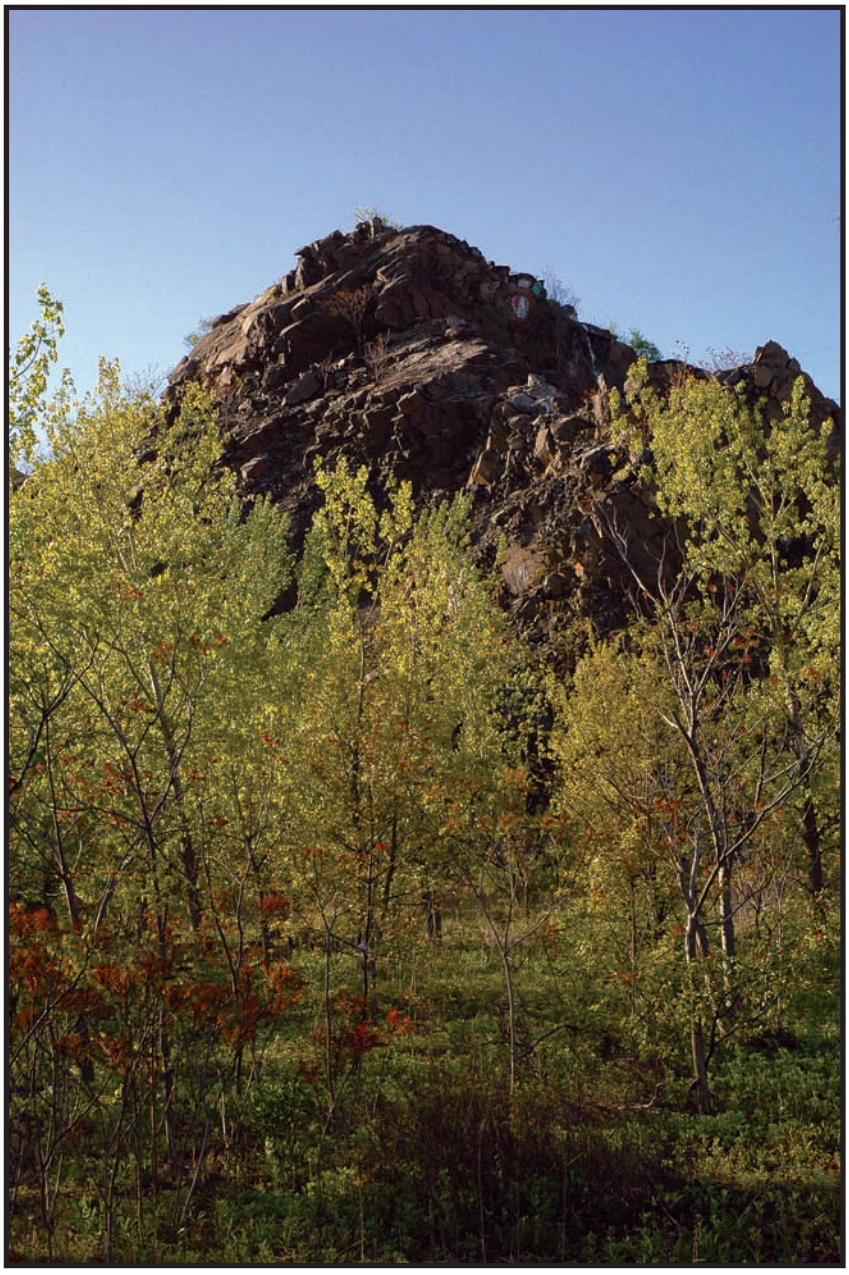
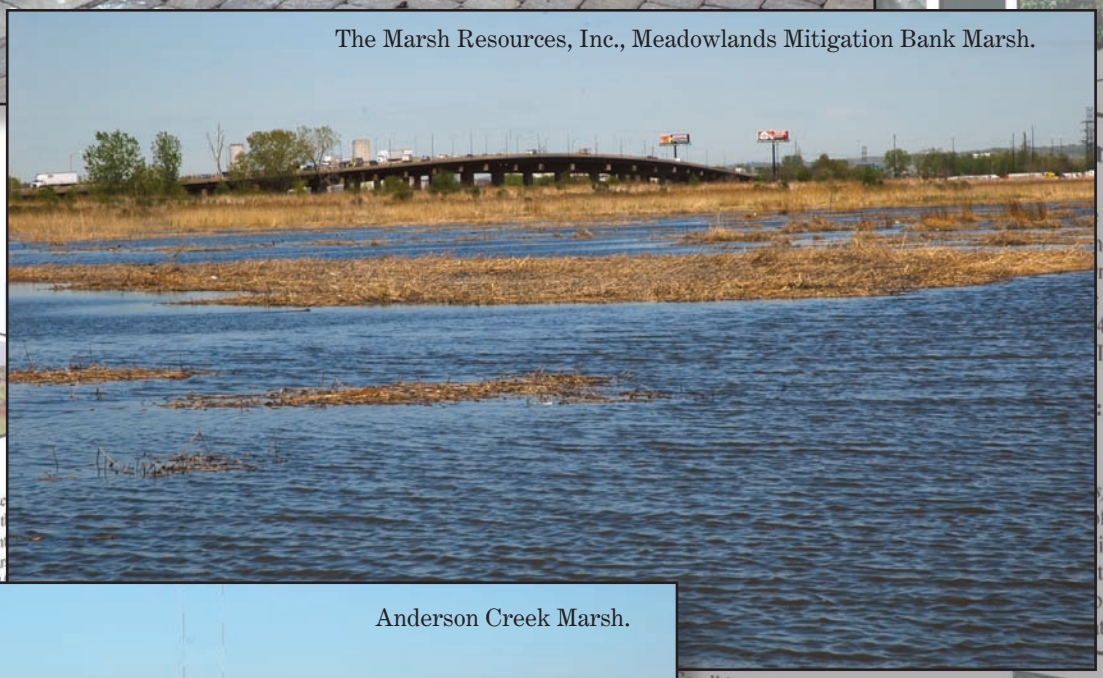
XI. Recommendations



"Snake Hill," now part of Laurel Hill County Park.

The Mill Creek Park Landing.



The Marsh Resources, Inc., Meadowlands Mitigation Bank Marsh.

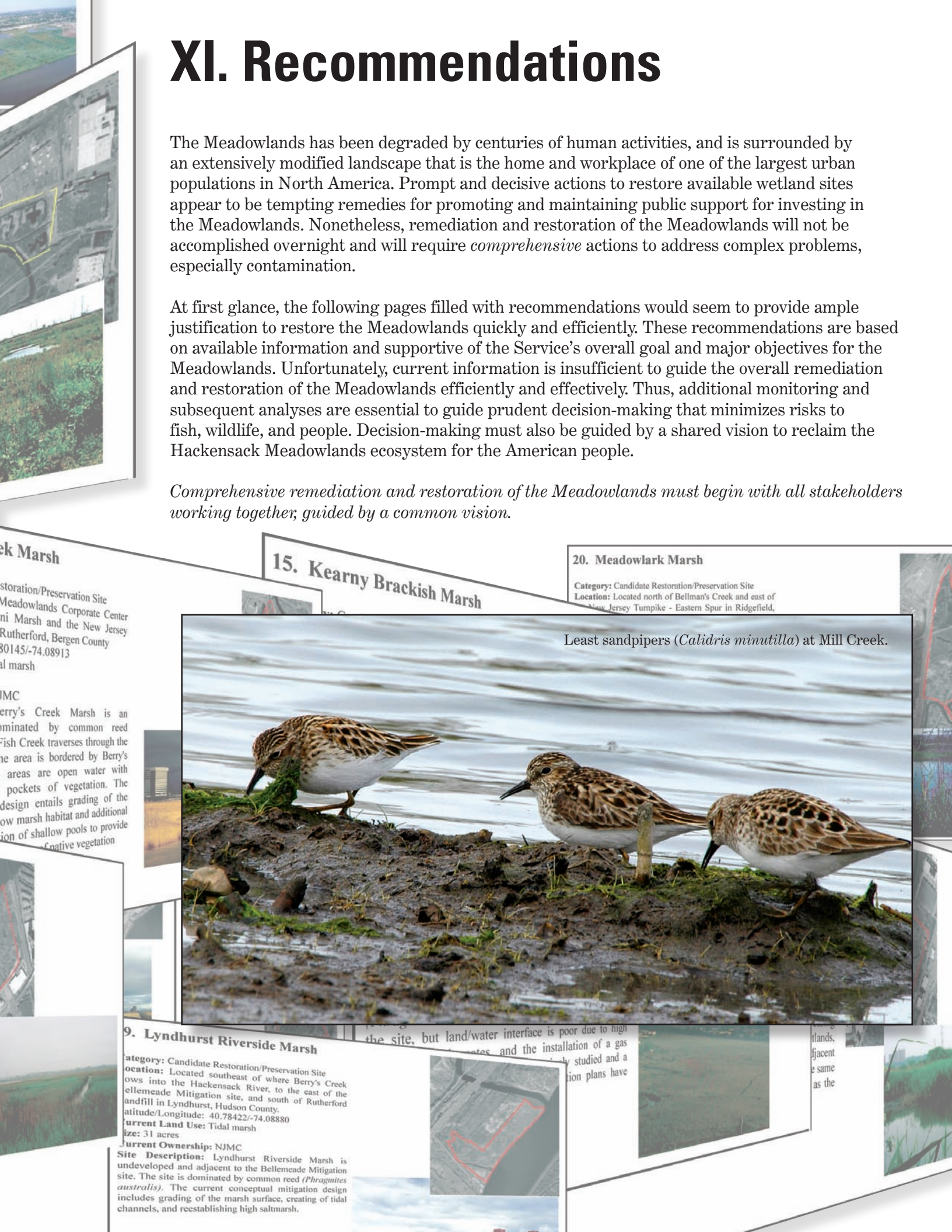
Anderson Creek Marsh.

XI. Recommendations

The Meadowlands has been degraded by centuries of human activities, and is surrounded by an extensively modified landscape that is the home and workplace of one of the largest urban populations in North America. Prompt and decisive actions to restore available wetland sites appear to be tempting remedies for promoting and maintaining public support for investing in the Meadowlands. Nonetheless, remediation and restoration of the Meadowlands will not be accomplished overnight and will require *comprehensive* actions to address complex problems, especially contamination.

At first glance, the following pages filled with recommendations would seem to provide ample justification to restore the Meadowlands quickly and efficiently. These recommendations are based on available information and supportive of the Service's overall goal and major objectives for the Meadowlands. Unfortunately, current information is insufficient to guide the overall remediation and restoration of the Meadowlands efficiently and effectively. Thus, additional monitoring and subsequent analyses are essential to guide prudent decision-making that minimizes risks to fish, wildlife, and people. Decision-making must also be guided by a shared vision to reclaim the Hackensack Meadowlands ecosystem for the American people.

Comprehensive remediation and restoration of the Meadowlands must begin with all stakeholders working together, guided by a common vision.



Least sandpipers (*Calidris minutilla*) at Mill Creek.

XI. RECOMMENDATIONS

A. PROMOTE AND LEAD EFFORTS FOR LAND ACQUISITION, REMEDIATION, ENHANCEMENT, RESTORATION, AND MANAGEMENT

1. **Acquisition**
2. **Remediation**
3. **Enhancement and Restoration**
4. **Management**

B. INCREASE SCIENTIFIC UNDERSTANDING TO BETTER DEFINE SUCCESSFUL REMEDIATION AND RESTORATION AND TO ENHANCE ECOSYSTEM FUNCTIONS AND NATURAL DYNAMIC PROCESSES

C. ESTABLISH DIVERSE, NATIVE WETLAND AND UPLAND COMMUNITIES

D. INCREASE RESPONSIBLE USE OF, PUBLIC AWARENESS OF, AND EDUCATION ABOUT THE MEADOWLANDS

Schoolchildren exploring DeKorte Park.

XI. RECOMMENDATIONS

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 all stakeholders 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 fish and wildlife populations long-term.

The overall goal of the Service's *Hackensack Meadowlands Initiative: Preliminary Conservation Planning* is to sustain and safeguard the Meadowlands ecosystem and its fish and wildlife resources. To achieve this goal, the Service will work with its partners to accomplish the following major *objectives*:

(1) promote, and where appropriate, lead efforts for land acquisition, remediation, enhancement, restoration, and management of the Hackensack Meadowlands;

(2) increase scientific understanding to better define successful remediation and restoration and to enhance ecosystem functions and natural dynamic processes, especially through activities that remediate contaminated sites and improve water quality;

(3) establish diverse, native wetland and upland vegetative communities, to include greater acreage and diversity of forest, shrub, grassland, and wetland cover types to support biodiversity at local, regional, and larger scales; and

(4) increase responsible use of, public awareness of, and education about the Meadowlands, including its flora and fauna.

The following recommendations have been taken from the preceding sections and have been organized in support of these four major objectives. These recommendations are consistent with federal regulations, Service policies and objectives, and previous Service recommendations concerning the Meadowlands and the NY-NJ Harbor Estuary; furthermore, they are offered here for consideration and incorporation in ongoing or future restoration efforts (*e.g.*, the Corps- and NJMC-funded Hackensack Meadowlands Ecosystem Restoration [HMER]). Although some recommendations may focus on actions either initiated or under the purview of specific agencies or groups, most recommendations are directed toward the federal, State, and local government stakeholders whose operating authorities would provide the means for involvement and implementation. Support is also needed from nongovernmental organizations (NGOs) and the public. For reference and to assist the reader in understanding the recommendations in their proper context, each recommendation is followed by its text source(s) in parentheses. Implementing many of these recommendations extends beyond the scope of any single stakeholder and exceeds financial and other resources presently committed to restoring the Meadowlands.

Despite the challenges associated with achieving the above objectives, the recommendations emphasize the importance of *all stakeholders working together, guided by a shared vision, to restore the Meadowlands and sustain its biodiversity*. Hopefully, this entire document, including these recommendations, also inspires a respect for the natural environment and its value to society, and establishes the indisputable need for substantial additional information to guide decision-making in the Meadowlands.

A. PROMOTE AND LEAD EFFORTS FOR LAND ACQUISITION, REMEDIATION, ENHANCEMENT, RESTORATION, AND MANAGEMENT

1. Acquisition

- Acquire, enhance, restore, and protect all remaining wetland complexes throughout the Hackensack River watershed (HRW) to: (1) address the historical misuse of the Meadowlands ecosystem, (2) offset the adverse impacts of previous federal programs on wetlands throughout northeastern New Jersey, and (3) sustain the region's fish and wildlife resources (Sections V.B and VII.A).

- Acquire natural upland areas to: (1) increase connectedness among wetlands throughout the HRW; (2) improve their suitability as habitats, and (3) improve water quality (Section V.B).

- Investigate the feasibility of acquiring uplands for conversion to wetlands where appropriate, such as in flood-prone areas (Section V.B).

- Work with agencies and NGOs in New York to acquire, and ensure protection of, palustrine wetland and adjoining upland tracts in New York in the headwaters and the sub-basins of the upper HRW (Sections V.B and V.E).

- Coordinate acquisition of wetlands and uplands outside of the HMD throughout the HRW through the MCT; furthermore, stakeholders should investigate expanding the funding base of the MCT. Stakeholders should coordinate acquisitions with federal and State agencies to make use of all relevant funding authorities (Section VII.A).

- Prioritize wetland and upland acquisitions throughout the HRW based on size (large tracts preferred), proximity to other natural areas (connectivity preferred), biological features (*e.g.*, high biodiversity preferred), and other criteria (Sections V.B and VII.A).

- Acquire, restore, and preserve riparian corridors and adjacent uplands to improve ecosystem functions, support fish and wildlife resources, provide recreational opportunities for the public, and integrate open space into Meadowlands communities (Sections VII.A, IX.B, and IX.C).

- Consider acquisition, remediation, enhancement, and restoration of degraded upland areas (*e.g.*, Superfund Sites, abandoned rail lines, and available brownfield sites) within and along

the periphery of the Meadowlands to support fish and wildlife resources and to replace lost public uses of wetlands and wetland resources (Section IX.C).

2. Remediation

- Conduct a thorough and comprehensive Meadowlands-wide contaminant risk assessment, including the distribution, availability, and bioaccumulation of contaminants, to guide decision-making regarding ongoing or planned remediation, enhancement, and restoration of sites in the Meadowlands (Sections III.E, IV.C, and VII.C).

- Comprehensively address (*e.g.*, assess, remediate) mercury and other contaminants throughout the entire Meadowlands ecosystem to prevent creating attractive nuisances to wildlife (Sections III.E and IV.D).

- Using the Service's priority ranking system for identifying and categorizing sites of concern, remediate heavily contaminated sites, including those where contaminants may be buried, prior to, or possibly concurrent with, enhancement and restoration to avoid increasing wildlife exposure to heavy metals and other toxic (especially bioaccumulative) compounds (Sections III.E and IV.C).

- Evaluate the potential adverse effects of dioxins and related compounds on invertebrates; moreover, if dioxins and related compounds adversely affect invertebrate growth, survival, or reproduction, remediate sites heavily contaminated by dioxin (Section IV.C).

- Investigate the potential adverse effects of, and exposures to, dioxins and related compounds on fish and wildlife to guide remediation, enhancement, and restoration of the Meadowlands (Section IV.C).

- Develop criteria for removal of common reed from contaminated sites (Sections VI.B and VII.C).

- Remediate, enhance, and restore landfills to increase the acreage and diversity of the vegetative landscape (e.g., upland grasslands, shrublands, and forests) within the HRW; consider diverse public uses of these areas and the integration of such public areas into the landscape (Sections VII.B and VII.C).

3. Enhancement and Restoration

- Investigate and evaluate the restoration of the Anderson Creek Marsh (*e.g.*, contaminant effects, success measures) prior to enhancing or restoring subsequent sites of existing (*e.g.*, HMER) or future restoration programs (Section III.E).

- Develop performance measures, success criteria, and other metrics to guide adaptive management and to gauge the overall success of remediation, enhancement, and restoration (Sections IV.A, IV.C, and VII.C).

- Maintain and/or restore existing buffers, and increase the extent of vegetated buffers along waterways and wetlands throughout the HRW (Sections VII.C and IX.C).

- Examine the scheduling of restoration and dredging projects to accommodate complementary needs, such as the disposal and use of clean dredged materials (Section VII.C).

- Consider combining the enhancement and restoration of adjoining or nearby sites, especially those in the same hydrologic sub-basin, to reduce the cost as well as the risk to fish and wildlife (Section IX.B).

- Utilize the Service's expertise in restoration ecology to expand its role in ongoing and other programs (*e.g.*, HMER) to enhance and restore wetlands and uplands, such as by working with the Service's *Partners for Fish and Wildlife, Coastal*, and other programs (Sections IX.C and X.E).

- Coordinate and implement restoration projects throughout the Meadowlands with the EPA's Biological Technical Assistance Group to avoid and minimize potential adverse impacts of contaminants on fish and wildlife populations (Section X.B).

- Focus the Meadowlands Comprehensive Restoration Implementation Plan (MCRIP) on contaminant sources and obstacles that might hinder enhancement and restoration efforts and impact water quality throughout the Meadowlands; plan and pursue projects that will minimize further contaminant redistribution and exposure to fish and wildlife (Section X.E).

4. Management

- Develop and implement stormwater regulations that: (1) employ best management practices, (2) use low-impact solutions, and (3) provide sufficient water storage and water treatment on-site to reduce contaminant inputs in stormwater (Section IV.B).

- Develop comprehensive stormwater and flood-control programs throughout the HRW that: (1) employ non-structural means of flood control, (2) reclaim and restore floodplains, and (3) create and conserve wetlands to augment existing flood storage (Section IV.B).

- Remove former and non-functioning tide gates to improve tidal flow throughout the HMD; carefully assess and consider the need for, and design, maintenance, and potential adverse effects of new/replacement tide gates on fish and wildlife and especially on nearby enhancement and restoration efforts (Section IV.B).

- Combine and integrate the Hackensack and Passaic River watersheds into a single water management program addressing: water flow, inter-basin diversions, reservoir management, water quality, wastewater treatment, sea level rise, and water conservation and reuse to sustain fish and wildlife and meet the long-term water supply needs of the region (Sections IV.B, IV.D, VII.C, VIII.A and X.D).

- Adopt and implement water quality criteria for contaminants (*i.e.*, Buchanan *et al.*, 2001) that were jointly developed by the State and federal government to protect fish and wildlife in New Jersey; develop additional criteria for other contaminants to improve water quality, ecosystem functioning, and fish and wildlife health (Sections IV.C, VII.C, and X.D).

- Conduct a periodic revision of the list of synthetic materials being monitored and update the sampling protocols to improve detection of existing and novel contaminants (Section IV.C).

- Improve sewage treatment in the Hackensack and the Passaic Rivers to improve the health of fish and wildlife and the aquatic ecosystem upon which they depend (Section IV.D).

- Coordinate and integrate the State's *Wildlife Action Plan* for the HMD with comprehensive planning of remediation, enhancement, and restoration activities in the Meadowlands (Section V.C and X.E).

- Evaluate any proposed changes (*e.g.*, allowing radio towers and marinas as special use exceptions in wetlands) to NJMC zoning and other regulations for consistency with the Master Plan and for their potential adverse impacts on wetlands, restoration activities, and fish and wildlife resources (Section VII.B and IX.B).

- Conduct a comprehensive review and evaluation of all federally permitted mitigation projects in the Meadowlands to evaluate the success of these projects and to ensure that all mitigation wetlands and banks are in compliance with federal and State policy guidelines; these actions will help guide future restoration efforts and improve future mitigation (Sections VII.B, X.B and X.G).

- Encourage State land management agencies and landowners to consider: (1) collaborating on the formulation of plans, policies, and regulations to provide uniform, consistent protection of wetlands under their respective stewardships; and (2) transferring their wetland landholdings to the most appropriate State agency for long-term management and protection (Section VII.B).

- Consider diverse mechanisms, including formal establishment of an explicitly identified "preserve" or marine/estuarine protected area pursuant to existing federal authorities, to augment and support long-term protection to the Meadowlands ecosystem (Sections VII.B and VII.E).

- Integrate enhancement, restoration, flood control, and storm water projects to improve water quality and address other water supply issues throughout the Passaic and Hackensack watersheds (Section VII.C).

- Employ surface elevation tables and other technology (*e.g.*, LIDAR) to gather detailed local information on sea level rise and its modifiers to guide both short- and long-term restoration planning (Section VII.C).

- Develop and implement an interagency memorandum of agreement to establish collaborative processes with a principals' group (and supporting technical committee) to ensure: (1) regular and open dialogue on major issues (*e.g.*, a *collective vision* for the Meadowlands), (2) improved organization, management, and coordination of remediation, enhancement, and restoration activities (*e.g.*, risk assessments, contaminant criteria), and (3) development of a master schedule and contingency plan for restoring all sites within the HMD (Sections X.B, X.D, and X.G).

- Investigate establishing a specific federal authority to provide funding to ensure interagency coordination to restore the entire system, minimize adverse impacts on fish and wildlife resources, and maximize long-term benefits (Sections X.B and X.G).

- Include the EPA's Superfund Branch and the Biological Technical Assistance Group as regular participants in the MIMAC (Section X.B).

- Request that the NJMC and the NJDEP review and clarify interagency coordination procedures regarding, and the consistency of, State regulations with regard to federal provisions in the Coastal Zone Management Act that pertain to federally-approved, licensed, permitted, or funded projects in the HMD (Section X.E).

- Develop a memorandum of agreement to establish an interagency principals' group to: (1) coordinate restoration and related activities in the Meadowlands and (2) provide a forum for regular information exchange with stakeholders and the public (Section X.G).

B. INCREASE SCIENTIFIC UNDERSTANDING TO BETTER DEFINE SUCCESSFUL REMEDIATION AND RESTORATION AND TO ENHANCE ECOSYSTEM FUNCTIONS AND NATURAL DYNAMIC PROCESSES

- Monitor contaminant concentrations, distributions, effects, and bioaccumulations before, during, and after each enhancement and restoration project, then evaluate the results on a schedule to facilitate adaptive management and to guide subsequent enhancement and restoration efforts (*e.g.*, MCRIP) on other sites (Sections III.E, IV.C, VII.C, X.D, and X.E).

- Monitor PCBs in a manner that can identify and detect all PCB congeners and their metabolites (*e.g.*, hydroxylated forms) and assess their potential adverse effects on fish and wildlife resources (Section IV.C).

- Expand and integrate physicochemical and biotic monitoring and assessment throughout the Hackensack and Passaic River watersheds to better understand ecosystem processes and functioning and to develop hydrologic goals and objectives regarding water quantity and quality to provide for ecosystem maintenance and protection of biodiversity (Sections IV.B and VII.C).

- Investigate the feasibility of developing and implementing a contaminants program for sewage-treatment plants to: (1) identify and monitor novel compounds and potential

contaminants (*e.g.*, over-the-counter drugs, pharmaceuticals) in effluents from sewage-treatment plants and other waste streams; (2) determine the distribution, transport, and availability of novel compounds and potential contaminants in the environment; (3) assess ecological effects and impacts on fish and wildlife (and human) health; and (4) if necessary, develop corrective measures that are protective of fish and wildlife (and human) health (Section IV.C).

- Investigate the natural hydrograph and determine the feasibility of providing a natural pattern of flows to the Hackensack River, such as by periodically and seasonally allowing increased flows over the Oradell Dam (Sections IV.D and VII.C).

- Substantially expand comprehensive research and related activities in the areas of: (1) environmental contaminants, water quality, and hydrology; (2) suburban and urban ecology; and (3) invasive and exotic species; furthermore, increase the capabilities of stakeholders, especially federal and State agencies, to provide critical information needed to guide-decision making regarding restoration, protection, and related activities (Sections V.A, V.C, VIII.A, and X.G).

- Improve wetland monitoring (*e.g.*, using surface elevation tables) to detect wetland changes (*e.g.*, conversion of wetlands to open water through subsidence or SLR; Section V.B).

- Assess cumulative impacts of processes affecting the hydrology and sediment transport in the HRW (*e.g.*, dredging, controlled river flows) to guide decision-making regarding remediation, enhancement, and restoration (Section V.B).

- Consider the purposes, need for, and alternatives to, any proposed projects that would further fragment remaining wetlands in the Meadowlands during federal, State, and local (permit) authorizations (Section V.C).

- Develop and evaluate innovative alternatives, to reverse and rectify the impacts of previous public projects that fragmented and altered the hydrology of wetlands, in long-range planning for new public transportation and other large projects (*e.g.*, stadiums, redevelopment; Sections V.C, VII.C, and VII.E).

- Assess adverse impacts (including cumulative impacts) of land-use and other human activities (*e.g.*, impervious cover, roadway and traffic effects, communication towers, and other features of the built environment) on fish and wildlife as a guide for enhancement and restoration activities (Section V.C).

- Comprehensively assess buffer features (*e.g.*, width) and consider revisions to buffer regulations to improve water quality and protect habitats for key species throughout the HRW (Section V.C).

- Assess landscape structures, corridor features, and the behavior and habitat requirements of rare and priority species as a guide toward creation and restoration of upland corridors (Section V.D).

- Develop a comprehensive state-of-the-art watershed-wide program for monitoring: (1) nutrients, micronutrients, and contaminants (including novel compounds) in sediment and water and (2) bioaccumulation of contaminants in select taxa (*e.g.*, invertebrates, fishes, and other vertebrates; Section VII.C).

- Collect amphibian morphological and reproductive information (*e.g.*, abnormal limb and development, and intersex data) together with contaminant and other information to evaluate the feasibility of re-establishing populations of some amphibian species at palustrine wetland sites (*e.g.*, Teterboro Woods; Section VII.C).

- Determine to what extent current programs of nutrient and contaminant reduction are working, *i.e.*, having beneficial effects (Section VII.C).

- Assess transformation in, and coupling of, nutrients and contaminants between the water column and sediment to understand the potential availability and effects of those materials on ecosystem processes and fish and wildlife (Section VII.C).

- Expand formal and informal research and other partnerships among federal and State agencies working in the Meadowlands and the NY-NJ Harbor to better understand, enhance, restore, and protect the Meadowlands ecosystem and the HRW (Section VIII.A).

- Develop a plan to assess and reduce potential adverse impacts of communication towers (including their removal) on wildlife, especially migratory birds, in the HMD (Section IX.B).

C. ESTABLISH DIVERSE, NATIVE WETLAND AND UPLAND COMMUNITIES

- Conduct a floristic survey of remnant palustrine wetlands (*e.g.*, Teterboro Woods), local parks, and other open space to recommend procedures for monitoring, enhancement, and management regarding invasive and rare plant species (Sections III.E and VII.C).

- Protect and manage remaining natural areas, especially palustrine wetlands, for State-listed and other rare species, as well as for viable populations of native wildlife species using the Meadowlands for breeding, foraging, and migrating (Section III.E).

- Investigate the potential causes of the poor survival of plantings at restoration sites to improve planting success of future enhancement and restoration efforts (Section IV.C).

- Develop a Meadowlands-wide program to identify, assess, prioritize, and address (*i.e.*, eradicate or control): (1) "new" exotic species before they spread, and (2) invasive species adversely impacting listed, rare, and managed species; coordinate with other agencies to develop a similar NY-NJ Harbor-wide program (Sections VI.A, VI.E, and VI.F).

- Consider revisions to federal and State regulations to require longer periods (10 years or more, as compared to the current 5-year requirement) of monitoring performance of

permitted mitigation sites to prevent re-invasion by common reed or other invasive species (Section VI.B).

- Conduct and support additional research into: (1) biocontrol of common reed, (2) re-invasion of restoration sites by common reed, and (3) effects of common reed on secondary production of fishes (Sections VI.B and VII.C).

- Develop a comprehensive program to assess, evaluate, prioritize, control, and manage currently widespread invasive species (*e.g.*, purple loosestrife, Japanese knotweed; Sections VI.B through VI.E).

- Assess adverse impacts of resident Canada geese and white-tailed deer on the flora of sites being restored and on State-listed and other rare native plant species in the Meadowlands; periodically assess the need to develop management plans for those species (Section VII.C).

- Investigate and evaluate the vegetative communities most suitable for landfills in terms of their impacts on water quality and support for fish and wildlife; consider techniques used on landfills elsewhere (*e.g.*, localized use of thick caps) to promote use of appropriate native tree species to provide forested riparian buffers and increase plant diversity (Section VII.C).

- Survey the freshwater faunas and their habitats in the Hackensack and Passaic River watersheds; also, investigate the feasibility of re-establishing populations of rare mollusks (*e.g.*, federally and State-listed species; Section VII.C).

- Assess the distribution and abundance of amphibians in the HMD and the HRW by surveying nocturnal calling and vernal pools (Section VII.C).

- Assess the distribution and abundance of reptiles and their critical habitats (*e.g.*, potential snake den areas such as Snake Hill and Little Snake Hill, nesting sites of the diamondback terrapin) in the HMD (Section VII.C).

- Consider additional protective measures for terrapins (*e.g.*, roadside fencing to reduce mortality of nesting females) and snakes (*e.g.*, protect known den areas; Section VII.C).

- Assess impacts, including cumulative impacts of the urban landscape (*e.g.*, buildings, radio towers, automobiles) on birds and other wildlife (Sections VII.C and VII.E).

- Gather information on contaminant bioaccumulation and the status, diet, and habitat-specific production (*e.g.*, reproductive success) to guide restoration and manage the long-term protection of avian species that reside and breed in the Meadowlands. Especially consider those bird species that feed extensively in aquatic habitats or on aquatic resources (*e.g.*, belted kingfisher, *Ammodramus* and *Melospiza* sparrow species, red-winged blackbirds, waterfowl, herons, and rails; Section VII.C).

- Establish programs and develop management plans to protect and support rare, including federally listed and State-listed species, and other species on various regional, special concern, or watch lists (Section VII.C).

- Consider the sources, levels, and effects of potential contaminant availability when establishing programs to support listed and other rare species (Section VII.C).

- Regularly monitor and assess the status of introduced mammal populations, their pathogens, and disease vectors to develop needed control or other management plans (Section VII.C).

- Evaluate the feasibility of re-establishing a population of Allegheny woodrat in the Meadowlands (Section VII.C)

D. INCREASE RESPONSIBLE USE OF, PUBLIC AWARENESS OF, AND EDUCATION ABOUT THE MEADOWLANDS

- Promote collaboration among agencies throughout the NY-NJ Harbor estuary on exotic and invasive species, and the means (*e.g.*, public education, on-the-ground control, restoration) to prevent their introduction and reduce their impacts (Section VI.G).

- Educate the public regarding the biology, needs, and threats (*e.g.*, certain human activities, domestic animals) to fish and wildlife in the Meadowlands (Section VII.C).

- Develop a *unified* outreach program to generate and maintain public support for the remediation, enhancement, and restoration of the Meadowlands, including: (1) use of various media [*e.g.*, web-pages, public television, radio programming, a "coffee-table" book]; (2) innovative exhibits and demonstration projects at key venues [*e.g.*, museums, sports facilities]; and (3) communicating key messages in other languages (Sections VIII.A and B).

- Expand development of formal and informal educational programs for children and adults through existing stakeholders (*e.g.*, NJMC's Meadowlands Environment Center; Section VIII.A).

- Improve public access to the Meadowlands, especially its waterways (Section VIII.A).

- Establish a public use policy for the Meadowlands that promotes a broad range of wildlife-related activities (*e.g.*, waterfowl hunting, fishing, wildlife observation, photography, environmental education, and environmental interpretation) that is compatible with the conservation of fish and wildlife resources (Sections IX.A and B).

- Conduct periodic surveys of public uses, values, and perceptions of the Meadowlands to develop a social and recreation vision, conduct long-range planning, and refine human use policies to increase public benefits (Sections VII.B and IX.B).

- Assess certain health risks (*e.g.*, consumption of contaminated seafood and wildlife, other Meadowlands recreational activities such as boating and hiking), and address related

concerns of low-income, minority, and high-risk populations (*e.g.*, children) residing in the HMD (Sections VIII.B and IX.B).

- Identify and develop sites to provide diverse land-based (*e.g.*, bicycle paths, skateboard and ATV parks) and water-dependent recreational opportunities (*e.g.*, fishing piers and boat ramps) in/near the Meadowlands while protecting fish and wildlife species, especially during their breeding seasons (Sections IX.B and C).

- Develop "passive" recreational facilities and greenways (*e.g.*, parks, trails, river overlooks, site-specific boardwalks, and wildlife observation sites) that connect to, and integrate, open-space areas throughout the Hackensack watershed (Section IX.C).

- Establish a long-range plan to monitor and assess public use of, and support facilities (*e.g.*, parking areas) in, the Meadowlands to prevent adverse impacts on fish and wildlife and misuse or destruction of facilities (Section IX.C).

- Include provisions for emergency communications (*e.g.*, panic buttons, closed circuit television) at parking and other public facilities (Section IX.C).

- Incorporate universal access into planning and design of recreational facilities and facility components (*e.g.*, trail surfaces, restrooms, curbing) to be accessible to those with special needs (Section IX.C). Request federal (*i.e.*, U.S. Access Board) and State (*i.e.*, Department of Community Affairs) assistance to provide exemplary access to facilities for those with special needs (Section IX.C).

- Investigate the availability of federal funding, including funds generated by transportation and other projects, in support of recreational infrastructure (Section IX.C).

- Increase public access, integrate human uses of open space, and sustain and safeguard fish and wildlife to perpetuate the new and more favorable public image of the Meadowlands (Section IX.D).