# Our Mission: To work with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American People.

*In Memoriam*

This edition of Field Notes is dedicated to two former employees who for a brief period worked at the U.S. Fish & Wildlife Service's New Jersey Field Office:

Richard J. Guadagno (9/29/62 to 9/11/01)
and
Shari L. Stevens (12/22/60 to 8/25/02).

Both Richard and Shari, natives of New Jersey, were assigned to the New Jersey Field Office as Biologists during 1986 and 1985-87 respectively. Richard was one of the passengers on board hijacked United Airlines flight 93 that crashed in Stony Creek Township, Pennsylvania, on September 11, 2001. At that time he was a Refuge Manager working in southern California. During her tenure with the New Jersey Field Office, Shari worked on several projects pertaining to the Hackensack Meadowlands; she transferred to the EPA in 1987.

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**Opposite page (top to bottom): two snowy egrets on a Meadowlands mudflat; the third Stakeholder Work Session for the Hackensack Meadowlands, Morristown, October 31, 2001; a stand of common reed, *Phragmites australis*, in the Meadowlands**



Rear cover article -- Circa 1969

U.S. Fish & Wildlife Service
New Jersey Field Office
927 North Main Street
Pleasantville, New Jersey 08232

U.S. Fish & Wildlife Service

# Field Notes

*New Jersey Field Office*
*December 2002*

**An Activity Report of Field Operations**

## *The Hackensack Meadowlands Issue*

# Field Notes

**An activity report of field operations of the U.S. Fish & Wildlife Service's New Jersey Field Office. Field Notes is published twice a year by the staff of the New Jersey Field Office. Articles are by invitation and are authored by Service personnel or Service partners. Each issue features a guest article by a prominent figure, such as a well-known scientist or an elected official.**


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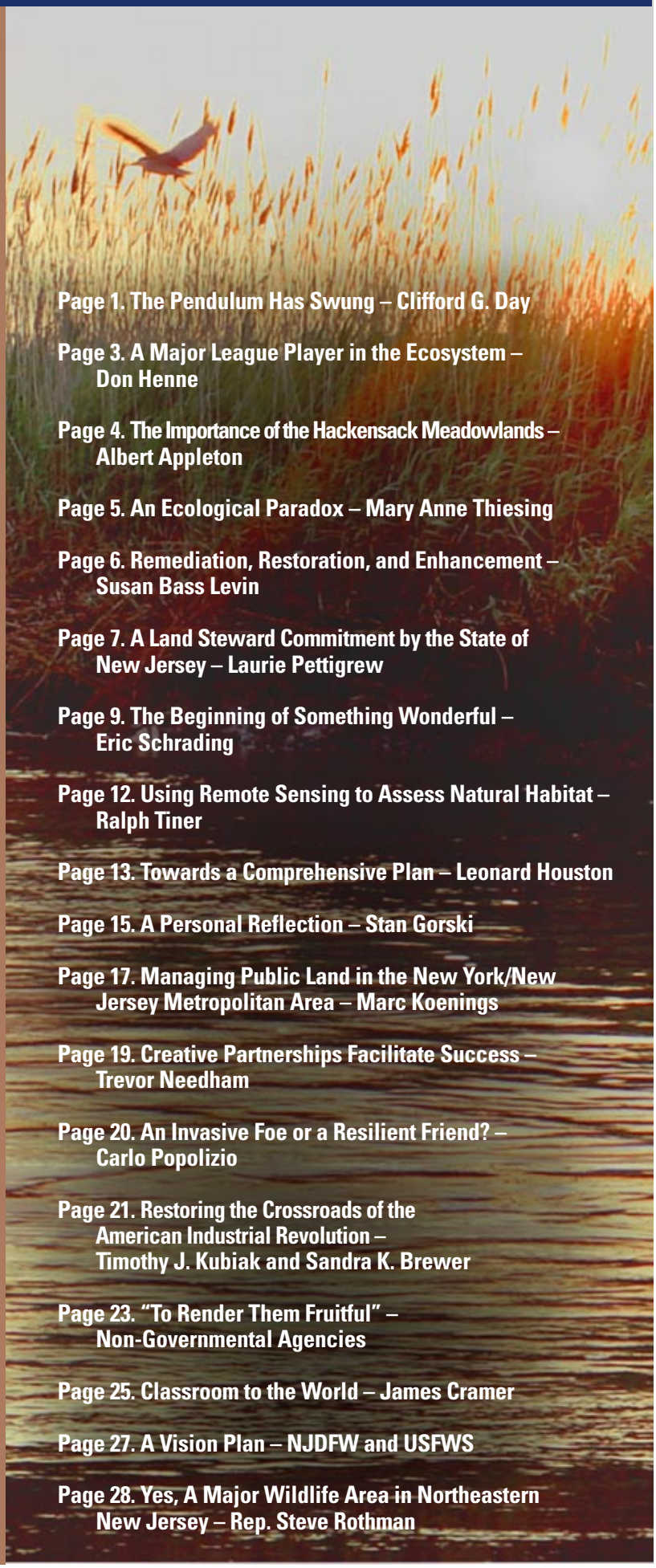


# The Pendulum Has Swung

Photographs USFWS / Gene Nieminen

Mill Creek in the Hackensack Meadowlands with Manhattan on the horizon



(left to right) New Jersey Fish and Wildlife Director Robert McDowell, U.S. Fish & Wildlife Service Director Steve Williams, New Jersey Congressman Steve Rothman (NJ9th), New York / New Jersey Baykeeper Andrew Willner, Hackensack Riverkeeper Captain Bill Sheehan, and New Jersey Field Office Supervisor Cliff Day on the banks of the Hackensack River, August 27, 2002





(top) Andrew Willner makes a point about Meadowlands restoration as Steve Williams, Steve Rothman and Cliff Day listen
(bottom) Steve Williams and Cliff Day converse

## *Clifford G. Day, Supervisor, New Jersey Field Office*

After centuries of abuse, neglect and land-use planning debacles, the largest estuarine wetlands complex remaining in the NY / NJ Harbor Estuary is finally being recognized as an area to restore and manage, rather than a place to fill and degrade. Conservation now has an opportunity to take a major stride forward in New Jersey. The theme of this Field Notes is the "Hackensack Meadowlands."

Far from being "*Phragmites* strewn with garbage," or a convenient site for another shopping mall, the Meadowlands deserves a closer look. Despite severely negative impacts, this 8,400-acre area, 7 miles west of Manhattan, supports remarkable diversity and concentrations of migratory birds, fish, and other animal life, including 65 species of nesting birds and over 50 species of fish and shellfish. The U.S. Fish & Wildlife Service (Service) identified 88 species of special emphasis, including 15 State-listed species, 42 species and 6 natural communities considered rare or uncommon in the urban core, and 49 species considered rare in the estuary. Located on the Atlantic Flyway, the Meadowlands provides a critical stopover area for migratory birds. New Jersey supports the second largest concentration of migratory birds in North America; 443 species have been documented. Most of these species are migratory, and 75% have been observed in the Meadowlands– which is a cornerstone for several migration routes connecting the New York Bight region with the eastern Great Lakes, Hudson River Valley and the Atlantic Flyway.

In 1986 the Service identified the Meadowlands as a "Priority Wetland Site" under the Emergency Wetlands Protection Act and, 10 years later, as a "Regionally Significant Habitat Complex" in the New York Bight Watershed. Others recognize the environmental importance of the Meadowlands. The National Marine Fisheries Service declared the Hudson-Raritan Estuary (including the lower Hackensack River) "Essential Fish Habitat" for 8 species of fish. The EPA identifies the Meadowlands as an "Aquatic Resource of National Importance." The Meadowlands are included within a "Joint Venture Area" under the North American Waterfowl Management Plan. What truly makes the area special is its proximity to almost 20 million people. The conservation importance and scientific, educational and recreational potential for this natural area, within view of the New York City skyline, has yet to be realized. To allow the Meadowlands and the potential it offers future generations to be filled and absorbed into a sea of urbanization is irresponsible.

When I toured the Meadowlands in December 1999 with then Secretary of Interior Bruce Babbitt, it was obvious how impressed he was with the calm of the area in contrast to the surrounding urbanization. It was also obvious how determined conservation groups were in inspiring people to action. At one stop during our tour the Secretary was presented a petition of some 10,000 signatures for protecting the area—a preview of the million plus signatures that could be obtained. Most recently, in August 2002, I had the privilege of accompanying the new Service Director, Steve Williams, along with Robert McDowell, Director, New Jersey Division of Fish and Wildlife, and Congressman Steven Rothman (NJ9th) on a tour of the Meadowlands. The tour achieved a consensus that the Meadowlands ecosystem is worthy of protection (no surprise).

The Meadowlands must be protected. The stakes are high. Protection will retain the services realized from natural and semi-natural coastal systems, including flood water retention. Rather than entertain proposals to fill these wetlands and incur further habitat loss, fragmentation and degradation, intelligent land-use planning will steer proposed development into the surrounding urban areas that are in dire need of economic revitalization.

Service personnel including Regional Director Mamie Parker (right) tour the Meadowlands

Environmental restoration and management are being accomplished. Presently, the New Jersey Meadowlands Commission is overseeing 12 sites in various stages of wetland restoration including 3 that are nearly completed: Skeetkill Creek Marsh, Harrier Meadow, and Mill Creek. There is also a 206-acre wetlands mitigation bank on Doctor's Creek. Most impressive is the State's 800-acre Sawmill Creek Wildlife Management Area, proof that land use offers options other than rights-of-way, warehouses and landfills.

Cliff Day and USFWS Special Assistant to the Regional Director Ralph Pisapia at the Elizabeth session

The third Stakeholder Work Session, Morristown, October 31, 2001

The second Stakeholder Work Session, Elizabeth, May 23, 2001

The first Stakeholder Work Session, Secaucus, October 17, 2000

Former Secretary of Interior Bruce Babbitt tours the Meadowlands, December 1999


On the Hackensack River, Secretary Babbit and Supervisor Day talk at the stern of the Fire – Rescue boat

During 2001, the Service held a series of "Stakeholder Work Sessions for the Conservation of the Hackensack Meadowlands." Projecting optimism, these sessions brought together State and federal agencies, conservation groups, foundations, and elected officials with a concern for the future of the Meadowlands. Presently, the Service, the Army Corps of Engineers and, as a non-federal sponsor, the New Jersey Meadowlands Commission, along with Congressman Rothman, are pursuing a "Comprehensive Restoration Improvement Plan" for the Meadowlands. Additionally, the Commission should be applauded for acquiring 1,700 acres to expand open space. Further, the Service and the New Jersey Division of Fish and Wildlife developed "A Vision Plan for the Fish and Wildlife Resources of the Hackensack Meadowlands." This plan is presented on Page 27.

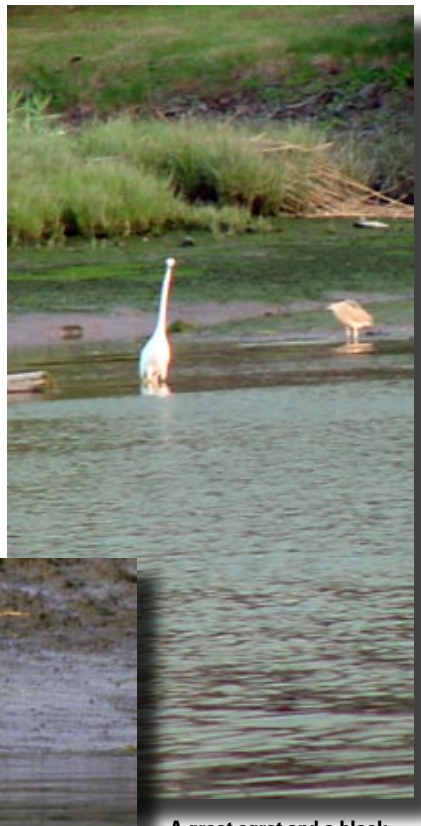
The time for environmental restoration and rehabilitation in the Meadowlands is now. Progress took about 300 years to transform a 21,000-acre fresh- and salt-water marsh and Atlantic white-cedar forest to the present landscape where *Phragmites* is the dominant vegetation. Restoration will not happen overnight, but as you read the following articles it will be apparent that the principal stakeholders are laying the groundwork that will contribute to, rather than borrow from, the future. Finally, the pendulum has swung.

# A Major League Player in the Ecosystem

*Don Henne, Project Leader, Southern New England / New York Bight Coastal Office, U.S. Fish & Wildlife Service*

A recent publication from the Pew Oceans Commission warns: "Half the U.S. population currently lives in the one-fifth of our land area along the coasts; by 2025, demographers anticipate three-quarters of the U.S. population will reside in coastal regions." The Commission further notes that if today's land consumption trends continue, the percentage of coastal acreage that has been developed will increase from 14 percent in 1997 to more than 25 percent by 2025. And these figures deal only with development impacts. What about degradation caused by invasive species and loss of wetlands due to sea level rise? The threats to the Meadowlands and other estuaries in our nation are both real and alarming. Few individuals understand the breadth of these threats, so one of the challenges in the NY / NJ Harbor Estuary is to increase public awareness of the need to conserve and restore those precious few natural resources, particularly large complexes such as the Hackensack Meadowlands.

A great blue heron stalking prey on a mudflat



A great egret and a black-crowned night heron at the water's edge

Photographs USFWS / Gene Nieminen

How important, really, is the Meadowlands to the NY / NJ Harbor Estuary? Sports fans certainly make use of the area: both the NY Giants and Jets play at Giants Stadium in the Meadowlands Sports Complex. Other teams use the Complex as well. The Meadowlands is in the major leagues when it comes to sports. But environmentally?

If the 130 acres that the Complex has paved over for parking were extended to include the whole of the Meadowlands, how would the entire estuary be affected? Certainly, all the species that reproduce in, and depend on, the complex of uplands and wetlands would be deprived of habitat. Migratory birds, that spend a relatively small but vital portion of the year resting and feeding in the Meadowlands, and even species that simply use the area for foraging, would have to find other sources of sustenance. Clearly, an immense segment of both the flora and the fauna would be gone forever. Just as importantly, without this significant natural land base the opportunity to pursue habitat restoration and enhancement would be lost.

In the mid-1990s, the U.S. Fish & Wildlife Service's Coastal Program Office worked with a large number of dedicated partners to document the crucial importance of the Hackensack Meadowlands to local, regional, and national populations of fish, wildlife, and native vegetation in the report entitled Significant Habitats and Habitat Complexes of the New York Bight Watershed. Since publication and distribution, those committed to conserving the area have used the report as a foundation to counter attempts to send this remnant of a once vast habitat complex into the realm of asphalt and concrete. But what of the future?

Without the buffer of the Meadowlands, flood control, sea level rise and storm surges would become a nightmare. Development has already made flooding a problem. In his book Fields of Sun and Grass, John R. Quinn quotes George Fosdick, then mayor of Ridgefield Park, as commenting in the mid-1990s: ". . . since I was first elected commissioner in 1978, we've had, here in Ridgefield Park, three of what the Department of the Interior calls 'hundred-year floods'. . . . To me, they're filling in all the places where the water used to run off and be absorbed . . . ." In regard to sea level rise, a July 2001 report by the Columbia Earth Institute entitled Climate Change and a Global City, forecasts potential consequences that include wetland losses over the next 20 to 100 years in the NY / NJ Harbor Estuary. Flooding and sea level rise are not the only concerns. Landfilling and industry have greatly strained the Meadowlands' capacity to absorb pollution, reduced its acreage, and continued to dump even more contaminants.

With this in mind, concerned stakeholders increasingly pursue new and creative partnerships to protect the Hackensack Meadowlands. Vested stakeholders can accomplish habitat restoration and enhancement that are beyond the scope of what government can accomplish alone, a concept recognized as essential to restoration by the Father of Wildlife Management, Aldo Leopold, more than 50 years ago.

The consumer lifestyle and the priority we give to a strong economy place development pressure on natural resources. Our challenge is to protect and restore priority areas such as the Hackensack Meadowlands. These actions need to be integrated into the inevitable renewal of the area's urban infrastructure. The next time you drive the New Jersey Turnpike past the Meadowlands Sports Complex, take time to admire the other attraction, the expansive landscape inhabited by waterfowl, wading birds, raptors, songbirds, and communities of fish and shellfish that make the Meadowlands a major league estuary. Let's keep the home team healthy and bring the fans in to enjoy the experience.

# The Importance of the Hackensack Meadowlands

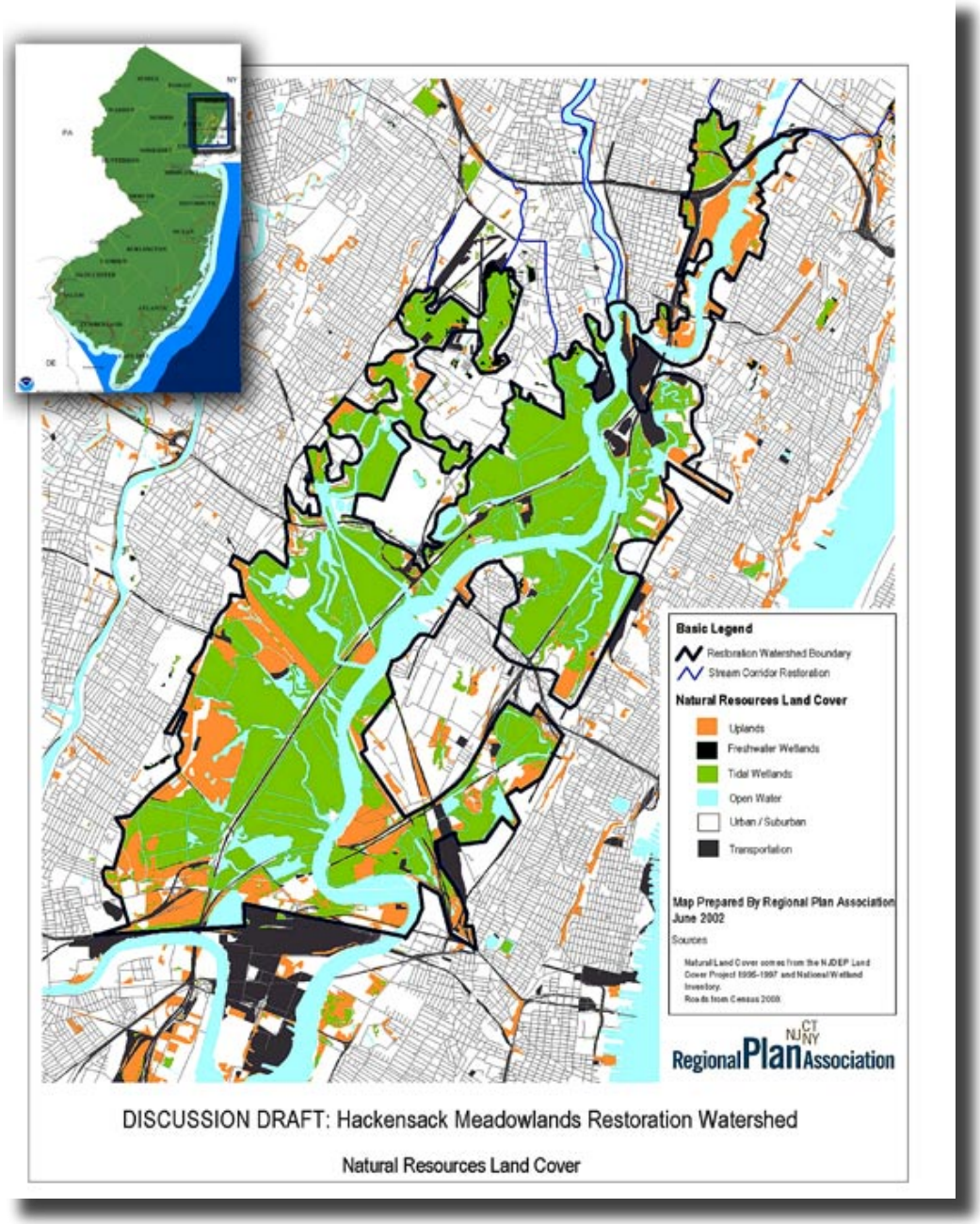
*Albert Appleton, Senior Fellow, Regional Plan Association*

Over the last five years, a threefold public consensus about the Hudson Raritan Estuary has formed. First, there is now considerable agreement that the estuary's remaining natural habitats should be preserved from development. Second, feeling is strong that we must save not just individual sites, but entire ecosystem complexes. And third, it has become clear that simply preserving the estuary's remaining natural areas from new development is not enough. We must also repair the damage three centuries of intense human development has inflicted on the estuary and restore the ecological richness and variety of the estuary to the greatest extent feasible, given the fact that it is surrounded by 20 million people and a trillion-dollar regional economy.

The importance of the Hackensack Meadowlands to this great threefold vision cannot be overstated. The great bulk of the Hudson Raritan Estuary's remaining littoral is now in one of five ecosystem complexes: Bronx-East River, Jamaica Bay, the Arthur Kill, Raritan Bay and the Hackensack Meadowlands. These areas have been islanded by human development. They cannot grow in size; they can only grow in quality and through reduction of internal fragmentation.

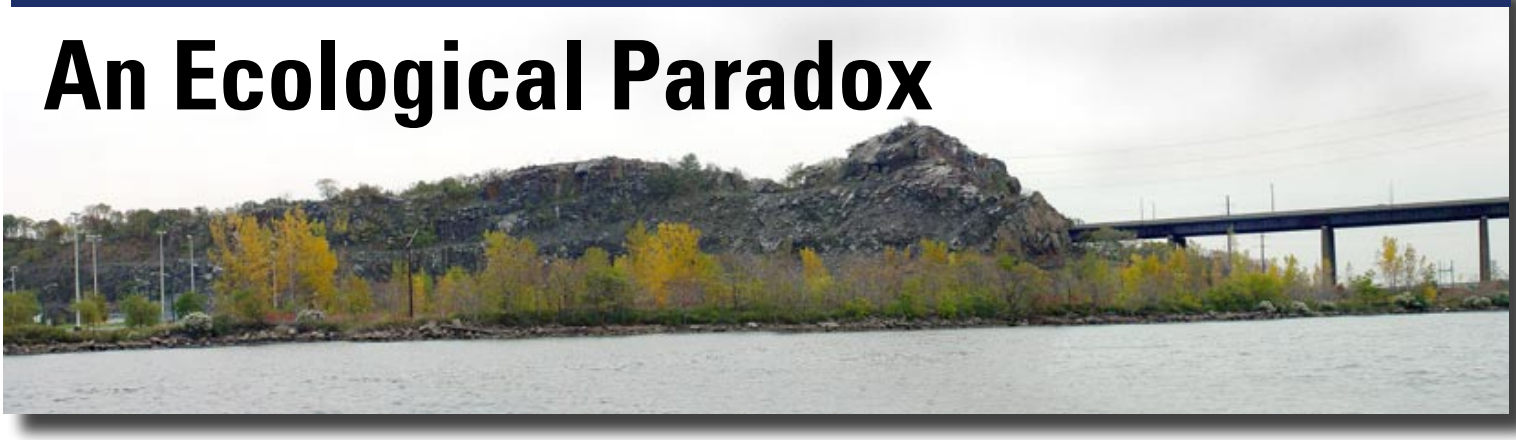
Of these five complexes, the Hackensack Meadowlands has the most potential to enrich the estuary's ecosystems. It is the largest. It offers the most opportunity to eliminate fragmentation. It has the most potential for ecological variety, particularly if the historic hydrodynamics that made it a mixture of freshwater and saltwater marsh and Atlantic white-cedar forest can be restored. Yet it presents the most formidable challenges in terms of its complexity.

Restoring the Hackensack Meadowlands will require far more than the traditional marsh grass replanting. First the land must be acquired, then the hydrology fixed, then toxic sediments addressed, then fragmentation eliminated and buffer zones crafted, then careful changes in vegetation structures designed, all in harmony with the necessary community activities and the road and rail nets that abut and use the Hackensack. Mastering these challenges will provide a template not only for restoring this estuary, but any estuary where urban life and nature hope to coexist.




Thus, the payoff in restoring the Hackensack Meadowlands is immense. Along with New York's Jamaica Bay, the Meadowlands should become one of a set of nature refuges that, embedded in the heart of the ultimate urban metropolis that is the closest thing to a capital the world has, would be a living demonstration that humans can repair the damage of past misuse and learn to live in true collaboration with nature.

# An Ecological Paradox



Photographs USFWS / Gene Nieminen

Snake Hill, a geologic landmark in the Meadowlands

*Mary Anne Thiesing, Ph.D., Regional Wetland Ecologist, U.S. Environmental Protection Agency, Region II*

The Hackensack Meadowlands District is a 32-square mile area covering portions of 14 municipalities in northeastern New Jersey. Of the 21,000 acres which comprise the District, approximately 17,000 were originally wetlands and waters, and comprised a diverse array of wetland cover types, including tidal marsh, hardwood forest, and Atlantic white-cedar swamp. From the beginning of European colonization up until the present, the District's wetlands have been logged, diked, drained, farmed, filled, and contaminated, with the result that half of the wetlands and waters have been lost to fill and/or degradation. Today, the District's landscape is surrounded by urban development, and its once diverse plant communities have been succeeded by what is essentially a monoculture of invasive *Phragmites australis*, better known as common reed.

In spite of a history of abusive land-use practices, however, there has been a remarkable renaissance of fish and wildlife use in the District. The passage of the Clean Water Act in 1972 along with aggressive local enforcement by the New Jersey Meadowlands Commission resulted in dramatic increases in water quality, air quality, and surface land quality in the last 30 years. The result: the number of species of both migratory and resident birds which use the Meadowlands has more than tripled during this time, and the numbers of fish and invertebrate species have shown similar increases. Crackdowns on illegal dumping, as well as ongoing clean closure of some of the District's landfills, are reducing the volume of leachate which enters the Hackensack River and adjacent wetlands. In addition, the Meadowlands Environmental Research Institute (MERI) has intensively begun to study the myriad environmental problems which still face this urban wetlands ecosystem.

What is it that makes the Meadowlands so significant? First, despite loss of about half of its original wetland and open water areas, the Meadowlands is still a large system, comprising about 8,500 acres of wetlands and open water. Second, it is located within the Atlantic flyway, a significant coastal pathway for migratory birds, for which the Meadowlands represents a significant resource. Finally, because it is surrounded by intense urban development, the Meadowlands is an important island of wetlands in a landscape that has lost most of its coastal wetlands. The only other large estuarine wetland in the New York metropolitan area is the Jamaica Bay National Wildlife Refuge; consequently, the Meadowlands becomes especially important for its ability to provide food and resting habitat for hundreds of migratory bird species, as well as breeding habitat for more than 60 resident bird species. Additionally, a variety of estuarine fish species such as blueback herring depend on the Meadowlands for nursery habitat as juvenile fish make their way to coastal waters.

Apart from the obvious human pressures on this ecosystem, however, there are serious ecological problems facing the Meadowlands. Aerial photographs from over a period of 30 years show that some marshes which were not filled or altered have lost half of their open water. The cause of this loss appears to be from sediment accretion and overgrowth resulting from colonization by invasive forms of *Phragmites australis*. This variant of *P. australis* is probably a recently identified non-native genotype, dubbed haplotype M, which seems to be responsible for the aggressive colonization of northeastern marshes and concomitant displacement of other plant and animal species from those systems. This variant is highly aggressive, forming dense root mats and clonal populations of stems which remain standing for several years after dying. Ecosystem fragmentation promotes the spread of *Phragmites*; the plant reproduces through rhizomes and seed germination and is able to tolerate fairly high levels of salinity (in the range of 15 ppt). While type M *Phragmites* can provide benefits to the urban environment, such as sediment stabilization and toxicant immobilization, it changes marsh dynamics dramatically. Over time this monoculture is much less likely to support larval fishes and causes loss of open water/marsh complexes, rendering less habitat available to wading birds, waterfowl, shorebirds and other species. Consequently, the choice of what to do to save the Meadowlands' remaining marshes will need to balance a variety of considerations.

The Meadowlands is likely to experience considerable change over the upcoming decades as hazardous waste sites are remediated, brownfields are redeveloped, and the estuary's watershed responds to development pressures. As resilient as the Meadowlands has shown itself to be, it is now in an urban landscape setting which places enormous stress on the ecosystem. One thing seems certain: if the Meadowlands is not managed, it is likely to experience an overall decline in wetland quality and estuarine life support. Ongoing research, such as the studies being performed by MERI, can help fill the information gap that currently exists on urban ecosystems, and hopefully, allow for better informed decisions.

# Remediation, Restoration, and Enhancement


An outing on the Hackensack

Getting a good look at Snake Hill

Photographs New Jersey Meadowlands Commission

*Susan Bass Levin, Commissioner, New Jersey Meadowlands Commission*

The dock at Laurel Hill Park

Over 7,000 people gathered on the banks of the Hackensack River for Riverfest 2002 on June 29. Thousands flooded Laurel Hill Park in Secaucus to participate in environmental and cultural events that celebrate the improved health of the New Jersey Meadowlands. Public enthusiasm for the river experience and the Meadowlands District was overwhelming. The Hackensack River is now a source of inspiration and pleasure.

This is a far cry from the condition of the area when the Hackensack Meadowlands Development Commission (now known as the New Jersey Meadowlands Commission) was formed in 1969. We faced an area devastated by unregulated industrialization and uncontrolled dumping. In the years prior to the 1960s, 24 garbage dumps covering more than 2,500 acres were leaching contaminants into rivers, creeks, wetlands and mud flats. The Hackensack River was an open sewer with debris, oil slicks and other pollutants choking the life out of its waters. By 1968, the contamination problem had intensified. Numerous underground dump fires filled the air with a pungent smoke. As a result, our early work focused on solid waste management with an emphasis on closing down unregulated landfills.

Today, because of our success in the closure of landfills, the Commission has been able to turn its full attention to the environmental protection and enhancement of the Meadowlands District. Under Governor McGreevey's administration, we will continue our efforts in remediation, restoration and enhancement by increasing the regulation of development in the wetlands and in open space, enhancing wildlife habitats and preparing a new Master Plan based on the Governor's Smart Growth Initiatives, which emphasize the redevelopment of brownfield properties.

The Commission has spent over $10 million for wetland acquisitions in our campaign to regulate development. Currently, we have 1,700 acres of wetlands and management rights for an additional 1,600 acres. The Commission rezoned over 1,000 of those acres to Marshland Preservation Zones with a permanent green designation. Deed restrictions were also placed on those zones to prohibit development. An appropriation of $1,195,400 through the Federal Coastal and Estuarine Land Conservation Program will assist with the purchase of additional properties. The awarded appropriation will also support collaboration with other Meadowlands environmental stakeholders to compile a list of properties considered to be top priorities for purchase.

Our future plans include the creation of a wildlife preservation zone encompassing over 1,600 acres and the continuation of an aggressive open space acquisition policy. Recently, the commission re-opened many of the facilities at our Environment Center. A new interactive exhibit, The Meadowlands Experience, features videos and workbenches with microscopes, which will provide children with a "hands-on" lesson about how to convert landfills to parks. In addition, the Commission has a relationship with NASA that will allow children to view images of the Meadowlands District from space.

September 2003 marks the groundbreaking of the EnCap Golf Project that will remediate 500 acres of abandoned landfills. And this winter, the Commission, in a joint venture with the U.S. Army Corps of Engineers, will unveil a new Flood Control Model for the Hackensack River.

Our efforts in enhancing wetlands continue to result in extraordinary change. The Commission has rezoned over 1,000 acres from redevelopment zones to Marshland Preservation Zones. One of the largest wetlands enhancement projects, Mill Creek Marsh, has seen increased water flow and the re-establishment of nesting and resting areas, including a special area to attract least terns, a State endangered species. Furthermore, monitoring of Mill Creek Marsh indicates that 74 species, including the State endangered black skimmer and northern harrier and the State threatened black-crowned night heron and savannah sparrow, have been sighted there.

The New Jersey Meadowlands Commission continues to be a force for change in preserving open space and saving wetlands. As the Commission celebrates over 30 years of achievement, we optimistically embrace the challenge of conserving our environment.

New Jersey Meadowlands Commission

# *A Land Steward Commitment by the State of New Jersey*

Keeping warm in red, Dr. Mamie Parker, Director of the Service's Northeast Region, Sherry Morgan, Assistant Regional Director for Ecological Services in blue, and Jaime Geiger, Assistant Regional Director for Fisheries in purple, tour Sawmill Creek with federal, State, and non-governmental colleagues, October 25, 2002

Director of the New Jersey Division of Fish and Wildlife Robert McDowell (left) and Director of the U.S. Fish & Wildlife Service Steve Williams tour the Hackensack Meadowlands, August 27, 2002

The new Director for the New Jersey Division of Fish and Wildlife, Marty McHugh (white shirt, standing), helps lead an interagency tour of the Meadowlands

Sawmill Creek: two snowy egrets at water's edge

Sawmill Creek hunters proudly display their harvest

Photography USFWS/Gene Nieminen

An American black duck in Sawmill Creek

## *Laurie Pettigrew, Principal Biologist, New Jersey Division of Fish and Wildlife*

The New Jersey Division of Fish and Wildlife manages the Sawmill Creek Wildlife Management Area (WMA) in the Hackensack Meadowlands as a land holding within its Wildlife Management Area System. Sawmill Creek is an area of startling contrasts. Glance to the east, and the Manhattan skyline breaks the horizon, but search the mudflats and vegetation around you, and you will soon discover egrets and herons actively foraging. Ducks, coots, and gallinules may take swift flight at your appearance. You may catch sight of raptors hovering overhead. Every once in a while, the sleek body of a swimming muskrat or the head of a turtle will break the surface of the water nearby.

New Jersey has some of the most diverse and complex ecosystems found in the United States. The New Jersey Division of Fish and Wildlife is committed to protecting the ecosystems of its 117 WMAs, comprising 270,000 acres—44 percent of New Jersey's open space. Managed under an agreement with the New Jersey Meadowlands Commission, the 727-acre Sawmill Creek is the only urban-based WMA.

Prior to European settlement, the Meadowlands covered about 20,000 acres of estuarine and freshwater marsh and Atlantic white-cedar swamp, but decades of neglect and abuse have reduced the Meadowlands to only about 7,700 acres of wetlands. Adjacent to the Hackensack River, the Sawmill Creek area was diked for mosquito control in the early 1900's. Over the ensuing decades, the ecological value of the area as a wetland was severely impaired. In 1950, a northeaster destroyed the dikes and reopened the Sawmill Creek area to tidal flow. Today, smooth cordgrass (*Spartina alterniflora*) is the predominant vegetation, and biological productivity has returned. Sawmill Creek WMA is home once again to a myriad of wildlife. It provides an important feeding, nesting, and resting spot for birds migrating along the Atlantic Flyway and serves as a nursery and foraging area for gamefish such as stripers, bluefish, weakfish and white perch.

An explosion in wildlife-oriented recreation has occurred during the last 30 years. While demand continues to increase, the amount of land available for the pursuit of wildlife-oriented recreation declines. New Jersey loses roughly 45 square miles (29,000 acres) of wildlife habitat to development every year. In view of this reality, protecting critical ecosystems for wildlife and providing open space for New Jersey's citizens is particularly important. The abundance of wildlife and easy access to the New York / New Jersey metropolitan area make Sawmill Creek WMA especially attractive to outdoor enthusiasts.

As the environmental health of the Meadowlands gradually returns, so does the recreational use of the area. Anglers participate in a catch and release fishery in Sawmill Creek. Waterfowl hunting is said to be the best in northern New Jersey. Kayakers and canoeists paddle the quiet creeks while hikers and birdwatchers stroll along the newly opened Sawmill Creek Trail that provides the best views of shorebirds and waders feeding on the mudflats. Boaters can access the WMA via a free boat ramp located in Hudson County's Laurel Hill Park. Entrance for pedestrians is from DeKorte State Park along the one-mile Sawmill Creek Trail, a segment of the Meadows Path, which will span the entire 21-mile length of the Meadowlands when completed. In the relatively short time that the Division has managed Sawmill Creek, the area has already become a model for what the whole of the Meadowlands may some day soon become.

NEW JERSEY DIVISION OF
**Fish and Wildlife**

# The Beginning of Something Wonderful

A tributary flows into the Hackensack River

An example of controlling *Phragmites* by burning

Photograph USFWS/Eric Schrading

*Eric Schrading, Senior Fish and Wildlife Biologist, New Jersey Field Office*

When the first Europeans arrived in North America, the Hackensack Meadowlands was an immense 20,000-acre wetland with a diversity of estuarine marsh, freshwater marsh, and Atlantic white-cedar swamp. The area was abundant with a variety of fish and wildlife because of the diversity of habitat it provided. Intensive urban development, landfills, industrial pollution, mosquito control, dredging, and draining have resulted in the degradation and destruction of over 12,000 acres of wetlands. The remaining 8,000 acres of wetlands were originally considered a biological wasteland and generally unpleasant. However, as Americans have come to understand and recognize the importance of wetlands for water quality, flood control, fish and wildlife habitat, and areas for passive recreation, our attitudes toward the Meadowlands have changed. We have moved from indiscriminate pollution and seeking ways to fill or drain wetlands to beginning to seek solutions on how to restore wetland functions and values.

Wetland restoration is the process of creating or enhancing wetlands degraded by direct or indirect human activity. Restoration can involve controlling invasive species, re-establishing natural hydrology, reintroduction of native vegetation, or creating vegetated upland buffers as an antidote to the impacts of runoff. In the Meadowlands, much of the wetlands restoration work has focused on controlling common reed (*Phragmites australis*). While common reed is native to North America, the invasive form of *Phragmites* common in most New Jersey wetlands is an introduced variant from Europe. *Phragmites* can be problematic because it creates large monotypic stands that reduce ecological diversity, limit fish access to the marsh surface and degrade wildlife values, interfere with tidal flow, and increase wildfire hazard. This is not to say that wetlands dominated by *Phragmites* have no functions and values, only that it is possible to restore and improve those functions and values.

The New Jersey Meadowlands Commission has been working to preserve and enhance wetlands within the Meadowlands and has three sites that are nearing completion. Restoration of the Skeetkill Creek Marsh (16 acres) and the Harrier Meadow Marsh (78 acres) involves control of common reed, re-establishment of tidal flow, and creation of open water areas. Construction activities are completed on these marshes, and the wetland functions are currently being assessed. The Mill Creek Marsh is also being restored to reduce coverage of common reed. Restoration of these wetlands will provide critical stopover areas for over 260 bird species. Nine additional wetland restoration projects are proposed by the New Jersey Meadowlands Commission. Although some of these marsh restoration projects are associated with mitigation, they are still important watermarks to what can and should be done to restore the Hackensack Meadowlands.

The U.S. Fish & Wildlife Service's Partners for Fish and Wildlife program completed a project in 2000 in cooperation with the New Jersey Meadowlands Commission to restore 2 acres of native warm-season grasses in an upland adjacent to wetlands in DeKorte Park. Additionally, the Partners program has restored thousands of acres of *Phragmites*-dominated estuarine marshes from Cape May to Ocean County. The importance of the restoration projects in the Meadowlands lies in forging new partnerships among diverse stakeholders who share a common and valuable goal. These projects demonstrate that not only is wetland restoration possible, but together, through meaningful partnerships, great things have begun.

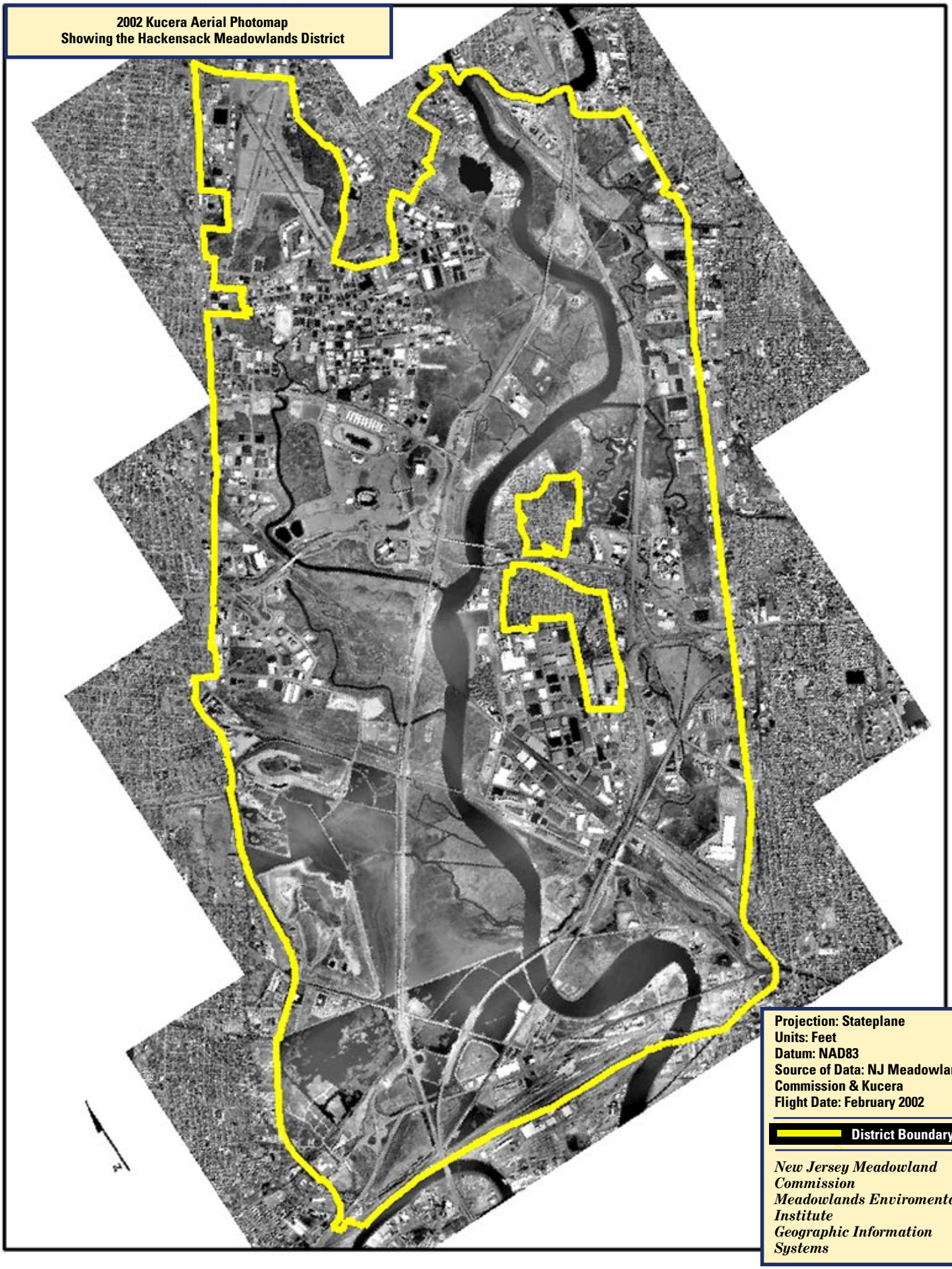
Photograph USFWS/ Eric Schrading

Digging tidal ditches to restore wetland hydrology along the New Jersey coast

The author directing a *Phragmites* control project in southern New Jersey

Photos top and bottom USFWS/Gene Nieminen

# 11 2002 Kucera Aerial Photomap Showing the Hackensack Meadowlands District



# Using Remote Sensing to Assess Natural Habitat

*Ralph W. Tiner, Regional Wetland Coordinator, Northeast Region, U.S. Fish & Wildlife Service*

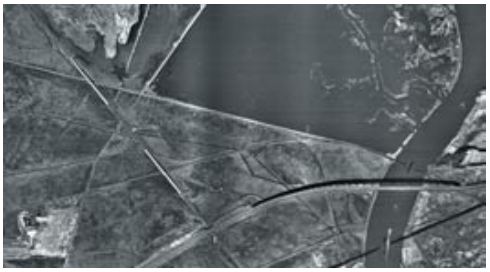
The 70-odd square miles that comprise the Hackensack Meadowlands have for centuries presented their own unique challenge to human habitation and use. The earliest roads built in the Meadowlands by colonists skirted the swamps. The first road to cross them, proposed by the New Jersey legislature in 1765, was built of logs from what remained of the Meadowlands cedar forests. Later, when the railroads laid their tracks across the wetlands, the rails went unused for a year; then if the ties had not sunk into the earth, they were deemed safe for travel. Under such circumstances, accurate maps of the Meadowlands were crucial.* Today, as ecologists seek to rectify centuries of abuse, the ability to pinpoint specific sites is even more critical.

Since the late 1970s, the U.S. Fish & Wildlife Service's (Service) National Wetlands Inventory (NWI) Program has been mapping the Nation's wetlands, and the Hackensack Meadowlands was one of the NWI's first projects. The NWI relies on aerial photointerpretation techniques to produce large-scale maps that show the location, size, shape, and type of wetlands using a 1:24,000 U.S. Geological Survey topographic map as a base. The original NWI maps of the Hackensack Meadowlands were produced by the Service from mid-1970s black and white aerial photographs (scale = 1:80,000) with a target mapping unit of about 5 acres. Given this and the fact that substantial changes have occurred in the Meadowlands since the late 1970s, these original maps are obsolete. In 2001, the Service's NWI Program initiated its Strategic Mapping Initiative to update NWI maps in priority areas. Northern New Jersey was designated as a high priority, and the NWI is compiling new maps from 1:40,000 color infrared photographs taken in 1995. Wetlands as small as one acre may be mapped.

In addition to updating the maps, the NWI is evaluating wetland trends in the Meadowlands, mapping the condition of stream corridors and wetland buffers, and evaluating the extent of remaining "natural habitat" for the entire Hackensack River watershed. The results of these studies will be reported in a series of publications.

The trends analysis study has been completed and the final report for the Meadowlands will soon be released. The trends study focused on wetland changes from the 1950s to the mid-1990s. During the study, an 1889 topographic map was used to document the general extent of wetlands at the end of the 19th Century. From this map, we determined that approximately 20,000 acres of wetlands were present in the Meadowlands study area in 1889. Analyzing recent aerial photographs, we found that as of 1995, approximately 28 percent (5,500 acres) of these wetlands remained. The greatest wetland losses took place from 1966-1976, with annual losses averaging about 300 acres. Annual losses of more than 200 acres were detected for two other time periods: from the 1950s to the mid-1960s, and from the mid-1970s to the mid-1980s. From the late 1800s to the 1950s, annual wetland losses averaged about 100 acres. Most recently, wetland losses have amounted to 20 acres per year.

The mapping of stream corridors and wetland buffers will include determination of the presence of vegetation or the nature of land use within 100 meters of the stream or wetland edge. The assessment of "natural habitat" will involve photointerpretation of major land cover and land uses in the watershed and calculation of several indices that provide a relative picture of the status of natural habitat in watersheds. From these indices, a composite called the "index of remotely-sensed natural habitat integrity" will be calculated.



**Two aerial shots—top, March 1995; bottom, February 1966—of the I-95 bridge in the Meadowlands (in the 1995 photo, Sawmill Creek WMA is left of the bridge just before it crosses the Hackensack; in the 1966 photo, the sharp contours of Snake Hill are dramatically etched at the extreme right just above the bridge)**

**Photographs USFWS**

Updated NWI digital map data for the Hackensack Meadowlands and related wetland reports will be posted on the web at **http://wetlands.fws.gov** in 2003. The first of these, the wetland trends report, is scheduled for posting by mid-winter (February 2003). This and other web-based publications will allow people to view the study results and accompanying maps on their home or office computer.

The mapping effort will provide a baseline for assessing future changes in both wetlands and other natural habitats through remote sensing. It will also give resource managers more information on the extent and relative condition of natural habitat in the Hackensack River watershed. Such information is vital for developing strategies to protect, conserve, and restore fish and wildlife habitats in this highly urbanized area.

*Robert Sullivan. 1998. *The Meadowlands: Wilderness Adventures at the Edge of a City*. New York: Scribner, pp. 172-3

# Towards a Comprehensive Plan

The following article summarizes a planning process that is being conducted through a partnership agreement among the U.S. Fish & Wildlife Service, U.S. Army Corps of Engineers, New York District, and the New Jersey Meadowlands Commission. This agreement, supported by federal and non-federal funding, will lead to a feasibility study, the outline of which is now being formulated under a Project Management Plan. The feasibility study will provide the foundation toward the development of a Comprehensive Restoration Implementation Plan.

*Leonard Houston, Chief, Environmental Resources Branch,*
*U.S. Army Corps of Engineers, New York District, Planning Division*

Photographs USFWS / Gene Nieminen

The view of the Meadowlands (right of center across the river) from the top of the Empire State Building

In April 1999, the House of Representatives passed a resolution directing the Corps of Engineers to investigate the potential for environmental restoration in the Port of New York / New Jersey. Then in June 2000, the Corps' New York District (District) issued a reconnaissance report that demonstrated a strong federal interest in environmental restoration within the Port District and called for a detailed feasibility study of environmental restoration within the entire Hudson-Raritan Estuary (HRE). This report recommended developing a Comprehensive Restoration Implementation Plan (CRIP) that would use an ecosystem approach to address the overall restoration needs of the estuary, rather than focusing on individual projects. The report also recommended conducting smaller sub-basin studies to address areas of special interest or concern which would be linked to the larger plan by the CRIP.

At about the same time, the U.S. Fish & Wildlife Service (Service) was holding a series of stakeholder work sessions to garner commitment to help protect the Hackensack Meadowlands. The Meadowlands had already been identified by the EPA's Harbor Estuary Program (HEP) as an area of special concern. The District's reconnaissance study recognized the HEP as having made extensive progress toward a system-wide approach to the HRE, and the CRIP was to become strongly linked with the work of the HEP. Consequently, the District was invited to the Meadowlands workshop held in the Offices of Representative Steve Rothman, (NJ9th). Congressman Rothman, whose District encompasses the Meadowlands, had made its protection and preservation a priority. At the workshop the Congressman drew a line around the remaining open spaces of the Meadowlands and expressed a desire that those present work together to create a Meadowlands reserve.

Of special interest was the approach identified in the HRE reconnaissance report for looking in detail at sub-basins of the larger estuary. The Meadowlands seemed to fill this bill perfectly. However, to use federal funds a non-federal partner was required. Into this role stepped the newly renamed New Jersey Meadowlands Commission (Commission). Once, under the old name of the Hackensack Meadowlands Development Commission it was focused on developing the area within environmental guidelines. The Commission is now emerging as a major advocate for land acquisition and restoration.

Three partners have thus been brought together at a very fortuitous time. The Service's New Jersey Field Office has been directed by Congress to assist the District in conducting a feasibility study toward the development of the CRIP and to prepare a comprehensive conservation plan for the Meadowlands. Similarly, the District has been directed by Congress to address the feasibility of environmental restoration within the Port District, including the Meadowlands. And the Commission has embarked on a new management plan that stresses land acquisition and restoration of the remaining open spaces in the Meadowlands. It's a natural that all three pool their expertise and resources, and concrete progress has been made toward doing just that:

1. The District and the Service have laid out a comprehensive work plan to identify the major problems and their potential solutions.

2. The District and the Commission are also investigating legal and funding mechanisms under which they can form a partnership to pursue the development of a restoration plan for the Meadowlands.

3. Finally, the District, the Service, and the Commission have identified their respective roles and responsibilities in maximizing resources and expediting the planning process.

The District has been working to translate the approach and goals agreed upon into specific tasks, with costs and times to complete each. The approach will identify specific sites for restoration, targeting those that have a greater potential for expanding existing natural tracts or connecting isolated pockets. The end result of this effort will be the Project Management Plan (PMP), essentially a roadmap that will identify what has to be done, who will do the work, and when it will be available. Once approved by the partners, it will be signed by all three as a Memorandum of Agreement and will serve as the basis for the Feasibility Cost Sharing Agreement between the Corps and Commission as well as any future fund transfers between the Corps and the Service.

Much excitement exists within all three agencies as they are poised on the brink of great things for the Meadowlands. In the past these agencies have not always seen eye-to-eye. Now they are setting aside their differences to achieve the common goal. When they succeed, a vibrant urban estuary will have been brought back from further degradation and eventual loss, and a significant commitment to the ecosystem of the region fulfilled. This is government as it should work: building meaningful partnerships.

A view of the Empire State Building from the Hackensack Meadowlands

US Army Corps of Engineers

# A Personal Reflection

**White perch** (*Morone americana*)

**Atlantic sturgeon** (*Acipenser oxyrhynchus*)

**Blueback herring** (*Alosa aestivalis*)

**Alewife** (*Alosa pseudoharengus*)

*Stan Gorski, Field Offices Supervisor, Habitat Conservation Division, National Marine Fisheries Service, James Howard Marine Science Lab*

As a young kid, I sometimes had a chance to go fishing for fluke and bluefish on my uncle's boat, at least when I wasn't scraping or painting the hull and cabin. We usually sailed out to waters which were just a few miles off the New Jersey Coast from a dock in a small marina along the lower, industrial portion of the Hackensack River, a waterway that both drains and floods the Hackensack Meadowlands.

Sailing to and from these productive, offshore fishing grounds, it wasn't hard to see that something was not right with the land and water north of Raritan Bay, including the Meadowlands. As with most of the rivers that drained into Raritan Bay, the Hackensack had an unpleasant, industrial smell, and I could easily see the strangely colored and sometimes steamy liquids, running into the river from pipes connected to smoke-belching plants and factories.

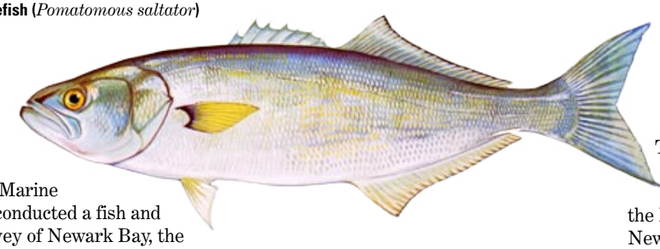
I was interested in aquatic life even back then and often went down to the water's edge by the marina to see what lived there. Below the near-shore shallows, the bottom was more black ooze than mud, and it usually expelled a petroleum-like sheen when poked or disturbed. The only aquatic life that this zone seemed to support were very tolerant, opportunistic species such as mud snails; little grass shrimp (an important food source for many marine and estuarine fish); killifish, which helped support a bait fish industry; and Tubifex worms, that were harvested in clumps, mostly from waters near sewage outfalls, and offered for sale to aquarium hobbyists as live fish food. These sites weren't very far from the fishing grounds where we could capture more fish than the whole family could eat; and yet I could easily observe a gradual change in the aquatic environment on the slow boat trip.

**American eel** (*Anguilla rostrata*)

Years later, when I was fresh out of the Army and nearly finished with college, one of my first jobs was with a refinery close to the Meadowlands. Nothing much existed outside of the various municipal borders except industrial sites, landfills, and huge tracts of no-man's land dominated with tall reed grass. I often asked myself how such abused land and water could exist so close to where the fish thrived. The prevailing answer was that the ocean is so large that it can infinitely dilute pollution. We know a little more now than we did then. The ocean is big indeed, but the amount of productive fishing grounds throughout the world is relatively minute; we are fortunate in that the NY / NJ Harbor Estuary supports some very productive grounds.

Productive coastal fishing grounds are often adjacent to estuaries, because many species of fish need estuaries for survival. They spend at least some of their lives in the estuaries because the wetlands provide food and shelter. And herein lies a paradox. Watching the Meadowlands over the last 50 years or more has been like watching an explosion in slow motion. Failed attempts at farming and pasturing in colonial times were followed by an increasing amount of convenient disposal of civilization's debris: everything from car bodies, to household garbage, to liquid and solid industrial waste. On top of this, many of the small streams within the Meadowlands are now blocked with dams and tide gates that stop the tidal exchange of nutrient-rich water and prevent the passage of fish and forage organisms between the upper parts of the waterways and the lower tidal portions. Yet with all the mistreatment of the Meadowlands, fish species in the rivers and bays are well represented.

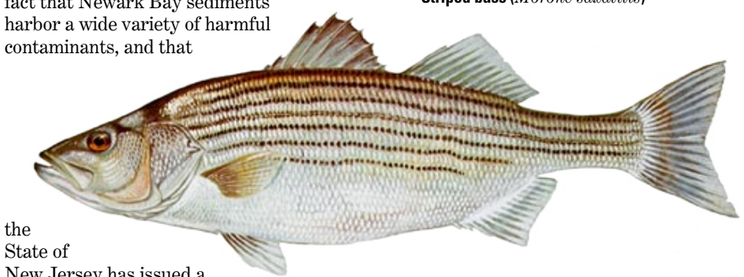
**Bluefish** (*Pomatomous saltator*)



A couple of years ago, researchers at the National Marine Fisheries Service at the James J. Howard Marine Sciences Laboratory conducted a fish and benthic organism survey of Newark Bay, the sink for the Passaic and Hackensack Rivers, and, surprisingly, found 56 species of fish and invertebrates in an assortment of life stages. Some, such as striped bass and winter flounder, were surprisingly common. Since then, the three Fishery Management Councils along the east coast have designated the mixing zone of the Hudson - Raritan Estuary, which includes Newark Bay, as essential fish habitat for 11 species. This, despite the fact that Newark Bay sediments harbor a wide variety of harmful contaminants, and that the State of New Jersey has issued a ban on the consumption of blue crabs from Newark Bay. Obviously, not all of the Meadowlands is degraded, and considerable improvements are being made—especially the recent upgrading of some sewage treatment plants. It may well be that the Meadowlands are far more productive than we can imagine!

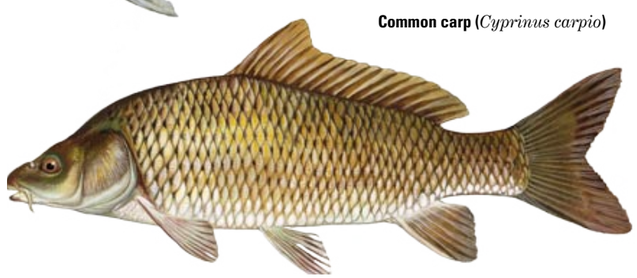
Yet the Hackensack Meadowlands has been subjected for many decades to some of the worst pollution imaginable. Is it conceivable that the ecosystem could sustain so much carnage without suffering damage? Perhaps our research has not yet asked the right questions.

**Striped bass** (*Morone saxatilis*)



The State has created a productive tidal complex at the 800-acre Sawmill Creek Wildlife Management Area in the Meadowlands, now managed by the New Jersey Division of Fish and Wildlife under an agreement with the New Jersey Meadowlands Commission. The Commission has cleaned up landfills, thus reducing the release of contaminants, and has purchased a considerable amount of property previously slated for development. With the acquisition of 1,700 acres above and beyond the 800 acres of the Sawmill Creek area, the Commission is the largest landowner in the Meadowlands. The Commission has made a long-term commitment to improve fish and wildlife habitats by restoring natural functions and also to conduct studies to monitor productivity of the restored sites. As results come in from these studies, we may finally begin to see the connection that I made as a young kid between the Meadowlands' resources and productive offshore fisheries.

**Common carp** (*Cyprinus carpio*)



# Managing Public Land in the New York / New Jersey Metropolitan Area


Photographs USFWS / Gene Nieminen

Lady Liberty lifts her torch beside the shore

*Marc Koenings, General Superintendent, National Park Service, Gateway National Recreational Area*

Managing public lands into the 21st Century, especially in highly urbanized areas, certainly presents strong challenges but also affords incredible opportunities. The Hackensack Meadowlands and Jamaica Bay (including the Jamaica Bay National Wildlife Refuge, managed by the National Park Service (NPS)) are two of our most impacted and at the same time valuable resources in this area. I would like to offer several perspectives from a Gateway National Recreation Area (Gateway) vantage point. Recently, NPS asked a group of esteemed Americans to look at the NPS park system and provide some direction as the National Parks enter the 21st Century. Their conclusions are as follows: *We are a species whose influence on natural systems is profound. Our increased numbers have altered terrestrial and marine systems, strained resources and caused extinction rates never before seen. As developed landscapes press against or surround many parks, pollutants in both the air and water impact park resources. Our growing numbers are drifting away from knowledge about nature and our own history as a nation and a people.*

Knowledge gained through education can inspire people to action. Therefore, education is key to the protection and preservation of the Meadowlands and Jamaica Bay. It has equally become apparent that NPS assets can enhance the quality of public education. The Parks as Classrooms program, developed in the 1990s, set high standards for curriculum-based programs at park sites throughout the NPS.

Gateway is proud of its long history of providing myriad educational programs to adults and students alike. From day-trips along the edges of Jamaica Bay to residential overnights at Sandy Hook and tent camping in the deep dark pines of Floyd Bennett Field in Brooklyn, rangers and volunteers have introduced thousands of visitors to the wonders of New York and New Jersey parks and preserves.

The Gateway Environmental Study Center opened its doors in January 1976. Since then, it has delivered educational programming and professional development opportunities for over 11,000 students and teachers annually. Future plans include exciting educational opportunities for visitors of all ages and backgrounds. The National Parks of the New York Harbor, a new consortium that represents all of the national parks in our area, will offer several harbor-wide educational programs this year. Some of these educational programs will take place at the new Education Field Station located at Great Kills Park on Staten Island. Additionally, autumn of 2002 hails the opening of a harbor-wide Education Center at Staten Island's Fort Wadsworth. It will eventually offer 70,000 students standards-based educational programs that explore the rich cultural history and natural sciences represented in our national parks.

Education will also expose the need for scientific studies and related research. For example, the Columbia Earth Institute, in collaboration with the NPS, has used Jamaica Bay as the study area for sea level rise impacts on wetlands in this region. Preliminary findings suggest that global climate change impacts will be keenly felt in our bays and wetlands. Gateway also brought together a blue ribbon panel of esteemed scientists and others to help find solutions for the wetland loss at Jamaica Bay, and have continued studying the best way to deal with the shifting sands along the ocean side of the Sandy Hook peninsula.

Together we can do much to curb these impacts. Throughout the NPS, and especially at Gateway's new Jamaica Bay Learning Center for Human Ecology we will be investigating practical things we all can do to minimize the adverse impacts to our environment. We will look at our collective effects on Jamaica Bay and suggest ways to decrease energy consumption, conserve water and reduce pollutants. These and other factors such as land-use planning influence the quality of our lives, the lives of future generations and the long-term health of our coastal ecosystems.

Perhaps the greatest challenge as we enter the 21st century will be effective collaboration between federal, regional, state, and local governments. This will offer an additional mechanism to protect our coastal ecosystems, especially Jamaica Bay and the Hackensack Meadowlands and will be achieved through on-the-ground open space management. Collaboration and sound resource management will help build an outdoor recreation network accessible to all Americans, sustaining and safeguarding our most fragile ecosystems for future generations.

Just miles from Liberty State Park, sound management practices continue to restore more and more of the Meadowlands to better health

# Creative Partnerships Facilitate Success

Photography USFWS/Gene Nieminen

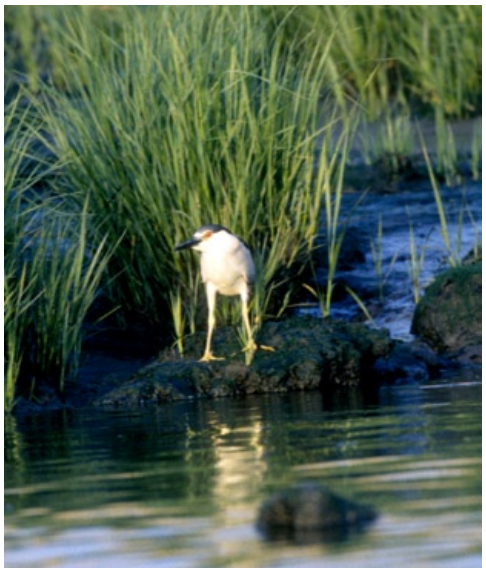
A pair of ruddy ducks in the Meadowlands, June 2002

*Trevor H. Needham, Assistant Director, Northeast Region and Conservation Education, National Fish and Wildlife Foundation*

Despite the urban sprawl pushing at its boundaries, the Hackensack Meadowlands harbors and supports a remarkable array of wildlife habitats and species. Outdoor enthusiasts traveling its waterways marvel at the diversity and numbers of waterfowl and other wildlife. Equally remarkable, however, is the increasing and significant commitment among a diverse cadre of partners (public agencies, private entities, community-based conservation groups, political representatives, citizens, etc.) to make successful natural resource conservation and protection a reality in the Meadowlands. After decades of disagreement, this new commitment among the partners to work together to achieve a shared vision for the protection and restoration of the Meadowlands offers tremendous opportunities to see a real change in the near future. The National Fish and Wildlife Foundation (Foundation) supports this change.

Established by Congress in 1984, the Foundation is a private nonprofit 501(c)(3) organization dedicated to advancing the conservation of fish, wildlife, plants, and the habitats on which they depend. Thus, our goals are to promote healthy populations of fish, wildlife, and plants. We meet these goals by creating partnerships between the public and private sectors and by supporting conservation activities that pinpoint the root causes of environmental problems. We award challenge grants under a variety of programs, administer and manage special funds that help finance specific conservation objectives, and build support and leverage resources for strategic conservation efforts.

Working with our federal partners—in particular the U.S. Fish & Wildlife Service and the National Oceanic and Atmospheric Administration—the Foundation is committed to exploring opportunities to benefit restoration efforts within the Meadowlands. Beyond leveraging a variety of resources and providing challenge grants, the Foundation also makes a range of other services available to the conservation community. For example, the Foundation has worked with federal and State agencies and other partners to establish dedicated funds (e.g., legal settlement, restitution, mitigation) for on-the-ground conservation of fish and wildlife resources and their habitats. To date, the Foundation manages over $150 million under more than 140 of these dedicated funds.



A black-crowned night heron in Sawmill Creek, June 2002

Since its inception, the Foundation has worked with over 2,100 partners and awarded more than 5,600 grants committing $230 million in federal funds that was matched with over $475 million in non-federal funds. As part of our grant making in the lower Hudson River Ecosystem, the Foundation has provided grant support to partnership efforts to restore the Passaic River, a drainage adjacent to the Hackensack. A grant to the Passaic River Coalition and their partners is helping to restore a damaged urban riparian corridor along the Passaic River to its natural functions, using native vegetation. In addition the Foundation provided grant support to a community-based partnership effort with the International Youth Organization to restore the Hendricks Pond area of the Second River, a tributary to the Passaic, as well as to involve the community in ongoing stewardship activities on the river.

These efforts highlight the Foundation's interest in supporting community-based, on-the-ground conservation efforts. Through such creative partnerships, the Meadowlands may have a very bright future.

National Fish and Wildlife Foundation

# An Invasive Foe or a Resilient Friend?

Photographs USFWS / Gene Nieminen

**A stand of common reed (*Phragmites australis*) in the Meadowlands**

*Carlo Popolizio, Fish and Wildlife Biologist, New Jersey Field Office*

Most biologists are of the opinion that common reed, which scientists know as *Phragmites australis*, has become an aggressive and towering pest in our wetlands, producing impenetrable stands, displacing beneficial wetland plants and providing little food or shelter value to wildlife. Others, such as Richard Kane of the New Jersey Audubon Society, consider it a host for numerous resident birds such as the marsh wren and other neo-tropical migratory passerines, bitterns, night-herons, grebes, ibises, egrets, ducks, geese, and rails, including State threatened and endangered species and rare breeders in northeastern New Jersey.

It is most certainly true that *Phragmites australis* supports populations of these birds at the Hackensack Meadowlands; we have seen them there, finding food and cover among the reeds. But questions remain: is *Phragmites* native to the Northeast region? A study of tidal marsh history in southeastern Connecticut, found *Phragmites* rhizomes older than 3,000 years buried in the substrate. Cores from a site on the south shore of Long Island, New York revealed a transitional predominance of *Phragmites australis* around 1700 AD. Recently, Kristin Saltonstall at Yale University documented 11 varieties of common reed native to North America and 27 worldwide, including the invasive haplotype M, likely the one aggressively expanding in Atlantic coast wetlands. Haplotype M was found in all of Saltonstall's sampling sites in New Jersey, including one near the Vince Lombardi rest stop off Interstate 95 in the Meadowlands.

Can the much-noted spread of *Phragmites australis* at the Hackensack Meadowlands be attributed to environmental changes of an anthropogenic nature? Well, eight percent of the U.S. population lives within a 50-mile radius from the heart of these wetlands. Prior to European colonization, the Hackensack Meadowlands sustained healthy and extensive stands of Atlantic white-cedar (*Chamaecyparis thyoides*), but nowadays only a few waterlogged stumps remain. Later, four reservoirs were built upstream to hold back 17 billion gallons of water for human use, limiting the flow of freshwater and causing tidal salt-water intrusions in these wetlands. Not all plant species coexist well with humans, but over the last 100 years, our nemesis / friend has spread like wildfire in the path of our developments, channels, ditches, dams, dikes, and pollution. Perhaps we should not confuse the shadows of reed stands with our own.

Does the rest of the world share our view of *Phragmites*? Various cultures use it for food, forage, and fertilizers, and make musical instruments, ornaments, toys, bags, baskets, sandals, clothing, rafts, mats, snares, screens, partitions, thatched roofs, pens, and paper with it. Medicinally, *Phragmites* is used in midwifery for postpartum recovery, as an emetic (vomit-inducing), as a decoction in treating diarrhea and related ailments, as an analgesic (pain-relieving), as an expectorant (clearing of the throat and lungs), and in splinting. Some even hail it as a symbol in religious ceremonies and in heraldry. *Phragmites australis* is so valued that sustainable reed harvesting is a concern in most of Europe today.

Could then "Phrag" have any redeeming qualities to us other than the one highlighted by Richard Kane? How about phyto-remediation, the use of plants to remove contaminants from the environment? For many years, the Hackensack River was so polluted that fish could not survive. Although in recent years we have applied better pollution-control measures and fish have made a comeback, grievous contaminant problems still persist in the river. For phyto-remediation in the Hackensack Meadowlands, *Phragmites* is very efficient in trapping large amounts of contaminants, primarily through its root system. Bacteria and fungi in the *Phragmites* rhizosphere use nitrogen, phosphorus, hydrocarbons, creosote, pesticides, insecticides, surfactants, solvents, and sewage as sources of energy and carbon. *Phragmites* also retains and buries large amounts of metals, such as chromium, copper, lead, and zinc, and is considered an excellent plant in wastewater treatment systems.

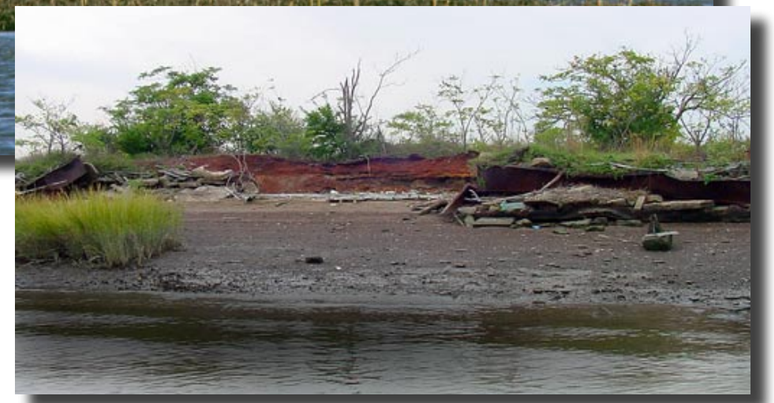
Although an intrusive plant in the southern coastal plain of New Jersey, *Phragmites* provides important wetland functions and values in the northeastern coastal areas of the State. Given the degraded conditions in the Hackensack Meadowlands, *Phragmites* may be benefiting many fish and wildlife resources as we strive to improve our relationship with nature and restore the natural functioning ecosystem of this area.

# Restoring the Crossroads of the American Industrial Revolution

Two great egrets and a great blue heron forage in the Mill Creek restoration area


Photographs USFWS / Gene Nieminen

Restoration: revitalizing the Carlstadt-Moonachie Wetlands, May 1999



Desolation: tidal erosion dramatically exposes the yellowed stratum of chromium-contaminated soil laid down by operations at a now defunct factory

*Timothy J. Kubiak, Assistant Supervisor, Environmental Contaminants and Private Lands, New Jersey Field Office*

*Sandra K. Brewer, Ph.D., Senior Environmental Contaminants Specialist, New Jersey Field Office*

In the Hackensack Meadowlands, Dutch colonists found a landscape close to their hearts, a landscape filled with fertile land, tidewater streams, lush marshes and Atlantic white-cedar swamps, a landscape that drew settlers from the earliest days. "Dutch New Jersey" was admired both for the hard-working, entrepreneurial spirit of the residents and also for the natural bounty the Meadowlands supplied for industrial activities. Indeed, the American Industrial Revolution was centered within a few miles of the Meadowlands. With the Industrial Revolution came opportunity, growth, and, unfortunately, natural resource degradation, destruction and contamination.

The passage and enforcement of the Federal Water Pollution Control Act in 1972, now known as the Clean Water Act (CWA), began the restoration possibility of fish and wildlife populations in the area. Closure of landfills and enforcement of responsible disposal practices by the State of New Jersey and New Jersey Meadowlands Commission have greatly decreased illegal dumping practices and reduced the amount of leachate oozing into the Hackensack River and wetlands. These and other contaminant prevention measures have provided improvements in air, water, and soil quality and have helped to triple the number of avian, fish, and shellfish species using the Meadowlands.

The good news: the ospreys are back and join more than 50 species of fish and over 60 species of birds that populate the Meadowlands

The CWA, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (commonly known as "CERCLA" or "Superfund") and the Oil Pollution Act of 1990 authorize cleanup and restoration of sites with existing contamination from unauthorized releases of hazardous substances and oil. These laws provide stakeholders with legal authority to pursue active restoration under the Natural Resource Damage Assessment and Restoration Program (Restoration Program), the goal of which is to restore natural resources adversely impacted by contamination. The Restoration Program operates through a "polluter pays" principle: restoration is paid for by the responsible parties rather than the taxpayer. The U.S. Fish & Wildlife Service has direct, legislatively-mandated responsibilities under Section 107 of CERCLA, serving as a "natural resource trustee" for the general public.

Today, the Meadowlands has a diverse number of contaminant issues, notably, three Superfund sites, including the nation's most contaminated mercury site. Just outside the Meadowlands boundary is the nation's most contaminated dioxin site. Twenty percent of the Meadowlands is currently in landfills as a result of 300 years of metropolitan and industrial growth. The EPA has the federal lead for remediation of these sites under the Superfund Program as well as general cleanup authority under the CWA. Restoration by trustees under CERCLA follows remediation efforts at Superfund sites.

How can any area that has been subject to the neglect and wasteful land-use practices that the Meadowlands has endured be cleaned up and restored to the point where healthy populations of fish and wildlife thrive? We emphasize the word *healthy* because there is a need to assure the public that species using the Meadowlands are not only present but confirmed to be healthy or can be made healthy through remediation and restoration. By using state-of-the-art toxicological tools to assess species health and identify causes of adverse health outcomes, we will succeed at primary remediation as well as trustee-led restoration. Deferring to public health-related goals instead of identifying parallel goals for ecological health will not be productive because wild species often have life history, exposure and sensitivity differences that can make them more susceptible to contaminants than people. We need to establish goals that protect wild species as well as the people who harvest them for food.

Surrounded by intense urban development, the Meadowlands is among the last remaining "islands" of open space that provide the 20 million residents and tourists of the New York City environs with a sense of wildness and natural landscape. The Meadowlands continues to provide Essential Fish Habitat for eight species of estuarine fish and more than 50 species of fish that need the area for at least part of their life cycle. Likewise, the Meadowlands still provides valuable nesting and foraging habitat for migratory waterfowl, waterbirds, and neotropical songbirds, as well as wintering raptors such as rough-legged hawks and northern harrier. More than 60 bird species are considered to be residents of the area. We have both marveled at the magnetism the Meadowlands has for aquatic life, fish and wildlife. While nature is quite resilient and adaptive, environmental managers, including trustees, must often intercede to undo what has been done to assure the health of significant ecosystems such as the Meadowlands.

President Theodore Roosevelt once said, "Do what you can, with what you have, where you are." Meeting the challenge of cleaning up, restoring, managing, and permanently protecting the Meadowlands' ecological functions and values can be met only through cooperative stakeholder efforts from various levels of government, the private sector, conservation groups and the public. If all stakeholders participate in doing what is right for the Meadowlands, together we can make President Roosevelt's words come alive, creating a great success story in the process.


The bad news: these signs are still common in the Meadowlands

# "To Render Them Fruitful"

**"The draining of the swamp lands is not a new idea. Such lands are not only unproductive of anything which can subserve any important purpose, but they are productive of numerous evils. Teeming with miasma, the home of mischievous and annoying insects they are blotches upon the otherwise fair face of nature. To render them fruitful and productive of good rather than evil, is a problem for which a solution has been anxiously sought, but heretofore only partially obtained . . . ."**
*Scientific American, 1868*

## *A Position Statement by Twenty-one Key Non-Governmental Organizations*

The non-governmental organizations working for the conservation of the Hackensack Meadowlands view the Meadowlands as first and foremost a public trust resource. It was such when the indigenous Lenni Lenape hunted and fished along the banks of its cedar swamps. It was throughout the history of our nation, and it is so today. The Meadowlands was and will always be a place where people come to the water. For as long as *Homo sapiens* has inhabited the area, people have made their way through its marshes, down its creeks and to its abundant riches. They came for the fish, birds, waterfowl and other animals that lived there. Later, people came for the Atlantic white-cedar as well. The last of the cedars were being felled as the Twentieth Century dawned. It was then that the Meadowlands ceased to be a source of Nature's riches and instead became a dump for industry's waste and a site for urban sprawl.

Ironically, the "solution" to the Scientific American's "problem" of "rendering" swamp lands "fruitful" created instead the very "miasma," the very "blotch upon the . . . fair face of nature" that in 1868 the periodical decried. A place that for centuries had supported a diverse and dynamic flora and fauna was expropriated by builders, trash barons, and land speculators. The resulting pollution of the Hackensack River destroyed fisheries and put an end to river-based recreation, driving the citizens of the watershed away from their own river. Untold millions of tons of garbage were dumped into the marshes and waterways. "After all," prevailing sentiment insisted, "it's just a stinking swamp. What better place to take the trash to?" Then in 1923, the Oradell Dam was built about 15 miles upstream, choking off the flow of the Hackensack River and causing saltwater to infiltrate 11 miles upstream from the confluence of Newark Bay, thus killing streamside vegetation that had flourished for millennia. For a long time the common reed, *Phragmites*, was virtually the only plant that grew in the Meadowlands.

But even in the worst of times, the half-century between 1920 and 1970, duck hunters, muskrat trappers, fishermen and other common folk never gave up on the Meadowlands. When science finally caught on to the value of wetlands and government began to take an interest in preserving such places, the common folk users of the Meadowlands showed the way. Local conservation groups beat the drums to gather the troops. In the early '70s New Jersey Audubon began regular avifauna surveys in the Meadowlands; Audubon Vice President for Conservation and Stewardship Richard Kane's 1996 Hackensack Migratory Bird Report quickly proved seminal. In 1990, Andrew Willner began the work of New York / New Jersey Harbor Baykeeper, having built on the momentum started by the American Littoral Society in the 1980s. The Hackensack Meadowlands Preservation Alliance was formed in 1997. The Hackensack Estuary and River Tenders Corporation eventually became Hackensack Riverkeeper. The conservation groups have consistently been the voice and conscience of the common folk who refused to give up.

Today the Hackensack Meadowlands is a resource in recovery. Even though we have lost two-thirds of its land surface area, the ecosystem's dynamism grows stronger each year as the water gets cleaner and the scars on the land are softened by time. The waters of the Meadowlands are now home to more than 60 species of fish and shellfish. At last count, 63 species of birds were found to nest there, with an additional 200 species utilizing the marsh and adjacent uplands as migratory stopovers. Endangered northern harrier and yellow-crowned night heron are confirmed nesters, and resident ospreys and peregrine falcons utilize the marshes as a primary hunting ground. Over the past two years harbor seals have been observed in the lower Hackensack River feeding on the abundant schools of herring that migrate from the ocean through Newark Bay. With the passing of each day, the seeds of saltmarsh plants from many miles away are borne on the tides to germinate in this "accidental saltmarsh."

The hunters and fishermen still come, and they are joined by legions of birders, boaters, paddlers and just plain folk who come simply to retreat from the pace of urban life that surrounds the 8,500 acres of water, marshes, and open space that comprise the Meadowlands. The tide has turned, and the story is coming full circle. Government agencies which until very recently were accommodating development in the Meadowlands are now actively working to restore and conserve it. For example, the U.S. Fish & Wildlife Service, U.S. Army Corps of Engineers, and the New Jersey Meadowlands Commission have partnered to conduct a feasibility study and to develop a comprehensive restoration improvement plan for the Meadowlands. Other governmental and environmental organizations as well as many thousands of "just plain folks" who believe that the highest and best use of the Meadowlands can be achieved only through its restoration and protection, support this partnership.

Photographs USFWS / Gene Nieminen

Captain Bill Sheehan, Hackensack Riverkeeper

In 1868, the same year Scientific American informed its readers that swamps were "blotches upon the otherwise fair face of nature" and "unproductive of anything which can subserve any important purpose," George Cooke, New Jersey's state geologist, also wrote, "[The Meadowlands] must . . . be reclaimed, so as to be fit either for cultivation, or for occupation with buildings." The legacy of this line of thought haunts us even at the dawn of the Twenty-First Century. Yet we are finally learning how to "render" the Meadowlands truly "fruitful" again. We have been empowered by the truth that the Hackensack River and the marshes of the Meadowlands, including the fish and wildlife resources they support, do not belong to any particular individual, entity, or organization, public or private. They belong to us.

New York City Skyline from the Meadowlands



*American Littoral Society*
*Association of NJ Environmental Commissions*
*Columbia Law Clinic*
*Ducks Unlimited, Inc.*
*Environmental Defense*
*Hackensack River Symposium, Fairleigh Dickinson University*
*Hackensack Riverkeeper, Inc.*
*Hackensack Partnership*
*Hudsonia*
*Meadowlands Conservation Trust*
*Natural Resources Defense Council*
*NJ Audubon Society*
*NJ Chapter Sierra Club*
*NJ Conservation Foundation*
*NJ Environmental Federation*
*NJ Environmental Lobby*
*NY / NJ Harbor Baykeeper*
*Regional Plan Association*
*Rutgers Environmental Law Clinic*
*The Fyke Nature Association*
*The Hudson River Foundation*

# Classroom to the World

*James Cramer, Ph.D., Communications Specialist and Writer/Editor, New Jersey Field Office*

Photographs Page 25 USFWS / James Cramer

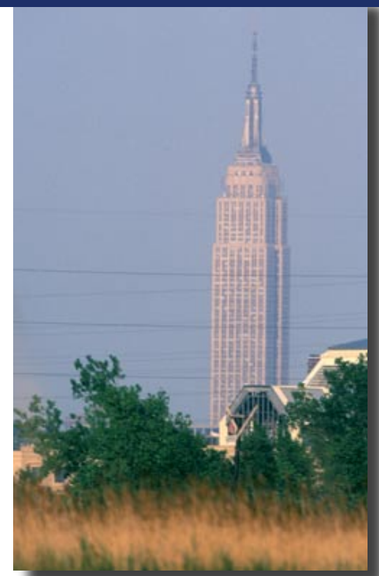
The sun rises over the Meadowlands

It was a few minutes before 5:00 AM on a day in late May. The sun had not yet risen, but the sky was already a blue-grey as we prepared to head down river with Captain Bill Sheehan, the original Hackensack Riverkeeper himself, a towering personality and an indefatigable promoter for the Meadowlands, at the wheel of his brand-new pontoon boat, the Edward Abbey. For two of us, this was a photographic expedition, but for Carlo, the third member of our U.S. Fish & Wildlife Service team, it was a chance to observe a restoration site in the Meadowlands from the river's point of view. Later that afternoon, Bill was to take a group of Girl Scouts on one of his famous "Eco-Cruises." We had a good idea of what the scouts were in for. Riverkeeper's two boats ply the waters of the Meadowlands almost continuously, putting students and elected officials–anyone, in fact, with eyes to see and ears to hear–in immediate contact with the environment, pocked as the earth and water are with the open sores of centuries of abuse. Bill will not let you miss the yellowed stratum at the shoreline containing foul-smelling and lethal levels of chromium lying beneath the shell of the factory that once refined the metal. At another spot he points out garbage bags and other debris falling into the river as a former landfill slowly erodes its waste into the water. A Riverkeeper Eco-Cruise will jolt even the most apathetic out of their conservationist lethargy. The educational ploy is simple: let the Hackensack Meadowlands speak for itself. An osprey's abrupt dive to the water is exhilarating to see, while the sight of a still anchored barge that capsized one night, spilling many gallons of caustic lye into the waterways and killing hundreds of fish, is sobering.

Indeed, the Hackensack Meadowlands is a dynamic classroom for ecological education. Congressman Steven Rothman (NJ9th) joins a host of other notables when he predicts that the Meadowlands will become a model for land conservation worldwide. Certainly, amidst one of the most densely populated areas in the world, the Meadowlands' successful support for wildlife provides important insights for solving the problems of balancing urban impacts with environmental quality. The fact that the Meadowlands is literally in sight of the Manhattan skyline is also logistically advantageous: not only is it easily accessible to the major transport corridors of the world, it is also located for maximum media visibility. Furthermore, the Meadowlands provides a crucial buffer to pollutants that would otherwise pour into the Newark Bay and the waterways of the harbor estuary. It is thus an ideal laboratory-classroom for studying the crucial role that wetlands can play in urban environments.


No longer transporting lye, this barge now removes sewage from Bergen County

Other concerns occupy scholars as well. For example, Jared Eudell, a recent graduate of Fairleigh-Dickinson University, studied how the direction of the current affects barnacle colonies in the Meadowlands. Jared researched the density and maximum height of the colonies as well as the diversity of species within them. Presently, Beth Ravet of Rutgers University is conducting her doctoral studies on the interaction between salt marsh vegetation in the Meadowlands and the microbial communities associated predominantly with plant roots. In 1998, the New Jersey Meadowlands Commission and Rutgers University initiated a partnership to create the Meadowlands Environmental Research Institute, whose mission is to build a plan for preserving and restoring the Meadowlands that is scientifically defensible. Research is essential for preparing such a plan.



Photograph USFWS / Gene Nieminen

Symbiosis: the Empire State Building grounded in the Meadowlands

Students birding on a Riverkeeper eco-cruise

The Riverkeeper's Hugh Carola takes students on an eco-tour


Photographs USFWS / NJMC

Out for an educational voyage

At the other end of the educational spectrum, the Commission's Meadowlands Environment Center has focused since its founding in 1983 on primarily the elementary and middle school grades. Why is the Hackensack Meadowlands such a valuable educational tool? Because the Meadowlands is accessible enough to study easily, and lessons learned can be applied universally. Then too, in an increasingly populated world, first-hand knowledge of how to remediate and restore heavily degraded areas is an ever more valuable commodity. The Center offers a wide variety of field trips / courses for all grade levels. With such titles as "Trash Party" and "Worms Eat My Garbage," the curricula engage the interest and pique the curiosity of young learners. The Center also offers summer seminars for teachers and helps to prepare Education majors at two local colleges for State certification.

Fortunately, plans are developing to restore the Hackensack Meadowlands ecosystem as an oasis for wildlife and a buffer against flooding and contaminants in an urban setting. The Meadowlands has already proven to be an invaluable resource for ecological studies. Scholars from kindergarten to post-doctorate / practitioner levels will continue to learn much from this complex and diverse 8,400-acre coastal estuary.

Photograph NJMC

The Commission's Don Smith uses his boat as a classroom

Photographs USFWS / Hackensack Riverkeeper

While Capt. Bill talks two youngsters focus on the wildlife

# A Vision Plan

*Presented by*
*The New Jersey Division of Fish and Wildlife*
*and the*
*U.S. Fish & Wildlife Service*

The Hackensack Meadowlands is a complex of wetlands, forests, and fields along the lower Hackensack River. This unique area supports an astonishing number of raptors, ducks, geese, wading birds, other migratory birds, fish, reptiles and amphibians. It is an oasis in the midst of one of the most densely populated areas in the United States. This 8,400-acre area is the largest remaining brackish wetland complex in the New York / New Jersey Harbor Estuary.

Unfortunately, however, the Meadowlands has problems. This mixture of land and water so rich in natural resources has been the center of a growing human population for the last 300 years. Consequently, development pressure, pollution, and ignorance have led to the degradation and destruction of this area, which threatens the health and vitality of fish and wildlife. But now there is an opportunity to save and restore the Meadowlands.

Contamination can be eliminated and cleaned up. Fill can be removed and areas restored to wetlands. Tidegates can be removed to restore a more natural hydrology. Lands can be acquired and conservation easements obtained to prevent over-development and provide wildlife habitat and public recreation opportunities. Invasive and exotic species can be controlled and areas restored to natural conditions. Citizens can work together to protect the integrity of the Meadowlands. Saving this unique habitat will require the cooperation and meaningful involvement of all stakeholders—municipal, state and federal agencies, local and national environmental groups, and the people of New Jersey and New York. Taking the right steps now can ensure a future of clean water to our communities, flourishing plant, fish, and wildlife populations, and outdoor recreational opportunities for more than 14 million people.

Any environmental protection plan for the Meadowlands must recognize that government agencies alone cannot achieve sustained environmental improvements. The cumulative effects of the day-to-day decisions made by millions of people who live, work, and play in the Hackensack River watershed can greatly outweigh the environmental benefits of a particular government program. The approach for developing a long-term plan must be to operate both individually and collectively. Instead of simply controlling problems or mitigating the impacts of our actions on the environment, all parties must work to avoid problems from the start to improve the current condition of the Meadowlands. Through our cooperative efforts, each stakeholder and interest group, as well as all levels of government, have an opportunity and an obligation to help find a solution for making the Meadowlands an example of our collective commitment to natural resource stewardship.

Goals for the Meadowlands:

1. Improve conditions for all native plant, fish and wildlife species.
2. Clean up contaminated sites and reduce the effects of pollution on fish and wildlife resources.
3. Acquire, preserve, and restore remaining undeveloped tracts of land to key functioning parts of the Meadowlands ecosystem (*e.g.*, removal or replacement of tide gates with structures that close only on extremely high tides to allow more normal tidal flow and fish passage). Preserve and restore vegetated wetland and upland corridors connecting both small and large tracts that are necessary to connect populations of less mobile species and increase the habitat value of formerly isolated tracts.
4. Control invasive and exotic species.
5. Enhance, restore, and maintain ecosystem integrity, including natural dynamic processes (*e.g.*, successional patterns, natural disturbance regimes, hydrologic processes, nutrient cycles, predator-prey associations).
6. Increase public awareness and education about the Meadowlands and its regional importance through an expanded number of public access points within the Meadowlands, and by encouraging increased but ecologically responsible use of these public facilities.

Tasks to be Accomplished:

1. Develop long-term management options for fish and wildlife species and native plant communities.
2. Build a stakeholder coalition of agencies and citizens to spearhead the protection, restoration and management of the Hackensack Meadowlands. Define roles and responsibilities of groups and move forward on Memoranda of Understandings.
3. Prioritize sites for acquisition and begin protecting lands either through fee title or conservation easements. Seek funding for priority acquisitions. Contact landowners to identify willing sellers.
4. Identify contaminated sites, determine the source and extent of contamination, and estimate the costs of remediation options.
5. Identify sites with restoration potential. Begin collaborating with natural resource agencies, local universities and environmental groups to explore methods and timing.
6. Create opportunities for public use and education targeting urban populations that often have limited outdoor recreation options or experience.

# Yes, A Major Wildlife Area In Northeastern New Jersey

## *Why Protecting The Hackensack Meadowlands Is So Essential*

*Steve Rothman (NJ9th) is about to begin his fourth term in Congress, representing 37 towns in Bergen, Hudson and Passaic Counties. He serves on the House Appropriations Committee.*

Something big is about to happen, and it is about to happen in a place where many least expect it. Within the next 10 years, I predict that the Hackensack Meadowlands will go from being written off as a swampy wasteland and garbage dump site, to a nationally and even internationally renowned environmental park.

I am a lifelong resident of Bergen County, a former local Mayor, Bergen County Surrogate, and now a Congressman about to begin my fourth term representing the region which includes the Hackensack Meadowlands. I'm not proud of the fact that some people wrongly consider Northeastern New Jersey to be nothing more than an overcrowded urban / suburban landscape across from New York City, pockmarked with toxic Superfund sites and garbage landfills leaching poisonous ooze. We New Jerseyans remember that a century ago the Meadowlands was a vast piece of open space spanning 21,000 acres. Today, only 8,400 of those acres remain undeveloped, blocking river water from flooding the streets of surrounding communities. The Meadowlands still supports a diverse and growing concentration of migratory birds and is home to 65 species of nesting birds, and more than 50 species of fish and shellfish.

I believe we must save this last, largest remaining portion of open space and wetlands in Northeastern New Jersey, clean it up, and turn it back into a magnificent natural, environmental area and quiet recreational preserve. Establishing the Meadowlands Environmental Park will be a lasting tribute to our own foresightedness and understanding of our place on this planet, and will also provide this and future generations with unparalleled opportunities for eco-canoe trips, nature walks, bird watching, and an environmental educational center for our children. All of this will be in the midst of what was once deemed to be a poisoned marshland that was forever unreclaimable. Some may say that this is impossible. I could not disagree more.

Creating the Meadowlands Environmental Park is not going to be easy, but I am confident that smack in the middle of the most densely populated region of the most densely populated state in the country this will happen. It will be an oasis for all area residents, both physically and spiritually. It will permit all of our residents to not only enjoy this large expanse of open space that is so rare and precious in our overcrowded region, but it will also give all of us a new and welcome sense of identity. Northeastern New Jerseyans and our neighbors will see us as proud co-inhabitants and custodians of a multitude of plant, animal, and aquatic life, in our beautiful and fragile local environment.

Concurrently, as these 8,400 acres of the Meadowlands are preserved for present and future generations, I would like to see any commercial development in the surrounding area occur on the already developed land and brownfield sites in appropriate Meadowlands parcels outside of these 8,400 acres. Even standing alone, however, it is clear that the region's businesses and local enterprises will be given a much-needed economic shot-in-the-arm as our new environmental recreation area becomes an environmental attraction for visitors.

Congress has secured funding for a U.S. Army Corps of Engineers study of the best way to save these 8,400 acres in the Meadowlands. Congress has also ensured that the U.S. Fish & Wildlife Service will act as an environmental consultant to the Army during this study and has provided $1.2 million for land acquisition. Currently, I am seeking additional money in the 2003 federal budget and resources from existing conservation funds, including the New Jersey Meadowlands Commission, the Port Authority of New York and New Jersey, and the State of New Jersey. It will take time, money, and patience, but it will happen.

For the people of Northeastern New Jersey, such a goal is worthy of our highest and best efforts. We can change our destiny: how we live, how others regard us, and how we regard ourselves. We are already on our way to making this magnificent vision understood and appreciated as being eminently worthwhile and very much achievable. With the help of local citizens and elected officials at every level of government, this important and truly historic Meadowlands Environmental Park will be a reality.

*The story was a lot different in the 1960s.....*

# Jersey Swamps May Be Bonanza

SECAUCUS, N.J. (AP) — A giant swampy wasteland in north New Jersey that has been called the most valuable stretch of real estate in the world is finally due to realize its potential.

The 60-square-mile area—a valley of dry reeds and dumping grounds—is known variously as the Jersey meadowlands, meadows, or the tidelands. It stretches 15 miles from Hackensack to Harrison shadowing Manhattan island, only two miles away. You can see the New York City skyscrapers from the desolate meadows.

For New Jersey commuters, the meadows are the offensive stench of decay that must be endured between city and suburb.

For the state of New Jersey, the meadowlands are a prize as valuable as if all the garbage landfills there had been packed with gold.

### Federal Funds

New Jersey legislators have long known that, with the proper coordinated planning, this enormous swamp could be made a money-magnet, luring huge federal funds and massive private investment.

After 10 years of haggling, the state has formed a Meadowlands Commission. The commission is charged with creating a master plan that will make roads where now there are streams, make houses where now there are marshes, make industry where now there is only pollution—and most of all, make money.

The tract they control is an 18,000-acre valley of swampy land lying between two long extrusions of igneous rock. The area was once a lake, and even today, at high tide, much of the land is flooded.

The Hackensack River runs through the meadowlands and into Newark Bay, and its tributaries cross and recross one another.

### Waste Catcher

Much of the meadows is used for the dumping of the waste of metropolitan New York. At the middle of the valley is the Joint Meeting Sewage Plant, a romanesque building surrounded by huge revolving fountains.

Swamp wildlife has lived here, disguised by the wide fields of tassled brown reed. Beneath the reed has been found, within one small area, some 20 varieties of plant life, including such exotic varieties as skunk grape, swamp rose-mallow, purple loosestrife, Rutland Beauty, and Joe-Pye weed.

As late as the 1930s, the streams were filled with huge water snakes. In fact, the name Secaucus, which is now the only town entirely within the confines of the meadows, comes from the Indians' word "Siskakes," meaning "where the snake hides."

The area is so low that high tidal waters back up through the Hackensack River and flow over the muddy land. Once, the receding tide left a smell of brine, the odor of a beach at ebb tide. Today, the high tides bring the sewage of 500,000 people that is dumped each day into Newark Bay. This pollution settles over the land and in the streams. Fish cannot live in the meadow streams.

### Dam Planned

One of the first tasks in the reclamation of the meadowlands will be building a dam at the mouth of the Hackensack River, blocking the high tides and the bay sewage. The dam, as well as landfills, will be constructed by the Army Corps of Engineers for an estimated $300 million, with most of the money coming from federal funds.

Clifford A. Goldman, acting executive director for the commission, says a master meadows zoning plan will be ready in half a year.

Goldman says no delays are likely. "Naturally, it's a long-term project. Cost benefits aren't due for 30 years. But we're proceeding without delays."

The main delay is expected to lie in assuring title to the lands. The state has laid claim to all lands that have been washed by tidal waters, and proceeds from these lands will go to the state public education fund.

Six Superior Court judges have been granted special powers to rule in title cases so that claims may be quickly settled, but it could still be years before the title situation is cleared.

**Newspaper Clipping -- Circa 1969**