

FLORIDA KEYS NATIONAL MARINE SANCTUARY ADVISORY COUNCIL

**February 20, 2007
Marathon Garden Club**

FINAL MINUTES

Members Present:

Chris Bergh	Ken Nedimyer
Jack Curlett	Krueger Nicholson
Richard Grathwohl	George Neugent
Bruce Popham	David Hawtof
Deborah Shaw	
Jerry Lorenz	
Martin Moe	
Gary Randolph	
Don Kincaid	
Todd Firm	

Alternates Present:

Peter Frezza
Scott Zimmerman

Call to Order/Approval of Minutes from June 20th, 2006 Meeting/Adoption of the Agenda

Chair Bruce Popham called the meeting to order at 9:15 a.m. The minutes of the December 12 meeting were approved as presented. The agenda was adopted with the addition of one item: discussion of the Biscayne National Park Fisheries Management Plan. David Hawtof suggested adding an item about the one-month red grouper commercial fishery closure. Because the agenda for this meeting was so full, this item could not be added at this time.

Introductions

Chair Bruce Popham welcomed Superintendent of Everglades National Park Dan Kimball and the new agency representative from the South Florida Water Management District, Keys office, Cecelia Weaver. Chair Popham recognized Officer Burns who introduced Colonel Mike Wiwi, who is now in charge of South Operations and Major Mike Edwards, new Region Commander, who replaced Skip Russo. A welcome was extended to the new officers.

Chairman's Comments

Chair Popham emphasized that the Eco-Discovery Center was a world-class facility with a fantastic movie. He invited everyone to visit the center if they have not done so already. Chair Popham pointed out that there are still *Sea Stars* for the walkway that are may be purchased as a fund-raiser for the facility.

Chair Popham's quote for the day came from Bill Gates, "Vision without execution is daydreaming." The SAC is an organization that puts its visions into action.

Regional Director's Report

Southeast Regional Director Dr. Billy Causey reported that he and Dave Score had recently returned from interviewing nine very capable candidates for the superintendent of Gray's Reef National Marine Sanctuary. The position should be filled soon. Gray's Reef NMS one of the three sanctuaries in the southeast region.

Dr. Causey emphasized that the regional level is supportive of the sanctuary field sites and is not another layer of bureaucracy. The sanctuary program continues to rely on science to define the geographic boundaries and to drive its decisions. In the first week of March, an expedition that involves exploring the Flower Gardens Banks using the Navy's nuclear sub, *NR I*, will be launched. It is the *NR I*'s last mission before the sub is retired. Dr. Bob Ballard is leading the expedition, which involves exploring deepwater banks and examining paleo-shorelines for evidence of past civilizations. Superintendent G. P. Schmahl will be representing the southeast region on the expedition. Portions of the expedition will be transmitted through live telemetry to viewing sites around the country.

In late February, Dr. Causey and Commander Score will be attending leadership team meetings in Washington. During the following week, they will be meeting with Congressional Representatives and Senators on Capitol Hill.

Sanctuary Superintendent's Report

Commander Score reported that the Eco-Discovery Center has been open to visitors and running well. It is a great outreach tool and provides endless educational opportunities. The sanctuary has been working closely with the Sanctuary Friends Foundation of the Florida Keys to develop marketing and use strategies for the Eco-Discovery Center. One strategy involves working with the City of Key West and tour operators to get a trolley stop outside the facility.

Commander Score acknowledged Nancy Diersing and Nick Tagliareni for preparing and coordinating the SAC meeting. The sanctuary will be interviewing for the SAC coordinator position in early March, with input from Chair Popham.

There were five vessel groundings during the past two weeks. Until then, it had been a relatively quiet winter season for groundings. A large industrial buoy from the Gulf floated into Pickles Reef and poses a threat to sanctuary resources. Upper Region Manager John Halas added that sanctuary staff is working to remove the line from below the buoy so that it can be towed.

Commander Score offered to request that NOAA Fisheries provide a representative at future SAC meetings to offer advice and answer questions on fisheries matters.

Sanctuary Education Specialist Ivy Kelley gave the education report. Ms. Kelley listed the many activities conducted by outreach staff, including setting up information booths at numerous festivals and events in the Keys and on the mainland, giving presentations to clubs and associations, meeting to discuss the education budget and website redesign, and talking with the Sanctuary Friends who have agreed to fund the *Teacher Grants* program. Education staff is also working with the Literacy Volunteers of Monroe County to submit a full proposal for a NOAA Oceans Literacy Grant. The pre-proposal has already been accepted. For the spring season, the sanctuary welcomes new volunteers for Team OCEAN and Coral Reef Classroom. Education is also in the process of hiring a new educator for the Eco-Discovery Center.

Communications Coordinator Cheva Heck provided an overview of the newly launched *Dolphin Smart* program, which provides guidelines for charter operators who are involved in viewing wild dolphins. This voluntary program recognizes operators who adhere to standards set to protect wild dolphins. NOAA's Office of Law Enforcement, NOAA fisheries, the Dolphin Conservation Society, and the sanctuary are partners in this program. Nine operators have signed up for the first training session to be held this month. *Dolphin Smart* is similar to another sanctuary program called *Blue Star*, which sets standards for dive operators. Cheva Heck acknowledged that the Dolphin Smart program was developed to address issues that were raised before the SAC several years back by concerned dolphin viewing operators.

Commander Score congratulated Everglades National Park Superintendent Dan Kimball for the successful establishment of a Research Natural Area (RNA) in Dry Tortugas National Park. When combined with the Sanctuary's Tortugas Ecological Reserve, this area represents nearly 250 square miles closed to fishing. Superintendent Kimball thanked members of the SAC for their support in establishing the RNA. The SAC showed its support for this designation by having SAC representatives make presentations to the Governor and Cabinet prior to their vote on the matter. Superintendent Kimball presented plaques thanking the following members: Bruce Popham, George Neugent, and Richard Grathwohl. The three plaque recipients briefly addressed the SAC, thanking the SAC for its support in this endeavor. Similar plaques had already been presented to Billy Causey, Debra Harrison, and Jack Curlett at other meetings. Superintendent Kimball asked Kent Edwards to accept the plaque for Stephanie Bailenson, who was very instrumental in toward the end of the process. He also acknowledged the assistance of former Secretary Colleen Castille and Ms. Bailenson's predecessor, "Kacky" Andrews.

Commissioner Neugent presented Bill Erhorn, owner of the Marathon Jet Center, with a plaque to thank him for flying SAC members to speak before the Governor and Cabinet in support of the Dry Tortugas Research Natural Area. Mr. Erhorn was a true friend when he flew George, Bruce, Jack, and Richard to Tallahassee at no cost and at the last minute so that they could voice the SAC's support on this important topic. Commissioner Neugent spoke on behalf of the SAC and Sanctuary Friends Foundation of the Florida Keys when he recognized Mr. Erhorn.

Florida Department of Environmental Protection (DEP) Report

Lower Region Manager Kent Edwards gave the report for Stephanie Bailenson, Director of Coastal and Aquatic Managed Areas (CAMA). Ms. Bailenson provided some budget numbers from the legislature for the Ocean and Coastal Resources Council. The budget provides \$250,000 for two FTE positions and operational support and 7.5 million for data management and water quality research. Oceans Day will be held at the State Capitol Building in Tallahassee on April 18. Nancy Diersing will be on hand to answer questions and provide information at the sanctuary's Oceans Day booth, which will be located next to the DEP's Coastal and Aquatic Managed Areas (CAMA) booth.

There are several DEP positions that are currently being filled in the areas of mooring buoy maintenance, administration, and education. The SAC coordinator position is also in the process of being filled. He acknowledged the work that current staff has done to fill in while these positions have been vacant.

DEP's new Secretary, Mike Sole has worked in DEP for many years and has experience in many aspects of the system. Secretary Sole is known to be a very well educated and concerned person who is a good administrator, diver, and resource manager.

DEP funding has become available through the legislature for hiring a contractor to remove illegal lobster habitats (casitas) from areas in the backcountry. This project is a partnership between NOAA and state of Florida. Identifying the location of the sites will begin soon and removal of the casitas is expected to begin in June.

U.S. Fish & Wildlife Service (USFWS) Report

Anne Morkill, Manager for the Refuges of the Florida Keys, reported that Great White Heron National Wildlife Refuge (NWR) is hiring a second law enforcement officer whose focus will be the backcountry near Key West. Refuge personnel from the Big Pine Key office are also helping staff the Eco-Discovery Center. An intern will be hired through the Student Conservation Association to work in the Eco-Discovery Center. Refuge staff recently discovered a very vibrant population of the state endangered butterfly species called the Miami Blue in the Marquesas Keys and Boca Grande (Key West NWR).

The year 2007 is the 50th anniversary of the Key Deer NWR. As part of this celebration, a video biography is being put together with stories about Jack Watson. The video will be shown at the 50th anniversary celebration in August. Anyone who has stories to contribute, please contact: Anne Morkill. The year 2008 is the 100th anniversary for the Key West NWR. Crocodile Lake NWR Manager Steve Klett will give a presentation this afternoon at 1:30 pm about a proposal to use fill from 18-mile stretch highway project to restore two acres of hardwood hammock in North Key Largo.

Florida Fish & Wildlife Conservation Commission (FWC) Report

John Hunt reported that the MOA to establish the Dry Tortugas Research Natural Area (RNA) has been signed by the Dry Tortugas National Park and the FWC. The FWC now has 90 days to hold a public workshop on the draft science and monitoring plan. Staff

from the involved agencies met recently to prioritize topics for the monitoring plan. Copies of the draft plan will be provided to the SAC. It is important for representatives from the SAC to provide input at the upcoming public workshop to offer the citizen's perspectives. A final plan will be produced within 90 days of the workshop and will be presented at the FWC meeting probably in December in Key Largo. In three years, an interim report will be generated. In five years, a report will be sent to the Governor and Cabinet.

FWC has responded to the mutton snapper issue raised by Brad Simonds. The first meeting of the mutton snapper SEDAR for Florida will be in the Marathon Garden Center on April 17 and 18th. It will be the SEDAR (Southeast Data Assessment Review) process, which is the same process for all federal stock assessments. Stakeholders are requested to attend, along with interested members of the SAC.

The Spiny Lobster Advisory Board recently met with FWC staff and lobster fishermen to draft a plan to relax some of the rules that will aid in commercial trappers recovering their gear after hurricanes without breaking the law. This should improve cleanups after storms. Team OCEAN Coordinator Jacqueline Laverdure brought up the issue of traps in the Sanctuary Preservation Areas and the difficulty in removing them lawfully. The possibility of changing the rules to allow for retrieval of the traps by non-government personnel was discussed and agreed upon by the trappers who were present at the meeting. This proposed rule change will go through the FWC process.

A *Saltwater Fishing Forum* about the future of saltwater fishing in Florida will be held on March 22, 6-8 pm at the County Government Building in Marathon.

A *Wild Florida* television program about stone crabs and lobster will be broadcast next week. The show's producers interviewed scientists from the Florida Wildlife Research Institute Lab in Marathon and local trappers.

FWC is developing a report about the jurisdictional aspects of casitas and the nature of this kind of fishery in Cuba and the Bahamas. FWC would like to coordinate information gathering with Kent Edwards on the retrieval of casitas.

There is a grouper management forum at the FWRI in St. Petersburg on February 26, 27th. Comments can be made online.

Sanctuary Law Enforcement Report

Lt. Burns introduced Major Edwards who has been in enforcement in several areas of Florida since 1976. He is now in charge of Dade, Monroe, and Collier Counties and is looking forward to working in this area.

Major Burns reported that officers LaRosa and Roudebush returned to the scene of yacht grounding near Basin Hill Shoals to investigate. At that time, they located the rudder and the coral head that was struck by the vessel and therefore were able to process the scene. In addition, a 68-foot vessel recently ran aground off the Content Keys—the extent of the

damage is not known at this time. Another 68-foot yacht ran aground on John Sawyer Bank. Officer Roudebush is the sanctuary's investigator. He was recently able to locate and serve the responsible party for a vessel grounding in 2004 that was assessed at \$126,000. A new academy started in February and will be completed in September.

South Florida Water Management District (SFWMD) Report

Cecelia Weaver thanked the SAC for inviting the SFWMD to be part of the Council and Dave Score and Billy Causey for allowing the District to be involved in the Eco-Discovery Center. The Green Living and Energy Education Exp (GLEE) is being held on March 31st in Big Pine Key. In the future, SFWMD will plan on providing updates on various restoration projects.

Chair Comments

Chair Popham announced that February has been declared *Water Quality Awareness Month* by Monroe County and many Keys' municipalities. This awareness campaign was launched by the communications working group of the Water Quality Steering Committee, under the Water Quality Protection Program. Chair Popham represents the SAC on the Water Quality Steering Committee. Communications Manager Cheva Heck provided some details regarding the communications plan and the activities scheduled for the month. She also announced that March will be Seagrass Awareness Month, sponsored by the Seagrass Outreach Partnership.

Public Comment

Richard Grathwohl stated that he learned recently at a FWC workshop that there are matching funds available for research and enforcement through the shoreline exemption. There is also a proposal before the legislature to eliminate this exemption. Mr. Grathwohl urges everyone to contact their Senator about voting to keep the exemption.

Presentations

Implementing Ecosystem Approaches to Management: Case Study in the Florida Keys

Ms. Cassandra Barnes, NOAA Oceanic and Atmospheric Research Office of Policy, Planning, & Evaluation, is a graduate student Environmental Science with a focus on environmental policy at Florida A & M University. Currently, she is on a fellowship in Washington, D.C. In Phase I of her research project, *Implementing Ecosystem Approaches to Management*, a survey was conducted nationwide. The second part of the research, a case study in the Florida Keys, involves conducting many interviews to learn about the collaborative process and policy development for implementing ecosystem management plans. She would like to interview those SAC representatives that she has not already interviewed.

Glades Power Park, Producing Reliable Power, Protecting Our Environment

Ms. Barbara Linkiewicz, FPL, Director of Environmental Licensing, introduced her colleagues John Gnecco, FPL Engineering Manager and Chris Teaf, Director of Toxicology, Hazardous Substance and Waste Management Research, Inc.

Ms. Linkiewicz described the Glades Power Plant project, including the need for the plant and project design. During the last 10 years, FPL has re-powered and expanded existing power plants to meet the needs of a growing state, but that has not been enough to meet the growing need for electricity. FPL is part of a much larger nationwide company called FPL group. The Public Service Commission has been asking “Why not use coal?” FPL is rated number one utility by the US Department of Energy for its conservation efforts. FPL joined the US Climate Action Partnership in support of a mandatory Carbon policy.

The proposed coal plant will be on 5,000 acres, most of which is now sugarcane. A thousand acres of this land is in a natural state and is expected to stay that way. In December 2006, FPL submitted an application in compliance with the *Power Plant Siting Act*, which is administered through DEP in Florida. A copy of the application is available through Dave Score. FPL submitted an application on February 1st to the Public Service Commission to demonstrate the need for the power plant. An answer is expected in the next few months. They have been conducting public outreach about the plant. Agencies like USFWS will also be overseeing the permits, etc. FPL is hoping to start construction in March 2008. Mr. Chris Teaf stated that the emissions are expected to be below limits to protect human health and the environment. There are five steps in the process to control different kinds of emissions, including mercury. The air impacts analysis has several layers. Class 1 for Biscayne National Park, Everglades National Park and Big Cypress and all impact levels are met by this project. For the Class II analysis, all significant impact levels are met except for sulfur dioxide. With a more sophisticated analysis, that standard is met, too. The FPL glades plant’s release of mercury will be less than half of what would be allowed by law and most mercury is released as elemental mercury, which is non-reactive. DEP already has a mercury-monitoring network and the contribution from this plant is not expected to affect the deposition that already takes place throughout the state, which is highly variable.

Sanctuary Advisory Council Questions and Comments

Martin Moe addressed the FPL presenters. A coal plant will pollute the air, including releasing mercury and carbon dioxide, which is known to contribute to global warming, coral bleaching, sea-level rise and more intense hurricanes. There is an alternate coal-burning technology—IGCC (integrated gasification combined cycling), which produces low cost electricity, with lower environmental impacts. Mr. Moe pointed out that General Electric Corporation and the Everglades Coalition and other sources were sources for his information that concluded that IGCC plants are better in many ways than other coal-burning plants.

Mr. Gnecco explained that IGCC had been looked at by FPL in the 1980s, but they determined that this technology is not very reliable because there were problems with the gasifiers. An engineering firm out of Kansas conducted an independent evaluation of all

of the alternatives for FPL and the ultra super critical coal plant was deemed as the best choice. The evaluation report was filed along with the DEP submission and can be made available to everyone. The application to build the plant is online with DEP.

Martin Moe raised the question as to how the plant will address possible CO2 emissions standards, should CO2 become regulated in the future. Mr. Gnecco explained that the plant could be retrofitted to capture CO2.

Deb Shaw requested clarification regarding how to address the gasifier issues that arise with IGCC technology. FPL explained that when the gasifier is down, pollutants are being emitted when the energy is generated using the backup system. She also inquired as to why the plant was rejected by St. Lucie County. Ms. Linkiewicz explained that they had gone through the process and received approvals along the way, but finally the St. Lucie Board of County Commissioners voted it down.

David Hawtof asked about nuclear power. FPL explained that the state of Florida is growing very rapidly and a planning and building a nuclear plant takes about 12 years. The building a new nuclear plant will take too long to meet the electricity needs anticipated for the future.

Jerry Lorenz acknowledged that his appreciation for how FPL has reduced pollution emissions and increase efficiency. He has concerns about CO2 emissions, the amount of mercury that may be released from this plant, and the daily water use. This water could be directed toward Florida Bay and other areas included in Everglades restoration plans. Ms. Linkiewicz pointed out that the water will be drawn from the Floridian aquifer and wastewater will be deep-well injected. A water permit has not been issued by SFWMD at this time. The ecosystem restoration working group would like to see a half day workshop about how CO2 might affect the sanctuary.

Commander Score suggested that we have this as an agenda item in the future and address details at that time. Krueger Nicholson suggested that a group be formed to put together a report with definitions of terms to clarify things.

Commissioner Neugent stated that this project does not address the environmental damage from the plant. FPL is interested in producing cheap electricity to address population growth. Monroe County citizens are tired of cleaning up water problems from upstream. The plant is located at the headwaters of an ecosystem that is being restored at great cost to the taxpayers. This is a legislative issue that should be addressed and is of concern to all of the counties of South Florida.

Todd Firm inquired about the nature of the coal being used. He is concerned about the destruction of West Virginia's mountains by the coal industry. The coal is coming from the Central Appalachians. Cecelia Weaver inquired about the water use of 28 million gallons per day. The SFWMD recently restricted withdrawals from the Biscayne Aquifer. She pointed out that they may also need to look at withdrawals from the Floridian Aquifer as well. Kent Edwards is interested in more detail about the CO2

scrubbers that could be used in the future. He would also like to know more about where the nuclear wastes go from Florida's plants.

A questionnaire generated by FPL about the glades power plant was distributed to SAC members (and the public). SAC members can return their completed form to Commander Score.

Science Panel-- Interagency Monitoring of the Algal Bloom in Florida Bay and Biscayne Bay Systems

Update on the Cyanobacterial Bloom in Eastern Florida Bay and Southern Biscayne Bay

Dr. Joseph Boyer, Southeast Environmental Research Center, Florida International University, explained that the algal bloom in the Barnes and Card Sound areas was initiated by a total increase in phosphorus. Since October 2005, the bloom has been present in Blackwater Sound, Barnes Sound, and Manatee Bay. Two ideas about the cause of the bloom have been proposed: water flows from the C-111 canal after hurricanes and disturbances from the highway construction. A large phosphorus spike followed Hurricane Irene, but the phosphorus remained high instead of falling off after a few weeks like it had done after previous hurricanes. Dr. Boyer used DNA gel analysis to assess the community structure (species composition) of the bloom in different areas of Florida Bay. The organisms responsible for the bloom in northeast Florida Bay and the Sounds is a cyanobacterium belonging to the genus *Synecochoccus*. It is not the same *Synecochoccus* species that is found in the western bay. It is adapted to low nutrient oceanic conditions, uses organic forms of carbon, nitrogen and phosphorus and has siderophores that extract iron from the environment. The sediments do not seem to be a reservoir for the bloom organism since no *Synecochoccus* species were found in the sediments.

The Algal Bloom in the Sounds of Southern Biscayne Bay

Mr. Chris Kelble, NOAA's Atlantic Oceanographic and Meteorological Laboratory (AOML), reported on the data that were collected as part of the South Florida Program, a joint effort between University of Miami's Rosenstiel School of Marine and Atmospheric Science and AOML. The algal bloom was first observed in November 2005 and still persists today in close proximity to US highway 1. Barnes Sound and the other basins experiencing the bloom have relatively long residence times (low flushing rates). During its peak, the bloom extended further north into Biscayne Bay, but at relatively low concentrations. There have been other hurricanes in the past that initiated blooms, but they were short in duration and small in spatial extent. The bloom that persists today is due to the combined effect of road construction, hurricane disturbance, and C-111 discharge. This algal bloom was only observed after the occurrence of all three events. Iron has been ruled out as a likely limiting factor. Total Suspended Solids (TSS) and light attenuation measurements in the affected basins are high, which may be stressing the seagrasses. The bloom could or may already have initiated a positive feedback loop that is ecologically damaging, resulting in a shift toward a water column based community

from a benthic community with its associated seagrass, macroalgae and related organisms.

Algal Bloom Monitoring in Biscayne Bay and Southern Sounds

Dr. Susan Markley, Miami-Dade Department of Environmental Resources Management (DERM), explained that has been monitoring water quality on a monthly basis since 1979. Typically, during the 20 year period of record, the chlorophyll values in Barnes Sound, Card Sound and Manatee Bay have been relatively low, less than 2 micrograms per liter. Usually, when increases in chlorophyll were observed, they were associated with the mouths of canals and did not persist. With this most recent bloom, the stations have not returned to the normal, lower chlorophyll levels.

The bloom was first detected DERM's monitoring data in Manatee Bay and Barnes Sound in October 2005. By late December and continuing to January 2006, bloom conditions increased and extended to broader region. Clearer water was observed in May 2006 in the southern basins. In the summer and fall of 2006, the bloom spread to southern Biscayne Bay. Today, it still persists in Barnes Sound, Manatee Bay and other nearby basins. Typical phosphorus levels in the affected area prior to the bloom were very low, less than 5 ppb, much lower than the 10 ppb for Everglades water in the restoration. The average concentrations of Total phosphorus (TP) have doubled or tripled in the southern basins over the last 12-15 months and remain elevated.

DERM is also monitoring seagrass cover in the southern basins. They documented a dramatic decrease in seagrass cover following Hurricane Katrina in Blackwater Sound. There may be some recent recovery with *Halodule*, a colonizing seagrass species. The loss of seagrass may be providing phosphate for the bloom to continue.

DERM conducted monitoring ahead of Phase II construction, which included sampling the roadside ditch prior to construction, nearby mangroves and marina. Very high levels of phosphates were associated with construction activities. However, this does not demonstrate a direct connection between construction activities and the bloom. The southern estuaries are extremely sensitive to nutrients and any water that is added to them should be cleaner than the 10 ppb, a value that has been suggested as acceptable for Everglades restoration.

Sanctuary Advisory Council Questions and Comments for the Panel

Questions about the bloom and what controls its duration were posed. Although the bloom organism is an oceanic species, Dr. Boyer explained that it has been observed in estuaries before. It is unusual because it can utilize organic nutrients, unlike most oceanic species. This bloom species is so small that typical grazers like zooplankton can't feed on it. Viruses can attack cyanobacteria, causing a reduction in the bloom. Dr. Markley pointed out that even though the basins have a low flushing rate, they can recover, but it might take some time. Mr. Kelble added that, barring any external source of nutrients, the bloom will slowly decline. There are a large number of stations that

show less seagrass coverage now than before the bloom. Losses may be due to the lower salinities associated with the hurricanes.

Cecelia Weaver added that Dr. David Rudnick, SFWMD scientist involved in studying the bloom, agrees that there are multiple causes. Because there were no sustained blooms associated with previous storms, the road construction appears to have contributed. Without the hurricanes, plus the road construction, the bloom may not have persisted. It was noted that there is no water quality monitoring station in Largo Sound, which is a basin on the ocean side that connects with the Blackwater Sound on the bay side.

Superintendent Score inquired as to whether or not it would be beneficial to remove the fill under the new bridge and restore circulation to Lake Surprise in light of what is known about the current bloom. Mr. Kelble responded by stating that if this is done, it should be done with extreme caution since it may initiate a bloom and start a feedback loop that sustains itself.

Scott Zimmerman inquired about the spiny lobster fishery and how it might be affected by the bloom. John Hunt responded by stating that there is not that strong of a connection between this issue and spiny lobsters because geographic separations.

Keystone Pit Restoration Project

Mr. Steve Klett, Crocodile Lake NWR Manager, gave a presentation about the *Keystone Pit Restoration Project*, which is a joint project between the Ecological Services office of the USFWS, FDOT, Granite Construction Company, Consulting Engineering and Sciences. Crocodile Lake NWR supports endangered and threatened wildlife species and is home to two globally endangered ecosystems—the mangrove wetlands and the West Indian tropical hardwood hammock.

The project consists of backfilling a borrow pit with fill from the highway improvement project. This will allow for the restoration of 2.6 acres of hammock. Currently, there is about 2 feet of water in the bottom of the pit. Thirty-six inches of clean limestone will be placed on the bottom, followed by the highway fill, and then capped with clean limestone. This will provide containment for the substances in the sediments.

There are low levels of contaminants, particularly hydrocarbon, lead and arsenic, in the fill material. Food chain modeling shows that the risk for lead for insectivorous birds is low. There is no risk for herbivorous or carnivorous birds or terrestrial mammals. These measurements are based on direct and continuous exposure to material, which is not expected to occur because of containment measures. Leaching of chemicals and transport is unlikely due to limited hydrology and distance to surface waters. Nutrient loads are not expected to trigger an algal bloom.

The site is in a high hammock, fairly isolated, 2300 feet from the Atlantic and 6,000 feet from Barnes Sound. This project will help eliminate fragmentation of the forest. It will benefit the Key Largo wood rat, cotton mouse, Schaus butterfly, and eastern indigo

snake. This is a huge project that would not be possible otherwise with limited economic resources for restoration of this scale. As part of the formal review process, the FWS is obligated to complete certain environmental guidelines. These documents will be provided to the council members for their review. This project is not likely to affect endangered species habitat addressed under the *Endangered Species Act* 1973. FWS has also completed a compatibility determination as specified by the *National Wildlife Refuge Improvement Act*. Mr. Klett requests that the SAC endorse this project.

Sanctuary Advisory Council Questions and Comments

Todd Firm asked about the possibility of lining the sides of the pit with clean fill material, not just on the bottom and top, to better contain any contaminants. Mr. Klett states that the base and cap fill should be enough to contain the fill contaminants. If there is any leaching, it will leach out at low levels that are not thought to be harmful. Martin Moe asked how this project was different from the Carysfort fill project. Mr. Klett pointed out that this project is in high hammock, not in wetlands like the Carysfort project.

Deb Shaw noted that there is the potential of substances like arsenic and lead to get into the food chain because there is the potential for lateral transport and uptake by vegetation. Mr. Klett pointed out that the computer models, which are based on constant and direct exposure, indicate that the risk is low. Peter Frezza asked if the freshwater in the pit is of significant value to wildlife. Based on his observations, Mr. Klett has observed very little wildlife using the pit and does not think it is an important source of freshwater for wildlife.

Chris Bergh suggested that since there is the potential for lateral transport, it might be a good idea to do a tracer study to document the hydrology of the site. Mr. Klett pointed out that there is little time for additional studies.

Richard Grathwohl stated that according to what the geologists have explained, a substance may show up far from its source of origin because of groundwater movement. Mr. Klett pointed out that even if there is some leaching, any contaminants will be spread out over a large area. According to Mr. Klett, the organic matter will be compacted and not exposed to oxygen, so nutrient input will not be a problem. Even if the fill material subsides over the years, it will not affect the hammock that grows there.

This project is not mitigation for Florida's Department of Transportation (DOT) and it is not practical to conduct further studies. This is an opportunity to take away some of the habitat fragmentation. Mr. Klett noted that the project would meet the FWS criteria for little or no risk even without the capping material. Mr. Todd Firm mentioned that the old water pipeline along the highway was coated with contaminants that were chipped off on a regular basis and became part of the soil. He suggested that these substances may be part of the fill material now. Mr. Tim Bargar, FWS ecologist, stated that they had the soil test results and the results were used in making the evaluation.

Commissioner Neugent pointed out that a project like this would not receive approval without years of environmental studies if it were up before the county government. At a time when the county is concerned about water quality and the taxpayers are being asked to support the highest water quality standards in the state of Florida, it seems unwise to do anything that might cause further contamination. Commissioner Neugent stated that this project is not in the SAC's jurisdiction, but should be before the Board of County Commissioners. There could be problems with contaminants leaching into nearby waters.

Jack Curlett inquired as to the time table for this project. Mr. Klett is planning to continue working and finalizing documents that will go out for review after being signed by the Ecological Services Office in Vero Beach. They are reviewed in the main office in Washington and by the public. Being a one-person office, Mr. Klett can only devote so much time to this project, but would like to complete it in less than a month. The fill is only offered at this time and will not be available in the future. This project does not require any permits from the state or other entities. The base fill material would be purchased by Granite Construction and the cap fill may possibly be purchased as part of the mitigation for the curve planned for the highway at the 3-way stop on county road 905.

Ms Anne Morkill pointed out that they came to the SAC for their recommendations and would like the motion to reflect the SAC's recommendations.

Chair Popham requested that Steve Klett keep the SAC informed about this project in future meetings.

Biscayne National Park Fisheries Management Plan

Jack Curlett addressed the SAC regarding the BNP Fisheries Management Plan working group, which was convened three years ago. The plan was endorsed by this Council and then ratified by FWC and embraced by the Florida Cabinet. It called for an extensive Environmental Impact Study. It went to DOI headquarters and it has been difficult to find out where it is in the process of approval.

Crocodile Lake Fill Removal on US1

Peter Frezza asked Steve Klett about the impacts of the removal of the fill from the roadway after the bridge is built over Lake Surprise. How will this removal potentially affect the refuge? Mr. Klett said that kind of issue may be more appropriately addressed by the FWS Ecological Services Office. He would be more concerned about boating impacts on manatees rather than crocodiles in that particular area.

It was pointed out that the plan calls for east Lake Surprise to become a Wildlife Management Area (WMA) in the Sanctuary. The plans call for signage for boaters, boating restrictions, and an education program. The area is already designated as "no wake" zone.

Cecelia Weaver mentioned that Alice Bravo from DOT will be taking a look at the removal project in light of the recent algae bloom. John Palenchar, DOT engineer, reiterated that DOT will not go forward without clear consensus from parties who permitted the project. Superintendent Score suggested that the short term and long term benefits be evaluated. Mr. Palenchar stated that they will be holding a meeting with SFWMD and Army Corps to discuss this issue by the end of March. At that time, they will look at the short/long term benefits and risks, including putting in culverts instead of removing the fill.

Jerry Lorenz wanted to know if the Manatee Creek will be restored. Dr. Lorenz also asked about whether blasting will be taking place on the highway project. Mr. Palenchar assured him that the culverts will be removed and a bridge will be built and explained that no blasting is permitted at this time, but it is within the purview of the contractor to request a change using the permit modification procedure.

SEAKEYS Program

John Fajans, Keys Marine Lab, in Layton explained that SEAKEYS stands for the Sustained Ecological Research Related to the Management of the Florida Keys Seascape. The program began in 1989 with 6 original C-Man stations that were designed to measure water quality, benthic communities, and physical oceanography parameters. A seventh station was added in 1999 as part of the USF COMPS network. The program is based at Keys Marine Lab, a facility operated jointly by USF Florida Institute of Oceanography (FIO) and FWC's Florida Wildlife Research Institute. SEAKEYS has been receiving \$125,000 per year of grant funding from NOAA and EPA to support the program and two full time positions. Thanks to the work of Jack Curlett, the program has just received money to put up a new station on Carysfort Lighthouse, off Key Largo. The northern most station is Fowey Rocks off Miami and the most southern station is in the Dry Tortugas. There is also a station in Northwest Florida Bay.

The stations measure ocean parameters like dissolved oxygen, turbidity, conductivity, temperature, salinity, tide gauges, fluorometry for chlorophyll levels. There are also current profilers to measure the velocity of water. The meteorological suite has wind sensors, speed, and direction. All sensors are duplicated so that each sensor ground-truths another. All information is transmitted through antennas to the GOES satellite system and is available to scientists around the world. Recently, CO₂ sensors have been added to the Molasses station.

These data are used by the National Weather Service, Coral Reef Early Warning System (CREWS NOAA-AOML), South Florida Ecosystem Restoration, Prediction, and Modeling (SFERPM NOAA-AOML), Monroe County Emergency Management, National Hurricane Center, and other research institutions. Local dive shops and boaters also use the information.

The information may be accessed on the world-wide web:
http://www.coral.noaa.gov/seakeys/real_data.shtml and
<http://www.coral.noaa.gov/prototype/index/0//caribbean-home>.

The hurricanes and storms of 2005 caused damage to several stations and the Keys Marine Lab. Repairs began in 2006. The 2007 plans call for building a new platform at Carysfort Lighthouse to measure the Gulf Stream Current. They also plan to rebuild the Florida Bay station, add UV-B sensors, and install a digital video system at Molasses Reef. The camera controls will be housed in the Upper Keys sanctuary office and will be accessible to certain personnel. This may be useful for law enforcement purposes.

In the future, SEAKEYS would like to: encourage ecological researchers to establish experiments near SEAKEYS stations; integrate with new Florida Coastal Ocean Observing System (FLCOOS); and obtain funding to establish near-real-time current and visibility sensors on deep water dive sites.

SEAKEYS has many partners: Florida Institute of Oceanography, National Environmental Satellite Data and Information Service, The Florida Keys National Marine Sanctuary, National Data Buoy Center, Integrated Coral Observing Network, South Florida Ecosystem Restoration Prediction and Modeling Program, United States Environmental Protection Agency and the University of South Florida, Department of Marine Sciences.

Questions from the SAC

Martin Moe pointed out that carbon dioxide from the atmosphere can lower the pH of seawater, which can affect coral skeleton growth. If the stations had sensors that could pick up pH, any changes in the pH could be detected over time. Mr. Fajans stated that a scientist from the University of Miami who is an expert on CO₂ is working with them to install a CO₂ sensor at Molasses Reef station.

Billy Causey asked how the Florida COOS system differs from the C-Man stations. Mr. Fajans responded by stating that he did not know offhand, but he did mention that the USF COMPS monitors have the same oceanographic parameters, but they do not have rain gauges and humidity sensor. Mr. Causey pointed out that the funding for this project does not come from the same funding NOAA source that supports the global and national network system. Instead, the program has had to find funds from various sources. This system is extremely important for monitoring the Florida Keys marine ecosystem. John Fajans would like to work with the dive industry to add sensors at three deepwater wreck sites, which could be done for about \$75,000 and could be maintained at no additional cost.

SAC Motions

Jerry Lorenz moved, seconded by Martin “Skip” Moe, about holding a workshop about the impacts of the Glades Power Plant.

Motion #1 read as follows: *The SAC should hold a full day workshop separate from the regularly scheduled meeting to examine the impact of the Glades Power Park on the FKNMS. Specifically, topics should include greenhouse gas emissions and global climate change, the potential environmental impacts of mercury and all other emissions, and the effect of the power plan water consumptions on Everglades and Florida Bay Restoration and municipal supply.*

The roll was called. The motion passed unanimously.

Jack Curlett moved, seconded by Martin Moe to request information about the status of the Biscayne National Park Fisheries Management Plan. Motion #2 read as follows:

The Sanctuary Advisory Council asks the Superintendent of the Florida Keys National Marine Sanctuary to request the present status and time table of the Biscayne National Park Fishery Management Plan from the Superintendent of Biscayne National Park, and the Sanctuary Advisory Council would like to see a written response to this request.

The motion passed, with one “no” vote.

Ken Nedimyer moved, seconded by Deb Shaw, that the SAC endorse the Keystone Pit restoration. Motion #3 read as follows:

SAC endorses the proposal submitted by Wildlife Refuge managers to fill the borrow pit off SR 905 using materials obtained from the US1 construction project near Jewfish Creek (Phase 1 materials).

The roll was called. The motion passed, 11 “yea” and 4 “nay” votes.

Concluding Remarks and Future Agenda Items

Ken Nedimyer would like an opportunity to present to the SAC about the elkhorn restoration project that he is working on with the students from Coral Shores High School.

Chair Popham suggested that we have some future SAC meetings at the Eco-Discovery Center in Key West and also in Key Largo.

Chris Bergh noted that the ecosystems working group had discussed the possibility of having updates from the researchers working on the reef resilience program and the climate change program in the next meeting.

Todd Firm mentioned that some of the Council’s terms have expired. Chair Popham mentioned that there are application forms for the vacant seats. Cheva Heck added that the announcement for advertising the positions has been made and the deadline for applications is March 31st. The positions have not been advertised locally at this time.

4:39 Adjourned

Minutes respectfully submitted by

Nancy Diersing
Florida Keys NMS Education Specialist