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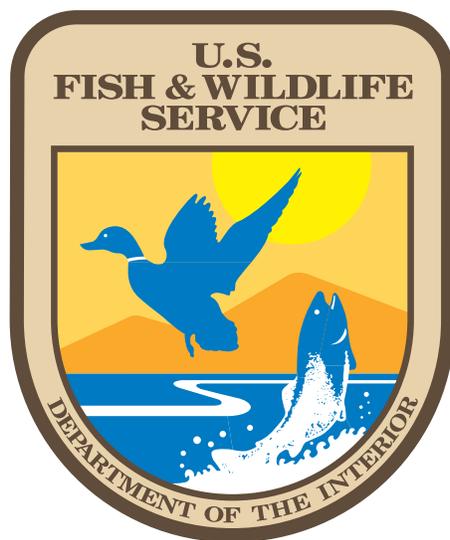
The Hackensack Meadowlands Initiative

Preliminary Conservation Planning



The Hackensack Meadowlands Initiative

*Preliminary Conservation Planning
for the Hackensack Meadowlands
Hudson and Bergen Counties, New Jersey*



Prepared by:

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March 2007



Satellite image of the Hackensack Meadowlands District (boundaries in red) and the surrounding metropolitan region.

The Hackensack Meadowlands Initiative

The Hackensack Meadowlands is the largest brackish estuarine complex in the New York – New Jersey Harbor Estuary and among the largest in the northeastern United States. The Meadowlands supports remarkable biodiversity. Using the Meadowlands are more than 275 species of plants, 115 species of invertebrates, 45 species of fish, 25 species of amphibians and reptiles, 332 species of birds, 24 species of mammals, and approximately 25 State-listed species, and 42 species considered rare or uncommon in the urban core. Yet, over the last 150 years, industry and development have filled in well over half of the area's original 21,000 acres, polluting its lands and waters. Invasive exotic species, environmental contaminants, and water quality are major issues confronting the successful restoration of the Meadowlands.

In 2001, the U.S. Fish and Wildlife Service (Service) established the *Hackensack Meadowlands Initiative* to promote and support the remediation, restoration, and long-term protection of the Meadowlands ecosystem. Over the next few years, the *Initiative* evolved as the Service partnered with other federal and State agencies in various efforts, such as stakeholder workshops and a scientific symposium focused on the Meadowlands. The partners in the Service's *Initiative* now include the U.S. Army Corps of Engineers' New York District, U.S. Environmental Protection Agency's Region 2, National Park Service, National Marine Fisheries Service, New Jersey Meadowlands Commission, and New Jersey Division of Fish and Wildlife. The *Initiative* seeks to build communication and collaboration among stakeholders and, even more importantly, to develop and implement comprehensive measures to clean up, restore, and protect this extensively degraded, coastal ecosystem. The *Initiative* partners are already engaged in numerous clean-up, restoration, and related projects throughout the Meadowlands.

In response to Congressional direction, the Service has developed this document, titled *The Hackensack Meadowlands Initiative: Preliminary Conservation Planning*, to promote successful clean-up and restoration projects and to encourage the critical and much-needed support of other regional activities (*e.g.*, water-supply, sewage-treatment, and flood-control planning). Successfully cleaning up and restoring the Meadowlands and integrating those actions with other regional planning will not only help protect the region's fish and wildlife but will also provide recreational and educational opportunities for the 20 million residents in the surrounding metropolitan area.

This planning document is submitted to our partner agencies to provide a framework for the restoration and protection of the Meadowlands ecosystem. The document represents the findings, recommendations, and conclusions of the Service; it identifies key issues, important fish and wildlife resources, and critical data gaps, and proposes a common vision to guide all future restoration efforts. The Service provides the document as a springboard for addressing key issues and finding the common ground that will be critical to restoring the Meadowlands ecosystem and protecting its fish and wildlife resources. Working together, guided by a common vision, we can restore the Meadowlands ecosystem.

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The Mission of the U.S. Fish and Wildlife Service

is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.

The U.S. Fish and Wildlife Service is the principal federal agency responsible for conserving, protecting and enhancing fish, wildlife and plants and their habitats for the continuing benefit of the American people. The agency manages the 96-million-acre National Wildlife Refuge System, which encompasses 547 national wildlife refuges, thousands of small wetlands and other special management areas. The Service also operates 70 national fish hatcheries, 64 fishery resources offices, 9 fish health centers, 7 fish technology centers, and 81 ecological services field stations. The agency enforces federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, and helps foreign and Native American tribal governments with their conservation efforts. It also oversees the *Federal Assistance* program, which distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to state fish and wildlife agencies.





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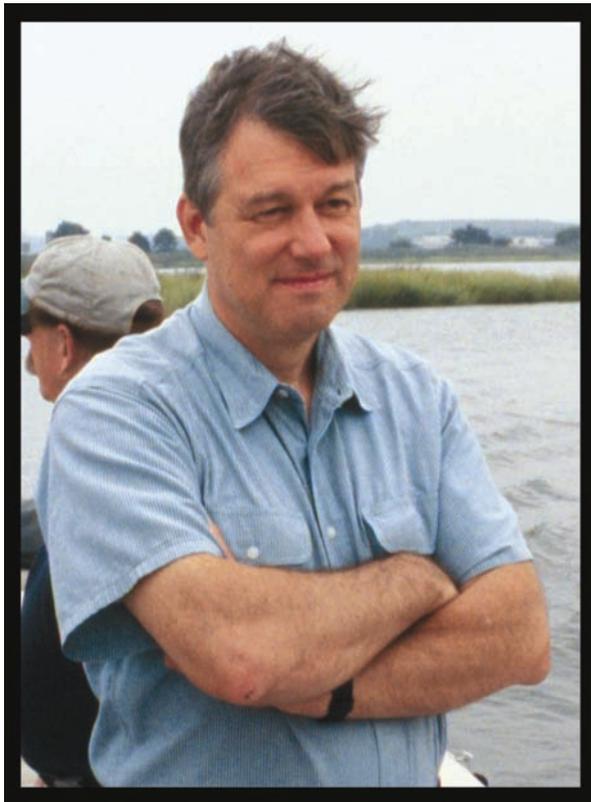
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DEDICATION AND ACKNOWLEDGMENTS



This plan is dedicated to Clifford Grant Day, who retired as this report was being completed. Cliff began his long, successful career with the U.S. Fish and Wildlife Service as a biologist working out of a trailer in the E.B. Forsythe National Wildlife Refuge. In 1987, following a special 2-year assignment in Washington, he was appointed Supervisor of the New Jersey Field Office, where he worked diligently for more than 20 years to protect fish and wildlife throughout New Jersey. As everyone who knew him can attest, Cliff's passion was the protection of the Hackensack Meadowlands. He recognized its importance and envisioned its revitalization long before it was a popular stance. Without his tireless efforts over many years, the Meadowlands would have been greatly diminished and its future would not be so assured.

This report was prepared pursuant to Congressional directives, including P.L. 109-54 (see H.R. 109-80) for Fiscal Year 2006, for advancing restoration and long-term protection of the Hackensack Meadowlands ecosystem. The U.S. Fish and Wildlife Service (Service) thanks Congressman Steven R. Rothman (NJ 9th District) for his continued interest and support of Service programs and his commitment to restoring and protecting the Meadowlands.

This planning report was prepared primarily by Stanton Hales, John Staples, and Clifford Day of the Service's New Jersey Field Office (NJFO). All NJFO staff contributed to this product. In particular, Brian Marsh and Timothy Kubiak contributed to the environmental contaminants sections; Carlo Popolizio provided botanical information; Wendy Walsh, Ronald Popowski, and Timothy Kubiak reviewed the draft; James Cramer and Gene Nieminen provided editorial comment, graphics assistance, and other support. Unless referenced otherwise, the photography in this report is by Gene Nieminen. Ralph Tiner, Herbert Bergquist, and John Swords (National Wetlands Inventory, Northeast Regional Office) provided information and maps used in the land-use sections. Sarah Bevilacqua, Joseph Dowhan (retired), Susan Essig, Robert Foley, Andrew Milliken, Ralph Tiner (Northeast Regional Office), and Donald Henne (Southern New England-New York Bight Coastal Ecosystems Program) provided review and critique of the draft manuscript.

Development of the *Hackensack Meadowlands Initiative* would not have been possible without the support of Mamie Parker and Marvin Moriarty, former and current Regional Directors, respectively, of the Service's Northeast Region. The Service is also appreciative of Lynn Dwyer and the National Fish and Wildlife Foundation for their assistance and support of the *Initiative*.

Personnel at other federal agencies contributed to this report. In particular, the Service thanks James Cannon, Leonard Houston, George Nieves, William Shadel, and Bryce Wisemiller (U.S. Army Corps of Engineers, New York District), Mario Paula and Marianne Thiesing (U.S. Environmental Protection Agency, Region II), Carl Alderson and Craig Woolcott (National Oceanic and Atmospheric Administration, Restoration Center), Karen Greene (National Marine Fisheries Service, Habitat Conservation Division), Timothy Wilson (U.S. Geological Survey, N.J. Water Science Center), and Michael Erwin (U.S. Geological Survey, Patuxent Wildlife Research Center).

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Appreciation is also extended to U.S. Senator Frank Lautenberg and Governor Jon Corzine for their continuing support of the *Hackensack Meadowlands Initiative*. Their respective staff, especially Lisa Plevin of Senator Lautenberg's office and Mada Liebman of U.S. Senator (now Governor) Jon Corzine's office have supported the *Initiative* since its inception.

The Service thanks the many nongovernmental organizations active in environmental issues in the Meadowlands. The Service especially thanks William Sheehan and Hugh Carola (Hackensack Riverkeeper, Inc.), Tina Schvejda (Meadowlands Conservation Trust), Dennis Schvejda (Sierra Club), Mark Becker (Bergen Save-the-Watershed-Action-Network), Andrew Willner and Gregory Remaud (New York-New Jersey Baykeeper), Erik Kiviat (Hudsonia, Inc.), Dennis Suskowski (Hudson River Foundation), Craig Kessler (Ducks Unlimited, Inc.), Emile DeVito (New Jersey Conservation Foundation), and Richard Kane (retired), David Mizrahi, and Eric Stiles (New Jersey Audubon Society).

Numerous biologists and others familiar with the Meadowlands, its biota, history, restoration, and other topics contributed information important to the development of this report. The Service apologizes for any inadvertent omissions or other errors to those who gave so much of their time, knowledge, and experience in support of this preliminary conservation planning effort.

EXECUTIVE SUMMARY

The *Hackensack Meadowlands Initiative: Preliminary Conservation Planning* (Plan) was prepared by the U.S. Fish and Wildlife Service (Service) to provide a foundation for enhancement and restoration of the Hackensack Meadowlands in Hudson and Bergen Counties, New Jersey and to promote a vision for the Meadowlands. The Service's vision includes: (1) a more natural estuarine ecosystem with healthy fish and wildlife resources; (2) a cleaner environment (progressive reduction in acute and chronic contaminant effects); (3) diverse wetland and associated communities that sustain local and regional populations of native species, including federal trust fish and wildlife resources; and (4) public commitment to and diverse social benefits from the Meadowlands. To attain this vision, the Service's overall goal for the Meadowlands is to sustain and safeguard the Meadowlands ecosystem, including its fish and wildlife resources. This goal will be achieved through conservation partnerships to remediate, enhance, restore, manage, and protect the Meadowlands ecosystem. The Plan also identifies key principles, drawn from federal policies and other guidance, to guide and carry out habitat restoration activities. The Plan provides a historical overview of the region, describes the ecosystem and its biodiversity, identifies priority threats to the Meadowlands, and recommends objectives and future conservation actions.

The Plan is formulated pursuant to Congressional direction (P.L. 109-54; see H.R. 109-80) to provide assistance to the federal effort to restore and protect the Meadowlands ecosystem. Recommendations and conclusions in this Plan are based on available information from federal, State, and other sources, and were offered to agencies prior to the release of this report for their review and concurrence and for incorporation in ongoing or future restoration efforts (*e.g.*, U.S. Army Corps of Engineers- and New Jersey Meadowlands Commission-funded Hackensack Meadowlands Environmental Restoration). Some of the Service's recommendations focus on actions of specific agencies or groups; however, most recommendations are directed toward all stakeholders in the Meadowlands, including: (1) federal, State, and local government agencies operating pursuant to existing authorities, (2) non-governmental organizations, and (3) the public. Implementation of these recommendations extends beyond the authorities and capabilities of any single stakeholder and exceeds financial and other resources presently committed to restoring the Meadowlands.

The Hackensack Meadowlands is the largest brackish estuarine complex in the New York-New Jersey Harbor and among the largest in the northeastern United States. When Europeans arrived, the area comprised more than 21,000 acres of waterways and wetlands, including a substantial portion (roughly one-third) forested with Atlantic white-cedar. Since then, the Meadowlands has been subject to nearly 400 years of resource extraction, habitat loss, alteration, and degradation. The Meadowlands is heavily contaminated with PCBs, dioxins, and other contaminants from Superfund sites along the Hackensack and adjoining rivers. Included among its contaminant "hot-spots" is possibly the worst mercury-contaminated wetland in North America (Berry's Creek). Flows in the Hackensack and adjoining rivers also have been dammed and diverted to supply municipal drinking water in the heavily urbanized region. Secondary sewage effluent now comprises the largest source of freshwater in the Meadowlands, and contributes to

numerous impairments in water quality throughout the Hackensack River watershed. Today, approximately 5,800 acres of estuarine wetlands remain in the Meadowlands' 8,400-acre complex of wetlands and waterways. These remaining wetlands reflect extensive landscape and hydrologic alterations (*e.g.*, fragmentation, extensive development of adjoining upland buffers), and are dominated by invasive species, especially a non-native form of common reed, which has spread throughout the Meadowlands.

Despite these problems, the Meadowlands remains an oasis of biodiversity in one of the largest and most heavily populated metropolitan areas in the northeastern United States. The Meadowlands has been documented as home to more than 275 species of plants, 115 species of invertebrates, 45 species of fish, 25 species of amphibians and reptiles, 332 species of birds, and 24 species of mammals. Many taxa have not been well studied; some historical populations no longer exist. Among the species that occur in the Meadowlands are approximately 90 species of special conservation status, including species identified as federally listed (endangered or threatened), State-listed (endangered or threatened), "of special concern," or managed.

Several agencies and non-governmental organizations have begun efforts to acquire wetlands, restore specific sites, and manage certain fish and wildlife resources. Such activities are moving environmental restoration forward; however, problems encountered (*e.g.*, *Phragmites* reinvasion, contaminants) make clear the need for, and importance of, improved collaboration, comprehensive planning, and adaptive management to remediate, enhance, and restore the Meadowlands ecosystem and protect its biodiversity. Development of a comprehensive remediation and restoration plan is critical to address the substantial, complex, and inter-related problems confronting the Meadowlands ecosystem. Detailed investigations of the movements, diets, and reproduction of fish and wildlife species in the Meadowlands and broader research efforts throughout the region are needed to guide remediation and restoration on contaminated sites. Otherwise, restoration activities may create "attractive nuisances" for fish and wildlife by increasing availability of contaminants and subsequent accumulation in fish and wildlife using restored wetlands. Also, implementation of existing water-quality criteria and development of such criteria for additional contaminants are necessary to address the impaired functioning of the Meadowlands ecosystem and the health of its fish and wildlife and people. Protecting wetlands and adjoining upland buffers throughout the entire Hackensack River watershed is critical to address impairments to water quality and to provide habitats for sustaining fish and wildlife throughout the region.

Important collaborative efforts for all stakeholders include developing a protocol to guide removal of the invasive form of common reed from heavily contaminated sites and identifying the desired long-term recovery goals (*e.g.*, vegetative communities) to be achieved through restoration. Concerted remediation, restoration, management, and planning efforts provide an opportunity for stakeholders to reverse and rectify historical, adverse land-use impacts on the Meadowlands ecosystem and its biota. Stakeholders must also explore designation of the Meadowlands as a type of marine/estuarine protected area to promote and provide comprehensive long-term protection.

The Meadowlands represents a valuable natural resource within driving distance to 20 million people in the greater NY-NJ metropolitan area. Therefore, the restoration and protection of the Meadowlands must also provide for compatible recreational uses (*e.g.*, fishing, hunting, wildlife photography), while sustaining and safeguarding fish and wildlife. Restoration efforts must also contribute to a new public image for the Meadowlands as an important ecological area worthy of protection and preservation. Expansion of formal and informal educational programs, demonstration projects and other public exhibits, and a unified outreach program are essential to nurture and sustain the public's strong support for restoring the Meadowlands.

Because restoration activities will likely require a substantial and lengthy commitment at all levels of government, the Service recently established the *Hackensack Meadowlands Initiative* to provide a venue open to all agencies and organizations for communication and coordination regarding any issues that potentially affect the restoration of the Meadowlands ecosystem. To lead this *Initiative*, the Service encourages federal and State agencies to improve current restoration efforts in the Meadowlands by developing an interagency memorandum of agreement that formalizes establishment of an oversight committee known as a principals' group. The principals' group would develop a collaborative process to ensure that coordination on restoration and related objectives is being accomplished. The group would provide federal and State agencies with an organized forum to discuss policy and fiscal matters, to better coordinate existing staff and funding, and to promote the recovery of the entire ecosystem.

In providing this Plan, the Service seeks to increase its efficiency and effectiveness on a landscape level. This Plan is consistent with the Service's current emphases of ensuring greater voluntary compliance with environmental laws and regulations, developing conservation partnerships, and increasing its influence with individuals and organizations that can help accomplish goals on a landscape level. The Service's current overall goals include restoring habitats, remediating environmental contaminants, controlling invasive species, and protecting native fish and wildlife populations long-term.

This planning document represents the findings, recommendations, and conclusions of the Service, and is submitted to our partner agencies to provide a baseline and framework for the restoration and protection of the Meadowlands ecosystem. The Service provides the Plan to facilitate addressing the key issues and finding the common ground to restore and protect the Meadowlands ecosystem and its fish and wildlife resources. We thank *Initiative* partners for their review and comments on earlier drafts, and invite all partners to support this conservation planning effort.

The U.S. Fish and Wildlife Service requests that no part of this document be taken out of context and thus, that the document be distributed only in its entirety. This document is intended for conservation planning purposes only and does not constitute an endorsement by the U.S. Fish and Wildlife Service or the U.S. Department of the Interior for a formal land-use plan or project or to establish a National Wildlife Refuge in the Hackensack Meadowlands.

Questions, comments, and suggestions related to this document are encouraged and should be directed to:

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