does issuing body (US Coast and Geodetic Survey, National Ocean Survey, National Ocean Service, NOAA).]
KEY WORDS: Tide tables, East coast, Atlantic Ocean

1310
Noe, C. D. (1967) Contribution to the life history of the stone crab *Menippe mercenaria* Say with emphasis on the reproductive cycle. M.Sc. thesis. University of Miami, Coral Gables, FL. 55 pp.
TIME COVERAGE: 1965 - 1966
SUMMARY: The spawning and growth cycles of stone crabs were studied using specimens collected in Bear Cut.
KEY WORDS: Stone crab, *Menippe mercenaria*, Life history, Reproduction, Bear Cut

1311
Norris, J. P. (1974) Shrimp farming. Sea Frontiers, 20(2):100-107.
TIME COVERAGE: 1974 ◊
SUMMARY: This article describes the life cycle of the *Penaeus duorarum* and shrimp farming.
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Shrimp culture, Turkey Point

1312
Nowlin, R. (1977) Aerial photographic interpretation of the benthic communities living on Bruce Shoals, Biscayne Bay, Florida. J. Tennessee Acad. Science, 52(-):67.
TIME COVERAGE: 1977 ◊
SUMMARY: This abstract describes the use of aerial photography to study benthic communities in Biscayne Bay.
KEY WORDS: Aerial photography, Benthos, Aquatic communities, Bruce Shoals, Safety Valve

1313
Nucci, L. R., and R. E. Berkoff (1995) The development and rehabilitation of south Florida bulkheads and seawalls. In: Proc., Ports '95. M. A. Knott, (ed.). Tampa, FL, 1995. American Society of Civil Engineers, New York, NY. 1008-1021.
TIME COVERAGE: 1995 ◊
SUMMARY: This citation describes the history and types of bulkheads constructed in South Florida. Virtually none were constructed prior to 1900 and the majority of those constructed between 1900 and 1920 no longer exist. Several case histories are discussed.
KEY WORDS: Sea walls, Coastal structures, Miami River, New River, Deering Bay, North Miami Beach

1314
Nugent, R. S. (1970) The effects of thermal effluent on some of the macrofauna of a subtropical estuary. Ph.D. dissertation. University of Miami, Coral Gables, FL. 198 pp.
TIME COVERAGE: 1968 - 1970
SUMMARY: The objective of this study was to determine the effects of the effluent from the Turkey Point Power Plant on the macrofauna of the mangrove habitats. Water samples were also obtained. Biofouling panels were also deployed and analyzed. The heated water afforded some protection to the fish from cold water kills. Anglers reported that more fish were caught in the colder months in the effluent canals of the power plant than in unheated canals in the area. The heated water contributed to the death of some organisms, such as blue crabs, grunts and toadfish, during the summer months. Settlement of the ivory barnacle increased in the heated water. Dissolved oxygen concentrations were lower in the heated water.
KEY WORDS: Thermal pollution, Turkey Point, Temperature effects, South Bay, Marine organisms

1315
Nugent, R. S. (1970) The effects of thermal effluent on some of the macrofauna of a subtropical estuary. Sea Grant tech. bull. 1. University of Miami Sea Grant, Coral Gables, FL. 198 pp.
TIME COVERAGE: 1968 - 1970

SUMMARY: [REPRINT OF DISSERTATION.]
KEY WORDS: Thermal pollution, Turkey Point, Temperature effects, South Bay, Marine organisms, Water quality, Biofouling

1316
NUS Corporation (1984) Remedial action master plan: Munisport site, North Miami, Dade County, Florida. NUS project 0701.96. EPA work assignment 01-4V79.0. Contract no. 68-01-6699. NUS Corporation, Pittsburgh, PA. Various paging.
TIME COVERAGE: 1984 ◊
SUMMARY: This is a remedial action plan for the Munisport site.
KEY WORDS: Groundwater pollution, Water quality, Pollution control, Munisport Landfill, North Miami

1317
Nye, L. B. (2000) Bioindicators of stress in fish in Biscayne Bay: stress protein 70 and melanomacrophage aggregates. Ph.D. dissertation. University of Miami, Coral Gables, FL.
TIME COVERAGE: 2000 ◊
SUMMARY: The presence of stress-related proteins in fish collected in Biscayne Bay was evaluated as an indicator of contamination.
KEY WORDS: Bioindicators

1318
Nye, L. B. (2000) Bioindicators of stress in fish in Biscayne Bay: stress protein 70 and melanomacrophage aggregates. Ph.D. dissertation. University of Miami, Coral Gables, FL.
TIME COVERAGE: 2000 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Biological stress, Indicators, Proteins, Pollution monitoring, Fish diseases, Pinfish, *Lagodon rhomboides*, Gray snapper, *Lutjanus griseus*, Grunts, *Haemulon sciurus*, *Haemulon plumeri*, Sea bream, *Archosargus rhomboidalis*, Gulf toadfish, *Opsanus beta*

1319
Nye, L. B. (1996) Stress proteins as a bioindicator in the sub-tropical marine fish, *Lutjanus griseus*, the grey snapper. Mar. Environ. Res., 42(1-4):278.
TIME COVERAGE: 1996 ◊
SUMMARY: Grey snapper produced stress proteins when exposed to heat shock. Further work is underway to develop grey snapper stress proteins as a bioindicator for Biscayne Bay.
KEY WORDS: Indicators, Biological stress, Grey snapper, *Lutjanus griseus*

1320
O'Brien, J. J., and R. M. Overstreet (1991) Parasite-host interactions between the rhizocephalan barnacle, *Loxothylacus texanus*, and the blue crab, *Callinectes sapidus*. Amer. Zoologist, 31(5):91A.
TIME COVERAGE: 1991 ◊
SUMMARY: This species of crab was found to be absent from the Atlantic coast north of Biscayne Bay. This work was based crabs collected in Mississippi.
KEY WORDS: Parasites, Life cycle, Temperature effects, *Loxothylacus texanus*, Blue crab, *Callinectes sapidus*

1321
Odell, D. K. (1976) Distribution and abundance of marine mammals in south Florida: preliminary results. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 315 pp.

TIME COVERAGE: 1974
SUMMARY: Twenty aerial surveys of Biscayne Bay for marine mammals were conducted beginning in July 1974 approximately every two weeks for a year. Six dolphin herds totaling 50 individuals were observed. Herd size ranged from 3 to 13 with a mean of 8 animals per herd. No manatees were observed in the Bay.
KEY WORDS: Manatees, *Trichechus manatus*, Bottlenose dolphin, *Tursiops truncatus*, Abundance, Everglades National Park

1322
Odell, D. K. (1981) Growth of a West Indian manatee, *Trichechus manatus*, born in captivity. In: Proc., Workshop, The West Indian Manatee in Florida. R. L. Brownell, and K. Ralls, (eds.). Orlando, FL, 1978. Florida Audubon Society, Maitland, FL. 131-140.
TIME COVERAGE: 1975
SUMMARY: This paper describes the growth of a manatee born in captivity at the Miami Seaquarium.
KEY WORDS: West Indian manatee, *Trichechus manatus*, Captivity, Growth, Miami Seaquarium

1323
Odell, D. K. (1979) A preliminary study of the ecology and population biology of the bottlenose dolphin in southeast Florida. PB-294 336. Report No. MMC-74/07, in fulfillment of contract MM4AC003. NTIS, Springfield, VA. 26 pp.
TIME COVERAGE: 1974 - 1975
SUMMARY: Aerial surveys to assess the abundance of bottlenose dolphins in and around Biscayne Bay were conducted. Dolphins were more abundant in Everglades National Park than in Biscayne Bay. Cetaceans carcasses found during the survey were examined and tissues analyzed for chlorinated hydrocarbons and trace metals.
KEY WORDS: Bottlenose dolphin, *Tursiops truncatus*, Population number, Pygmy sperm whale, *Kogia simus*, *Kogia breviceps*, Stranding, Chlorinated hydrocarbons, Odontocetes, Dwarf sperm whale, Everglades National Park, Cr, Cd, Pb, Zn, Cu, Mn, Ag, DDTs

1324
Odell, D. K., and J. E. Reynolds (1979) Observations on manatee mortality in south Florida. J. Wildlife Management, 43(2):572-577.
TIME COVERAGE: 1974 - 1978
SUMMARY: Of 57 dead manatees, 34 were found in Dade County. Flood control dams accounted for 25% of the mortalities; boats and barges, 28%; other human factors, 7%; and undetermined, 40%. All flood control dams in Dade and associated heavy rains may have been underestimated.
KEY WORDS: West Indian manatee, *Trichechus manatus*, Mortality causes, South Florida

1325
Odell, D. K., and J. E. Reynolds (1981) Observations on manatee mortality in south Florida. In: Proc., Workshop, The West Indian Manatee in Florida. R. L. Brownell, and K. Ralls, (eds.). Orlando, FL, 1978. Florida Audubon Society, Maitland, FL. 92-97.
TIME COVERAGE: 1974 - 1978
SUMMARY: [PUBLISHED IN J. WILDLIFE MANAGEMENT, 1979, 43(2):572-577.]
KEY WORDS: West Indian manatee, *Trichechus manatus*, Mortality causes, South Florida

1326
Odell, D. K., D. B. Siniff, and G. H. Waring (1975) Final report, *Tursiops truncatus* Assessment Workshop, Miami, 1975. Sponsored by the Marine Mammal Commission under contract no. MM5AC021; UM-RSMAS-75042. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 141 pp.

TIME COVERAGE: 1974 - 1975
SUMMARY: This citation is the summary of the assessment workshop. One of the chapters described aerial surveys for dolphin conducted in Biscayne Bay.
KEY WORDS: Bottlenose dolphin, *Tursiops truncatus*, Population number, Stock assessment

1327
Odum, W. E. (1968) The ecological significance of fine particle selection by the striped mullet *Mugil cephalus*. Limnol. Oceanogr., 13(-):92-98.
TIME COVERAGE: 1968 ◊
SUMMARY: Striped mullet was shown to prefer very fine particles wherever sediments are involved in feeding. It is suggested that these small inorganic and plant detrital sediment particles are much richer both in adsorbed organic material and in adsorbed bacteria, Protozoa, and other microorganisms than the coarser material that the mullet rejects. This selectivity resulted in substantially higher organic values of the stomach contents than of the sediments.
KEY WORDS: Striped mullet, *Mugil cephalus*, Particulate organic matter, Feeding

1328
Odum, W. E. (1966) The food and feeding of the striped mullet *Mugil cephalus* Linnaeus in relation to the environment. M.Sc. thesis. University of Miami, Coral Gables, FL. 118 pp.
TIME COVERAGE: 1966 ◊
SUMMARY: The feeding behavior of mullet from Sapelo Sound and Biscayne Bay was determined. Mullet are able to feed from two food chains: the grazing food chain and the detritus food chain. Diet of mullet in Bear Cut was dominated by diatoms of epiphytic origin.
KEY WORDS: Striped mullet, *Mugil cephalus*, Food consumption, Feeding behavior, Digestive system, Bear Cut, Matheson Hammock

1329
Odum, W. E. (1970) Insidious alteration of the estuarine environment. Trans. Amer. Fisheries Soc., 99(-):836-847.
TIME COVERAGE: 1970 ◊
SUMMARY: Features of estuarine ecosystems were described and how insidious changes can occur.
KEY WORDS: Estuaries, Brackishwater environment, Pollution, Man-induced effects, Nutrients

1330
Odum, W. E., C. C. McIvor, and T. J. Smith (1982) The ecology of the mangroves of south Florida: a community profile. FWS/OBS 81/24. US Fish and Wildlife Service, Office of Biological Services, National Coastal Ecosystems Team, Washington, DC. 144 pp.
TIME COVERAGE: 1982 ◊
SUMMARY: This report discusses various aspects of the mangrove ecosystem including microorganisms, invertebrates, fishes, amphibians, reptiles, birds and mammals.
KEY WORDS: Mangrove swamps, Ecosystems, Wetlands, Coastal zone management, Microorganisms, Invertebrates, Fishes, Amphibians, Reptiles, Birds, Mammals

1331
Ogden, J. C. (1992) The impact of Hurricane Andrew on the ecosystems of south Florida. Conservation Biol., 6(4):488-490.
TIME COVERAGE: 1992
SUMMARY: The most evident impact of Hurricane Andrew on the marine ecosystem as evidenced by aerial surveys was uprooted and defoliated mangrove forests.
KEY WORDS: Ecosystems, Ecosystem disturbance, Hurricane Andrew, South Florida

1332
Ogden, J. C. (1978) Status and nesting biology of the American crocodile, *Crocodylus acutus*, (Reptilia, Crocodilidae) in Florida. J. Herpetology, 12(2):183-196.
TIME COVERAGE: 1978 ◊
SUMMARY: This project was designed to determine the status of the crocodile in Florida and factors regulating that population.
KEY WORDS: American crocodile, *Crocodylus acutus*, Nesting, Population number, Florida Keys, Florida Bay, Barnes Sound

1333
Ogden, J. C., and R. C. Carpenter (1987) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - long-spined black sea urchin. Biological rep. 82(11.77). US Fish and Wildlife Service, National Wetlands Research Center, Slidell, LA. 17 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: The nomenclature, taxonomy, morphology, life history, growth characteristics, fishery, ecological role, and environmental requirements of the long-spined black sea urchin are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Sea urchin, *Diadema antillarum*, South Florida

1334
O'Gower, A. K., and J. W. Wacasey (1967) Animal communities associated with *Thalassia*, *Diplanthera*, and sand beds in Biscayne Bay I. Analysis of communities in relation to water movements. Bull. Mar. Sci., 17(1):175-210.
TIME COVERAGE: 1967 ◊
SUMMARY: Random samples collected from *Thalassia*, *Diplanthera*, and sand beds in the shallow sublittoral zones of Key Biscayne and Virginia Key indicated dissimilarities and similarities between the communities inhabiting these environments. The data on occurrence and densities of species in these communities were analyzed and associations of densities and selected environmental factors were determined.
KEY WORDS: Seagrass, Thalassia, Diplanthera, Sand bars, Marine organisms, Water motion, Community composition, Key Biscayne, Virginia Key, Species list

1335
Oliver, G. D. (1987) Population dynamics of *Lytechinus variegatus*. M.Sc. thesis. University of Miami, Coral Gables, FL. 104 pp.
TIME COVERAGE: 1983 - 1984
SUMMARY: This is a study of the population dynamics of sea urchins collected in the seagrass beds of Biscayne Bay.
KEY WORDS: Sea urchin, *Lytechinus variegatus*, Population dynamics, Virginia Key, Bear Cut

1336
Oliver, L. M., W. S. Fisher, and A. Volety (1998) Hemocyte activities and contaminant burdens in oysters (*Crassostrea virginica*) from five estuaries in the Southeastern United States. J. Shellfish Research, 17(1):335.
TIME COVERAGE: 1998 ◊
SUMMARY: A survey of oysters from 16 sites in Tampa Bay indicated that high concentrations of metals in tissues appeared to be associated with heightened cellular defense responses such as circulating hemocyte number, percent mobility, rate of locomotion, phagocytic activity and superoxide anion producing ability. To further investigate the relationship between toxicant accumulation and immunomodulation, oysters were collected from sites within each of 4 bays in the Gulf of Mexico and from Biscayne Bay.

KEY WORDS: Oyster culture, Bioaccumulation, Water quality, Immunity, Haematology, Crassostrea virginica, Tampa Bay

1337
Olsen, E. J., and K. R. Bodge (1991) Caribbean beach fill and Mediterranean structures at southeast Florida. In: Proc., 4th Ann. National Beach Preservation Technology Conference, Preserving and Enhancing Our Beach Environment. L. S. Tait, (comp.). Charleston, SC, 1991. Florida Shore & Beach Preservation Association, Tallahassee, FL. 57-72.
TIME COVERAGE: 1991 ◊
SUMMARY: This paper describes the use of aragonite beach fill in the shorefront improvement project for Fisher Island.
KEY WORDS: Beach nourishment, Oolites, Aragonite, Fisher Island

1338
Olsen, E. J., and K. R. Bodge (1991) The use of aragonite as an alternate source of beach fill in southeast Florida. In: Coastal Sediments '91. Proc. of a Specialty Conf. on Quantitative Approaches to Coastal Sediment Processes. N. C. Kraus, K. J. Gingerich, and D. L. Kriebel, Seattle, WA, 1991. American Society of Civil Engineers, New York. 2130-2144.
TIME COVERAGE: 1991 ◊
SUMMARY: The first full-scale use in the US of imported aragonite sand for beach restoration was at Fisher Island. The structure plan made use of classic headland and spiral-bay shoreline behavior to induce a net desired littoral drift pattern. The pattern and the predicted equilibrium fill platform was selected to minimize fill losses and impacts to nearshore seagrass beds.
KEY WORDS: Aragonite, Beach nourishment, Restoration, Fisher Island

1339
Olsen Associates Inc. (1989) Beach restoration at Fisher Island, Florida. Report. Olsen Associates Inc., Jacksonville, FL. 73 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: The purpose of this study was to design and permit a beach restoration project at Fisher Island. The project was intended to provide a beach suitable for recreation and to enhance storm protection for the island.
KEY WORDS: Beach nourishment, Restoration, Aragonite, Fisher Island

1340
Opresko, D. M. (1973) Abundance and distribution of shallow-water gorgonians in the area of Miami, Florida. Bull. Mar. Sci., 23(3):535-558.
TIME COVERAGE: 1973 ◊
SUMMARY: The composition of the gorgonian fauna at three sites was examined. Specimens were analyzed as to number of species, number of colonies of each species, relative abundance of various taxonomic groups, and average height and weight of each species.
KEY WORDS: Gorgonians, Shallow water, Abundance, Ecological distribution, Soldier Key, Boca Chica Pass, Red Reef, Species list

1341
Opresko, D. M. (1974) Recolonization and regrowth of a population of the gorgonian *Plexaura homomalla*. In: Symp., Prostaglandins from *Plexaura homomalla*: Ecology, Utilization and Conservation of a Major Medical Marine Resource. F. M. Bayer, and A. J. Weinheimer (eds.). Studies in tropical oceanography no. 12. University of Miami Press, Coral Gables, FL. 165 pp.
TIME COVERAGE: 1962, 1967
SUMMARY: An analysis was made of the size and structure of a population of the gorgonian *Plexaura homomalla* occurring on a small patch reef, Red Reef, near Margot Fish Shoal.
KEY WORDS: Gorgonians, *Plexaura homomalla*, Population structure, Abundance, Red Reef

1342
Opresko, L. K. (1974) The early development of *Octopus briareus* Robson and the organogenesis of the digestive system and its associated organs. Ph.D. dissertation. University of Miami, Coral Gables, FL. 154 pp.
TIME COVERAGE: 1971
SUMMARY: The early development of *Octopus briareus* was studied using specimens reared in the laboratory. These specimens were offspring of octopus specimens were collected at Soldier Key.
KEY WORDS: Octopus, *Octopus briareus*, Organogenesis, Digestive system, Embryonic development, Soldier Key

1343
Opresko, L. K., D. M. Opresko, R. F. Thomas, and G. L. Voss (1973) Guide to the lobsters and lobster-like animals of Florida, Gulf of Mexico and the Caribbean region. Sea Grant Field Guide Series 1. University of Miami Sea Grant Program, Coral Gables, FL. 44 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: This is a taxonomic guide to lobsters and lobster-like animals found in Florida and the Caribbean region.
KEY WORDS: Lobsters, Spiny lobster, Slipper lobster, Identification keys, Florida, Gulf of Mexico, Caribbean

1344
Opresko, L. K., R. F. Thomas, and F. M. Bayer (1976) Guide to the larger marine gastropods of Florida, the Gulf of Mexico, and the Caribbean region. Sea Grant field guide series 5. University of Miami Sea Grant College Program, Coral Gables, FL. 54 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This is an identification guide to large marine gastropods found in Florida, the Gulf of Mexico and the Caribbean.
KEY WORDS: Gastropods, Conch, Top-shell, Helmet shell, Tulip shell, Identification keys, Florida, Gulf of Mexico, Caribbean

1345
Oremland, R. S. (1976) Studies on the methane cycle in tropical marine sediments. Ph.D. dissertation. University of Miami, Coral Gables, FL. 108 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: *In situ* rates of methanogenesis observed in several tropical benthic communities reveals that beds of *Thalassia* have the highest methonogenic activity of all sites studied. Sediments collected in Soldier key were treated with substrate enhancers and inhibitors to study changes in rates of methogenesis.
KEY WORDS: Methane, Methanogenesis, Benthos, Sediment, Bacteria, Decomposers, Soldier Key

1346
Oremland, R. S., and B. F. Taylor (1978) Sulfate reduction and methanogenesis in marine sediments. Geochim. Cosmochim. A., 42(-):209-214.
TIME COVERAGE: 1978 ◊
SUMMARY: Methanogenesis and sulfate reduction were followed in the laboratory from sediment taken from a seagrass bed. Both processes occurred simultaneously in sediment incubated under nitrogen indicating the processes are not mutually exclusive. Under hydrogen, a negative pressure developed as the result of oxidation by bacteria. Hydrogen also stimulated methanogenesis.
KEY WORDS: Methanogenesis, Sulfate reduction, Sediment, Seagrass, Bacteria, Soldier Key

1347
Orpurt, P. A., and L. L. Boral (1964) The flowers, fruits, and seeds of *Thalassia testudinum* Koenig. Bull. Mar. Sci. Gulf Caribb., 14(2):296-302.
TIME COVERAGE: 1964 ◊
SUMMARY: This paper is a description of the flowers, fruits and seeds of *Thalassia*.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Plant physiology, Plant morphology

1348
Orpurt, P. A., S. P. Meyers, L. L. Boral, and J. Sims (1964) Thalassiomycetes V. A new species of Lindra from turtle grass, *Thalassia testudinum* König. Bull. Mar. Sci. Gulf Caribb., 14(-):405-417.
TIME COVERAGE: 1964 ◊
SUMMARY: This paper describes the first isolation of a fungus from the widespread, ecologically important, marine flowering plant. Spore germination tests indicate suitable adaptation of the fungus to a eurohaline environment.
KEY WORDS: Fungi, *Lindra thalassiae*, New species, Turtle grass, *Thalassia testudinum*

1349
Ortner, P. B., C. Kreader, and G. R. Harvey (1983) Interactive effects of metals and humus on marine phytoplankton carbon uptake. Nature, 301(-):57-59.
TIME COVERAGE: 1983 ◊
SUMMARY: Marine fulvic acid was synthesized in the laboratory. The resulting material was physically, spectroscopically and chemically identical to one or more natural marine fulvic acids isolated from the Gulf of Mexico. Addition of fulvic acids alone (natural or synthetic) has no affect Biscayne bay carbon uptake.
KEY WORDS: Trace metals, Humus, Humic acids, Fulvic acids, Phytoplankton

1350
O'Shea, T. J., C. A. Beck, R. K. Bonde, H. I. Kochman, and D. K. Odell (1985) An analysis of manatee mortality patterns in Florida, 1976-81. J. Wildlife Management, 49(1):1-11.
TIME COVERAGE: 1976 - 1981
SUMMARY: Mortality distributions of 406 manatees recovered in Florida were analyzed. Probable causes of death were: 187, undetermined; 87, collisions with boats; 58, perinatal and early juvenile; 35, entrapment with locks and flood control dams; 20, other human-caused; and 19, natural.
KEY WORDS: West Indian manatee, *Trichechus manatus*, Mortality causes, Florida

1351
O'Shea, T. J., and H. I. Kochman (1990) Florida manatees: distribution, geographically referenced data sets, and ecological and behavioral aspects of habitat use. In: Geographic Information Systems as an Aid to Managing Habitat for West Indian Manatees in Florida and Georgia. J. E. Reynolds, and K. D. Haddad, (eds.). Report of a workshop. Florida marine research publications no. 49. Florida Marine Research Institute, St. Petersburg, FL. 11-22.
TIME COVERAGE: 1990 ◊
SUMMARY: A brief overview of manatee distribution and biology is provided for use in developing GIS techniques to assist in the study of these animals.
KEY WORDS: Manatees, *Trichechus manatus latirostris*, Geographical distribution, Mortality, Aerial surveys, Biotelemetry, Florida

1352
Osmond, J. K., J. R. Carpenter, and H. L. Windom (1965) Th^{230}/U^{234} age of the Pleistocene corals and oolites of Florida. J. Geophys. Res., 70(8):1843-1847.

TIME COVERAGE: 1965 ◊
SUMMARY: Determination of the activity ratio of these two isotopes in corals from the Pleistocene Key Largo limestone leads to the conclusion that the reef-forming corals lived about 130,000 years ago in a sea that stood about 10 m higher than today.
KEY WORDS: Th isotopes, U isotopes, Radiometric dating, Oolites, Coral, Windley Key, Key Largo, Coral Gables, Bimini

1353
Ostlund, H. G., and H. G. Dorsey (1976) Turkey Point tritium. Progress report to Energy Research and Development Administration. Contract E-(40-1)-3944; UM-RSMAS-#76005. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1976 ◊
SUMMARY: The waters of lower Biscayne Bay, and Card and Barnes Sounds receive only a small portion of the total tritium produced by the Turkey Point Nuclear Power Plant. The dominating tritium loss was most likely through evaporation from the cooling canals.
KEY WORDS: Tritium, Turkey Point, South Bay, Card Sound, Barnes Sound

1354
Overstreet, R. M. (1968) Digenetic trematodes of marine teleost fishes from Biscayne Bay, Florida. Ph.D. dissertation. University of Miami, Coral Gables, FL. 188 pp.
TIME COVERAGE: 1966 - 1968
SUMMARY: The alimentary system and coelomic cavity were examined in all species of fish examined for the presence of trematodes. Gills, heart, swim bladder and other tissues in were examined in most species
KEY WORDS: Trematodes, Digenea, Fish

1355
Overstreet, R. M. (1969) Digenetic trematodes of marine teleost fishes from Biscayne Bay, Florida. Tulane Studies in Zoology and Botany, 15(4):120-176.
TIME COVERAGE: 1966 - 1968
SUMMARY: This citation is a list of species and descriptions of trematodes found in teleost fish.
KEY WORDS: Trematodes, Digenea, Fish, Species list

1356
Owens, J. B. (1996) A study of historic, regional maritime technologies exemplified at the Barnacle State Historic Site. Internship report; M.A. in Marine Affairs. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. Various paging.
TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: History, Coastal structures, Surface craft, Resource management, Barnacle State Historic Site

1357
Owre, H. B. (1949) Larval stages of some south Florida marine gastropods. M.Sc. thesis. University of Miami, Coral Gables, FL. 77 pp (Shelved under H. B. Michel).
TIME COVERAGE: 1949 ◊
SUMMARY: This citation describes the larval stages of gastropods collected in the South Florida area.
KEY WORDS: Gastropods, Molluscan larvae, Developmental stages, Soldier Key, Virginia Key, Miami Beach, Cape Florida, Dry Tortugas, Florida Keys

1358
Owre, H. B. (1972) Marine biological investigations in the Bahamas. 18. The genus *Spadella* and other Chaetognatha. Sarsia, 49(-):49-58.
TIME COVERAGE: 1971
SUMMARY: Collections were made in the Bahamas for specimens of the genus *Spadella*. Collections were also made with the same gear at Broad Creek and some of the species found in the Bahamas were found in those samples.
KEY WORDS: Chaetognaths, Spadella, Bahamas, Broad Creek

1359
Owre, O. T. (1976) The avifauna of Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1976 ◊
SUMMARY: This paper outlines the foraging habitats and feeding strategies of birds in Biscayne Bay. A species list is provided.
KEY WORDS: Aquatic birds, Species list

1360
Paddon, J., and D. Suman (1995) The Virginia Key campground. In: Urban Growth and Sustainable Habitats: Case Studies of Policy Conflicts in South Florida's Coastal Environment. D. Suman, M. Shivlani, and M. L. Villanueva (eds.). Division of Marine Affairs and Policy, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 175 pp.
TIME COVERAGE: BB 191
SUMMARY: This report describes Virginia Key and the proposed campground.
KEY WORDS: Protected resources, Recreation, Shore protection, Virginia Key

1361
Paige, D. (1981) A Day in the Life of a Marine Biologist. Troll Associates, Mahwah, NJ. 32 pp.
TIME COVERAGE: 1981 ◊
SUMMARY: This is a children's book describing daily activities of a marine biologist in Biscayne Bay.
KEY WORDS: Biologists, Marine scientists, Oceanographic institutions

1362
Pait, A. S., A. E. De Souza, and D. R. G. Farrow (1992) Agricultural pesticide use in coastal areas: a national summary. Report. NOAA/NOS/ORCA, Rockville, MD. 112 pp.
TIME COVERAGE: 1992 ◊
SUMMARY: This report is a summary of pesticide use in coastal areas.
KEY WORDS: Pesticides, Coastal waters, Toxicity

1363
Pait, A. S., D. R. G. Farrow, J. A. Lowe, and P. A. Pacheco (1989) Agricultural pesticide use in estuarine drainage areas: a preliminary summary for selected pesticides. National Coastal Pollutant Discharge Inventory (NCPDI) Program. NOAA/NOS, Rockville, MD. 134 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Estuarine dynamics, Brackishwater pollution, Pesticides, Toxicity, United States

1364
Palmer and Baker Engineers, Inc. (1960) Study of regimen of tidal flow in relation to Mid-Bay Drive, Upper Biscayne Bay. Report. Metropolitan Dade Co., Miami, FL. 38 pp.
TIME COVERAGE: 1960 ◊

SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Tides

1365
Papy, F. (1992) Cruising Guide to the Florida Keys, with Florida West Coast Supplement. Revised 8th ed. F. Papy, Ridgeland, SC. 262 pp.
TIME COVERAGE: 1992 ◊
SUMMARY: This is a cruising guide to the Florida keys.
KEY WORDS: Boating, Navigational charts, Florida Keys, Cruising guide

1366
Park, F. D. R. (1969) Virginia Key - Key Biscayne beach nourishment project. Shore and Beach, 37(1):32-35.
TIME COVERAGE: 1969 ◊
SUMMARY: This paper describes a proposed Key Biscayne - Virginia Key beach restoration project utilizing sand from off Key Biscayne.
KEY WORDS: Beach nourishment, Virginia Key, Key Biscayne

1367
Park, J. R. (1969) A preliminary study of portunid crabs in Biscayne Bay. Quart. J. Fla. Acad. Sci., 32(1):12-20.
TIME COVERAGE: 1967 - 1968
SUMMARY: This study describes the populations of different Portunid crab species in Biscayne Bay.
KEY WORDS: Crabs, Population dynamics, Species list

1368
Park, P. (1998) What are a few toxins among friends? Miami New Times, Miami, FL. METRO. Feb. 5-11. Accessed at internet site <www.miaminewtimes.com/1998/020598/metro2.html>.
TIME COVERAGE: 1998 ◊
SUMMARY: This article discusses the EPA proposal to remove the Munisport landfill from the Superfund list
KEY WORDS: Munisport, EPA, Superfund

1369
Parker, G. G. (1945) The effect of the Pleistocene epoch on the geology and ground water of southern Florida. Quart. J. Fla. Acad. Sci., 8(2):119-143.
TIME COVERAGE: 1945 ◊
SUMMARY: This paper describes the effect of the Pleistocene epoch on the geology and ground water of southern Florida.
KEY WORDS: Pleistocene, Geology, Ground water, Sea level changes, South Florida

1370
Parker, G. G. (1951) Geologic and hydrologic factors in the perennial yield of Biscayne Aquifer. J. Amer. Water Works Assoc., 43(-):817-835.
TIME COVERAGE: 1951 ◊
SUMMARY: The objectives of this paper were to present an general overall view of the geology and hydrology basic to an understanding of water supply in the Miami area, and to discuss the factors of perennial yield that are applicable to the local aquifer.
KEY WORDS: Water supply, Biscayne Aquifer

1371
Parker, G. G. (1960) Ground water in the Central and Southern Florida Flood Control District. Proc. Soil Science Soc. Florida, 20(-):211-231.
TIME COVERAGE: 1960 ◊
SUMMARY: This paper is a general description of the ground water system of South Florida.
KEY WORDS: Ground water, Aquifers, Surface water, Saline intrusion, Central Florida, South Florida

1372
Parker, G. G. (1974) Hydrology of the pre-drainage system of the Everglades in southern Florida. In: Environments of south Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 18-27.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation describes the pre-drainage system of the Kissimmee - Lake Okeechobee - Everglades system.
KEY WORDS: Drainage water, Everglades, Hydrology

1373
Parker, G. G. (1984) Hydrology of the pre-drainage system of the Everglades in southern Florida. In: Environments of South Florida: Present and Past II. P. J. Gleason (ed.). Miami Geological Society, Coral Gables, FL. 551 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: This citation describes the hydrology of South Florida prior to the construction of the drainage canals.
KEY WORDS: Drainage water, Everglades, Hydrology

1374
Parker, G. G. (1946) Municipal water-supply problems of southern Florida. Proc., Soil Science Society of Florida. 72-88.
TIME COVERAGE: 1946 ◊
SUMMARY: This report was intended to be a general treatment of the problems of municipal water supplies in the South Florida area. A general treatment of the problems and of the factors controlling occurrence and development of water available for municipal use was given and some data on water consumption by separate counties were presented.
KEY WORDS: Water supply, Ground water, South Florida

1375
Parker, G. G. (1945) Salt water encroachment in southern Florida. J. Amer. Water Works Assoc., 37(-):526-542.
TIME COVERAGE: 1945 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Saline intrusion, Ground water, Canals, Miami

1376
Parker, G. G., and C. W. Cooke (1944) Late Cenozoic geology of southern Florida, with a discussion of the ground water. Geological bull. 27. Florida Geological Survey, Tallahassee, FL. 119 pp.
TIME COVERAGE: 1944 ◊
SUMMARY: The late Cenozoic geology of southern Florida is described.
KEY WORDS: Geology, Cenozoic, Ground water, South Florida

1377
Parker, G. G., G. E. Ferguson, and S. K. Love (1944) Interim report on the investigations of water resources in southeastern Florida with special reference to the Miami area of Dade County. Report of investigations no. 4. Florida Geological Survey, Tallahassee, FL. 39 pp.
TIME COVERAGE: 1939
SUMMARY: Water resources in southeastern Florida were undertaken in 1939. Basic geological, hydrological and chemical data were obtained.
KEY WORDS: Ground water, Saline intrusion, Water management, Miami Canal, North New River Canal, Dade County, Miami

1378
Parker, G. G., G. E. Ferguson, and S. K. Love (1955) Water resources of southeastern Florida with special reference to the geology and ground water of the Miami area. Geological Survey water-supply paper 1255. US Government Printing Office, Washington, DC. 965 pp.
TIME COVERAGE: 1955 ◊
SUMMARY: This book contains chapters on climate, geology, geomorphology, ground water, surface water, water quality, and chemical characteristics of the water.
KEY WORDS: Water resources, Landforms, Geology, Ground water, Climate, Surface water, Miami

1379
Parker, G. G., and N. D. Hoy (1943) Further studies of geological relationships affecting soil and water conservation and use in the Everglades. Part I: Additional notes on the geology and ground water of southern Florida. Proc. Soil Science Society of Florida, V-A(-):33-55.
TIME COVERAGE: 1943 ◊
SUMMARY: This paper describes the geologic and hydraulic characteristics of water bearing formations in South Florida.
KEY WORDS: Water resources, Landforms, Geology, Ground water, Climate, Surface water, Everglades, South Florida

1380
Parker, G. G., and V. T. Stringfield (1950) Effects of earthquakes, trains, tides, winds, and atmospheric pressure changes on water in the geologic formations of southern Florida. Economic Geol., 45(5):441-460.
TIME COVERAGE: 1950 ◊
SUMMARY: Determination of fundamental hydrologic factors as permeability, transmissibility and storage; areas of recharge and discharge; direction of ground-water movement; safe yield; and other pertinent related factors are based in part upon water-level measurements in wells. Such determinations can be misleading since water levels in wells are not stationary or indicative of recharge or discharge. Water levels fluctuate as the result of tides, atmospheric pressure, winds, earthquakes and passing trains. Among the features discussed was a 4.5-ft fluctuation of water level in a Miami well caused by earthquake waves originating in the Dominican Republic.
KEY WORDS: Water levels, Wells, Tidal effects, Atmospheric pressure, Winds, Earthquakes, Dade County

1381
Parks, A. M. (1977) The Forgotten Frontier: Florida Through the Lens of Ralph Middleton Munroe. Banyan Books, Inc., Miami, FL. 177 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: This is an excellent source of the photographs taken by Munroe including the fresh water springs in Biscayne Bay.
KEY WORDS: Munroe, R. M., Photographs, History

1382
Parks, A. M. (1971) The history of Coconut Grove, Florida, 1821-1925. M.A. thesis. University of Miami, Coral Gables, FL. 78 pp.
TIME COVERAGE: 1821 - 1925
SUMMARY: This work is the history of Coconut Grove from the time Florida became a territory of the United States in 1821 until 1925 when the Grove became a possession of Miami.
KEY WORDS: History, Coconut Grove

1383
Parks, A. M. (1987) John Sewell Miami Memoir: A New Pictorial Edition of John Sewell's Own Story. A. M. Parks, Miami, FL. 267 pp.
TIME COVERAGE: 1921 - 1933
SUMMARY: This book is an illustrated version of Sewell's memoirs. Included are some photographs of Biscayne Bay.
KEY WORDS: Miami, History

1384
Parks, A. M. (1973) Key Biscayne base marker - 1855. Tequesta, 33(-):3-16.
TIME COVERAGE: 1855
SUMMARY: This paper describes origin of the Key Biscayne North Base Marker found during the construction of the golf course in Key Biscayne. The marker was placed there by the US Coast Survey in 1855. The paper describes the activities of the Survey in the area.
KEY WORDS: History, US Coast Survey, Surveying, Key Biscayne

1385
Parks, A. M. (1975) Miami in 1876. Tequesta, 35(-):89-145.
TIME COVERAGE: 1876 ◊
SUMMARY: This paper describes Miami in 1876 when there was only one real town in South Florida, Key West.
KEY WORDS: History, Miami

1386
Parras, T. (1997) Virginia Key campground; environmental impact statement. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Land use, Recreation, Environmental impact, Virginia Key

1387
Pasley, D., and R. C. Benson (1976) Salt water intrusion measurements in developing coastal zone communities adjacent to Biscayne Bay, Dade County, Florida. Geophysics, 41(2):369.
TIME COVERAGE: 1976 ◊
SUMMARY: The urban development of south Dade County has been in a relatively steady-state condition for the past few decades. Recently the first massive stages of coastal urbanization started in areas surrounded by farm and undeveloped lands. Typically associated with these large projects are man-made lakes developed as a source of land-fill, and canal access to the Bay. These lakes and canals increase salt-water intrusion.
KEY WORDS: Saline intrusion, Urbanization, Artificial lakes, Canals, Coastal zone management, Dade County

1388
Patino, E. (1997) Determining flows into northeastern Florida Bay, Dade and Monroe Counties, Florida. In: Proc., US Geological Survey Program on the South Florida Ecosystem. Ft. Lauderdale, FL, August 25-27, 1997. US Geological Survey open file report 97-385. US Geological Survey, Tallahassee, FL. 68.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water currents, Salinity, Dade County, Monroe County, Florida Bay

1389
Patterson, E., and E. Irlandi (1998) Seasonal and inter-annual comparisons of density, biomass, and morphometrics of *Thalassia testudinum* sites of varying salinity in Biscayne Bay, FL. Proc., Ann. Mtg., American Society of Limnology and Oceanography Ecological Society of America. St. Louis, MO, 1998. American Society of Limnology and Oceanography, Waco, TX.
TIME COVERAGE: 1998 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Sea grass, *Thalassia testudinum*, Population density, Biomass, Morphometry, Salinity effects

1390
Payne, B. (1979) Big raft-up in Biscayne Bay: Columbus Day Cruising Regatta. Sail, 10(-):133-135.
TIME COVERAGE: 1979 ◊
SUMMARY: This article describes the Columbus Day regatta in the Bay.
KEY WORDS: Sailing ships, Columbus Day Cruising Regatta

1391
Pearson, J. F. W. (1937) Studies on the life zones of marine waters adjacent to Miami: I. The distribution of the Ophiuroidea. Proc. Florida Academy of Sciences for 1936, 1(-):66-72.
TIME COVERAGE: 1928, 1938?
SUMMARY: This citation describes the studies done by zoology classes in five life zones of the Bay. The zones range from soft mud to coral reef.
KEY WORDS: Sea urchin, Ophiuroidea, Coral, Echinoderms, Miami, Coconut Grove, Dinner Key, Key Biscayne, Cape Florida, Broad Creek, Carysfort Light

1392
Pellenbarg, R. E. (1973) Trace metal distributions in the carbonate sediments of certain subtropical areas: Card Sound, Florida; Turkey Point, Florida; and Mangrove Lake, Bermuda. M.Sc. thesis. University of Miami, Coral Gables, FL. 201 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: Sediments from Card Sound, Turkey Point and Bermuda were analyzed for trace metals. These near-shore sediment has a high carbonate content. In general, the sediment of Turkey Point had a higher trace metal content than those of Card Sound.
KEY WORDS: Carbonate sediment, Card Sound, Turkey Point, Mangrove Lake, Bermuda, Cd, Co, Cu, Fe, Pb, Ni, Ag, V, Zn

1393
Penhale, P. A., and J. M. Sprogis (1976) The role of epiphytes in seagrass systems. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1976 ◊
SUMMARY: This paper discusses the role of epiphytes, the complex of microalgae attached to seagrass blades.

KEY WORDS: Seagrass, Algae, Epiphytes

1394
Penn, J. (1997) Mangrove section [Virginia Key]. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Mangrove swamps, Wetlands, Virginia Key

1395
Penzias, L. P. (1969) *Tellina martinicensis* (Mollusca: Bivalvia): biology and productivity. Bull. Mar. Sci., 19(3):568-579.
TIME COVERAGE: 1963 - 1967
SUMMARY: The ecology of the clam *Tellina martinicensis* was discussed in this citation.
KEY WORDS: Clams, *Tellina martinicensis*, Life history, Biological production, Cape Florida, Key Biscayne

1396
Perez, A. I., L. Ajamil, C. Lunetta, M. Reed, and N. Brown (1983) Environmental protection program for the expansion of the Port of Miami, Florida. In: Coastal Zone '83. Proc., 3rd Symp. on Coastal and Ocean Management. O. T. Magoon, and H. Converse, (eds.). San Diego, CA, 1983. American Society of Civil Engineers, New York, NY. 1090-1104.
TIME COVERAGE: 1983 ◊
SUMMARY: The mangroves and seagrasses lost as a result of the expansion of the Port of Miami were replanted elsewhere in Biscayne Bay. This paper describes the environmental protection efforts during port expansion.
KEY WORDS: Environmental restoration, Seagrass, Mangrove swamps, Revegetation, Port of Miami

1397
Perkins, R. D. (1974) Discontinuity surfaces as a stratigraphic tool: the Pleistocene of south Florida. Ann. mtg., Geological Society of America. Abstracts with programs. Miami Beach, FL, 1974. Geological Society of America, 908-909.
TIME COVERAGE: 1974 ◊
SUMMARY: Pleistocene rocks in South Florida contain evidence for subaerial exposure along well defined discontinuity surfaces.
KEY WORDS: Pleistocene, Stratigraphy, Discontinuity layers, Sea level

1398
Perkins, R. D., and P. Enos (1968) Hurricane Betsy in the Florida-Bahama area - geologic effects and comparison with Hurricane Donna. J. Geol., 76(6):710-717.
TIME COVERAGE: 1960, 1965
SUMMARY: The effects of hurricanes Donna (1960) and Betsy (1965) were compared. These hurricanes were of comparable size and intensity but their geological effects differed. Both caused extensive damage to the outer reefs although Betsy acted essentially on a fauna from which Donna had removed the weaker elements.
KEY WORDS: Hurricanes, Hurricane Betsy, Hurricane Donna, Florida Keys, Florida Bay, Bahamas, Geology, Storm surge

1399

Perrine, H. E. (1876) Biscayne Bay, Dade Co., Florida, Between the 25th and 26th Degrees of Latitude; a Complete Manual of Information Concerning the Climate, Soil, Products, etc., of the Lands Bordering on Biscayne Bay, in Florida. Weed, Parsons and Company, Albany, NY, 17 pp.
TIME COVERAGE: 1876 ◊
SUMMARY: This book is a complete description of the Biscayne Bay environment. The author received a directive from President John Quincy Adams to collect and send to US valuable tropical plants and seeds.
KEY WORDS: Natural resources, Perrine Grant

1400

Perschbacher, P. W., and F. J. Schwartz (1979) Recent records of *Callinectes danae* and *Callinectes marginatus* (Decaploda: Portunidae) from North Carolina with environmental notes. Fishery Bull., 76(-):879-880.
TIME COVERAGE: 1979 ◊
SUMMARY: This paper is a record of recent collections of these two crab species.
KEY WORDS: Crabs, *Callinectes danae*, *Callinectes marginatus*, Geographical distribution, North Carolina, Florida

1401

Petasne, R. G. (1987) Measurement and cycling of hydrogen peroxide in seawater. M.Sc. thesis. University of Miami, Coral Gables, FL. 93 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: The chemistry of hydrogen peroxide in seawater and method of analyses were discussed. Surface water samples were obtained from Bear Cut.
KEY WORDS: Hydrogen peroxide, Sea water, Bear Cut

1402

Petasne, R. G., and R. G. Zika (1987) Fate of superoxide in coastal sea water. Nature, 325(-):516-518.
TIME COVERAGE: 1985
SUMMARY: The superoxide anion O_2^- is key in intermediate oxygen redox chemistry. Studies of H_2O_2 and O_2^- levels were performed using Biscayne Bay seawater.
KEY WORDS: Superoxide, Oxides, Sea water, Coastal waters

1403

Petasne, R. G., and R. G. Zika (1997) Hydrogen peroxide lifetimes in south Florida coastal and offshore waters. Mar. Chem., 56(3-4):215-225.
TIME COVERAGE: 1997 ◊
SUMMARY: Hydrogen peroxide is ubiquitous in the surface mixed layer of the ocean and is an important chemical intermediate of aerobic systems. Hydrogen peroxide in natural seawater appears to be primarily biologically mediated by microorganisms less than 1 µm in diameter.
KEY WORDS: Hydrogen peroxide, Sea water, Decomposers, Virginia Key, Gulf Stream, Florida Keys

1404

Peters, T. (1981) Biscayne Country, 1870-1926. Banyan Books, Miami, FL.
TIME COVERAGE: 1870-1926
SUMMARY: This book is a history of South Florida from 1870 to 1926.
KEY WORDS: History, Biographies

1405
Peters, T. (1976) Lemon City: Pioneering on Biscayne Bay 1850-1925. Banyan Books, Miami, FL. 302 pp.
TIME COVERAGE: 1850-1925
SUMMARY: This book is a history of Lemon City, a loosely defined settlement along the northern shores of Biscayne Bay.
KEY WORDS: History, Lemon City, Miami, North Bay

1406
Pettit, G. A. (1977) Shallow-water Caprellidae (Crustacea: Amphipoda) of the southeastern Florida coast. M.Sc. thesis. Florida Atlantic University, Boca Raton, FL. 80 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: The caprellid amphipods found in shallow waters of South Florida was investigated.
KEY WORDS: Amphipods, Caprellidae, Southeast Florida, Elliott Key, Crandon Park

1407
Petuch, E. J. (1994) Atlas of Florida Fossil Shells (Pliocene and Pleistocene marine gastropods). Chicago Spectrum Press, Evanston, IL.
TIME COVERAGE: 1994 ◊
SUMMARY: This is a guide to fossil shells found in Florida.
KEY WORDS: Gastropods, Fossils, Shells, Pliocene, Pleistocene, Florida, Guide

1408
Petuch, E. J. (1986) The Pliocene reefs of Miami: their geomorphological significance in the evolution of the Atlantic Coastal Ridge, Southeastern Florida, U.S.A. J. Coastal Res., 2(4):391-408.
TIME COVERAGE: 1986 ◊
SUMMARY: Construction excavations in western Metropolitan Miami dredged up coral reef deposits from depths of only 15 - 20 m below the Atlantic Coastal Ridge. Based upon index fossils, these richly fossiliferous sediments are referable to the Buckingham Formation and are dated as early Pliocene. A distinctive Pliocene coral fauna was present, and over three hundred species of mollusks along with several species of echinoids and crustaceans. Although being more biothermal in form, the Pliocene reef system under Miami appeared to have distinct zonation. Based upon both the extent of the Atlantic Coastal Ridge and the implied faunal zonation of the reefs, it is conjectured that the Pliocene reef tract produced the original topographic high along the southeastern coast of Florida. This was later covered by a crust of oolitic limestone and sand in the late Pleistocene to produce the Atlantic Coastal Ridge. The southern part of this basin infilled with carbonate sediments, and during subaerial exposure in the early Pleistocene, produced the Tamiami Formation. Together, the atoll-like Pliocene reef tracts and the central lagoon-like basin laid down the geomorphological framework for the formation of the Everglades in the Holocene. The Everglades is now seen to be reef-controlled.
KEY WORDS: Coral reefs, Pliocene, Fossils, Miami, Atlantic Coastal Ridge, Everglades

1409
Phillips, C., and W. H. Brady (1953) Sea pests: Poisonous or Harmful Sea Life of Florida and the West Indies. University of Miami Press, Miami, FL. 78 pp.
TIME COVERAGE: 1952 ◊
SUMMARY: This book contains descriptions of harmful and/or poisonous marine animals found in Florida and the Caribbean.
KEY WORDS: Dangerous organisms, Poisonous organisms, Florida, Caribbean

1410
Phillips, O. P. (1903) How the mangrove tree adds new land to Florida. J. Geography, -(2):10-21.
TIME COVERAGE: 1903 ◊
SUMMARY: This paper discusses the soil and agriculture of South Florida. The soil is composed, in places, entirely of shells or coral cemented together so hard that, to put it in the language of one of the inhabitants, they "have to plow with dynamite and reap the potato crop with crow bars," and still it is so productive that the trees can scarcely support the weight of the fruit produced. The flora of South Florida and land-building by mangroves are also discussed.
KEY WORDS: Mangrove swamps, Landforms, Everglades

1411
Phillips, R. G. (1981) Phenology and reproductive physiology of *Thalassia testudinum* from the western tropical Atlantic. Aquatic Bot., 11(-):263-277.
TIME COVERAGE: 1976 - 1979
SUMMARY: Flowering of *Thalassia* is an erratic occurrence in more northern seagrass beds but it is a recurrent event in more tropical sites. The phenology and laboratory studies suggest that the nearly synchronous flowering of Thalassia at different latitudes is largely related to temperature. Floral induction in more tropical habitats is probably genotypically responsive to higher temperature than that required by plants of more temperate habitats.
KEY WORDS: Phenology, Flowering, Reproduction, Seagrass, *Thalassia testudinum*

1412
Phillips, R. C., and E. G. Menez (1988) No. 34. Smithsonian Contributions to the Marine Sciences. Smithsonian Institution Press, Washington, DC.
TIME COVERAGE: 1988 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Sea grass, Identification keys, Distribution

1413
Pielke, R. A. (1995) Hurricane Andrew: mesoscale weather and societal responses. Report. NOAA National Center for Atmospheric Research, Environmental & Societal Impacts Group, Boulder, CO.
TIME COVERAGE: 1992
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Hurricane Andrew, Weather forecasting, Sociological aspects

1414
Pierce, C. W. (1962) The cruise of the Bonton. Tequesta, 22(-):3-63.
TIME COVERAGE: 1885
SUMMARY: This article about a trip from the east coast of Florida to the Ten Thousand Islands via the Florida Keys was written by the owner of the ship Bonton and published unedited. It is an excellent piece of natural history, ornithology and human history.
KEY WORDS: Cruises, Bonton (Ship), Natural resources, Birds, Miami, Florida Bay, Florida Keys

1415
Pierce, C. W. (1970) Pioneer Life in Southeast Florida. (Edited by D. W. Curl.) University of Miami Press, Coral Gables, FL. 264 pp.
TIME COVERAGE: 1872 - 1893
SUMMARY: This is an account of pioneer life of the Pierce family in South Florida. One chapter specifically discusses Biscayne Bay.
KEY WORDS: History, Biographies, Southeast Florida, Lake Worth

1416
Pierce, R. H., and R. C. Brown (1986-1987) A survey of coprostanol concentrations in Biscayne Bay sediments. Final report. Dade County Department of Environmental Resource Management, Miami, FL.
TIME COVERAGE: 1986 - 1987
SUMMARY: The fecal sterol coprostanol was used as an indicator of sewage contamination in sediments collected in Biscayne Bay. The Bay were found to be impacted by sewage-derived materials, specially areas with moored boats.
KEY WORDS: Coprostanol, Sewage disposal, Water quality, Liveaboards, Biscayne Canal, Little River, King's Bay Marina, Dinner Key Marina, Kjeldahl nitrogen, P, N, Sediment

1417
Pilkey, O. H., D. C. Sharma, H. R. Wanless, L. J. Doyle, O. H. Pilkey, W. J. Neal, and B. L. Gruver (1984) Living with the East Florida Shore. Duke University Press, Durham, NC. 259 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: This book discusses dwellings and beach erosion in southeast Florida.
KEY WORDS: Coastal zone management, Beaches, Barrier islands, Land use, East Florida

1418
Pilsbry, H. A. (1953) Notes on Floridan barnacles (Cirripedia). Proc. Acad. Nat. Sci. Phila., 105(-):13-28.
TIME COVERAGE: 1953 ◊
SUMMARY: This article describes barnacles found in Florida.
KEY WORDS: Barnacles, Cirripedia, Florida Keys, South Florida

1419
Pimm, S. L., G. E. Davis, L. Loope, C. T. Roman, T. J. Smith, and J. T. Tilmant (1994) Hurricane Andrew. BioScience, 44(4):224-229.
TIME COVERAGE: 1992
SUMMARY: This citation discusses the possible effects of Hurricane Andrew on the ecosystems of the area: marine, uplands, freshwater marshes and mangroves.
KEY WORDS: Hurricanes, Ecosystem disturbance, Hurricane Andrew

1420
Pires, A. M. S. (1981) *Carpias harrietae* (Isopoda, Asellota), a new species from Florida. Crustaceana, 40(2):206-212.
TIME COVERAGE: 1965
SUMMARY: This citation is the description of a new species of isopod based on specimens collected in Biscayne Bay.
KEY WORDS: Isopods, New species, Taxonomy, Animal morphology, *Carpias harrietae*

1421
Pitt, W. A. J. (Effects of septic tank effluent on ground-water quality, Dade County, Florida: an interim report) (1974) USGS open file report 74010. US Geological Survey, Tallahassee, FL. 58 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Wastes, Ground water, Biscayne Aquifer, Dade County

1422
Pitt, W. A. J. (1976) Response of ground-water levels to flood control operations in three basins, southeastern Florida. USGS open file report 74-86. US Geological Survey, Tallahassee, FL. 69 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: [ONLY MICROFICHE AVAILABLE.]
KEY WORDS: Water levels, Canal flows, Flood control, Biscayne Aquifer, Snapper Creek Canal, Snake Creek Canal, Pompano-Cypress Creek Canal

1423
Pitt, W. A. J., H. C. Mattraw, and H. Klein (1975) Ground-water quality in selected areas serviced by septic tanks, Dade County, Florida. Open file report 75-607. US Geological Survey, Tallahassee, FL. 82 pp.
TIME COVERAGE: 1971 - 1974
SUMMARY: USGS investigated the chemical, physical, bacteriological, and virological characteristics of the ground water in five selected areas serviced by septic tanks in Dade County. Results indicated that septic tank effluents reached the ground water system.
KEY WORDS: Ground water, Waste disposal, Pollution monitoring, Dade County, Al, As, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Ni, Zn, Coliform bacteria, C, Oxygen demand, Nutrients, Salinity, Water quality

1424
Pitts, P. A. (1998) Tidal and long-term volume transport through Jewfish Creek, Florida Keys. Bull. Mar. Sci., 63(3):559-570.
TIME COVERAGE: 1998 ◊
SUMMARY: A 14-month current meter record together with channel calibration measurements are used to investigate the dynamics of long-term volume transport through Jewfish Creek, the main channel connecting Blackwater Sound in northeastern Florida Bay with Barnes Sound. Water level records indicate that the tidal transport is forced by Atlantic tides entering Barnes Sound through Biscayne Bay. Blackwater Sound is virtually tideless.
KEY WORDS: Tidal currents, Tidal cycles, Current meters, Florida Bay, Barnes Sound

1425
Pitts, P. A., and N. P. Smith (1997) An analysis of historical meteorological data from the Florida Keys and current meter data from three tidal channels in lower Biscayne Bay. Unpublished report. Harbor Branch Oceanographic Institution, Ft. Pierce, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Meteorological data, Current meter data, Tidal inlets, Florida Keys, Angelfish Creek, Broad Creek, Caesar's Creek, South Bay

1426
Plane, J. M. C., and C. F. Nien (1989) Measurements of NO_3 in the marine troposphere by differential optical absorption spectroscopy. In: Abstracts of papers, American Chemical Society, 198th Natl. Mtg. Miami Beach, Florida, 1989. American Chemical Society, Washington, DC. ENVR 19.
TIME COVERAGE: 1989 ◊
SUMMARY: This study describes the use of a recently constructed differential optical absorption spectrometer to measure nitrate over Biscayne Bay.
KEY WORDS: Spectroscopic techniques, Nitrogen compounds, Troposphere, Aerosols

1427
Plane, J. M. C., and C. F. Nien (1991) A study of nighttime NO_3 chemistry by differential optical absorption spectroscopy. Proc., SPIE - the International Society for Optical Engineering. 8-20.
TIME COVERAGE: 1989
SUMMARY: Differential optical absorption spectroscopy was used to study levels of nitrate in the marine boundary layer in Key Biscayne. Several example of changes in the levels of nitrate with weather phenomena were discussed.
KEY WORDS: Spectroscopic techniques, Nitrogen compounds, Aerosols, Atmospheric boundary layer

1428
Plescia, J. B., and J. J. Stipp (1975) Preliminary geochronology of the Safety Valve Formation. Florida Scient., 38(Suppl. 1):12.
TIME COVERAGE: 1975 ◊
SUMMARY: The Safety Valve is a complex carbonate tidal bar belt extending approximately 10 miles southward of Key Biscayne to Soldier Key. The belt is composed of about 10 east-west trending bars separated by tidal channels. Sediment thickness varies from 4-5 m in the north to 1 m in the southern end. Carbon dating indicates that the northern section began forming in the northern end about 3600 BP at about the time Biscayne Bay was reflooded by the rise in sea level.
KEY WORDS: Safety Valve, Key Biscayne, Soldier Key, Nearshore bars, Carbonate sediment, Geochronometry

1429
Poli, M. A. (1982) A review of ciguatera (tropical fish poisoning), with special reference to the Caribbean, and an investigation into its incidence and significance in Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 56 pp.
TIME COVERAGE: 1982 ◊
SUMMARY: This work is an investigation of ciguatera, a disease of tropical marine fish, which causes severe pain and extended disability in persons having ingested fresh fish. Outbreaks in South Florida are discussed.
KEY WORDS: Ciguatera, Poisonous fish, Caribbean, Florida

1430
Pomponi, S. A. (1974) A cytological study of the Haliclonidae and the Callyspongiidae (Porifera, Demospongiae, Haplosclerida). M.Sc. thesis. University of Miami, Coral Gables, FL. 90 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: The purpose of this study of the cytology of sponges was to attempt to delineate taxa with more precision than that of the methods used and to establish more meaningful taxonomic relationships. Specimens were collected in Biscayne Bay and other locations.
KEY WORDS: Sponges, Haliclonidae, Callyspongiidae, Cytology, Bear Cut, Big Pine Key, Bahamas

1431
Poole, D. J., A. E. Lugo, and S. C. Snedaker (1975) Litter production in mangrove forests of southern Florida and Puerto Rico. In: Proc., Internatl. Symp. on Biol. and Management of Mangroves. G. E. Walsh, S. C. Snedaker, and H. J. Teas, (eds.). Honolulu, HI, 1974. Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. 213-237.
TIME COVERAGE: 1975 ◊
SUMMARY: Leaf litter in two mangrove forests was studied. Turnover rates of the riverine and overwash forest were higher than those of nearby basin forests. No statistically significant difference was found in the rate of total litter-fall between the Florida and Puerto Rico sites.

There were statistical differences within each geographical region and between mangrove forest types.
KEY WORDS: Mangrove swamps, Detritus, Puerto Rico, Ten Thousand Islands

1432
Pope, J., T. H. O'Donnell, Macko. S. A., and D. Rosen (1999) Use of stable isotopes for tracking an aragonite beach fill. Coastal sediments '99; Proc., 4th International Symposium on Coastal Engineering and Science of Coastal Sediment Processes. N. C. Kraus, and W. G. McDougal, (eds.). Hauppauge, NY, 1999. American Society of Civil Engineers, Reston, VA.
TIME COVERAGE: 1999 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Aragonite, Beach nourishment, Sand, Miami Beach

1433
Pope, P. E. (1974) Seashore and wading birds of Florida. Great Outdoors, St. Petersburg, FL. 44 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: This is a guide to the seashore and wading birds of Florida.
KEY WORDS: Marine birds, Florida, Guide

1434
Port of Miami (1987- to date) Official directory. International Port & Airport Publishing Company, Miami, FL.
TIME COVERAGE: 1987-to date
SUMMARY: This is an annual report about the facilities of the Port of Miami.
KEY WORDS: Shipping, Cargoes, Trade, Port installations, Cruises, Miami

1435
Port of Miami (1979-1985) Port handbook. Howard Publications, Jacksonville, FL.
TIME COVERAGE: 1979-1985
SUMMARY: This is an annual report about the Port of Miami.
KEY WORDS: Shipping, Cargoes, Trade, Port installations, Cruises, Miami

1436
Porter, J. W. (1987) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - reef-building corals. Biological rep. 82(11.73). US Fish and Wildlife Service, National Wetland Research Center, Slidell, LA. 23 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: The nomenclature, taxonomy, morphology, life history, growth characteristics, fishery, ecological role, and environmental requirements of reef-building corals (elkhorn, staghorn, common star and large star corals) are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Coral reefs, *Acropora palmata*, *Acropora cervicornis*, *Montastraea annularis*, *Montastraea cavernosa*, Elkhorn coral, Staghorn coral, Common star coral, Large star coral

1437
Portnoy, J. W., R. M. Erwin, and T. W. Custer (1981) Atlas of gull and tern colonies: North Carolina to Key West, Florida (including pelicans, cormorants and skimmers). FWS/OBS 80/05. National Coastal Ecosystems Team, US Fish and Wildlife Service, Biological Services Program, Slidell, LA. 121 pp.
TIME COVERAGE: 1976
SUMMARY: Colonies of pelicans, cormorants, gulls, terns and black skimmers were inventoried in 1976 from North Carolina to Key West. This atlas shows the location of each known active

colony and includes information on nesting site and substrate species composition and numbers, nesting stage, and inventory method. Several sites in Biscayne Bay are included.
KEY WORDS: Marine birds, Atlases, Pelicans, Cormorants, Gulls, Terns, Black skimmers, North Carolina, South Carolina, Georgia, Florida

1438
Pos, W. H. (1997) On the process and mechanisms affecting carbonyl sulfide and carbon monoxide photoreduction in natural waters. Ph. D. Dissertation. Georgia Institute of Technology, Atlanta, GA. 243 pp.
TIME COVERAGE: 1997 ◊
SUMMARY: A coupled mechanism operating on the carbonyl sulfide and carbon monoxide photooxidation pathway in natural waters was demonstrated.
KEY WORDS: Gulf Stream, S, C, Florida Bay, Tampa Bay

1439
Pos, W. H., D. D. Riemer, and R. G. Zika (1998) Carbonyl sulfide (OCS) and carbon monoxide (CO) in natural waters: evidence of a coupled production pathway. Mar. Chem., 62(1-2):89-101.
TIME COVERAGE: 1998 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Carbonyl sulfide, Sulfur compounds, Carbon monoxide, Photochemical reactions

1440
Posner, G. S. (1951) Certain aspects of the histology and histochemistry of shipworms. M.Sc. thesis. University of Miami, Coral Gables, FL. 102 pp.
TIME COVERAGE: 1951 ◊
SUMMARY: The object of this study was to describe certain aspects of the histology and histochemistry of shipworms of the Miami area.
KEY WORDS: Shipworms, Boring organisms, Bankia, Teredo, Histology

1441
Post, B. S. &. (1983) Lower southeast Florida hurricane evacuation study. Technical data rep. US Army Corps of Engineers, Jacksonville District, Jacksonville, FL. Various paging.
TIME COVERAGE: 1983 ◊
SUMMARY: The objective of this study was to provide a quantitative framework upon which counties in South Florida could update and refine hurricane evacuation plans.
KEY WORDS: Evacuation, Hurricanes, Dade County, Monroe County, Broward County, Palm Beach County

1442
Post, B. S. &. (1992) Wastewater reuse feasibility study. Prepared for Miami-Date Water and Sewer Authority Department., Metropolitan Dade County. Post, Buckley, Schiuh & Jernigan, Inc., Miami, FL. Two volumes.
TIME COVERAGE: 1992 ◊
SUMMARY: The purpose of this study was to address concerns about reuse of wastewater and to develop feasible, cost effective reuse alternatives for Dade County.
KEY WORDS: Wastewater treatment, Water quality, Water supply

1443
Powell, M. D., S. H. Houston, and T. A. Reinhold (1996) Hurricane Andrew's landfall in south Florida. Part I: Standardizing measurements for documentation of surface wind fields. Weather and Forecasting, 11(3):304-328.
TIME COVERAGE: 1992

SUMMARY: Many anemometers failed during the passage of Hurricane Andrew through South Florida. This citation discusses procedures for the standardization of winds during the storm.
KEY WORDS: Wind speed, Wind measurement, Hurricane Andrew

1444
Powell, M. D., and S. H. Houston (1996) Hurricane Andrew's landfall in south Florida. Part II: Surface wind fields and potential real-time applications. Weather and Forecasting, 11(3):329-349.
TIME COVERAGE: 1992
SUMMARY: This citation describes the surface winds experienced during the passage of Hurricane Andrew.
KEY WORDS: Wind speed, Wind fields, Hurricane Andrew

1445
Powles, H., and W. E. Burgess (1978) Observations on benthic larvae of *Pareques* (Pisces: Sciaenidae) from Florida and Colombia. Copeia, -(1):169-172.
TIME COVERAGE: 1978 ◊
SUMMARY: This citation is a description of three larval specimens of Pareques representing two species, and provide observations on habitat and behavior of these young fishes.
KEY WORDS: Sciaenidae, Pareques, Larvae, Behavior, Colombia, Soldier Key

1446
Prager, J. C., C. S. Hegre, S. Cheer, P. Rogerson, and J. H. Gentile (1973) Power, plankton, and firefly tails. Underwater Naturalist, 8(-):18-22.
TIME COVERAGE: 1973 ◊
SUMMARY: This article describes the use of ATP to determine living biomass in a volume of water and its use at the Turkey Point power plant.
KEY WORDS: Plankton, Algae, Thermal pollution, Turkey Point

1447
Prestamo, F. J., and G. C. Greenan (1976) Biscayne Bay: urban growth and change. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 255-263.
TIME COVERAGE: 1910 - 1976?
SUMMARY: This paper reviews the urban growth process in the immediate area to Biscayne Bay defined by walking distance from the bayfront. The area has maintained approximately the same percentage of the total county population but the authors consider that this percentage will rise.
KEY WORDS: Urbanization, Land use, Regional planning

1448
Pringle, M. E. (1967) Activity and stability of *Physalia physalis* toxin. M.Sc. thesis. University of Miami, Coral Gables, FL. 52 pp.
TIME COVERAGE: Preparations of nematocysts were prepared from the tentacles of freshly stranded Portuguese man-of-war specimens and the toxins extracted. The stability and general chemistry of the toxins was described.
SUMMARY: At Richter Library
KEY WORDS: Portuguese man-of-war, *Physalia physalis*, Toxicity, Key Biscayne

1449
Pritchard-Carpenter Consultants (1968) Movement, dispersion and recirculation of condenser cooling water discharge from the Turkey Point Power Station. Unpublished manuscript. Pritchard-Carpenter Consultants, [n.p.]. 17 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: This manuscript describes dye studies done to characterize the thermal effluent plume from the Turkey Point power plant.
KEY WORDS: Cooling water, Water circulation, Dye dispersion, Turkey Point, South Bay

1450
Pritchard, P. C. H. (series ed.) (1978-1982) Rare and Endangered Biota of Florida. C. R. Gilbert (ed.). University Presses of Florida, Gainesville, FL. 6v.
TIME COVERAGE: 1978 - 1982 ◊
SUMMARY: This is a six-volume set describing rare and endangered species of Florida. The volumes are: 1, Mammals (J. N. Layne, ed.); 2;, Birds (H. W. Kale, ed.); 3, Reptilians and Amphibians (R. W. McDiarmid, ed.); and 4, Fishes
KEY WORDS: Rare species, Biota, Mammals, Birds, Amphibians, Reptiles, Fish, Plants, Invertebrates, Florida

1451
Prospero, J. M., R. T. Nees, and M. Uematsu (1987) Deposition rate of particulate and dissolved aluminum derived from Saharan dust in precipitation at Miami, Florida. J. Geophys. Res., 92(D12):14723-14731.
TIME COVERAGE: 1982 - 1983
SUMMARY: The deposition rate of Al in Miami from samples containing dust from the Sahara was determined over one year. The rate was sufficiently great to have a major impact on the sediment accumulation rates in a large area of the North Atlantic.
KEY WORDS: Dust, Atmospheric particulates, Al, Atmospheric precipitation, Miami

1452
Provenzano, A. J. (1962) The larval development of *Calcinus tibicen* (Herbst) (Crustacea, Anomura) in the laboratory. Biol. Bull., 123(1):179-202.
TIME COVERAGE: 1962 ◊
SUMMARY: Ovigerous females of this hermit crab were collected in Bear Cut and the larvae raised and studied in the laboratory.
KEY WORDS: Hermit crabs, *Calcinus tibicen*, Larval development, Bear Cut

1453
Provenzano, A. J. (1961) A North American record for *Callinectes bocourti* (A. Milne Edwardsm 1879) (Decapoda, Portunidae). Crustaceana, 3(2):167.
TIME COVERAGE: 1950
SUMMARY: This citation is a brief note about a record size specimen of *Callinectes bocourt*i caught at Matheson Hammock.
KEY WORDS: Crabs, *Callinectes bocourti*, Matheson Hammock

1454
Provenzano, A. J. (1969) Recent experiments on the laboratory rearing of tropical lobster larvae. Proc., 21st Ann. Session, Gulf and Caribbean Fisheries Institute. Miami, FL, 1968. 152-157.
TIME COVERAGE: 1968 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Spiny lobster, *Panulirus argus*, Larvae, Rearing

1455
Provenzano, A. J. (1958) The shallow water hermit crabs of Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 121 pp.
TIME COVERAGE: 1958 ◊
SUMMARY: This work is a study of hermit crabs collected in shallow water areas of South Florida.
KEY WORDS: Hermit crabs, Intertidal environment, Identification keys, Taxonomy, Florida

1456
Provenzano, A. J. (1959) The shallow-water hermit crabs of Florida. Bull. Mar. Sci. Gulf Caribb., 9(4):349-420.
TIME COVERAGE: 1959 ◊
SUMMARY: Twenty-three species of pagurid crabs from the tidal and immediately subtidal waters of Florida including one new species were described, illustrated and discussed.
KEY WORDS: Hermit crabs, Intertidal environment, Identification keys, Taxonomy, Florida

1457
Provenzano, A. J. (1962) A study of larval development in some genera of pagurid crabs. Ph.D. dissertation. University of Miami, Coral Gables, FL. 289 pp.
TIME COVERAGE: 1962 ◊
SUMMARY: Ovigerous females of several species of hermit crabs were collected in several areas of south Florida and the resulting larvae reared in the laboratory. The larval development of the crabs was described.
KEY WORDS: Hermit crabs, Paguridea, Larval development, Bear Cut, Florida Keys

1458
Puri, H. S., and R. O. Vernon (1964) Summary of the geology of Florida and a guidebook to the classic exposures. Florida Geological Survey special publication no. 5. Florida Geological Survey, Tallahassee, FL. 312 pp.
TIME COVERAGE: 1964 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Geology, Geological structures, Sedimentary structures, Florida

1459
Purpura, J. A. (1962) Model studies of coastal inlets with special reference to the Bakers Haulover Inlet model study. Leaflet 150. Engineering progress at the University of Florida, 16(4). Florida Engineering and Industrial Experiment Station, University of Florida, Gainesville, FL. 17 pp.
TIME COVERAGE: 1962 ◊
SUMMARY: The purpose of this study was to evaluate the erosion of the seashore on both sides of the Bakers Haulover inlet and to proposed improvements. A scale model of the inlet was constructed for the study.
KEY WORDS: Scale models, Bakers Haulover Inlet, Beach erosion, Tidal effects

1460
Purpura, J. A. (1963) Model studies of coastal inlets with special reference to Bakers Haulover Inlet. M.Sc. thesis. University of Florida, Gainesville, FL. 72 pp.
TIME COVERAGE: 1963 ◊
SUMMARY: An extensive hydrographic survey showed that in its 1963 situation the inlet had poor current distribution coupled with high velocities because the cross-section of the inlet was badly utilized. A hydraulic model of the inlet was constructed to simulate field conditions. Improvements to the inlet were suggested.
KEY WORDS: Hydraulic models, Coastal inlets, Navigational channels, Bakers Haulover Inlet

1461
Pybas, D. W. (1987) Atlas of artificial reefs in Florida. Florida Sea Grant Extension Program, Gainesville, FL. 26 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: This report is an atlas of artificial reefs in Florida.
KEY WORDS: Artificial reefs, Atlases, Florida

1462
Pybas, D. W. (1991) Atlas of artificial reefs in Florida. Sea Grant extension bulletin 20. Florida Sea Grant College Program, Gainesville, FL. 40 pp.
TIME COVERAGE: 1991 ◊
SUMMARY: This report is an atlas of artificial reefs in Florida.
KEY WORDS: Artificial reefs, Atlases, Florida

1463
Pybas, D. W. (1997) Atlas of artificial reefs in Florida. SG-1. 5th edition. Florida Sea Grant College Program, Gainesville, FL. 52 pp.
TIME COVERAGE: 1997 ◊
SUMMARY: This report is an atlas of artificial reefs in Florida. Artificial reefs in the Bay are described and locations listed.
KEY WORDS: Artificial reefs, Atlases, Florida

1464
Pybas, D. W. (1995) Planning for alternative preparation technologies and havens for boats in hurricane prone coastal communities. In: Coastal Zone '95. Proc., 9th Conf. B. L. Edge (ed.). American Society of Civil Engineers, New York, NY. 596 pp.
TIME COVERAGE: 1992
SUMMARY: This citation examined the protection currently offered by marinas and anchorage, and describes potential improvements.
KEY WORDS: Marinas, Boats, Mooring systems, Safety, Hurricanes, Hurricane Andrew

1465
Quinn, H., J. P. Tolson, C. J. Klein, S. P. Orlando, and C. Alexander (1989) Susceptibility of east coast estuaries to nutrient discharges: Albemarle/Pamlico Sound to Biscayne Bay. Summary report. NOAA/NOS, Rockville, MD. 31 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: The report summarizes estimates of the relative susceptibility and status of 17 estuaries on the East Coast from North Carolina through Florida with respect to nutrient-related pollution. Each summary contains data on significant physical and hydrologic features, estimations of nutrient loading, pollution susceptibility, and nutrient concentrations, along with a narrative to assist the reader in interpreting the data.
KEY WORDS: Estuaries, Nutrient cycles, Eutrophication, Pollution, Atlantic coast

1466
Quiñones-Aponte, V. (1997) Geochemical analysis of ground-water flow to Biscayne Bay. In: Proc., US Geological Survey Program on the South Florida Ecosystem. Ft. Lauderdale, FL, August 25-27, 1997. US Geological Survey open file report 97-385. US Geological Survey, Tallahassee, FL. 71-72.
TIME COVERAGE: 1997 ◊
SUMMARY: During 1997, 29 water quality/water level monitoring wells were installed in Biscayne Bay. The wells are arranged in three transects. Water samples were collected from

the wells and analyzed for nutrients, major inorganic constituents and isotopic composition. Ground water is discharging offshore along the Coconut Grove trasnect.
KEY WORDS: Ground water, Drainage water, Hydrology, Coconut Grove, Cutler, Mowry Canal, Nutrients, Freshwater discharge

1467
Quiñones-Aponte, V. (1996) South Florida Ecosystem Program: ground-water discharges to Biscayne Bay. USGS fact sheet FS-131-96. US Geological Survey, Reston, VA. 3 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: This fact sheet describes sources of ground water discharge into Biscayne Bay.
KEY WORDS: Ground water, Drainage water, Hydrology

1468
Rabin, C. (1996) Island gets all-natural makeover: workers restoring ragged Chicken Key. The Miami Herald, Miami, FL. November 19. Local. 1B.
TIME COVERAGE: 1996 ◊
SUMMARY: One of the six natural island in the Bay is Chicken Key. Legend has it that it was thus named because sailors trying to escape pirates would hide in this small island thus the name "Chicken". Most of the island's vegetation was destroyed in the 1940s when the government dredged a channel just north of the island so military barges would reach Chapman Field. More than 30,000 cubic yards of fill were pumped onto the Key. Australian pines and Brazilian pepper trees invaded. The dredged material eroded into the Bay. Hurricane Andrew destroyed the vegetation of the Key and provided an opportunity to restore the Key. Chicken Key will be managed by the Deering Estate for the Metro Parks and Recreation Department.
KEY WORDS: Chicken Key, Restoration, Hurricane Andrew

1469
Radell, M. J., and B. G. Katz (1991) Major-ion and selected trace-metal chemistry of the Biscayne Aquifer, southeast Florida. Water resources investigations rep. 91-4009. US Geological Survey, Tallahassee, FL. 18 pp.
TIME COVERAGE: 1991 ◊
SUMMARY: This report describes the major ion and trace metal chemistry of the Biscayne aquifer. Data were presented to define the aereal, vertical and seasonal water quality distribution of the major ions throughout the aquifer.
KEY WORDS: Ions, Trace metals, Water analysis, Biscayne Aquifer

1470
Rainbolt, V. (1924?) The Town That Climate Built. Parker Art Printing Assoc., Miami, FL.
TIME COVERAGE: 1924 ◊
SUMMARY: This is an interesting account of life in South Florida during the early part of the century.
KEY WORDS: Climatology, History

1471
Ralph H. Burke, Inc. (1962) Feasibility study and master plan for a marine stadium on Virginia Key at Miami, Florida. Report. Ralph H. Burke, Inc., Chicago, IL.
TIME COVERAGE: 1962 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Recreational waters, Feasibility studies, Marine Stadium, Virginia Key

1472
Ralph H. Burke, Inc. (1962) Feasibility study and master plan for a marine stadium on Virginia Key at Miami, Florida. Ralph H. Burke, Inc., Chicago, IL. 51 pp.

TIME COVERAGE: 1962 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Recreational waters, Feasibility studies, Marine Stadium, Virginia Key

1473
Ramachandran, S. (1985) Biomass and hydrogen photoproduction by a marine blue-green alga *Oscillatoria* sp. Miami BG 7 in natural seawater culture system. Ph.D. dissertation. University of Miami, Coral Gables, FL. 108 pp.
TIME COVERAGE: 1985 ◊
SUMMARY: The Miami BG 7 alga strain was originally isolated in 1974 from coastal waters of south Florida. This alga showed high biomass yields and hydrogen production rates in natural seawater systems. Variations in water quality did not affect either the biomass or the hydrogen production.
KEY WORDS: Algae, *Oscillatoria* sp., Algal culture, Biomass, Hydrogen, Biological production

1474
Ramaswamy, L. (1997) Virginia Key Beach Park: assessment of upland vegetation. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Upland vegetation, Virginia Key

1475
Ramdial, N. A., and D. Lirman (2000) Effects of low salinity on photosynthesis of the coral *Siderastrea radians* from Biscayne Bay. Florida Scientist, 63(Suppl. 1):17-18.
TIME COVERAGE: 2000 ◊
SUMMARY: The effect of low salinity on photosynthesis and respiration of the common Biscayne Bay coral *Siderastrea radians* was examined. Significant negative effects were noted. Photosynthesis levels approached normal levels after a seven-day recovery period.
KEY WORDS: Coral, *Siderastrea radians*, Salinity effects, Photosynthesis, Elliott Key

1476
Randall, J. E. (1968) Caribbean Reef Fishes. T. F. H. Publications, Jersey City, NJ. 318 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: This is a guide to reef fishes of the Caribbean and adjacent areas.
KEY WORDS: Reef fish, Caribbean, Guide

1477
Randall, J. E. (1983) Caribbean Reef Fishes. (Revised and expanded edition) T. F. H. Publications, Neptune City, NJ. 350 pp.
TIME COVERAGE: 1983 ◊
SUMMARY: This is a guide to reef fishes of the Caribbean and adjacent areas.
KEY WORDS: Reef fish, Caribbean, Guide

1478
Randall, J. E. (1965) Food habits of the Nassau grouper (*Epinephelus striatus*). Meeting of the Association of Island Marine Laboratories of the Caribbean, Isla Margarita, Venezuela, 613-16.
TIME COVERAGE: 1965 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Nassau grouper, *Epinephelus striatus*, Food consumption, Stomach content

1479
Randall, J. E. (1967) Food habits of reef fishes of the West Indies. In: Proc., Internatl. Conf. on Tropical Oceanography. Miami Beach, FL, 1965. Studies in tropical oceanography 5. University of Miami, Institute of Marine Sciences, Miami, FL. 665-847.
TIME COVERAGE: 1967 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Reef fish, Game fish, Food consumption, Stomach content, Caribbean

1480
Randall, J. E., and J. E. Bohlke (1965) Review of the Atlantic labrid fishes of the genus Halichoeres. Proc. Acad. Nat. Sci. Phila., 117(-):235-259.
TIME COVERAGE: 1965 ◊
SUMMARY: This citation is a taxonomic key to the wrasses of the West Atlantic.
KEY WORDS: Wrasses, Labridae, Halichoeres, Taxonomy

1481
Rappaport, E. N. (1992) Hurricane Andrew - a preliminary look. Mariners Weather Log, 36(4):16-25.
TIME COVERAGE: 1992
SUMMARY: This is a meteorological description of Hurricane Andrew and preliminary damage estimates.
KEY WORDS: Hurricanes, Hurricane Andrew

1482
Rappaport, E. N. (1994) Hurricane Andrew. Weather, 49(2):51-60.
TIME COVERAGE: 1992
SUMMARY: This paper is an account of the development and track of Hurricane Andrew.
KEY WORDS: Hurricane tracking, Hurricane Andrew

1483
Rappaport, E. N., and R. C. Sheets (1993) A meteorological analysis of Hurricane Andrew. In: Proc., 6th Ann. National Conf. on Beach Preservation Technology. The State of the Art of Beach Nourishment. L. S. Tait, (ed.). St. Petersburg, FL, 1993. Florida Shore & Beach Preservation Association, Tallahassee, FL. 340-357.
TIME COVERAGE: BB 474
SUMMARY: 1992
KEY WORDS: Wind speed, Meteorology, Hurricanes, Hurricane Andrew

1484
Rappaport, E. N., and R. C. Sheets (1993) A meteorological analysis of Hurricane Andrew. In: Excerpts, 15th Ann. National Hurricane Conf. L. S. Tait, (compiler). Orlando, FL, April 13 - 16, 1993. National Hurricane Conference, Tallahassee, FL.
TIME COVERAGE: 1992
SUMMARY: This is a meteorological account of Hurricane Andrew's passage through South Florida.
KEY WORDS: Hurricane Andrew, Meteorology

1485
Rarnaswamy, L. (1997) Virginia Key Beach Park assessment of upland vegetation. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]

KEY WORDS: Plant populations, Vegetation, Virginia Key

1486
Rathbun, M. J. (1930) The cancroid crabs of America of the families Euryalidae, Portunidae, Atelecyclidae, Cancridae and Xanthidae. United States National Museum Bull., 152(1):1-609.
TIME COVERAGE: 1930 ◊
SUMMARY: This citation is a taxonomic study of cancroid crabs including those found in South Florida.
KEY WORDS: Cancroid crabs, Euryalidae, Portunidae, Atelecyclidae, Cancridae, Xanthidae, Taxonomy

1487
Rathbun, M. J. (1918) The grapsoid crabs of America. United States National Museum Bull., 97(1):1-461.
TIME COVERAGE: 1918 ◊
SUMMARY: This citation is a taxonomic study of grapsoid crabs including those found in South Florida.
KEY WORDS: Grapsoid crabs, Taxonomy

1488
Rathbun, M. J. (1937) The oxystamatous and allied crabs of America. United States National Museum Bull., 166(1):1-278.
TIME COVERAGE: 1937 ◊
SUMMARY: This citation is a taxonomic study of oxystamatous and allied crabs including those found in South Florida.
KEY WORDS: Crabs, Oxystomata, Dromiacea, Hapalocarcinidea, Gymnopleura, Taxonomy

1489
Rathbun, M. J. (1925) The spider crabs of America. United States National Museum Bull., 129(-):1-613.
TIME COVERAGE: 1925 ◊
SUMMARY: This citation is a taxonomic study of spider crabs including those found in South Florida.
KEY WORDS: Spider crabs, Oxyrhyncha, Taxonomy

1490
Reardon, L. F. (1986) The Florida Hurricane & Disaster 1926. (Reprinted from the 1926 edition.) Alva Parks & Co., Coral Gables, FL, in conjuction with Lion & Thorne Publishing, Tulsa, OK. 112 pp.
TIME COVERAGE: 1926
SUMMARY: This book is contains a description of the Hurricane of 1926 which changed much of Miami.
KEY WORDS: Hurricanes, Hurricane of 1926

1491
Reark, J. B. (1983) The coastal ecology of the Card Point Area, Dade County, Florida. Ph.D. dissertation. Clayton University, [n.p.]. 98 pp.
TIME COVERAGE: 1928, 1941 - 1942, 1946 - 1948, 1975 - 1976, 1982 - 1983
SUMMARY: Card Sound was the proposed site for a nuclear power generator in the late 1970s. A feature clearly seen in satellite photographs is a pale band extending inland from the coast around the top of the peninsula of Florida. This zone is hypersaline and was absent in a 1928 aerial photograph. The site was a fresh water habitat that became saline due to manipulation of

the area's hydrology. Actual salinization was produced by a tidal surge of the Hurricane of 1945.
KEY WORDS: Coastal zone, Card Point, Turkey Point, Hurricane of 1945

1492
Reark, J. B. (1974) Current vegetational status of the Cocoplum property, Coral Gables, Florida. Prepared for Crow, Pope, and Land of Florida, Inc. J. B. Reark, Miami, FL. 50 pp.
TIME COVERAGE: 1922, 1974
SUMMARY: Photographs taken in 1922 and 1974 were used to evaluate past and current vegetation in the Cocoplum area, south of Coral Gables. Less than ten acres of the original coves in the 1922 photos can be considered "virgin". Destruction of the original protective strand vegetation has exposed much of the Bay shore to erosion, as much as 350 ft in places.
KEY WORDS: Vegetation, Botanical resources, Cocoplum

1493
Reark, J. B. (1975) A history of the colonization of mangroves on a tract of land on Biscayne Bay, Florida. In: Proc., Internatl. Symp. on Biol. and Management of Mangroves. G. E. Walsh, S. C. Snedaker, and H. J. Teas, (eds.). Honolulu, HI, 1974. Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. 776-804.
TIME COVERAGE: 1975 ◊
SUMMARY: A historical investigation of anthropogenic impact of human activities and natural phenomena on the Cocoplum area was conducted. Impacts include drainage of the Everglades, early agricultural and real estate development efforts, mosquito control ditches and hurricanes, all of which solidify the soil and make possible the invasion of fresh water marshes by *Rhizophora* and *Laguncularia*. Physiogeographic, climatic and hurricane data are presented.
KEY WORDS: Mangrove swamps, Man-induced effects, Erosion, Saline water, Hurricanes, Cocoplum

1494
Reark, J. B. (1982) An in situ fertilizer experiment using young *Rhizophora*. In: Proc., 9th annual Conf. on Wetlands Restoration and Creation. F. J. Webb, (ed.). 1982. Hillsborough Community College, Tampa, FL. 166-180.
TIME COVERAGE: 1980
SUMMARY: Mitigation mangrove plantings at Poinciana Island were placed in rip-rap planters using sand. Evaluation after one year showed that fertilizing with commercial 5-8-5 acid formula significantly changed the chlorosis ratio in the plants.
KEY WORDS: Mangrove swamps, Rhizophora, Red mangrove, Fertilizers, Revegetation, Poinciana Island, Sunny Isles

1495
Rebel, T. P. (1973) Effects of temperature on survival of eggs and yolk-sac larvae of four species of marine fishes from South Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 53 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: Eggs of several species of fish common in Biscayne Bay waters were collected in plankton tows, identified and incubated. Eggs and yolk-sac larvae were exposed to a variety of temperatures and survival determined.
KEY WORDS: Temperature effects, Eggs, Larvae, Bay anchovy, *Anchoa mitchilli*, Scaled sardine, *Harengula jaguana*, Yellowfin menhaden, *Brevoortia smithi*, Sea bream, *Archosargus rhomboidalis*, Virginia Key

1496
Redford, P. (1970) Billion-Dollar Sandbar: a Biography of Miami Beach. Dutton, New York, NY. 306 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: This is a history of South Florida with an emphasis on Miami Beach.
KEY WORDS: History, Miami Beach

1497
Reeve, M. R. (1975) The ecological significance of the zooplankton in the shallow subtropical waters of south Florida. In: Estuarine Research. 2nd Internatl. Estuarine Research Conf. L. E. Cronin, (ed.). Myrtle Beach, SC, 1973. Academic Press, New York. Vol.1: 352-371.
TIME COVERAGE: 1975 ◊
SUMMARY: This report presents existing data on plankton which indicate that shallow water regions may support planktonic production at least as large as those of deeper. colder water regions. Planktonic organisms may be important to the ecosystem because of the possible rapid uptake of dissolved organics flushed out from land and/or released from sediment, and by their ability to graze on detrital-bacterial aggregations in the water column. Plankton biomass in Biscayne Bay and Card Sound could be correlated to freshwater runoff. In low biomass regions, summer temperatures were associated with severe depressions of macroplankton populations.
KEY WORDS: Zooplankton, Biomass, Seasonal variations, Shallow water, Subtropical zones, Card Sound

1498
Reeve, M. R. (1970) Seasonal changes in the zooplankton of south Biscayne Bay and some problems of assessing the effects on the zooplankton of natural and artificial thermal and other fluctuations. Bull. Mar. Sci., 20(4):894-921.
TIME COVERAGE: 1970 ◊
SUMMARY: The seasonal variation in zooplankton from five stations in southern Biscayne Bay over a one-year period was presented, and the data condensed into two groups: inshore and midbay, The inshore stations were characterized by generally lower and more variable salinity and higher temperatures compared to midbay. The quantitatively important copepods were confined to six genera which were each dominated by a single species. The seasonal fluctuations in number at both locations were given for each species, as well as abundance in relation to temperature-salinity plots. The major meroplanktonic components were decapod larvae, molluscan veliger larvae, and larvae of polychaetous annelids. All were more abundant inshore partly due to the concentrating effort of the shallower water column.
KEY WORDS: Zooplankton, Seasonal variations, Turkey Point, South Bay, Bear Cut, Chicken Key, Temperature effects, Thermal pollution

1499
Reeve, M. R. (1964) Studies on the seasonal variation of the zooplankton in a marine sub-tropical in-shore environment. Bull. Mar. Sci. Gulf Caribb., 14(1):103-122.
TIME COVERAGE: 1962 - 1963
SUMMARY: The zooplankton of Bear Cut was sampled for one year. Plankton production peaks were discussed in the light of local weather conditions. Copepods accounted for a high proportion of the total though several species had different peaks of abundance during the year. Most of the plankton groups were represented in every plankton sample, but there was a far higher proportion of young copepods and young chaetognaths in the summer. The hydrography of Biscayne Bay is discussed in relation to the origins of the plankton in Bear Cut.
KEY WORDS: Zooplankton, Seasonal variations, Chaetognaths, *Sagitta hispida*, Bear Cut

1500
Reeve, M. R., and L. D. Baker (1975) Production of two planktonic carnivores (chaetognath and ctenophore) in South Florida inshore waters. Fishery Bull., 73(2):238-248.
TIME COVERAGE: 1970 - 1972
SUMMARY: Seasonal changes in biomass and production of two planktonic carnivores were followed in Card Sound and Biscayne Bay. Production was estimated as the product as mean daily biomass and daily growth rate.
KEY WORDS: Ctenophores, Chaetognaths, Zooplankton, Card Sound, Biological production, *Sagita hispida*, *Mnemiopsis mccradyi*

1501
Reeve, M. R., and E. Cosper (1972) Plankton of the Biscayne Bay/Card Sound system. In: An ecological study of south Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. VI:1-9.
TIME COVERAGE: 1970 - 1971
SUMMARY: The progress report reviewed knowledge of plankton and particulate material based on previous work and sampling done as part of this contract in the waters of Biscayne Bay and Card Sound.
KEY WORDS: Plankton, South Bay, Turkey Point, Card Sound

1502
Reeve, M. R., and E. Cosper (1973) The plankton and other seston in Card Sound, South Florida, in 1971. Technical report. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 24 pp.
TIME COVERAGE: 1971
SUMMARY: Phytoplankton, ultramicro-, micro- and macrozooplankton, and detritus were studied in Card Sound. Variability as analyzed in relation to seasonal and spatial distribution.
KEY WORDS: Plankton, Seston, Seasonal variations, Spatial variations, Turkey Point, Card Sound, South Bay

1503
Reeve, M. R., and E. Cosper (1972) Some effects of heated effluents on the copepod *Acartia tons*a from a sub-tropical bay and some problems of assessment. In: Marine Pollution and Sea Life. FAO Techn. Conf. on Marine Pollution and its Effects on Living Resources and Fishing. M. Ruivo, (ed.). Rome, Italy, 1970. Fishing News Books, West Byfleet, Surrey, UK. 250-252.
TIME COVERAGE: 1970 ◊
SUMMARY: No single temperature can be applied by a regulatory agency as that beyond which water may not be raised, unless it is that chosen on the basis of winter conditions. Otherwise, prohibited temperatures must closely correlated with the patterns of seasonal charge of the environmental water temperature. Acclimation to progressively higher temperatures occurs natural in the copepod species studied, and probably continues to some extent even after stabilization following environmental temperature change.
KEY WORDS: Temperature effects, Copepods, *Acartia tonsa*, Thermal pollution

1504
Reeve, M. R., and E. Cosper (1971) Zooplankton. In: An ecological study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. VI:1-32.
TIME COVERAGE: 1971 ◊

SUMMARY: The major thrust of this study was to acquire detailed information on the species composition and biomass of zooplankton seasonally in south Biscayne Bay and subsequently in Card Sound.
KEY WORDS: Zooplankton, South Bay, Turkey Point, Card Sound

1505
Reeve, M. R., M. A. Walter, and T. Ikeda (1978) Laboratory studies of ingestion and food utilization in lobate and tentaculate ctenophores. Limnol. Oceanogr., 23(4):740-751.
TIME COVERAGE: 1978 ◊
SUMMARY: Ctenophores ingestion rates are linearly related to food density up to concentrations much higher than those usually assumed to be representative of the natural environment. Daily rations in excess of 1000% of their body weights at high prey densities are matched by growth rates characteristic of phytoplankton (daily doublings). Digestive efficiencies greater than 70% were recorded at moderate prey densities. Growth efficiencies rarely exceed 10% because the bulk of assimilated food is required for the energy metabolism. Ingestion rates of ctenophores collected in Biscayne Bay and Saanich Inlet were studied in this work.
KEY WORDS: Ctenophores, *Mnemiopsis mccradyi*, *Pleurobrachia bachei*, Food consumption, Ingestion

1506
Reich, C. (1998) Groundwater conductivity beneath Florida Bay: does the Biscayne Aquifer discharge into Florida Bay? Proc., 1998 Florida Bay Science Conf. Miami, FL, May 12-14, 1998. University of Florida, Gainesville, FL.
TIME COVERAGE: 1998 ◊
SUMMARY: Prior to 1900, discharge into Biscayne Bay occurred through well-known solution holes in the Miami oolite and this flow produced numerous freshwater springs. The offshore springs were about 1.2 Km from the Cutler area. The greater head potential of the Biscayne Aquifer also acted as a salinity barrier. Dredging of canals from the 1900s until recently reduced the potentiometric surface of the Aquifer reducing the offshore springs and allowing saltwater intrusion.
KEY WORDS: Paleoecology, Biscayne Aquifer, Salt water intrusion, Florida Bay

1507
Reid, J. P., R. K. Bonde, and T. J. O'Shea (1995) Reproduction and mortality of radio-tagged and recognizable manatees on the Atlantic coast of Florida. In: Population Biology of the Florida Manatee. T. J. O'Shea, B. B. Ackerman, and H. F. Percival (eds.). Information and technology report 1. National Biological Service, Washington, DC. 171-191.
TIME COVERAGE: 1986 - 1991
SUMMARY: Radio tagging and photo identification were used to study aspects of the reproduction and mortality of manatees along the east coast from Georgia to Biscayne Bay. Most specimens were tagged in Brevard County. Statistics of the reproduction and mortality of the animals tagged were provided.
KEY WORDS: Manatees, *Trichechus manatus latirostris*, Tagging, Reproduction, Mortality, East Florida

1508
Reid, J. P., G. B. Rathbun, and J. R. Wilcox (1991) Distribution patterns of individually identifiable West Indian manatees (*Trichechus manatus*) in Florida. Marine Mammal Sci., 7(2):180-190.
TIME COVERAGE: 1986
SUMMARY: Of 891 individuals in the catalog, 470 were sighted at least once; 219 cases of seasonal returns were noted; and 98 instances of movement between areas. Movement in

excess of 820 km were noted. Rapid movement south during early winter and northerly spring movement verify seasonal migration.
KEY WORDS: West Indian manatee, *Trichechus manatus*, Identification, Geographical distribution, Migrations, Florida

1509
Reiger (ed.), J. F. (1971) Sailing in Florida waters in the early 1880s. Part I. Tequesta, 31(-):43-66.
TIME COVERAGE: 1880s
SUMMARY: This paper is an account of a sailing expedition in South Florida including Biscayne Bay. [Excerpts from A. Henshall, "Around the coast of Florida" (nine papers, January 25, 1883 to March 22, 1883), published in Forest and Stream.]
KEY WORDS: History, Exploration, Florida, Florida Keys

1510
Renaud, J. C. (1956) A report on some polychaetous annelids from the Miami-Bimini area. American Museum Novitates, -(1812):1-40.
TIME COVERAGE: 1954
SUMMARY: This paper describes annelids collected in Miami, the Florida Keys and the Bahamas.
KEY WORDS: Annelids, Miami, Bimini, Florida Keys, Species list, Taxonomy

1511
Research Planning Institute (1981) South Florida oil spill sensitivity atlas. South Florida Regional Planning Council, Miami, FL. 23 pp.
TIME COVERAGE: 1981 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Oil spills, Shore protection, Nature conservation, Atlases, Card Sound, Florida Keys

1512
Research Planning Institute, I. (1984) The sensitivity of coastal environments and wildlife to spilled oil in the south Florida region. RPI/R/84/8/2-21. Research Planning Institute, Columbia, SC. Various paging.
TIME COVERAGE: 1984 ◊
SUMMARY: A shoreline assessment of Florida was conducted by means of aerial overflights, ground stations and literature reviews. A series of maps depicting shoreline and wildlife sensitivity to spilled oil were produced. The maps also include information on oil spill clean ups.
KEY WORDS: Oil spills, Shore protection, Nature conservation, South Florida

1513
Restrepo, J., and R. A. Rokovich (1997) Behavior and ground-water model simulation of landfill debris in an unlined landfill near Miami, Florida. Abstracts with programs (American Geological Society), 29(6):330.
TIME COVERAGE: 1997 ◊
SUMMARY: An unlined land fill near Biscayne Bay stopped receiving solid waste in 1980. The landfill extends as high as 35 feet above sea level. Monitoring well and soil borings provided evidence that landfill debris extends below the water table at the site. Groundwater elevation maps indicate a southeasterly water flow.
KEY WORDS: Landfill, Ground water, Hydraulic models, Miami

1514

Reyes-Vasquez, G. (1985) Effects of environmental factors on the biosynthesis of hemolytic toxins by the marine cyanobacterium *Synechococcus* sp. Miami BGII6S. Ph.D. dissertation. University of Miami, Coral Gables, FL. 99 pp.

TIME COVERAGE: 1985 ◊

SUMMARY: The effects of environmental factors upon growth and hemolytic compound biosynthesis by this blue-green algae were studied. This strain was previously isolated from an area of Biscayne Bay where a massive fish kill occurred in the 1970s. Production of hemolysins was found to be influenced by light intensity, temperature and salt concentration as well as cell age. At least two different hemolytic compounds were produced by this strain. One was water soluble and heat labile, and the other was ethanol soluble and heat stable.

KEY WORDS: Cyanophyta, Algae, Synechococcus sp., Poisonous organisms, Toxicity

1515

Reyes-Vasquez, G. (1965) Studies on the diatom flora living on *Thalassia testudinum* Konig in Biscayne Bay. M.Sc. thesis, University of Miami, Coral Gables, FL, FL. 81 pp.

TIME COVERAGE: 1964 - 1965

SUMMARY: This work studied the diatoms living on *Thalassia*. Seasonal variations, and salinity and temperature tolerances were examined. Results suggest that the periphyton of estuaries is controlled by the characteristics of the sediments.

KEY WORDS: Diatoms, Turtle grass, *Thalassia testudinum*, Bear Cut, Key Biscayne, Soldier Key, Ragged Keys, Matheson Hammock, Taxonomy

1516

Reyes-Vasquez, G. (1970) Studies on the diatom flora living on *Thalassia testudinum* König in Biscayne Bay, Florida. Bull. Mar. Sci., 20(-):105-134.

TIME COVERAGE: 1964 - 1965

SUMMARY: This study describes the diatom flora living on *Thalassia*. The ranges of salinity and temperature within which the studied species thrive were established.

KEY WORDS: Diatoms, Turtle grass, *Thalassia testudinum*

1517

Reynolds, E. S. (1955) Bacteriological studies. In: Report on preliminary studies of pollution in Biscayne Bay. H. B. Moore, I. Hela, E. S. Reynolds, J. K. McNulty, S. M. Miller, and C. A. Carpenter (eds.). Progress report 55-3. Marine Laboratory, University of Miami, Coral Gables, FL. III: 1-18.

TIME COVERAGE: 1955 ◊

SUMMARY: [COPY NOT AVAILABLE.]

KEY WORDS: Bacteria, Sewage disposal, Water pollution

1518

Reynolds, E. S., and S. P. Meyers (1957) Marine wood-inhabiting fungi. Research reviews (US Office of Naval Research), (December):6-11.

TIME COVERAGE: 1957 ◊

SUMMARY: [COPY NOT AVAILABLE.]

KEY WORDS: Fungi, Wood, Fouling organisms

1519

Rhoads, S. N. (1899) Annotated list of land and fresh-water shells recently collected in the vicinity of Miami, Florida. Nautilus, 13(-):43-48.

TIME COVERAGE: 1899

SUMMARY: This paper describes land and fresh water shells collected in Miami.

KEY WORDS: Shells, Freshwater mollusks, Miami, Species list

1520
Ribi, G. (1982) Differential colonization of roots of *Rhizophora mangle* by the wood boring isopod *Sphaeroma terebrans* as a mechanism to increase root density. Mar. Ecol., 3(1):13-19.
TIME COVERAGE: 1982 ◊
SUMMARY: Frequency of parasitism of free ending prop roots of red mangroves by this isopod increases with increasing distance of the endings of established roots. Wooden structures placed in the vicinity of the endings tended to reduce colonization rate. Isopod colonization may cause mangrove root density to increase by colonizing peripheral endings.
KEY WORDS: Isopods, *Sphaeroma terebrans*, Boring organisms, Red mangrove, *Rhizophora mangle*, Roots

1521
Ribi, G. (1981) Does the wood boring isopod *Sphaeroma terebrans* benefit red mangroves (*Rhizophora mangle*)? Bull. Mar. Sci., 31(4):925-928.
TIME COVERAGE: 1966, 1978 - 1979
SUMMARY: *Sphaeroma terebrans* bores into the tips of prop roots of red mangroves damaging the tip and often preventing it from reaching the substrate. Some researchers have stated that this isopod has a beneficial effect on the mangroves as they induce root spreading. In this study, no evidence was found that *S. terebrans* had a beneficial effect on red mangroves.
KEY WORDS: Isopods, *Sphaeroma terebrans*, Boring organisms, Red mangrove, *Rhizophora mangle*, Key Biscayne

1522
Rice, A. L., and A. J. Provenzano (1966) The larval development of the West Indian sponge crab *Dromidia antillensis* (Decapoda: Dromiidae). J. Zoology, London, 149(-):297-319.
TIME COVERAGE: 1963
SUMMARY: Larvae hatched in the laboratory from a berried female sponge crab collected off Key Biscayne were reared through metamorphosis.
KEY WORDS: Sponge crab, *Dromidia antillensis*, Larval development, Key Biscayne

1523
Rice, K. J. (1978) Structure and function of a tropical, subtidal sandbar community. M.Sc. thesis. University of Miami, Coral Gables, FL. 116 pp.
TIME COVERAGE: 1976 - 1977
SUMMARY: The benthic community of the Safety Valve was sampled monthly. The total abundance and biomass of the benthic microfauna showed significant seasonal and spatial variation. Seasonal variation of macrofaunal species diversity was found to be highly correlated with the abundance of the dominant bivalve *Tivela floridana*. A sand dredging operation located on the sandbar did not significantly affect macrofaunal community biomass, abundance or diversity.
KEY WORDS: Nearshore bars, Sand bars, Aquatic communities, Benthos, Seasonal variations, Temporal variations, Safety Valve, *Tivela floridana*

1524
Rice, S. (1995) National park forever changed by hurricane: philosophy focuses on the natural. The Miami Herald, Miami, FL. May 11. Neighbors. 1.
TIME COVERAGE: 1992
SUMMARY: This article discusses the effect of Hurricane Andrew on the Biscayne National Park and the resulting change towards a natural ecosystem.
KEY WORDS: Hurricane Andrew, Biscayne National Park

1525
Rickards, W. L. (1971) Studies of the use of vertical substrates for improving production in the culture of pink shrimp, *Penaeus duorarum* Burkenroad. Ph.D. dissertation. University of Miami, Coral Gables, FL. 152 pp.
TIME COVERAGE: 1969
SUMMARY: Experiments were conducted to determine the effects of vertical substrates on shrimp growth, mortality and total yield. Substrates used were artificial grass and fiberglass panels. Shrimp used in this study were obtained from fishermen operating in Biscayne Bay.
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Shrimp culture, Culture tanks

1526
Rickards, W. L. (1971) Studies of the use of vertical substrates for improving production in the culture of pink shrimp, *Penaeus duorarum* Burkenroad. University of Miami, Coral Gables, FL. 152 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: [THIS IS A REPRINT OF THE PH.D. DISSERTATION BY THE AUTHOR.]
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Shrimp culture, Culture tanks

1527
Ridings, A. S. (1985) Wings over Miami. South Florida History Mag., 12(4):6-12.
TIME COVERAGE: 1911 - 1940
SUMMARY: Aviation has been an integral part of the history of South Florida since the turn of the century. This article describes activities from 1911 to the end of World War II.
KEY WORDS: Aviation, Dinner Key, Chalk's Airline

1528
Riege, J. D. (1974) Investigations of tidal boundary hydraulics in Card Sound, Florida. M.Sc. Thesis. University of Miami, Coral Gables, FL. 72 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: A mathematical model for open channel flow was shown to be capable of predicting tidal boundary discharges in close agreement with field measurements.
KEY WORDS: Boundary currents, Hydraulics, Tidal dynamics, Card Sound

1529
Rielinger, D. M. (1991) Respiration in black mangrove (*Avicennia germinans* [L] Stern) pneumatophores under submerged and oiled conditions. M.Sc. thesis. University of Miami, Coral Gables, FL. 71 pp.
TIME COVERAGE: 1991 ◊
SUMMARY: Negatively geotropic aerial roots called pneumatophores serve a respiratory function in response to aerobic conditions in the soil. The pneumatophores are subjected to tidal fluctuations and pollutants. In this study, pneumatophores were subjected to air, water and three types of oil. Oiled pneumatophores failed to exchange oxygen.
KEY WORDS: Black mangrove, *Avicennia germinans*, Pneumatophores, Respiration, Respiratory organs, Oxygen consumption, Oil, Virginia Key, Key Biscayne

1530
Risi, J. A., and H. R. Wanless (1993) Physical modification of the shallow subtidal environments of South Florida by Hurricane Andrew. Abstracts with programs (Geological Society of America), 25(4):65.
TIME COVERAGE: 1992
SUMMARY: Hurricane Andrew created intense winds and currents that caused erosion and deposition in the shallow subtidal on both the cast and west coasts. The most striking effect was the intense scour from focused longshore currents and onshore current surges. In Biscayne

Bay, longshore currents following the axis of the bay created localized total destruction to the hardbottom communities, overturning limestone blocks, locally eroding seagrass beds, and exposing the muddy substrate below scour areas. Reefal, hardbottom and seagrass communities appear to have been stressed by low oxygen levels immediately following the storm.
KEY WORDS: Scouring, Shallow water, Erosion, Hurricane Andrew

1531
Rivas, L. R. (1962) The Florida fishes of the genus *Centropomus*, commonly known as snook. Quart. J. Fla. Acad. Sci., 25(1):53-64.
TIME COVERAGE: 1962 ◊
SUMMARY: This paper describes the species of snook found in Florida.
KEY WORDS: Snook, Centropomus, Taxonomy

1532
Robbin, D. M. (1987) A new Holocene sea level curve for the upper Florida Keys and Florida Reef Tract. In: Symposium on South Florida Geology. F. J. R. Maurrasse, (ed.). Memoir 3. Miami Geological Society, Coral Gables, FL. 12.
TIME COVERAGE: 1987 ◊
SUMMARY: A new Holocene sea level curve for the upper Florida Keys and Florida reef tract was constructed by integrating existing and new data from 14C age analysis.
KEY WORDS: Sea level changes, Holocene, Florida Keys, Reef Tract

1533
Robertson, P. B. (1968) The larval development of some western Atlantic lobsters of the family Scyllaridae. Ph.D. dissertation. University of Miami, Coral Gables, FL. 530 pp.
TIME COVERAGE: 1965 - 1966
SUMMARY: This is a study of the development of the larvae of slipper lobsters. Ovigerous females were collected by commercial bait shrimp fishermen operating in Barnes Sound, Key Largo and southern Biscayne Bay.
KEY WORDS: Slipper lobster, Scyllaridae, Lobsters, Larval development, Key Largo, Barnes Sound

1534
Robertson, P. B. (1963) A survey of the marine rock-boring fauna of southeast Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 169 pp.
TIME COVERAGE: 1963 ◊
SUMMARY: This is a study of marine rock-boring organisms at three sites in South Florida. The species found are described.
KEY WORDS: Boring organisms, Carbonate rocks, Sponges, Sipunculids, Polychaetes, Lamellibranchs, Barnacles, Bear Cut, Margot Fish Shoal, West Summerland Key, Species list

1535
Robertson, W. B. J. (1955) An analysis of the breeding-bird populations of tropical Florida in relation to the vegetation. Ph.D. dissertation, University of Illinois, Urbana, IL. 599 pp.
TIME COVERAGE: 1950 - 1952
SUMMARY: The purpose of this study was to study the breeding bird populations of various parts of the continent in relation to regional vegetation types. Studies were also carried out in Cuba and the Bahamas.
KEY WORDS: Birds, Vegetation, Cuba, Bahamas, Species list

1536
Robertson, W. B. (1962) Ornithology of "The cruise of the Bonton". Tequesta, 22(-):65-77.
TIME COVERAGE: 1962 ◊

SUMMARY: This paper discusses the ornithological observations made during the voyage of the Bonton around South Florida.
KEY WORDS: Cruises, Bonton (Ship), Birds, Miami, Florida Bay, Florida Keys, Species list

1537
Robertson, W. B. (1974) The southern Florida avifauna. In: Environments of south Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 414-452.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation describes the birds of South Florida including their history as interpreted from fossils, the changing distribution patterns, and populations.
KEY WORDS: Birds, Migratory species, Nature conservation

1538
Robertson, W. B., and J. A. Kushlan (1984) The southern Florida avifauna. In: Environments of South Florida: Present and Past II. P. J. Gleason (ed.). Miami Geological Society, Coral Gables, FL. 551 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: The breeding of avifauna in South Florida as well as its history as interpreted from fossils is discussed.
KEY WORDS: Birds, Migratory species, Nature conservation

1539
Robins, C. R. (1958) Check list of the Florida game and commercial marine fishes including those of the Gulf of Mexico and the West Indies, with approved common names. Florida Board of Conservation educational series 12. Marine Laboratory, University of Miami, Miami, FL. 46 pp.
TIME COVERAGE: 1958 ◊
SUMMARY: This is list of game and commercial marine fishes found in Florida, the Gulf of Mexico and the West Indies.
KEY WORDS: Marine fish, Commercial species, Game fish, Check lists, Vernacular names

1540
Robins, C. R. (1969) Distributional patterns of fishes from coastal and shelf waters of the tropical western Atlantic. In: Symp., Investigations and Resources of the Caribbean Sea and Adjacent Regions. Willemstad, Curacao, 1968. FAO fisheries report 71.1. Food and Agriculture Organization of the United Nations, Rome, Italy. 148.
TIME COVERAGE: 1989 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Geographical distribution, Marine fish, Coastal waters, Ecological distribution

1541
Robins, C. R. (1957) Effects of storms on the shallow-water fish fauna of southern Florida with new records of fishes from Florida. Bull. Mar. Sci. Gulf Caribb., 7(3):266-275.
TIME COVERAGE: 1956
SUMMARY: The passage of storms or persistent onshore winds result in turbulent conditions in the shallow, inshore waters and in fish kills of varying intensity. Species of fish not normally found in shallow exposed locations may become established in such a habitat during periods or seasons of calm weather. These species are unable to withstand turbulent conditions and area killed apparently due to erosion of gill filaments by accumulated sediments. The importance of storms as a limiting factor in the shoreward distribution of many species was noted. Specimens were collected during October 6-15, 1956, when onshore winds of 30 mph buffeted the Florida coast. No drop in temperature was observed.
KEY WORDS: Storms, Turbidity, Fish kill, Shallow water, Florida

1542
Robins, C. R. (1964) A new gobiid fish, *Garmannia grosvenori*, from shore waters of southern Florida and Venezuela. Bull. Mar. Sci. Gulf Caribb., 14(3):399-404.
TIME COVERAGE: 1964 ◊
SUMMARY: This paper discusses a previously undescribed gobi found in Miami and Venezuela.
KEY WORDS: Gobies, *Garmannia grosvenori*, New species, Taxonomy, Venezuela, South Florida

1543
Robins, C. R., C. Phillips, and F. Phillips (1959) Some aspects of the behavior of the blennioid fish *Chaenopsis ocellata* Poey. Zoologica, 44(-):77-84.
TIME COVERAGE: 1958
SUMMARY: The behavior in an aquarium of several specimens of pike blenny collected in Biscayne Bay was observed.
KEY WORDS: Pike blenny, *Chaenopsis ocellata*, Behavior

1544
Robins, C. R., and G. C. Ray (1986) A Field Guide to Atlantic Coast Fishes of North America. Peterson field guide series. Houghton Mifflin, Boston, MA. 354 pp.
TIME COVERAGE: 1986 ◊
SUMMARY: This is a field guide to Atlantic coast fishes.
KEY WORDS: Marine fish, Identification, Coastal waters, Atlantic coast, Guide

1545
Robins, C. R., and W. A. Starck (1961) Materials for a revision of Serranus and related fish genera. Proc. Acad. Nat. Sci. Phila., 113(-):259-314.
TIME COVERAGE: 1961
SUMMARY: This citation describes the habits, habitat and other features of Serranids of the Western Atlantic.
KEY WORDS: Serranids, Serranus, Serranellus, Paracentropristes, Mentiperca, Prionodes, Florida Keys

1546
Robinson, G. B., S. C. Robinson, and J. Lane (1996) Discover a Watershed: the Everglades. South Florida Water Management District, West Palm Beach, FL. 278 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: This is a study guide to the Everglades and adjacent areas mostly for middle and high school students.
KEY WORDS: Watersheds, Everglades

1547
Robinson, R. B. (1967) Diagenesis and porosity development in Recent and Pleistocene oolites from southern Florida and the Bahamas. J. Sed. Petrol., 37(2):355-364.
TIME COVERAGE: 1967 ◊
SUMMARY: This study was based on oolites collected in South Florida and the Bahamas, ranging in age from Recent to Pleistocene. On the basis of texture alteration determined by petrographic examination, samples were classified into early and later diagenesis, and studied in detail. Diagenesis produced a great diversity in texture, mineral composition, and porosity in the short span of geologic time represented in these samples.
KEY WORDS: Oolites, Diagenesis, Porosity, Holocene, Pleistocene, Bahamas, South Florida

1548
Robinson, R. K., and D. Dimitriou (1963) Length frequencies of adults of *Panulirus argus* and occurrence of phyllosoma larvae in south Florida. Institute of Marine Science, University of Miami, Miami, FL.
TIME COVERAGE: 1962 - 1963
SUMMARY: Samples were obtained from commercial catches and measured. Plankton samples were examined for the presence of lobster larvae.
KEY WORDS: Spiny lobster, *Panulirus argus*, Length, Crustacean larvae, South Florida

1549
Rockwood, C. W. (1891) In Biscayne Bay. New Amsterdam Book Co., New York, NY. 286 pp.
TIME COVERAGE: 1891 ◊
SUMMARY: [NOT AVAILABLE.]
KEY WORDS: Biography, Description

1550
Rodriguez Mercado, A. (1972) Pharmacological and chemical studies of a toxin from *Haliclona viridis*. Ph.D. dissertation. University of Miami, Coral Gables, FL. 69 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: The toxin of the *Haliclona viridis* sponge was isolated from a specimen collected in Bear Cut. The biochemistry of this toxin and its effect on various animals was described.
KEY WORDS: Sponges, *Haliclona viridis*, Pharmacology, Toxicology, Halitoxin, Bear Cut

1551
Rodriguez, G. A. (1975) Electrophoretic patterns of blood serum from stone crabs *Menippe mercenaria* Say (Crustacea: Decapoda) held under laboratory conditions. M.Sc. thesis. University of Miami, Coral Gables, FL. 35 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: Stone crabs were collected in Biscayne Bay and kept in aquariums. Gel electrophoresis patterns of the blood of the crabs were studied and interpreted.
KEY WORDS: Stone crab, *Menippe mercenaria*, Blood, Serum, Electrophoresis

1552
Roessler, M. A. (1965) An analysis of the variability of fish populations taken by otter trawl in Biscayne Bay, Florida. Trans. Amer. Fisheries Soc., 94(-):311-318.
TIME COVERAGE: 1963
SUMMARY: Three bottom habitats were trawled day and night. During the day trawl, 1391 fishes of 41 species were collected. During night the trawl, 1440 fish of 49 species were collected. The number of species per sample followed Poisson distribution and the number of individuals per sample followed a negative binomial distribution, and the number of individuals per species followed Fisher's logarithmic series. More fishes were taken in the Thalassia environment, and more were taken at night.
KEY WORDS: Population dynamics, Periodic variations, Marine fish, Bottom trawls, Species list, Bear Cut, Intercoastal Waterway

1553
Roessler, M. A. (1971) Effects of a steam electric station on a subtropical estuary in Florida. Presented at National Academy of Engineering Conference on Power Plant Siting, 1971. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. Unpaged.
TIME COVERAGE: 1971
SUMMARY: This citation is a progress report of research done at the Turkey Point power plant site. The temperature of the water passing through the power plant is raised about 6 °C. It is recirculated through the plant without being fully cooled. Animals and plants were adversely

affects over an area of 300 acres. Many species of algae were killed and the productivity of *Thalassia* reduced. In an area of approximately 30 acres, the algae and seagrasses were completely killed and replaced by blue-green algal diatom mat. Almost all animals are absent from this zone. In an additional 150 acres, the numbers of species and the abundance of animals were severely reduced. Beyond this there is a zone of approximately 120 acres in which a few species of detritus-feeding molluscs and crustaceans were more abundant than previously observed. Their abundance increased since they consumed the dead and decaying algae and *Thalassia*. The three zones correspond with elevations of 4, 3 and 2 °C above normal seawater temperature.
KEY WORDS: Thermal pollution, Waste disposal, Turkey Point

1554
Roessler, M. A. (1971) Environmental changes associated with a Florida power plant. Mar. Pollut. Bull., 2(-):87-90.
TIME COVERAGE: 1971 ◊
SUMMARY: Damage to biota in the vicinity of the Turkey Point power plant was demonstrated quantitatively. Algae and grasses were found to be replaced by blue-green filamentous algal mats; seasonal recovery was slow and the affected areas contained fewer kinds and smaller numbers of animals. Increased temperatures were the chief cause.
KEY WORDS: Thermal pollution, Waste disposal, Turkey Point

1555
Roessler, M. A. (1964) A statistical analysis of the variability of fish populations taken by otter trawling in Biscayne Bay, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 126 pp.
TIME COVERAGE: 1963
SUMMARY: Trawl samples were taken in Biscayne Bay and fishes representing 41 species were identified. The mean number of species varied significantly in some areas. In general, *Thalassia* beds contained more species than sand bottoms.
KEY WORDS: Population dynamics, Periodic variations, Marine fish, Bottom trawls

1556
Roessler, M. A. (1977) Thermal additions in a tropical marine lagoon. In: Biological Balance and Thermal Modifications. Proc., World Conference Towards a Plan of Actions for Mankind. M. Marois, (ed.). Paris, France, 1974. Pergamon Press, Oxford, UK. 79-87.
TIME COVERAGE: 1977 ◊
SUMMARY: This report described the study of the effects of thermal additions on the ecology of Biscayne Bay and Card Sound.
KEY WORDS: Thermal pollution, Turkey Point, Card Sound, South Bay

1557
Roessler, M. A., G. L. Beardsley, and R. Smith (1973) Benthic communities of Biscayne Bay, Florida. Unpublished rep. University of Miami Sea Grant, Miami, Florida. 12 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Benthos, Assessments

1558
Roessler, M. A., and G. L. Beardsley (1974) Biscayne Bay: its environment and problems. Florida Sci., 37(-):186-204.
TIME COVERAGE: 1974 ◊
SUMMARY: This paper describes Biscayne Bay and the environmental problems resulting from urban development. Proposed urbanization projects are discussed.

KEY WORDS: Natural resources, Environmental protection, Urbanization

1559
Roessler, M. A., G. L. Beardsley, R. Rehrer, and J. Garcia (1975) Effects of thermal effluents on the fishes and benthic invertebrates of Biscayne Bay-Card Sound, Florida. Technical report UM-RSMAS-75027. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1975 ◊
SUMMARY: Field studies on the effects of thermal additions from the Turkey Point power plant were conducted to determine the effects of this effluent on the macro-invertebrates and fishes of the area. Maximum discharge temperature during the summer months that will cause long term damage was 33 °C. The effects of discharge into Card Sound were also examined.
KEY WORDS: Thermal pollution, Benthos, Marine Fish, Card Sound, Turkey Point

1560
Roessler, M. A., G. L. Beardsley, and D. C. Tabb (1977) New records of the introduced snail, *Melanoides tuberculata* (Mollusca: Thiaridae) in south Florida. Florida Scient., 40(1):87-94.
TIME COVERAGE: 1977 ◊
SUMMARY: New populations of he introduced thiarid snail *Melanoides tuberculata* were found in fresh water canals of Dade and Collier counties and in the saline mangrove areas of Matheson Hammock-Snapper Creek. No trematode larvae were discovered in specimens examined. These snails were probably accidentally or intentionally introduced from the Orient by aquarium dealers.
KEY WORDS: Snails, *Melanoides tuberculata*, Introduced species

1561
Roessler, M. A., H. B. Moore, R. Rehrer, J. Garcia, N. Kenny, J. P. Norris, N. Hatfield, R. Hixon, and R. Smith (1971) Benthic animals and fishes. In: An Ecological Study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. V:1-56.
TIME COVERAGE: 1971 ◊
SUMMARY: The overall objective of this study was to quantitatively determine the kinds and numbers of animals present in south Biscayne Bay and Card Sound, and to relate changed in abundances to changes in other variables in the environment.
KEY WORDS: Benthos, Fish, South Bay, Turkey Point, Card Sound, Species list

1562
Roessler, M. A., H. B. Moore, G. L. Beardsley, R. Smith, R. Hixon, C. M. Hoberg, I. M. Brook, J. M. Sprogis, and N. Hatfield (1972) Benthic biology. In: An ecological study of south Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. V:1-115.
TIME COVERAGE: 1968 - 1972
SUMMARY: This report was a quantitative study of the benthic fauna of Biscayne Bay and Card Sound, particularly the areas adjacent to the Turkey Point Power Plant. The biology of the organisms was considered in relation to temperature, radioactivity, salinity and selected chemical characteristics.
KEY WORDS: Benthos, South Bay, Card Sound, Turkey Point

1563
Roessler, M. A., and J. C. Sieman (1970) The effects of thermal additions on the biota of southern Biscayne Bay, Florida. Proc., Gulf Caribb. Fisheries Institute, 22nd Ann. Session. Miami Beach, FL, 1969. University of Miami, Coral Gables, FL. 136-145.
TIME COVERAGE: 1969
SUMMARY: The effect of the heated effluent on the *Thalassia* and macro-algal communities near the Turkey Point plant were studied by marking areas with metal squares and counting the individual plants within the squares at periodic intervals. Quantitative samples of fishes and macro-invertebrates were obtained using otter trawls. The effluents reduced the diversity and abundance of algae and animals in a small area adjacent to the mouth of the canals corresponds to the +4 °C isotherm. A second zone in which algae were damaged and species numbers and diversity reduced corresponds to the +3 °C isotherm.
KEY WORDS: Thermal pollution, Temperature effects, Algae, Turtle grass, *Thalassia testudinum*, Biota, South Bay, Turkey Point

1564
Roessler, M. A., and D. C. Tabb (1972) Optimal and exclusion temperatures for subtropical estuarine organisms. Quart. J. Fla. Acad. Sci., 35(Suppl. 1):34-35.
TIME COVERAGE: 1972 ◊
SUMMARY: A model based on the exclusion of species from the heated areas of Biscayne Bay was formulated to predict the impact of thermal additions on subtropical estuaries or coastal bays. This model was constructed from data based on the extent of damage with two fossil fuel units using cooling water. Optimum water temperature was 26 °C and 50% of the species were excluded at 33 °C or higher.
KEY WORDS: Estuarine organisms, Temperature tolerance, Thermal pollution, Turkey Point

1565
Roessler, M. A., D. C. Tabb, and R. G. Bader (1970) Progress report on an ecological study of south Biscayne Bay in the vicinity of Turkey Point. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 81 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: This is a progress report of the results obtained during the first 18 months of the investigation of the effects of thermal effluents on Biscayne Bay.
KEY WORDS: Thermal pollution, Baseline studies, Ecology, South Bay, Turkey Point

1566
Roessler, M. A., and D. C. Tabb (1974) Studies of effects of thermal pollution in Biscayne Bay, Florida. Rep., EPA-660/3-74-014; Project 18080 DFU, Program element 1BA032. Office of Research and Development, Environmental Protection Agency, Washington, DC.
TIME COVERAGE: 1969 - 1971
SUMMARY: Field studies were conducted to determine the effects of thermal pollution at Turkey Point on macroinvertebrates and fishes. Otter trawls were made monthly. Data on temperature, salinity and dissolved oxygen were also collected. Experimental results suggested that maximum summer temperatures above 32 °C caused detrimental changes which were reversible in the winter, while temperatures above 33 °C caused damage that did not recover.
KEY WORDS: Thermal pollution, Benthos, Fish, Turkey Point, Card Sound, Species list, Salinity, Dissolved oxygen, Temperature

1567
Roman, C. T., N. G. Aumen, J. C. Trexler, R. J. Fennema, W. F. Loftus, and M. A. Soukup (1994) Hurricane Andrew's impact on freshwater resources. BioScience, 44(4):247-255.
TIME COVERAGE: 1992

SUMMARY: This citation discusses the impact of Hurricane Andrew on freshwater resources and habitats.
KEY WORDS: Hurricanes, Freshwater ecology, Hurricane Andrew, Everglades National Park, Big Cypress National Preserve, Chicken Key, Florida Bay

1568
Roman, M. R., M. R. Reeve, and J. L. Froggatt (1983) Carbon production and export from Biscayne Bay, Florida. I. Temporal patterns in primary production, seston and zooplankton. Est. Coastal Shelf Sci., 17(1):45-59.
TIME COVERAGE: 1977 - 1978
SUMMARY: Water samples were collected at five stations along a transect on the western shore of Biscayne Bay monthly for one year. Temperature, salinity, particle concentration, ATP, particulate organic carbon, chlorophyll, primary production, zooplankton density and zooplankton species diversity were determined. Over 90% of the total primary production originated by submerged vegetation. The high zooplankton biomass is most likely sustained by macrophyte detritus and resuspension of benthic diatoms by high winds.
KEY WORDS: Carbon cycle, Biogeochemical cycle, Organic carbon, Seston, Zooplankton, Biomass, Phytoplankton, Coastal waters, Primary production

1569
Romans, B. (1961) A Concise Natural History of East and West Florida. Reprinted from the 1775 edition. Pelican Publishing Co., New Orleans, LA.
TIME COVERAGE: 1775 ◊
SUMMARY: This book was reprinted from the 1775 description of the southern part of "British America" including navigation in the Bahamas, Florida, northern Cuba and the Florida Keys.
KEY WORDS: Navigation, Natural history, Florida Keys, Bahamas, Florida, Cuba

1570
Romans, B. (1962) A Concise Natural History of East and West Florida. (A facsimile reproduction of the 1775 ed. with introduction by R. W. Patrick.) University of Florida Press, Gainesville, FL. 339 pp + appendix.
TIME COVERAGE: 1775 ◊
SUMMARY: This is an early account of the natural history of South Florida. There is a brief mention in the book of Cape Florida and the Miami River (known at that times as Boca Ratones).
KEY WORDS: Natural history, Florida, Cape Florida

1571
Romans, B. (1999) A Concise Natural History of East and West Florida. Reprinted from the 1775 edition. University of Alabama Press, Tuscaloosa, AL.
TIME COVERAGE: 1775 ◊
SUMMARY: This book was reprinted from the 1775 description of the southern part of Florida.
KEY WORDS: Navigation, Natural history, Florida Keys, Bahamas, Florida, Cuba

1572
Romero, G. C., G. R. Harvey, and D. K. Atwood (1981) Stranded tar on Florida beaches: September 1979-October 1980. Mar. Pollut. Bull., 12(8):280-284.
TIME COVERAGE: 1979 - 1980
SUMMARY: Tar fouling of southeast Florida beaches was found to be an order of magnitude greater than that of the rest of the state, and may be the result of extensive ship traffic in the Straits of Florida.
KEY WORDS: Tar, Beaches, Fouling, Florida, Cape Florida, Haulover Beach, Elliott Key

1573
Romero, L., J. W. Fourqurean, and T. Smith (1995) Disturbance influences on dead wood dynamics and nutrient cycles in mangroves. In: Abstracts, 13th Biennial Internatl. Conf., Estuarine Research Federation. Estuaries: Bridges From Watersheds to Coastal Seas. Corpus Christi, TX, 1995. Texas A&M University Sea Grant College Program, Bryan, TX. 113.
TIME COVERAGE: 1995 ◊
SUMMARY: Dead wood comprises a significant proportion of the biomass in mangrove forests and the rate of cycling of this material is unknown. Preliminary estimates of N and P in dead wood and the impact of Hurricane Andrew are reported.
KEY WORDS: Mangrove swamps, Wood, Nutrient cycles, Hurricane Andrew

1574
Rona, D. C. (1977) Remote sensing of turbidity in Biscayne Bay, Florida. Florida Scient., 40(2):174-178.
TIME COVERAGE: 1977 ◊
SUMMARY: This paper describes the use of LANDSAT images to study turbidity in Biscayne Bay.
KEY WORDS: Remote sensing, LANDSAT, Turbidity, Suspended matter, Tides, Carbonates, Government Cut, Safety Valve

1575
Rooth, C., and T. N. Lee (1972) A method for estimating thermal anomaly areas from hot discharges in estuaries. Sea Grant special bulletin 3. University of Miami Sea Grant Program, Miami, FL. 15 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: A graphic approach for the prediction of thermal anomaly areas from hit discharges was presented to provide a tool for power plant design considerations.
KEY WORDS: Temperature anomalies, Thermal pollution, Power plants, Waste disposal

1576
Rose, S. D. (1996) Matheson Hammock marina repairs - Phase II. Internship report, M.A. in Marine Affairs. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Marinas, Coastal structures, Hurricane Andrew, Matheson Hammock

1577
Rosen, A. (1957) Summary of Florida commercial marine landings for 1956. Mimeographed reports 57-24. Marine Laboratory, University of Miami, Coral Gables, FL. 50 pp.
TIME COVERAGE: 1956
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Commercial fishing, Landing statistics, Florida

1578
Rosen, A. (1960) Summary of Florida commercial marine landings, 1959 and an analysis of the catch and effort of certain species. Mimeographed reports 60-2. Marine Laboratory, University of Miami, Miami, FL. 53 pp.
TIME COVERAGE: 1959
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Commercial fishing, Landing statistics, Catch-effort, Florida

1579
Rosen, A., and R. W. Ellis (1958) Summary of Florida commercial marine fish landings for 1957. Mimeographed reports 58-2. Marine Laboratory, University of Miami, Miami, FL. 65 pp.
TIME COVERAGE: 1957
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Commercial fishing, Landing statistics, Florida

1580
Rosen, A., and R. K. Robinson (1961) Summary of Florida commercial marine landings, 1960 and an analysis of the catch and effort of certain species. Mimeographed reports 61-2. Institute of Marine Science, University of Miami, Miami, FL. 32 pp.
TIME COVERAGE: 1960
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Commercial fishing, Landing statistics, Catch-effort, Florida

1581
Rosen, A., and R. K. Robinson (1962) Summary of Florida commercial marine landings, 1961. Mimeographed reports 62-5. Institute of Marine Science, University of Miami, Miami, FL. 20 pp.
TIME COVERAGE: 1961
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Commercial fishing, Landing statistics, Florida

1582
Rosen, A., and R. K. Robinson (1962) Summary of Florida commercial marine landings, 1961, and an analysis of the catch and effort of certain species. Mimeographed reports 62-7. Institute of Marine Science, University of Miami, Miami, FL. 32 pp.
TIME COVERAGE: 1961
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Commercial fishing, Landing statistics, Catch-effort, Florida

1583
Rosen, A., and R. K. Robinson (1963) Summary of Florida commercial marine landings, 1962. Mimeographed papers 63-2. Institute of Marine Science, University of Miami, Miami, FL. 20 pp.
TIME COVERAGE: 1962
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Commercial fishing, Landing statistics, Florida

1584
Rosen, A., and R. K. Robinson (1963) Summary of Florida commercial marine landings, 1962 and an analysis of the catch and effort of certain species. Mimeographed reports 63-4. Institute of Marine Science, University of Miami, Miami, FL. 32 pp.
TIME COVERAGE: 1962
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Commercial fishing, Landing statistics, Catch-effort, Florida

1585
Rosenberg, R. (1975) Stressed tropical benthic faunal communities off Miami, Florida. Ophelia, 14(-):93-112.
TIME COVERAGE: 1957-1959, 1974
SUMMARY: Quantitative sampling of the benthic fauna was made in two areas of Biscayne Bay. The number of species, abundance, biomass, diversity and spatial differentiation were described. Comparisons with an earlier investigation suggested that changes have occurred in

these communities. Low specialization in any species and a loss of diversity indicated that the communities were disturbed. The reasons for this are suggested to be occasionally low winter temperature, high turbidity and the influence by man.
KEY WORDS: Benthos, Biological stress, Temporal variations, Temperature effects, Turbidity, Urbanization, Key Biscayne

1586
Rosendahl, P. C. (1975) A bibliography of Biscayne Bay, Florida monitoring and research programs. Sea Grant special report #2 (NOAA Sea Grant No. 04-5-158-14). University of Miami Sea Grant Program, Coral Gables, FL. 82 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: This is a bibliography of Biscayne Bay.
KEY WORDS: Monitoring, Research programs, Bibliographies

1587
Rosenfeld, J. (1996) Cities built on sand. Weatherwise, 49(4):20-28.
TIME COVERAGE: 1926
SUMMARY: This paper is an account of the effect of the Hurricane of 1926 on Miami and Miami Beach.
KEY WORDS: Hurricane of 1926

1588
Ross, M. S., J. Meeder, P. L. Ruiz, D. Reed, and M. Lewin (1999) The L-31E surface water rediversion project: coastal wetlands ecosystem and some initial treatment results. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 227.
TIME COVERAGE: 1993
SUMMARY: Reestablishment of sheetflow through the coastal mangrove ecosystem from the L-31E canal was initiated in 1993. Water delivery to the wetlands began in 1997 and continues to the present. Low water stages of the canals, significant delivery is not possible between mid-October and mid-May. This study is underway.
KEY WORDS: Ammonia, Soil, Sediment, Surface water, Groundwater, Canals, Outflow, Fresh water, Mangrove swamps, Wetlands, L-31E Canal

1589
Ross, M. S., J. F. Meeder, G. Telesnicki, P. L. Ruiz, and J. P. Sah (1997) The southeast saline Everglades revisited: vegetation and soil changes during the last century. In: Conf. program and abstracts, First annual conference of the Walt Dineen Society. 1997. Florida International University, Miami, FL. 46.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Saline intrusion, Soils, Vegetation, Taylor Slough, Turkey Point

1590
Ross, S., D. M. Ross, and J. E. Podgor (eds.) (1987) The Dade County Environmental Story. Environmental Information Service of Friends of the Everglades, Miami Springs, FL. 256 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: This book is a cooperative effort to create a local environmental education guidebook.
KEY WORDS: Urbanization, Environment management, Conservation, Natural resources, History, Dade County

1591
Ross (H. J.) Associates, I. (1991) Draft Munisport remedial design work plan. Unpublished report. H. J. Ross Associates, Inc., Coral Gables, FL. Various paging.
TIME COVERAGE: 1991 ◊
SUMMARY: This report is the unpublished preliminary draft of the remedial work plan for the Munisport Landfill.
KEY WORDS: Groundwater pollution, Water quality, Pollution control, Munisport Landfill, North Miami

1592
Ross (H. J.) Associates, I. (1987) Site investigation report: Munisport Landfill closure study. Report for the City of North Miami and Department of Environment Regulation. H. J. Ross Associates, Inc., Miami, FL. Various paging.
TIME COVERAGE: 1987 ◊
SUMMARY: This report is an engineering study for the closure of the Munisport Landfill.
KEY WORDS: Groundwater pollution, Water quality, Chemical pollution, Toxicity, Ammonia, Munisport Landfill, North Miami

1593
Roth, F. J., D. G. Ahearn, J. W. Fell, S. P. Meyers, and S. A. Meyer (1962) Ecology and taxonomy of yeasts isolated from various marine substrates. Limnol. Oceanogr., 7(-):178-185.
TIME COVERAGE: 1962 ◊
SUMMARY: Yeasts were observed to be common occurrence in subtropical marine waters and sediments and with indwelling plants and animals. The most prevalent types present in all environments were oxidative, asporogenous forms which expressed a growth requirement for one or more vitamins. Specimens used in this study were collected at various sites including Biscayne Bay.
KEY WORDS: Yeasts, Aquatic environment, Ecological distribution, North Bay, Elliott Key, Soldier Key, Bimini, Gulf Stream

1594
Roth, F. J., P. A. Orpurt, and D. G. Ahearn (1964) Occurrence and distribution of fungi in a subtropical marine environment. Can. J. Botany, 42(-):375-383.
TIME COVERAGE: 1961 - 1963
SUMMARY: Inshore fungi were isolated from water samples collected in Biscayne Bay and from offshore. Eulittoral samples uniformly demonstrated high mold populations in diverse speciation. Samples obtained more distant from land and in deep waters showed a greater than 10-fold decrease in average population density and about a 50% reduction in the number of species. A similar phenomenon was noted in the progression into abyssal regions.
KEY WORDS: Fungi, Ecological distribution, Abundance, Bahamas

1595
Rothman, P. A. (1987) Our Bay, Our River. P. A. Rothman, Miami, FL. Videorecording, VHS, 59 min.
TIME COVERAGE: 1987 ◊
SUMMARY: [NOT AVAILABLE.]
KEY WORDS: Environmental conditions, Resource conservation, Miami River

1596
Rublee, P. A., and M. R. Roman (1982) Decomposition of turtlegrass (*Thalassia testudinum* Konig) in flowing sea-water tanks and litterbags: compositional changes and comparison with natural particulate matter. J. Exp. Mar. Biol. Ecol., 58(-):47-58.

TIME COVERAGE: 1979 (lab study)
SUMMARY: *Thalassia* litter was incubated in seawater tanks and in the field. Weight loss of litter was evident within a week but the C:N ratio (by weight) changed only slightly over the first 180 days. The number of bacteria in the litter increased. Lipid synthesis activity suggested in the litter microbial community.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Degradation, Detritus

1597
Runnells, D. D. (1971) Chemical weathering of the Biscayne Aquifer, Dade County, Florida. Southeastern Geol., 13(3):167-174.
TIME COVERAGE: 1966
SUMMARY: The average annual rainfall along the coastal ridge of Dade County is 60-65 inches, of which about 20 in are lost as subsurface drainage. The dissolved Ca content of rainwater is about 0.6 ppm whereas the shallow groundwater contains about 77 ppm. The difference in Ca content is chemical weathering.
KEY WORDS: Weathering, Oolites, Biscayne Aquifer, Dade County

1598
Rusnak, G. A., K. W. Stockman, and H. A. Hofmann (1966) The role of shell material in the natural sand replenishment cycle of the beach and nearshore area between Lake Worth inlet and the Miami ship canal. Final report to Coastal Engineering Research Center, US Army Corps of Engineers. Institute of Marine Sciences, University of Miami, Miami, FL.
TIME COVERAGE: 1966 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Shells, Sand, Beach erosion, Beach nourishment, Sediment texture, Grain size, Nearshore sedimentation

1599
Russell, M. A. C. (1981) The ingestion and assimilation of coral mucus particles by gorgonian soft corals. M.Sc. thesis. University of Miami, Coral Gables, FL. 44 pp.
TIME COVERAGE: 1981 ◊
SUMMARY: To determine the soft coral's ability to capture and ingest mucus particles, a series of *in situ* feeding experiments were conducted. Mucus particles, labeled with radioisotopes, were injected into flexible-wall feeding chambers containing gorgian branch tips.
KEY WORDS: Mucus, Coral, Gorgonians, Ingestion, Food conversion, Bache Shoal, Elliott Key, Bahamas

1600
Ryan, J. D., F. D. Calder, L. C. Burney, and H. L. Windom (1985) Environmental chemistry of Florida estuaries: deepwater ports maintenance dredging study. Port of Miami and the Miami River. Tech. rep. 1. Office of Coastal Management, Florida Department of Environmental Regulation, Tallahassee, FL. Various paging.
TIME COVERAGE: 1983
SUMMARY: The purpose of this study was to provide tools that could be used to predict potential environmental problems associated with maintenance dredging; to provide reliable data on the pollution of ports; and to provide investigative approaches and tools to address estuarine resource management. Sediment and water samples were collected in Biscayne Bay and the Miami River. The water samples were analyzed for water quality parameters, As, Cd, Cu, Fe, Pb, Ni, Ag, Zn, synthetic organic compounds and nutrients. Sediment samples were analyzed for As, Cd, Cu, Cr, Pb, Hg, Ag, Zn, As, synthetic organic compounds(PAHs, oil and grease, PCBs, and DDTs) and nutrients. A review of the existing chemical data for Biscayne Bay and the Miami River at the time of writing was provided.

KEY WORDS: Water quality, Water analysis, Sediment chemistry, Sediment, Dredging, Port installations, Intracoastal Waterway, Miami River, As, Cd, Cu, Cr, Hg, Fe, Pb, Ni, Ag, Zn, Nutrients, Synthetic organic compounds, PAHs, PCBs, DDTs

1601
Ryan, J. D., and J. H. Cox (1985) The influence of NPS pollution in Florida estuaries; a case study. In: Proc., Perspectives on Nonpoint Source Pollution. Kansas City, MO, May, 1985. US Environmental Protection Agency, Washington, DC. 172-176.
TIME COVERAGE: 1985 ◊
SUMMARY: A study was designed to characterize the pollutant climate of 13 major bays and estuaries in Florida, including Biscayne Bay, by examining sediment chemistry.
KEY WORDS: Heavy metals, Stormwater runoff, Brackishwater pollution, Anthropogenic factors, Water quality, Chemical pollutants, Pollution monitoring, Miami River, Tamiami Canal, PAHs, PCBs, Cd, Pb, Ag, Cu, Hg, Zn

1602
Ryan, J. D., and H. L. Windom (1988) A geochemical and statistical approach for assessing metal pollution in coastal sediments. In: Metals in coastal environments of Latin America. U. Seeliger, L. D. de Lacerda, and S. R. Patchineelam Springer Verlag, New York, NY.
TIME COVERAGE: 1988 ◊
SUMMARY: This citation explored the use of statistics to assess metal pollution in sediments. The Miami River and Biscayne Bay are used as one of the case studies.
KEY WORDS: Sediment pollution, Al, Miami River, Geochemistry, Sediment

1603
Ryan, J. D., H. L. Windom, L. C. Burney, and F. D. Calder (1987) Identifying metals pollution in the coastal zone. In: Coastal Zone '87. Proc., 5th Symp. on Coastal and Ocean Management. O. T. Magoon, H. Converse, D. Miner, L. T. Tobin, D. Clark, and G. Domurat, (eds.). Seattle, WA, 1987. American Society of Civil Engineers, New York, NY. 5582-5596.
TIME COVERAGE: 1987 ◊
SUMMARY: Sediments, not the water column, best reflect the pollution climate of coastal environments. This focus presents serious interpretive problems for chemicals such as metals and nutrients that have both natural and unnatural sources. Metal to aluminum ratios and simple parametric statistics were used as a basis for distinguishing natural from anthropogenic metal loads.
KEY WORDS: Metals, Sediment analysis, Sediment pollution, Cu, Al, Miami River

1604
Safe Progress Association (1960 1969?) Hour of peril. Miami, FL. 18 pp.
TIME COVERAGE: 1960 1969? ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Petroleum refineries, Environmental aspects, Environmental protection, Citizen participation

1605
Salmons, C. A. (1975) The sessile, intertidal, barnacles (Cirripedia: Thoracica) of Biscayne Bay, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 140 pp.
TIME COVERAGE: 1973 - 1974
SUMMARY: This study reviews the taxonomy of sessile, intertidal barnacles occurring in Biscayne Bay.
KEY WORDS: Barnacles, Chthamalus, Balanus, Tetraclita, *Newmanella radiata*, Taxonomy

1606
Saloman, C. H., D. M. Allen, and T. J. Costello (1968) Distribution of three species of shrimp (genus *Penaeus*) in waters contiguous to southern Florida. Bull. Mar. Sci., 18(2):343-350.
TIME COVERAGE: 1968 ◊
SUMMARY: This citation discusses the distribution of *Penaeus* shrimp species in South Florida and Bahamas. *Penaeus duorarum* was the most abundant species in Biscayne Bay.
KEY WORDS: Shrimp, *Penaeus duorarum*, *Penaeus brasiliensis*, *Penaeus aztecus*, Geographical distribution, Florida Keys, Bahamas, Florida Bay

1607
Salomon, G. (1997) Site characterization; air quality: Virginia Key Beach Park. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Air pollution, Virginia Key

1608
Sampedro, R. M. (1972) Costs and benefits of the abatement of pollution of Biscayne Bay, Miami, Florida. University of Miami Sea Grant Program, Coral Gables, FL. 96 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: This report discusses the costs and benefits of abatement of pollution in the Bay.
KEY WORDS: Water pollution, Pollution control, Water quality, Cost analysis, Economic analysis

1609
Sampedro, R. M. (1973) Costs and benefits of the abatement of pollution of Biscayne Bay, Miami, Florida. M.A. thesis. University of Miami, Coral Gables, FL. 96 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: This thesis is a cost and benefits analysis of pollution abatement in Biscayne Bay.
KEY WORDS: Pollution control, Water pollution, Costs, Sewage treatment, Water quality

1610
Samuels, N. (1997) Seagrasses and the seagrass community of Virginia Key beach. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Seagrass, Virginia Key

1611
Sanders, J. A. (1991) Land protection plan: Biscayne National Park. Update. Various paging.
TIME COVERAGE: 1991 ◊
SUMMARY: This is a land protection plan for Biscayne National Park.
KEY WORDS: Biscayne National Park, Management

1612
Sanders, J. A. (1990) Statement for management: basic operations statement. 63 pp.
TIME COVERAGE: 1990 ◊
SUMMARY: This is a management plan for Biscayne National Park.
KEY WORDS: Biscayne National Park, Management

1613
Sanford, S. (1909) Topography and geology of southern Florida. Florida State Geological Survey, Tallahassee, FL. 175-231.
TIME COVERAGE: 1908 - 1909
SUMMARY: This report discusses the geological features of South Florida
KEY WORDS: Geology, Landforms, Topography (Geology), Florida Keys, South Florida

1614
Sargent, F. J., T. J. Leary, D. W. Crewz, and C. R. Kruer (1995) Scarring of Florida's seagrasses: assessment and management options. FMRI technical report TR-1. Florida Department of Environmental Protection, Florida Marine Research Institute, St. Petersburg, FL. 46 pp.
TIME COVERAGE: 1995 ◊
SUMMARY: An increasing problem in Biscayne Bay is the scarring of seagrass beds, commonly made when a boat's propeller tears and cuts up roots, stems and leaves. The greatest acreage of moderate to severe scarring occurred in areas of dense human population and large number of registered boats. An assessment of the degree of seagrass bed scarring statewide indicated that approximately 8% of the seagrass beds in Dade County were scarred, and approximately 6% was rated with moderate/severe scarring.
KEY WORDS: Seagrass, Scars, Ecosystem disturbance, Boats, Damage

1615
Sass, L. C. (1967) Rainfall distribution in the Miami area. Quart. J. Fla. Acad. Sci., 30(2):81-96.
TIME COVERAGE: 1967 ◊
SUMMARY: This paper describes rainfall characteristics and patterns for the Miami area.
KEY WORDS: Rainfall, Miami

1616
Savage, T. (1972) Florida mangroves: a review. Leaflet series 7, Part 2, No. 1. Florida Department of Natural Resources, Marine Research Laboratory, St. Petersburg, FL. 15 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Mangrove swamps, Red mangrove, Black mangrove, White mangrove, *Rhizophora mangle*, *Laguncularia racemosa*, *Avicennia germinans*

1617
Savoie, D. L. (1984) Nitrate and non-sea-salt sulfate aerosols over major regions of the world ocean: concentrations, sources, and fluxes. Ph.D. dissertation. University of Miami, Coral Gables, FL. 432 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: Aerosol samples were analyzed to determine the geographical and temporal distributions of nitrate and non-sea-salt sulfate in the tropospheric boundary layer over major regions of the world ocean.
KEY WORDS: Aerosols, Nitrates, Sulfates, World ocean, Key Biscayne, Virginia Key, Cape Florida

1618
Savoie, D. L., and J. M. Prospero (1982) Particle size distribution of nitrate and sulfate in the marine atmosphere (Sal Island, Barbados, Virginia Key, Miami, Key Biscayne). Geophys. Res. Lett., 9(10):1207-1210.
TIME COVERAGE: 1974, 1981

SUMMARY: Cascade impactor samples were collected on Barbados and Virginia Key. In all samples the majority of the nitrate mass was found on intermediate size particles, indicating sea-salt aerosols are possible sources. This contrasts with the distribution of non-sea-salt sulfate which is present primarily on submicron aerosols. The lower levels of aerosols in the small particles are probably a consequence of the higher volatility and photochemical reactivity of the nitrate compounds expected to exist in the acidic aerosols.
KEY WORDS: Aerosols, Nitrates, Sulfates, Particle distribution, Key Biscayne, Virginia Key, Barbados

1619
Savoie, D. L., J. M. Prospero, and R. T. Nees (1987) Washout ratios of nitrate, non-sea-salt sulfate and sea-salt on Virginia Key, Florida and on American Samoa. Atmospheric Environ., 21(1):103-112.
TIME COVERAGE: 1982 - 1985
SUMMARY: Rainwater and aerosol were collected and analyzed for nitrate, non-sea-salt sulfate and sodium to assess temporal variations in the concentrations and to determine the washout ratios of each constituent.
KEY WORDS: Salt particles, Nitrates, Sulfates, Na, Rain, Aerosols, Virginia Key, American Samoa

1620
Schafer, D. L. (1984) "Everything carried the face of spring": Biscayne Bay in the 1770's. Tequesta, 44(-):23-31.
TIME COVERAGE: 1770s
SUMMARY: This is an account of life on the shores of Biscayne Bay during the 1770s.
KEY WORDS: Mulcaster, F. G., Surveying, History

1621
Schaffranek, R. W. (1996) Coupling models for canal and wetland interactions in the south Florida ecosystem. USGS fact sheet FS-139-96. US Geological Survey, Reston, VA. 4 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: The interconnected canals, wetlands and shallow aquifer of South Florida represent a geometrically complex, physically diverse and dynamically changing hydrologic environment. Models are being developed to understand the interactions between the three ecosystems.
KEY WORDS: Canals, Canal C-111, Wetlands, Water motion, Hydrology, South Florida

1622
Scheidt, D. J., and M. D. Flora (1983) Mowry Canal (C-103): water quality and discharge into Biscayne Bay, Florida, 1975-1981. Report SFRC-83/06. Everglades National Park, South Florida Research Center, Homestead, FL. 50 pp.
TIME COVERAGE: 1975 - 1981
SUMMARY: The Mowry Canal (C-103) is located approximately 25 mi south of Miami and plays an important role in flood protection and the salt water intrusion control network. The main objective of this study was to assess the water quality of the Canal and quantify its freshwater discharge into the Bay.
KEY WORDS: Water quality, Physicochemical properties, River discharge, Mowry Canal, Nutrients, Pesticides, Transparency, Coliform bacteria, As, Cu, Cd, Fe, Pb, Mn, Ni, Sr, Zn, Al, Hg, Sediment

1623
Schekter, R. C. (1983) Mariculture of dolphin (*Coryphaena hippurus*): is it feasible? In: Proc., 35th annual Gulf and Caribbean Fisheries Institute. J. B. Higman, (ed.). Nassau, Bahamas, 1982. Gulf and Caribbean Fisheries Institute, Miami, FL. 27-32.

TIME COVERAGE: 1981
SUMMARY: Dolphinfish have a fast natural growth rate and exhibit spontaneous captive spawning making this species a candidate for mariculture. The habitat requirements of pristine conditions and no confining solid surfaces presents potential difficulties. Initial work on mariculture of dolphinfish is discussed.
KEY WORDS: Fish culture, Dolphinfish, *Coryphaena hippurus*, Bear Cut

1624
Schmahl, G. P., and J. T. Tilmant (1980) An initial characterization of macroinvertebrate populations associated with patch reefs of Biscayne National Monument. Florida Scient., 43(Suppl. 1):23.
TIME COVERAGE: 1978 - ?
SUMMARY: Non-coral macroinvertebrates were studied as one element of a comprehensive investigation of the Biscayne National Monument. Mollusca showed the highest diversity while the Porifera exhibited the highest density of individuals per square meter.
KEY WORDS: Marine invertebrates, Coral reefs, Population number, Biscayne National Monument

1625
Schmale, M. C. (1998) Biscayne Bay toxicological study. Deliverables 2, 3 and 4. Contract no. C-6797-A2. Submitted to the South Florida Water Management District. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 31 pp + tables and figures.
TIME COVERAGE: 1998 ◊
SUMMARY: This report contains three sections. Existing contaminant data were analyzed with multivariate techniques an a new index developed and tested in Biscayne Bay. The prevalence and distribution of shrimp with microsporidian infection were examined.
KEY WORDS: Pollutants, Adams Key, Marinas, Fish health, Bioindicators, Microsporidian, Shrimp, *Penaeus duorarum*, *Thelohania duorara*, Pleistophora, "Milk" shrimp syndrome

1626
Schmale, M. C. (1991-94) The effect of historical contaminants on biota in Biscayne Bay, FL. Five reports submitted to the South Florida Water Management District. Contract no. C90-1334. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. Various paging.
TIME COVERAGE: 1991 - 1994 ◊
SUMMARY: This report is a set of five studies. The first was a collection of maps indicating locations and contaminant levels in sediments in Biscayne Bay based on data provided by the Dade County Department of Environmental Resource Management. Another study was a sampling design to determine the types and prevalences of diseases and abnormalities affecting fish and shellfish in Biscayne Bay.
KEY WORDS: Pollutants, Sediment analysis, Pollution effects, Fish diseases, Sea bream, *Archosargus rhomboidalis*, Blue striped grunt, *Haemulon sciurus*, Pinfish, *Lagodon rhomboides*, Gray snapper, *Lutjanus griseus*, Blue crab, *Callinectes sapidus*, Gulf toadfish, *Opsanus beta*, Pathology, Hydrocarbons, PAHs, PCBs, Zn, Pb

1627
Schmidt, D. V., and R. Clark (1993) Impacts of Hurricane Andrew on the beaches of Florida. in: Proc., 6th Ann. Natl. Cond. on Beach Preservation Technology, The state of the Art of Beach Nourishment. L. S. Tait, (ed.). St. Petersburg, FL, 1993. Florida Shore & Beach Preservation Association, Tallahassee. 279-308.
TIME COVERAGE: 1992
SUMMARY: Hurricane Andrew caused little beach erosion to the nourished beaches of Dade County. Key Biscayne, the closest beach to the eye of the hurricane, gained sand.

KEY WORDS: Hurricanes, Beaches, Storm surge, Wind speed, Hurricane Andrew

1628
Schmidt, T. W., and G. E. Davis (1978) A summary of estuarine and marine water quality information collected in Everglades National Park, Biscayne National Monument, and adjacent estuaries from 1879 to 1977. Rep. T-519. South Florida Research Center, Everglades National Park, Homestead, FL. 59 pp.
TIME COVERAGE: 1879 - 1977
SUMMARY: This report summarizes 55 published and unpublished reports on water quality information in Everglades National Park, Biscayne National Monument and adjacent estuaries. Sixteen of the studies were conducted in Biscayne Bay.
KEY WORDS: Barnes Sound, Card Sound, Coral, Freshwater flow, Whitewater Bay, Water chemistry, Biscayne Bay, Salinity, Coral, Turbidity, Seagrasses, Al, As, Fe, Hg, Cu, Freshwater flow, Algae, Drainage canals, Buttonwood Canal, Mn, F, Mg, Ca, Turkey Point Nuclear Power Plant

1629
Schmitz, H. (1973) The Miami River; a synopsis of the history, characteristics and flow of the river and the possible causes of its pollution. Preliminary report. Metropolitan Dade County Pollution Control, Miami, FL. 38 pp + tables.
TIME COVERAGE: 1973 ◊
SUMMARY: This report is an evaluation of the Miami River in general and of pollution areas.
KEY WORDS: Pollution control, Water quality, Miami River

1630
Schneider, J. J. (1969) Tidal relations in the south Biscayne Bay area, Dade County, Florida. Open file report. US Geological Survey, Water Resources Division, Tallahassee, FL. 16 pp.
TIME COVERAGE: 1967 - 1968
SUMMARY: An investigation was made to determine the elevation of mean high water and tidal patterns in south Biscayne Bay.
KEY WORDS: Tidal dynamics, Sea level, Barnes Sound, Card Sound, Manatee Bay, South Bay

1631
Schneider, J. J., and B. G. Waller (1980) Summary of hydrologic data for the east Everglades, Dade County, Florida. US open file report 80-1292. US Geological Survey, Tallahassee, FL. 73 pp.
TIME COVERAGE: 1980 ◊
SUMMARY: [ONLY MICROFICHE AVAILABLE.]
KEY WORDS: Hydrology, Everglades, Dade County

1632
Schneider, W. J. (1966) Water resources in the Everglades. Photogrammetric Eng., 32(-):958-965.
TIME COVERAGE: 1966 ◊
SUMMARY: The use of aerial color and infrared photography for the study of water resources in South Florida was discussed in this paper.
KEY WORDS: Water resources, Aerial photography, Everglades

1633
Scholander, P. F., L. Van Dam, and S. I. Scholander (1955) Gas exchange in the roots of mangroves. Amer. J. Botany, 42(-):92-98.
TIME COVERAGE: 1955 ◊

SUMMARY: The respiratory gas exchange in the roots of two common mangroves was investigated for red and black mangroves. Gas exchange rates change with tides and exposure of the root systems.
KEY WORDS: Red mangrove, *Rhizophora mangle*, Black mangrove, *Avicennia nitida*, Gas exchange, Roots

1634
Scholl, D. W., F. C. Craighead, and M. Stuiver (1969) Florida submergence curve revised: its relation to coastal sedimentation rates. Science, 163(3867):562-564.
TIME COVERAGE: 1969 ◊
SUMMARY: New data substantiate as well as modify the south Florida submergence curve which indicates that eustatic sea level has risen continuously although at a gradually decreasing rate during the last 6500 to 7000 sidereal years (5500 standard years) to reach its present position. Accumulation rates of coastal deposits are similar to the rate of sea-level rise, thus supporting the generalization that submergence rates largely determine as well as limit rates of coastal sedimentation in lagoonal and estuarine areas.
KEY WORDS: Sea level changes, Sedimentation, Submerged shorelines, Florida Bay

1635
Schreiber, D. R. (1984) An investigation of the interaction of *Vibrio alginolyticus* and copper in natural waters. Ph.D. dissertation. University of Miami, Coral Gables, FL. 158 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: The purpose of this research was to examine how a marine bacterium modified the chemical species of Cu in seawater. The bacterium strain used was isolated from Biscayne Bay waters.
KEY WORDS: Bacteriology, *Vibrio alginolyticus*, Cu, Sea water

1636
Schreiber, R. W., and E. A. Schreiber (1973) Florida's brown pelican population: Christmas bird count analysis. American Birds, 27(-):711-715.
TIME COVERAGE: 1943 - 1972
SUMMARY: The present study is an analysis of Christmas Bird Count data for the brown pelican over the past 30 years. The number of Counts increased dramatically in recent years. Population of pelicans by coast was discussed.
KEY WORDS: Brown pelican, *Pelecanus occidentalis*, Aquatic birds, Population number, Florida

1637
Schroeder, M. C., H. Klein, and N. D. Hoy (1958) Biscayne aquifer of Dade and Broward Counties, Florida. Report of investigations 17. Florida Geological Survey, Tallahassee, FL. 56 pp.
TIME COVERAGE: 1958 ◊
SUMMARY: This report describes the Biscayne aquifer and salt water intrusion.
KEY WORDS: Biscayne Aquifer, Ground water, Water table, Dade County, Broward County

1638
Schroeder, P. B. (1975) Thermal stress in *Thalassia testudinum*. Ph.D. dissertation. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1975 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Thermal stress, *Thalassia testudinum*

1639

Schroeder, R. E. (1964) Ecological studies of the intestinal trematodes of the gray snapper, *Lutjanus griseus* (Linnaeus), in the vicinity of Lower Matecumbe Key, Florida. Ph.D. dissertation. University of Miami, Coral Gables, FL. 166 pp.

TIME COVERAGE: 1963 - 1964

SUMMARY: Gray snappers were examined for intestinal trematodes. The incidence of each trematode was calculated for each habitat at each time of year. Some specimens were collected in Biscayne Bay. The same trematodes found in fish from Matecumbe were found in the Biscayne animals.

KEY WORDS: Trematodes, Gray snapper, *Lutjanus griseus*, Lower Matecumbe Key

1640

Schroeder, W. C. (1924) Fisheries of Key West and the clam industry of southern Florida. Report of the United States Commissioner of Fisheries for the fiscal year 1923. Appendix XII: 1-74.

TIME COVERAGE: 1924 ◊

SUMMARY: [COPY NOT AVAILABLE.]

KEY WORDS: Fisheries, Key West, Food fish, Lobster fisheries, Crab fisheries, Turtle fisheries, Sponge fisheries, Clam fisheries

1641

Schropp, S. J., P. D. Brooks, and D. C. White (1986) Biochemical determination of sedimentary microbial community structure in Biscayne Bay, Florida. In: Abstracts, 86th Ann. Mtg. of the American Society for Microbiology. Washington, DC, 1986. American Society for Microbiology, Washington, DC. 249.

TIME COVERAGE: 1986 ◊

SUMMARY: [COPY NOT AVAILABLE.]

KEY WORDS: Sediment analysis, Microbiology, Aquatic communities, Miami River, Snapper Creek

1642

Schropp, S. J., F. G. Lewis, W. Eubanks, K. R. Carman, and D. C. White (1988) Biochemical characterization of estuarine benthic microbial communities for use in assessing pollution impacts. In: Chemical and Biological Characterization of Municipal Sludges, Sediments, Dredge Spoils, and Drilling Muds. J. J. Lichtenberg, J. A. Winter, C. I. Weber, and L. Fradkin, (eds.). ASTM special technical publications 976. American Society for Testing and Materials, Philadelphia, PA. 311-325.

TIME COVERAGE: 1985

SUMMARY: Analysis of phospholipid fatty acids (PLFA) were used to characterize benthic microbial community structure in Biscayne and Pensacola Bays and to relate changed in microbial community structure to sources of metal pollution. Sediment samples were obtained from clean and contaminated areas of each bay system. Polluted stations were generally characterized by high metal concentrations, fine-grained sediments, high lipid phosphate, high trans/cis fatty acid ratios, high bacterial PLFA, and low eucaryotic PLFA.

KEY WORDS: Estuaries, Benthic environment, Microbiological analysis, Pollution monitoring, Lipids, Metals, Sediment analysis, Pensacola Bay

1643

Schropp, S. J., F. G. Lewis, H. L. Windom, J. D. Ryan, F. D. Calder, and L. C. Burney (1990) Interpretation of metal concentrations in estuarine sediments of Florida using aluminum as a reference element. Estuaries, 13(3):227-235.

TIME COVERAGE: 1985 - 1987

SUMMARY: Estuarine sediments from 28 coastal sites in Florida were analyzed for Al, As, Cd, Cr, Cu, Pb, Hg, Ni and Zn. The data were normalized to Al for comparison of trace metal levels on a regional basis. Application of this method to sediments from the Miami River and parts of Biscayne Bay indicated that these sediments had unnatural metal concentrations.
KEY WORDS: Sediment, Al, As, Cd, Cr, Cu, Pb, Hg, Ni, Zn, Pollution monitoring, Sediment pollution, Environment management, Pollution indicators, Miami River

1644
Schropp, S. J., and H. L. Windom (1988) A guide to the interpretation of metal concentrations in estuarine sediments. Report. Florida Department of Environmental Regulation, Coastal Zone Management Section, Tallahassee, FL. 44 pp + appendix.
TIME COVERAGE: 1988 ◊
SUMMARY: This document describes an approach for interpreting metals concentrations in coastal sediments. Interpretation of environmental metals data is made difficult by the fact that absolute metals concentrations in coastal sediments are influenced by a variety of factors, including sediment mineralogy, grain size, organic content, and anthropogenic enrichment. The interpretive tool described herein provides a means of accounting for natural variability of metals and determining whether sediments are enriched with metals with respect to expected natural concentrations. The interpretive tool is based on the relatively constant natural relationships that exist between metals and aluminum. "Clean" coastal sediments from throughout Florida were collected and their metals content determined. Metal/aluminum regressions and prediction limits were calculated and diagrams of metal/aluminum relationships constructed. Metals data from coastal sediments can be plotted on these diagrams to determine whether measured metal concentrations represent natural concentrations or metal enrichment. Biscayne Bay data is used as one of the examples.
KEY WORDS: Sediment analysis, Al, Estuarine chemistry, Zn, Pb, Cu, Ni, Cr, Cd, As

1645
Schulman, A. A., S. L. Milton, and P. L. Lutz (1994) Aragonite sand as a nesting substrate and its effect on *Caretta caretta* nests. In: Proc., 14th Ann. Symp. on Sea Turtle Biol. and Conservation. K. A. Bjorndal, A. B. Bolten, D. A. Johnson, and P. J. Eliazar, (comps). Hilton Head, SC, 1994. NOAA technical memorandum NMFS-SEFSC-351. NOAA/NMFS Southeast Fisheries Science Center, Miami, FL. 134.
TIME COVERAGE: 1991 - 1993
SUMMARY: This study compared the acceptability of aragonite sand as a nesting substrate for loggerhead turtles. No ill effects were found. Significant differences were found in nest temperatures and incubation times.
KEY WORDS: Aragonite, Loggerhead turtle, *Caretta caretta*, Nesting, Fisher Island

1646
Schultz, G. A. (1966) *Philoscia miamiensis* n.sp., an isopod crustacean from Florida with ecological notes on the new species. Trans. Amer. Microscopical Soc., 85(3):457-462.
TIME COVERAGE: 1963
SUMMARY: This paper describes a species of terrestrial isopod taken on the margin of Biscayne Bay. Some ecological observations and a new species description was provided.
KEY WORDS: Isopods, *Philoscia miamiensis*, New species, Taxonomy

1647
Schwartz News Company (1926) w. l. o. South Florida hurricane scenes Schwartz News Company, Miami, FL. 47 pp.
TIME COVERAGE: 1926

SUMMARY: Photographs (101 views) taken September 17th and 18th, 1926 in Miami, Miami Beach, Buena Vista, Little River, Hialeah, Coral Gables, Hollywood and Fort Lauderdale showing the aftermath of the Hurricane of 1926.
KEY WORDS: Hurricanes, Photographs, Miami, South Florida

1648
Science Sub-Group (1997) Ecologic and precursor success criteria for south Florida ecosystem restoration. Report to the Working Group of the South Florida Ecosystem Restoration Task Force. South Florida Ecosystem Restoration Task Force, Miami. Various paging.
TIME COVERAGE: 1997 ◊
SUMMARY: This report established success criteria for various aspects of the South Florida Ecosystem Restoration Project.
KEY WORDS: Ecosystem management, Environmental restoration, Indicators, South Florida

1649
Science Sub-Group (1993) Federal objectives for the South Florida restoration. Report. November 15. South Florida Management and Coordination Working Group, Miami, FL. 87 pp.
TIME COVERAGE: 1993 ◊
SUMMARY: This report details the objectives of the South Florida Ecosystem Restoration Project.
KEY WORDS: Ecosystem management, Environmental restoration, Hydrology, Drainage water, South Florida

1650
Science Sub-Group (1994) South Florida ecosystem restoration: scientific information needs. Draft report. Interagency Task Force on the South Florida Ecosystem, Management and Coordination Working Group, Miami, FL. 536 pp.
TIME COVERAGE: 1994 ◊
SUMMARY: This report contains a series of papers on scientific information needed for the South Florida Ecosystem Restoration Project.
KEY WORDS: Ecosystem management, Environmental restoration, Kissimmee River Basin, Lake Okeechobee, St. Lucie River, Everglades, Big Cypress, Florida Keys, Florida Bay, Caloosahatchee River Basin, Reef tract

1651
Science Sub-Group (1996) South Florida ecosystem restoration: scientific information needs; a Science Subgroup report to the Working Group of the South Florida Ecosystem Restoration Task Force. South Florida Ecosystem Restoration Task Force, Miami. 487 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Ecosystem management, Environmental restoration, Sustainability, Kissimmee River Basin, Lake Okeechobee, St. Lucie River, Everglades, Big Cypress, Florida Keys, Florida Bay, Caloosahatchee River Basin, Reef tract

1652
Scott, T. M., J. M. Lloyd, and G. Maddox (eds.) (1991) Florida's ground water quality monitoring program; hydrogeological framework. Florida Geological Survey special publication no. 32. Florida Geological Survey, Tallahassee, FL. 97 pp.
TIME COVERAGE: 1991 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Ground water, Pollution monitoring, Water quality, Hydrogeology, Florida

1653
Scott, W. B. (1993) Hydrology and Hurricane Andrew in Florida. In: USGS Yearbook. Fiscal year 1992. 3-5.
TIME COVERAGE: 1992
SUMMARY: This article reviews the efforts to document the magnitude and extent of Hurricane Andrew's tidal surge and floods.
KEY WORDS: Storm surge, Hydrology, Hurricane Andrew

1654
Scotton, L. N. (1972) Tropical bay in danger. Sea Frontiers, 18(2):66-75.
TIME COVERAGE: 1972
SUMMARY: This paper discusses contamination problems in Biscayne Bay and anthropogenic changes to the area.
KEY WORDS: Ecological balance, Urbanization, Environmental protection, Card Sound, Resource conservation

1655
Seal, T. L., F. D. Calder, G. M. Sloane, S. Schropp, and H. L. Windom (1993) Assessment of trace metal contamination of estuarine and marine sediments from Florida. Abstracts with programs (Geological Society of America), 25(4):68.
TIME COVERAGE: 1982 - 1992
SUMMARY: In the 1980's, the Florida Department of Environmental Regulation developed an interpretive statistical tool to distinguish anthropogenic trace metal enrichment from natural chemical variability in estuarine and marine sediments of Florida. Based on normalization of metal concentrations to reference elements (Al or Li), the tool allows comparison of diverse sedimentary environments. Between 1982 and 1992, samples were collected at over 680 stations. Just under 100 stations were designated as "clean" reference sites well removed from both point or nonpoint sources. Statistical regression and prediction limits were calculated. On a statewide basis, 4% of stations were enriched above predicted levels with As, 27% with Cd, 16% with Cr, 23% with Cu, 36% with Pb, 9% with Ni, 30% with Hg, and 34% with Zn. Significant metal contamination was detected by sediment surveys in Tampa Bay, Pensacola Bay. Biscayne Say. and the St. Johns River.
KEY WORDS: Sediment pollution, Trace metals, Estuarine chemistry, As, Cd, C, Cu, Pb, Ni, Hg, Zn, Al, Li

1656
Seal, T. L., F. D. Calder, G. M. Sloane, S. J. Schropp, and H. L. Windom (1994) Florida coastal sediment contaminants atlas. Florida Department of Environmental Protection, Tallahassee, FL.
TIME COVERAGE: 1994 ◊
SUMMARY: This two-volume document (atlas and technical volume) document levels of contaminants in Florida. Data from several institutions were used to produce the document.
KEY WORDS: Coastal waters, Sediment pollution, Trace metals, Organic compounds, Florida, As, Cd, Cr, Cu, Hg, Pb, Ni, Zn, PAHs, PCBs, Phenolic HCs, Aliphatic HCs, Chlorinated hydrocarbons

1657
Seaman, W. (1987) Translating science for coastal decision making. In: Coastal Zone '87, Proc., 5th Symp. on Coastal and Ocean Management. 0. T. Magoon, H. Converse, D. Miner, L. T. Tobin, C. Clark, and G. Domurat, (eds.). 1987. American Society of Civil Engineers, New York, NY. 222-237.
TIME COVERAGE: 1987
SUMMARY: A uniform process of technical information assembly and application was conducted for six estuaries in Florida. Consolidation and interpretation of scientific data and transfer of

information has fostered cooperative actions among public and provate interests in the areas covered.
KEY WORDS: Information handling, Regional planning, Decision making, Estuaries, Coastal zone, Apalachicola Bay, Choctawhatchee Bay, Tampa Bay, St Johns River, Indian River

1658
Seaman, W., and D. Y. Aska (eds.) (1974) Proc., Research and Information Needs of the Florida Spiny Lobster Fishery. Miami, FL, 1974. Florida Sea Grant Program report 1. Florida Sea Grant Program SUSF-SG-74-20. Florida Sea Grant Program, Gainesville, FL.
TIME COVERAGE: 1974 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Spiny lobster, *Panulirus argus*, Lobster fisheries, Florida

1659
Seaman, W., and M. Collins (1983) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - snook. FWS/OBS-82/11.16. US Fish and Wildlife Service, National Coastal Ecosystems Team, Slidell, LA. 16 pp.
TIME COVERAGE: 1983 ◊
SUMMARY: The nomenclature, taxonomy, morphology, life history, growth characteristics, fishery, ecological role, and environmental requirements of snook are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Snook, *Centropomus undecimalis*, South Florida

1660
Seba, D. B. (1970) Pesticide bioassay: physical/chemical and biological effects of dieldrin on teleosts. Ph.D. dissertation. University of Miami, Coral Gables, FL. 104 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: The rate of dieldrin accumulation in the blood of tarpon was investigated and found to be dependent on environmental conditions and independent of the total toxicity. Indications are that the more slowly the dieldrin was accumulated, the more it can be tolerated by the fish. Efficiency of extraction of dieldrin from the water by fish is very high.
KEY WORDS: Pesticides, Dieldrin, Toxicity, Fish, Florida Keys, *Cyprinodon variegatus*, Sheepshead minnow, Sailfin molly, *Poscilla latipina*, Tarpon, *Megalops atlanticus*

1661
Seba, D. B., and E. F. Corcoran (1969) Surface slicks as concentrators of pesticides in the marine environment. Pesticides Monit. J., 3(3):190-193.
TIME COVERAGE: 1968
SUMMARY: Surface slicks in the marine environment are efficient concentrators of chlorinated pesticides. Surface slicks are associated with high biological activity. Slicks with the highest pesticide load occurred near ocean outfalls.
KEY WORDS: Surface films, Pesticides

1662
Segar, D. A., S. M. Gerchakov, and T. Johnson (1971) Chemistry. In: An Ecological Study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. IV:1-64.
TIME COVERAGE: 1971 ◊
SUMMARY: The purpose of this investigation was to obtain a baseline information on the chemistry of the water, sediments and biota of Card Sound so that changes due to the projected discharge can be identified.

KEY WORDS: Estuarine chemistry, South Bay, Turkey Point, Card Sound, Sediment, Nutrients, Salinity, Dissolved organic carbon, Fe, Cu, Zn, Co, Ni, Cd, Pb, Alkalinity

1663
Segar, D. A., S. M. Gerchakov, and T. Johnson (1972) Chemistry. In: An ecological study of south Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. IV:1-4.
TIME COVERAGE: 1972 ◊
SUMMARY: Temperature fluctuations within the bottom sediments underlying the thermal plume are smaller in magnitude than those of the overlying water. The heated discharge water had a lower dissolved oxygen content and slightly higher levels of nutrients and dissolved organic carbon than that of the intake water.
KEY WORDS: Estuarine chemistry, South Bay, Turkey Point, Card Sound, Nutrients, Organic carbon, Sediment, Fe, Cu, Zn

1664
Segar, D. A., J. L. Gilio, and R. E. Pellenbarg (1973) Some aspects of the biogeochemical cycles of trace metals in a sub-tropical estuary including ecosystem compartment models. In: Symp. on Environmental Biogeochemistry. NSF/Ecology Center, Utah State University, Logan, Utah. 19-20.
TIME COVERAGE: 1973 ◊
SUMMARY: Preliminary results of a study of trace metal biogeochemistry in Card Sound were presented. The absolute concentrations of most of the trace elements studied were lower than those reported in other coastal areas. This can be attributed to the absence of clay minerals from sedimentary environments. Metal concentrations in rooted aquatic plants appeared to be partially controlled by sedimentary metal concentrations and are correspondingly low.
KEY WORDS: Ag, Cu, Cd, Mn, Co, Zn, Pb, Fe, V, Biogeochemical cycle, Sedimentary environments, Card Sound

1665
Segar, D. A., R. E. Pellenbarg, and J. L. Gilio (1972) Observations on the distribution of Ag, Cu, Co, Ni, Cd, Zn, Pb, Fe and V in coastal ecosystems. Eos, 53(11):1030.
TIME COVERAGE: 1972 ◊
SUMMARY: Silver, Cu, Co, Cd, Ni, Pb, Fe, Zn and V in sediment and tissues from Card Sound. Sediments from the sounds are composed mainly of carbonates, quartz and organic material, and are almost totally devoid of clays. Cobalt, Fe and Pb were preferentially concentrated in sediments; Zn, V and Cd were more concentrated in the biota; and Cu was more concentrated in seawater. The concentrations of these elements in Card Sound samples were lower than those found in other coastal areas.
KEY WORDS: Sediment, Biogeochemistry, Minerals, Card Sound, Ag, Cu, Co, Cd, Ni, Pb, Fe, Zn, V, Tissue

1666
Segar, D. A., and R. E. Pellenbarg (1973) Trace metals in carbonate and organic rich sediments. Mar. Pollut. Bull., 4(9):138-142.
TIME COVERAGE: 1973 ◊
SUMMARY: Levels of trace metals in sediment were determined at two sites in Biscayne Bay and one in Bermuda. In all three cases, the accumulations could be ascribed to local human activities.
KEY WORDS: Card Sound, Turkey Point, V, Fe, Cd, Pb, Ag, Zn, Cu, Ni, Carbonate sediment, Organic sediments

1667
Selby (G. M.) and Associates Inc. (1992) Sunny Isles artificial reef module monitoring program. Selby (G. M.) and Associates Inc. First annual report 1991/92. G. M. Selby and Associates Inc., Melbourne, FL. Various paging.
TIME COVERAGE: 1991 - 1992
SUMMARY: Total counts of fishes and motile invertebrates were made on 31 artificial reefs of three different designs and at reference or background sites.
KEY WORDS: Artificial reefs, Environmental monitoring, Sunny Isles

1668
Semple, K. (1997) Preserve our pilings! Miami New Times, Miami, FL. METRO. Oct. 2 - 8. Accessed at internet site <http://www.miaminewtimes.com/issues/1997-10-02/metro2.html>. 8.
TIME COVERAGE: 1997 ◊
SUMMARY: Stiltsville is a community of houses located on the water about one mile south of the Cape Florida lighthouse. The houses were built on stilts over the Bay bottom within the jurisdiction of the Biscayne Bay National Park. Stiltsville could be demolished, preserved or left as is until the houses are demolished by natural causes. No new houses are permitted on the site.
KEY WORDS: Stiltsville, Biscayne Bay National Park

1669
Sengupta, S., S. S. Lee, and R. A. Bland (1975) Numerical modeling of circulation in Biscayne Bay. Eos, 56(6):383.
TIME COVERAGE: 1975 ◊
SUMMARY: This abstract describes a predictive model for circulation in Biscayne Bay.
KEY WORDS: Mathematical models, Water circulation, Wind-driven circulation

1670
Sengupta, S., S. S. Lee, T. N. Veziroglu, and R. A. Bland (1975) Remote sensing applied to numerical modeling. In: Symp., Remote Sensing, Energy-related Studies: Remote Sensing Applied to Energy Related Problems. T. N. Veziroglu, (ed.). Miami, FL, 1974. Hemisphere, Washington. 335-364.
TIME COVERAGE: 1975 ◊
SUMMARY: [COPY NOT AVAILABLE.]

1671
Sengupta, S., S. S. Lee, and H. P. Miller (1977) A three-dimensional free-surface numerical model for transport processes in Biscayne Bay. In: Computing Methods in Geophysical Mechanics. R. P. Shaw (ed.). AMD-Vol. 25. American Society of Mechanical Engineers, New York. 199 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: A three-dimensional numerical model for predicting wind and tide driven flows was developed and applied to Biscayne Bay.
KEY WORDS: Mathematical models, Wind-driven circulation, Tidal dynamics, Water circulation

1672
Sengupta, S., S. S. Lee, and H. P. Miller (1978) Three-dimensional numerical investigations of tide and wind-induced transport processes in Biscayne Bay. Sea Grant tech. bull. 39. University of Miami Sea Grant Program, Coral Gables, FL. 130 pp.
TIME COVERAGE: 1975, 1977

SUMMARY: A three-dimensional time-dependent frees surface hydrodynamic model was developed to study sediment transport and dissolved chemical transport in southern Biscayne Bay.
KEY WORDS: Sediment transport, Nearshore circulation, Coastal morphology, Hydrodynamics, Models, Boundary conditions, Suspended matter

1673
Sengupta, S., S. S. Lee, and C. V. Carter (1980) Three-dimensional time-dependent simulations of hydro-thermal behaviour of Biscayne Bay. Applied Mathematical Modeling, 4(-):28-38.
TIME COVERAGE: 1980 ◊
SUMMARY: This paper describes the application of mathematical models to remote sensing data. The model was applied to the thermal plumes off Turkey Point.
KEY WORDS: Mathematical models, Simulation, Water temperature, Water circulation, Nearshore currents, Tidal currents, Estuarine dynamics, Water mixing, Water currents

1674
Sengupta, S., H. P. Miller, and S. S. Lee (1981) Effect of open boundary condition on numerical simulation of three-dimensional hydrothermal behavior of Biscayne Bay, Florida. Internatl. J. Numerical Methods in Fluids, 1(-):145-169.
TIME COVERAGE: 1981 ◊
SUMMARY: A three-dimensional time dependent free-surface model was used to simulate the velocity and temperature distribution in Biscayne Bay. Comparisons with tide gauge data and airborne infrared temperature data were made.
KEY WORDS: Mathematical models, Boundary conditions, Hydrothermal activity, Estuarine dynamics, South Bay

1675
Serafy, J. E., J. S. Ault, and M. E. Clarke (1996) Red drum stock enhancement program Biscayne Bay fishery - independent assessment. Final report for contract MR018. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 98 pp.
TIME COVERAGE: 1994 - 1995
SUMMARY: The purpose of this study was to determine the efficacy of releasing various sized red drum into Biscayne Bay consistent with the red drum enhancement program goals.
KEY WORDS: Red drum, *Sciaenops ocellatus*, Stocking (Organisms), Stock assessment, Species list

1676
Serafy, J. E., J. S. Ault, T. R. Capo, and D. R. Schultz (1999) Red drum, *Sciaenops ocellatus* L., stock enhancement in Biscayne Bay, FL, USA: assessment of releasing unmarked early juveniles. Aquaculture Res., 30(-):737-50.
TIME COVERAGE: 1999 ◊
SUMMARY: Cohorts were reared in ponds to early juvenile size. Fish were harvested and released within 24 hrs. Substantial mortality often resulted after harvesting and transport. Seine samples 1 to 6 days after release indicated that fish 'disappeared" from the release sites faster than the rates of mortality. Juvenile great barracuda and adult redfin needlefish were the major predators. Discontinuing the release of unmarked organisms is strongly recommended.
KEY WORDS: Red drum, *Sciaenops ocellatus*, Stocking (Organisms), Juveniles, *Sphyraena barracuda*, Great barracuda, *Strongylura notata*, Redfin needlefish

1677
Serafy, J. E., T. E. Hopkins, and P. J. Walsh (1997) Field studies on the ureogenic gulf toadfish in a subtropical bay. I. Patterns of abundance, size composition and growth. J. Fish Biol., 50(6):1258-1270.
TIME COVERAGE: 1993 - 1994
SUMMARY: Gulf toadfish abundance varied significantly depending on site and season. Catch per unit effort was highest in the southern study sites which tended to provide the combination of shallow depth, nocturnal high levels of dissolved oxygen and *Thalassia* substrate. Significant seasonal differences in abundance were restricted to the three sites were fish abundances were highest.
KEY WORDS: Ornithine-urea cycle, Gulf toadfish, *Opsanus beta*, Abundance, Size distribution, Growth

1678
Serafy, J. E., K. C. Lindeman, T. E. Hopkins, and J. S. Ault (1997) Effects of freshwater canal discharge on fish assemblages in a subtropical bay: field and laboratory observations. Mar. Ecol. Prog. Ser., 160(-):161-172.
TIME COVERAGE: 1997
SUMMARY: A 14-month trawl survey was conducted at eight study sites in Biscayne Bay to compare species composition and structure of juvenile fish assemblages found near the mouths of freshwater flood control canals with those in similar areas with relatively stable salinity regimes. Water temperature, salinity, dissolved oxygen and depth measurements were recorded and bottom vegetation quantified. Fish species composition was similar among sites but more species were collected from stable versus variable salinity areas.
KEY WORDS: Biscayne Canal, Little River, Sunset Harbor, Miami River, Rickenbacker Causeway, Matheson Hammock, Black Point, Turkey Point, Seagrasses, Species list, Stock assessment

1679
Serafy, J. E., C. M. Schmitz, T. R. Capo, M. E. Clarke, and J. S. Ault (1996) Total length estimation of red drum from head dimensions. Prog. Fish-Culturist, 58(-):289-290.
TIME COVERAGE: 1988 - 1996?
SUMMARY: Four head dimensions of red drum were individually regressed against total length to facilitate estimation of the size of hatchery-raised fish released in Biscayne Bay and recaptured by sport anglers.
KEY WORDS: Red drum, *Sciaenops ocellatus*, Fishery

1680
Sewell, J. (1898 - 1933) John Sewell's Memoirs and History of Miami, Florida. Volume 1 [no more published]; Appendix: An eye witness to the attempt to assassinate President-elect Frankling D. Roosevelt, February 15, 1933. J. Sewell, Miami, FL. 237 pp.
TIME COVERAGE: 1898 - 1933
SUMMARY: This book is a history of Miami. One of the chapters describes the Miami Harbor, Government Cut and Miami Beach.
KEY WORDS: History, Biographies, Miami, Miami Harbor, Government Cut, Miami Beach

1681
Sguros, P. L., S. P. Meyers, and J. Simms (1962) Role of marine fungi in the biochemistry of the oceans. I. Establishment of quantitative technique for cultivation, growth measurement and production of inocula. Mycologia, 54(-):521-535.
TIME COVERAGE: 1962 ◊
SUMMARY: This paper describes a quantitative technique for cultivation, growth determination and production of inocula

KEY WORDS: Fungi, Deuteromycetes, *Culcitalna achraspora*, Culture media, Growth

1682
Sguros, P. L., and J. Simms (1963) Role of marine fungi in the biochemistry of the oceans. III. Growth factor requirements of the ascomycete *Halosphaeria mediosetigera*. Can. J. Microbiol., 9(-):585-591.
TIME COVERAGE: 1963 ◊
SUMMARY: [Source and culture of fungi reported in an earlier paper by the author.]
KEY WORDS: Fungi, Ascomycetes, *Halosphaeria mediosetigera*, Nutrition

1683
Sguros, P. L., and J. Simms (1963) Role of marine fungi in the biochemistry of the oceans. II. Effect of glucose, inorganic nitrogen, and tris(hydroxymethyl)amino-methane on growth and pH changes in synthetic media. Mycologia, 55(-):728-741.
TIME COVERAGE: 1963 ◊
SUMMARY: This paper describes the use of various formulations of media for culture of fungi.
KEY WORDS: Fungi, Culture media, Growth

1684
Sguros, P. L., and J. Simms (1964) Role of marine fungi in the biochemistry of the oceans. IV. Growth responses to seawater inorganic macroconstituents. J. Bacteriol., 88(-):346-355.
TIME COVERAGE: 1964 ◊
SUMMARY: [Source and culture of fungi reported in an earlier paper by the author.]
KEY WORDS: Fungi, *Halosphaeria mediosetigera*, Culcitalna achraspora, Inorganic matter, Sea water, Growth

1685
Shaler, N. S. (1890) The topography of Florida. With a note by Alexander Agassiz. Bull. Museum Comparative Zoology, 17(7):139-159.
TIME COVERAGE: 1890 ◊
SUMMARY: This paper is an early study of South Florida geological features.
KEY WORDS: Topography, Landforms, Coral reefs, Florida

1686
Sharp, D. (1999) Stiltsville could be on its last leg. USA Today, The Nation. 17A.
TIME COVERAGE: 1999 ◊
SUMMARY: This article describes Stiltsville and the efforts to save it.
KEY WORDS: Stiltsville

1687
Shay, L. K., D. B. Ross, and H. C. Graber (1992) Ocean Surface Current Profiling using HF radar. RSMAS technical report 92-004. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Coral Gables, FL. 34 pp.
TIME COVERAGE: 1992 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Profilers, Coastal currents, Radar, Cape Hatteras, Key Biscayne

1688
Sheldon, J. W. (1978) In situ measurement of water transparency. Photogrammetric Eng. Remote Sensing, 44(-):717-720.
TIME COVERAGE: 1978 ◊
SUMMARY: This paper described how the modulation transfer function theory and experimental technique can be used to monitor suspended particulates. The design of a simple low-cost

underwater camera-light source-target system is reported and its use is demonstrated by observing the temporal variation in the transparency of Biscayne Bay water during the passage of a barge-tug vehicle.
KEY WORDS: Water transparency, Underwater photography, Measuring devices

1689
Shepard, F. P., and H. R. Wanless (1971) Our Changing Coastlines. McGraw-Hill, New York, NY. 579 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: This book describes changes to the coastline of the US. One of the chapters briefly discusses Biscayne Bay.
KEY WORDS: Coastal landforms, Beach morphology, Sea level variations, Barrier islands, Tidal inlets, Erosion features

1690
Sherwood, C. B., and S. D. Leach (1962) Hydrologic studies in the Snapper Creek Canal area, Dade County, Florida. Florida Geological Survey report of investigations no. 24, part 2. US Geological Survey, Tallahassee, FL. 32 pp.
TIME COVERAGE: 1962 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Hydrology, Ground water, Surface water, Saline intrusion, Snapper Creek Canal

1691
Shigenaka, G. (1990) Chlordane in the marine environment of the United States: review and results from the National Status and Trends Program. NOAA technical memorandum NOS OMA 35. NOAA/NOS, Seattle, WA. 230 pp.
TIME COVERAGE: 1990 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Chlordane, Pesticides, Marine pollution, Pollution monitoring, United States

1692
Shinn, E. A. (1988) The geology of the Florida Keys. Oceanus, 31(1):46-53.
TIME COVERAGE: 1988 ◊
SUMMARY: This work describes the geology of the Florida Reef Track and southern Biscayne Bay.
KEY WORDS: Coral reefs, Geology, Florida Keys

1693
Shinn, E. A., and E. F. Corcoran (1987) Contamination by landfill leachate, South Biscayne Bay, Florida. Unpublished report. Miami, FL. 8 pp.
TIME COVERAGE: 1987
SUMMARY: This report describes the results of water sampling in wells drilled at a sanitary landfill near southern Biscayne Bay. Water samples were analyzed for pesticides.
KEY WORDS: Landfill, Leaching, Water pollution, Groundwater pollution, Pesticides, Hydrocarbons, Black Point

1694
Shinn, E. A., J. H. Hudson, R. B. Halley, and B. H. Lidz (1977) Topographic control and accumulation rate of some Holocene coral reefs: south Florida and Dry Tortugas. In: Proc., 3rd Internatl. Coral Reef Symposium. Miami, FL, 1977. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. Vol. 2: 1-7.
TIME COVERAGE: 1977 ◊
SUMMARY: [COPY NOT AVAILABLE.]

KEY WORDS: Coral reefs, Thickness, Holocene, Accumulation, Bal Harbour, Florida Keys, Dry Tortugas

1695
Shinn, E. A., B. H. Lidz, J. L. Kindinger, J. H. Hudson, and R. B. Halley (1989) Reefs of Florida and the Dry Tortugas; Miami to Key West, Florida, July 2-7, 1989. Field trip guidebook (28th International Geological Congress) T176. American Geophysical Union, Washington, DC. 53 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: This is a field guide to the reefs for the east coast of Florida.
KEY WORDS: Coral reefs, Geology, Florida Keys, Dry Tortugas, Field trip guidebook

1696
Shoemaker, W. S. (1952) A preliminary study of productivity in tropical inshore waters as typified by Hurricane Harbor, Biscayne Key, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 81 pp.
TIME COVERAGE: 1950 - 1951
SUMMARY: Monthly observations were made at a single station for one year. Temperature, salinity, dissolved oxygen, total phosphorus, chlorophyll, plankton and illumination were recorded.
KEY WORDS: Biological production, Coastal waters, Hurricane Harbor, Key Biscayne, Water quality, P, Chlorophyll, Plankton

1697
Shroder, T. (1986) The greening of Islandia. The Miami Herald, Miami, FL. July 20. Tropic. 15.
TIME COVERAGE: 1960s
SUMMARY: Islandia was conceived in the 1960s as the "last sparkling jewel of the ocean", a city in the style of Miami Beach, located at the northern end of Elliott Key. This article describes the activities that led to the abandonment of the Islandia project.
KEY WORDS: Islandia, Elliott Key

1698
Shubow, D. (1969) Sponge fishing on Florida's east coast. Tequesta, 29(-):3-15.
TIME COVERAGE: 1880s - 1969
SUMMARY: This article describes the sponge fishing industry from the 1880s through the time of writing. In the 1880s, schooners harvested the sponge beds of Elliott Key, Soldiers Key and other parts of Biscayne Bay as far north as Miami. During the early part of the century, the sponges of Biscayne Bay were evaluated for commercial purposes and found to be of excellent quality. Sponge industry activities, however, remained low key as the main centers of the fisheries were in Tarpon Spring and Key West. During 1938 - 1952 sponge beds on both coasts of Florida were affected by a blight.
KEY WORDS: Sponge fisheries, Elliott Key, Soldier Key, Miami

1699
Sidjabat, M. M. (1967) Oxidation of hydrogen sulfide in sea water. M.Sc. thesis. University of Miami, Coral Gables, FL. 42 pp.
TIME COVERAGE: 1967 ◊
SUMMARY: The fate of hydrogen sulfide in seawater was studied under controlled conditions in the laboratory. Results suggested that hydrogen sulfide is thermodynamically unstable in seawater. Some experiments were carried out onboard ship using water collected on site.
KEY WORDS: Hydrogen sulfide, Oxidation, Sea Water

1700
Siebenaler, J. B. (1953) The Biscayne Bay commercial fishery. Florida Board of Conservation technical series 6. Marine Laboratory, University of Miami, Coral Gables, FL. 20 pp.
TIME COVERAGE: 1950 - 1952
SUMMARY: Over 650,000 pounds of fish were produced from Biscayne Bay in twelve months from 1950 to 1951, and 990,000 from 1951 to 1952. Of the quantity taken over the two-year period, 97.8% were mullet, and only 0.5% could be classified as sport fish. The large quantities of mackerel landed in Miami during the winter months were not caught in Biscayne Bay. Gill net and cast net are the only gear used in the fin-fish fishery. Commercial fishing area were described.
KEY WORDS: Commercial fishing, Commercial species, Fisheries

1701
Sigel, M. M., D. F. Rippe, F. Parsons, and A. R. Beasley (1976) Virus studies in Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 167-171.
TIME COVERAGE: 1976 ◊
SUMMARY: Viruses were recovered from Bay and marine fishes. Most of these viruses originated from human excrement discharged into the sea. Other viruses originate from fish.
KEY WORDS: Viruses, Waste disposal, Water pollution

1702
Simmons, J. R. (1973) A seasonal study of nutrient levels and dinoflagellates in waters near Miami, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 74 pp.
TIME COVERAGE: 1972 - 1973
SUMMARY: The purpose of this study was to provide further information to understand the phenomenon of red tides and their relationship to phosphate pollution. Phosphate levels in Biscayne Bay waters were found to be sufficient to support *Gymnodinium breve* blooms. Only sewage outfalls, however, offered optimal conditions for red tide blooms. Such blooms have to occurred so other limiting factors may be operating.
KEY WORDS: Red tides, Dinoflagellates, Nutrients, Cape Florida, Key Biscayne, Bear Cut, West Point, Brewster Reef, *Gymnodinium breve*

1703
Simpson, C. T. (1932) Florida Wild Life: Observations on the Flora and Fauna of the State and the Influence of Climate and Environment on their Development. Macmillan, New York, NY. 199 pp.
TIME COVERAGE: 1932 ◊
SUMMARY: This book contains descriptions of various aspects of Florida wildlife and climate including mangroves, fish, sea shells and hurricanes.
KEY WORDS: Fish, Shells, Vegetation, Botanical resources, Florida, Hurricanes, Mangroves, Climate

1704
Simpson, C. T. (1920) In Lower Florida Wilds: a Naturalist's Observations on the Life, Physical Geography, and Geology of the More Tropical Part of the State. Putnam, New York, NY. 404 pp.
TIME COVERAGE: 1920 ◊
SUMMARY: This book contains observations on the geology and ecology of South Florida including mangrove forests, the Florida Keys, Cape Sable, the Everglades and the Ten Thousand Islands.
KEY WORDS: Natural history, Vegetation, Florida Keys, Everglades, Florida Bay, Cape Sable, Mangroves, Ten Thousand Islands

1705
Simpson, C. T. (1923) Out of Doors in Florida: the Adventures of a Naturalist, Together with Essays on the Wild life and the Geology of the State. E. B. Douglas, Miami, FL. 412 pp.
TIME COVERAGE: 1923 ◊
SUMMARY: This book describes the ecology of Florida with an emphasis in the middle and northern part of the state.
KEY WORDS: Natural history, Geology, Vegetation, Florida

1706
Singletary, R. L. (1970) The biology and ecology of *Amphioplus coniortodes*, *Ophionepthys limicola*, and *Micropholis gracillima* (Ophiuroidea: Amphiuridae). Ph.D. dissertation. University of Miami, Coral Gables, FL. 136 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: The biology and ecology of brittle stars collected in Biscayne Bay are described.
KEY WORDS: Brittle stars, *Amphioplus coniortodes*, *Ophionepthys limicola*, *Micropholis gracillima*, Ecophysiology, Growth, Feeding, Breeding seasons, Substrate preferences

1707
Singletary, R. L. (1980) The biology and ecology of *Amphioplus coniortodes*, *Ophionephthys limicola*, and *Micropholis gracillima* (Ophiuroidea: Amphiuridae). Caribbean J. of Science, 16(1/4):39-55.
TIME COVERAGE: 1980 ◊
SUMMARY: Comparison was made of three sympatric brittlestars found in soft sediment with a medium grain size of less than 0.3 mm. Only *Ophionephthys* occurred in sediments with larger median grain size. Differences in the biology of these species considerably reduces competition.
KEY WORDS: Brittle stars, Growth, Feeding, Breeding seasons, Substrate preferences, *Amphioplus coniortodes*, *Ophionephthys limicola*, *Micropholis gracillima*

1708
Singletary, R. (1980) The biology and ecology of Amphioplus coniortodes, *Ophionepthys limicola*, and *Micropholis gracillima* (Ophiuroidea: Amphiuridae). Caribbean Journal of Science, 16(14):39-55.
TIME COVERAGE: 1980 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Brittle stars, *Amphioplus coniortodes*, *Ophionepthys limicola*, *Micropholis gracillima*, Ecophysiology, Growth, Feeding, Breeding seasons, Substrate preferences

1709
Singletary, R. L. (1971) Thermal tolerance of ten shallow-water ophiuroids in Biscayne Bay, Florida. Bull. Mar. Sci., 21(4):938-943.
TIME COVERAGE: 1971 ◊
SUMMARY: The upper instantaneous lethal temperatures of ten species of brittle stars were found to be between 37.5 and 40.5 °C. The lower instantaneous lethal temperatures for three amphiurids were between -2 and 0 °C. The brittle star specimens were collected from mud and calcareous *Halimeda* beds in Biscayne Bay.
KEY WORDS: Brittle stars, Temperature tolerance, Temperature effects

1710
Singletary, R. L., and H. B. Moore (1974) A redescription of the *Amphioplus coniortodes-Ophionepthys limicola* community of Biscayne Bay, Florida. Bull. Mar. Sci., 24(3):690-699.
TIME COVERAGE: 1974 ◊
SUMMARY: The brittle star community originally discussed in 1962 is re-described.

KEY WORDS: Brittle stars, *Amphioplus coniortodes*, *Ophionepthys limicola*, Community composition

1711
Sites, G. L. (1971) Boater's Guide to Biscayne Bay; Miami to Jewfish Creek. University of Miami Press, Coral Gables, FL. 64 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: This is a boater's guide with a guided tour of Biscayne Bay.
KEY WORDS: Navigational charts, Boating, Recreational waters, South Bay, Guide

1712
Skinner, R. H. (1978) The interrelation of water quality, external parasites and gill pathology of some fishes from Biscayne Bay, Florida. Ph.D. dissertation. University of Miami, Coral Gables, FL. 93 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: In this study, the interrelationship of water quality, infestation of three species of fish by external parasites, and their gill pathology in natural waters was described. Fish collected in the canals emptying into southwest Biscayne Bay were severely infected.
KEY WORDS: Water quality, Water pollution, Yellowfin mojarra, *Gerres cinereus*, Gray snapper, *Lutjanus griseus*, Needlefish, *Strongylura timucu*, Parasites, Gill disease

1713
Skinner, R. H. (1982) The interrelation of water quality, gill parasites, and gill pathology of some fishes from south Biscayne Bay, Florida. Fishery Bull., 80(2):269-280.
TIME COVERAGE: 1982 ◊
SUMMARY: [THIS WORK WAS ALSO REPORTED IN THE PREVIOUS CITATION.] This study investigated monogenetic trematode infestation of the gills and gill pathology of yellowfin mojarra, gray snapper, and needlefish in relation to water quality in southern Biscayne Bay.
KEY WORDS: Water quality, Water pollution, Yellowfin mojarra, *Gerres cinereus*, Gray snapper, *Lutjanus griseus*, Needlefish, *Strongylura timucu*, Parasites, Gill disease, South Bay

1714
Skinner, R. H. (1974) Parasites of the striped mullet, *Mugil cephalus*, from Biscayne Bay, Florida, with descriptions of a new genus and three new species of trematodes. M.Sc. thesis. University of Miami, Coral Gables, FL. 84 pp.
TIME COVERAGE: 1972 - 1973
SUMMARY: Parasites found in mullet collected in Biscayne Bay were described.
KEY WORDS: Striped mullet, *Mugil cephalus*, Parasites, Trematodes, *Micropolyclithrum parvum*, *Schikhobalotrema magnum*, *Epithelionematobothrium fragile*, Thynnascaris, New species

1715
Skinner, R. H. (1975) Parasites of the striped mullet, *Mugil cephalus*, from Biscayne Bay, Florida, with descriptions of a new genus and three new species of trematodes. Bull. Mar. Sci., 25(3):318-345.
TIME COVERAGE: 1972 - 1973
SUMMARY: Parasites found in mullet collected in Biscayne Bay were described.
KEY WORDS: Striped mullet, *Mugil cephalus*, Parasites, Trematodes, *Micropolyclithrum parvum*, *Schikhobalotrema magnum*, *Epithelionematobothrium fragile*, Thynnascaris, New species

1716
Skinner, R. H. (1978) Some external parasites of Florida fishes. Bull. Mar. Sci., 28(3):590-595.
TIME COVERAGE: 1978 ◊
SUMMARY: Ectoparasites of nine fish species were identified and 10 new hosts and 12 geographic records were noted.
KEY WORDS: Parasites, Hosts, Fish

1717
Skinner, R. H., and W. C. Jaap (1986) Trace metals and pesticides in sediments and organisms in John Pennekamp Coral Reef State Park and Key Largo National Marine Sanctuary. Report. Florida Dept. of Natural Resources (?), Tallahassee, FL.
TIME COVERAGE: 1985 - 1986
SUMMARY: The purpose of this study was to establish a reliable information base on trace metals, pesticides, PCBs and phthalate concentrations in surface sediments and tissues. The northern-most station is on the border of Biscayne National Park.
KEY WORDS: Trace metals, Pesticides, PCBs, Phthalates, Nutrients, Coliform bacteria, Sediment pollution, Marine organisms, John Pennekamp Coral Reef State Park, Key Largo National Marine Sanctuary, Biscayne National Park

1718
Skinner, R. H., and W. Kandrashoff (1988) Abnormalities and diseases observed in commercial fish catches from Biscayne Bay, Florida. Water Res. Bull., 24(5):961-966.
TIME COVERAGE: 1970 - 1975, 1978 - 1982
SUMMARY: Commercial fish catches of 17 fish species from Biscayne Bay were examined for abnormal and diseased specimens. Disorders occurring consistently in a location exposed to pollutants but uncommon in other areas of the species range point to environmental stress as a possible cause.
KEY WORDS: Fish diseases, Abnormalities, Fish, Commercial species, Water quality, Pollution

1719
Skjoldal, H. R. (1982) Vertical and small-scale horizontal distribution of chlorophyll *a* and ATP in subtropical beach sand. Sarsia, 67(2):79-84.
TIME COVERAGE: 1982 ◊
SUMMARY: The vertical distribution of chlorophyll and ATP within the uppermost 12 cm of sand were highly correlated. The contents of chlorophyll and ATP decreased slightly within the uppermost 2-4 cm, while decreasing more rapidly below.
KEY WORDS: Sand, ATP, Chlorophylls, Vertical distribution, Horizontal distribution, Subtropical zones, Crandon Park

1720
Skop, R. A., H. C. Graber, and D. B. Ross (1995) VHR radar measurements of flow patterns in bays and estuaries. In: Proc., IEEE fifth Working Conf. on Current Measurement. St. Petersburg, FL, 1995. William S. Sullwold Pub., Taunton, MA. 143-147.
TIME COVERAGE: 1994
SUMMARY: An Ocean Surface Current Radar (OSCR) system was deployed to measure currents over a portion of Biscayne Bay to determine OSCR capabilities to map current in an environment having low amplitude Bragg resonant waves and containing numerous shoals and small islands. With the exception of very shallow shoal regions, high quality vector current maps could be obtained.
KEY WORDS: Surface currents, Doppler effect, Radar, Tidal currents, Current measurement

1721
Skop, R. A., D. B. Ross, N. J. Peters, and L. Chamberlain (1994) Measurements of coastal currents using a ship based VHF radar system. RSMAS technical report 94-001. Division of Applied Marine Physics, Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 25 pp.
TIME COVERAGE: 1994 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Coastal currents, Radar, Doppler effect, Current measurement, Key Biscayne, Columbus Iselin (Ship)

1722
Skop, R. A., D. B. Ross, N. J. Peters, and L. Chamberlain (1994) Ship based, VHF radar measurements of coastal currents. In: Proc., MTS 94: Challenges and Opportunities in the Marine Environment. Washington, DC, 1994. Marine Technology Society, Washington, DC. 20-26.
TIME COVERAGE: 1993
SUMMARY: The purpose of the experiment described in this paper was to evaluate the feasability of using an Ocean Surface Current Radar system to map nearshore coastal currents from a ship.
KEY WORDS: Coastal currents, Doppler effect, Radar, Current measurement, Key Biscayne, Columbus Iselin (Ship)

1723
Skowronek, R. K., and G. R. Fischer (1984) Archeological testing and evaluation of the Legare Anchorage Shipwreck site, Biscayne National Park, summer 1983. PB89-232029. National Park Service, Southeast Archeological Center, Tallahassee, FL. 157 pp.
TIME COVERAGE: 1983
SUMMARY: This report is an assessment of the wreck site of the HMS Fowey lost in 1748 in Biscayne Bay.
KEY WORDS: Archaeology, Wrecks, Legare Anchorage Shipwreck, Biscayne National Park

1724
Slatt, B. J., D. F. S. Natusch, J. M. Prospero, and D. L. Savoie (1978) Hydrogen sulfide in the atmosphere of the northern equatorial Atlantic Ocean and its relation to the global sulfur cycle. Atmospheric Environ., 12(-):981-991.
TIME COVERAGE: 1978 ◊
SUMMARY: Concentrations of hydrogen sulfide were measured in Sal Island, Cape Verde Islands and Virginia Key.
The measured concentrations were between four and forty times lower than previously accepted values, indicating that the atmospheric lifetime of hydrogen sulfide may be as short as a few hours.
KEY WORDS: Hydrogen sulfide, Atmospheric chemistry, Biogeochemical cycle, Sulfur cycle, Virginia Key, Equatorial Atlantic Ocean

1725
Slosson, A. T. Collecting on Biscayne Bay, Part II. In: American Women Afield: Writings by Pioneering Women Naturalists. M. M. Bonta (ed.). Texas A&M University Press, College Station, TX. 45-54.
TIME COVERAGE: 1899
SUMMARY: Annie Trumbull Slosson was an entomologist who collected specimens in Florida. Specimens found on the shore of Biscayne Bay are described. [Originally published in Entomological News, May 1899.]
KEY WORDS: Slosson, A. T., Entomology

1726
Slosson, A. T. (1899) Collecting on Biscayne Bay. Entomological News, 10(-):94-96.
TIME COVERAGE: 1899 ◊
SUMMARY: This account and the one that follows describes insect collection efforts in South Florida.
KEY WORDS: Insects, Vegetation

1727
Slosson, A. T. (1899) Collecting on Biscayne Bay, pt. 2. Entomological news, 10(-):124-126.
TIME COVERAGE: 1899 ◊
SUMMARY: This account and the previous one describes insect collection efforts in South Florida.
KEY WORDS: Insects, Vegetation

1728
Small, J. K. (1919) Coastwise dunes and lagoons: a record of botanical exploration in Florida in the spring of 1918. J. New York Botanical Garden, 20(238):191-207.
TIME COVERAGE: 1918
SUMMARY: This is an account of botanical exploration and investigations in South Florida. Botanical specimens were collected and preserved for a series of illustrations.
KEY WORDS: Botanical resources, Dunes, Hammocks, Lagoons, Florida

1729
Small, J. K. (1914) Exploration in the Everglades and on the Florida Keys. J. New York Botanical Garden, 15(-):69-79.
TIME COVERAGE: 1914 ◊
SUMMARY: This paper describes botanical explorations in the Everglades and the Florida Keys and other areas of southern Florida.
KEY WORDS: Vegetation, Botanical resources, Lake Okeechobee, Everglades, Florida Keys

1730
Small, J. K. (1916) Exploration in southern Florida in 1915. J. New York Botanical Garden, 17(-):37-45.
TIME COVERAGE: 1915
SUMMARY: This paper describes continuing botanical exploration efforts in South Florida.
KEY WORDS: Vegetation, Botanical resources, Florida Keys, Everglades

1731
Small, J. K. (1913) Flora of the Florida Keys; being descriptions of the seed-plants growing naturally on the islands of the Florida reef from Virginia Key to Dry Tortugas. J. K. Small, New York, NY. 162 pp.
TIME COVERAGE: 1913 ◊
SUMMARY: This is a botanical guide to the Florida Keys including Virginia Key and the Dry Tortugas.
KEY WORDS: Vegetation, Botanical resources, Florida Keys, Virginia Key, Dry Tortugas, Guide

1732
Small, J. K. (1929) From Eden to Sahara: Florida's Tragedy. Science Press, Lancaster, PA. 123 pp.
TIME COVERAGE: 1922
SUMMARY: This book is a narrative of botanical explorations in Florida. The wholesale devastation of the plant covering, through carelessness, thoughtlessness, and vandalism,

prehistoric and historic, was apparent to the author. Remains of Native American villages, burial mounds and other sites are described.
KEY WORDS: Botanical resources, Vegetation, Archaeology, Middens, Nature conservation, Florida Keys, Cape Sable, Cape Romano, Native Americans, Everglades, Indian Creek, Virginia Key

1733
Small, J. K. (1930) Vegetation and erosion on the Everglade Keys. Scientific Monthly, 30(-):33-50.
TIME COVERAGE: 1930 ◊
SUMMARY: This paper describes erosion produced by humus accumulation and other processes related to vegetation.
KEY WORDS: Vegetation, Erosion, Limestone, Oolites, Everglades, Florida Keys, Soldier Key

1734
Smiley, N. (1973) Yesterday's Miami. E. A. Seamann, Miami, FL. 156 pp.
TIME COVERAGE: 1896 - 1970
SUMMARY: This book is a pictorial history of Miami and Miami beach.
KEY WORDS: History, Photographs, Miami Beach, Government Cut

1735
Smith, C. A., L. Lidz, and F. W. Meyer (1982) Data on selected deep wells in south Florida. US Geological Survey, Tallahassee, FL. 144 pp.
TIME COVERAGE: 1982 ◊
SUMMARY: This report is a ground water database for South Florida.
KEY WORDS: Ground water, Wells, Aquifers, South Florida

1736
Smith, F. G. W. (1948) Atlantic Reef Corals: a Handbook of the Common Reef and Shallow-Water Corals of Bermuda, Florida, the West Indies, and Brazil. University of Miami Press, Coral Gables, FL.
TIME COVERAGE: 1948 ◊
SUMMARY: This book is a guide to the common corals of Bermuda, Florida, the West Indies, and Brazil.
KEY WORDS: Coral, Coral reefs, Bermuda, Bahamas, Florida, West Omdoes, Brazil, Atlantic Ocean, Guide

1737
Smith, F. G. W. (1971) Atlantic Reef Corals; a Handbook of the Common Reef and Shallow-Water Corals of Bermuda, the Bahamas, Florida, the West Indies, and Brazil. University of Miami Press, Coral Gables, FL. 164 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: This is a revised edition of the 1948 printing.
KEY WORDS: Coral, Coral reefs, Bermuda, Bahamas, Florida, West Indies, Brazil, Atlantic Ocean, Guide

1738
Smith, F. G. W. (1945) Effect of water currents upon the attachment and growth of barnacles. Biol. Bull., 89(1):51-70.
TIME COVERAGE: 1945 ◊
SUMMARY: Experiments were conducted to determine the effects of water current upon the attachment and growth of barnacles. Rotating discs and glass tubes of graded cross-sectional diameter were employed to provide variations in current velocity.

KEY WORDS: Barnacles, Biological attachment, *Balanus amphitrite*, *Balanus eburneus*, *Balanus improvisus*, Water currents

1739
Smith, F. G. W. (1946) Functions and development of a tropical marine laboratory. Science, 103(-):609-611.
TIME COVERAGE: 1946 ◊
SUMMARY: This is a descriptions marine laboratory of the University of Miami.
KEY WORDS: Oceanographic institutions, Tropical oceanography, Miami Marine Laboratory

1740
Smith, F. G. W. (1943/44) Littoral fauna of the Miami area. I. The Madreporapia. Proceedings of the Florida Academy of Sciences, 6(-):41-48.
TIME COVERAGE: 1944 ◊
SUMMARY: This paper contains descriptions of the species of corals found in the Miami area.
KEY WORDS: Littoral zone, Coral, Madreporapia, Identification keys

1741
Smith, F. G. W. (1982) Ships that flew. Sea Frontiers, 28(4):203-216.
TIME COVERAGE: 1982 ◊
SUMMARY: Miami was the most important flying boat terminal in the world, and became the headquarters for Pan American in 1928. The barge terminal was replaced in 1939 by a building at Dinner Key that eventually became the site of the government of the City of Miami. Chalk's International Airlines is based in Biscayne Bay and flies between Miami and the Bahamas. This airline is the sole remaining flying boat airline.
KEY WORDS: Aircraft, Air transportation, Flying boats, Chalk's International Airline, Pan American Airlines

1742
Smith, F. G. W. (1958) The spiny lobster industry of Florida. Florida Board of Conservation educational series 11. Marine Laboratory, University of Miami, Miami, FL. 34 pp.
TIME COVERAGE: 1958 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Spiny lobster, *Panulirus argus*, Lobster fisheries, Florida

1743
Smith, F. G. W. (1948) Surface illumination and barnacle attachment. Biol. Bull., 94(1):33-39.
TIME COVERAGE: 1948 ◊
SUMMARY: The purpose of this work was to investigate the anomalies reported in the response of barnacle larvae to black and white surfaces.
KEY WORDS: Barnacles, *Balanus amphitrite niveus*, *Balanus improvisus*, Biological attachment, Phototaxis

1744
Smith, F. G. W., and N. Marshall (1945) Preliminary report on the Florida crawfish investigation. Report UML-10,506. Marine Laboratory, University of Miami, Miami, FL. 28 pp.
TIME COVERAGE: 1944
SUMMARY: This report is an assessment of the lobster fishery of South Florida to determine if overfishing was taking place and to propose remedial actions.
KEY WORDS: Spiny lobster, *Panulirus argus*, Lobster fisheries, Florida

1745
Smith, F. G. W., R. H. Williams, and C. C. Davis (1950) An ecological survey of the subtropical inshore waters adjacent to Miami. Ecology, 31(1):119-146.
TIME COVERAGE: 1945 - 1946
SUMMARY: Observations were made at a series of stations covering a wide range of environmental conditions. Chemical and physical observations and plankton samples were made at monthly intervals. Results indicated the great part played by land drainage and sewage in the growth of plankton and of sedimentary organisms, the otherwise low nutrient and plankton content of inshore waters, and the presence of a winter as well as summer peak in breeding and growth.
KEY WORDS: Plankton, Fouling organisms, Miami, Northern Bay, Hurricane Harbor, Biscayne Channel, Elliott Key, Triumph Reef, Soldier Key, Chicken Key, Dissolved oxygen, Water quality, Nutrients, Featherbed Bank, Fouling

1746
Smith, H. M. (1896) Notes on Biscayne Bay, Florida, with reference to its adaptability as the site of a marine hatching and experiment station. Report of the Commissioner [US Commission of Fish and Fisheries] for the year ending June 30, 1895, 21(-):169-191.
TIME COVERAGE: 1896◊
SUMMARY: [NOT AVAILABLE.]
KEY WORDS: Fish, Marine mammals, Aquatic reptiles, Marine crustaceans, Oysters, Sponges, Commercial fishing

1747
Smith, M. (1945) East Coast Marine Shells: Descriptions of Shore Mollusks Together with Many Living Below Tide Mark, from Maine to Texas Inclusive, Especially Florida. Edwards Brothers, Ann Arbor, MI. 314 pp.
TIME COVERAGE: 1945 ◊
SUMMARY: This is a guide to seashells including those found in Florida.
KEY WORDS: Shells, Marine mollusks, Atlantic Coast, Guide

1748
Smith, N. P. (1999) A closer look at the tides of Biscayne Bay, Card Sound and Barnes Sound. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 219.
TIME COVERAGE: 1970s, 1990s
SUMMARY: Harmonic constants of the principal tidal constituents were calculated for 43 locations in Card Sound, Barnes Sound and Biscayne Bay.
KEY WORDS: Card Sound, Barnes Sound, Tides, Tidal ranges, Rivers, Wetlands, Land reclamation, Biscayne Coastal Wetlands, Canal L-31E

1749
Smith, N. P. (1994) Coastal lagoons, Florida east coast. In: Florida Coastal Ocean Sciences Symposium (FCOSS). Miami, FL, 1994. Coastal Ocean Pollution Center, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 24.
TIME COVERAGE: 1994 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Coastal lagoons, East Florida

1750
Smith, R. L. (1973) Abundance and diversity of sponges and growth rates of *Spongia graminea* in Card Sound, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 66 pp.
TIME COVERAGE: 1971 - 1972

SUMMARY: Approximately 60% of the sponges in Card Sound are not attached and are moved by currents. Sponge communities in the center of the Sound have significantly greater species richness and evenness than communities on the eastern and western edges of the sound. Species richness and evenness varies little with time. Only one of the most common species of sponges showed seasonal variation. Effluents from the Card Sound Canal increased the general diversity but not the evenness of sponge communities at the canal mouth and 1.3 km offshore. The increase at the canal mouth is probably due to both increased food supply and newly exposed rock. The increase offshore is attributable only to food supply. Diversity and abundance is limited by lack of suitable substrate for attachment and lack of nutrients to feed the bacteria which are apparently the major food sources of sponges.
KEY WORDS: Sponges, *Spongia graminea*, Abundance, Species diversity, Card Sound

1751
Smith, R. L. (1967) Protein digestion and the resulting amino acid distribution in the digestive tract of the white grunt, *Haemulon plumieri*. M.Sc. thesis. University of Miami, Coral Gables, FL. 105 pp.
TIME COVERAGE: 1967 ◊
SUMMARY: The metabolic products if the digestion of proteins by white grunt were investigated. Specimens were collected by hook and line.
KEY WORDS: White grunt, *Haemulon plumieri*, Protein synthesis, Amino acids, Digestion

1752
Smith, R. (1991) Wreck Diving in Miami. D. Udel and R. Smith (Executive producers). Broadcast Quality, Miami, FL. Videorecording, VHS,20 min.
TIME COVERAGE: 1991 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Diving, Recreational waters, Artificial reefs, Wrecks, Underwater exploration, Miami

1753
Smith, R. C., and H. J. Teas (1977) Biological effects of thermal effluent from the Cutler Power Plant in Biscayne Bay, Florida. In: Proc., Conf. on Waste Heat Management and Utilization. S. S. Lee, and S. Sengupta, (eds.). Miami Beach, FL, 1977. Department of Mechanical Engineering, University of Miami, Coral Gables, FL. Vol.1: II-B:91-106.
TIME COVERAGE: 1956, 1968 - 1969, 1973
SUMMARY: The Cutler Ridge Plant is a fossil fuel power plant that discharges heated water into a small, shallow, partially enclosed portion of Biscayne Bay. A study was conducted on water and sediment temperatures, sediment character and benthic plants. Analysis of aereal photographs showed that there had been an increase in the area of bare sediment near the thermal discharge point from 8.5 ha in 1956, when full capacity of the plant was reached, to 35 ha in 1973. Ground truth checks indicated that the bare region at the effluent canal was an area of macrophyte loss, which corresponded to the highest temperatures.
KEY WORDS: Thermal pollution, Seagrass, Thalassia, Diplanthera, Cutler Power Plant

1754
Smith, S. M., and S. C. Snedaker (1995) Developmental responses of established red mangrove, *Rhizophora mangle* L., seedlings to relative levels of photosynthetically active and ultraviolet radiation. Florida Scient., 58(1):55-60.
TIME COVERAGE: 1993 - 1994
SUMMARY: Mature red mangrove seedlings were harvested from a variety of trees and grown under conditions of ambient natural light, UVb-filtered sunlight, and shade to determine the effects of relative levels of UVb/PAR on early root and shoot development. Growth was

generally reduced with exposure to UV suggesting that open exposed environments are suboptimal for development of red mangrove seedling upon establishment.
KEY WORDS: Red mangrove, *Rhizophora mangle*, Ultraviolet radiation, Light effects, Photosynthesis, Matheson Hammock Park

1755
Smith, T. J., M. B. Robblee, H. R. Wanless, and T. W. Doyle (1994) Mangroves, hurricanes, and lightning strikes. BioScience, 44(4):256-262.
TIME COVERAGE: 1992
SUMMARY: Gaps in mangrove forests can be caused by lightning strikes that kill mature trees. Saplings subsequently recolonize the area. After Hurricane Andrew, a number is small circular patches of living trees were observed among the gray, dead trees. The individuals growing in these patches were smaller than the dead trees around them and thus may be the saplings colonizing the light gaps caused lightning. These sapling may provide the source for recolonization of destroyed forests.
KEY WORDS: Mangrove swamps, Hurricanes, Lightning, Hurricane Andrew, Everglades National Park, Biscayne National Park, Cape Sable, Ten Thousand Islands, Florida Bay

1756
Smith-Vaniz, W. F. (1997) Five new species of jawfishes (*Opistognathus*: Opistognathidae) from the western Atlantic Ocean. Bull. Mar. Sci., 60(3):1074-1128.
TIME COVERAGE: 1997 ◊
SUMMARY: Synonymies, diagnoses, descriptions, illustrations, and spot distribution maps were given for 10 species of jawfishes.
KEY WORDS: Jawfishes, Opistognathus, New species

1757
Snedaker, S. C., and P. D. Biber (1995) Restoration of mangroves in the United States of America; a case study in Florida. In: Restoration of Mangrove Ecosystems. C. Field (ed.). International Society for Mangrove Ecosystems, Okinawa, Japan. 250 pp.
TIME COVERAGE: 1995 ◊
SUMMARY: This citation discusses restoration of mangroves in the US, and Florida is used as a case study. Various aspects of restoration including climate, geology, species and stock selection are discussed.
KEY WORDS: Mangrove swamps, Restoration, Tampa Bay, Florida Keys, Key Biscayne

1758
Snedaker, S. C., and I. M. Brook (1976) Ecology and the food web of Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 227-223.
TIME COVERAGE: 1976 ◊
SUMMARY: A review of the knowledge concerning the ecology and food-web relationships in Biscayne Bay revealed that relatively few studies described the interaction between organisms and their environment. Biscayne Bay is highly productive. Nutrient-contributing seagrasses, detrital input from the mangroves, and other forms of primary production contribute to a broad base for higher level consumers such as fishes and commercially important crustaceans.
KEY WORDS: Food webs, Ecological associations

1759
Snedaker, S. C., and I. M. Brook (1976) Ecology and the food web of Biscayne Bay. In: Biscayne Bay: past/present/future; papers prepared for Biscayne Bay Symposium I. A. Thorhaug, and A. Volker (eds.). University of Miami, Sea Grant Program, Coral Gables. 315 pp.
TIME COVERAGE: 1976 ◊

SUMMARY: This Sea Grant special report contains chapters describing various aspects of the Biscayne Bay ecosystem.
KEY WORDS: Food webs, Ecological associations

1760
Snedaker, S. C., M. S. Brown, E. J. Lahmann, and R. J. Araujo (1992) Recovery of a mixed-species mangrove forest in South Florida following canopy removal. J. Coastal Res., 8(4):919-925.
TIME COVERAGE: 1982
SUMMARY: The upper structure and canopy of a mixed species mangrove forest was removed by tree trimmers. The original pruning objective was to reduce forest height over a period of three years. This was ignored and the trees were trimmed. The objectives of this citation were to determine the extent of canopy removal and the effects on the cut trees, and to determine the rate of canopy reclosure.
KEY WORDS: Mangrove swamps, Mortality causes, Light effects, Restoration

1761
Snedaker, S. C., and M. S. Brown (1981) Water quality and mangrove ecosystem dynamics. EPA grant R804355. EPA, Environmental Research Laboratory, Gulf Breeze, FL. 80 pp.
TIME COVERAGE: 1981
SUMMARY: This research project was initiated to define the reciprocal relationship between water quality and mangrove ecosystem dynamics, and the role of water borne pollutants within that relationship. Field studies were conducted with the intent of locating mangrove communities stressed by either synthetic organic compounds or metal pollutants. None of the 27 sites examined and sampled showed evidence of pollution affecting mangroves. Chromium, Cu, Fe, Mn, Ni, Pb and Zn were detected in all mangrove tissues at concentrations up to six times background relative to marine water and thus appear to be active accumulators. Highest concentrations were found in mangrove sediments. Differences in elemental concentrations of both nutrients and metals were found in each of the three mangrove species which could indicate either species specific discrimination or preferential uptake, or site differences due to differing inundation frequencies or fresh water runoff.
KEY WORDS: Water quality, Mangrove swamps, Pesticides, Metals, Turkey Point, South Florida, Puerto Rico, Mexico, Cr, Cu, Fe, Mn, Ni, Pb, Zn

1762
Snedaker, S. C., and D. P. de Sylva (1987) Impact of climate change on coastal resources: implications for property values, commerce, estuarine environments, and fisheries, with special reference to south Florida. In: Proc., Symp. on Climate Change in the Southern United States: Future Impacts and Present Policy Issues. M. Meo, (ed.). New Orleans, LA, 1987. US Environmental Protection Agency, Office of Policy, Planning, and Evaluation, Washington, DC. 187-215.
TIME COVERAGE: 1987 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Greenhouse effect, Climatic changes, Sea level changes, Coastal zone, Estuaries, Fisheries

1763
Snedaker, S. C., D. P. de Sylva, and D. J. Cottrell (1977) A review of the role of freshwater in estuarine ecosystems. Final report to the Southwest Florida Water Management District. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 126 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Brackishwater environment, Estuaries, Fresh water, Bibliographies

1764
Snedaker, S. C., R. L. Stanford, D. J. Cottrell, and M. S. Brown (1976) Ecological studies on a subtropical terrestrial biome. Final report submitted to Florida Power and Light. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 494 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This is a study of the intertidal mangrove ecosystem interfacing the southeast portion of the Everglades and Card Sound. This extensive report covers fauna, flora, sediment, water quality and other topics.
KEY WORDS: Mangrove swamps, Wetlands, Ecological associations, Intertidal environment, Card Sound, Sediment, Fauna, Flora, Water quality

1765
Sogard, S. M. (1982) Feeding ecology, population structure, and community relationships of a grassbed fish, *Callionymus pauciradiatus*, in southern Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 103 pp.
TIME COVERAGE: 1982 ◊
SUMMARY: Demersal fishes residing in inshore seagrass beds were examined with regard to their community structure, diversity and abundance.
KEY WORDS: Spotted dragonet, *Callionymus pauciradiatus*, Feeding behavior, Population structure, Aquatic communities

1766
Sogard, S. M. (1984) Utilization of meiofauna as a food source by a grassbed fish, the spotted dragonet *Callionymus pauciradiatus*. Mar. Ecol. Prog. Series, 17(-):183-191.
TIME COVERAGE: 1980 - 1981
SUMMARY: The feeding ecology of the dragonet was examined. Feeding consisted almost exclusively on meiofauna with copepods comprising an average 89% of the diet.
KEY WORDS: Spotted dragonet, *Callionymus pauciradiatus*, Meiobenthos, Food consumption, Key Largo, Ten Thousand Islands

1767
Sonenshein, R. S. (1997) Delineation and extent of saltwater intrusion in the Biscayne Aquifer, eastern Dade County, Florida, 1995. USGS water resources investigations report 96-4285. US Geological Survey, Tallahassee, FL. One map.
TIME COVERAGE: 1997
SUMMARY: This is a detailed map showing areas of salt water intrusion in Dade County.
KEY WORDS: Saline intrusion, Hydrogeology, Biscayne Aquifer, Dade County

1768
Sonenshein, R. S. (1997) Quantifying seepage below Levee 30, Dade County, Florida. In: Proc., US Geological Survey Program on the South Florida Ecosystem. Ft. Lauderdale, FL, August 25-27, 1997. US Geological Survey open file report 97-385. US Geological Survey, Tallahassee, FL. 87-88.
TIME COVERAGE: 1997 ◊
SUMMARY: Levee 30 is part of the eastern boundary of Water Conservation Area 3B and was completed in 1954. Ground water flow models are being developed to calculate a water budget for a transect perpendicular tp Levee 30.
KEY WORDS: Seepages, Levees, Levee 30, Dade County

1769
Sonenshein, R. S., C. R. Causaras, and J. E. Fish (1984) Index of hydrologic data for selected sites in Dade County, Florida, 1923-80. USGS open-file report 84-430. US Geological Survey, Tallahassee, FL.
TIME COVERAGE: 1984 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Aquifers, Wells, Water quality, Hydrology, Geology, Dade County

1770
Sonenshein, R. S., and E. J. Koszalka (1996) In: Trends in water-table altitude (1984-93) and saltwater intrusion (1974-93) in the Biscayne Aquifer, Dade County, Florida. Open file report 95-705. US Geological Survey, Tallahassee, FL. 3 maps.
TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water table, Saline intrusion, Biscayne Aquifer, Dade County

1771
South Florida Water Management District (1995) Biscayne Bay Surface Water Improvement and Management. Two volumes: Planning document and Technical Supporting document. South Florida Water Management District, Planning Department, West Palm Beach, FL. 66 pp and 178 pp + appendices.
TIME COVERAGE: 1995 ◊
SUMMARY: This document is an update of the Biscayne Bay Surface Water Improvement and Management (SWIM) Plan adopted in 1988 and modified in 1989.
KEY WORDS: SWIM Plan, Surface water, Water quality, Natural resources, Pollution monitoring, Environmental management

1772
South Florida Water Management District (1992) Dade County - Florida Keys: water supply; background document. Two volumes: Draft background document and appendices. South Florida Water Management District, Planning Department, West Palm Beach, FL. Various paging.
TIME COVERAGE: 1992 ◊
SUMMARY: The purpose of this document was to compile key pieces of data and other background information that may be useful in discussing water uses and supply sources in South Florida.
KEY WORDS: Water supply, Water resources, Water use, Water conservation, Dade County, Florida Keys

1773
South Florida Water Management District (1990) Monitoring and operating plan for C-111 interim construction project. Final draft, revision 3 (May 16, 1990). South Florida Water Management District, West Palm Beach, FL. Various paging.
TIME COVERAGE: 1990 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Canals, Canal C-111, Stormwater runoff, Flood control, Manatee Bay, Barnes Sound, Florida Bay

1774
South Florida Regional Planning Council (1978) Natural systems. Report. South Florida Regional Planning Council, Miami, FL. 28 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: This report describes the South Florida ecosystem and discusses concerns about its status.

KEY WORDS: Natural resources, Environmental protection, Ecosystem management, South Florida

1775
South Florida Regional Planning Council (1984) OCS facility siting study. Report and separate folder with maps. South Florida Regional Planning Council, Hollywood, FL. 197 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: This document describes Outer Continental Shelf leasing activities and potential environmental impact in South Florida.
KEY WORDS: Outer continental shelf, Oil and gas exploration, Offshore operations

1776
South Florida Water Management District (1992?) Protecting Biscayne Bay's aquatic resources: a water quality field trip program for Dade County school children. Teacher's guide.
TIME COVERAGE: 1992 ◊
SUMMARY: This is a field trip teachers guide.
KEY WORDS: Field guide, Education

1777
South Florida Water Management District (2000) Save our rivers. 2000 land acquisition and management plan. South Florida Water Management District, West Palm Beach, FL.
TIME COVERAGE: 2000 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water management, Land acquisition

1778
South Florida Regional Planning Council (1984) South Florida oil spill response handbook. Report. The Council, Hollywood, FL. 91 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Oil spills, Accidents, South Florida

1779
South Florida Water Management District (1995) South Florida Ecosystem Restoration Plan. 99 pp.
TIME COVERAGE: 1995
SUMMARY: This is description of the South Florida Ecosystem Restoration Plan which includes Biscayne Bay.
KEY WORDS: Florida Bay, Everglades

1780
South Florida Water Management District (1988-1989) Surface water improvement and management (SWIM) plan for Biscayne Bay and Appendices A - K. SWIM plan. South Florida Water Management District, West Palm Beach, FL.
TIME COVERAGE: 1988-1989
SUMMARY: This document is the original SWIM plan for Biscayne Bay.
KEY WORDS: SWIM Plan, Surface water, Water quality, Natural resources, Pollution monitoring, Environment management

1781
South Florida Water Management District (1994) An update of the Surface Water Improvement and Management Plan for Biscayne Bay. Two volumes: Draft Planning Document and Technical Supporting document and appendices. Lower East Coast Planning Division, The District, West Palm Beach. Various paging and 170 pp + appendices.

TIME COVERAGE: 1994 ◊
SUMMARY: This document is an update of the Biscayne Bay Surface Water Improvement and Management (SWIM) Plan adopted in 1988 and modified in 1989.
KEY WORDS: SWIM Plan, Surface water, Water quality, Natural resources, Pollution monitoring, Environmental management

1782
Southeastern Geological Society (1954) Carbonate deposits in south Florida. Field trip 8. Southeastern Geological Society, Tallahassee, FL. 48 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: The geology of carbonate deposits in South Florida is described.
KEY WORDS: Carbonate rocks, Carbonate sediment, Geology, South Florida

1783
Spanier, E. (1975) Sound recognition by damselfishes of the genus *Eupomacentrus* from Florida waters. Ph.D. dissertation. University of Miami, Coral Gables, FL. pp.
TIME COVERAGE: 1972 - 1973
SUMMARY: Sounds produced during the courtship activities of four sympatric species of damselfish were recorded in the field. Members of the four species were tested in the field and the laboratory to determine if they could distinguish their own species' sounds from those produced by their congeners. Differential responses clearly demonstrate species-specific recognition by sound and indicate that the pulse interval and the number of pulses/sound are the important parameters for this recognition.
KEY WORDS: Damselfish, *Eupomacentrus dorsopunicans*, *Eupomacentrus leucostictus*, *Eupomacentrus partitus*, *Eupomacentrus planifrons*, Audition, Reproductive behavior, No Name Harbor, Key Biscayne, Norris Cut, Bear Cut, Fowey Rocks, Triumph Reef

1784
Spencer, M. J. (1984) Trace metals in seawater: chelation capacities, conditional stability constants, and water sampler evaluations. Ph.D. dissertation. University of Miami, Coral Gables, FL. 101 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: Anodic stripping voltammetry and Cu titrations were used to determine the complexation capacity and conditional stability constants for Cu-organic complexes in seawater.
KEY WORDS: Cu, Sea water, Chelates, Stability constants, Bear Cut, Matheson Hammock, Safety Valve, Fowey Rocks, Rickenbacker Causeway

1785
Springer, S. (1975) Field observations on large sharks of the Florida-Caribbean region. In: Sharks and Survival. P. W. Gilbert (ed.). Heath, Lexington, MA. 578 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: This chapter discusses the large-shark distribution and fishery in Florida.
KEY WORDS: Sharks, Shark attacks, Fishery, Florida

1786
Sprogis, J. M. (1975) Changes in benthic diatom assemblages within the thermal effluent at Turkey Point, South Biscayne Bay, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 85 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: The diversity study of attached diatom assemblages clearly delineated variations in thermal stress conditions in the effluent plume of Turkey Point. A strong trend of an inverse relationship between diversity and increased temperature was expressed. Diversity values

were lower in the summer and fall samples, principally at stations influenced by effluents waters.
KEY WORDS: Diatoms, Benthos, Thermal pollution, Turkey Point, South Bay

1787
Sprogis, J. M. (1971) Diatoms. In: An Ecological Study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler (eds.). Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. VII: 1-28.
TIME COVERAGE: 1971 ◊
SUMMARY: This citation is a survey of diatoms found at Turkey Point.
KEY WORDS: Diatoms, Thermal pollution, Turkey Point, South Bay, Card Sound, Species list

1788
Srinivas, R., and R. B. Taylor (1995) Coastal processes at Key Biscayne, Florida. Report to the US Army Corps of Engineers. Taylor Engineering, Inc., Jacksonville, FL. 91 pp.
TIME COVERAGE: 1995 ◊
SUMMARY: The purpose of this report was to document beach erosion at Key Biscayne and evaluate remediation strategies.
KEY WORDS: Coastal oceanography, Shore protection, Beach erosion, Key Biscayne, Virginia Key, Cape Florida State Park

1789
Srinivas, R., and B. R. Taylor (1996) Longshore transport modeling and performance of beach nourishment alternatives at Key Biscayne, Florida. In: Proc., 9th National Conference on Beach Preservation Technology, The Future of Beach Nourishment. L. S. Tait, (comp.). St. Petersburg, FL, 1996. Florida Shore & Beach Preservation Association, Tallahassee, FL. 176-191.
TIME COVERAGE: 1998 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Longshore sediment transport, Beach nourishment, GENESIS model, Key Biscayne

1790
Stahl, M. S. (1973) The behavior and activity rhythms of *Blennius cristatus* Linnaeus (Pisces: Blenniidae). M.Sc. thesis. University of Miami, Coral Gables, FL. 91 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: Field observations were made over a three-year period of the behavior and activity of the intertidal blennie inhabiting a fossilized mangrove reef off Key Biscayne.
KEY WORDS: Blennies, *Blennius cristatus*, Behavior, Activity patterns, Key Biscayne, Bear Cut

1791
Stallman, R. W. (1956) Preliminary findings on ground-water conditions relative to Area B flood - control plans, Miami, Florida. Open-file report 56001. US Geological Survey, Tallahassee, FL. 26 pp.
TIME COVERAGE: 1956 ◊
SUMMARY: This report details findings on the ground water conditions in West Miami.
KEY WORDS: Flood control, Ground water, Drainage water, Miami, Biscayne Aquifer

1792
Stanlaw, K. A. (1980) The early nutritional life history of the ctenophore *Nmemiopsis mccradyi*. M.Sc. thesis. University of Miami, Coral Gables, FL. 49 pp.
TIME COVERAGE: 1980 ◊
SUMMARY: Adult ctenophores were collected from Biscayne Bay. The nutritional history of the larvae produced by the adults was studied.

KEY WORDS: Ctenophores, *Mnemiopsis mccradyi*, Larval development, Food consumption

1793
Stanley, S. M. (1966) Paleoecology and diagenesis of Key Largo Limestone, Florida. AAPG Bull., 50(9):1927-1947.
TIME COVERAGE: 1966 ◊
SUMMARY: This paper discusses the paleoecology and diagenesis of the Key Largo limestone which forms the upper Florida Keys. The limestone consists of an organic framework of coral colonies and an interstitial skeletal calcerenite.
KEY WORDS: Key Largo Limestone, Coral reefs, Fossils, Paleoecology, Diagenesis, Florida Bay, Florida Keys

1794
Statistical Exchange of South Florida (1947) The economic significance of the Keys opened to development by the new Rickenbacker Causeway. Symp., Biscayne Key & Virginia Key. Florida Power & Light Company, Miami, FL. 13 pp.
TIME COVERAGE: 1947 ◊
SUMMARY: This report describes the economic impact to South Florida of the newly built Rickenbacker Cswy.
KEY WORDS: Transportation, Rickenbacker Causeway, Resource development, Key Biscayne, Virginia Key

1795
Stauble, D. K. (1991) Beach nourishment sand sources inventory using a geographic information system. In: Proc., 4th Ann. National Beach Preservation Technology Conference, Preserving and Enhancing our Beach Environment. L. S. Tait, (comp.). Charleston, SC, 1991. Florida Shore & Beach Preservation Association, Tallahassee, FL. 88-102.
TIME COVERAGE: 1991 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Beach nourishment, Sand, Coastal erosion, Geographical Information System (GIS), Coast of Florida Erosion and Storm Effects Study

1796
Stauble, D. K. (1993) An overview of southeast Florida inlet morphodynamics. In: Beach/Inlet Processes and Management: a Florida Perspective (J. Coastal Res. Spec. Issue 18). A. J. Mehta (ed.). Coastal Education and Research Foundation, Ft. Lauderdale, FL. 308 pp.
TIME COVERAGE: 1993 ◊
SUMMARY: This citation is an overview of the morphodyamics of inlets along the coast of South Florida.
KEY WORDS: Inlets (Waterways), Tidal range, Wave height, Bakers Haulover Inlet, Government Cut, Norris Cut, Bear Cut, Southeast Florida

1797
Stearns, B. (1970) Heat waste. Sea Frontiers, 16(3):154-163.
TIME COVERAGE: 1970 ◊
SUMMARY: This article describes the thermal effluents from the Turkey Point Power Plant.
KEY WORDS: Thermal pollution, Temperature effects, Power plants, Turkey Point

1798
Stein, M. (1969) Water quality standards: enforcement and compliance. In: Electric Power and Thermal Discharges: Thermal Considerations in the Production of Electric Power. M. Eisenbud, and G. Gleason (eds.). Gordon and Breach, New York, NY. 423 pp.
TIME COVERAGE: 1969 ◊

SUMMARY: This paper discusses the impact of water quality standards on the production of electric power. The Turkey Point facility is described.
KEY WORDS: Thermal pollution, Water quality, Standards, Water use regulations, Turkey Point

1799
Stephens, I. J. (1975) The Port of Miami. South Florida History Mag., 2(5):Various paging.
TIME COVERAGE: 1896 - 1960
SUMMARY: This article describes the early history of the Port of Miami.
KEY WORDS: Port of Miami

1800
Stephenson, T. A., and A. Stephenson (1950) Life between tide-marks in North America. I. The Florida Keys. J. Ecology, 38(2):354-402.
TIME COVERAGE: 1950 ◊
SUMMARY: This paper is part of a series dealing with zonation, ecology and geographical relations of he common plants and animals occurring between tide marks. The first paper in the series discusses the Florida Keys including the northern reaches of the chain.
KEY WORDS: Intertidal environment, Littoral zone, Biota, Reef Tract, Florida Keys, Elliott Key, Soldier Key, Species list

1801
Stephens, W. M. (1965) Land crabs. Sea Frontiers, 11(4):194-201.
TIME COVERAGE: 1965 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: West Indian land crab, *Cardisoma guanhumi*, Spawning migrations, Behavior

1802
Stephens, W. M. (1966) Life in the turtle grass. Sea Frontiers, 12(5):264-275.
TIME COVERAGE: 1966 ◊
SUMMARY: This is a review paper about fauna in *Thalassia* beds.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Aquatic communities

1803
Stephens, W. M. (1968) Southern Seashores: A World of Animals and Plants. Holiday House, New York, NY. 188 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: This is a guide to the flora and fauna of .....
KEY WORDS: Beaches, Intertidal environment, Marine organisms, Guide

1804
Stephens, W. M. (1962) Tree that makes land. Sea Frontiers, 8(4):219-230.
TIME COVERAGE: 1962 ◊
SUMMARY: This article describes mangroves and the ecosystem associated with these plants.
KEY WORDS: Red mangrove, *Rhizophora mangle*, Landforms, Mangrove swamps

1805
Stepien, W. P. (1974) Feeding of laboratory-reared larvae of sea bream *Archosargus rhomboidalis* (Linnaeus): Sparidae. M.Sc. thesis. University of Miami, Coral Gables, FL. 81 pp.
TIME COVERAGE: 1972 - 1973
SUMMARY: Fertilized eggs of the sea bream were collected from plankton tows in Biscayne Bay and the larvae reared in the laboratory. Aspects of feeding by larvae were studied.
KEY WORDS: Sea bream, *Archosargus rhomboidalis*, Fish larvae, Feeding, Rearing

1806
Stepien, W. P. (1976) Feeding of laboratory-reared larvae of the sea bream *Archosargus rhomboidalis* (Sparidae). Mar. Biol., 38(1):1-16.
TIME COVERAGE: 1972 - 1973
SUMMARY: Fertilized eggs were collected from plankton tows in Biscayne Bay and the larvae reared on zooplankton. Techniques were developed to estimate feeding rate, food selection, growth efficiency and daily ration.
KEY WORDS: Sea bream, *Archosargus rhomboidalis*, Fish larvae, Feeding, Rearing

1807
Sternberg, L. da S. L., and P. K. Swart (1987) Utilization of freshwater and ocean water by coastal plants of southern Florida. Ecology, 68(6):1898-1905.
TIME COVERAGE: 1986
SUMMARY: The coastal vegetation of South Florida underwent a dramatic change due to the instability of the ocean water-freshwater boundary. These vegetation changes were determined by the response of each particular species to saline ocean water. The results indicated that, with some exceptions, plants toward the interior of the keys were using freshwater while those towards the outside were using ocean water. Results were consistent with the hypothesis that mangroves are fully capable of growing in freshwater but are limited to saline habitats because of competitive exclusion by fast-growing glycophilic plants.
KEY WORDS: Mangrove swamps, Hammocks, Water uptake, Salinity, Fresh water, Isotope ratios, Elliott Key, Cluett Key

1808
Stevely, J. M., J. C. Thompson, and R. E. Warner (1978) The biology and utilization of Florida's commercial sponges. Florida Sea Grant technical paper no. 8. Florida Sea Grant College Program, Gainesville, FL. 45 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: Over the past 30 years, the sponge fishery of Florida has been reduced to a small fraction of its former importance. Sponge production from Monroe and Dade County surpass production from the Florida Gulf Coast. Although the market is a fraction of what it was, sponge production does not meet demand.
KEY WORDS: Sponges, Sponge fisheries, Sponge culture, Florida

1809
Stewart, C. C. (1990) The history and impact of Christo's Surrounded Islands: project for Biscayne Bay, Greater Miami, Florida, 1980-1983. M.S. thesis. Florida State University, Tallahassee, FL. 98 pp.
TIME COVERAGE: 1983
SUMMARY: This work describes the creative process of Christo's Surrounded Islands project in Biscayne Bay.
KEY WORDS: Christo, Art

1810
Stewart, H. G. (1970) Biscayne Bay as a natural resource. In: Collected reprints, NOAA Atlantic Oceanographic and Meteorological Laboratories and Pacific Oceanographic Laboratories. 1969, volume 1. An address before the Zoological Society of Florida, October 6, 1969. US Government Printing Office, Washington, D.C. 163-167.
TIME COVERAGE: 1969 ◊
SUMMARY: This is an address about the status of Biscayne Bay.
KEY WORDS: Natural resources, Water pollution, Resource conservation

1811
Stock, J. H. (1970) *Endeis flaccida* Calman, 1923, in Florida: a pycnogonid new to the Atlantic Ocean. Entomologische Berichten, 30(1):3-4.
TIME COVERAGE: 1970 ◊
SUMMARY: This is a short note describing a the presence in the Atlantic of a species of pycnogonid.
KEY WORDS: Pycnogonida, *Endeis flaccida*, Virginia Key, Key Biscayne

1812
Stoddard, A. D., and G. Campbell (1998) Public health assessment, Homestead Air Force Base, Homestead, Dade County, Florida. CERCLIS no. FL7570024037. Reproduced by NTIS, PB99109365. Agency for Toxic Substances and Disease Registry, Division of Health Assessment and Consultation, Federal Facilities Assessment Branch, Atlanta, GA. Various paging.
TIME COVERAGE: 1998 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Pollutants, Public health, Toxicity tests, Boundary Canal, Outfall Canal, Homestead Air Force Base

1813
Stone, T., and D. Suman (1995) Miami's bay-bottom burden: the Biscayne Bay sewage pipeline. In: Urban Growth and Sustainable Habitats: Case Studies of Policy Conflicts in South Florida's Coastal Environment. D. Suman, M. Shivlani, and M. L. Villanueva (eds.). Division of Marine Affairs and Policy, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 175 pp.
TIME COVERAGE: 1995 ◊
SUMMARY: This paper discusses the Biscayne Bay sewage pipeline and problems related to its replacement.
KEY WORDS: Sewage, Wastewater treatment, Pipelines, Department of Environmental Resources Management, Miami Dade Water and Sewer Authority Department, Virginia Key, Cross Bay Line

1814
Strom, R. N., R. S. Braman, W. C. Jaap, P. Dolan, K. B. Donnelly, and D. F. Martin (1992) Analysis of selected trace metals and pesticides offshore of the Florida Keys. Florida Scient., 55(1):1-13.
TIME COVERAGE: 1988
SUMMARY: Trace metals and pesticides in sediment and organisms collected off the Florida Keys from Biscayne Bay to the Dry Tortugas. In general, concentrations of trace metals increased from sediments to producer to consumer organisms. Though concentrations were low, some deviations were ascribed to human inputs.
KEY WORDS: Cu, Pb, Cd, As, Sn, Hg, Pesticides, Pollution monitoring, Biscayne National Park, Florida Keys, Dry Tortugas, Sediment

1815
Stubbs, S. A. (1940) Studies of foraminifera from seven stations in the vicinity of Biscayne Bay. Proc. Florida Acad. Sciences for 1939, 4(-):225-230.
TIME COVERAGE: 1940 ◊
SUMMARY: Sixty-one species of foraminifera representing 23 genera and 11 families were described.
KEY WORDS: Foraminifera, Soldier Key, Ragged Keys, Cape Florida, Black Point, Species list

1816
Suarez, S. S. (1974) The reproductive biology of *Ogilbia cayorum*, a viviparous brotulid fish. M.Sc. thesis. University of Miami, Coral Gables, FL. 74 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: This work is a study of the reproductive biology of the key brotula. Some specimens were collected in Biscayne Bay.
KEY WORDS: Key brotula, *Ogilbia cayorum*, Reproduction, Animal reproductive organs, Fish physiology

1817
Sumner, H. C. (1945) North Atlantic hurricanes and tropical disturbances of 1945. Mon. Wea. Rev., 74(-):1-5.
TIME COVERAGE: 1945 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Hurricane of 1945

1818
Sutherland, D. L., J. A. Bohnsack, D. E. Harper, C. M. Holt, M. W. Hulsbeck, and D. B. McClellan (1991) Preliminary report: reef fish size and species selectivity by wire fish traps in south Florida waters. In: Proc., 40th annual Gulf and Caribbean Fisheries Institute. G. T. Waugh, and M. H. Goodwin, (eds.). Curacao, Netherland Antilles, 1987. Gulf and Caribbean Fisheries Institute, Charleston, SC. 108-125.
TIME COVERAGE: 1986 - 1987
SUMMARY: The relationship between mesh size of fish traps and catch composition by species and size was studied off Key Biscayne. The number of fish captured per trap haul decreased with larger mesh size.
KEY WORDS: Trap fishing, Catch composition, Mesh selectivity, Reef fish, Key Biscayne

1819
Swain, A. (1988) Port of Miami inlet dynamics. In: Hydrodynamics and Sediment Dynamics of Tidal Inlets. D. G. Aubrey, and L. Weishar (eds.). Lecture notes on coastal and estuarine studies 29. Springer-Verlag, New York, NY. 456 pp.
TIME COVERAGE: 1988 ◊
SUMMARY: Results showed that structural effects on crosscurrents at the entrance of the Port of Miami were effective when even length jetties were used. Non structural changes such as deepening the inlet at jetty ends further reduced the magnitude of currents. Jetty modification plans were evaluated to alleviate the crosscurrents at the ocean entrance and inner harbor channels.
KEY WORDS: Inlets (Waterways), Wind-driven currents, Tidal currents, Port of Miami

1820
Swain, E. D., B. Howie, and J. Dixon (1996) Description and field analysis of a coupled ground-water/surface-water flow model (MODFLOW/BRANCH) with modifications for structures and wetlands in southern Dade County, Florida. Water-resources investigations report 96-4118. US Geological Survey, Tallahassee, FL. 67 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: A coupled surface-water model and ground-water model were tested to simulate the interacting wetlands/surface-water/ground-water system of southern Dade County.
KEY WORDS: Hydrology, Models, Ground water, Surface water, Wetlands, MODFLOW, BRANCH, Dade County

1821
Swain, E. D., G. M. Tillis, and A. Kapadia (1997) Determining freshwater discharge through coastal structures in southeastern Florida. In: Proc., US Geological Survey Program on the South Florida Ecosystem. Ft. Lauderdale, FL, August 25-27, 1997. US Geological Survey open file report 97-385. US Geological Survey, Tallahassee, FL. 92.
TIME COVERAGE: 1997 ◊
SUMMARY: Freshwater discharges through canals in South Florida were determined for 16 coastal structures in Dade County and 7 in Broward County.
KEY WORDS: Fresh water, Hydraulic structures, Coastal structures, Dade County

1822
Swakon, E. A. (1977) Modeling of tide and wind induced flow in south Biscayne Bay and Card Sound. M.Sc. thesis. University of Miami, Coral Gables, FL. 143 pp.
TIME COVERAGE: 1976
SUMMARY: [SEE NEXT CITATION FOR DESCRIPTION OF THE WORK.]
KEY WORDS: Mathematical models, Tidal currents, Wind-driven currents, South Bay, Card Sound

1823
Swakon, E. A., S. P. Langley, and P. Robinson (1995) Permitting a large pipeline project across Biscayne Bay. Proc., 68th WEFTEC '95 (Water Environment Conference & Exposition). Miami Beach, FL, 1995. Water Environment Conference & Exposition, Alexandria, VA. 55-62.
TIME COVERAGE: 1993 - 1995
SUMMARY: Since 1990, Miami-Dade has been planning to replace the Cross Bay pipeline between Miami and Virginia Key. The options considered have faced severe environmental restrictions since Biscayne Bay is a protected Aquatic Preserve. Permits for replacement of the pipe were issued in 1993 and the in-water portion of pipeline replacement was completed in 1994. By 1995, some natural re-growth of seagrasses was noted in the disturbed bottoms area.
KEY WORDS: Pipelines, Permits, Sewage disposal, Environmental impact, Sea grass, Cross Bay Line

1824
Swakon, E. A., S. P. Langley, and P. Robinson (1995) Permitting a large pipeline project across Biscayne Bay. In: Proc., WEFTEC '95 (68th Water Environment Conference & Exposition). Miami Beach, FL, 1995. Water Environment Federation, Alexandria, VA. 55-62.
TIME COVERAGE: 1995 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Pipelines, Permits, Sewage disposal, Environmental impact, Seagrass

1825
Swakon, E. A., and J. D. Wang (1977) Modeling of tide and wind induced flow in south Biscayne Bay and Card Sound. Sea Grant technical bulletin 37. University of Miami Sea Grant Program, Coral Gables, FL. 156 pp.
TIME COVERAGE: 1976
SUMMARY: A model using the finite element technique to solve the vertically integrated equations of motion and continuity was applied to south Biscayne Bay and Card Sound to investigate the wind and tide induced flow.
KEY WORDS: Water circulation, Winds, Tidal currents, Card Sound, Models, Hydrodynamic equations, Convection, South Bay

1826
Swanson, L. J. (1973) Effects of elevated temperatures on food utilization by juvenile gray snappers, *Lutjanus griseus* (Linnaeus). M.Sc. thesis. University of Miami, Coral Gables, FL. 40 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: Temperature exerts a strong influence upon the food consumption, conversion of food, and growth rate of juvenile gray snappers. Specimens for this laboratory study were collected in Goulds Canal.
KEY WORDS: Gray snapper, *Lutjanus griseus*, Temperature effects, Food consumption, Turkey Point, Goulds Canal

1827
Swart, P. K., J. J. Leder, P. Kramer, and B. Frederick (1992) Climate records in corals from the Florida Keys. Eos, 73(14):150.
TIME COVERAGE: 1745 - 1992?
SUMMARY: This abstract describes the results of the use of levels C and O isotopes in coral to study climate. At the Biscayne Bay sampling site where the isotopic record extended for over 250 years, the oxygen isotopic record, correlated with variations in rainfall in Miami over the past 90 years.
KEY WORDS: Climatic data, Coral, *Montastrea annularis*, Carbon isotopes, Florida Keys

1828
Swart, P. K., and R. Price (1999) The origin of variations in the stable oxygen, hydrogen, and carbon isotopes of waters in the coastal waters of South Florida. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 216.
TIME COVERAGE: 1999 ◊
SUMMARY: Based on a six-year time series of H, C and O isotopes from Florida Bay, and shorter time series from Whitewater Bay, the Ten Thousand Islands, Biscayne Bay and the Everglades, it is clear that "normal" estuarine isotopic behavior is not applicable. In South Florida, isotopic compositions are controlled by run off, evaporation, degradation of organic material, and mixing with marine waters.
KEY WORDS: Florida Bay, Whitewater Bay, Ten Thousand Islands, Everglades, Isotopic composition, C, O, H, Oxygen isotopes, Hydrogen isotopes, Carbon isotopes, Coastal waters,

1829
Swayze, L. J. (1980) Altitude of water table and chloride concentration at selected wells, Alexander Orr and Southwest Well-Field area, Biscayne Aquifer, Dade County, Florida. USGS open file report 81-54. US Geological Survey, Tallahassee, FL. One map.
TIME COVERAGE: 1980 ◊
SUMMARY: This is a map of the altitude of water table and chloride concentration in the Biscayne aquifer.
KEY WORDS: Water table, Water levels, Chlorides, Maps, Alexander Orr Well Field, Southwest Well Field, Biscayne Aquifer

1830
Swayze, L. J. (1978) Water-level contour map of the Biscayne Aquifer, Alexander Orr and Southwest Well-Field areas, Dade County, Florida. USGS open file report 79-1266. US Geological Survey, Tallahassee, FL. One map.
TIME COVERAGE: 1978 ◊
SUMMARY: This is a map of the water levels of the Biscayne aquifer.
KEY WORDS: Maps, Water levels, Biscayne Aquifer, Alexander Orr Well Field, Southwest Well Field

1831
Swiadek, J. W. (1997) The impacts of Hurricane Andrew on mangrove coasts in southern Florida: a review. J. Coastal Res., 13(1):242-245.
TIME COVERAGE: 1992
SUMMARY: Coastal mangroves in South Florida were seriously damaged by Hurricane Andrew. Damage was primarily related to high wind velocity and surge. Shore erosion was generally less than 15 m and was caused by wave action and storm surge. The erosion may continue or expand since wave and currents can reprofile unprotected subsurface and intertidal sediments uprooted by mangrove trees.
KEY WORDS: Mangrove swamps, Storm surge, Hurricane Andrew, Biscayne National Park, Everglades National Park

1832
Szmant, A. M. (1987) Biological investigations of the Black Creek vicinity, Biscayne National Park. Research/Resources Management rep. SER-87. National Park Service, Southeast Regional Office, Atlanta, GA. 64 pp.
TIME COVERAGE: 1986
SUMMARY: This report examined the changes in floral composition of the Black Creek area of Biscayne National Park, possible replacement of *Thalassia* by *Halodule*, and factors responsible for the change. No correlation was found between the distribution of *Thalassia* and sediment depth, nutrient or freshwater seepage out of the sediments. Lower water column salinity, nutrients and water color were found in the affected area.
KEY WORDS: Seagrass, Thalassia, Halodule, Algae, Canals, Black Creek, Biscayne National Park

1833
Tabb, D. C. (1958) Differences in the estuarine ecology of Florida waters and their effect on populations of the spotted weakfish, *Cynoscion nebulosis* (Cuvier and Valenciennes). In: Trans., Twenty-third North American Wildlife Conf. J. B. Trefethen, (ed.). St. Louis MO, 1958. Wildlife Management Institute, Washington, DC. 392-401.
TIME COVERAGE: 1958 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Estuaries, Brackishwater environment, Spotted weakfish, *Cynoscion nebulosis*, Florida

1834
Tabb, D. C. (1958) Investigation of possible effects on the marine environment of dredging and filling the Ragged Keys. Report to Florida State Board of Conservation. Faculty File. Marine Laboratory, University of Miami, Miami, FL. 13 pp.
TIME COVERAGE: 1958 ◊
SUMMARY: This is a report of the possible effects of a proposed bulkhead and fill project that would have consolidated the Ragged Keys in southern Biscayne Bay. The proposed consolidation would have shifted the currents in the area and destroyed ecosystems and navigation channels.
KEY WORDS: Dredging, Environmental impact, Aquatic environment, Ragged Keys

1835
Tabb, D. C. (1958) Report on the bait shrimp fishery of Biscayne Bay, Miami, Florida. ML 6030. Marine Laboratory, University of Miami, Miami, FL. 12 pp.
TIME COVERAGE: 1958 ◊
SUMMARY: This study provides information on the effects of trawling operations upon the algae and spermatophytes; and the fishes in bait shrimp catches, their sizes, and extent of mortality.
KEY WORDS: Bait fishing, Grass shrimp, *Penaeus duorarum*, Pink shrimp, Trawling

1836
Tabb, D. C., T. R. Alexander, T. M. Thomas, and N. Maynard (1967) The physical, biological and geological character of the area south of C-111 Canal in extreme southeastern Everglades National Park, Florida. Reports on Grants and Contracts. Institute of Marine Science, University of Miami, Miami, FL.
TIME COVERAGE: 1967 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Canal C-111, Salinity, Ecosystems, Vegetation, Topography, Aquatic organisms, Barnes Sound, Manatee Bay, Everglades National Park

1837
Tabb, D. C., and E. S. Iversen (1971) A survey to the literature relating to the south Florida ecosystem (with pertinent references from outside the geographic boundaries of the subject area). Final report to US Department of the Interior, National Park Service, Contract No. 14-10-6-990-043. Part I. ML 71098. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 205 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: This is a bibliography of South Florida.
KEY WORDS: Bibliographies, Ecosystems, South Florida

1838
Tabb, D. C., and N. Kenny (1969) A brief history of Florida's live bait shrimp fishery with description of fishing gear and methods. In: Proc., World Scientific Conference on the Biol. and Culture of Shrimps and Prawns,,. M. N. Mistakidis, (ed.). Mexico City, Mexico, 1967. FAO fisheries report 57. Food and Agriculture Organization of the United Nations, Rome, Italy. 1119-1134.
TIME COVERAGE: 1969 ◊
SUMMARY: This paper is a brief history of the live bait shrimp fishery in Florida. The three main species are *Penaeus duorarum*, *P. aztecus* and *P. satiferus*. Bait shrimping has been restricted in Biscayne Bay to an area south of the Rickenbacker Cswy. since 1953. Trawl gear is described.
KEY WORDS: Bait fishing, Shrimp, *Penaeus duorarum*, Trawl nets, Trawling, Fishing gear, *Penaeus aztecus*, *Penaeus satiferus*

1839
Tabb, D. C., W. T. Yang, Y. Hirono, and J. Heinen (1972) A manual for culture of pink shrimp, *Penaeus duorarum*, from eggs to postlarvae suitable for stocking. Sea Grant special bulletin 7. University of Miami Sea Grant Program, Coral Gables, FL. 59 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: This report describes methods developed at the University of Miami for commercial culture of pink shrimp
KEY WORDS: Shrimp culture, Pink shrimp, *Penaeus duorarum*, Rearing, Brine shrimp, *Artemia salina*, Diatoms

1840
Tait, L. S. (. (1993) Lessons of Hurricane Andrew. Excerpts, 15th annual National Hurricane Conference. Orlando, FL, April 13 - 16, 1993. Federal Emergency Management Agency, Washington, DC.
TIME COVERAGE: 1992
SUMMARY: This report is a compilation of articles describing hurricane Andrew and its effect on South Florida.
KEY WORDS: Hurricanes, Disasters, Hurricane Andrew

1841
Tannehill, I. R. (1945) Hurricanes: Their Nature and History, Particularly Those of the West Indies and the Southern Coasts of the United States. Princeton University Press, Princeton, NJ. 275 pp.
TIME COVERAGE: 1945 ◊
SUMMARY: This book describes hurricanes and describes the most important storms of the 20th C to the time of writing. The Hurricane of 1926 is briefly discussed.
KEY WORDS: Hurricanes, Caribbean, Gulf of Mexico, Atlantic coast

1842
Taplin, K. A., and J. M. Hubertz (1994) Analyzing wave and storm surge impacts from Hurricane Andrew on the Dade County Beach Erosion Control and Hurricane Protection Project. In: Proc. Symp., Hurricanes of 1992: Lessons Learned and Implications for the Future. R. A. Cook, and M. Soltani, (eds.). Miami, FL, 1993. American Society of Civil Engineers, New York, NY. 587-596.
TIME COVERAGE: 1992
SUMMARY: This paper discussed the wave conditions impacting the shoreline during Hurricane Andrew including the response of the beach fill project to the storm's waves and water levels. Using information derived from a wave hindcast study and measured physical data, the actual beach fill response was simulated using numerical modeling techniques. The overall performance of the beach fill project was discussed.
KEY WORDS: Storm surge, Beach erosion, Wave effects, Hurricane Andrew, Dade County Beach Erosion Control and Hurricane Protection Project

1843
Targett, N. M., and A. Mitsui (1979) Toxicity of subtropical marine algae using fish mortality and red blood cell hemolysis for bioassays. J. Phycol., 15(2):181-185.
TIME COVERAGE: 1979 ◊
SUMMARY: Fish mortality (*Eucinostomus argenteus*) and fish erythrocyte (*Archosargus rhomboidalis*) hemolysis were used to survey for the presence of toxic principles in aqueous extracts of 19 species of marine macroalgae found in South Florida. Considerable differences were found between and within each bioassay. Only the extract of *Anadyomene stellata* was found to be toxic in both bioassays.
KEY WORDS: Algae, Toxicants, Mortality causes, Erythrocytes, Fish diseases, Key Largo, *Eucinostomus argenteus*, *Archosargus rhomboidalis*

1844
Targett, T. E. (1979) A contribution to the biology of the puffers *Sphoeroides testudineus* and *Sphoeroides spengleri* from Biscayne Bay, Florida. Fishery Bull., 77(1):292-295.
TIME COVERAGE: 1974
SUMMARY: Size ranges and spawning behavior of puffers are described. Specimens were collected in Virginia Key.
KEY WORDS: Pufferfish, Checkered puffer, Reproduction, Feeding behavior, Geographical distribution, Growth, Bandtail puffer, *Sphoeroides testudineus*, *Sphoeroides spengleri*, Virginia Key

1845
Targett, T. E. (1975) Food resource partitioning between the pufferfishes *Sphoeroides testudineus* and *S. spengleri* from Biscayne Bay, Florida and other aspects of their biology. M.Sc. thesis. University of Miami, Coral Gables, FL. 59 pp.
TIME COVERAGE: 1973 - 1974
SUMMARY: [SEE NEXT CITATION FOR DESCRIPTION OF THE WORK.]

KEY WORDS: Checkered puffer, *Sphoeroides testudineus*, Bandtail puffer, *Sphoeroides spengleri*, Pufferfish, Feeding, Food availability, Interspecific relationships, Intraspecific relationships, Competition

1846
Targett, T. E. (1978) Food resource partitioning by the pufferfishes *Sphoeroides spengleri* and *S. testudineus* from Biscayne Bay, Florida. Mar. Biol., 49(-):83-91.
TIME COVERAGE: 1973 - 1974
SUMMARY: The partitioning of food resources by two coexisting pufferfishes from Biscayne Bay was investigated. Mollusks and crustaceans were important prey groups. Partitioning was found between the two species overall, between overlapping size ranges, and between both species' most abundant size group.
KEY WORDS: Checkered puffer, Sphoeroides spengleri, Bandtail puffer, *Sphoeroides testudineus*, Pufferfish, Feeding, Food availability, Interspecific relationships, Intraspecific relationships, Competition, Virginia Key

1847
Task Force on Dade County Waterways Regulation (1973) Final report. Report. Task Force on Dade County Waterways Regulation, Miami, FL. Various paging.
TIME COVERAGE: 1973
SUMMARY: This task force was established to develop amendments to existing codes and ordinances to control eye sores along the Miami River. The recommendations included increasing boat registration, improved steps for dealing with derelict craft, regulations on pollution from boats, and ordinances regarding shoreline facilities.
KEY WORDS: Water use, Boating, Legal aspects, Coastal zone management, Dade County, Miami River

1848
Task Force on Dade County Waterways Regulation (1973) Final report. Sea Grant special bulletin 12. University of Miami Sea Grant Program, Miami, FL.
TIME COVERAGE: 1973 ◊
SUMMARY: The Task Force recommended that a managerial entity be established which would report directly to the County Manager, and which would be charged with the task of coordinating the responsible governmental agencies. Recommendations were also made on watercraft ownership and use, pollution from watercraft, shoreline facilities, and enhancement of shoreline use.
KEY WORDS: Water use, Boating, Legal aspects, Coastal zone management, Dade County

1849
Tavares, S. A. (1999) Coastal permitting & enforcement in Miami-Dade County. M.A. report. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1999 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Coastal zone management, Legal aspects, Environmental legislation, Permits, Property rights, Dade County

1850
Taylor, B. F. (1984) Ecology of subtropical, shallow water environments: chemistry of copper and chlorine introduced into marine systems during energy production. DOE/EV/03801-T12. DE85 003703. Final report for contract DE-AS05-76VO3801. NTIS, Washington, DC.
TIME COVERAGE: 1984 ◊

SUMMARY: This citation reported on studies of the interaction of Cu with dissolved organic compounds, the assessment of oxidants generated in seawater by chlorination, methods for the quantification of organic compounds in seawater.
KEY WORDS: Cu, Chlorine, Dissolved organic matter

1851
Taylor, D. L. (1971) Taxonomy of some common Amphidinium species. British Phycol. J., 6(-):129-133.
TIME COVERAGE: 1971 ◊
SUMMARY: The taxonomy of these species is described. Some samples were collected in Biscayne Bay.
KEY WORDS: Dinoflagellates, Amphidinium, Taxonomy

1852
Taylor, D. L. (1971) Ultrastructure of the 'zooxanthella' *Endodinium chattonii* in situ. J. Mar. Biol. Assoc. U. K., 51(1):227-234.
TIME COVERAGE: 1971 ◊
SUMMARY: Studies of the ultrastructural morphology of *Endodinium chattonii* reveal new taxonomic characters which support the generic separation of this algae and the only rather completely described symbiotic dinoflagellate *Symbiodinium microadriaticum*. A revision of the taxonomy of symbiotic dinoflagellates is proposed.
KEY WORDS: Dinoflagellates, *Endodinium chattonii*, Ultrastructure, Taxonomy, Bay of Naples, Bay of Biscay, *Symbiodinium microadriaticum*, Dinoflagellates

1853
Taylor, R. B. (1971) Numerical modeling of tidal circulation of inlet systems as applied to the Broad Creek, Angelfish Creek, and Old Rhodes Channel complex in south Florida. Tech. report 71034. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 96 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: The objective of this study was to prove the feasibility of computing tidal transport through a complex system of natural tidal inlets.
KEY WORDS: Mathematical models, Tidal currents, Inlets (Waterways), Broad Creek, Angelfish Creek, Old Rhodes Channel, Turkey Point, Card Sound

1854
Taylor, R. B. (1971) Numerical modeling of tidal circulation of inlet systems as applied to the Broad Creek, Angelfish Creek, and Old Rhodes Channel complex in south Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 96 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: The objectives of this research were to prove the feasibility of computing tidal transport through a complex system of natural inlets using tidal height data and inlet geometry by developing a numerical model which can be represented by a network of hydraulic flow resistances across which the applied hydraulic head difference is equivalent to the estuary-ocean tidal height difference, and to determine the amount of tidal exchange between Card Sound and the Atlantic Ocean.
KEY WORDS: Mathematical models, Tidal currents, Inlets (Waterways), Broad Creek, Angelfish Creek, Old Rhodes Channel, Turkey Point, Card Sound

1855
Taylor, R. B., and R. G. Dean (1974) Exchange characteristics of tidal inlets. In: Proc., 14th Coastal Engineering Conference. Copenhagen, Denmark, 1974. American Society of Civil Engineers, New York, NY. 2268-2289.

TIME COVERAGE: 1974 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water circulation, Water mixing, Flushing, Tidal inlets, Broad Creek, Caesar's Creek, Angelfish Creek, South Bay

1856
Taylor, W. R. (1960) Marine Algae of the Eastern Tropical and Subtropical Coasts of the Americas. University of Michigan Press, Ann Arbor, MI. 870 pp.
TIME COVERAGE: 1960 ◊
SUMMARY: This book is a guide to marine algae of the tropical coasts of the Americas.
KEY WORDS: Algae, Tropical environment, Subtropical zones, Atlantic coast, Guide

1857
Teas, H. J. (1977) Ecology and restoration of mangrove shorelines in Florida. Env. Conservation, 4(1):51-58.
TIME COVERAGE: 1977 ◊
SUMMARY: Mangroves were planted at several sites in Florida and planting success evaluated. Mangroves of several sizes were planted at a variety of sites that differed in shoreline energy, tidal depth, root-parasite prevalence, substrate type, salinity and public access. Counts and measurements after periods of up to 4 years indicated that shoreline energy, tidal depth and vandalism were the most important factors limiting mangrove establishment and survival. Planting costs were also provided.
KEY WORDS: Mangrove swamps, Coastal zone, Restoration

1858
Teas, H. J. (1974) Mangroves of Biscayne Bay: a study of the mangrove communities along the mainland in Coral Gables and south to US Highway 1 in Dade County, Florida. Report. University of Miami, Coral Gables, FL. 107 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: Mangroves along Biscayne Bay can be classified into five communities: Coastal Band, Dense Scrub, Sparse Scrub, White and Mixed, and Black Marsh. The Coastal Band of mature mangroves along the shore is the most productive, and the dwarfed Sparse Scrub the least. Red mangroves along Biscayne Bay suffer from depravation by the marine isopod Sphaeroma and from tumors, and all mangrove species suffer from lightning damage and storm erosion. The historical, legal and biological aspects of the bulkhead line were evaluated.
KEY WORDS: Mangrove swamps, Red mangrove, *Rhizophora mangle*, Black mangrove, *Avicennia germinans*, White mangrove, *Laguncularia racemosa*

1859
Teas, H. J. (1974) Mangrove planting in south Florida. In: Proc., 1st Ann. Conf. on Restoration of Coastal Vegetation in Florida. Tampa, FL, 1974. Hillsborough Community College, Tampa, FL. 27-28.
TIME COVERAGE: 1974 ◊
SUMMARY: This short citation discusses mangrove planting efforts in various areas including Biscayne Bay.
KEY WORDS: Mangrove swamps, Transplantation

1860
Teas, H. J. (1980) Mangrove swamp creation. In: Proc., Rehabilitation and Creation of Selected Coastal Habitats. J. C. Lewis, and E. W. Bunce, (eds.). Sapelo Island, GA, 1976. Biological Services Program FWS/OBS-80/27. US Fish and Wildlife Service, Office of Biological Services, Washington, DC. 63-90.
TIME COVERAGE: 1980 ◊

SUMMARY: This citation describes the conditions necessary for the creation of a mangrove swamp. Biscayne Bay is used as an example.
KEY WORDS: Mangrove swamps, Red mangrove, *Rhizophora mangle*, Black mangrove, *Avicennia germinans*, White mangrove, *Laguncularia racemosa*

1861
Teas, H. J. (1976) Productivity of Biscayne Bay mangroves. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 103-112.
TIME COVERAGE: 1976 ◊
SUMMARY: Mangroves of Biscayne Bay have been classified into five community types: coastal band, dense scrub, sparse scrub, sparse swamp, and white and mixed community. Four of these five communities developed in their present form or location because of the salt water encroachment that followed draining of the Everglades, cutting agricultural and mosquito ditches, and blocking of overland freshwater flow by roads and levees. Because of the documented spread of mangroves into the marl lands, it may be that in spite of losses of shoreline to landfill activities, there is a greater area of mangroves along Biscayne Bay today than in 1900.
KEY WORDS: Mangrove swamps, Biological production, Detritus

1862
Teas, H. J. (1979) Silviculture with saline water. In: The Biosaline Concept; An Approach to the Utilization of Underexploited Resources. A. Hollaender, J. C. Aller, E. Epstein, A. San Pietro, and O. R. Zaborsky (eds.). Plenum Press, New York, NY. 117-161.
TIME COVERAGE: 1979 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Mangrove swamps, Saline water, Forest industry

1863
Teas, H. J., M. De Grood, E. Duerr, and B. E. Grayson (1995) Sodium uptake, accumulation and loss in leaves of red mangrove (*Rhizophora mangle*). In: Biology of Salt Tolerant Plants. M. A. Khan, and I. A. Ungar (eds.). University of Karachi, Karachi, Pakistan. 246-251.
TIME COVERAGE: 1995 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Red mangrove, *Rhizophora mangle*, Leaves, Oil pollution, Turkey Point

1864
Teas, H. J., E. O. Duerr, and J. R. Wilcox (1987) Effects of South Louisiana crude oil and dispersants on *Rhizophora* mangroves. Mar. Pollut. Bull., 18(3):122-124.
TIME COVERAGE: 1987 ◊
SUMMARY: Sprays of seawater or dispersant were found to have no value in saving oiled *Rhizophora mangle* mangroves. Mangroves treated with dispersed oil showed no greater mortality than those untreated.
KEY WORDS: *Rhizophora mangle*, Oil pollution, Turkey Point Power Plant, Red mangrove

1865
Teas, H. J., and W. Jurgens (1978) Aerial planting of Rhizophora mangrove propagules in Florida. In: Proc., 5th annual Conf. on Restoration of Coastal Vegetation in Florida. D. P. Cole, (ed.). Tampa, FL, 1978. Hillsborough Community College, Tampa, FL. 1-25.
TIME COVERAGE: 1978 ◊
SUMMARY: This citation describes aerial planting of mangrove propagules. Several types of missiles encasing the propagules were evaluated.
KEY WORDS: Red mangrove, *Rhizophora mangle*, Plant culture, Sandy Key

1866
Teas, H. J., H. R. Wanless, and R. E. Chardon (1976) Effects of man on the shore vegetation of Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 133-156.
TIME COVERAGE: 1765 - 1976
SUMMARY: The shoreline vegetation of Biscayne Bay changed significantly since the turn of the century. Shore vegetation was eliminated in most of the northern Bay and seriously impacted elsewhere. Vegetation history was reconstructed at five sites: Interama, Cocoplum, Saga, section 33 of T56, R40 (south of Black Point), and Card Point.
KEY WORDS: Vegetation, Coastal zone, Man-induced effects, Interama, Cocoplum, Saga, Card Point

1867
Tebeau, C. W. (1974) South Florida water management. In: Environments of south Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 362-366.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation describes water management activities in South Florida.
KEY WORDS: Water management, Everglades

1868
Tebo, L. B., R. L. Estes, and R. R. Lassiter (1968) Temperature studies lower Biscayne Bay, Florida. October. Federal Water Pollution Control Administration, Southeast Water Laboratory, Atlanta, GA. 87 pp.
TIME COVERAGE: 1968
SUMMARY: This study was conducted to obtain baseline water temperature data prior to the installation of the nuclear facilities at Turkey Point.
KEY WORDS: Water temperature, Turkey Point, South Bay

1869
Tedesco, L. P. (1991) Generation of carbonate fabrics and facies by repetitive excavation and infilling of burrow networks in recent and ancient sequences. Ph.D. dissertation. University of Miami, Coral Gables, FL. 434 pp.
TIME COVERAGE: 1991 ◊
SUMMARY: Excavation of deep, open burrow networks coupled with subsequent infilling with surficial sediment produces a new sedimentary deposit and results in obliteration or severe diagenetic transformation of precursor depositional facies. Repetitive excavation and infilling is responsible for creating the preserved depositional facies of many marine deposits.
KEY WORDS: Burrows, Burrowing organisms, Facies, Carbonate sediments, Bioturbation, Thalassinid crustaceans, Caicos Platform, Safety Valve

1870
Tedesco, L. P. (1994) Vertical fluxes resulting from bioirrigation: the significant effect of deep burrowing arthropods. Bull. Mar. Sci., 54(3):1086.
TIME COVERAGE: 1994 ◊
SUMMARY: This abstract describes vertical fluxes resulting from deep burrowing arthropods. Sediment expelled from burrows is overwhelmingly less than 175 μ in settling diameter and represents grains swept up and out of the burrow by currents generated by the shrimp.
KEY WORDS: Burrows, Burrowing organisms, Bioturbation, Callianassa, Alpheus, Upogebia

1871

Tedesco, L. P., and R. C. Aller (1997) ^{210}Pb chronology of sequences affected by burrow excavation and infilling: examples from shallow marine carbonate sediment sequences, Holocene south Florida and Caicos Platform, British West Indies. J. Sedimentary Res., 67(1):36-46.

TIME COVERAGE: 1997 ◊

SUMMARY: This paper reviews the ^{210}Pb chronology of sequences affects by megafaunal bioturbation. Bioturbation was found to be an important process below 10 - 20 cm in modern sediment deposits. As a result, entire facies transgressed during sea level rise of formed during distinct physical events can be largely obliterated and biogenically replaced by more recent overlying material on time scales of approximately 100 - 600 years.

KEY WORDS: Burrowing organisms, Carbonate sediments, Biogenic sedimentary structures, Safety Valve, Caicos Platform

1872

Tedesco, L. P., J. A. Risi, H. R. Wanless, and F. V. Hernly (1996) The evolution of shallow marine environments of South Florida following Hurricane Andrew. Abstracts with programs - Geological Society of America, 28(7):A-274.

TIME COVERAGE: 1992

SUMMARY: Four years after Hurricane Andrew passed over South Florida, areas of destabilized bottom continue to evolve and little recovery had occurred. The most pronounced long-term change occurred on the high energy shallow marine carbonate banks forming the seaward margin of Biscayne Bay. These banks experienced accelerated surge currents at areas of shoaling or confinement. Seagrass blowouts covered a broad expanse of the seaward bank margin and up to 1 m initial erosion of muddy substrate resulted. Destabilized areas exposed to lower energy storm events continued to be reworked. Andrew activated skeletal sand shoals in the backreef area that had been previously stabilized by *Thalassia*. Some areas of previously dense seagrass had a series of blowouts. These blowouts continue to erode on both the northern and southern flanks in response to lower energy storm events. Recolonization attempts by calcareous alga and seagrasses are mostly thwarted by the mobile bottom of the high energy backreef. Recolonization by *Halodule* and *Syringodium* has stabilized lower energy mud banks in the interior of the Bay.

KEY WORDS: Shallow water, Sea grass, Carbonate sediments, erosion, Hurricane Andrew

1873

Tedesco, L. P., and H. R. Wanless (1991) Generation of sedimentary fabrics and facies by repetitive excavations and storm infilling burrow networks, Holocene of south Florida and Caicos Platform, B.W.I. Palaios, 6(1):326-343.

TIME COVERAGE: 1991 ◊

SUMMARY: Excavation of deep, open burrow networks and subsequent infilling with sediment from the surface produces an entirely new sedimentary deposit and results in obliteration to severe diagenetic transformation of precursor depositional facies. The carbonate mudbanks of Biscayne and Florida Bays are discussed.

KEY WORDS: Burrows, Bioturbation, Biogenic deposits, Callianassa, Sediment texture, Mud banks, South Florida, Caicos Platform, Florida Bay

1874

Tedesco, L. P., and H. R. Wanless (1995) Growth and burrow-transformation of carbonate banks: comparison of modern skeletal banks of south Florida and Pennsylvanian phylloid banks of south-eastern Kansas, USA. In: Carbonate Mud-mounds: Their Origin and Evolution. C. L. V. Monty, D. W. J. Bosence, P. H. Bridges, and B. R. Pratt (eds.). Special publication number 23 of the International Association of Sedimentologists. Blackwell Scientific, Oxford, UK. 537 pp.

TIME COVERAGE: 1995 ◊

SUMMARY: The fabric and facies of both modern and ancient carbonate skeletal banks have been difficult to interpret because they contain characteristics that appear equivocal with respect to reconstruction of growth history, paleoenvironment and energy setting. Modern skeletal banks such as the Safety Valve are built predominantly by pulses of physically deposited, layered grainstone to mudstone. Intense burrowing by excavating organisms and infilling of open burrows by storms between mudstone depositional events, converts layered mudstone into the mottled skeletal packstone that dominated skeletal banks.
KEY WORDS: Mud banks, Carbonate sediments, Sand banks, Burrows, Safety Valve Bank, South Florida, Kansas

1875
Tedesco, L. P., H. R. Wanless, and L. A. Scusa (1993) Impact of Hurricane Andrew on sandy coastlines and shallow marine banks of South Florida. Abstracts with programs (Geological Society of America), 25(4):73.
TIME COVERAGE: BB 362
SUMMARY: Shallow marine carbonate banks forming the seaward margin of Biscayne Bay faced directly into currents transporting surge waters into the Bay. Erosion and scour was limited to areas where current velocity was increased because of shoaling onto the banks or confinement in channels to areas where current velocities exceeded 150 cm/sec, seagrasses were eroded and mud substrates scoured to depths of up to 1 m. A bankward thinning wedge of skeletal gravel to sand, sourced from erosional areas, was deposited on the banks. The response of sandy coastlines was dependent on the orientation of the coastline with respect to onshore surge directions. Beaches on the north-central portion of Cape Florida were oriented perpendicular to onshore surge and had overwash lobes of sand transported onto the island. Beaches on the southern portion of Cape Florida were oriented at an angle to the storm surge. Dunes were scarped and onshore surge channels formed, but the beach was not flooded by storm surge water. Beaches in both areas were reprofiled into a broad, gently sloping storm ramp which initially showed little shoreline erosion. Wave attack from strong easterlies has reprofiled the storm ramp, resulting in as much as 30 m of post-storm erosion to Cape Florida's beaches.
KEY WORDS: Coastal landforms, Sand banks, Beaches, Hurricane Andrew, Cape Florida

1876
Tedesco, L. P., H. R. Wanless, L. A. Scusa, J. A. Risi, and S. Gelsanliter (1995) Impact of Hurricane Andrew on South Florida's sandy coastlines. In: Impacts of Hurricane Andrew on the Coastal Zones of Florida and Louisiana: 22-26 August 1992 (J. Coastal Res. Spec. Issue 21). G. W. Stone, and C. W. Finkl (eds.). Coastal Education and Research Foundation, Ft. Lauderdale, FL. 364 pp.
TIME COVERAGE: 1992 - 1993
SUMMARY: Beaches on the north-central portion of Cape Florida were oriented nearly perpendicular to onshore surge and had overwash lobes of sand transported onto the island. Beaches on the southern portion of Cape Florida were oriented at an oblique angle to the storm surge. Dunes were scarped and large channels formed but the beach was not significantly overwashed by storm surge waters. Beaches on both areas were reshaped into a broad, gently sloping storm ramp which initially showed little shoreline erosion following the storm. Wave attack from strong easterlies subsequently reshaped the storm ramp resulting in vertical growth of the berm and seaward portion of the backshore and landward migration of the beach face. Between September 1992 and March 1993, portions of the Cape Florida shorelines migrated landward as much as 15 m. Because this land migration of the beach face was associated with net increase of sand in the backshore region, it was concluded to be the result of the reshaping of the hurricane ramp, rather than a part of the normal seasonal beach migration cycle. By June 1993, the shoreline had returned to roughly pre-storm position.

KEY WORDS: Beach erosion, Storm surge, Tidal inlets, Overwash, Hurricane Andrew, South Florida, Key Biscayne, Cape Florida

1877
Tellock, J. A. (1988) Age and growth of laboratory-reared larval snook, *Centropomus undecimalis*, from otolith microstructure. M.Sc. thesis. University of Miami, Coral Gables, FL. 63 pp.
TIME COVERAGE: 1985 - 1986
SUMMARY: Age and growth of larval snook were determined for larvae reared in the laboratory from stock collected in Biscayne Bay and in the Naples/Marco Island area.
KEY WORDS: Snook, *Centropomus undecimalis*, Laboratory culture, Age determination, Growth, Otolith reading, Larval development, Naples Bay, Marco Island

1878
Textoris, S. D. (1989) Patch reefs in the Pleistocene of South Florida and their implications. Abstracts with programs (Geological Society of America), 21(6):A161.
TIME COVERAGE: 1989 ◊
SUMMARY: The Pleistocene patch reef support the supposition that the Florida Keys formed, in part, as a barrier reef during the late Pleistocene. Termination of the reef growth occurred when they either were smothered by the oolite or exposed subaerially with the withdrawal of the sea from the area.
KEY WORDS: Coral reefs, Miami Limestone, Key Largo Limestone, Pleistocene, Florida Keys

1879
Teytaud, A. R. (1971) Laboratory studies on sex recognition in the blue crab, *Callinectes sapidus* Rathbun. M.Sc. thesis. University of Miami, Coral Gables, FL. 63 pp.
TIME COVERAGE: 1971 ◊
SUMMARY: This work reported the results of behavioral studies conducted to determine the function of these displays in intraspecific sex recognition. A few specimens were collected in Biscayne Bay most were obtained from commercial trap fishermen operating in Card Sound.
KEY WORDS: Blue crab, *Callinectes sapidus*, Sexual behavior, Courtship, Card Sound

1880
Thane-Fenchel, A. (1970) Interstitial gastrotrichs in some south Florida beaches. Ophelia, 7(-):113-138.
TIME COVERAGE: 1970 ◊
SUMMARY: The interstitial fauna of gastrotrichs in calcareous and silicious sands of some beaches in southern Florida were described, including some species new to science. Most species were found to eat diatoms.
KEY WORDS: Gastrotrichs, Psammon, Sand, Bear Cut, Key Biscayne, Matheson Hammock

1881
Thomas, C. (1987) Uptake and effects of petroleum hydrocarbons on *Rhizophora mangle* L. M.Sc. thesis. University of Miami, Coral Gables, FL. 175 pp.
TIME COVERAGE: 1987 ◊
SUMMARY: Reproductively mature red mangroves were subjected to various concentrations of mineral, lubricating and crude oils for several time periods. The effect of petroleum oils on both the growth and hydrocarbon content of the plant tissues was oil- and time-specific. The order of toxicity was mineral < lubricating < crude oil.
KEY WORDS: Red mangrove, *Rhizophora mangle*, Petroleum hydrocarbons, Card Sound

1882
Thomas, J. D., and J. L. Barnard (1985) *Perioculodes cerasinus,* n. sp., the first record of the genus from the Caribbean Sea (Amphipoda: Oedicerotidae). Proc. Biol. Soc. Wash., 98(1):98-106.
TIME COVERAGE: 1985 ◊
SUMMARY: This species, a probable cryptic fossorial amphipod, is described. Specimens were collected in Tobago, Belize, the Florida Keys and Biscayne Bay.
KEY WORDS: Amphipods, New species, Distribution records, Animal morphology, Taxonomy, Belize, Caribbean, *Perioculodes cerasinus*, Florida Keys

1883
Thomas, L. P. (1961) Distribution and salinity tolerance in the amphiurid brittlestar, *Ophiophragmus filograneus* (Lyman, 1875). Bull. Mar. Sci. Gulf Caribb., 11(1):158-160.
TIME COVERAGE: 1961
SUMMARY: This paper is a brief discussion of the ecology and distribution of the brittlestar and its salinity tolerance.
KEY WORDS: Brittle stars, *Ophiophragmus filograneus*, Salinity tolerance, Ecological distribution

1884
Thomas, L. P. (1965) A monograph of the amphiurid brittlestars of the Western Atlantic. Ph.D. dissertation. University of Miami, Coral Gables, FL. 489 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: This is a taxonomic study of brittlestars found in the Western Atlantic.
KEY WORDS: Brittle stars, Ophiuroids, Amphiurids, Taxonomy, Western Atlantic

1885
Thomas, L. P. (1960) A note on the feeding habits of the West Indian sea star *Oreaster reticulatus* (Linnaeus). Quart. J. Fla. Acad. Sci., 23(2):167-168.
TIME COVERAGE: 1960 ◊
SUMMARY: This paper describes a specimen of the Indian sea star eating a sponge.
KEY WORDS: Sea star, *Oreaster reticulatus*, Feeding, Sponges

1886
Thomas, L. P. (1962) The shallow water amphiurid brittle stars (Echinodermata, Ophiuroidea) of Florida. Bull. Mar. Sci. Gulf Caribb., 12(4):623-694.
TIME COVERAGE: 1962 ◊
SUMMARY: Shallow water amphiurid brittle stars collected in Florida are described in detail.
KEY WORDS: Brittle stars, Ophiuroids, Taxonomy, Florida

1887
Thomas, L. P. (1975) Shallow-water marine environments of the Caribbean; a collection of reports done by students in MBS 675. Report compiled by L. P. Thomas. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1975 ◊
SUMMARY: The papers in this collection are unedited field trip reports written by students of the Marine Field Ecology course.
KEY WORDS: Shallow water, Aquatic environment, Key Biscayne, Ragged Keys, Matheson Hammock, Shell Key, Soldier Key, Bache Shoal

1888
Thomas, L. P. (1959) A systematic study of the shallow water brittle stars of the family Amphiuridae of Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 156 pp.

TIME COVERAGE: 1959 ◊
SUMMARY: This is a taxonomic study of the brittlestars of Florida.
KEY WORDS: Brittle stars, Amphiuridae, Taxonomy

1889
Thomas, L. P. (1962) Two large ophiodermatid brittlestars new to Florida. Quart. J. Fla. Acad. Sci., 25(1):65-69.
TIME COVERAGE: 1962 ◊
SUMMARY: Two large brittle stars newly found in Florida waters are described. Some specimens were collected in Biscayne Bay.
KEY WORDS: Brittle stars, *Ophioderma guttatum*, *Ophioderma squamosissimum*

1890
Thomas, L. P., D. R. Moore, and R. C. Work (1961) Effects of Hurricane Donna on the turtle grass beds of Biscayne Bay, Florida. Bull. Mar. Sci. Gulf Caribb., 11(-):191-197.
TIME COVERAGE: 1960
SUMMARY: The dry and wet weight of *Thalassia* washed ashore during Hurricane Donna was estimated. Damage to the *Thalassia* beds was considered light. Agents destructive to turtle grass other than winds were discussed.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Hurricane Donna, Hurricanes

1891
Thomas, R. F., and L. K. Opresko (1973) Observations on *Octopus joubini*: four laboratory reared generations. Nautilus, 87(-):61-65.
TIME COVERAGE: 1973 ◊
SUMMARY: Four consecutive generations of octopii were reared in the laboratory from an initial female collected off Key Biscayne.
KEY WORDS: *Octopus joubini*, Rearing, Laboratory culture, Key Biscayne

1892
Thomas, T. M. (1974) A detailed analysis of climatological and hydrological records of south Florida with reference to man's influence upon ecosystem evolution. In: Environments of South Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 82-122.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation summarized the climatological and hydrological records of south Florida with emphasis on anthropogenic impact on environmental evolution.
KEY WORDS: Climatology, Hydrologic cycle, Rainfall, Air temperature, Water table, Saline intrusion, Man-induced effects

1893
Thorhaug, A. (1965) Aspects of the developmental morphology and biology of the genus *Penicillus*, a green marine alga. M.Sc. thesis. University of Miami, Coral Gables, FL. 119 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: Field studies of the distribution, relative density, seasonal variations, and favorable environments in Biscayne Bay and the Florida Keys regions showed that *Penicillus* is an important organism in shallow water communities. Plants were found to be more abundant in the summer and to grow predominantly on sandy or muddy bottoms.
KEY WORDS: Algae, Penicillus, Plant morphology, Biological development, Florida Keys

1894
Thorhaug, A. (1981) Biology and management of seagrass in the Caribbean. Ambio, 10(6):295-298.

TIME COVERAGE: 1981 ◊
SUMMARY: The seagrass ecosystems of the Caribbean and the effects of human impact on these systems, including dredge and fill operations, oil, chemical pollution and thermal pollution, were discussed. The seagrass replanting efforts in Biscayne Bay were described.
KEY WORDS: Seagrass, Ecosystem management, Pollution, Caribbean

1895
Thorhaug, A. (1974) An ecological study of South Biscayne Bay and Card Sound: the *Thalassia* microcosm. TID-26605. Annual report to US Atomic Energy Commission [AT-(40-1)-4493]. National Technical Information Service, Springfield, Va. 182 pp.
TIME COVERAGE: 1971 - 1974
SUMMARY: Freshwater runoff from the Model Land canal in Card Sound appears to lower the population around the mouth of the canal. High growth rates of Thalassia were encountered in areas with high sediment organic carbon content. Turbidity in normal circumstances does not appear to retard growth. Seagrass acts as a chief primary producer in Card Sound and along the western shore of South Biscayne Bay.
KEY WORDS: Thalassia, Seagrass, Algae, Card Sound, Turkey Point

1896
Thorhaug, A. (1975) An ecological study of the effects of nuclear power plants on benthic macroplant microcosms in subtropical and tropical estuaries. Ann. progress rep. to ERDA, 1974 - 1975. NTIS ORO-4493-2. National Technical Information Service, Springfield, VA. 8 pp.
TIME COVERAGE: 1974 - 1975
SUMMARY: This is a progress report on studies carried out in Biscayne Bay and Card Sound.
KEY WORDS: Nuclear power plants, Thermal pollution, Benthos, Seagrass, Thalassia, Algae, Turkey Point, Card Sound, South Bay

1897
Thorhaug, A. (1976) An ecological study of the effects of power plants on benthic macroplant microcosms in subtropical and tropical estuaries. Ann. progress rep. to ERDA, 1975-1976. NTIS ORO-4493-3. National Technical Information Service, Springfield, VA. 20 pp.
TIME COVERAGE: 1975-1976
SUMMARY: This is a progress report on studies carried out in Biscayne Bay and Card Sound.
KEY WORDS: Power plants, Thermal pollution, Seagrass, Algae, Benthos, Metals, Card Sound, South Bay

1898
Thorhaug, A. (1977) Ecology and management of an estuary at the edge of the American Caribbean: Biscayne Bay. Marine Res. in Indonesia, 19(-):39-56.
TIME COVERAGE: 1977 ◊
SUMMARY: The fragility of the Biscayne Bay seagrass and mangrove dominated estuary was demonstrated by repeated destruction of these ecosystems by man's activities, such as dredging, filling, drainage, sewerage, thermal pollution, and others.
KEY WORDS: Estuaries, Environment management, Ecosystem management, Urbanization

1899
Thorhaug, A. (1974) Effect of thermal effluents on the marine biology of southeastern Florida. In: Proc. Symp., Thermal Ecology. J. W. Gibbons, and R. R. Sharitz, (eds.). Augusta, GA, 1973. AEC symposium series. Technical Information Center, US Atomic Energy Commission, Oak Ridge, TN. 518-531.
TIME COVERAGE: 1968 - 1972
SUMMARY: This paper examines the effect of heated effluents from the Turkey Point Power Plant. Significant changes related to the temperature levels of the effluents occurred in the

benthic communities. A second larger canal was opened in 1972. Effects of silt and heat on the marine communities dominated by T*halassia* and various species of algae were compared to baseline data collected in Card Sound in 1971.
KEY WORDS: Thermal pollution, Temperature effects, Turtle grass, *Thalassia testudinum*, Algae, Turkey Point Power Plant, Card Sound

1900
Thorhaug, A. (1980) Environmental management of a highly impacted, urbanized tropical estuary: rehabilitation and restoration. Helgolander Meeresuntersuchungen, 33(-):614-623.
TIME COVERAGE: 1980 ◊
SUMMARY: The principles of the dynamics and interrelationships within the dominant subtropical and tropical Caribbean seagrass community of Biscayne Bay were studied before, during and after impact. Artificial restoration of *Thalassia* in the Bay were described.
KEY WORDS: Resource management, Brackishwater pollution, Conservation, *Thalassia testudinum*

1901
Thorhaug, A. (1988) Fish aggregation and fisheries nursery restoration by seagrass rehabilitation. Bull. Mar. Sci., 44(2):1070-1071.
TIME COVERAGE: 1988 ◊
SUMMARY: This abstracts discussed the aggregation of fish in seagrass beds newly planted near artificial reefs, and their role as nursery grounds.
KEY WORDS: Artificial reefs, Nursery grounds, Seagrass, Attracting techniques, Habitat improvement (Physical)

1902
Thorhaug, A. (1979) The flowering and fruiting of restored *Thalassia* beds: a preliminary note. Aquatic Bot., 6(-):189-192.
TIME COVERAGE: 1976 - 1977
SUMMARY: *Thalassia* from an area previously denuded by thermal effluents flowered and reached sexual maturity. This is the first report of a restored *Thalassia* bed reseeding the recipient area into which it was transplanted.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Transplantation, Restoration

1903
Thorhaug, A. (1971) Grasses and macroalgae. In: An Ecological Study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. X: 1-63.
TIME COVERAGE: 1969 - 1971
SUMMARY: This is an assessment of the conditions and seagrasses and macroalgae at Turkey Point.
KEY WORDS: Seagrass, *Thalassia testudinum*, Algae, Thermal pollution, South Bay, Turkey Point, Card Sound

1904
Thorhaug, A. (1979) Growth of *Thalassia* restored by seedlings in a multiply-impacted estuary. In: Proc., 6th annual Conf. on Wetlands Restoration and Creation. D. P. Cole, (ed.). Tampa, FL, 1979. Hillsborough Community College, Tampa, FL. 263-278.
TIME COVERAGE: 1979 ◊
SUMMARY: This paper describes the use of *Thalassia* seedlings in restoration efforts.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Restoration, North Bay, Margaret Pace Park

1905
Thorhaug, A. (1983) Habitat restoration after pipeline construction in a tropical estuary: seagrasses. Mar. Pollut. Bull., 14(11):422-425.
TIME COVERAGE: 1983 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: *Halodule wrightii*, *Syringodium filiforme*, *Thalassia testudinum*, Seagrass, Estuaries, Restoration, Resource management, Florida Keys, NOT BISCAYNE - CHECKED

1906
Thorhaug, A. (1985) Large-scale seagrass restoration in a damaged estuary. Mar. Pollut. Bull., 16(2):55-62.
TIME COVERAGE: 1985
SUMMARY: This paper describes a large scale planting of seagrasses in northern Biscayne Bay. Test plots were planted in a heavily disturbed part of the Bay from Coconut Grove northward. A great variety if survival and growth rates occurred in the test plots within and among species.
KEY WORDS: *Halodule wrightii*, *Syringodium filiforme*, *Thalassia testudinum*, Seagrass, Estuaries, Restoration, Resource management

1907
Thorhaug, A. (1987) Large-scale seagrass restoration in a damaged estuary. Mar. Pollut. Bull., 18(8):442-446.
TIME COVERAGE: 1987 ◊
SUMMARY: This paper describes four large-scale plantings of *Halodule* and *Thalassia* in northern Biscayne Bay. More than 48 ha of the badly damaged part of the Bay were productive as the result of the plantings, and the beds were expanding. Animals were observed to rapidly colonize the areas planted.
KEY WORDS: Thalassia, Halodule, Syringodium, Seagrass, Nature conservation, Estuaries, Restoration

1908
Thorhaug, A. (1979) Mitigation of estuarine fisheries nurseries: seagrass restoration. In: The Mitigation Symposium: A National Workshop on Mitigating Losses of Fish and Wildlife Habitats. G. A. Swanson, (ed.). Fort Collins, CO, 1979. General tech. rep. RM-65. Rocky Mountain Forest and Range Experiment Station, US Forest Service, Fort Collins, CO. 677-669.
TIME COVERAGE: 1979 ◊
SUMMARY: This paper describes a new method of seeding of *Thalassia*.
KEY WORDS: Seagrass, Thalassia, Restoration, Estuarine fisheries

1909
Thorhaug, A. (1971) Plant community investigation. In: An Ecological Study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. XII: 1-10.
TIME COVERAGE: 1971 ◊
SUMMARY: This citation describes the composition of the Thalassia community as well as the growth characteristics, life span, turnover rate and developmental patterns of selected species.
KEY WORDS: Seagrass, Thalassia, Seaweeds, Penicillus, Halimeda, South Bay, Card Sound

1910
Thorhaug, A. (1979) Restoration of impacted Florida estuaries. Florida Scient., 42(Suppl. 1):27.

TIME COVERAGE: 1978
SUMMARY: This abstracts describes the restoration of *Thalassia testudinum* beds. In north Biscayne Bay, damage since 1896 have resulted in denudation of the dominant vegetation. The first two major plantings of *Thalassia*, after a series of test plots showing feasibility, were done summer 1978. 40,000 *Thalassia* seedlings were put in each of two sites with 4,000 plugs of *Halodule wrightii*. The *H. wrightii* grew vigorously in all sites, as did *Thalassia* , with blades up to 18 cm, 4 roots per plant up to cm two months after planting.
KEY WORDS: *Thalassia testudinum*, *Halodule wrightii*, Restoration, Revegetation, Hydrocharitaceae, *Cymodo ceaceae*

1911
Thorhaug, A. (1979) Restoration of heavily impacted tropical estuaries via seagrass transplantation. 14th Mtg., Association of Island Marine Laboratories of the Caribbean. Santo Domingo, 1978. 18.
TIME COVERAGE: 1979 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Turtle grass, Thalassia testudinum, Transplantation, Environmental restoration

1912
Thorhaug, A. (1981) Seagrasses in the Gulf of Mexico, Florida and Caribbean including restoration and mitigation of seagrasses. In: Proc., US Fish and Wildlife Service Workshop on Coastal Ecosystems of the Southeastern United States. R. C. Carey, P. S. Markovits, and J. B. Kirkwood, (eds.). Big Pine Key, FL, 1980. FWS/OBS-80/59. Contract 4-16-0004-80-010. Coastal Ecosystems Project, Office of Biological Services, US Fish and Wildlife Service, Washington, DC. 161-183.
TIME COVERAGE: 1981 ◊
SUMMARY: This paper is a discussion of restoration and mitigation of seagrasses including the effect of pollutants, dredging, oil contamination, and thermal pollution.
KEY WORDS: Seagrass, *Thalassia testudinum*, Halodule, *Syringodium filiforme*, Restoration, Gulf of Mexico, Caribbean, Florida

1913
Thorhaug, A. (1974) Transplantation of the seagrass *Thalassia testudinum* Konig. Aquaculture, 4(-):177-183.
TIME COVERAGE: 1973 - 1974
SUMMARY: This is a transplantation study of *Thalassia* at Turkey Point. The techniques and results are discussed.
KEY WORDS: Turtle grass, Thalassia testudinum, Transplantation, Turkey Point

1914
Thorhaug, A. (1976) Transplantation techniques for the seagrass *Thalassia testudinum*. Sea Grant tech. bull. 34. University of Miami Sea Grant Program, Coral Gables, FL, FL. 6 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This report describes transplantation techniques for *Thalassia*.
KEY WORDS: Turtle grass, Thalassia testudinum, Transplantation

1915
Thorhaug, A. (1976) Tropical macroalgae as pollution indicator organisms. Micronesica, 12(-):49-65.
TIME COVERAGE: 1971
SUMMARY: Tropical and subtropical macroalgae were used as indicators of thermal pollution in the marine environment. The long term upper thermal limit was found to be within one to two degrees of the mean summer ambient temperatures.

KEY WORDS: Algae, Indicator species, Thermal pollution, Tropical environment, Turkey Point, Florida Keys, Dry Tortugas, Puerto Rico, Curacao, Bermuda, Venezuela, Card Sound, *Halimeda incrassata*, *Penicullus capitatus*, *Acetabularia crenulata*, *Valonia macrophysa*, *Valonia ventricosa*, *Valonia utricularis*, *Valonia ocellata*, *Valonia aegrophilia*, *Laurencia poitei*, *Udotea flabellum*, *Rhipocephalus phoenix*, *Batophora oestedii*, *Udotea conglutinata*, *Avranvilla nigricans*, *Cladophora fuliginosa*, *Sargassum pteropleuron*, *Halimeda opuntia*, *Caulerpa cuppressoides*, *Caulerpa paspaloides*, *Caulerpa sertularoides*

1916
Thorhaug, A. (1976) The vascular plants of Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 95-102.
TIME COVERAGE: 1976 ◊
SUMMARY: This paper describes the major vascular plants found in Biscayne Bay: *Thalassia testudinum*, *Halodule wrightii* and *Syringodium filiforme*. The functions of these plants are: food source; shelter and protection; sediment stabilizer; and chemical sink in terms of cycling of elements.
KEY WORDS: Seagrass, Turtle grass, Thalassia testudinum, Cuban shoal grass, Halodule wrightii, Manatee grass, Syringodium filiforme

1917
Thorhaug, A., and C. B. Austin (1976) Restoration of seagrasses with economic analysis. Env. Conservation, 3(4):259-267.
TIME COVERAGE: 1976 ◊
SUMMARY: The efforts that have been made to replant various seagrass species using different techniques are reviewed. The seeding method appears to be the most practical operation for *Thalassia*. An economic model and analysis for restoration costs was presented and a wide range of uses of restoration of seagrass beds were enumerated.
KEY WORDS: Seagrass, Transplantation, Economic analysis, Restoration

1918
Thorhaug, A., S. D. Bach, and K. F. Kellar (1972) Laboratory studies of temperature tolerances of major Biscayne Bay organisms. Quart. J. Fla. Acad. Sci., 35(Suppl. 1):34.
TIME COVERAGE: 1972 ◊
SUMMARY: Thermal lethal limits studies of organisms in Biscayne Bay were reported.
KEY WORDS: Temperature tolerance, Estuarine organisms

1919
Thorhaug, A., and S. D. Bach (1973) Productivity of red and green macro-algae in a south Florida estuary before and after the opening of a thermal effluent canal. J. Phycol., 9(Suppl.):10.
TIME COVERAGE: 1973 ◊
SUMMARY: A two-year study in Card Sound revealed no significant changes in the normal seasonal pattern of productivity and standing crops of four major calcareous macro-algae except in the area of deposition of suspended matter directly in front of the canal mouth where the plants were apparently smothered. Standing crop of other green algae showed a similar pattern. The distribution of red algal macrophyte associations was affected by the increased in flow rate due to the canal since this group, primarily poitei, forms large rolling mats that are subject to influence by currents.
KEY WORDS: Algae, Thermal pollution, Turkey Point, Card Sound, Penicillus, Halimeda, Udotea, Rhipocephalus, *Laurencia poitei*

1920
Thorhaug, A., G. L. Beardsley, and R. Hixon (1974) Large scale transplantation of *Thalassia* in south Florida. In: Proc., 1st Ann. Conf. on Restoration of Coastal Vegetation in Florida. Tampa, FL, 1974. Hillsborough Community College, Tampa, FL. 18-20.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation describes transplantation efforts of *Thalassia* in Biscayne Bay.
KEY WORDS: Seagrass, Thalassia, Transplantation, Turkey Point

1921
Thorhaug, A., N. Blake, and P. B. Schroeder (1978) The effect of heated effluents from power plants on seagrass (*Thalassia*) communities quantitatively comparing estuaries in the subtropics and tropics. Mar. Pollut. Bull., 9(-):181-187.
TIME COVERAGE: 1971
SUMMARY: This paper synthesizes ecological studies of four effluent canals from power plants releasing heat in shallow estuaries: tropics, edge of tropics, and subtropics. The marine tropics differ from marine temperate zones in their capacity to assimilate man's activities.
KEY WORDS: Seagrass, Thalassia, Thermal pollution, Power plants, Turkey Point, Card Sound, Guayanilla Bay, Tampa Bay

1922
Thorhaug, A., T. Devany, J. C. Bauer, and S. Pepper (1971) The effect of temperature on *Penicillus capitatus* survival in laboratory and field investigations. J. Phycol., 7(Suppl.):5-6.
TIME COVERAGE: 1970 - 1971
SUMMARY: Between 15 and 31 °C, *Penicillus* remained vigorous up to 4 months in the laboratory. Below 14 and above 34 °C, *Penicillus* were not able to survive more than 9 days. During a survey of a region receiving heated effluents the following observations were made: +5 °C, depletion of all *Penicillus*; +4 °C, no vigorous *Penicillus* observed; +3 °C, some abundance of *Penicillus* in early summer, rapid decrease in mid summer in abundance and vigour; and +2 to 1 °C, comparable to non-heated areas.
KEY WORDS: Algae, *Penicillus capitatus*, Temperature effects

1923
Thorhaug, A., and J. Garcia-Gomez (1972) Ecological investigations of the macroalgae in Biscayne Bay and Card Sound, Florida. I. Preliminary results of the red algal complex. Unpublished manuscript. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 12 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: This is a preliminary report on the *Laurencia* complex in Biscayne Bay and Card Sound.
KEY WORDS: Algae, *Laurencia poitei*, Card Sound

1924
Thorhaug, A., and J. Garcia-Gomez (1972) Preliminary laboratory and field growth studies of the *Laurencia* complex. J. Phycol., 8(Suppl.):10.
TIME COVERAGE: 1972 ◊
SUMMARY: This abstract describes preliminary efforts to grow *Laurencia* in the laboratory and in the field.
KEY WORDS: Algae, Laurencia, Growth

1925
Thorhaug, A., and R. Hixon (1975) Revegetation of *Thalassia testudinu*m in a multiple-stressed estuary, north Biscayne Bay, Florida. In: Proc., 2nd Ann. Conf. on Restoration of Coastal Vegetation in Florida. R. R. Lewis, (ed.). Hillsborough Community College, Tampa, FL. 12-27.

TIME COVERAGE: 1975 ◊

SUMMARY: This paper describes the revegetation of T*halassia* beds in north Biscayne Bay.

KEY WORDS: Turtle grass, *Thalassia testudinum*, Seagrass, Phytobenthos, Revegetation, North Bay

1926

Thorhaug, A., and K. F. Kellar (1972) Laboratory and field growth studies of four green calcareous algae. I. Preliminary results. J. Phycol., 8(Suppl.):10.

TIME COVERAGE: 1972 ◊

SUMMARY: This abstract describes efforts to grow green calcareous algae under thermally stressed and non-stressed conditions.

KEY WORDS: Algae, Growth, Halimeda, Penicillus, Udotea, Rhipocephalus

1927

Thorhaug, A., E. H. Man, and H. Ruvin (1990) Biscayne Bay: a decade of restoration progress. In: Environmental Restoration: Science and Strategies for Restoring the Earth. J. J. Berger (ed.). Island Press, Washington, DC. 398 pp.

TIME COVERAGE: 1990

SUMMARY: This citation describes the multijurisdictional restoration program of Biscayne Bay.

KEY WORDS: Environmental restoration, Biscayne Bay Committee

1928

Thorhaug, A., and J. H. Marcus (1983) Energy-related pollution of semi-tropical and tropical nearshore ecosystems. Annual report 1981-1982 to the Dept. of Energy, Contract No. DE-AS05-79EV10049. Department of Biological Sciences, Florida International University, Miami, FL. Unpaginated.

TIME COVERAGE: 1983 ◊

SUMMARY: This report is an evaluation of energy-related disturbances, such as heat, turbidity and salinity changes, to marine tropical ecosystems.

KEY WORDS: Energy resources, Pollution, Coastal zone, Seagrass, Mangrove swamps, Coral reefs, Subtropical zones, Tropical environment

1929

Thorhaug, A., H. B. Moore, and H. D. Albertson (1971) Laboratory thermal tolerances. In: An Ecological Study of South Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. XI: 1-33.

TIME COVERAGE: 1971 ◊

SUMMARY: The thermal tolerances of some 18,000 individual plants and animals found in Turkey Point were determined in the laboratory. An abrupt death point occurred rather than the expected Gaussian curve. Upper lethal limits for selected estuarine organisms were provided.

KEY WORDS: Estuarine organisms, Temperature tolerance

1930

Thorhaug, A., H. B. Moore, H. D. Albertson, F. O. Bingham, K. F. Kellar, J. Garcia-Gomez, and M. Fernandez (1972) Laboratory thermal studies. In: An ecological study of south Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. IX:1-35.

TIME COVERAGE: 1972 ◊

SUMMARY: The upper limits of thermal tolerances of 42 species and/life stages were studied in the laboratory. Several organisms found in Biscayne Bay and Card Sound has upper lethal

limits within 1 to 3 °C of the mid-summer temperatures encountered in the environment thus indicating a small margin of safety if exposed to heated effluents.
KEY WORDS: Estuarine organisms, Temperature tolerance

1931
Thorhaug, A., P. A. Penhale, and P. B. Schroeder (1977) An ecological study of the effects of power plants on benthic macroplant microcosms in subtropical and tropical estuaries. Progress report to ERDA, 1976-1977. National Technical Information Service, Springfield, VA. 32 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Power plants, *Thalassia testudinum*, Seagrass, Thermal pollution, Chemical pollutants, Pollution effects, Benthos, Algae, Turkey Point, South Bay

1932
Thorhaug, A., and S. Pepper (1972) The effect of heated effluents on a population of *Thalassia testudinum* in Biscayne Bay. Quart. J. Fla. Acad. Sci., 35(Suppl. 1):33.
TIME COVERAGE: 1972 ◊
SUMMARY: *Thalassia* beds near the Turkey Point plant and in Card Sound were studied. Areas with water temperatures consistently +4 - 5 °C showed considerable damage to the seagrass beds.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Thermal pollution, Temperature effects

1933
Thorhaug, A., M. A. Roessler, S. D. Bach, R. Hixon, I. M. Brook, and M. N. Josselyn (1979) Biological effects of power-plant thermal effluents in Card Sound, Florida. Env. Conservation, 6(2):127-137.
TIME COVERAGE: 1979 ◊
SUMMARY: This paper describes a multidisciplinary study of Card Sound before, during and after thermal effluents were released from a power plant. Biomass, growth, and production of *Thalassia* and macroalgae were estimated. Except for an area of 2 - 3 ha adjacent to the canal mouth, little damage to the benthic community was observed. This is very different from the effect of the first canal emanating from the same power plant at Turkey Point, where a large area was affected. The reasons for the reduced effects seemed to be: (1) the effluents were emitted at a lower temperature; (2) effluents were emitted for only one year; (3) effluents were emitted into deep (3 - 5 m) water; (4) the bottom vegetation at the point of effluence had already been decimated decades previously by canal construction, and subsequent freshwater drainage kept it at low density.
KEY WORDS: Thermal pollution, Benthos, Card Sound, Pollution effects, Nuclear power plants, Thermal effluents

1934
Thorhaug, A., M. A. Roessler, and D. C. Tabb (1976) Man's impact on the biology of Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 315 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This paper discusses the anthropogenic impact on the biota of Biscayne Bay. Shoreline and vegetation at the mouths of the canals has been altered and the canals themselves create new niches for organisms. Dredge and fill operations have had direct and indirect effects on the biota, specially in the northern part of the Bay. Sewage pollution has caused changes at the outfalls.
KEY WORDS: Man-induced effects, Pollution, Drainage water, Dredging, Sewage disposal, Thermal pollution, Resource conservation

1935
Thorhaug, A., and M. A. Roessler (1977) Seagrass community dynamics in a subtropical estuarine lagoon. Aquaculture, 12(-):253-277.
TIME COVERAGE: 1971 - 1974
SUMMARY: The temporal and spatial distribution of major plant and animal species in seagrass communities were investigated in Biscayne Bay including Card Sound. The major species of plants were *Thalassia testudi*num, Laurencia poitei, and Penicillus capitatus.
KEY WORDS: Mangroves, Models, Productivity, Nursery grounds

1936
Thorhaug, A., and P. B. Schroeder (1977) A comparison of the biological effects of heated effluents from two fossil fuel plants: Biscayne Bay, Florida, in the subtropics; Guayanilla Bay, Puerto Rico, in the tropics. In: Proc. Conf. Waste Heat Management and Utilization. S. S. Lee, and S. Sengupta, (eds.). Miami Beach, FL, 1977. University of Miami, Department of Mechanical Engineering, Miami, FL. 3:XI.B.134-XI.B.164.
TIME COVERAGE: 1970 - 1973
SUMMARY: This paper describes studies of *Thalassia* beds affected by heated effluents of power plants in Biscayne Bay and Guayanilla Bay. *Thalassia* mortality is dependent upon the temperature of the effluent water.
KEY WORDS: Thermal pollution, Power plants, Waste heat, *Thalassia testudinum*, Turkey Point, Guayanilla Bay, Puerto Rico

1937
Thorhaug, A., D. A. Segar, and M. A. Roessler (1973) Impact of a power plant on a subtropical estuarine environment. Mar. Pollut. Bull., 4(-):166-169.
TIME COVERAGE: 1972
SUMMARY: The impact of the cooling canal of the Turkey Point Power Plant on southern Biscayne Bay is discussed.
KEY WORDS: Temperature effects, Power plants, Brackishwater environment, Estuarine organisms, Turtle grass, *Thalassia testudinum*, Turkey Point, Card Sound

1938
Thorhaug, A., R. Stearns, and S. Pepper (1972) Grass and microalgae. In: An ecological study of south Biscayne Bay and Card Sound. R. G. Bader, and M. A. Roessler Progress rep. to the US Atomic Energy Commission [AT (40-1) - 3801 - 4] and Florida Power and Light Co. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. VIII:1-73.
TIME COVERAGE: 1970 - 1971
SUMMARY: This report documented growth and standing crops of *Thalassia* and macroalgae in a control area, examined the thermally affected area as the temperature of the effluent decreased, and quantified benthic floral productivity.
KEY WORDS: Seagrass, *Thalassia testudinum*, Algae, Thermal pollution, South Bay, Turkey Point, Card Sound

1939
Thorhaug, A., and A. Volker (eds.) (1976) Biscayne Bay: Past / Present / Future. Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1976 ◊
SUMMARY: This report assessed the condition of Biscayne Bay up to the 1970s.
KEY WORDS: Environmental assessment

1940
Thorp, E. M. (1936) Calcareous shallow-water marine deposits of Florida and the Bahamas. Papers from Tortugas Laboratory of Carnegie Institution of Washington, 29(-):37-143.
TIME COVERAGE: 1936 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Calcium carbonates, Carbonate sediments, Shallow water, Reef Tract, Bahamas

1941
Thorp, E. M. (1939) Florida and Bahama marine calcareous deposits. In: Symp., Recent Marine Sediments. P. D. Trask, (ed.). Reprinted 1955. American Association of Petroleum Geologists, Tulsa, OK. 283-297.
TIME COVERAGE: 1939 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Calcium carbonate, Carbonate sediments, Florida Keys, Bahamas

1942
Thurlow, C. I., D. D. Carrier, and D. M. Martin (1973) Biscayne Bay, Florida: tidal survey 1973. Unpublished manuscript (copy available at UM/RSMAS and NOAA/AOML). NOAA/National Ocean Survey, Rockville, MD. Unpaged.
TIME COVERAGE: 1929, 1973
SUMMARY: The purpose of this investigation was to determine tidal datums and establish additional fixed points of elevation referred to mean high water to be used for the delineation of coastal boundaries in Biscayne Bay. Elevations of geodetic bench marks were compared to the National Geodetic Vertical Datum of 1929.
KEY WORDS: Tidal datum, Mean sea level

1943
Tilley, D. R., and M. T. Brown (1998) Wetland networks for stormwater management in subtropical urban watersheds. Ecol. Eng., 10(2):131-158.
TIME COVERAGE: 1998 ◊
SUMMARY: A quantitative method suitable for planning wetland stormwater treatment at the regional, multibasin scale was developed based on simple zero order kinetics (uptake rates) and average nutrient loading conditions and applied to urbanized watersheds south of Miami. The method yielded a hierarchically organized network of wetlands for processing stormwaters. Results indicated that at the neighborhood scale, phosphorus runoff required the largest wetland treatment area. At the sub-basin scale, the loading of total suspended solids, derived from land use, needed the largest treatment area.
KEY WORDS: Wetlands, Stormwater runoff, Water treatment, Dade County, Nutrients

1944
Tilmant, J. T. (1979) Observations on the impact of shrimp roller frame trawls operated over hard-bottom communities, Biscayne Bay, Florida. Report series no. P-553. National Park Service, Biscayne National Monument, Homestead, FL. Unpaged.
TIME COVERAGE: 1979 ◊
SUMMARY: This report describes the effects of shrimp roller frames on bottom communities. Highest evidence of damage was to stony corals where 80% of the corals were turned over or crushed. Over 50% of the sponges were damaged and 38% of the gorgonians were uprooted. Most algae were not significantly affected with the exception of *Halimeda* and *Sargassum*. Eleven months are shrimp trawling ceased, the benthic community had not recovered.
KEY WORDS: Bottom trawls, Shrimp fisheries, Sponges, Scleractinians, Gorgonians, Algae

1945
Tilmant, J. T., and R. D. Conant (1980) Distribution, abundance and growth of commercially important sponges within south Biscayne Bay, Dade County, Florida. Florida Scient., 43(Suppl. 1):19.
TIME COVERAGE: 1980 ◊
SUMMARY: Four commercial sponge species were found in commercial densities in Biscayne Bay. Highest concentrations were found in longitudinal bands parallel to the western shore and adjacent to the Keys. Occurrence of sponges was limited to mid Bay. Density was highest at hard bottom sites. Tagged sponges revealed highly variable growth rates.
KEY WORDS: Sponges, *Spongia barbara*, *Spongia cheiris*, *Spongia graminea*, *Hippiospongia lachne*, Abundance, Growth, Ecological distribution, Florida Keys

1946
Tilmant, J. T., T. W. Curry, R. Jones, A. Szmant, J. C. Zieman, M. Flora, M. B. Robblee, D. Smith, R. W. Snow, and H. R. Wanless (1994) Hurricane Andrew's effects on marine resources. BioScience, 44(4):230-237.
TIME COVERAGE: 1992
SUMMARY: The effects of Hurricane Andrew on the marine resources of Biscayne Bay was examined. The small underwater impact contrasted sharply with the destruction of mangroves and upland forest communities.
KEY WORDS: Hurricanes, Shallow water, Marine resources, Water quality, Sediment movement, Seagrass, Reefs, Marine organisms, Hurricane Andrew, Florida Bay, Everglades National Park, Safety Valve

1947
Tisserand Delclos, L. (1979) Foraminiferes de deux localities de la baie de Floride et des environs: Joe Kemp Key et Key Biscayne. Notes du Laboratoire de Paleontologie de l'Universite de Geneve, 4(2):19-25 (French).
TIME COVERAGE: 1979 ◊
SUMMARY: This paper describes foraminifera of Joe Kemp Key and Key Biscayne.
KEY WORDS: Foraminifera, Florida Bay, Joe Kemp Key, Key Biscayne

1948
Tomb, G. (1997) Island gets second life as tropical escape. The Miami Herald, Miami, FL. April 17. Local. 1B.
TIME COVERAGE: 1997 ◊
SUMMARY: During Baynanza 1997, Spoil Island No. 2 was renamed Morningside Key. The key was cleaned and picnic tables and other recreational amenities were installed.
KEY WORDS: Spoil Island No. 2, Morningside Key

1949
Tomlinson, P. B. (1969) On the morphology and anatomy of turtle grass, *Thalassia testudinum* (Hydrocharitaceae). III. Floral morphology and anatomy. Bull. Mar. Sci., 19(-):286-305.
TIME COVERAGE: 1969 ◊
SUMMARY: This paper describes the morphology and anatomy of the flowers of *Thalassia*.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Plant morphology, Anatomy

1950
Tomlinson, P. B. (1972) On the morphology and anatomy of turtle grass, *Thalassia testudinum* (Hydrocharitaceae). IV. Leaf anatomy and development. Bull. Mar. Sci., 22(-):75-93.
TIME COVERAGE: 1972 ◊
SUMMARY: This paper describes leaf anatomy and development of *Thalassia*.

KEY WORDS: Turtle grass, *Thalassia testudinum*, Plant morphology, Anatomy, Matheson Hammock Park

1951
Tomlinson, P. B., and G. A. Vargo (1966) On the morphology and anatomy of turtle grass, *Thalassia testudinum* (Hydrocharitaceae). I. Vegetative morphology. Bull. Mar. Sci., 16(4):748-761.
TIME COVERAGE: 1966 ◊
SUMMARY: This is a study of the vegetative morphology of *Thalassia*.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Plant morphology, Anatomy

1952
Toner, M. (1979) Bay's first surveyor wouldn't recognize how it looks today. The Miami Herald, Miami, FL. April 22. 19-A.
TIME COVERAGE: 1979 ◊
SUMMARY: This article discusses the earliest survey of Biscayne Bay and subsequent changes to the area.
KEY WORDS: Charts, Urban development

1953
Toner, M. (1979) Bouncing back: sponge industry thriving again in south Biscayne Bay. The Miami Herald, Miami, FL. April 22. 19-A.
TIME COVERAGE: 1979 ◊
SUMMARY: This article discusses the comeback of the sponge fisheries in Biscayne Bay.
KEY WORDS: Sponges, Fisheries

1954
Toner, M. (1979) Diseased, deformed fish tell tale of sick Bay. The Miami Herald, Miami, FL. Section A. 1A.
TIME COVERAGE: 1979 ◊
SUMMARY: This article describes the diseased and deformed fish found by W. Kandrashoff in Biscayne Bay.
KEY WORDS: Fish diseases, Abnormalities, Fish, Commercial species, Water quality, Pollution, Kandrashoff, W.

1955
Toner, M. (1979) Scientists, students plant Bay's future. The Miami Herald, Miami, FL. April 22. 19-A.
TIME COVERAGE: 1979 ◊
SUMMARY: This article discusses the seagrass planting efforts in the Bay.
KEY WORDS: Seagrasses

1956
Toner, M. (1979) Wildlife clings tenaciously to ailing bay. The Miami Herald, Miami, FL. April 23. Section A.
TIME COVERAGE: 1979 ◊
SUMMARY: This article discusses the conditions of wildlife in Biscayne Bay.
KEY WORDS: Wildlife, Birds

1957
Toops, C., and W. E. Dilley (1986) Birds of South Florida: An Interpretive Guide. River Road Press, Conway, AK.
TIME COVERAGE: 1986 ◊

SUMMARY: This is a guide to the birds of south Florida.
KEY WORDS: Birds, Marine birds, South Florida, Guide

1958
Torrance, D. C. (1992) Research destruction and opportunity in storm's wake. Science, 257(-):1339-1340.
TIME COVERAGE: 1992
SUMMARY: Hurricane Andrew severely impacted ongoing research projects in the South Florida area. The storm also provided opportunities for new research studying the impact of the storm on Bay and offshore ecosystems.
KEY WORDS: Hurricane Andrew, Research programs, Biscayne National Park, Fairchild Tropical Garden

1959
Townshend, F. T. (1875) Wild Life in Florida with a Visit to Cuba. Hurst and Blackett, London, UK. 319 pp.
TIME COVERAGE: 1875 ◊
SUMMARY: This book describes a journey through the northern part of the state to the Tampa area, then on to Cuba, Key West, and up the east coast to Jacksonville.
KEY WORDS: Natural resources, Biographies, Florida, Cuba

1960
Tracy, B. A., and W. A. Brandon (1995) A combined wave and surge hindcast for the coast of Florida during Hurricane Andrew. In: Impacts of Hurricane Andrew on the Coastal Zones of Florida and Louisiana: 22-26 August 1992 (J. Coastal Res. Spec. Issue 21). G. W. Stone, and C. W. Finkl (eds.). Coastal Education and Research Foundation, Ft. Lauderdale, FL. 364 pp.
TIME COVERAGE: 1992
SUMMARY: A combined wave and surge hindcast model was applied to Biscayne Bay and Miami Beach and storm surges calculated. The shallow water in the area limited the wave heights produced during the storm.
KEY WORDS: Wave hindcasting, Storm surge, Hurricane Andrew, Florida

1961
Trimble, P. (1990) Frequency analysis of one and three-day rainfall maxima for central and southern Florida. Tech. memo. DRE 291. South Florida Water Management District,
TIME COVERAGE: 1990 ◊
SUMMARY: This citation examined rainfall in central and southern Florida. Twenty years of data were available for some of the rain gauge stations. Maps of rainfall maxima during various time intervals were provided.

1962
Tuomey, M. (1851) Notice of the geology of the Florida Keys, and of the southern coast of Florida. Amer. J. Science and Arts, Second series, 11(-):390-394.
TIME COVERAGE: 1851 ◊
SUMMARY: This paper describes the geology of the coast of South Florida.
KEY WORDS: Geology, Limestone, Oolites, Florida Keys, Everglades, South Florida, Key Biscayne

1963
Turgeon, D. D., J. Hameedi, M. R. Harmon, E. R. Long, K. D. McMahon, and H. H. White (1998) Sediment toxicity in U.S. coastal waters. Report. NOAA/NOS/NCCOS, Silver Spring, /MD.
TIME COVERAGE: 1998 ◊
SUMMARY: This report discusses and compares sediment toxicity in several US estuaries.

KEY WORDS: Sediment pollution, Coastal waters

1964
Turgut, A. (1997) Inversion of bottom/subbottom statistical parameters from acoustic backscatter data. J. Acous. Soc. Am., 102(2, pt.1):833-852.
TIME COVERAGE: 1997 ◊
SUMMARY: Inversion of statistical parameters of a bottom/subbottom scattering model was investigated by using genetic algorithms for both synthetic and real data. Inverted statistical parameters for a sandy site at Biscayne Bay confirmed the results of simultaneous tomographic measurements indicating that scattering by subbottom inhomogeneities plays a minor role for this particular site.
KEY WORDS: Bottom scattering, Sound scattering, Acoustic models

1965
Tyler (L. L.) Publishing Company (1926) A Pictorial History of the Florida Hurricane, September 18, 1926. L. L. Tyler Publishing Company, Miami, FL. 32 pp.
TIME COVERAGE: 1926
SUMMARY: This is a pictorial description of the aftermath of the Hurricane of 1926.
KEY WORDS: Hurricanes, Photographs, Miami, South Florida, Hurricane of 1926

1966
Udey, L. R. (1976) Anaerobic bacteria as possible disease agents in fish. Unpublished manuscript. Department of Microbiology, University of Miami School of Medicine, Miami, FL. 4 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This report discusses anaerobic bacteria as causes of disease in fish.
KEY WORDS: Fish diseases, Anaerobic bacteria, Pathogens, Mugil cephalus, Eubacterium tarantellus

1967
Udey, L. R. (1978) Anaerobic bacteria as possible disease agents in fish. Marine Fisheries Review, 40(10):10-12.
TIME COVERAGE: 1978 ◊
SUMMARY: Anaerobic bacteria were isolated from the brains of mullet exhibiting a "twirling" syndrome during the occurrence of several large fish kills in Biscayne Bay.
KEY WORDS: Fish diseases, Anaerobic bacteria, Mullet, *Mugil cephalus*, *Eubacterium tarantellus*

1968
Udey, L. (unpublished) A fish health survey of north Biscayne Bay: June 1976 to June 1977. Unpublished report. Rosenstiel School of Marine and Atmospheric Science, Miami, FL. Unpaginated.
TIME COVERAGE: 1976 - 1977
SUMMARY: This is an unpublished report of the abnormalities found in fish collected in Biscayne Bay.
KEY WORDS: Kandrashoff, W., Fish abnormalities

1969
Udey, L. R., E. Young, and B. Sallman (1976) *Eubacterium* sp. ATCC 29255: an anaerobic bacterial pathogen of marine fish. Fish Health News, 5(2):3-4.
TIME COVERAGE: 1976 ◊
SUMMARY: During the past few years, large fish kills involving black mullet, snook and striped mojarra occurred in Biscayne Bay. A detailed investigation resulted in the isolation of a gram-

positive anaerobic bacteria from the dead and moribund fish and classified as a new species of the genus *Eubacterium*.
KEY WORDS: Eubacterium, Anaerobic bacteria, Fish diseases, Fish kill

1970
Udey, L. R., E. Young, and B. Sallman (1977) Isolation and characterization of an anaerobic bacterium, *Eubacterium tarantellus* sp. nov., associated with striped mullet (*Mugil cephalus*) mortality in Biscayne Bay, Florida. J. Fisheries Research Board of Canada, 34(-):402-409.
TIME COVERAGE: 1977 ◊
SUMMARY: Dead, moribund and normal mullet were obtained from the saltwater basins of two tributary canals to Biscayne Bay. An anaerobic bacterium was extracted from the brain tissues of the mullet. This bacterium caused neurological impairment on the fish.
KEY WORDS: Anaerobic bacteria, *Eubacterium tarantellus*, Striped mullet, *Mugil cephalus*, Fish diseases

1971
Uhl Wilson, S. (ed.) (1975) Biscayne Bay: environmental and social systems. Sea Grant spec. rep. 1. University of Miami Sea Grant Program, Coral Gables, FL. 52 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: This report describes Biscayne Bay, its uses, and how man has modified it and its shores. The various environmental systems are described in detail including geology, climate and weather, tides and currents, water quality, biota, jurisdictions, and land use.
KEY WORDS: Social system, Geology, Circulation, Flora, Fauna, Water quality, Industry and commerce

1972
University of Florida (1970) Addendum to Turkey Point water temperature study: prediction of water temperatures resulting from plant discharge, August, 1968 meteorological conditions. Report, Department of Coastal and Oceanographic Engineering. University of Florida, Department of Coastal and Oceanographic Engineering, Engineering and Industrial Experiment Station, Gainesville, FL. 5 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: This report utilized the same procedures presented in an earlier report to predict water temperatures in the discharge canal and in Card Sound.
KEY WORDS: Water temperature, Bay dynamics, Waste disposal, Turkey Point, Card Sound

1973
University of Florida (1959) Bakers Haulover Inlet tidal model study on beach erosion and navigation. Report sponsored by Dade County in cooperation with Corps of Engineers, U.S. Army, Jacksonville District and the village of Bal Harbour. Coastal Engineering Laboratory, University of Florida, Gainesville, FL. 27 pp.
TIME COVERAGE: 1958
SUMMARY: The purpose of this study was: to evaluate the contribution of the inlet to the erosion of the seashore on both side of the inlet and to suggest regulatory steps to decrease or eliminate this effect, and to investigate the possibility for improving hazardous navigation conditions due to the high current velocities in the inlet.
KEY WORDS: Inlets, Tidal models, Beach erosion, Tidal effects, Navigational channels, Shore protection, Current velocity, Bakers Haulover Inlet

1974
University of Florida (1969) Beach erosion and stabilization considerations for Bal Harbour Village. Report. University of Florida, Department of Coastal and Oceanographic Engineering, Gainesville, FL. 18 pp.

TIME COVERAGE: 1969
SUMMARY: The purpose of this study was to investigate the beach erosion problem at Bal Harbour and to recommend a pilot stabilization program.
KEY WORDS: Beach erosion, Shore protection, Bakers Haulover Inlet, Bal Harbour

1975
University of Miami (1981) Biscayne Bay urban waterfront charrette. Report prepared for the Metropolitan Dade County, Florida Planning Department. University of Miami, Department of Architecture and Planning of the School of Engineering and Architecture, Coral Gables, FL. 96 pp.
TIME COVERAGE: 1981 ◊
SUMMARY: The purpose of the publication was to report the proceedings on a one-day charrette held for the purpose of discussing the planning and design of the urbanized waterfront of Biscayne Bay.
KEY WORDS: Urbanization, Land use, Man-induced effects, Coastal structures, Coastal zone management

1976
University of Miami (1991) Boat use patterns and boat traffic study, Biscayne Bay, Dade county, Florida. Final report. University of Miami, Rosenstiel School of Marine and Atmospheric Science, Boating Research Center, Miami, FL. 135 pp.
TIME COVERAGE: 1990
SUMMARY: The purpose of this study was to determine boat use patterns and traffic to develop manatee protection and marina site evaluation plans.
KEY WORDS: Boats, Traffic management, Recreational waters, Manatees

1977
University of Florida (1958) Coastal engineering study at Bakers Haulover. Report. University of Florida. Coastal Engineering Laboratory, Gainesville, FL. 27 pp.
TIME COVERAGE: 1958 ◊
SUMMARY: The purpose of this study was to secure data regarding beach erosion and the development of beach and offshore profiles on the beach north of Bakers Haulover Inlet.
KEY WORDS: Beach erosion, Coastal erosion, Shore protection, Bakers Haulover Inlet

1978
University of Florida (1969) A coastal engineering study related to stabilization of Lummus Park beaches. Report, Engineering and Industrial Experiment Station. University of Florida, Department of Coastal and Oceanographic Engineering, Gainesville, FL. 21 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: This report describes the possible use of a groin to stabilize sand at Lummus Park, Miami Beach, located near Government Cut.
KEY WORDS: Beach erosion, Coastal currents, Shore protection, Lummus Park, Miami Beach, Government Cut

1979
University of Florida (1981) Coastal construction control line study for Dade County, Florida. Report. University of Florida, Department of Coastal and Oceanographic Engineering, Gainesville, FL. 52 pp + exhibits.
TIME COVERAGE: 1981 ◊
SUMMARY: The purpose of this study was to engineering and topographic surveys, erosion trends, predictable storm tides, wave runup, vegetation line and other technical data needed to determine the Coastal Construction Control Line for South Florida.
KEY WORDS: Coast defenses, Sea level changes, Beach erosion, Tidal effects, Wave effects, Shore protection, North Bay, Key Biscayne, Virginia Key, Miami Beach

1980
University of Florida (1970) Discharge temperature predictions at Turkey Point facility for two fossil and one nuclear fueled units. Report. University of Florida, Department of Coastal and Oceanographic Engineering, Gainesville, FL. Unpaged.
TIME COVERAGE: 1970
SUMMARY: This report presented water temperature calculations for the Turkey Point facility based on a power generation system consisting of the present two fossil-fueled generators,
KEY WORDS: Water temperature, Waste heat, Card Sound, Turkey Point

1981
University of Florida (1973) Field investigations of the mixing and flushing characteristics of the Biscayne Bay/Card Sound system. Report UF/COEL-73/13, Coastal and Oceanographic Engineering Laboratory. University of Florida, Engineering and Industrial Experiment Station, Gainesville, FL. 27 pp + appendices.
TIME COVERAGE: 1973 ◊
SUMMARY: This report described the status and some results of the field study program conducted to obtain *in situ* data concerning the mixing and flushing characteristics of the Biscayne Bay/Card Sound system.
KEY WORDS: Water mixing, Flushing, Card Sound, South Bay

1982
University of West Florida (1985) Florida's sandy beaches: an access guide. Beach Access Project. University of West Florida Press, Pensacola, FL.
TIME COVERAGE: 1985 ◊
SUMMARY: This is guide to the accessible sandy beaches of the state.
KEY WORDS: Beaches, Public access, Coastal landforms, Florida, Guide

1983
University of Florida (1975) Flushing strategy for the Biscayne Bay - Card Sound system as determined by numerical modeling. Report COEL-75/005, Coastal and Oceanographic Engineering Laboratory. University of Florida, Engineering and Industrial Experiment Station, Gainesville, FL. 44 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: The purpose of this study was to establish through idealized considerations the optimal timing of releases relative to natural climatological or tidal events such that the overall residence time in the receiving Bay waters would be a minimum, and to demonstrate the relative effectiveness of these results by modeling a release program through a reasonably representative year.
KEY WORDS: Flushing, Mathematical models, South Bay, Turkey Point, Card Sound

1984
University of Florida (1972) Hydrographic study of Mashta Island on Key Biscayne, Dade County, Florida. Report, Engineering and Industrial Engineering Station. University of Florida, College of Engineering, Gainesville, FL. 8 pp.
TIME COVERAGE: 1971
SUMMARY: This study was carried out to investigate the possibility of adverse hydrographic effects which could be associated with the dredging and filling of submerged land adjacent to Mashta Island, located in Key Biscayne.
KEY WORDS: Hydrography, Dredging, Mashta Island, Key Biscayne

1985
University of Miami (1958) Investigation of possible effects of dredging and filling Elliott and Old Rhodes Key. Report to Florida State Board of Conservation. University of Miami, Marine Laboratory, Miami, FL. 4 pp.
TIME COVERAGE: 1958 ◊
SUMMARY: Observations were conducted to determine the probable effects of bulkheading and filling behind the bulkhead, and the probable biological consequences of obtaining fill from the Caesar's Creek delta.
KEY WORDS: Dredging, Elliott Key, Old Rhodes Key, Caesar's Creek, Environmental impact, Coastal structures, Sea walls, Species list

1986
University of Miami (1990) Marina hurricane evacuation study, Dade County, Florida. Report prepared for the Dade County Planning Department and the Office of Emergency Management. University of Miami, Rosenstiel School of Marine and Atmospheric Science, Boating Research Center, Miami, FL. 83 pp.
TIME COVERAGE: 1990 ◊
SUMMARY: The purpose of this study was to generate primary data on potential hurricane evacuation plans of berthed boat owners. Potential evacuation patterns were analyzed in order to evaluate alternative evacuation programs and policies.
KEY WORDS: Marinas, Hurricanes, Evacuation, Dade County

1987
University of Miami (1954) Marine borer investigation: final report. Marine Laboratory, University of Miami, Coral Gables, FL. 36 pp.
TIME COVERAGE: 1954 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Shipworms, Boring organisms, Teredo, Life history, Animal physiology, Creosote, Fouling control

1988
University of Florida (1971) Numerical modeling of hydromechanics of Biscayne Bay/Card Sound system. Part I: Non-dispersive characteristics. Report, Engineering and Industrial Experiment Station. University of Florida, Department of Coastal and Oceanographic Engineering, Gainesville, FL. 36 pp + appendices.
TIME COVERAGE: 1971 ◊
SUMMARY: This report presented the background for and some results obtained from a numerical calculation procedure developed to simulate the tidal, wind-driven and other induced flows in the Biscayne Bay/Card Sound System.
KEY WORDS: Mathematical models, Bay dynamics, Tidal dynamics, Winds, Waste disposal, Turkey Point, Card Sound

1989
University of Florida (1971) Numerical modeling of hydromechanics of Biscayne Bay/Card Sound system. Part II: Dispersive characteristics. Report, Engineering and Industrial Experiment Station. University of Florida, Department of Coastal and Oceanographic Engineering, Gainesville, FL. 30 pp + appendices.
TIME COVERAGE: 1971 ◊
SUMMARY: This report presented the background for and some results obtained from a numerical calculation procedure developed to simulate the tidal, wind-driven and other induced flows in the Biscayne Bay/Card Sound System.
KEY WORDS: Mathematical models, Bay dynamics, Tidal dynamics, Winds, Waste disposal, Turkey Point, Card Sound

1990
University of Florida (1972) Numerical modeling of hydromechanics of Biscayne Bay/Card Sound system. Part II: Dispersive characteristics. University of Florida, Department of Coastal and Oceanographic Engineering, Engineering and Industrial Experiment Station, Gainesville, FL.
TIME COVERAGE: 1972 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Mathematical models, Bay dynamics, Mixing processes, Waste disposal, Dispersion, Turkey Point, Card Sound

1991
University of Florida (1958) Preliminary report on coastal engineering aspects in bay fill problems with special reference to Biscayne Bay. Report, Engineering and Industrial Experiment Station. University of Florida, Coastal Engineering Laboratory, Gainesville, FL. 8 pp + appendices.
TIME COVERAGE: 1958 ◊
SUMMARY: This study discusses the effects of fills on wave action, currents, hurricanes, fish and wildlife, and other areas.
KEY WORDS: Coast defenses, Hydraulic structures, Coastal engineering

1992
University of Florida (1969) Recirculation and temperature field considerations: Turkey Point facility. Report. University of Florida, Department of Coastal and Oceanographic Engineering, Gainesville, FL. 24 pp + appendices.
TIME COVERAGE: 1969 ◊
SUMMARY: Temperature calculation procedures employed in this study predicted temperatures which were probably slightly higher than those which would actually occur.
KEY WORDS: Water circulation, Water temperature, Bay dynamics, Waste disposal, Turkey Point, Card Sound

1993
University of North Carolina (1974) Rocky sea fronts and inter-tidal rocks. In: Coastal Ecological Systems of the United States. H. T. Odum, B. J. Copeland, and E. A. McMahan (eds.). The Conservation Foundation, Washington, DC. 2v.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation describes organisms found in rocky sea fronts and rigid man-made surfaces that stand against waves in the intertidal zones. Biscayne Bay is used as one of the examples.
KEY WORDS: Intertidal environment, Rocky shores, Ecological zonation, Algae, Waste disposal

1994
University of Florida (1972) Study report to determine behavior of project fill for beach erosion control, Virginia Key and Key Biscayne, Florida. Report. University of Florida, Department of Coastal and Oceanographic Engineering, Gainesville, FL. Unpaged.
TIME COVERAGE: 1970
SUMMARY: The purpose of this report is to determine the behavior of project fill for beach erosion control projects in Virginia Key and Key Biscayne.
KEY WORDS: Beach nourishment, Sand, Shore protection, Virginia Key, Key Biscayne

1995
University of Florida (1970) Temperature predictions at mouth of planned discharge canal in Card Sound, Turkey Point facility. Report. University of Florida, Department of Coastal and Oceanographic Engineering, Gainesville, FL. 23 pp + appendices.
TIME COVERAGE: 1968 - 1969

SUMMARY: This report presented the results of temperature calculations for the Turkey Point Plant. The calculations represent the temperature that would have occurred at the mouth of the planned discharge canal in Card Sound if the system, including the two nuclear units, had been operating during summer months.
KEY WORDS: Water temperature, Waste disposal, Card Sound, Turkey Point

1996
University of Miami (1965-1971) Temperature and salinity readings, IMS pier. University of Miami, Institute of Marine Sciences, Miami, FL.
TIME COVERAGE: 1965-1968, early 1971
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water temperature, Salinity, Virginia Key

1997
University of Miami (1971) Thermal pollution at Turkey Point, Biscayne Bay, Florida. Report. EPA contracts WP-01351-01-A1 and #18050 DFU. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 211 pp.
TIME COVERAGE: 1968 - 1971
SUMMARY: The objective of this study was to predict the effects of the heated discharge from the Turkey Point nuclear power units on benthic fauna; to measure the effects of the fossil fuel units; and to study the benthic fauna and fishes of southern Biscayne Bay and Card Sound.
KEY WORDS: Thermal pollution, Fish, Benthos, Species list, Salinity, Card Sound

1998
University of Georgia, and Skidaway Institute of Oceanography (1973) The geological inventory of Cumberland Island, Everglades National Park, Gulf Islands National Seashores and Biscayne National Monument. Final report: Contract CX001-3-0052 to the Office of Natural Science, National Park Service. University of Georgia Marine Institute and Skidaway Institute of Oceanography, Savanna, GA. 8 pp + appendices.
TIME COVERAGE: 1973 ◊
SUMMARY: This report contains information on geology, an annotated bibliography, catalog of aerial photographs, and other material available about the study area prior to 1973.
KEY WORDS: Geology, Bibliographies, Maps, Navigational charts, Cumberland Island, Everglades National Park, Gulf Islands National Seashore, Biscayne National Monument, Caesar's Creek

1999
Unknown (1996) Biscayne Bay. Fathom, 7(4):6-7.
TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Estuaries, Natural resources

2000
US Army Corps of Engineers (1999) Central and Southern Florida Project comprehensive review study. Jacksonville District, US Army Corps of Engineers, Jacksonville, FL.
TIME COVERAGE: 1999 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Ecosystem management, Everglades, South Florida

2001
US Army Corps of Engineers, and US Shipping Board (1925) The ports of Jacksonville, Fernandina, Miami, Key West, Tampa, and South Boca Grande, Florida. Port series no 8. U.S. Government Printing Office, Washington, DC. 309 pp.
TIME COVERAGE: 1925 ◊

SUMMARY: This report contains a description of the Port of Miami including the approaches, dock facilities, and water-borne commerce. A composite aerial photograph of Miami, Miami Beach and the port area is included.
KEY WORDS: Harbors, Port installations, Marine transportation, Miami, Jacksonville, Fernandina, Key West, Tampa, South Boca Grande

2002
US Army Corps of Engineers, and US Shipping Board (1931) The ports of Miami and Tampa, Florida. Port series no 8, part 2. U.S. Government Printing Office, Washington, DC. 116 pp.
TIME COVERAGE: 1931 ◊
SUMMARY: This report contains a description of the Port of Miami including the approaches and dock facilities. A chart of the port area is included.
KEY WORDS: Harbors, Port installations, Marine transportation, Miami, Tampa

2003
US Army Corps of Engineers, and US Shipping Board (1936) The ports of Miami and Tampa, Florida. Port series no 8, part 2. U.S. Government Printing Office, Washington, DC. 181 pp.
TIME COVERAGE: 1936 ◊
SUMMARY: This report contains a description of the Port of Miami including the approaches and dock facilities. A chart of the port area and a photograph of the docks are included.
KEY WORDS: Harbors, Port installations, Marine transportation, Miami, Tampa

2004
US Coast Guard (1983) Final Rickenbacker Causeway improvements, including bridge construction across Biscayne Bay to Virginia Key and Key Biscayne, Dade County, Florida. Draft environmental impact statement, 83-0530F. US Coast Guard, Washington, DC?
TIME COVERAGE: 1983 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Highway planning, Bridges, Environmental impact statement, Rickenbacker Causeway, Virginia Key, Key Biscayne

2005
US Coast Guard (1982) Proposed Rickenbacker Causeway improvements, including bridge construction across Biscayne Bay to Virginia Key and Key Biscayne, Dade County, Florida. Draft environmental impact statement, 82-0578D. U.S. Coast Guard, Washington, DC?
TIME COVERAGE: 1982 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Highway planning, Bridges, Environmental impact statement, Rickenbacker Causeway, Virginia Key, Key Biscayne

2006
US Environmental Protection Agency Conference in the Matter of Pollution of the Navigable Waters of Dade County, Florida, and Tributaries, Embayments and Coastal Waters. Miami, FL, Feb. 18-19, 1971. Transcript of proceedings, second session. US Environmental Protection Agency, Water Quality Office, Atlanta, GA.
TIME COVERAGE: 1971 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Pollution control, Waste disposal, Sewage

2007
US Fish and Wildlife Service, Florida State Board of Conservation, and University of Miami (1950-1978) Florida landings. Reports. Published 1950-1978. Issued 1950-1963 1964-1969, by U.S. Fish and Wildlife Service and the Florida State Board of Conservation; 1970, by US Fish

and Wildlife Service and Florida Department of Natural Resources; and 1971-1978, by NOAA/National Marine Fisheries Service and Florida Department of Natural Resources.
TIME COVERAGE: 1950-1978 ◊
SUMMARY: [COPIES NOT AVAILABLE.]
KEY WORDS: Landing statistics, Fishery statistics, Florida

2008
US Air Force (1998) Military Canal special study report. Draft report. US Air Force, Air Force Base Conversion Agency, Homestead, FL. Various paging.
TIME COVERAGE: BB
SUMMARY: This report was prepared to interpret the sediment data collected by EPA during the 1997 Military Canal Special Study. EPA data was used to evaluate toxicological effects of ecological receptors and the potential impacts to Biscayne National Park.
KEY WORDS: Homestead Air Reserve Base, Military Canal, Pollution, Biscayne National Park, Sediment

2009
US Air Force, and Federal Aviation Administration (1999) Disposal of portions of the former Homestead Air Force Base, Florida. Draft Supplemental Environmental Impact Statement. Summary and two appendices.
TIME COVERAGE: 1999 ◊
SUMMARY: This document is the draft of the supplemental environmental impact statement for the disposal and consequent reuse of portions of the former Homestead Air Force Base, which suffered considerable damage during Hurricane Andrew. The proposed action is to transfer the 1,632 acres of surplus property including the runway to Miami-Dade County for use as a commercial airport. Alternative plans including a commercial spaceport are under consideration.
KEY WORDS: Homestead Air Force Base, Hurricane Andrew, Environmental impact

2010
US Army Corps of Engineers (1946) Beach erosion study of Bakers Haulover Inlet, Fla. Examinations of rivers and harbors. 79th Congress, 2d Session, House document 527. US Government Printing Office, Washington, DC. 19 pp.
TIME COVERAGE: 1946 ◊
SUMMARY: This report details erosion of the beach north of Bakers Haulover Inlet and improvements to remedy the situation.
KEY WORDS: Beach erosion, Inlets (Waterways), Bakers Haulover Inlet

2011
US Army Corps of Engineers (1961) Beach erosion control report on cooperative study of Virginia Key and Key Biscayne, Florida. Serial no. 49. US Army Engineer District, Jacksonville, Corps of Engineers, Jacksonville, FL. 23 pp + appendices.
TIME COVERAGE: 1961 ◊
SUMMARY: The problem in these areas is one of instability and recession of the shoreline in the study area due to deficiency in supply of littoral material entering the area and to loss of material into offshore waters.
KEY WORDS: Beach erosion, Beach nourishment, Shore protection, Coast defenses, Virginia Key, Key Biscayne

2012
US Army Corps of Engineers (1962) Beach erosion control report on cooperative study of Virginia and Biscayne Keys, Florida. 87th Congress, 2d Session, House document no. 561. US Government Printing Office, Washington, DC. 74 pp.
TIME COVERAGE: 1962 ◊

SUMMARY: This report discusses beach erosion at Virginia Key and Key Biscayne.
KEY WORDS: Beach erosion, Shore protection, Virginia Key, Key Biscayne

2013
US Army Corps of Engineers (1912) Biscayne Bay, Fla. 62nd Congress, 2d Session, House document no. 554. US Government Printing Office, Washington, DC. 25 pp.
TIME COVERAGE: 1912 ◊
SUMMARY: This report is a preliminary and survey of Biscayne Bay with a view of providing a channel to the mouth of the Miami River.
KEY WORDS: Harbors, Port installations, Marine transportation, Navigational channels, Miami

2014
US Army Corps of Engineers (1932) Biscayne Bay, Fla. 72d Congress, 1st Session, Senate document no. 95. US Government Printing Office, Washington, DC. 19 pp.
TIME COVERAGE: 1932 ◊
SUMMARY: This report evaluated Biscayne Bay and commerce in the area.
KEY WORDS: Navigational channels, Air transportation, Dinner Key, Pan American Airways

2015
US Army Corps of Engineers (1968) Cooperative beach erosion control study and hurricane protection study of Dade County, Fla., from Government Cut to north county line. 90th Congress, 2d Session, House document 335. US Government Printing Office, Washington, DC. 103 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Erosion control, Beach erosion, Storm surge, Shore protection, Hurricanes, Coastal structures, Dade County, North Bay

2016
US Army Corps of Engineers (1937) Current and sand movement study at Miami Beach, Fla. 75th Congress, 1st Session, House document no. 169. US Government Printing Office, Washington, DC. 16 pp.
TIME COVERAGE: 1937 ◊
SUMMARY: This report describes beach erosion and sand movement at Miami Beach.
KEY WORDS: Ocean currents, Bottom currents, Sand, Miami Beach

2017
US Army Corps of Engineers (1965) Dade County, Florida. Beach erosion control and hurricane protection report. Serial no. 54. US Army Engineer District, Jacksonville, FL. Various paging.
TIME COVERAGE: 1965 ◊
SUMMARY: The purpose of this beach erosion control and hurricane protection study was to determine the most practical and economic method of restoring adequate recreational and protective beaches and providing continued stability of that ocean shore.
KEY WORDS: Erosion control, Beach erosion, Hurricanes, Storm surge, Shore protection, Coastal structures, Dade County, North Bay

2018
US Army Corps of Engineers (1968) Dade County, Florida. 90th Congress, 2d Session, House document no. 335. US Government Printing Office, Washington, DC. 103 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: This report describes a beach erosion control study and an interim hurricane survey of Dade County.
KEY WORDS: Beach erosion, Hurricanes, Storm surge, Shore protection, Dade County

2019
US Army Corps of Engineers (1971) Dade County. In: National shoreline study: regional inventory report, South Atlantic - Gulf Region, Puerto Rico and the Virgin Islands. Report. US Army Engineer Division, South Atlantic Corps of Engineers, Atlanta, GA. D58-D64.
TIME COVERAGE: 1971 ◊
SUMMARY: This citation documents the nature and extent of shore erosion, conceptual plans for shore protection, and breakdown of the shoreline by type of ownership and use.
KEY WORDS: Coastal zone, Dade County

2020
US Army Corps of Engineers (1975) Dade County beaches, Florida. General design memorandum and supplement. Army Corps of Engineers, Jacksonville, FL.
TIME COVERAGE: 1975 ◊
SUMMARY: This document is a description of the restoration of the Miami Beach, Key Biscayne and Virginia Key sand beaches.
KEY WORDS: Shore protection, Beaches, Beach nourishment, Erosion control, Bal Harbour, Surfside, Miami Beach, North Bay, Miami Beach, Key Biscayne, Virginia Key, Cape Florida

2021
US Army Corps of Engineers (1972) Detail design memorandum: Virginia Key and Key Biscayne, Florida; beach erosion control project. Second periodical nourishment and groins, Virginia Key. Serial no. 14. Jacksonville District, Corps of Engineers, Jacksonville, FL. 9 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: This report contains detailed planning for the authorized nourishment and groins for Virginia Key public beaches.
KEY WORDS: Beach erosion, Beach nourishment, Groins, Virginia Key, Key Biscayne

2022
US Army Corps of Engineers (1958) Evaluation report on hurricane-protective measures for Biscayne Bay, Fla. Serial no. 50. US Army Engineer District, Jacksonville, Office of the District Engineer, Jacksonville, FL. Various paging.
TIME COVERAGE: 1958 ◊
SUMMARY: A serious problem of hurricane tidal flooding was found for the highly developed areas of Miami and Miami Beach. Preliminary studies indicated that a barrier across Biscayne Bay and the island developments was economically feasible.
KEY WORDS: Hurricanes, Flood control, Shore protection, Miami, Miami Beach

2023
US Army Corps of Engineers (1900) Examination of Biscayne Bay, Florida. 56th Congress, 1st Session, House document 662. US Government Printing Office, Washington, DC. 28 pp.
TIME COVERAGE: 1900 ◊
SUMMARY: This is another report on the ongoing investigations of navigation and commerce in Biscayne Bay.
KEY WORDS: Harbors, Port installations, Marine transportation, Norris Cut, Bear Cut, Cape Florida, Miami

2024
US Army Corps of Engineers (1980) Final environmental impact statement: port expansion program, Biscayne Bay, Dade County, Florida. Final environmental impact statement. Jacksonville District, US Army Corps of Engineers, Jacksonville, FL. Various paging.
TIME COVERAGE: 1980 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Expansion program, Port of Miami

2025
US Army Corps of Engineers (1975) Final impact statement: beach erosion control and hurricane surge protection project, Dade County, Florida. Report, two volumes. US Army Engineer District, Jacksonville, FL. Various paging.
TIME COVERAGE: 1975 ◊
SUMMARY: This is the environmental impact statement of the restoration of Miami Beach with sand dredged from the ocean bottom.
KEY WORDS: Erosion control, Beach erosion, Storm surge, Miami Beach, Shore protection, Coastal structures, Hurricanes, Dade County, Miami Beach, Virginia Key, Key Biscayne

2026
US Army Corps of Engineers (1993) Hurricane Andrew storm summary and impacts on the beaches of Florida. Special report. US Army Corps of Engineers, Jacksonville, FL. Various paging.
TIME COVERAGE: 1992
SUMMARY: The purpose of this study was to determine the effect of Hurricane Andrew on the beaches of South Florida.
KEY WORDS: Hurricanes, Damage, Beaches, Shore protection, Hurricane Andrew

2027
US Army Corps of Engineers (1919) Miami Harbor (Biscayne Bay), Fla. Examinations of rivers and harbors. 65th Congress, 3d Session, House document no. 1588. US Government Printing Office, Washington, DC. 26 pp.
TIME COVERAGE: 1919 ◊
SUMMARY: This report describes the Port of Miami.
KEY WORDS: Harbors, Marine transportation, Port installations, Miami

2028
US Army Corps of Engineers (1922) Miami Harbor, Fla. 67th Congress, 4th Session, House document 516. US Government Printing Office, Washington, DC. 32 pp.
TIME COVERAGE: 1922 ◊
SUMMARY: This report evaluated the Miami Harbour and commerce in the area.
KEY WORDS: Harbors, Marine transportation, Port installations, Navigational channels, Miami

2029
US Army Corps of Engineers (1936) Miami Harbor, Fla. 74th Congress, 2d session, House document 86. US Government Printing Office, Washington, DC. 24 pp.
TIME COVERAGE: 1936 ◊
SUMMARY: This report evaluated the Miami Harbor and commerce in the area.
KEY WORDS: Harbors, Port installations, Marine transportation, Miami

2030
US Army Corps of Engineers (1939) Miami Harbor, Fla. Examinations of rivers and harbors. 76th Congress, 1st Session, House document no. 470. US Government Printing Office, Washington, DC. 29 pp.
TIME COVERAGE: 1939 ◊
SUMMARY: This report is a survey of the Port of Miami.
KEY WORDS: Harbors, Port installations, Marine transportation, Miami, Port of Miami

2031
US Army Corps of Engineers (1942) Miami Harbor, Fla. Report. US Government Printing Office, Washington, DC. 46 pp.
TIME COVERAGE: 1942 ◊
SUMMARY: This report describes the Port of Miami and planned dredging activities.

KEY WORDS: Harbors, Port installations, Port of Miami

2032
US Army Corps of Engineers (1947) Miami Harbor, Fla. In: Examinations of rivers and harbors. 79th Congress, 2d Session, Senate document 251. US Government Printing Office, Washington, DC. 46 pp.
TIME COVERAGE: 1947 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Harbors, Port installations, Marine transportation, Miami

2033
US Army Corps of Engineers (1990) Miami Harbor channel, Florida. General design memorandum. Army Corps of Engineers, Jacksonville, FL. Various paging.
TIME COVERAGE: 1990 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Harbors, Navigational channels, Shipping lanes, Miami

2034
US Army Corps of Engineers (1991) Miami Harbor channel, Florida: design memorandum. Report. US Army Corps of Engineers, Jacksonville, FL. Various paging.
TIME COVERAGE: 1991 ◊
SUMMARY: This report describes including proposed deepening of access channels to the Harbor.
KEY WORDS: Harbors, Navigational channels, Shipping lanes, Miami

2035
US Army Corps of Engineers (1942) Miami River, Fla. Report. US Army Corps of Engineers, Washington, DC. 25 pp.
TIME COVERAGE: 1942 ◊
SUMMARY: This report describes a project to widen the Miami River.
KEY WORDS: Navigational channels, Harbors, Miami River

2036
US Army Corps of Engineers (1946) Miami River, Fla. In: Examinations of rivers and harbors. 79th Congress, 1st Session, House document 91. US Government Printing Office, Washington, DC. 25 pp.
TIME COVERAGE: 1946 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: River engineering, Miami River

2037
US Army Corps of Engineers (1990) Navigation study for Miami Harbor (Miami River), Florida: final feasibility report - 10011. Final feasibility report - 10011. US Army Corps of Engineers, Jacksonville, FL. Various paging.
TIME COVERAGE: 1990 ◊
SUMMARY: The purpose of this study was to determine the type and amount of Federal participation that can be used to resolve problems and develop opportunities for the water and land related resources along the Miami River and Seybold Canal.
KEY WORDS: Navigational channels, Pollution control, Dredging, Miami River, Seybold Canal, Port of Miami

2038
US Army Corps of Engineers (1982) The port of Miami, Fla. In: The ports of Miami, Port Everglades, Palm Beach, and Port Canaveral, Florida. Port series 16, Revised 1982. US Government Printing Office, Washington, DC. 1-64.
TIME COVERAGE: 1982 ◊
SUMMARY: This document describes the Port of Miami and contains aerial photographs of the Bay.
KEY WORDS: Harbors, Port installations, Marine transportation, Aerial photography

2039
US Army Corps of Engineers (1948) The ports of Miami and Port Everglades, Florida. Port series no. 16 (revised 1947). US Government Printing Office, Washington, DC. 178 pp.
TIME COVERAGE: 1948 ◊
SUMMARY: This report contains detailed surveys of the Port of Miami and Port Everglades.
KEY WORDS: Harbors, Port installations, Marine transportation, Miami, Port Everglades

2040
US Army Corps of Engineers (1982) The ports of Miami, Port Everglades, and Palm Beach, Florida. Port series no 16 (revised 1982). US Government Printing Office, Washington, DC. 144 pp.
TIME COVERAGE: 1982 ◊
SUMMARY: This report contains a description of the Port of Miami.
KEY WORDS: Harbors, Port installations, Marine transportation, Miami

2041
US Army Corps of Engineers (1991) The ports of Miami, Port Everglades, and Palm Beach, Fla. Port series no 16 (revised 1991). NDC 91-P-3. US Government Printing Office, Washington, DC. 150 pp.
TIME COVERAGE: 1991 ◊
SUMMARY: This report contains a description of the Port of Miami.
KEY WORDS: Harbors, Port installations, Marine transportation, Miami

2042
US Army Corps of Engineers (1895) Preliminary examination of entrance to Biscayne Bay, Florida. 53rd Congress, 3d session, House document no. 343. US Government Printing Office, Washington, DC. 5 pp.
TIME COVERAGE: 1895 ◊
SUMMARY: This report describes the entrance to Biscayne Bay and possible effects on local commerce.
KEY WORDS: Harbors, Marine transportation, Navigational channels, Miami

2043
US Army Corps of Engineers (1958) Preliminary-examination report on hurricane-protective measures for Biscayne Bay, Fla. Serial no. 50. US Army Engineer District, Jacksonville, Corps of Engineers, Jacksonville, FL. Various paging.
TIME COVERAGE: 1958 ◊
SUMMARY: This report examined hurricane flooding in Biscayne Bay.
KEY WORDS: Hurricanes, Shore protection, Storm surge, Miami Beach, Miami

2044
US Army Corps of Engineers (1984) Section 103 detailed project report and environmental impact statement for Key Biscayne, Florida. Report. US Army Corps of Engineers, Jacksonville, FL. Various paging.
TIME COVERAGE: 1984 ◊

SUMMARY: The purpose of this beach study was to investigate the Atlantic shore of Key Biscayne to determine the need for beach erosion control and shore protection measures, and the feasibility and the estimated costs.
KEY WORDS: Beach erosion, Wave effects, Storm surge, Coastal zone, Shore protection, Beach nourishment, Key Biscayne, Bill Baggs State Park

2045
US Army Corps of Engineers (1988) Specifications for beach erosion control and hurricane protection, north of Haulover Park, Dade County, Florida. Report. US Army Engineer Division, South Atlantic, Jacksonville, FL.
TIME COVERAGE: 1988 ◊
SUMMARY: This report summarizes detailed analyses of protective shore protection works recommended in a 1982 feasibility report.
KEY WORDS: Erosion control, Beach erosion, Hurricanes, Haulover Beach Park, Sunny Isles

2046
US Army Corps of Engineers (1897) Survey of Biscayne Bay, Florida. 54th Congress, 2d Session, House document 295. US Government Printing Office, Washington, DC. 9 pp.
TIME COVERAGE: 1897 ◊
SUMMARY: This report presents the results of a survey of Biscayne Bay and possible dredging of a channel to aid navigation.
KEY WORDS: Navigational channels, Port installations, Cape Florida, Miami River

2047
US Army Corps of Engineers (1958) Survey report on Bakers Haulover Inlet, Florida. Serial no. 44. US Army Engineer District, Jacksonville, FL. Various paging.
TIME COVERAGE: 1958 ◊
SUMMARY: This report discusses plans to widen Bakers Haulover Inlet.
KEY WORDS: Inlets (Waterways), Navigational channels, Coastal erosion, Current velocity, Tidal effects, Shore protection, Bakers Haulover Inlet

2048
US Army Corps of Engineers (1962) Survey report on hurricane-protective measures for Biscayne Bay, Fla. Serial no. 128. US Army Engineer District, Jacksonville, Corps of Engineers, Jacksonville, FL. Various paging.
TIME COVERAGE: 1962 ◊
SUMMARY: This report studied the feasibility of various hurricane protection measures to reduce physical property damage.
KEY WORDS: Hurricanes, Shore protection, Coast defenses

2049
US Army Corps of Engineers (1965) Survey report on hurricane-protective measures for Biscayne Bay, Fla. House Document 213, 1st Session, 89th Congress. US Army Engineer District, Jacksonville, FL. 81 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: This report is a feasibility study of various hurricane-protection measures to reduce property damage in Biscayne Bay. In view of absence of local support for the proposed levee, the Corps of Engineers recommended against the adoption of the project.
KEY WORDS: Erosion control, Beach erosion, Hurricanes, Storm surge, Shore protection, Coastal structures, Dade County, North Bay

2050
US Army Corps of Engineers (1957) Survey-review report on Miami Harbor, Florida. Report. US Army Engineer District, Jacksonville, Corps of Engineers, Jacksonville, FL. Various paging.

TIME COVERAGE: 1957 ◊
SUMMARY: This report details plans to build a freight and passenger terminal in Dodge Island.
KEY WORDS: Harbors, Port installations, Miami

2051
US Army Corps of Engineers (1995) Updated reconnaissance report: Biscayne Bay, Florida. Report. US Army Corps of Engineers, Jacksonville, FL. Various paging.
TIME COVERAGE: 1995 ◊
SUMMARY: This report determined the feasibility of developing and operating a hydrodynamic simulation model of Biscayne Bay.
KEY WORDS: Water quality, Water circulation, Biological production, Hydrology

2052
US Army Corps of Engineers (1981) Water resources development in Florida 1981. Report. US Army Engineer Division, South Atlantic, Atlanta, GA. 191 pp.
TIME COVERAGE: 1981 ◊
SUMMARY: This report describes the status of water resources in the state of Florida.
KEY WORDS: Water resources, Beach erosion, Flood control, Navigational channels, Harbors, Florida

2053
US Army Corps of Engineers (1989) Water resources development in Florida 1989. Report. US Army Engineer Division, South Atlantic, Atlanta, GA. 100 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: This report describes the status of water resources in the state of Florida.
KEY WORDS: Water resources, Beach erosion, Flood control, Navigational channels, Harbors, Florida

2054
US Army Corps of Engineers (1993) Water resources development in Florida 1993. Report. US Army Engineer Division, South Atlantic, Atlanta, GA. 112 pp.
TIME COVERAGE: 1993 ◊
SUMMARY: This report describes the status of water resources in the state of Florida.
KEY WORDS: Water resources, Beach erosion, Flood control, Navigational channels, Harbors, Florida

2055
US Congress (1973) Protecting America's estuaries: Florida; hearings before a subcommittee of the Committee on Government Operations. Committee on Government Operations. Conservation and Natural Resources Subcommittee. House of Representatives, 93rd Congress, 1st Session, May 25, 1973. Two volumes: 1-A and 1-B. US Government Printing Office, Washington, DC. 2520 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: These volumes are hearing on environmental protection of estuaries.
KEY WORDS: Estuaries, Environmental protection, Resource conservation, Florida

2056
US Environmental Protection Agency (1973) Final environmental impact statement, north Dade County, Florida. US Environmental Protection Agency, Atlanta, GA.
TIME COVERAGE: 1973 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Wastewater treatment, Waste disposal, Dade County

2057
US Fish and Wildlife Service (1998) Multi-species recovery plan for the threatened and endangered species of South Florida. Technical/agency draft. US Fish and Wildlife Service, Vero Beach, FL. ~850 pp (CD-ROM; also available in the Internet).
TIME COVERAGE: 1998 ◊
SUMMARY: [Volume I: the species. Volume II: the ecosystem.]
KEY WORDS: Threatened species, Eendangered species, Recovery plans

2058
US Fish and Wildlife Service (1958) A report on the fish and wildlife resources in relation to plans for protection from hurricane tides, Biscayne Bay, Florida. Report. US Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, Atlanta, GA. 20 pp + tables and figures.
TIME COVERAGE: 1958 ◊
SUMMARY: This report discusses the effects on fish and wildlife of a levee across Biscayne Bay to reduce damage by hurricane tides.
KEY WORDS: Sport fishing, Commercial fishing, Levees, Storm surge barriers

2059
US Fish and Wildlife Service (1999) South Florida multi-species recovery plan. Southeast Region, US Fish and Wildlife Service, Atlanta, GA.
TIME COVERAGE: 1999 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Rare species, Resource conservation, Protected resources, Ecosystem management, South Florida

2060
US Geological Survey (1996) Ecosystem history of Biscayne Bay. USGS fact sheet FS-171-95. US Geological Survey, Reston, VA. 2 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: This fact sheets contains a short description of the Biscayne Bay ecosystem.
KEY WORDS: Ecosystems, Aquatic communities

2061
US Geological Survey (1973) Resource and land information for south Dade County, Florida. Geological Survey investigation I-850. US Government Printing Office, Washington, DC. 66 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: This report offers a sampling of the information required to develop alternative solutions for some representative problems and weighs the pros and cons of some selected alternatives.
KEY WORDS: Natural resources, Land use, Environment management, Dade County, Everglades

2062
US Geological Survey (1977) USGS water quality data and statistical summary, 1972-1976. Data report. US Geological Survey, Tallahassee?, FL. Various paging.
TIME COVERAGE: 1977 ◊
SUMMARY: This data report includes Appendix D: DERM yearly water quality data output to Biscayne Bay 1972-1976 and Appendix E: Water quality summary by station (dry season)
KEY WORDS: Water quality, Canals

2063
Vairavamurthy, A. (1989) 3-mercaptopropionic acid: abiotic formation of a novel thiol in organic rich marine sediments. Ph.D. dissertation. University of Miami, Coral Gables, FL. 194 pp.

TIME COVERAGE: 1989 ◊
SUMMARY: The origin and distribution of organic S compounds in marine sediments are largely unknown. A major thiol in anoxic marine environments is 3-mercaptopropionic acid. This work studied the reactions involving this thiol in marine sediments.
KEY WORDS: Organic sediments, Sulfur compounds, Thiols, Anoxic sediments

2064
Vairavamurthy, A., and K. Mopper (1987) Abiotic formation of 3-mercaptopropionate and other thiols in coastal marine sediments. In: Abstracts of papers, 194th natl. mtg., American Chemical Society. New Orleans, LA, 1987. American Chemical Society, Washington, DC. ENVR 180.
TIME COVERAGE: 1987 ◊
SUMMARY: 3-Mercaptopropionate acid is a dominant thiol in anoxic Bay sediments. This compound is formed abiotically by nucleophilic addition of hydrogen sulfide to acrylate under conditions typical of marine sediments.
KEY WORDS: Mercaptans, Thiols, Anoxic sediments

2065
Vairavamurthy, A., and K. Mopper (1990) Field method for determination of traces of thiols in natural waters. Anal. Chim. A., 236(-):363-370.
TIME COVERAGE: 1990 ◊
SUMMARY: A procedure for the determination of thiols in seawater and sediment interstitial waters was described and applied to samples collected in Biscayne Bay.
KEY WORDS: Thiols, Analytical techniques, Water analysis

2066
Vairavamurthy, A., and K. Mopper (1987) Geochemical formation of organosulphur compounds (thiols) by addition of H_2S to sedimentary organic matter. Nature, 329(6140):623-625.
TIME COVERAGE: 1987 ◊
SUMMARY: Organosulfur compounds constitute a significant fraction of organic matter in recent and ancient iron-poor marine sediments. The widespread occurrence of 3-mercaptopropionic acid in sediments of Biscayne Bay and evidence for its formation by the abiotic reaction between hydrogen sulphide and acrylic acid is discussed.
KEY WORDS: Geochemistry, Organic matter, Diagenesis, Hydrogen sulfide, Sulfate reduction, Thiols, Sediment

2067
Valle, J. C. (1978) Modeling of dispersion in south Biscayne Bay. M.Sc. thesis. University of Miami, Coral Gables, FL.
TIME COVERAGE: 1978 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Dispersion, Mathematical models, Hydrodynamics, Snapper Creek, Black Creek Canal, Mowry Canal, South Bay

2068
Vallee, J. A. (1965) Some aspects of the biochemistry and physiology of the blood of *Ascidia nigra*. Ph.D. dissertation. University of Miami, Coral Gables, FL. 103 pp.
TIME COVERAGE: 1965 ◊
SUMMARY: The biochemistry and physiology of the blood of tunicates collected from seawalls in Key Biscayne were studied.
KEY WORDS: Tunicates, *Ascidia nigra*, Blood, Key Biscayne

2069
Valverdes, H. R., A. C. Trembanis, and O. H. Pilkey (1999) Summary of beach nourishment episodes on the U.S. east coast barrier islands. J. Coastal Res., 15(5):1100-1118.
TIME COVERAGE: 1999 ◊
SUMMARY: Since 1923, approximately 350 million cubic yards of sand have been deposited on the US East Coast barrier island shorelines from Long Island to Fisher Island by more than 573 beach nourishment projects. Beach nourishment to control coastal erosion has increased rapidly since the 1960s.
KEY WORDS: Beach nourishment, Barrier islands, Sunny Isles, Haulover Park, Bal Harbour, Miami Beach, Virginia Key, Key Biscayne, Fisher Island

2070
Van de Kreeke, J. (1976) Tides in Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL.
TIME COVERAGE: Various years
SUMMARY: Tides renew the waters of Biscayne Bay and this paper describes the tidal mechanism of this system. Tidal amplitudes decrease and phase lags increase going from north to south. As a first approximation was levels in each basin, North, Central, and South Biscayne Bay, and Card Sound fluctuate uniformly. The major changes in amplitude and phase occur across the shallows and causeways separating the basins. Information on currents was limited to North Biscayne Bay, Card Sound, Bear Cut, Government Cut, Angelfish Creek and Broad Creek.
KEY WORDS: Tides, Tidal currents, Card Sound, Bear Cut, Government Cut, Angelfish Creek, Broad Creek

2071
Van de Kreeke, J., and J. D. Wang (1984) Hydrography of north Biscayne Bay. Part I: Results of field measurements. Report for DERM and Sea Grant. University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. Various paging.
TIME COVERAGE: 1982
SUMMARY: Results of field measurements carried out in northern Biscayne Bay were presented in this report. The field program was designed to obtain data on tides to calibrate and verify a two-dimensional tidal model, and to provide information on currents, waves and salinities for biological and chemical studies in the area.
KEY WORDS: Hydrography, Tides, Tidal currents, Wave motion, Salinity, North Bay, Conductivity

2072
Van Landingham, S. L. (1970) Physiochemical aspects of marine microalgae fluctuations along Bear Cut, Dade Co., Fla. J. Phycol., 6(Suppl.):6.
TIME COVERAGE: 1969
SUMMARY: Diurnal series of microalgae and plankton were collected at the surface and just above the bottom. Salinity, light penetration, C-14 uptake and tides were recorded. Samples were dominated by diatoms (Bacillariophyta). Bottom samples showed a striking pulse of Pyrrphyta, which in four of ten samples predominated over the Bacillariophyta. In every case but one, bottom samples contained more diatom cells than surface samples. Over 240 taxa of diatoms were encountered. Bottom samples had a predominance of microalgae. Variations of microalgae with respect to time may have been the results of flushing of the basin by the "pumping" action of strong salinities at high and low tides.
KEY WORDS: Algae, Plankton, Diatoms, Spatial variations, Bear Cut, Virginia Key

2073
Van Landingham, S. L., and J. W. Jossi (1972) Studies on diurnal variations in microalgae at a small artificial inlet along Virginia Key, Dade County, Florida, U.S.A. In: Proc., 1st Symp. on Recent and Fossil Marine Diatoms. R. Simonsen, (ed.). Bremerhaven, Germany, 1970. Cramer, Lehre. 145-170.
TIME COVERAGE: 1968
SUMMARY: Algal species, temperature, salinity, light penetration, C-14 assimilation and tidal cycle were determined. Bacillariophyta dominated all other groups in all surface samples. Pyrrophyta were dominant in six of the ten bottom samples. Bacillariophyta were dominant in the remainder. Abundance of diatoms in the bottom samples exceeded those at the surface in all cases but one.
KEY WORDS: Algae, Diatoms, Bacillariophyta, Pyrrophyta, Chlorophyta, Diurnal variations, Bear Cut, Virginia Key

2074
Van Leer, J. C., and H. L. Craig (1975) Eight-week Cyclesonde test off Bear Cut; a contribution to the Continental Shelf Current Measurement System program. RSMAS technical report 75-2. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Coral Gables, FL. 32 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Cyclesonde, Profilers, Bear Cut

2075
Van Name, W. G. (1945) The North and South American ascidians. Bulletin of the American Museum of Natural History, 84(-):1-476.
TIME COVERAGE: 1945 ◊
SUMMARY: This citation is a description of the species of tunicates found in the Americas.
KEY WORDS: Ascidians, Tunicates

2076
Van Uden, N., and J. W. Fell (1968) Marine yeasts. In: Advances in Microbiology of the Sea. M. R. Droop, and E. J. F. Wood (eds.). Academic Press, London, UK. 239 pp. 167-201.
TIME COVERAGE: 1968 ◊
SUMMARY: This citation describes marine yeasts including the species found in Biscayne Bay.
KEY WORDS: Yeasts, Marine environment

2077
Van Uden, N., and M. C. Kolipinski (1962) *Torulopsis haemulonii* nov. spec., a yeast from the Atlantic Ocean. Antonie van Leeuwenhoek, 28(-):78-80.
TIME COVERAGE: 1962 ◊
SUMMARY: This species of yeast was isolated from the gut contents of fish and from Biscayne Bay seawater.
KEY WORDS: Yeasts, Torulopsis haemulonii, New species, Taxonomy

2078
VanArman, J. (1984) South Florida's estuaries. In: Environments of South Florida: Present and Past II. P. J. Gleason (ed.). Miami Geological Society, Coral Gables, FL. p.
TIME COVERAGE: 1984 ◊
SUMMARY: This citation briefly describes the major estuaries in Florida including Biscayne Bay.

KEY WORDS: Estuaries, Estuarine organisms, Naples Bay, Rookery Bay, Estero Bay, Caloosahatchee Bay, Marco Island, Faka Union Bay, Fakachatchee Bay, Everglades National Park, Biscayne Bay, Intercoastal Waterway, Loxahatchee Bay, St. Lucie River Estuary

2079
VanArman, J. (1991) Surface water improvement and management (SWIM) planning at the South Florida Water Management District. In: Coastal Zone '91. Proc., 7th Symp. on Coastal and Ocean Management. O. T. Magoon, H. Converse, V. Tippie, L. T. Tobin, and D. Clark, (eds.). Long Beach, CA, 1991. American Society of Civil Engineers, New York, NY. 935-948.
TIME COVERAGE: 1989
SUMMARY: Surface water improvement and management (SWIM) plans for Lake Okeechobee, Biscayne Bay and the Indian River Lagoon were developed in 1989. The SWIM planning process, legislation and objectives are described.
KEY WORDS: Water management, Water quality, Water supply, SWIM Plan, Lake Okeechobee, Indian River Lagoon, South Florida Water Management District

2080
VanArman, J., S. Bellmund, and L. Gulick (1988) Interim Surface Water Improvement and Management (SWIM) plan for Biscayne Bay. South Florida Water Management District, West Palm Beach, FL. Two volumes (text and appendices A-K); Issued in compliance with the Surface Water Improvement and Management Act (Chapter 87-97, Laws of Florida) and Rule 17-43.035, F.A.C. (Florida Department of Environmental Regulation).
TIME COVERAGE: 1988 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water quality, Fresh water, Natural resources, Habitat, Environmental restoration, Conservation, Resource management, SWIM Plan

2081
VanArman, J., S. Bellmund, and L. Gulick (1989) Surface water improvement and management (SWIM) plan for Biscayne Bay. Revised. Two volumes (Text and Appendices A-K, reprinted 1991). South Florida Water Management District, West Palm Beach, FL. 118 pp + appendices.
TIME COVERAGE: 1989 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Water quality, Fresh water, Natural resources, Habitat, Environmental restoration, Conservation, Resource management, SWIM Plan

2082
VanArman, P. (1977) The larval development of *Hippolyte zostericola* (Smith) and *H. curacaoensis* Schmitt (Decapoda: hippolytidae) from Biscayne Bay, Florida. M.Sc. thesis. Florida Atlantic University, Boca Raton, FL. 162 pp.
TIME COVERAGE: 1975 - 1976
SUMMARY: Ovigerous female caridean shrimp were collected off Bear Cut and near the Miami Seaquarium in Virginia Key. The hatched larvae were raised in the laboratory and their development studied.
KEY WORDS: *Hippolyte zostericola*, *Hippolyte curacaoensis*, Caridean shrimp, Larval development, Crustacean larvae, Virginia Key

2083
Vander Linden, K. (1996) The Miami River: past, present and future. M.A. internship report. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 44 pp.
TIME COVERAGE: 1996 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: River basin management, Shipping, Miami River

2084
Vaughan, F. A. (1976) Food habits and growth of sea bream, *Archosargus rhomboidalis* (Linnaeus) on plant and animal food, with some comparisons to pinfish, *Lagodon rhomboides* (Linnaeus). M.Sc. thesis. University of Miami, Coral Gables, FL. 70 pp.
TIME COVERAGE: 1975
SUMMARY: [SEE NEXT CITATION FOR DESCRIPTION OF THE WORK.]
KEY WORDS: Sea bream, Archosargus rhomboidalis, Pinfish, Lagodon rhomboides, Food consumption, Growth, Virginia Key

2085
Vaughan, F. A. (1978) Food habits of the sea bream, *Archosargus rhomboidalis* (Linnaeus), and comparative growth on plant and animal food. Bull. Mar. Sci., 28(3):527-536.
TIME COVERAGE: 1974 - 1975
SUMMARY: This paper describes the food habits and utilization of plant and animal food by the sea bream in Biscayne Bay. Changes in the proportion of various food items were noted.
KEY WORDS: Sea bream, Archosargus rhomboidalis, Food consumption, Growth, Seaquarium flats, Gables-by-the-Sea

2086
Vaughan, T. W. (1910) A contribution to the geologic history of the Floridian Plateau. Papers from the Tortugas Laboratory. Vol. 4. Carnegie Institute of Washington, Washington, DC. 185 pp.
TIME COVERAGE: 1910 ◊
SUMMARY: This paper is an early work on the geology of the Floridian Plateau. Photographs of some areas of South Florida are included.
KEY WORDS: Geology, Ocean floor, Sediment, Coral reefs, Floridian Plateau, Florida Keys, Florida Bay

2087
Vaughan, T. W. (1910) The geologic work of mangroves in southern Florida. Smithsonian Misc. Collections, 52(-):461-464.
TIME COVERAGE: 1910 ◊
SUMMARY: This paper describes the geological importance of mangroves.
KEY WORDS: Mangrove swamps, Rhizophora mangle

2088
Vaughan, T. W. (1910) Geology of the Keys, the marine bottom deposits, and recent corals of southern Florida. Carnegie Institution of Washington year book 1909, 8(-):140-144.
TIME COVERAGE: 1910 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Coral, Florida Keys, Dry Tortugas

2089
Vaughan, T. W. (1911) The recent madreporaria of southern Florida. Carnegie Institution of Washington year book 1910, 9135-144.
TIME COVERAGE: 1911 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Coral, Growth, Dry Tortugas

2090
Vearil, J. W., and C. T. Smith (1994) Hurricane Andrew and the Central and Southern Florida Project. In: Proc. Symp., Hurricanes of 1992: Lessons Learned and Implications for the Future.

R. A. Cook, and M. Soltani, (eds.). Miami, FL, 1993. American Society of Civil Engineers, New York. 597-606.
TIME COVERAGE: 1992
SUMMARY: The Central and Southern Florida Project was a multi-purpose water resource project. Preparations for and operations by the Army Corps of Engineers of the Project in response to Hurricane Andrew from a water management perspective were detailed. The impacts of the hurricane and rehabilitation work of the Project required due to the effects of the storm were discussed.
KEY WORDS: Winds, Water management, Flood control, Hurricane Andrew, Central and Southern Florida Project

2091
Veri, A. R., W. W. Jenna, and D. E. Bergamaschi (1975) Environmental Quality by Design: South Florida. University of Miami Press, Coral Gables, FL. 192 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: This book discusses South Florida land use patterns and environment.
KEY WORDS: Environmental protection, Natural resources, Urbanization, Land use, South Florida, Everglades, Florida Keys

2092
Verma, A. P., and R. G. Dean (1970) Numerical modeling of hydromechanics of bay systems. In: Proc., Civil Engineering in the Oceans II. Miami Beach, FL, 1969. American Society of Civil Engineers, New York. 1069-1087.
TIME COVERAGE: 1970 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Mathematical models, Tidal prediction, Thermal pollution, Waste disposal, Power plants, Card Sound, Barnes Sound

2093
Veziroglu, T. N., and S. S. Lee (1974) Application of remote sensing for prediction and detection of thermal pollution. Prepared for NASA contract NAS10-8498; 95 pp.; NASA CR-139182; NTIS N75-10572. Clean Energy Research Institute, School of Engineering and Environmental Design, University of Miami, Coral Gables, FL. Microfiche copy.
TIME COVERAGE: 1974 ◊
SUMMARY: [ONLY MICROFICHE AVAILABLE.]
KEY WORDS: Remote sensing, Thermal pollution, Power plants, Turkey Point, Cutler Ridge

2094
Villanueva, M. L., and D. W. Pybas (eds.) (1994) Recommendations for hurricane preparations and responses for boating communities and industries. Tech. paper 75. Florida Sea Grant College Program, Gainesville, FL. 69 pp.
TIME COVERAGE: 1992
SUMMARY: The need to re-evaluate marine hurricane policies and programs was addressed during a workshop and the recommendations were presented in this report.
KEY WORDS: Hurricanes, Boats, Marinas, Warning services, Safety, Hurricane Andrew

2095
Villanueva, M. L., and D. W. Pybas (1995) Recommendations for pre-hurricane preparations and post-hurricane response and recovery plans. In: Coastal Zone '95. Proc., 9th Conf. B. L. Edge, (ed.). American Society of Civil Engineers, New York, NY. 274-275.
TIME COVERAGE: 1992
SUMMARY: This citation discusses pre-hurricane preparations and post-hurricane response by boaters.

KEY WORDS: Disasters, Planning, Recovery, Hurricanes, Hurricane Andrew

2096
Villella, J. B., E. S. Iversen, and C. J. Sindermann (1970) Comparison of the parasites of pond-reared and wild pink shrimp (*Penaeus duorarum* Burkenroad) in south Florida. Trans. Amer. Fisheries Soc., 99(1):789-794.
TIME COVERAGE: 1969
SUMMARY: The incidence of parasites in pond-raised shrimp, and the absence or reduced incidence of certain parasite species in pond-raised shrimp are discussed. Additional parasite species were found in wild shrimp.
KEY WORDS: Pink shrimp, Penaeus duorarum, Parasites, Shrimp culture, Turkey Point, Dry Tortugas

2097
Volker, A. (1976) Scientists studying massive fish kills. Museum, 7(9):11-13.
TIME COVERAGE: 1976 ◊
SUMMARY: This citation discusses fish kills in Biscayne Bay and potential causes.
KEY WORDS: Fish kill, Mullet, Mojarra, Snook, Kandrashoff, W.

2098
Von Oesen, H. M. (1973) A beach restoration project study Bal Harbour Village, Florida. Shore and Beach, 41(2):3-4.
TIME COVERAGE: 1973 ◊
SUMMARY: This citation is a description of the beach restoration of Bal Harbour next to Haulover Inlet.
KEY WORDS: Beach nourishment, Bal Harbour

2099
Von Sternberg, R. M. (1995) Repetitive DNA fragments as taxonomic markers for Penaeus sibling taxa (Decapoda: Dendrobranchiata: Penaeidae) from the southern terminus of the Florida peninsula, U.S.A. Ph. D. Dissertation. Florida International University, Miami, FL. 70 pp.
TIME COVERAGE: 1995 ◊
SUMMARY: Sympatric populations of *Penaeus duorarum* and P. brasiliensis from Biscayne Bay revealed species-specific satellite DNA organizational patterns with the restriction endonuclease EcoRI. The species-specific satellite DNA patterns can be explained as resulting from differential amplification/deletion events having altered monomer arrays after the divergence of these two species. Two discontinuous populations of pink shrimp (Biscayne Bay and Dry Tortugas) were found to exhibit distinct EcoRI satellite fragment patterns. BamHI repetitive fragments specific to the Dry Tortugas population were also detected.
KEY WORDS: Pink shrimp, DNA, Dry Tortugas, *Penaeus duorarum*, *Penaeus brasiliensis*

2100
Voss, G. L. (1974) Biological survey and development recommendations for Fair Isle, Biscayne Bay, Fla. Unpublished manuscript. University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 15 pp.
TIME COVERAGE: 1974 ◊
SUMMARY: This report is a biological survey of Fair Isle, a man-made island south of the Mercy Hospital grounds, and possible damage due to dredge and fill since 1970. The major and initial damage occurred in 1924 when seagrass beds were covered by the spoil bank subsequently known as Fair Isle.
KEY WORDS: Biological surveys, Resource development, Fair Isle

2101
Voss, G. L. (1977) Biological survey and development recommendations for Convoy Point, Biscayne Bay, Fla. Unpublished manuscript. University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 20 pp.
TIME COVERAGE: 1977 ◊
SUMMARY: This report contains a survey of Convoy Point and recommendations for possible improvement and use.
KEY WORDS: Biological surveys, Resource development, Convoy Point

2102
Voss, G. L. (1988) Coral Reefs of Florida. Pineapple Press, Sarasota, FL. 80 pp.
TIME COVERAGE: 1988 ◊
SUMMARY: This book is a short review of the coral reefs of Florida.
KEY WORDS: Coral reefs, Resource conservation, Man-induced effects, Florida, Guide

2103
Voss, G. L. (1972) An environmental impact study of Bayfront Park and Old Harbor, Miami, Florida. Unpublished consulting report to Edward D. Stone, Jr. & Associates, Ft. Lauderdale, FL. University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 11 pp.
TIME COVERAGE: 1972 ◊
SUMMARY: An evaluation of the old port facilities located in Biscayne Blvd. found the area to be contaminated even after pollution abatement procedures had been in place for some time.
KEY WORDS: Environmental impact, Public access, Water policy, Bayfront Park

2104
Voss, G. L. (1973) An environmental impact study of Watson Island, Miami, Florida. Unpublished consulting report to Edward D. Stone, Jr. & Associates, Ft. Lauderdale, FL. University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 21 pp.
TIME COVERAGE: 1973
SUMMARY: The area from the mouth of the Miami River north to the west end of the MacArthur Cswy. was still polluted and was expected to remain so until major changes were made in the Miami River. The waters of the area are turbid, reducing illumination and limiting the growth of marine plants. Bottom sediments were very fine grained. There were indications of eutrophication. Surveys in 1954-57 and 1959 showed the area to be almost totally devoid of attached benthic life. Fishing in the area is minimal. The waters of the ship basins are traps for the collection and sinking of debris and garbage.
KEY WORDS: Environmental impact, Land use, Water policy, Miami, Watson Island

2105
Voss, G. L. (1976) The invertebrates of Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 173-179.
TIME COVERAGE: 1976 ◊
SUMMARY: Many invertebrate populations in Biscayne Bay have been decimated through shoreline changes, reduced flushing, seagrass destruction, and pollution. Comparisons between life on natural rocky shores, rip-rap and vertical bulkheads showed that the bulkheads were the least desirable structures. The richest populations wee found in seagrass beds.
KEY WORDS: Marine invertebrates, Ecological distribution, Environmental impact, Restoration

2106
Voss, G. L. (1956) Protective coloration and habitats of the shrimp *Tozeuma carolinensis* Kingsley (Caridea: Hippolytidae). Bull. Mar. Sci. Gulf Caribb., 6(4):359-363.
TIME COVERAGE: 1956 ◊

SUMMARY: The caridean shrimp was reported as inhabiting colonies of alcyonarians, clinging to the branches by means of the pereiopods and uropods. When on grassy bottom, the animal has a light greenish color but when inhabiting the alcyonarians, the body and proximal parts of the appendages are dark bluish purple.
KEY WORDS: Shrimp, Tozeuma carolinensis, Color, Protective behavior, Soldier Key

2107
Voss, G. L. (1952) A revision of the loliginid squids of the western Atlantic. M.Sc. thesis. University of Miami, Coral Gables, FL. 83 pp.
TIME COVERAGE: 1952 ◊
SUMMARY: This is a taxonomic study of squids. Some specimens were collected in Biscayne Bay.
KEY WORDS: Squid, Loliginidae, Taxonomy, Western Atlantic

2108
Voss, G. L. (1976) Seashore Life of Florida and the Caribbean: a Guide to the Common Marine Invertebrates of the Atlantic from Bermuda to the West Indies and the Gulf of Mexico. E. A. Seamann, Miami, FL.
TIME COVERAGE: 1976 ◊
SUMMARY: This is a guide to the seashore life of Florida and the Caribbean.
KEY WORDS: Marine invertebrates, Florida, Caribbean, Bahamas, Gulf of Mexico, Guide

2109
Voss, G. L. (1980) Seashore life of Florida and the Caribbean: a Guide to the Common Marine Invertebrates and Plants of the Atlantic from Bermuda and the Bahamas to the West Indies and the Gulf of Mexico. Banyan Books, Miami, FL. 199 pp.
TIME COVERAGE: 1980 ◊
SUMMARY: This is a revised and enlarged edition of the 1976 guide.
KEY WORDS: Marine invertebrates, Florida, Caribbean, Bahamas, Gulf of Mexico, Guide

2110
Voss, G. L., F. M. Bayer, C. R. Robins, M. F. Gomon, and E. T. LaRoe (1969) The marine ecology of the Biscayne National Monument. Rep. to the National Park Service. Institute of Marine and Atmospheric Sciences, University of Miami, Miami, FL. 128 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: This report documents the marine ecology of the Biscayne National Monument in order to assist in the formulation of a sound ecological base upon which to formulate the general management policy. The report includes geology, climatology, fauna, flora, species lists, and research and management recommendations.
KEY WORDS: Marine ecology, Biota, Ecosystem management, Biscayne National Monument, Species list, Geology, Climatology

2111
Voss, G. L., J. S. Bunt, D. P. de Sylva, W. Drost-Hansen, H. Frohlich, W. A. Glooschenko, H. B. Moore, M. W. Provost, C. R. Robins, and D. C. Tabb (1969) Report of the committee on inshore and estuarine pollution. UML 17,470. Report to the Hoover Foundation. University of Miami, Institute of Marine Science, Miami, FL. 42 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: This report examined the thermal tolerance of tropical organisms and listed recommendations to forestall environmental degradation.
KEY WORDS: Thermal pollution, Salinity tolerance, Pesticides, Environmental protection, Pollution control

2112
Voss, G. L., and R. T. Hanlon (1975) A guide to the sea grasses of Florida, the Gulf of Mexico, and the Caribbean region. Field guide series 4. University of Miami Sea Grant Program, Coral Gables, FL. 30 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: This is a field guide to the seagrasses of Florida, the Gulf Coast and the Caribbean.
KEY WORDS: Seagrass, Identification keys, Florida, Gulf of Mexico, Caribbean, Field guide

2113
Voss, G. L., L. K. Opresko, and R. F. Thomas (1973) The potentially commercial species of octopus and squid of Florida, the Gulf of Mexico and the Caribbean Sea. Sea Grant field guide series 2. University of Miami Sea Grant College Program, Coral Gables, FL. 33 pp.
TIME COVERAGE: 1973 ◊
SUMMARY: This is a field guide to octopus and squid species found in Florida, the Gulf of Mexico and the Caribbean, including fishing methods and species identification.
KEY WORDS: Octopus, Squid, Cephalopod fisheries, Identification keys, Florida, Gulf of Mexico, Caribbean, Field guide

2114
Voss, G. L., and N. A. Voss (1955) An ecological survey of Soldier Key, Biscayne Bay, Florida. Bull. Mar. Sci. Gulf Caribb., 5(-):203-229.
TIME COVERAGE: 1955 ◊
SUMMARY: This paper is a detailed ecological description of Soldier Key. A large concentration of sea life was found in the offshore or ocean side of the key, and scarcity of such forms was found on the Bay side.
KEY WORDS: Marine invertebrates, Marine ecology, Ecological distribution, Soldier Key

2115
Voss, N. A. (1959) Studies on the pulmonate gastropod *Siphonaria pectinata* (Linnaeus) from the southeast coast of Florida. Bull. Mar. Sci. Gulf Caribb., 9(1):84-99.
TIME COVERAGE: 1959 ◊
SUMMARY: Studies and observations on this limpet were presented in this paper. The feeding, habitat, spawning, larval development, environmental and geographical variation, geographical distribution and growth of the species were discussed. The veliger, egg masses and newly settled young are illustrated.
KEY WORDS: Striped false limpet, *Siphonaria pectinata*, Life cycle, Ecological distribution, Bear Cut, Soldier Key, Ragged Keys

2116
Wade, R. A. (1962) The biology of the tarpon, *Megalops atlanticus*, and the ox-eye, *Megalops cyprinoides*, with emphasis on larval development. Bull. Mar. Sci. Gulf Caribb., 12(4):545-622.
TIME COVERAGE: 1962 ◊
SUMMARY: Larval and juvenile development of the tarpon and the ox-eye were compared. A developmental series was compiled from the plankton specimens and material collected from many sources. The series is illustrated and described.
KEY WORDS: Tarpon, *Megalops atlanticus*, Ox-eye, *Megalops cyprinoides*, Larval development, Juveniles

2117
Waite, T. D. (1976) Man's impact on the chemistry of Biscayne Bay. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 279-285.
TIME COVERAGE: 1971 - 1975

SUMMARY: Water quality data for Biscayne Bay was evaluated to determine anthropogenic effects. No clear trends in the three-year data set was determined. Pollution inputs to the Bay are probably due to runoff from urban areas.
KEY WORDS: Water quality, Man-induced effects, Water pollution, Stormwater runoff, Zn, Al, Oil wastes, Coral Gables Waterway

2118
Waite, T. D., and L. J. Greenfield (1977) Stormwater runoff characteristics and impact on urban waterways. Florida Scient., 40(3):239-249.
TIME COVERAGE: 1974 - 1975
SUMMARY: Runoff water quality was determined in residential areas of Miami. Runoff from parking areas contained high levels of bacteria and macronutrients. Pollution input from rain water was also monitored and correlated with a general air pollution index. High levels of contamination in the canals occurred during periods of high rainfall.
KEY WORDS: Stormwater runoff, Water pollution, Water quality, Coral Gables Waterway, Coliform bacteria, Nutrients

2119
Wakefield, J. W. (1939) Pollution studies in Biscayne Bay. Report. Florida State Board of Health, Bureau of Engineering, Jacksonville, FL. Unpaged.
TIME COVERAGE: 1928
SUMMARY: This report describes the results of a sanitary survey of Biscayne Bay. The author concluded that the waters of the Bay were polluted by discharge of the Miami River and numerous sewer outfalls but that it is contained and does spread far into the Bay.
KEY WORDS: Water pollution, Sewage disposal, Miami Military Academy, Tahiti Beach

2120
Wakeford, A. (1998) Conflicting uses of Crandon Park how do they coexist? Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1998 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Land use, Recreation, Crandon Park, Key Biscayne

2121
Wakimoto, R. M., and P. G. Black (1994) Damage survey of Hurricane Andrew and its relationship to the eyewall. Bull. Amer. Meteorological Soc., 75(2):189-200.
TIME COVERAGE: 1992
SUMMARY: A damage map documenting Hurricane Andrew's destructive landfall was presented. Vectors representing the direction of winds causing damage to trees and structures were shown. A superposition of radar data from Miami and Key West on top of the damage map provided the first detailed examination of the relationship between the eyewall and the surface flow field as estimated from the damage vectors.
KEY WORDS: Hurricanes, Wind speed, Damage, Hurricane Andrew

2122
Waller, B. G. (1986) Saltwater intrusion in a highly transmissive unconfined aquifer. In: Proc., Water Forum '86: World Water Issues in Evolution. American Society of Civil Engineers, New York, NY. 97-104.
TIME COVERAGE: 1986 ◊
SUMMARY: This paper describes the development of salt water intrusion into the aquifer as the hydrology of South Florida changed with time.
KEY WORDS: Saline intrusion, Canals, Biscayne Aquifer, Dade County

2123
Waller, B. G., and B. Howie (1988) Determining nonpoint-source contamination by agricultural chemicals in an unconfined aquifer, Dade County, Florida: procedures and preliminary results. In: Ground-Water Contamination: Field Methods. A. G. Collins, and A. I. Johnson (eds.). ASTM special technical publication 963. AST, Philadelphia, PA. 459-467.
TIME COVERAGE: 1985 - 1988?
SUMMARY: Preliminary results of water quality sampling indicate that agriculture has had a minimal effect on ground water quality. Only nitrate and nitrite from fertilizers were found at elevated concentrations.
KEY WORDS: Ground water, Wells, Water sampling, Quality assurance, Agricultural pollution, Nonpoint sources, Biscayne Aquifer, Dade County

2124
Waller, B. G., H. Klein, and L. J. Lefkoff (1984) Attenuation of stormwater contaminants from highway runoff within unsaturated limestone, Dade County, Florida. USGS water resources investigations rep. 84-4083. US Geological Survey, Tallahasse, FL. 12 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: Infiltration of stormwater in heavily urbanized parts of Dade County constitutes a prime source of recharge to the unconfined Biscayne aquifer. Ponded stormwater at the test site contained greater concentrations of Pb, Zn, Mn, N (except nitrate) and P than that water which percolated through the unsaturated limestone. Attenuation of some stormwater contaminants in surface soils and limestone was indicated at the test site adjacent to a busy roadway.
KEY WORDS: Stormwater runoff, Chemical pollutants, Limestone, Biscayne aquifer, Dade County

2125
Waller, B. G., and J. L. Labowski (1987) Leachate migration from the solid waste disposal facility near Biscayne National Park, south Florida. In: Coastal Zone '87. Proc., 5th Symp. on Coastal and Ocean Management. O. T. Magoon, H. Converse, D. Miner, L. T. Tobin, D. Clark, and G. Domurat, (eds.). Seattle, WA, 1987. American Society of Civil Engineers, New York, NY. 681.
TIME COVERAGE: 1987 ◊
SUMMARY: Leachate from the Dade County Solid Waste Disposal Facility was migrating seaward and to the south from the site. Water quality indicators indicative of leachate migration were primarily ammonium, organic nitrogen, phenols and chemical oxygen demand. Cadmium, Cr and Pb were auxiliary indicators.
KEY WORDS: Waste disposal, Leaching, Ground water, Black Creek Canal, Goulds Canal

2126
Walsh, P. J., E. Danulat, and T. P. Mommsen (1990) Variation in urea excretion in the gulf toadfish *Opsanus beta*. Mar. Biol., 106(3):323-328.
TIME COVERAGE: 1989
SUMMARY: Urea excretion by gulf toadfish collected in Biscayne Bay was monitored and found to be significant. Excretion rates and plasma urea concentrations were not affected by antibiotic treatments which decreased intestinal microbe populations suggesting that recycling by gut microbe urease is not significant in this species. High levels of variability in urea excretion rates and variation in response to air exposure suggest that urea synthetic rates are affected by immediate past environmental conditions.
KEY WORDS: Toadfish, *Opsanus beta*, Urea, Excretion

2127
Walsh, P. J., B. C. Tucker, and T. E. Hopkins (1994) Effects of confinement/crowding on ureogenesis in the gulf toadfish Opsanus beta. J. Experimental Biol., 191(-):195-206.
TIME COVERAGE: 1992 - 1993
SUMMARY: Confinement of toadfish to small volumes of water initiated a switch to nearly complete reliance on ureogenesis for nitrogen excretion within approximately 24 hrs. The switch is probably due to confinement *per se* rather than to measurable build up of ammonia. Specimens used were caught by fishermen in Biscayne Bay.
KEY WORDS: Ornithine-urea cycle, Biological stress, Gulf toadfish, Opsanus beta

2128
Walter, M. A. (1976) Quantitative observations on the nutritional ecology of ctenophores with special reference to *Mnemiopsis mccradyi*. M.Sc. thesis. University of Miami, Coral Gables, FL. 70 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: Ctenophores were collected in Biscayne Bay and their feeding activity related to the available food in the water. Natural food concentrations were simulated in the laboratory and it was found that ctenophores were unable to grow. This suggested that these animals depend on encountering patches of copepods at higher concentrations in order for them to feed successfully.
KEY WORDS: Ctenophores, Mnemiopsis mccradyi, Food consumption, Animal nutrition

2129
Walton, T. L. (1978) Beach erosion - long and short term implications (with special emphasis on the State of Florida). Florida Sea Grant technical paper no. 8. University of Florida, Sea Grant Coastal and Oceanographic Engineering Department, Gainesville, FL. 141-164.
TIME COVERAGE: 1978 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Beach erosion, Sea level changes, Wave effects, Coastal inlets, Florida

2130
Walton, T. L. (1977) Beach nourishments in Florida and on the lower Atlantic and Gulf coasts. Florida Sea Grant technical paper no. 2. Florida Sea Grant College Program, Gainesville, FL. 64 pp.
TIME COVERAGE: 1969, 1973
SUMMARY: This citation describes beach nourishment projects including those in Bal Harbour, Virginia Key and Key Biscayne. The information provided includes the volume of material placed on the beach, location of fill and borrow areas, length of the fill, and characteristics of the fill and borrow materials.
KEY WORDS: Beach nourishment, Shore protection, Bal Harbour, Virginia Key, Key Biscayne, Florida Keys

2131
Walton, T. L., and J. A. Purpura (1977) Beach nourishment along the southeast Atlantic and Gulf coasts. Shore and Beach, 45(3):10-18.
TIME COVERAGE: 1977 ◊
SUMMARY: This citation describes beach nourishment project in several locations including Key Biscayne.
KEY WORDS: Beach nourishment, Beach erosion, Virginia Key, Key Biscayne, Atlantic coast, Gulf coast

2132
Wang, H., and L. Lin (1994) Coastal and oceanographic impact of Hurricane Andrew. In: Proc. Symp., Hurricanes of 1992: Lessons Learned and Implications for the Future. R. A. Cook, and M. Soltani, (eds.). Miami, FL, American Society of Civil Engineers, New York, NY. 791-798.
TIME COVERAGE: 1992
SUMMARY: The storm damages caused by Andrew were disproportionately high when compared with hurricanes of similar strength to hit the US in the past. Extensive wind damage to residential homes and commercial type structures clearly was the main factor contributing to the high cost. Beach erosion and damages to water front property and coastal protective structures were insignificant. However, a larger impact from storm tides and wave forces can be expected if a hurricane would hit the open Florida coast.
KEY WORDS: Winds, Storm surge, Coastal erosion, Hurricane Andrew

2133
Wang, J. D. (1978) Verification of finite element hydrodynamic model CAFE. In: Proc., 26th annual Hydraulic Division Specialty Conf., Verification of Mathematical and Physical Models in Hydraulic Engineering. College Park, MD, 1978. American Society of Civil Engineers, New York, NY. 500-508.
TIME COVERAGE: 1978 ◊
SUMMARY: This paper describes the verification of the Circulation Analysis with Finite Elements (CAFE) model in Biscayne Bay.
KEY WORDS: Hydraulic models, CAFE, Finite element method, Fluid flow, Tidal dynamics

2134
Wang, J. D., J. S. Ault, B. K. Haus, J. Luo, and J. Rivera (1999) Modeling the southeast Florida coastal ecosystem - Hydrodynamic transport, salinity, and trophodynamics. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 208-210.
TIME COVERAGE: 1999 ◊
SUMMARY: Numerical hydrodynamic models of Biscayne Bay have been developed based on the vertically integrated equations of motion for hydrodynamics dynamically coupled with the advection-diffusion equation for salinity. The model is described.
KEY WORDS: Numerical models, Coastal waters, Hydrodynamics, Salinity, Trophodynamic cycle, Florida Bay

2135
Wang, J. D., and S. V. Cofer-Shabica (1988) The effects of freshwater canal discharges on salinities in Biscayne National Park. Unpublished report. Biscayne National Park, Homestead, FL.
TIME COVERAGE: 1988 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Canals, Fresh water, Salinity, Biscayne National Park

2136
Wang, J. D., S. V. Cofer-Shabica, and J. Chin Fatt (1988) Finite element characteristic advection model. J. Hydraulic Eng., 114(9):1098-1114.
TIME COVERAGE: 1988 ◊
SUMMARY: Finite element characteristic advection model was used to determine salinity distributions in Biscayne Bay resulting from canal discharges.
KEY WORDS: Advection, Transport processes, Mathematical models, Salinity, Drainage, Canals

2137
Wang, J. D., E. Daddio, and M. D. Horwitz (1978) Canal discharges into south Biscayne Bay. Report to DERM. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 76 pp.
TIME COVERAGE: 1978 ◊
SUMMARY: The small scale mixing and transport processes that take place in the vicinity of Snapper Creek, Black Creek and Mowry Canal were quantified through dye dispersion experiments.
KEY WORDS: Canals, Snapper Creek, Black Creek, Mowry Canal, Drainage water, South Bay

2138
Wang, J. D., and J. Van de Kreeke (1982) Biscayne Bay circulation study. Report prepared for Dade County Department of Environmental Resources Management. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. Various paging.
TIME COVERAGE: 1982 ◊
SUMMARY: The main emphasis of the first of this two-year study was data gathering and analysis. Water level variations and currents were measured at all open boundaries of the Bay and discharges computed. Similar measurements were completed for the channels connecting the units within the Bay.
KEY WORDS: Circulation

2139
Wang, J. D., and J. Van de Kreeke (1984) Hydrography of north Biscayne Bay. Part II: Modeling. Prepared for DERM and Sea Grant. Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 80 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Hydrography, Models, Tidal currents, Tides, Flow measurement, North Bay

2140
Wang, J. D., and J. Van de Kreeke (1986) Tidal circulation in north Biscayne Bay. J. of waterway, port, coastal and ocean engineering, 112(6):615-631.
TIME COVERAGE: 1986 ◊
SUMMARY: The hydrodynamic exchange of north Biscayne Bay was analyzed using field measurements and numerical models. Alternatives for enhancing hydrodynamic transport and circulation by modifying the geometry of the Bay were evaluated.
KEY WORDS: Water exchange, Bay dynamics, Tidal dynamics, Coastal lagoons, North Bay

2141
Wangersky, E. D., and C. E. Lane (1960) Interaction between the plasma of the loggerhead turtle and toxin of the Portuguese man-of-war. Nature, 185(4709):330-331.
TIME COVERAGE: 1960 ◊
SUMMARY: Loggerhead turtles eat Portuguese man-of-war. The latter are equipped with a potent toxin contained in nematocysts that can penetrate even the exoskeleton of a crab. The loggerhead turtle lacks blood immune bodies which can deactivate the toxin. It is possible that turtles are not susceptible of venoms of the type injected by the Portuguese man-of-war.
KEY WORDS: Loggerhead turtle, *Caretta caretta*, Portuguese man-of-war, *Physalia physalis*, Biological poisons, Blood

2142
Wanless, H. R. (1988) An evaluation of the past, present and future shore conditions on Key Biscayne, Southeast Florida. Unpublished manuscript. The Author, Miami, FL. 14 pp + appendices.

TIME COVERAGE: 1988 ◊

SUMMARY: Because of severe physical changes to the shore system, Key Biscayne has become isolated from the natural replenishment of sand for the past 60 yrs, evolving into a pile of sand which yields to limestone in the north and east and to muds in the south and west. This report evaluated the nature of Key Biscayne's shoreline and the factors that will influence its future stability.

KEY WORDS: Coasts, Beach erosion, Shore protection, Key Biscayne

2143

Wanless, H. R. (1981) Fining-upwards sedimentary sequences generated in seagrass beds. J. Sed. Petrol., 51(2):445-454.

TIME COVERAGE: 1981 ◊

SUMMARY: Shallow marine clastic and carbonate environments of southeast Florida contain fining-upwards sedimentary sequences being generated by Thalassia testudinum beds. Lateral seaward migration of flute-shaped sand pockets (storm blowouts) in the grass platform produces a lenticular fining-upwards package. Migration and vegetative restabilization of recurring blowouts on a grass platform can produce a composite sequence containing numerous complete or stacked incomplete fining-upward packages.

KEY WORDS: Marine environment, Sedimentation, Environmental effects, Mechanics, Seagrass, Key Biscayne

2144

Wanless, H. R. (1976) Geologic setting and recent sediments of the Biscayne Bay region, Florida. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 1-31.

TIME COVERAGE: 1976 ◊

SUMMARY: This paper describes the geology of Biscayne Bay, Card Sound and Barnes Sound.

KEY WORDS: Sedimentation, Holocene, Sedimentary environments, Sediment distribution, Card Sound, Barnes Sound

2145

Wanless, H. R. (1970) Influence of preexisting bedrock topography on bars of "lime" mud and sand, Biscayne Bay, Florida. AAPG Bull., 54(-):875.

TIME COVERAGE: 1970 ◊

SUMMARY: Two distinct geometries of "lime" mud and sand bars (parallel with and transverse to topographic restriction) have formed in association with a linear bedrock ridge of Key Largo Limestone along the eastern shore of Biscayne Bay.

KEY WORDS: Nearshore bars, Sand bars, Mud flats, Shoals

2146

Wanless, H. R. (1989) The inundation of our coastlines; past, present and future with a focus on south Florida. Sea Frontiers, 35(5):264-271.

TIME COVERAGE: 1989 ◊

SUMMARY: This articles summarizes the rise in sea level. Maps of the South Florida shoreline 5000 years ago, 3500 years ago and at present are shown.

KEY WORDS: Sea level changes, Coastal zone, Flooding, Shore protection, South Florida

2147

Wanless, H. R. (1987) Key Biscayne's "mangrove reef", a reflection of barrier island and sea level history. In: Symposium on South Florida geology. F. J. R. Maurrasse, (ed.). Memoir 3. Miami Geological Society, Coral Gables, FL.

TIME COVERAGE: 1987 ◊

SUMMARY: The "mangrove reef", a rocky intertidal platform at the north end of Key Biscayne, was shown to be composed of calcified black mangrove roots of Late Holocene age. Similar exposures are occasionally exposed elsewhere along eroding portions of Key Biscayne and Virginia Key. The significance of these features can only be determined by understanding the stratigraphic and sea level history of the area.
KEY WORDS: Mangrove swamps, Reefs, Sea level changes, Key Biscayne, Virginia Key

2148
Wanless, H. R. (1974) Mangrove sedimentation in geologic perspective. In: Environments of south Florida: Present and Past. P. J. Gleason (ed.). Memoir 2. Miami Geological Society, Miami, FL. 190-200.
TIME COVERAGE: 1974 ◊
SUMMARY: Coastal mangrove swamps are a passive sedimentary environment, offering some resistance to erosion, in which peat accumulates predominate if the area is protected from strong physical agitation and detrital sediment influx. Coastal swamps have produced transgressive, regressive, oscillating and equilibrium accumulates on the South Florida and Bahamas Platforms during the post-glacial, Holocene, sea-level rise. The varied patterns of coastal swamp sedimentation are related to the complex pre-existing and evolving co-existing topography through its influence on wave and current patterns, detrital sediment influx and freshwater drainage. Physical and chemical attributes of mangrove swamps can strongly influence the character of adjacent sedimentary environments.
KEY WORDS: Mangrove swamps, Sedimentation, Peat, Biogenic sediments

2149
Wanless, H. R. (1984) Mangrove sedimentation in geologic perspective. In: Environments of south Florida: Present and Past II. P. J. Gleason (ed.). Miami Geological Society, Coral Gables, FL. 551 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: Coastal mangrove swamps are a passive sedimentary environment in which peat accumulates predominate if the area is protected from strong physical agitation and detrital sediment influx. Coastal swamps have produced transgressive, regressive, oscillating and equilibrium accumulates on the South Florida and Bahamas Platforms during the post-glacial, Holocene, sea-level rise. The varied patterns of coastal swamp sedimentation are related to the complex pre-existing topography through its influence on wave and current patterns, detrital sediment influx and freshwater drainage.
KEY WORDS: Mangrove swamps, Sedimentation, Biogenic deposits

2150
Wanless, H. R. (1976) Man's impact on sedimentary environments and processes. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 315 287-299.
TIME COVERAGE: 1976 ◊
SUMMARY: This paper describes anthropogenic changes to the morphology, sedimentary environments and sedimentary dynamics of Biscayne Bay. Man's impact results mainly from five influences: creation of artificial cuts across Miami Beach, obstruction and modification to the natural sediment movements on the ocean beaches, dredge and fill projects for waterways and land fill, construction of drainage canals across marginal freshwater marshes, and increased turbidity.
KEY WORDS: Sedimentary environments, Man-induced effects, Beach erosion, Dredging, Turbidity, North Bay

2151
Wanless, H. R. (1991) Observational foundation for sequence modeling. In: Sedimentary Modeling: Computer Simulations and Methods for Improved Parameter Definition. E. K. Franseen, W. L. Watney, C. G. S. C. Kendall, and W. Ross (eds.). Kansas Geological Survey bulletin 233. Kansas Geological Survey, Lawrence, KS.
TIME COVERAGE: 1991 ◊
SUMMARY: The design of useful models for predicting sequences and facies patterns of sedimentary cycles depends on an observational foundation that includes the recognition and adequate understanding of fundamental depositional sequences. Models should work from the fundamental depositional sequence. Caution should be used when applying models designed for one scale of sedimentary sequence to another scale.
KEY WORDS: Sedimentation, Stratigraphy, Sea level changes, Great Bahama Bank, Florida Bay, Caicos platform

2152
Wanless, H. R. (1982) Sea level is rising - so what? J. Sed. Petrol., 52(4):1051-1054.
TIME COVERAGE: 1982 ◊
SUMMARY: (Editorial)
KEY WORDS: Sea level changes, South Florida, Bermuda

2153
Wanless, H. R. (1967) Sediments of Biscayne Bay - distribution and depositional history. M.Sc. thesis. University of Miami, Coral Gables, FL. 260 pp.
TIME COVERAGE: 1967 ◊
SUMMARY: The objectives of this study included the examination of the transgressive character of the Holocene sedimentary record in Biscayne Bay and to compare, if possible, these sedimentary sequences with the classical Holocene transgressive records, and to examine the sedimentary accumulations in the Bay area in terms of depositional controls responsible for their development.
KEY WORDS: Sediment distribution, Sedimentation, Holocene, Sea level changes, Barnes Sound, Card Sound

2154
Wanless, H. R. (1969) Sediments of Biscayne Bay - distribution and depositional history. Tech. report 69-2. University of Miami, Institute of Marine and Atmospheric Sciences, Miami, FL. 260 pp.
TIME COVERAGE: 1969 ◊
SUMMARY: [THIS CITATION IS A REPRINT OF THE MS THESIS BY THE AUTHOR.]
KEY WORDS: Sediment distribution, Sedimentation, Holocene, Sea level changes, Barnes Sound, Card Sound

2155
Wanless, H. R. (1975) Sedimentary dynamics and significance of sea grass beds. Florida Scient., 38(Suppl. 1):20.
TIME COVERAGE: 1975 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Seagrass, Sediment dynamics

2156
Wanless, H. R. (1977) Sediments of Biscayne Bay - distribution and depositional history. In: Field Guide to Some Carbonate Rock Environments, Florida Keys and Western Bahamas. H. G. Multer Kendall/Hunt, Dubuque, IO. 415 pp.
TIME COVERAGE: 1977 ◊

SUMMARY: This is the guidebook for a field trip in South Florida.
KEY WORDS: Sediment distribution, Sedimentation, Holocene, Sea level changes, Barnes Sound, Card Sound

2157
Wanless, H. R. (1978) Storm generated stratigraphy of carbonate mud banks, south Florida. Abstracts with programs (Geological Society of America), 10(-):512.
TIME COVERAGE: 1978 ◊
SUMMARY: Southward migration and expansion of east-west trending carbonate mud banks within Biscayne Bay and Florida Bay have generated sedimentary sequences composed of four lithologies, produced by an interaction of hurricane and repetitive winter storm sedimentation. A molluscan-foraminiferal grainstone to packstone forms the basal 0 - 15 cm over Pleistocene bedrock. This is a winter storm winnowed lag of sediment produced in bays adjacent to banks and/or carried into the bays during hurricanes. The overlying 0.2 - 1 m is a crudely layered molluscan-foraminiferal packstone thought to represent hurricane layers. These are deposited as widespread layers in the bays but are only preserved where covered by migrating or expanding mudbank flanks. The bulk of the mud banks is a pelleted mudstone (2 - 3 m in thickness) formed by lee side accretion of fine sediment during winter storm. Hurricanes may also add mud to lee flanks. Winter storm waves will strip any hurricane mud layers from north facing flanks. North facing flanks of banks contain a surficial molluscan grainstone to packstone. Shell is derived from winnowing of eroding north facing flanks as well as from southward transport from adjacent bays. Winter storm waves move lobes of this grainstone onto the bank flat.
KEY WORDS: Mud banks, Storms, Carbonate sediments, Florida Bay, Hurricanes

2158
Wanless, H. R., and E. A. Burton (1981) Hydrodynamics of carbonate fecal pellets. J. Sed. Petrol., 51(1):27-36.
TIME COVERAGE: 1981 ◊
SUMMARY: Sand-sized carbonate fecal pellets are a common dominant constituent of many shallow marine tropical environments. Samples of sediment containing pellets were collected in Soldier Key, Crane Key, and Sugarloaf Key. Settling analyses provided a first approximation of the hydrodynamic behavior of carbonate fecal pellets.
KEY WORDS: Fecal pellets, Carbonate sediments, Sediment transport, Soldier Key, Crane Key, Sugarloaf Key, Florida Bay, Florida Keys

2159
Wanless, H. R., D. J. Cottrell, M. G. Tagett, L. P. Tedesco, and E. R. Warzeski (1995) Origin and growth of carbonate banks in South Florida. In: Carbonate mud-mounds; their origin and evolution. C. L. V. Monty, D. W. J. Bosence, P. H. Bridges, and B. R. Pratt (eds.). Spec. pub. 23 of the International Association of Sedimentologists. Blackwell Scientific, Oxford, UK. 537 pp.
TIME COVERAGE: 1995 ◊
SUMMARY: Carbonate banks in and on the margins of Florida Bay and Biscayne Bay are intimately associated with either pre-existing limestone topography or transgressed ridges of coastal peat and coastal storm-levee buildups. These associations may be obscured by subsequent migration or expansion of the marine banks and by subsequent transformation of the initiating coastal deposits to marine deposits by repetitive alternations of excavation of marine burrow networks and storm infilling of networks with marine sediment.
KEY WORDS: Sand banks, Mud banks, Carbonate rocks, Diagenesis, Safety Valve Bank, Featherbed Bank, Caesar's Creek Bank, Southeast Florida, Florida Bay

2160
Wanless, H. R., D. J. Cottrell, R. W. Parkinson, and E. Burton (1984) Sources and circulation of turbidity, Biscayne Bay, Florida. Final report to Dade County and Florida Sea Grant. University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 499 pp.
TIME COVERAGE: 1984 ◊
SUMMARY: This report outlines the causes of increases in turbidity in Biscayne Bay. Resuspension of flocculate bottom sediments from dredged areas within the Bay appear to be the main cause of persistently high turbidity levels. Recommendations to prevent further deterioration include preservation and planting of mangroves and seagrass communities, and control of boat traffic.
KEY WORDS: Turbidity, Suspended particulate matter, Water circulation, Dredging, Man-induced effects

2161
Wanless, H. R., J. J. Dravis, L. P. Tedesco, and V. Rossinsky (1989) Carbonate environments and sequences of Caicos Platform; Caicos, British West Indies to Miami Florida, July 20-26, 1989. Field trip guidebook T374. American Geophysical Union, Washington, DC. 75 pp.
TIME COVERAGE: 1989
SUMMARY: This is the guidebook for a field trip in South Florida.
KEY WORDS: Carbonate sediments, Platforms (Geology), Sedimentary structures, Caicos Platform, South Florida

2162
Wanless, H. R., R. W. Parkinson, and L. P. Tedesco (1994) A geological perspective of south Florida coastal environments. In: Florida Coastal Ocean Sciences Symposium (FCOSS). Miami, FL, 1994. Ocean Pollution Research Center, Rosenstiel School of Marine and Atmospheric Science, Miami, FL. 37-38.
TIME COVERAGE: 1994 ◊
SUMMARY: The geological development of South Florida is described. During the past 65 years, the 18-22 cm sea-level rise has modified significantly the coastal ecosystem. If the rate of sea-level rise continues, we can expect: an increase level of coastal turbidity and nutrients; storm driven loss of coastal wetlands; storm driven modification and migration of coastal levees, mud and sand banks, and barrier islands; deepening of coastal bays; and breaching of low area along the Keys to create new tidal passes.
KEY WORDS: Sea level changes, Coastal morphology, South Florida

2163
Wanless, H. R., and R. W. Parkinson (1989) Late Holocene sealevel history of south Florida: control on coastal stability. Abstracts with programs (American Geological Society), 21(6):A35-A36.
TIME COVERAGE: 1989 ◊
SUMMARY: [ABSTRACT OF THE CITATION THAT FOLLOWS.]
KEY WORDS: Sea level changes, Holocene, Coastal zone

2164
Wanless, H. R., and R. W. Parkinson (1989) Late Holocene sealevel history of southern Florida: control on coastal stability. In: Proc. 8th Symp. on Coastal Sedimentology, Coastal Sediment Mobility. W. F. Tanner, (ed.). Tallahassee, FL, 1989. Department of Geology, Florida State University, Tallahassee, FL. 197-214.
TIME COVERAGE: 1989 ◊
SUMMARY: Tide gauges record a dramatic increase in the rate of relative sealevel rise beginning in about 1932. The late Holocene conditions in South Florida were examined to help predict the effect of this and future increases.

KEY WORDS: Holocene, Sea level changes, Coastal zone

2165
Wanless, H. R., R. W. Parkinson, and L. P. Tedesco (1994) Sea level control on stability of Everglades wetlands. In: Everglades: the Ecosystem and its Restoration. S. M. Davis, and J. C. Ogden (eds.). St. Lucie Press, Delray Beach, FL. 199-223.
TIME COVERAGE: 1994 ◊
SUMMARY: The expansive coastal wetlands and freshwater marshes of South Florida are a result of the very slow relative rise of sea level during the past 3200 years. Prior to that time, relative sea level was rising too fast for coastal swamp, marl, or sand environments to stabilize. The establishment of a broad, coastal wetland during the past 3200 years has provided a natural barrier to marine waters and permitted freshwater environments of the Everglades to expand. Tide gauges throughout the US record a dramatic increase in the rate of relative sea level rise beginning about 1930. Continuation of these rates will cause dramatic to catastrophic modifications of both the coastal and freshwater wetland of South Florida.
KEY WORDS: Sea level changes, Holocene, Hurricanes, Everglades

2166
Wanless, H. R., and L. P. Tedesco (1993) Depositional and early diagenetic controls on texture and fabric of carbonate mudbanks, South Florida. In: Carbonate Microfabrics. R. Rezak, and D. L. Levoie (eds.). Frontiers in Sedimentary Geology. Springer-Verlag, New York, NY. 313 pp.
TIME COVERAGE: 1993 ◊
SUMMARY: This citation summarizes the processes of growth and early biological modification in modern carbonate mudbanks and shows how they define a predictable texture and fabric.
KEY WORDS: Mud banks, Sedimentary structures, Carbonate sediments, Florida Bay

2167
Wanless, H. R., L. P. Tedesco, and B. E. Hall (1999) Historical changes in mangrove, seagrass and calcareous algal communities in South Florida. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 213-215.
TIME COVERAGE: 1920s to present
SUMMARY: Seagrass and mangrove communities have undergone dramatic changes during the past century. The mud banks bordering the seaward margin of the Safety Valve and seaward of Caesar's Creek have been repeatedly stressed by hurricanes, including the Hurricane of 1928 and Hurricane Betsy, both of which were slow moving storms. Repeated storm erosion of seagrass communities of the Safety Valve is related to the more exposed location and sandier substrate. Hurricane Andrew eroded the Halimeda mounds in the Safety Valve. The Hurricane of 1935 smothered much of Caesar's Creek Bank with sediment from Biscayne Bay. This carbonate mud layer was colonized gradually and by 1960 it had regained the seagrass cover. By 1990, this layer was bioturbated and was 15 cm below the surface. Baker's Haulover initiated colonization by *Thalassia testudinum* in the shallow areas of north Biscayne Bay. Mangrove communities have undergone changes due to sea level rise, human modification of inland wetland water levels and coastal wetland salinity, major storms and freezes, and changing substrate.
KEY WORDS: Mangroves, Seagrass, Calcareous algae, Safety Valve, Caesar's Creek, Hurricane of 1928, Hurricane Betsy, Bakers Haulover, *Thalassia testudinum*, Hurricane Andrew, Halimeda, Temporal variations, Mangrove swamps, Seagrass, Algae, Florida Bay

2168
Wanless, H. R., L. P. Tedesco, D. J. Cottrell, and M. G. Tagett (1994) Holocene environmental history of carbonate banks in Florida Bay and Biscayne Bay, South Florida. Bull. Mar. Sci., 54(3):1087.

TIME COVERAGE: 1994 ◊
SUMMARY: Skeletal sand and mud banks in Biscayne Bay either extend from gaps in the seaward limestone ridge of are positioned bayward of the protection of a physical bank growth, extension and migration. The internal stratigraphy of the marine carbonate banks record pulses of physical growth followed by seagrass recolonization.
KEY WORDS: Banks, Carbonate rocks, Holocene, Florida Bay

2169
Ward, B. (1988) An oceanarium for Miami. Thesis (Architecture). Montana State University, Billings, MT. 56 pp.
TIME COVERAGE: 1988 ◊
SUMMARY: [NOT AVAILABLE.]
KEY WORDS: Marine aquariums

2170
Ward, H. L. (1954) Parasites of marine fishes of the Miami region. Bull. Mar. Sci. Gulf Caribb., 4(3):244-261.
TIME COVERAGE: 1954 ◊
SUMMARY: Parasites were collected from the viscera of nine species of marine fish. The parasites are identified and the occurrence discussed.
KEY WORDS: Helminths, Parasites, Trematodes, Cestodes, Acanthocephalans, Nematodes, Marine fish, Miami

2171
Warzeski, E. R. (1976) Growth history and sedimentary dynamics of Caesars Creek Bank. M.Sc. thesis. University of Miami, Coral Gables, FL. 195 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: Sediments of Caesar's Creek Bank, a large carbonate mud bank associated with a major tidal pass, were examined. The most important event in the bank's history was submergence of the bedrock sill separating Caesar's Creek from southern Biscayne Bay initiating the tidal bank phase between 4600 and 4000 BP.
KEY WORDS: Mud banks, Caesars Creek Bank, Carbonate sediments, Biogenic deposits

2172
Warzeski, E. R. (1976) Storm sedimentation in the Biscayne Bay region. In: Biscayne Bay: Past / Present / Future. A. Thorhaug, and A. Volker, (eds.). Biscayne Bay Symp. I. University of Miami Sea Grant Program Spec. Rep. 5. University of Miami, Coral Gables, FL. 33-49.
TIME COVERAGE: 1976 ◊
SUMMARY: Storm erosion and transport occur almost entirely during winter cold front and hurricanes in Biscayne Bay. Man-made features are generally more vulnerable to storm damage than natural sediment accumulations. Bridge abutments, causeways and land-fill islands that constrict the flow of storm surge are commonly washed away.
KEY WORDS: Storms, Storm surge, Sedimentation, Wave effects

2173
Warzeski, E. R., K. J. Cunningham, R. N. Ginsburg, J. B. Anderson, and Z. D. Ding (1996) A Neogene mixed siliciclastic and carbonate foundation for the Quaternary carbonate shelf, Florida Keys. J. Sed. Res. Section B, 66(4):788-800.
TIME COVERAGE: 1996 ◊
SUMMARY: New core holes and marine seismic profiles show the distribution and paleoenvironments of a siliciclastic foundation sandwished between the much-studied Quarternary carbonates of the Middle and Upper Florida Keys and Oligocene to Miocene carbonates of the Arcadia Formation.

KEY WORDS: Neogene, Siliciclastic deposits, Quaternary, Carbonates, Florida Keys

2174
Wasilewski, J. A. (1993) The American crocodile: a lesson of survival. Tropical Trails, -(Spring):3-7.
TIME COVERAGE: 1993 ◊
SUMMARY: This article reviews the ecology of the crocodile and its survival to present time.
KEY WORDS: American crocodile, *Crocodylus acutus*, Rare species

2175
Water Resources Engineers (1976) Environment impact assessment, water quality analysis, Biscayne Bay. Contract WQ5ACO25. Sponsored by the National Commission on Water Quality. PB-252 095. National Technical Information Service, Springfield, VA. 213 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This report evaluated the condition of the Bay and potential effects of changes in effluent discharges.
KEY WORDS: Water quality, Water treatment, Environmental impact, Pollution control

2176
Webb, R. S., and D. W. Pybas (1994) Preliminary characterization of the branch and stem gall/canker disease etiology of red mangrove *(Rhizophora mangle*). Unpublished report. University of Florida, School of Forest Resources and Conservation, Gainesville, FL. 10 pp.
TIME COVERAGE: 1994 ◊
SUMMARY: Branch galls were collected from mangroves at eleven sites in Florida. Fungi isolated from the galls were identified.
KEY WORDS: Galls, Red mangrove, *Rhizophora mangle*, Biscayne National Park

2177
Weinberg, N. L., and W. G. Grantham (1971) Development of an underwater acoustics laboratory course. J. Acoustical Soc. America, 49(-):697-705.
TIME COVERAGE: 1971 ◊
SUMMARY: This citation describes an underwater acoustics course using Bear Cut as the experimental site.
KEY WORDS: Acoustics, Education, Laboratories, Institute of Marine and Atmospheric Sciences, University of Miami, Bear Cut

2178
Weisbord, N. E. (1974) Late Cenozoic corals of south Florida. Bulletins of American Paleontology, 66(285):259-544.
TIME COVERAGE: 1974 ◊
SUMMARY: This citation is a guide to fossil corals found in South Florida.
KEY WORDS: Coral, Cenozoic, South Florida, Field guide

2179
Weiss, C. M. (1948) The abnormal development of tunicates attached to glass surfaces adjacent to antifouling paints. Ecology, 29(2):215-218.
TIME COVERAGE: 1948 ◊
SUMMARY: Abnormal and inhibited growth of tunicates was demonstrated on glass surfaces adjacent of antifouling paints.
KEY WORDS: Tunicates, *Symplegma viride*, Antifouling substances, Paints, Glass

2180
Weiss, C. M. (1947) The comparative tolerances of some fouling organisms to copper and mercury. Biol. Bull., 93(-):56-63.
TIME COVERAGE: 1947 ◊
SUMMARY: Anti-fouling paints were tested off Miami and Tahiti Beaches and barnacles were found to be the earliest organisms to attach themselves to the test panels.
KEY WORDS: Fouling organisms, Cu, Hg, Toxicity tolerance

2181
Weiss, C. M. (1947) The effect of illumination and stage of tide on the attachment of barnacle cyprids. Biol. Bull., 93(3):240-249.
TIME COVERAGE: 1947 ◊
SUMMARY: The rate of attachment of barnacles during daylight and night exposures, and the effect of artificial illumination of the collecting surface at night were investigated. Maximum attachment occurred during daylight hours.
KEY WORDS: Barnacles, Biological attachment, *Balanus improvisus*, Light effects, Tidal effects

2182
Weiss, C. M. (1948) Observations on the abnormal development and growth of barnacles as related to surface toxicity. Ecology, 29(1):116-119.
TIME COVERAGE: 1948 ◊
SUMMARY: Barnacles attached to and growing on copper antifouling paints, copper alloys, and zinc were found to have the edge of the base deeply scalloped and the plates of the shell distorted. These specimens also had an extensive calcification of the base and were loosely attached to the substratum. This reaction was not found in barnacles attached to mercury antifouling paints or lead surfaces.
KEY WORDS: Barnacles, Abnormalities, Paints, Metals

2183
Weiss, C. M. (1948) An observation on the inhibition of marine wood destroyers by heavy fouling accumulation. Ecology, 29(1):120.
TIME COVERAGE: 1944 - 1945
SUMMARY: Greatest destruction by wood-destroying marine organisms was observed in pieces of wood with little or no fouling attachment, whereas heavily fouled surfaces showed little or no wood destruction.
KEY WORDS: Wood, Fouling organisms, Teredo, Limnoria

2184
Weiss, C. M. (1948) The seasonal occurrence of sedentary marine organisms in Biscayne Bay, Florida. Ecology, 29(2):153-172.
TIME COVERAGE: 1942 - 1946
SUMMARY: Records of monthly accumulations of fouling organisms were kept for four years at several sites in Biscayne Bay. Results showed marked seasonal variation in occurrence of intensity of the same fouling organisms.
KEY WORDS: Fouling organisms, Seasonal variations, Barnacles, Tunicates, Bryozoans, Tahiti Beach, Miami Beach, Species list

2185
Weiss, C. M. (1948) Seasonal and annual variations in the attachment and survival of barnacle cyprids. Biol. Bull., 94(1):236-243.
TIME COVERAGE: 1943 - 1945

SUMMARY: Daily barnacle attachment and water quality data were recorded. No relationship between settling and changes in temperature were established. Seasonal variations were observed.
KEY WORDS: Barnacles, Biological attachment, Diurnal variations, Periodic variations, Miami Beach

2186
West, J. A., and G. C. Zuccarello (1995) New records of *Bostrychia pinnata* and *Caloglossa ogasawaraensis* (Rhodophyta) from the Atlantic U.S. Botanica Marina, 38(4):303-306.
TIME COVERAGE: 1995 ◊
SUMMARY: Collections of red algae were made in the southwestern US including the Miami River. The plants in culture do not reproduce. All the culture isolates developed as tetrasporophytes.
KEY WORDS: *Bostrychia pinnata*, *Caloglossa ogasawaraensis*, Red algae, Miami River, Algae, Rhodophyta

2187
Wetherell, V., and A. Nielsen (1991) Biscayne Bay - Card Sound: Aquatic preserve management plan. Report. Bureau of Sumerged Lands and Preserves, Florida Dep. of Natural Resources, Tallahassee, FL. 184 pp.
TIME COVERAGE: 1991 ◊
SUMMARY: Biscayne Bay-Card Sound Aquatic Preserve is located in Monroe County and covers approximately 17,000 acres of seagrass meadows, hard bottom communities and mangrove wetlands. The preserve is characterized as a relatively pristine, shallow lagoon system of the northern Florida Keys and southern Biscayne Bay. The preserve encompasses critical habitat for the endangered West Indian manatee, and is particularly recognized as one of the only remaining habitat areas for the American crocodile. Impacts to the resources include propeller and grounding damage to grassbeds, extended boat anchoring which shades grassbeds, fishing and marine life collecting which introduce gear and chemicals that impact species. Development is also a growing threat to the preserve, particularly from developments on north Key Largo and Pumpkin Key.
KEY WORDS: Seagrass, Community composition, Marine parks, Habitat, Florida Keys,

2188
Weymouth, R. (1997) Economic considerations for Virginia Key Beach Park. Unpublished student report. Division of Marine Affairs, Rosenstiel School of Marine and Atmopsheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Land use, Recreation, Economic analysis, Virginia Key

2189
Whelan, C. W. (1998) Extraction of nearshore directional wave spectra from VHF radar Doppler spectra. M.Sc. thesis. University of Miami, Coral Gables, FL. 51 pp.
TIME COVERAGE: 1998 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Wave spectra, Radar, Doppler effect, Nearshore currents, Key Biscayne

2190
Whelan, M. P. (1994) Structural waste generated by Hurricane Andrew. M. S. thesis. Florida International University, Miami, FL. 94 pp.
TIME COVERAGE: 1992

SUMMARY: This study provided an accurate evaluation of the three most popular roof coverings used in South Florida and damaged experienced by these coverings during Hurricane Andrew. Experimental values included estimated wind speed, percent of damage, distance from Biscayne Bay, distance to eye wall, and roof covering.
KEY WORDS: Hurricane Andrew, Structural damage

2191
White, W. A. (1970) The geomorphology of the Florida peninsula. Geological bulletin 51. Florida Department of Natural Resources, Bureau of Geology, Tallahassee, FL. 164 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: This paper describes the geology of South Florida.
KEY WORDS: Geomorphology, Landforms, Florida

2192
Whited, C. (1986) Biscayne Bay is nature's living classroom. The Miami Herald, Miami, FL. December 6. Local. 1B.
TIME COVERAGE: 1986 ◊
SUMMARY: This brief article describes Bay ecology and the planned Biscayne Nature Center.
KEY WORDS: Biscayne Nature Center

2193
Whoriskey, P. (1999) Stiltsville headed for a watery grave. The Miami Herald, Miami, FL. April 1. 1.
TIME COVERAGE: 1999
SUMMARY: This article discusses the continuing controversy over the status of Stiltsville, and its possible designation as a historical landmark.
KEY WORDS: Stiltsville, Biscayne National Park

2194
Wicker, J. A. (2000) Low-level monitoring of bottlenose dolphins in Biscayne Bay. Florida Scientist, 63(Suppl. 1):13.
TIME COVERAGE: 1994 - 2000?
SUMMARY: Low level monitoring in the Bay has been ongoing since 1994. All bottlenose dolphins that inhabit Biscayne Bay have been identified via photoidentification. Seasonality of abundance in the Bay was assessed.
KEY WORDS: Dolphins, *Tursiops truncatus*, Monitoring, Human interaction

2195
Wickham, D. A. (1967) Observations on the activity patterns in juveniles of the pink shrimp, *Penaeus duorarum*. Bull. Mar. Sci., 17(4):769-786.
TIME COVERAGE: 1967 ◊
SUMMARY: The daily pattern of locomotor and burrowing activity of juveniles of pink shrimp was observed in the laboratory under constant conditions of light intensity, water current, and water level. A bimodal pattern of nocturnal activity with a period of diurnal burrowing was observed near the times of the new and the full moon. This study indicated that activity of pink shrimp at any given time in the field is probably a resultant of the interaction of the environmental stimuli which are present and the rhythmic patterns of the previously experienced stimuli.
KEY WORDS: Pink shrimp, *Penaeus duorarum*, Juveniles, Circadian rhythms

2196
Wiegel, R. L. (1992) Dade County, Florida, Beach Nourishment and Hurricane Surge Protection Project. Shore & beach, 60(4):2-28.

TIME COVERAGE: 1992 ◊
SUMMARY: This paper summarizes data on the background, design, construction, maintenance and performance of the Dade County Beach Nourishment and Hurricane Surge Protection Project. An addendum regarding the effects of Hurricane Andrew was included.
KEY WORDS: Beach nourishment, Hurricanes, Storm surge, Beach Erosion Control and Hurricane Protection Project, Dade County, Hurricane Andrew

2197
Wiggins, L. (1995) The birth of the City of Miami. Tequesta, 55(-):5-38.
TIME COVERAGE: 1890s
SUMMARY: In 1895 the Brickell and Tuttle families, and H. M. Flagler were instrumental in the incorporation of the City of Miami. The Brickells and Tuttles owned land. Flagler owned the railroad. This article describes the process.
KEY WORDS: History

2198
Wilding, N. J. (1968) Osmotic behavior and water balance in *Acanthopleura granulata* (Gmelin) (Mollusca, Polyplacophora). M.Sc. thesis University of Miami, Coral Gables, FL. 46 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: This work is a study of the physiology and ecology of chitons.
KEY WORDS: Chitons, *Acanthopleura granulata*, Osmoregulation, Water balance, Soldier Key, Ragged Keys

2199
Willard, D. A., G. L. Brewster-Wingard, S. E. Ishman, B. R. Wardlaw, T. M. Cronin, and C. W. Holmes (1998) Ecosystem changes in south Florida over the last few millennia: climatic and anthropogenic controls. Abstracts with programs (Geological Society of America), 30(7):118.
TIME COVERAGE: 1998 ◊
SUMMARY: Analyses of biotic components (pollen, ostracodes, foraminifera and mollusks) from dated sediment cores collected in the Everglades, Florida Bay and Biscayne Bay provide a record of changes in hydroperiod, fires, salinity and seagrass dynamics. Over the past 200 years, Florida Bay and Biscayne Bay have been driven primarily by climatic and oceanographic factors. These patterns were disrupted in the 20th century resulting in higher salinity and seagrass abundance, probably reflecting water management practices and climatic changes.
KEY WORDS: Ecosystems, Climatic changes, Anthropogenic factors, Paleoecology, South Florida, Florida Bay, Everglades, Sediment cores

2200
Willard, D. A., G. L. Brewster-Wingard, T. M. Cronin, S. E. Ishman, and C. W. Holmes (1999) Impact of hydraulic changes on the Everglades/Florida Bay ecosystem: a regional, paleoecological perspective. Proc., 1999 Florida Bay and Adjacent Marine Systems Science Conf. Key Largo, FL, November 1-5, 1999. University of Florida, Gainesville, FL. 196-197.
TIME COVERAGE: 1900 - present?
SUMMARY: The response of the Everglades/Florida Bay ecosystem to hydrologic changes over the past century was investigated using floral and faunal assemblages in sediment cores as proxies for vegetation and environmental parameters. The combined terrestrial and marine records indicate that the major, system-wide biotic changes occurred by 1940, which coincides with the construction of primary canals and the Tamiami Trail which disrupted the sheet flow.
KEY WORDS: Sediment, Canals, Florida Bay, Hydrologic changes

2201
Willey, G. R. (1949) Excavations in Southeast Florida. Yale University publications in anthropology no. 42. Yale University Press, New Haven, CT. 137 pp.
TIME COVERAGE: 1949 ◊
SUMMARY: This is a description of the culture and artifact of the people who lived in southeast Florida in pre-Columbian times.
KEY WORDS: Archaeology, Belle Glade, Broward County, Dade County

2202
Williams, J. M., F. Doehring, and I. W. Duedall (1993) Heavy weather in Florida: 180 hurricanes and tropical storms in 122 years. Oceanus, 36(1):19-26.
TIME COVERAGE: 1871 - 1992
SUMMARY: Of the nearly 1000 cyclones of hurricane or tropical storm intensity formed from 1871 through 1992, about 180 have struck or passed near Florida. There appears to be a temporal pattern to tropical cyclones. From 1901 to 1930, there were fewer tropical storms than during the previous 30-yr period and the pattern of strikes shifted to more strikes from the southeast.
KEY WORDS: Storms, Hurricanes, Florida, Hurricane of 1926, Hurricane Andrew, Hurricane Betsy

2203
Williams, M. (1990) Trouble in paradise: in shadow of Miami, Stiltsville's days numbered. Atlanta Journal, April 8. Dixie Living. M01.
TIME COVERAGE: 1990 ◊
SUMMARY: Description of Stiltsville and plans to prevent rebuilding of the houses.
KEY WORDS: Stiltsville

2204
Williams, R. H. (1955) Florida seaweeds and their commercial use. Florida Board of Conservation educational series 7 (revised by G. L. Voss). Marine Laboratory, University of Miami, Coral Gables, FL. 18 pp.
TIME COVERAGE: 1955 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Seaweeds, Seaweed products, Florida

2205
Williams, R. H. (1945-1946) Seaweed utilization in south Florida. Quart. J. Fla. Acad. Sci., 8(2):161-170.
TIME COVERAGE: 1946 ◊
SUMMARY: This paper describes potential uses of seaweed, such as fertilizer and stockfeed, in Florida. Agar-bearing species were absent in Biscayne Bay and growth experiments were conducted to see if these plants could grow in South Florida conditions.
KEY WORDS: Seaweeds, Seaweed products, Agar

2206
Williams, W. (1983) Florida's Fabulous Waterbirds: Their Stories. National Art Services, Tampa, FL. (Unpaged.).
TIME COVERAGE: 1983 ◊
SUMMARY: This book contains photographs and brief descriptions of waterbirds found in Florida.
KEY WORDS: Aquatic birds, Florida

2207
Willingham, C. A. (1966) Studies on the mechanisms of mild steel corrosion in the marine environment with special reference to the sulfate reducing bacteria. Ph.D. dissertation University of Miami, Coral Gables, FL. 122 pp.
TIME COVERAGE: 1966 ◊
SUMMARY: A significant number of enrichment cultures obtained from marine environments are corrosive to metallic irons. This worked showed that sulfate reduction and anaerobic bacterial corrosion were not necessarily linked. Some samples were obtained in Virginia Key.
KEY WORDS: Sulfate reduction, Corrosion, Anaerobic bacteria, Virginia Key

2208
Willoughby, H. L. (1898) Across the Everglades: A Canoe Journey of Exploration. Florida Classics Library, Salerno, FL. 192 pp.
TIME COVERAGE: 1898 ◊
SUMMARY: This is an early account of exploration of the Everglades. The author departed Miami and traveled south via Biscayne Bay to Cape Sable. He traveled in the Everglades roughly west to east. The episode of the Seminoles and the vaseline is included in this book.
KEY WORDS: History, Everglades, Soldier Key, Florida Keys, Exploration, Cape Sable, Card Sound

2209
Willoughby, H. E., and P. G. Black (1996) Correction of Hurricane Andrew in Florida: dynamics of a disaster. Bulletin of the American Meteorological Society, 77(5):962.
TIME COVERAGE: 1992
SUMMARY: Correction to paper by same authors.
KEY WORDS: Wind speed, Hurricane Andrew

2210
Willoughby, H. E., and P. G. Black (1996) Hurricane Andrew in Florida: dynamics of a disaster. Bulletin of the American Meteorological Society, 77(3):543-549.
TIME COVERAGE: 1992
SUMMARY: This paper describes the effect of Hurricane Andrew on South Florida.
KEY WORDS: Wind speed, Hurricane Andrew

2211
Wilson, M. (1993) The time bomb. The Miami Herald, Miami, FL. Tropic Magazine. 13-23.
TIME COVERAGE: 1987 - 1993
SUMMARY: In 1987, Dade County officials realized that an ancient sewer main was about to turn Biscayne Bay into the world's largest toilet. This article describes the six-year effort to remedy this situation.
KEY WORDS: Sewage, Pollution, Cross Bay Line

2212
Wilson, S. U. (ed.) (1975) Biscayne Bay: environmental and social systems. Sea Grant special report 1. University of Miami Sea Grant Program, Coral Gables, FL. 52 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Natural resources, Environmental management, Regional planning, Water policy

2213
Wiman, S. K., and W. G. McKendree (1975) Distribution of *Halimeda* plants and sediments on and around a patch reef near Old Rhodes Key, Florida. J. Sed. Petrol., 45(2):415-421.
TIME COVERAGE: 1975 ◊

SUMMARY: This paper describes the distribution of the green algae *Halimeda* and sediments in the platform lagoon off Old Rhodes Key to determine the overall contribution by this plant to the calcium carbonate regime. Seven species of Halimeda were found. Halimeda is a sediment producer and indirectly influences sediment accumulation by serving as a substrate for the attachment of other sediment-contributing organisms, binding sediment below the water-sediment interface, and trapping particles in suspension by locally reducing current velocities.
KEY WORDS: Algae, Halimeda, Seagrass, Coral reefs, Sedimentation, Corsair Patch Reef, Old Rhodes Key

2214
Windom, H. L., S. J. Schropp, F. D. Calder, J. D. Ryan, R. G. Smith, L. C. Burney, F. G. Lewis, and C. H. Rawlinson (1989) Natural trace metal concentrations in estuarine and coastal marine sediments of the southeastern United States. Environ. Sci. Technol., 23(3):314-320.
TIME COVERAGE: 1989 ◊
SUMMARY: Sediment samples were collected from estuarine and coastal marine areas of the US and analyzed for As, Co, Cr, Cu, Fe, Pb, Mn, Ni and Zn. The concentrations of As, Co, Cr, Cu, Fe, Pb, Mn, Ni and Zn covaried significantly with Al suggesting that natural aluminosilicate minerals are the dominant natural metal bearing phases. Cadmium and Hg did not covary with Al apparently due to the important contribution of organic phases. Many of the sediment samples from Biscayne Bay were contaminated with Pb and Zn
KEY WORDS: Sediment, Estuaries, Coastal waters, Sediment chemistry, Al, As, Co, Cr, Cu, Fe, Hg, Pb, Mn, Ni, Zn, Marine pollution, Savannah River, Pensacola Bay

2215
Winner, B. E. (1985) A Field Guide to Molluscan Spawn. Winner, B. E., North Palm Beach, FL. 139 pp.
TIME COVERAGE: 1985 ◊
SUMMARY: This citation is a field guide for the identification of spawn of marine gastropods, and an introduction to the various procedures of reproduction and fertilization. Many of the marine species discussed in the book can be found in Biscayne Bay.
KEY WORDS: Marine mollusks, Freshwater mollusks, Spawning, Field guide

2216
Wiseman, R. J. (1997) The geology, soils and hydrology of Virginia Key. Unpublished report. Division of Marine Affairs, Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL.
TIME COVERAGE: 1997 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Geology, Hydrology, Soils, Virginia Key

2217
Woelkerling, W. J. (1976) South Florida benthic marine algae: keys and comments. Sedimenta 5. Comparative Sedimentology Laboratory, Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL. 145 pp.
TIME COVERAGE: 1976 ◊
SUMMARY: This is a taxonomic guide to algae found in South Florida.
KEY WORDS: Algae, Benthos, Identification keys, South Florida

2218
Wood, E. J. F., W. E. Odum, and J. C. Zieman (1969) Influence of sea grasses on the productivity of coastal lagoons. In: Simp., Lagunas Costeras. A. Ayala-Castanares, and F. B. Phleger, (eds.). Mexico City, Mexico, 1967. Universidad Nacional Autonoma de Mexico, Mexico City, Mexico. 495-502.

TIME COVERAGE: 1969 ◊
SUMMARY: This citation describes the role of seagrasses in the productivity of coastal lagoon ecosystems.
KEY WORDS: Seagrass, Coastal lagoons, Biological production

2219
Wood, E. J. F., and J. C. Zieman (1969) The effects of temperature on estuarine plant communities. Chesapeake Sci., 10(3 & 4):172-174.
TIME COVERAGE: 1969 ◊
SUMMARY: This paper described the effect of thermal pollution and proposes the use of marine plants as indicators of environmental degradation caused by heat.
KEY WORDS: Turtle grass, Thalassia, Thermal pollution, Temperature effects

2220
Woodburn, K. D. (1963) Guide to the conservation of shorelines, submerged bottoms and saltwaters with special reference to bulkhead lines, dredging and filling. Educational bulletin 14. Marine Laboratory, Florida Board of Conservation, St. Petersburg, FL. 8 pp.
TIME COVERAGE: 1963 ◊
SUMMARY: Guidelines were proposed for the conservation of shorelines and wetlands. Bulkheads should be no farther offshore than Mean Low Tide. No dredging should be allowed beyond the bulkhead lines except for navigational channels and public projects. Offshore flats, bars, grasses, etc., should be left in their natural state. The bulkhead line should follow the natural contours of the shoreline. Draglining of navigable canals into upland developments should be discouraged. Pristine areas should be acquired and preserved. Upland shorelines suitable for urbanization should be developed under the highest waterfront standards.
KEY WORDS: Shore protection, Sea walls, Submerged shorelines, Water quality, Dredging, Coastal zone management

2221
Woodburn, K. D. (1962) Proposed dredge and fill area, south Biscayne Bay, Dade County, Florida. SAKSP Permits 62-278. FSBCML 62-17. BL no. 62-10. Florida State Board of Conservation, Marine Laboratory, St. Petersburg, FL. 9 pp.
TIME COVERAGE: 1962 ◊
SUMMARY: Large scale dredging bayward of the bulkhead line would affect at least 400 acres of productive Bay bottom and set a precedent for the attrition of marine resources in southern Biscayne Bay as ha occurred in northern Biscayne Bay.
KEY WORDS: Dredging, Sea walls, South Bay

2222
Woodburn, K. D. (1960) Spoil disposal recommendations for proposed dredging and fill by Sea-Dade Corporation in lower Biscayne Bay, Dade County, Florida. FSBCML 60-14, DS no. 60-2. Florida State Board of Conservation, Marine Laboratory, St. Petersburg, FL. 3 pp.
TIME COVERAGE: 1960 ◊
SUMMARY: This report describes a proposed dredge and fill operation in Featherbed Bank, one of the most productive marine habitats in the Bay.
KEY WORDS: Dredge spoil, Waste disposal, South Bay, Featherbed Bank

2223
Woodman, J. (1967) The Book of Key Biscayne: Being the Romance of Cape Florida. The Author, Miami, FL. 67 pp.
TIME COVERAGE: 1700s - 1967
SUMMARY: This is a short history of Key Biscayne from the beginning of the Spanish Conquista to the time of publication.

KEY WORDS: History, Key Biscayne, Cape Florida

2224
Woodmansee, R. A. (1958) The seasonal distribution of the zooplankton off Chicken Key in Biscayne Bay, Florida. Ecology, 39(-):247-262.
TIME COVERAGE: 1947 - 1948
SUMMARY: The seasonal cycle of zooplankton species was compared to water temperature, salinity and local rainfall. Seasonal distribution showed a sustained summer minimum followed by a brief but well defined maximum in October. The composition of the plankton community was described.
KEY WORDS: Zooplankton, Seasonal distribution, Chicken Key, Species list

2225
Woodmansee, R. A. (1949) The zooplankton off Chicken Key in Biscayne Bay, Florida. M.Sc. thesis. University of Miami, Coral Gables, FL. 110 pp.
TIME COVERAGE: 1947 - 1948
SUMMARY: The purpose of this work was to determine the seasonal occurrences of the various planktonic forms found off Chicken Key.
KEY WORDS: Zooplankton, Seasonal distribution, Chicken Key

2226
Wright, L. (1977) Troubled waters. New Times Magazine, May 13(-):27-43.
TIME COVERAGE: 1977 ◊
SUMMARY: This article describes the deterioration of some coastal habitats, including Biscayne Bay.
KEY WORDS: Fish diseases, Tumors, Chemical pollution, Pesticides, PCBs, Carcinogens, Kandrashoff, W.

2227
Wright, P. B., and H. B. Moore (1970) A contribution to the ecology of *Cyclinella tenuis* (Mollusca: Bivalvia). Bull. Mar. Sci., 20(3):793-801.
TIME COVERAGE: 1970 ◊
SUMMARY: This citation discusses the ecology of *Cyclinella tenuis* .
KEY WORDS: Venus clams, *Cyclinella tenuis*, Population density, Life history

2228
Wu, C. C., and K. A. Emanuel (1995) Potential vorticity diagnostics of hurricane movement. Part II: Tropical Storm Ana (1991) and Hurricane Andrew (1992). Mon. Weather Rev., 123(1):93-109.
TIME COVERAGE: 1992
SUMMARY: This citation applies a new method for understanding hurricane movement using potential vorticity diagnostics to Tropical Storm Ana and Hurricane Andrew.
KEY WORDS: Hurricanes, Cyclones, Vorticity, Tropical depressions, Hurricane Andrew

2229
Yang, W. T. (1971) The larval and postlarval development of *Parthenope serrata* reared in the laboratory and the systematic position of the Parthenopinae (Crustacea, Brachyura). Biol. Bull., 140(1):166-189.
TIME COVERAGE: 1965
SUMMARY: The larval development of this crab species was studied in the laboratory based on larvae produced by ovigerous females collected in Biscayne Bay.
KEY WORDS: Crabs, *Parthenope serrata*, Crustacean larvae, Laboratory culture

2230
Yang, W. T. (1967) A study of zoeal, megalopal, and early crab stages of some oxyrhynchous crabs (Crustacea: Decapoda). Ph.D. dissertation. University of Miami, Coral Gables, FL. 459 pp.
TIME COVERAGE: 1967 ◊
SUMMARY: This is a study of the early development of crabs. Some specimens were collected in Biscayne Bay.
KEY WORDS: Crabs, Majidae, Zoeae, Megalops, Crustacean larvae

2231
Yao, Y., L. M. Roulier, K. M. Higgins, M. L. Hayes, R. B. Halley, and J. H. Hudson (1999) Digitized images of coral growth bands, fluorescent growth bands and their age assignments from cores of *Montastrea faveolata*, Biscayne National Park, Upper Florida Keys. Open File rep. 99-340. USGS, Tallahassee, FL. CD-ROM.
TIME COVERAGE: 1999 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Coral, *Montastrea faveolata*, Growth, Core analysis, Age determination, Biscayne National Park

2232
Ye, S., and A. L. Andrady (1991) Fouling of floating plastic debris under Biscayne Bay exposure conditions. Mar. Pollut. Bull., 22(12):608-613.
TIME COVERAGE: 1991 ◊
SUMMARY: Studies under restricted floating, and restricted submerged exposure conditions suggest that most plastic samples undergo fouling to an extent to cause the sample to be negatively buoyant in seawater. Rapid defouling of the submerged fouled samples was observed. The findings suggest that free-floating plastics at sea may, under certain conditions, undergo fouling-induced sinking followed by resurfacing as floating debris.
KEY WORDS: Plastic debris, Fouling, Buoyancy

2233
Young, C. S. (1990) Cruising Guide to Eastern Florida. Pelican Publishing Company, Gretna, LA. 392 pp.
TIME COVERAGE: 1990 ◊
SUMMARY: This is cruising guide to eastern Florida including Biscayne Bay.
KEY WORDS: Boating, Marinas, Recreational waters, Intracoastal Waterway, East Florida, Guide

2234
Young, D. R., D. F. Baumgartner, S. C. Snedaker, L. R. Udey, M. S. Brown, and E. F. Corcoran (1990) Effects of wastewater treatment and seawater dilution in reducing lethal toxicity of municipal wastewater to sheepshead minnow (*Cyprinodon variegatus*) and pink shrimp (*Penaeus duorarum*). Res. J. Water Pollut. Control Fed., 62(-):763-770.
TIME COVERAGE: 1990 ◊
SUMMARY: This study was conducted to determine the effects of treatment and seawater dilution of municipal wastewater on marine organisms. Almost 100% mortality occurred for shrimp exposed to unchlorinated 30:1 seawater dilutions of primary-settled wastewater. Mortality could not be attributed to chemicals measured in the seawater.
KEY WORDS: Wastewater treatment, Dilution, Toxicity tests, Sheepshead minnow, *Cyprinodon variegatus*, Pink shrimp, *Penaeus duorarum*

2235
Young, G. K., M. T. Tseng, R. S. Taylor, G. F. Tierney, and M. R. Childrey (1971) Hydrodynamic and thermal analyses of Biscayne Bay. DOI NPS contract 14-10-9-900-269. Water Resources Engineers, Inc., Springfield, VA. Various paging.
TIME COVERAGE: 1970
SUMMARY: The purpose of this study was to assess the environmental impact of hydraulic and heat loading modifications proposed by the Florida Power and Light Co.
KEY WORDS: Hydrodynamics, Florida Power and Light Co., Thermal analyses

2236
Young, R. S., E. R. Thieler, and O. H. Pilkey (1993) Geologic and oceanographic factors mitigating the storm surge and flood damage of Hurricane Andrew in south Florida. Geology, 21(2):99.
TIME COVERAGE: 1992
SUMMARY: This paper discusses the reduced open-ocean-shoreline storm surge and coastal storm damage from Hurricane Andrew. Storm surge and waves from the hurricane were reduced because of the affected part of Florida is fronted by the reef flat of the Biscayne National Park, and on a larger scale, the Bahamas platform acted as a barrier.
KEY WORDS: Hurricanes, Storm surge, Flooding, Hurricane Andrew

2237
Yvon, S. A., J. M. C. Plane, C. F. Nien, D. J. Cooper, and E. S. Saltzman (1996) Interaction between nitrogen and sulfur cycles in the polluted marine boundary layer. J. Geophys. Res., 101(D1):1379-1386.
TIME COVERAGE: 1996 ◊
SUMMARY: Simultaneous measurements were reported of nitrate radical, nitrogen dioxide, ozone, and dimethylsulfide in the nighttime marine boundary layer over Biscayne Bay. These field observations were analyzed and used to initialize a boundary layer box model which examines the relative importance of the various sinks for nitrogen dioxide.
KEY WORDS: Boundary layers, Nitrogen cycle, Sulfur cycle

2238
Zale, A. V., and S. G. Merrifield (1989) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - reef-building tube worm. Biological rep. 82 (11.115). US Fish and Wildlife Service, National Wetlands Research Center, Slidell, LA. 12 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: The life history, growth characteristics, ecological role, environmental requirements, and morphology of the reef-building tube worm are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Tube dwellers, *Phragmatopoma lapidosa*, Reef formation, Life history

2239
Zale, A. V., and S. G. Merrifield (1989) Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (South Florida) - ladyfish and tarpon. Biological rep. 82(11.104). US Fish and Wildlife Service, National Wetlands Research Center, Slidell, LA. 17 pp.
TIME COVERAGE: 1989 ◊
SUMMARY: The nomenclature, taxonomy, morphology, life history, growth characteristics, fishery, ecological role, and environmental requirements of ladyship and tarpon are discussed. This report is one in a series on the life histories of marine life.
KEY WORDS: Ladyfish, *Elops saurus*, Tarpon, *Megalops atlanticus*, South Florida

2240
Zamanillo, J. (1999) Archeological monitoring and testing of the wetland restoration project at Bill Baggs Cape Florida State Recreation Area, Biscayne bay, FL. Tech. report #166. Archeological and historical Conservatory,
TIME COVERAGE: 1999 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Archeology, Bill Baggs Cape Florida State Recreation Area

2241
Zaneski, C. T. (1997) Air base decision praised: conservationists laud Clinton plan as "good first step". The Miami Herald, Miami, FL. January 19. Local. 8B.
TIME COVERAGE: 1997 ◊
SUMMARY: This article described the Clinton Administration decision to require studies of how the planned redevelopment of Homestead Air Force Reserve Base will affect the Biscayne Bay and the Everglades. The Base was destroyed by Hurricane Andrew.
KEY WORDS: Homestead Air Force Base, Hurricane Andrew

2242
Zaneski, C. T. (1995) Biscayne Bay - muddy no more. The Miami Herald, Miami, FL. May 7. Local. 1B.
TIME COVERAGE: 1995 ◊
SUMMARY: This article describes efforts to reduce the amount of suspended material in Biscayne Bay waters including restoration of mangrove wetlands, planting of native trees and shrubs on the man-made islands, edging shorelines with limestone boulders and creation of artificial reefs in silty depressions in the bay bottom.
KEY WORDS: Suspended sediment, Restoration

2243
Zaneski, C. T. (1999) Contaminated canal: EPA study confirms toxins from air base. The Miami Herald, Miami, FL. January 15. -.
TIME COVERAGE: 1999 ◊
SUMMARY: Military canal connects the Homestead Air Force Base with Biscayne Bay. The canal carries runoff from the base and it is considered to be contaminated.
KEY WORDS: Homestead Air Force Base, Military Canal, Pollution

2244
Zaneski, C. T. (1995) Grass proves restoration clearly works. The Miami Herald, Miami, FL. May 7. Local. Section B. 1-2.
TIME COVERAGE: 1995 ◊
SUMMARY: During the 1980s, scientists identified mud as a major culprit in the deterioration of Biscayne Bay. Natural sediment traps such as mangroves were installed and the results have proved promising.
KEY WORDS: Sediment, Mangroves

2245
Zaneski, C. T. (1997) Honoring hero of the Bay: Hoover heir fought for environment. The Miami Herald, Miami, FL. March 15. Local. 1B.
TIME COVERAGE: 1960s
SUMMARY: This article describes the plan to build a massive oil refinery east of Homestead Air Force Base. Opposition to the plan was organized by H. W. Hoover, heir to the vacuum cleaner fortune. Hoover's effort terminated the refinery scheme and made possible Biscayne National Park.
KEY WORDS: Oil refinery, Biscayne National Park

2246
Zaneski, C. T. (1998) A natural treasure at risk: boaters take toll on park. The Miami Herald, Miami, FL. August 10. Section A.
TIME COVERAGE: 1998 ◊
SUMMARY: This articles describes the problem of propeller scarring of seagrass beds in Biscayne National Park.
KEY WORDS: Seagrasses, Propeller scars, Biscayne National Park

2247
Zaneski, C. T. (1997) "We can take the Bay back". The Miami Herald, Miami, FL. November 10. Local. 1B.
TIME COVERAGE: 1997 ◊
SUMMARY: This article described the continuing efforts to rehabilitate Biscayne Bay.
KEY WORDS: Sediment, Mangroves, Restoration

2248
Zeiller, W. (1981) The management of West Indian manatees (*Trichechus manatus*) at the Miami Seaquarium. In: Proc., The West Indian Manatee in Florida. R. L. Brownell, and K. Ralls, (eds.). Orlando, FL, 1978. Florida Audubon Society, Maitland, FL. 103-110.
TIME COVERAGE: 1978 ◊
SUMMARY: This citation describes the Miami Seaquarium manatee management procedures and facilities. Lorelei, the first manatee calf known to be have conceived in captivity, was born in 1975 at the Seaquarium.
KEY WORDS: West Indian manatee, *Trichechus manatus*, Captivity, Aquaria, Miami Seaquarium

2249
Zeiller, W. (1965) Miami Seaquarium marine microbiological survey. 2 parts: 8 pp + graphs,. Miami Seaquarium, Miami, FL.
TIME COVERAGE: 1964
SUMMARY: This report describes the results of microbiological testing in and around the Miami Seaquarium
KEY WORDS: Microbiological analysis, Bacteriology, Miami Seaquarium, Virginia Key

2250
Zeiller, W. (1971) The purple wind. Sea Frontiers, 17(6):372-377.
TIME COVERAGE: 1971 ◊
SUMMARY: This article describes the Portuguese man-of-war and the ecosystem associated with this animal.
KEY WORDS: Siphonophores, Portuguese man-of-war, *Physalia physalis*, Purple sail, *Velella velella*, Violet sea snail, Ianthina, Nudibranchs, Sea slugs, *Fiona pinnata*, Man-of-war fish, Nomeus

2251
Zieman, J. C. (1976) The ecological effects of physical damage from motor boats on turtle grass beds in southern Florida. Aquatic Bot., 2(-):127-139.
TIME COVERAGE: 1973
SUMMARY: Turtle grass beds do not recover rapidly following physical disturbance of the rhizome system. This is a commonly caused in shallow waters by propellers of motor boats. Several stations in Biscayne and Florida Bays were visited to inspect boat tracks and to sample disturbed and undisturbed sediments. Cuts in *Thalassia* beds commonly require more than 2 years to recolonize.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Motor boats, Damage

2252
Zieman, J. C. (1982) The ecology of the seagrasses of south Florida: a community profile. FWS/OBS-82/25. US Fish and Wildlife Service, Office of Biological Services, Washington. 158 pp.
TIME COVERAGE: 1982 ◊
SUMMARY: This citation is an excellent discussion of the seagrass ecosystem. Included are descriptions of the seagrass community, trophic relationships, interfaces with other systems, and anthropogenic impacts.
KEY WORDS: Seagrass, Aquatic communities, Ecosystem management, Species list, South Florida

2253
Zieman, J. C. (1970) The effects of a thermal effluent stress on the sea-grasses and macro-algae in the vicinity of Turkey Point, Biscayne Bay, Florida. Ph.D. dissertation. University of Miami, Coral Gables, FL. 129 pp.
TIME COVERAGE: 1970 ◊
SUMMARY: Naturally occurring plant distributions in the Turkey Point effluent area was due primarily to substrate type. Decreases in the plant populations due to the heated effluent were detected when the ambient Bay water reached 26 - 28 °C. Elevated temperatures in the summer caused depressions in both species numbers and algal species diversity, and was accompanied by an increase in blue-green algae. *Thalassia* was the most resistant plant to the heat stress but once killed off it did not return.
KEY WORDS: Seagrass, Algae, Temperature effects, Thermal pollution, Turkey Point, *Thalassia testudinum*

2254
Zieman, J. C. (1972) Origin of circular beds of *Thalassia* (Spermatophyta: Hydrocharitaceae) in south Biscayne Bay, Florida, and their relationship to mangrove hammocks. Bull. Mar. Sci., 22(3):559-574.
TIME COVERAGE: 1972 ◊
SUMMARY: Circular to tear-drop beds of *Thalassia* were found in southwestern Biscayne Bay. The circular areas almost always occurred over depressions in the bedrock that are filled with autochthonous mangrove peat. The circular beds were often surrounded by a white halo of worm and callianassid burrows. Dated mangrove peat from beneath a *Thalassia* bed was 3680 years old. A possible interpretation is that in this area the mangrove shoreline receded as sea level rose and Thalassia then colonized the planned-off hammocks.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Mangrove swamps

2255
Zieman, J. C. (1975) Quantitative and dynamic aspects of the ecology of turtle grass, *Thalassia testudinum*. In: Estuarine Research. 2nd Internatl. Estuarine Research Conf. L. E. Cronin, (ed.). Myrtle Beach, SC, 1973. Academic Press, New York, NY. Vol.1: 541-562.
TIME COVERAGE: 1975 ◊
SUMMARY: This citation is a discussion of the ecology of *Thalassia*.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Biological production, Brackishwater environment

2256
Zieman, J. C. (1975) Seasonal variation of turtle grass, *Thalassia testudinum* König, with reference to temperature and salinity effects. Aquatic Bot., 1(-):107-123.
TIME COVERAGE: 1969 - 1970

SUMMARY: Productivity, standing crop, leaf length, blade density, and other biotic variables of *Thalassia testudinum* undergo seasonal changes and reach maximum values during the warmer summer months. The data were collected at 5 stations in southern Biscayne Bay along the thermal gradient of the Turkey Point Power Plant cooling canal.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Seasonal variations, Temperature effects, Salinity effects, Turkey Point Power Plant

2257
Zieman, J. C. (1968) A study of the growth and decomposition of the sea-grass, *Thalassia testudinum*. M.Sc. thesis. University of Miami, Coral Gables, FL. 50 pp.
TIME COVERAGE: 1968 ◊
SUMMARY: This work is a study of the growth and decomposition of *Thalassia*. Measured were growth rate, dynamics of the blade community, and the time required for blades to be replaced. *Thalassia* did not appear to be grazed directly. Rather the lead material was allowed to decay and then consumed as detritus.
KEY WORDS: Turtle grass, *Thalassia testudinum*, Growth, Degradation, Soldier Key

2258
Zieman, J. C., and E. J. F. Wood (1975) Effects of thermal pollution on tropical-type estuaries, with emphasis on Biscayne Bay, Florida. In: Tropical Marine Pollution. E. J. F. Wood, and R. E. Johannes (eds.). Elsevier oceanography series 12. Elsevier, Amsterdam, The Netherlands. 192 pp.
TIME COVERAGE: 1975 ◊
SUMMARY: [COPY NOT AVAILABLE.]
KEY WORDS: Estuaries, Thermal pollution, Turkey Point

2259
Zika, R. G., E. Saltzman, W. L. Chameides, and D. D. Davis (1982) H_2O_2 levels in rainwater collected in south Florida and the Bahama Islands. J. Geophys. Res., 87(C7):5015-5017.
TIME COVERAGE: 1982
SUMMARY: No systematic trends were found in measurements of hydrogen peroxide in rainwater collected in Miami and the Bahamas. The data suggest that a substantial fraction of the hydrogen peroxide found in precipitation is generated by aqueous phase reactions within the cloudwater rather than via rainout and washout of gaseous hydrogen peroxide.
KEY WORDS: Hydrogen peroxide, Rain

Appendix II.

Biscayne Bay annotated bibliography subject index

Appendix III.

Biscayne Bay annotated bibliography author index

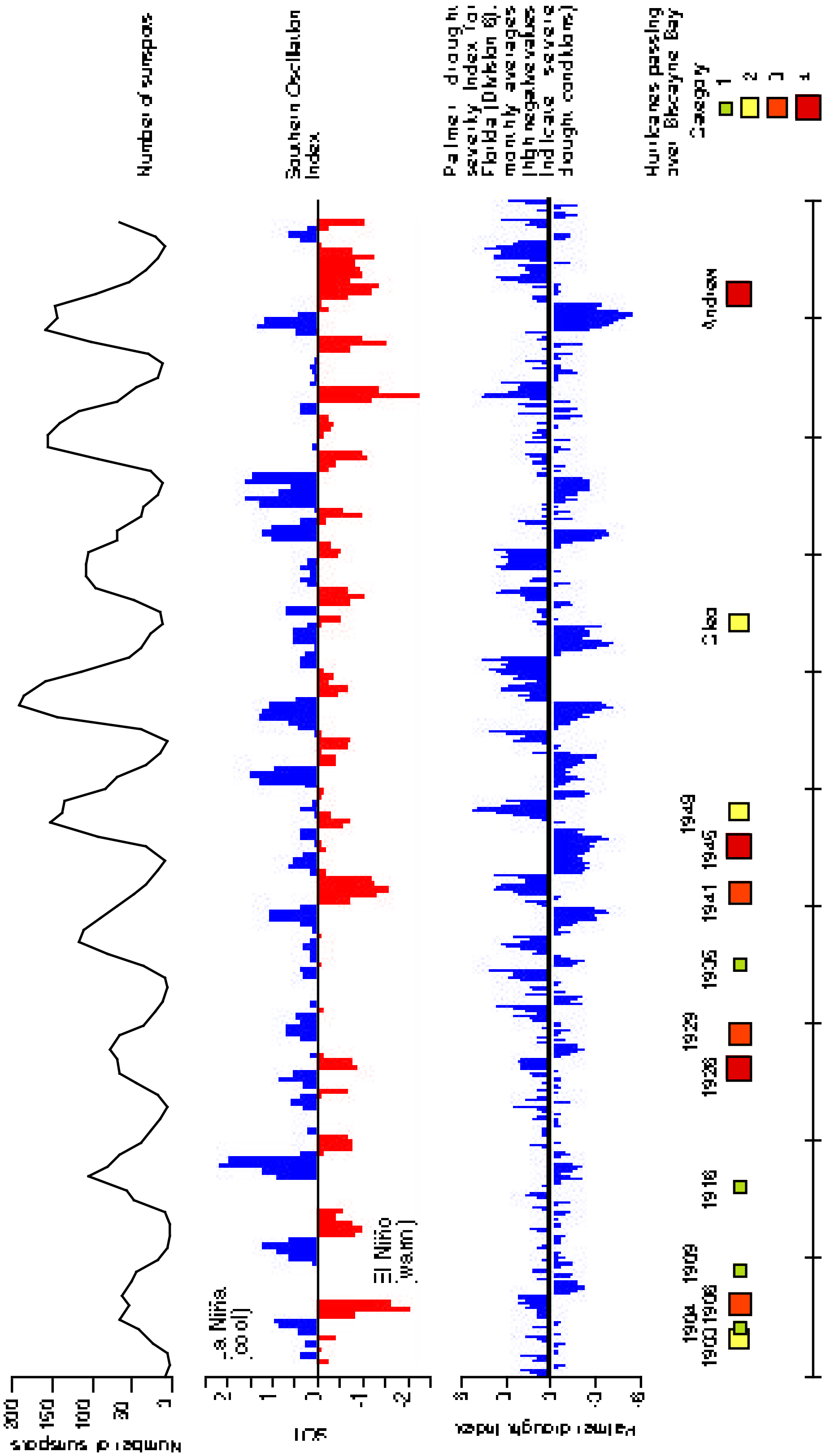

Figure IV.1. Sunspot cycles, El Niño and La Niña years, drought index and hurricanes.

Figure IV.2. Sea level rise, soil subsidence and human population.

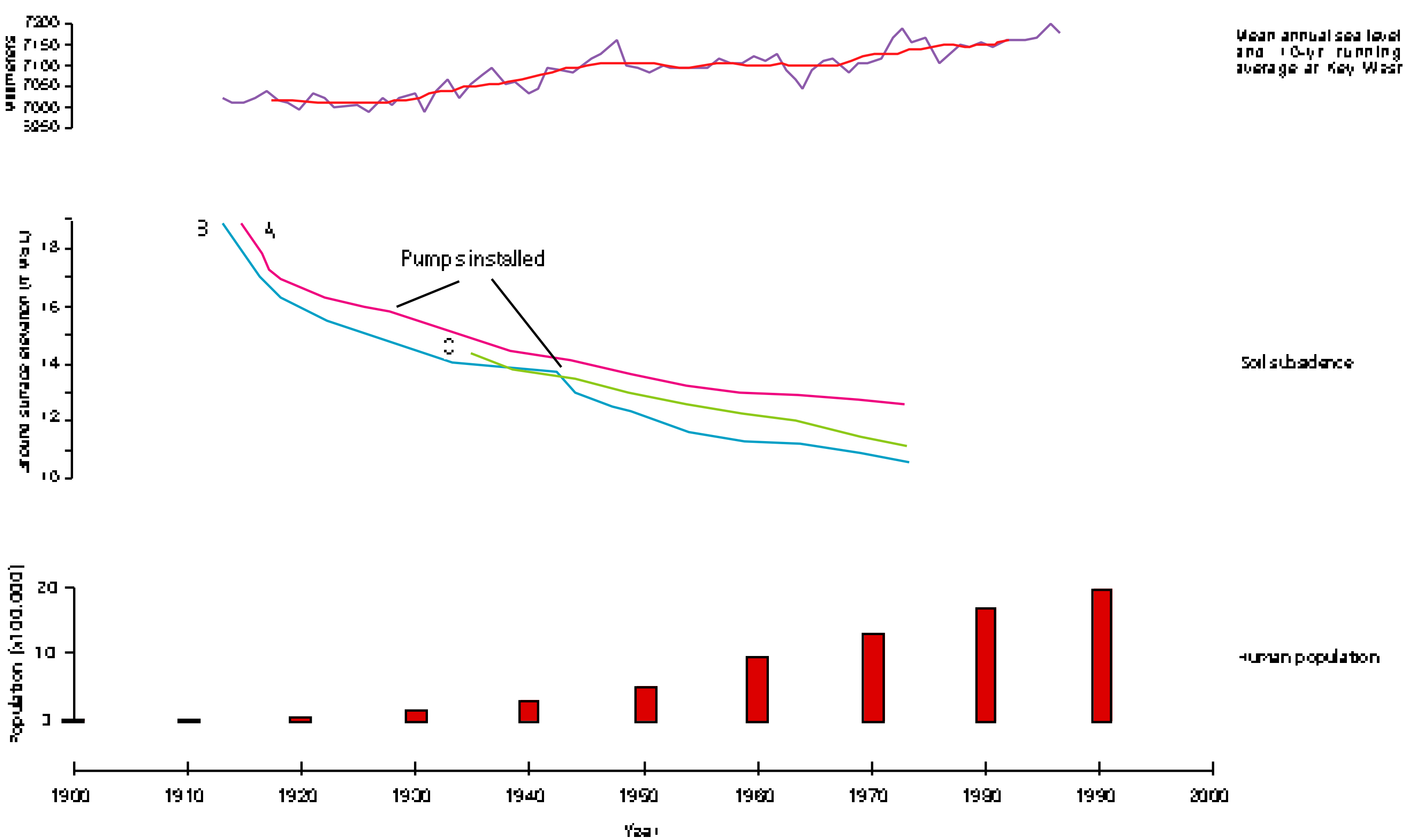

Figure IV.3. Islands, causeways, channels and cuts

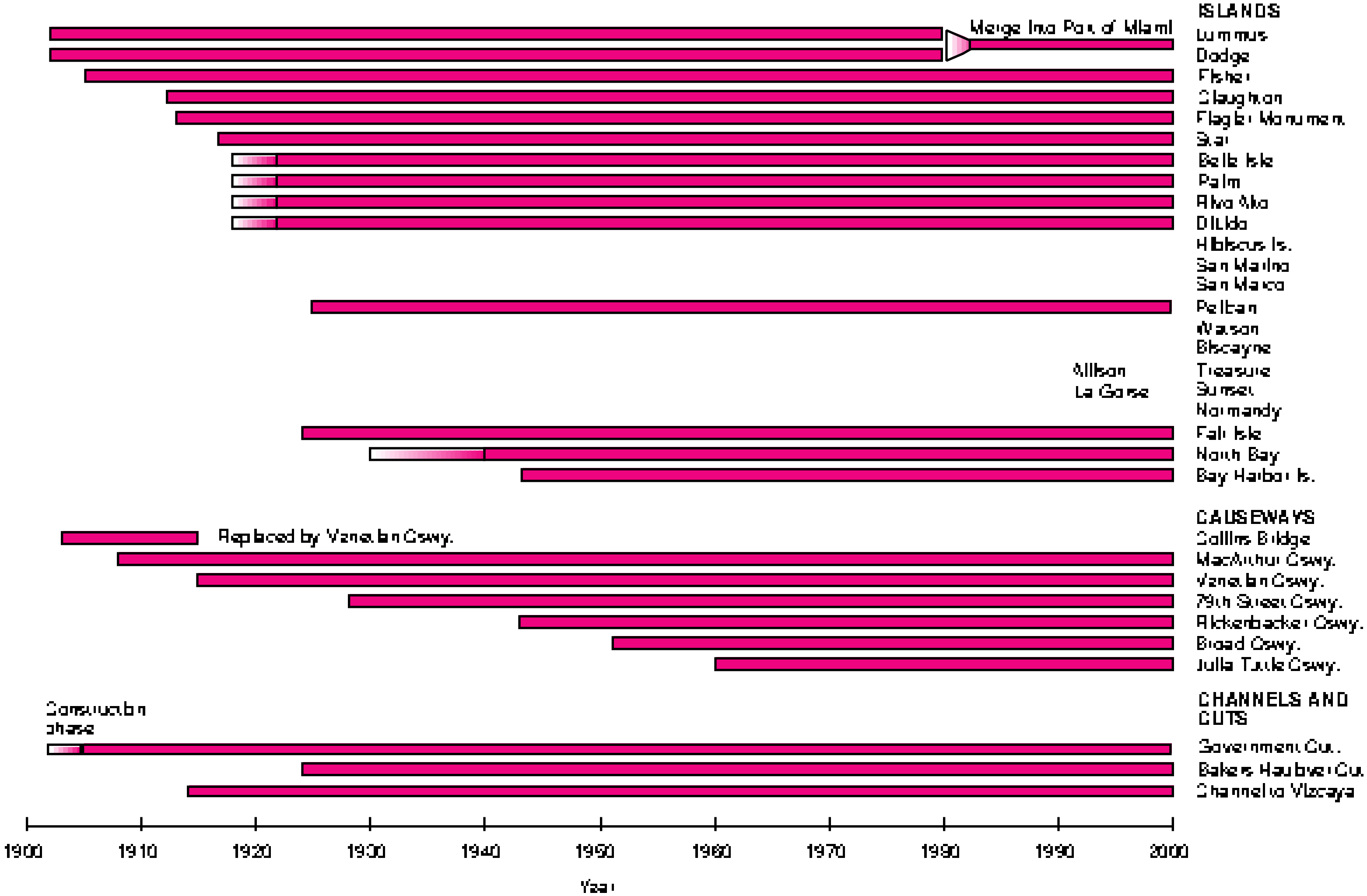

Figure IV.4. Parks and related material, and defense facilities.

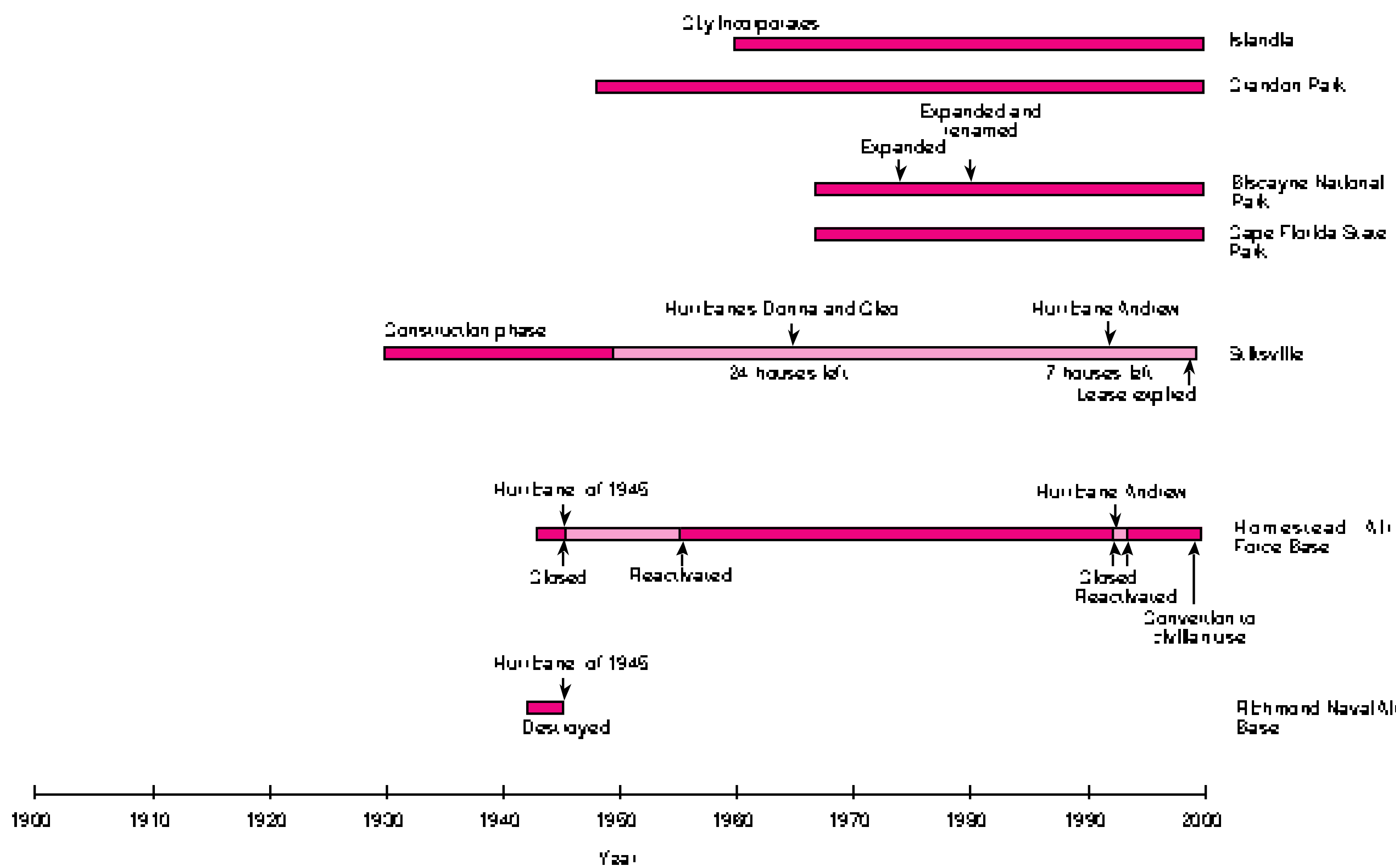

Figure IV.5. Port of Miami, Turkey Point Power Plant and legislation.