

Restoring the Hackensack Meadowlands

Ensuring a Healthy Future for Fish, Wildlife, and People

Why is the Meadowlands important?

The Hackensack Meadowlands, one of the largest brackish estuarine complexes in the northeastern United States, supports a remarkable diversity and abundance of fish and wildlife. Roughly 40% of the 800+ species of birds in North America breed in or use the Meadowlands during spring and fall migrations. Just 7 miles west of Manhattan, the Meadowlands also provides recreational and educational opportunities to nearly 20 million people.

How has the Meadowlands changed?

Two hundred years ago, the Hackensack Meadowlands was almost 21,000 acres of bogs, Atlantic white-cedar forests, and grassy marshes. The region's rapidly growing human population logged the forest and later ditched and diked the marshes for farmland or mosquito control. River flows were dammed and diverted, and wetlands were filled and degraded. Today only 5,500 wetland acres remain within the 8,400-acre complex.

What are the current problems in the Meadowlands?

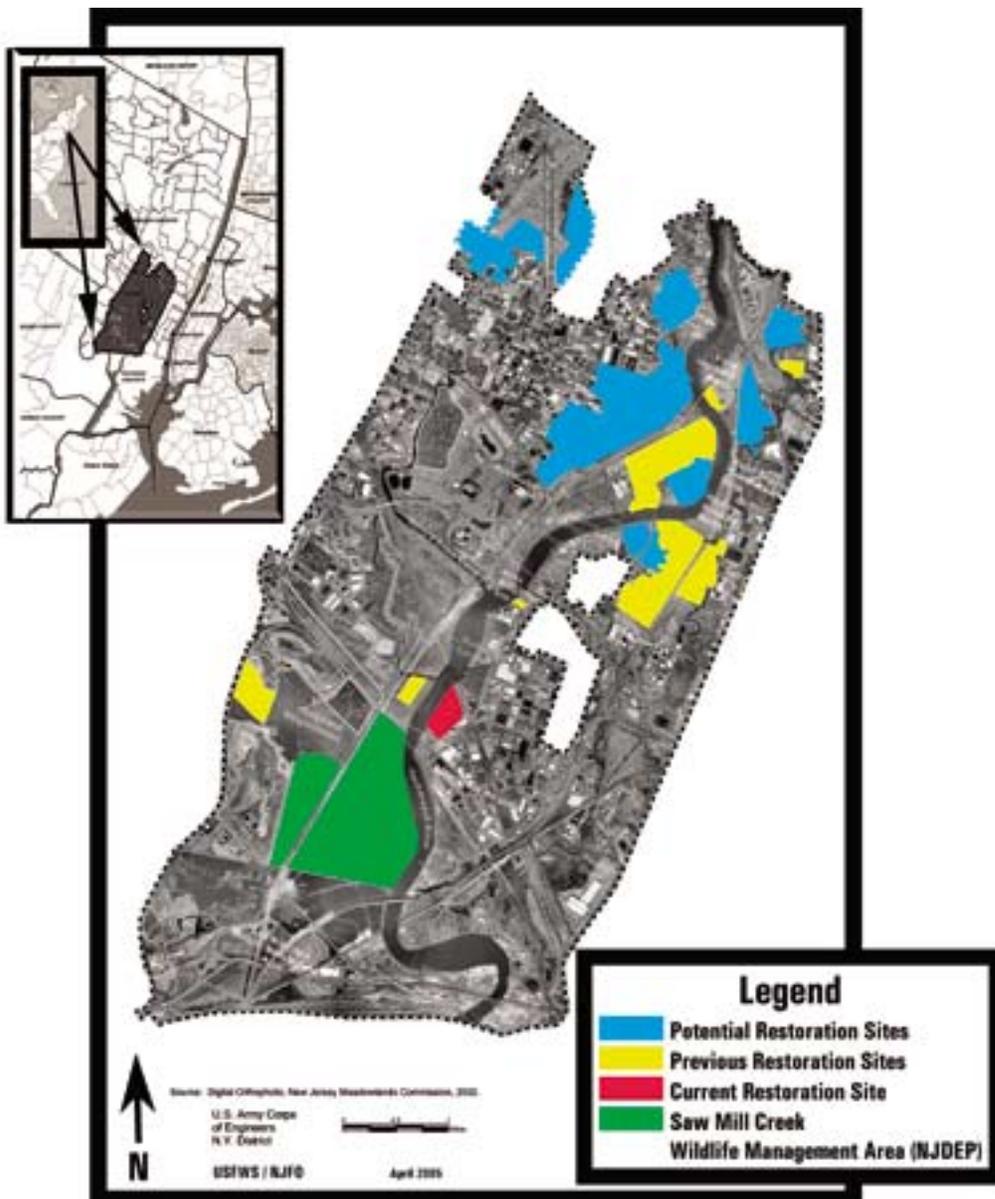
The wetlands are contaminated with dioxins, PCBs, heavy metals, and other hydrocarbons, fragmented by roads and railways, and modified by other structures (e.g., radio towers, tide gates). Water quality remains impaired due to inadequate sewage treatment and stormwater control. Common reed (*Phragmites australis*) and other invasive species are widespread.

Why restore the Meadowlands?

Loss of wetlands, especially near urban areas, continues nationwide; thus, restoration of degraded wetlands is increasingly vital to sustain fish and wildlife populations. Remediation and restoration will also contribute to a clean environment for fish, wildlife, and people.

What is the Hackensack Meadowlands Environmental Restoration?

The U.S. Army Corps of Engineers, New Jersey Meadowlands Commission, and U.S. Fish & Wildlife Service (Service) have initiated a comprehensive program, the *Hackensack Meadowlands Environmental Restoration (HMER)*, to restore the ecosystem. The *HMER* will begin work on the 53-acre Anderson Creek Marsh (the red site on the map), the first of many potential restoration sites (blue sites). The *HMER* will remove contaminant-laden sediments, eradicate common reed, increase salt water flow over the marsh, and re-establish native vegetation there. Combined with marshes already restored by others (yellow sites), wetland habitats restored by the *HMER* will help sustain the region's fish and wildlife.



The Hackensack Meadowlands District. To date, 275 plant species, 88 species of fishes and shellfishes, 10 amphibian species, 15 reptile species, 332 bird species, and 24 mammal species are known to occur there.



A State-listed species, the black-crowned night heron (*Nycticorax nycticorax*), stands at the mouth of Sawmill Creek Wildlife Management Area (green site on map).

The Common Reed (*Phragmites australis*)



USFWS, NJFO / Gene Nieminen

Viewing a stand of common reed near Steiner's Marsh in the Meadowlands, (August 2002) from left to right, former USFWS Director Steve Williams, Congressman Steve Rothman (NJ9th.), NY / NJ Baykeeper Andrew Willner, and NJFO Supervisor Clifford Day.

How is common reed a dilemma for restoration?

The most common plant in the Meadowlands is an invasive form (Haplotype M) of common reed. Within roughly 100 years of its introduction, this European strain has spread throughout North American wetlands. Haplotype M grows vigorously and spreads rapidly into tall, thick stands that crowd out native plants and have low value to native fish and wildlife. Previous restoration projects in the Meadowlands have eradicated common reed and then planted desirable



Common reed (*Phragmites australis*)

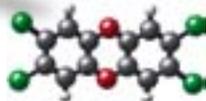
native species. However, common reed reduces the availability of certain contaminants (e.g., heavy metals such as mercury and lead) to fish and wildlife. Eradicating common reed from some sites may actually increase exposure of fish and wildlife to contaminants. Thus, the *HMER* partners must carefully consider eradication of common reed and other restoration activities at heavily contaminated sites. See www.invasivespecies.gov/profiles/commonreed.shtml for more information.

USDA-NRCS PLANTS Database / Hitchcock, A.S. (ex. A. Chase), 1950. Manual of the Grasses of the United States. USDA-NRCS, Washington, DC.

The Blue Crab (*Callinectes sapidus*)



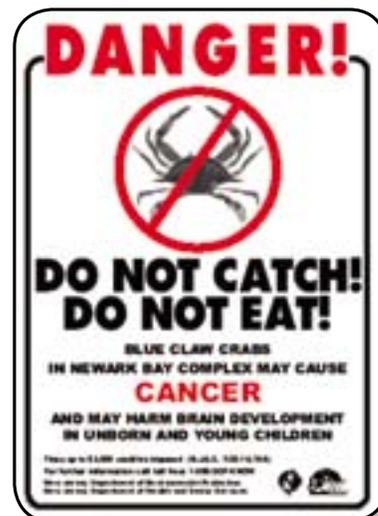
FDA / W. Savary



Blue crab (*Callinectes sapidus*), molecular model in 3-D (2,3,7,8-Tetrachlorodibenzo-p-dioxin), and NJDEP warning sign posted in the Newark Bay Complex.

Will restoration make fish and wildlife in the Meadowlands safe to eat?

Although they appear healthy, many fish and wildlife in the Meadowlands have high levels of several contaminants and are unsafe to eat. For example, blue crabs from the Newark Bay region, including the Meadowlands, are contaminated with harmful levels of dioxin and PCBs. Eating blue crabs from this region may cause cancer and harm brain development in unborn and young children. Though it will take time (possibly decades), restoring wetland sites to eliminate existing contamination combined with better sewage treatment to prevent future contamination will gradually improve water quality and the health of fish and wildlife throughout the region. Until then, as the signs warn, Do Not Eat Blue Crabs From These Waters! See www.state.nj.us/dep/dsr/njmainfish.htm for more information.



How else does the U.S. Fish & Wildlife Service work to restore the Meadowlands?

Under the *Natural Resource Damage Assessment and Restoration Program*, the Service is one of several government trustees of fish and wildlife resources injured by hazardous materials in the environment. The trustees identify and assess the injuries, recover damages from those responsible, and conduct restoration activities (contaminants.fws.gov/Issues/Restoration.cfm).

The Service's *Partners for Fish and Wildlife* (partners.fws.gov/) program provides technical and financial assistance to help private landowners, organizations, and agencies restore wetlands.

As part of the *Meadowlands Interagency Mitigation Advisory Committee*, the Service reviews proposed plans when restoration is required as compensatory mitigation for permitted wetlands-filling activities.

Finally, the Service has supported Meadowlands restoration through extensive outreach and education, including:

- the Hackensack Meadowlands issue of *Field Notes*, (available at njfieldoffice.fws.gov/);
- *Wetlands Status and Trends for the Hackensack Meadowlands* (available at library.fws.gov/Wetlands/Hackensack.pdf), and
- the *Meadowlands Symposium* (see "The Hackensack Meadowlands: History, Ecology, and Restoration of a Degraded Urban Wetland" at www.UrbanHabitats.org).



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