

EVALUATION FINDINGS
FOR THE
HUDSON RIVER NATIONAL ESTUARINE RESEARCH RESERVE
APRIL 1999 THROUGH SEPTEMBER 2004

November 2005



Office of Ocean and Coastal Resource Management
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I. INTRODUCTION

The Coastal Zone Management Act (CZMA) of 1972, as amended, established the National Estuarine Research Reserve System (NERRS), a network of reserves that are protected for long-term research, environmental monitoring, education, and coastal stewardship. Sections 312 and 315 of the CZMA require NOAA's Office of Ocean and Coastal Resource Management (OCRM) to conduct periodic performance reviews or evaluations of federally designated national estuarine research reserves (NERRs). This document describes the evaluation findings of the Director of NOAA's OCRM with respect to the operation and management of the Hudson River National Estuarine Research Reserve (HRNERR or Reserve) by the New York Department of Environmental Conservation (DEC) during the period of April 1999 through September 2004. It contains a description of the review procedures, a description of the program, evaluation findings, major accomplishments during the review period, recommendations, a conclusion, and appendices.

The recommendations made by this evaluation appear in **bold** type and follow the section of the findings in which the facts relevant to the recommendation are discussed. The recommendations may be of two types:

Necessary Actions address programmatic requirements and must be carried out by the date(s) specified;

Program Suggestions describe actions that OCRM believes would improve the program, but which are not mandatory at this time. If no dates are indicated, the State is expected to have considered these Program Suggestions by the time of the next CZMA §312 evaluation.

Failure to address Necessary Actions may result in a future finding of non-adherence and the invoking of interim sanctions, as specified in CZMA §312(c). Program Suggestions that must be reiterated in consecutive evaluations to address continuing problems may be elevated to Necessary Actions. NOAA will consider the findings in this evaluation document in making future financial award decisions relative to the Hudson River NERR.

It is the fundamental conclusion of this evaluation that the HRNERR is successfully implementing and enforcing its federally approved program and is adhering to its programmatic obligations defined by the terms of federal financial assistance awards and NERR System regulations under Section 315 of the CZMA. This document contains two recommendations that take the form of Necessary Actions that are mandatory and must be completed by the identified deadline and five Program Suggestions that denote actions OCRM believes the State should take to improve the program, but which are not mandatory at this time.

II. REVIEW PROCEDURES

A. OVERVIEW

The Office of Ocean and Coastal Resource Management (OCRM) evaluation staff began its review of the Hudson River NERR in June 2004. The §312 evaluation process involves four distinct components:

- An initial document review and identification of specific issues of concern;
- A site visit to New York, including interviews and a public meeting;
- Development of draft evaluation findings; and
- Preparation of the final evaluation findings, partly based on comments from the state regarding the content and timetables of necessary actions specified in the draft document.

B. DOCUMENT REVIEW AND ISSUE DEVELOPMENT

The evaluation team reviewed a wide variety of documents prior to the site visit, including: 1) the HRNERR federally-approved Environmental Impact Statement, management plan, and program documents; 2) financial assistance awards, performance reports, and work products; 3) official correspondence between the program and OCRM; 4) the previous §312 evaluation findings; and 5) other relevant information.

Based on this review and on discussions with the OCRM Estuarine Reserves Division staff, the evaluation team identified the following priority issues:

- status of general administration of the reserve and the management plan revision;
- facilities development and land acquisition efforts;
- status of implementation of the reserve's research, monitoring, and education programs;
- status of reserve staffing and needs;
- the manner in which the reserve coordinates with other governmental and non-governmental organizations and programs in the state and region;
- major accomplishments during the review period; and

- how the reserve has addressed recommendations in the Section 312 findings released in 1999.

C. SITE VISIT TO NEW YORK

Notification of the scheduled evaluation was sent to the New York DEC, the Hudson River NERR, relevant federal agencies, and the New York congressional delegation. The Hudson River NERR published notification of the evaluation and scheduled public meeting. In addition, a notice of NOAA's "Intent to Evaluate" was published in the *Federal Register* on July 16, 2004.

The site visit to New York was conducted from September 28-30, 2004. The evaluation team consisted of Ms. L. Christine McCay, Evaluation Team Leader, OCRM National Policy and Evaluation Division; Ms. Kate Barba, Program Manager, OCRM Estuarine Reserves Division; and Ms. Jaime Kooser, Manager, San Francisco Bay National Estuarine Research Reserve.

During the site visit, the evaluation team met with HRNERR staff, senior New York DEC agency and other state officials, local government officials, civic group representatives, and non-governmental organizations. Appendix A contains a listing of individuals contacted during this review.

As required by the CZMA, a public meeting was held on Wednesday, September 29, 2004, at 7:00 p.m., at the Tivoli Bays Visitor Center, Watts DePeyster Fireman's Hall, 1 Tivoli Commons, Tivoli, New York, where members of the general public were given the opportunity to express their opinions about the overall operation and management of the Hudson River NERR. Appendix B lists persons who attended the public meeting.

Written comments are also accepted. Appendix C contains responses to written comments received in response to the evaluation.

The Hudson River NERR staff were crucial in setting up meetings and arranging logistics for the evaluation site visit. Their support is most gratefully acknowledged.

III. RESERVE PROGRAM DESCRIPTION

A. THE NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM

The Coastal Zone Management Act of 1972, as amended, established a system of National Estuarine Research Reserves that are funded cooperatively by NOAA's Office of Ocean and Coastal Resource Management and the host states or territories, which also manage the reserves. The Reserve Program has two primary missions: (1) to establish and maintain, through federal and state cooperation, a national system of reserves representative of various biogeographic regions in the U.S.; (2) to conduct long-term research, educational, and interpretive activities in support of national coastal zone management priorities.

Toward those missions, reserve sites are selected to represent the range of biogeographic regions, estuarine types, and coastal management challenges occurring throughout the U.S. To date, NOAA has designated 26 National Estuarine Research Reserves that collectively protect more than one million acres of estuarine land and water. Three additional sites are currently in various stages of the designation process.

B. RESERVE SITE DESCRIPTION

The Hudson River National Estuarine Research Reserve (Hudson River NERR or the Reserve), designated by NOAA in 1982, includes nearly 5,000 acres of tidal wetlands and upland at four sites (or components) located along 100 miles in the Hudson River between Albany and New York City. (See map on page 7.) The Reserve contains diverse plant and animal communities that occupy a broad salinity gradient in the Hudson River estuary and biogeographically-representative of the southern New England sub-region of the Virginian Province. The components are (from north to south):

Stockport Flats/Nutten Hook. Located on the east bank of the river, north of the Town of Hudson, NY, in Columbia County, Stockport Flats is a five-mile, narrow mosaic of wetlands and shorelands. Nutten Hook, at the northernmost end, was added to the Reserve in 1992 for its ecological and cultural interpretive value. Stockport Creek is located to the south, one of the ten largest tributaries to the Hudson Estuary. The 1,500-acre component includes the Hudson River Islands State Park, accessible by water for day uses and camping. Large quantities of dredged material deposited at Stockport Flats by the U.S. Army Corps of Engineers in 1926 have redefined the topography of the area and the natural communities it supports. The site supports long-term research and monitoring of plant and animal communities, water quality, and sedimentation patterns reflecting the accumulation of pollutants. The component is also the focus of public field programs and teacher training workshops.

Tivoli Bays. Also located on the eastern side of the river in the town of Red Hook in Dutchess County, the 1,700-acre Tivoli Bays component is a large freshwater tidal wetland surrounded by

800 acres of undeveloped woods and fields. Stony and Saw Kill creeks are shallow, fast-flowing streams that empty into the North and South Bay, respectively. The Reserve headquarters at the Bard College Field Station overlooks Tivoli South Bay. The component is operated by DEC as a wildlife management area. It can be accessed also by canoe and through a series of five trails. Since 1850, a train line has run along an embayment skirting the western side of Tivoli Bays, and bridge openings in North Bay (2) and South Bay (3) have restricted both river access and water exchange and have accelerated sedimentation in the bays. The North and South Tivoli Bays are some of the most intensively studied tidal wetlands in the Hudson River Estuary. Interpretation of this research has been a focus for the Reserve's educational public field, school, and teacher training programs.

Iona Island. The Iona Island and marsh complex is located in the Town of Stony Point in Rockland County on the western side of the river, six miles south of West Point. Iona Island, itself composed of bedrock, contains adjoining tidal and brackish marshes, intertidal mudflats, and tidal swamp at the mouth of Doodletown Brook, the component's principle tributary. The 556-acre site is part of Bear Mountain State Park and under the jurisdiction of the Palisades Interstate Park Commission (PIPC). Although the site supports passive recreation during the milder seasons, the area serves as a bald eagle sanctuary during the winter months.

Piermont Marsh. Located on the west bank, north of the Town of Palisades in Rockland County, Piermont contains one of the Hudson's largest remaining native salt marshes covering approximately 1,000 acres. Most of Piermont Marsh is within the Tallman Mountain state Park and is managed by the PIPC. The northern end of the marsh is managed by DEC. Piermont Marsh offers a unique opportunity to monitor and understand the impact of natural and land use changes to this ecosystem, which includes the Sparkill Creek. The Reserve offers year-round public field programs from the site, as well as teach training workshops.

C. RESERVE ADMINISTRATION

The Reserve is managed by the New York State Department of Environmental Conservation (DEC), as the lead agency, in cooperation with the following key state agencies:

- **Office of Parks, Recreation and Historic Preservation (OPRHP).** Along with DEC, OPRHP is the other major owner and manager of state lands included in the Reserve boundary. The Reserve also collaborates on opportunities for historic preservation and cultural resource management, working through DEC's Agency Preservation Officer.
- **Department of State (DOS).** The home of New York's state coastal management program (NYSCMP), DOS staff from this program interact with the Reserve on a range of coastal management issues in the region related to resource protection, restoration, public access, and waterfront revitalization.

- **Palisades Interstate Parks Commission (PIPC).** The PIPC is a private governing body established by interstate compact and supported by public funds from New York and New Jersey to manage regional park lands, several of which are included in the Reserve.
- **Office of General Services (OGS).** OGS has jurisdiction over state lands that are now or were formally under water. Title and management of the Reserve lands under OGS' oversight have been transferred to DEC and OPRHP, with the exception of several parcels in Stockport Flats.

An operating element of DEC since its inception, the Reserve has been located since 1992 in the Bureau of Marine Resources within the agency's Office of Natural Resources. The Bureau is responsible for setting broad policy and operational guidelines for the Reserve. Its mission "to manage and maintain the state's living marine, estuarine, and anadromous resources, and to protect and enhance the habitat upon which these resources depend..." is consistent with the Reserve's mission of research, education, and stewardship.

Apart from DEC's central organizational structure, the State has been divided administratively into geographic regions, within which agency-side priorities and individual work plans are implemented. In practice, the Reserve staff report to the DEC Region 3 Director through the Regional Natural Resources Supervisor for activities in the Tivoli Bays, Iona Island, and Piermont Marsh. Oversight for the Stockport Flats/Nutten Hook component falls under DEC Region 4. The Reserve staff have operated from the Bard College Field Station since the facility was expanded and equipped by DEC and the College for this purpose in 1989.

Policies, agency responsibilities, and the institutional framework for the management of the Reserve were formalized in a 1982 Memorandum of Understanding. The primary functions of the Steering Committee have been to develop and guide the implementation of the Reserve's Management Plan and to promote interagency coordination in operations, program development, and resource protection. In practice, Reserve staff act on behalf of the Steering Committee, working closely with other agency staff to identify and coordinate crosscutting issues. Local advisory groups for each Reserve component are no longer maintained; rather the Reserve has encouraged extensive public input during the site management plan development process.

MAP OF HUDSON RIVER NATIONAL ESTUARINE RESEARCH RESERVE
(electronic copy not available)

IV. REVIEW FINDINGS, ACCOMPLISHMENTS, AND RECOMMENDATIONS

A. OPERATIONS AND MANAGEMENT

1. Staffing

The Reserve's strength lies in its staff, and it was clear to the evaluation team that the staff are universally well respected. Throughout the site visit, everyone with whom the team met praised the manager and staff members for their technical expertise and knowledge, their ability to develop broad and deep partnerships while maintaining the separate identity of the Reserve, and their exceptional talent to effectively communicate and share their strong commitment to the resources with the public and other partners.

Reserve staff have consistently provided leadership and service roles nationally, on behalf of the NERRS, and at the state level. The Research Coordinator is the current president of the National Estuarine Research Reserve Association (NERRA) and has held numerous other positions within NERRA prior to the presidency. The Habitat Restoration Coordinator also has held and holds positions within NERRA committees and workgroups, and the Reserve Manager represents the National Estuarine Research Reserve System on the Board of Advisors of the Cooperative Institute for Coastal and Estuarine Environmental Technology. The Reserve Manager, Research Coordinator, and Education Coordinator have served and currently serve on various committees and subcommittees of the Hudson River Estuary Program, while the Benthic Habitat Coordinator serves on the Board of Directors of the Hudson River Environmental Society and currently edits the Society's newsletter.

Since the last evaluation and in response to a Necessary Action, the Reserve has filled the vacant education coordinator position. The position has been retained as a permanent state civil service position, but it is still federally funded, primarily because of the state's protracted hiring freeze and fiscal constraints during the period covered by this evaluation. Supported by a Program Suggestion in the previous evaluation, the Reserve has also hired a person into a contractual position to coordinate the research translation function and serve as the coastal training coordinator. Finally, a new contractual position was filled to serve as a Reserve educator. Even though the Reserve has not yet been able to obtain state funding for the education coordinator position, state funds fully support the contractual positions of benthic habitat coordinator, habitat restoration coordinator, and administrative coordinator, as well as the permanent state civil service positions of the reserve manager and the research coordinator. With nine full-time staff, three part-time interns, and graduate research fellows, the Reserve has been able to expand Reserve programs, accomplish NERR systemwide initiatives, and assume more partnership projects.

ACCOMPLISHMENT: The Reserve staff are highly respected, knowledgeable, and dedicated. With an increase in the number of staff, the Reserve has increased its programmatic capacity and capability.

PROGRAM SUGGESTION: The Department of Environmental Conservation should continue to pursue its previous commitment to identify a secure source of state funding for the Education Coordinator position.

The Reserve has dramatically expanded staff and programming during the performance period, resulting in increased activity and partnership development in research, education, training and stewardship portfolios. While the evaluation team heard a number of examples of programmatic integration across functional lines, such as education programming around submerged aquatic vegetation, restoration of these habitats, and research on these habitats, it was clear to the team that the staff would benefit from a systematic process to prioritize issues and coordinate strategies across research, education, training and stewardship programs. We suggest that Reserve staff meet periodically as a team to collectively reassess their priorities and opportunities for collaboration in an ongoing manner. Current efforts to revise the reserve management plan will likely result in the development of interrelated goals and objectives and provide an immediate opportunity to jumpstart discussion around integration and collaboration. However, an ongoing process beyond this task is critical to ensure opportunities for education and training staffs to better understand research and stewardship activities and be able to tailor programming to extend science, stewardship messages, etc., to appropriate audiences. Conversely, sharing audience interests, needs, and preferences can inform and influence research and stewardship strategies and programs. This priority setting should extend to Reserve management as well, to include, for example, prioritizing management tasks such as plan revision and Norrie Point renovations.

PROGRAM SUGGESTION: The Reserve should establish an ongoing process for staff participation in program planning and prioritization, which will increase opportunities for focused, collaborative activities that address interrelated objectives.

2. Facilities, Facilities Plan, and Infrastructure

During the period covered by this evaluation, the Reserve has established a presence and “face” to engage the public at the Tivoli Bays Visitor Center. The Visitor Center is located in the Village of Tivoli’s historic Watts de Peyster Fireman’s Hall, which has been recently renovated and restored. A large room for exhibit space is provided for the Reserve by the

Village. The exhibit, entitled “Doorway to the Bays,” represents a significant investment of time and resources in a community partnership and facility development to foster local stewardship of the Hudson River. The exhibit and space is used frequently for public talks about the Hudson and has been well received by the public. It interprets the natural and human histories of the Tivoli Bays and provides local residents and visitors with Reserve access information. The exhibit incorporates the Hudson River Collection, which is an extension of the Tivoli Free Library in the same building, and the Shagabak Collection, native artifacts on loan by the Kinney family and the New York State Museum. The Reserve has been able to utilize an intern to staff the Visitor Center on a part-time basis. The Tivoli Free Library is across the hall from the exhibit space and often assists visitors when no Reserve staff are at the site. A walking trail approximately 2½ miles in length connects the Visitor Center to the Tivoli Bays. Reserve staff are able to offer a diverse program of seminars, lectures, field programs, and summer activities to community and regional visitors through this important connection at the Tivoli Bays Visitor Center.

ACCOMPLISHMENT: The Reserve has established a unique, community-based partnership in the development of the Tivoli Bays Visitor Center that engages the public and fosters stewardship of the estuary. The facility also provides a permanent physical presence for the Reserve to the public, which is important because the staff are currently headquartered at a location not nearly as visible or accessible.

The Reserve’s base of operation is located on the shore of Tivoli South Bay at the Bard College Field Station. The Reserve has been located here since 1989 and shares space, field and lab equipment, and an archive of scientific and historical information with Hudsonia, Ltd. (a research/education non-profit organization) and college students from Bard and elsewhere conducting field research.

With the increase in the number of staff and the expansion of Reserve programs and initiatives since 1989, the facility is now much too small and appears to be unsafe for occupation in many respects at the present levels. Staff share offices and some have to work at tables in the small common kitchen area; lab facilities are extremely overcrowded, limited, and perhaps unsafe in terms of chemical storage and proximity to staff offices; and lack of storage space is abundantly evident. The Field Station is too small to offer workshops and scientific forums. Also, the road to the building is perched in places and is at the edge of an unguarded drop-off, on clay soils that are prone to erosion and slumping. It is critical that the Reserve identify and/or develop alternative facilities for staff offices and program delivery.

A Program Suggestion in the 1999 evaluation findings recommended that the Reserve develop a joint plan in conjunction with Bard College and Hudsonia to address needs and opportunities related to space, infrastructure, and other technological improvements. During the period covered by this evaluation, the Reserve spent considerable time pursuing an expansion and renovation of the Bard College Field Station. Initially it appeared that the Reserve would be able to pursue an expansion from both the state side (the Reserve received state approval to

pursue a sole source contract with Bard College) and the College's side (the administration was receptive to a state investment in the field station). On the basis of that, the Reserve applied for and received a NOAA capital award for \$650,000. However, in the detailed contract negotiations, it became clear that: a) the State was unwilling to invest so much public funding in a private college facility; and b) the College was unwilling to undertake a large construction project in compliance with the subcontracting constraints imposed by the State. However, Reserve staff numbers increased as did Reserve programs and initiatives even as efforts to find a solution to space at the Field Station failed.

During this same time (the period covered by this evaluation), work on design and operational plans for conversion of the Norrie Point Environmental Center into a regional Hudson River Center was proceeding well. An existing but under-utilized facility at Norrie Point had already been identified as uniquely suited to meet the need of a long-standing vision for a Hudson River Center to promote improved stewardship of the region's coastal resources. NOAA encouraged the Reserve to continue in its role of facilitating the development of the Center.

However, all work on this project was stopped following the New York Governor's January 2000 announcement of his intention to site a Rivers and Estuaries Center on the Hudson. The announcement was followed by a long period of consultation, planning, and visioning for the center, as well as a multi-year selection process for a home site. In late 2003, the Governor announced that a site for the home of the Rivers and Estuaries Center had been selected in the City of Beacon. Since the evaluation site visit, the Rivers and Estuaries Center and the Hudson River Estuary Program have begun developing an active partnership and have contacted the Reserve manager about participation in the ongoing development and implementation of the Rivers and Estuaries Center programs and projects. OCRM is encouraged by this inclusion and strongly supports a continued participatory role for the Reserve, whose staff members can offer invaluable knowledge and expertise.

The change in considering Norrie Point for a Hudson River Center facility did provide the Reserve with an opportunity to consider use of the facility at Norrie Point for its offices and work spaces rather than deal with the physical and other constraints in continued use of the existing Bard College Field Station. The Reserve sought and received an extension to June 30, 2006, to the NOAA funds previously awarded for construction of Reserve headquarters expansion. In September 2004, just days before the evaluation site visit, the Reserve was given approval by the DEC Executive Office to pursue a move of its offices and work spaces to Norrie Point. [Since the site visit, the Reserve staff have begun working with a NOAA architect and appropriate state agency staff on the design renovations and accommodations needed at the Norrie Point facility.]

NOAA strongly supports a move of Reserve offices and work spaces to the Norrie Point facility. Current conditions at the Bard College Field Station are detrimental to carrying out many of the Reserve's programs and initiatives in any sort of efficient and effective manner, and, to the evaluation team making the site visit, the situation at the Field Station borders on being

unsafe to the staff working there. Norrie Point provides a more accessible opportunity for the public to visit than does the Bard College Field Station and will offer greater opportunities for Reserve staff to interact with the public. The Reserve's facility plan, which is a part of the management plan, is being revised as part of the management plan revisions discussed below. The facilities plan revisions should reflect the current conditions and needs as well as proposed solutions.

PROGRAM SUGGESTION: The Reserve and the Department of Environmental Conservation are strongly encouraged to follow through with efforts to move the Reserve offices and work spaces out of the current Bard College Field Station configuration and complete whatever tasks are necessary for the transfer to the Norrie Point facility. The facilities plan should be revised to reflect these conditions and possible solutions as a part of the ongoing management plan revisions.

During a visit to the historic ice house at Nutten Hook at the Stockport Flats component, the evaluation team discussed the facilities and infrastructure associated with the site. It was the team's understanding that the current DEC preferred alternative for developing access at the site is to build a connector road between Ferry Road to the south and Ice House Road to the north, both of which parallel each other running east-west. This has been identified as a solution that will satisfy the need to allow access for residents of Ferry Road and to resolve at-grade rail crossing issues at Ferry Road. The connector would straddle the boundary between protected wetlands and uplands with archeological resources between Ferry and Ice House roads. Once the connector road is completed, the Ferry Road railroad crossing would be closed, and a locked gate would be placed near Route 9J on Ice House Road. This project is associated with efforts by the New York State Department of Transportation and others to eliminate railroad grade crossings in the east Hudson rail corridor and to develop another public access boat launch in the nearby town of Stuyvesant. However, OCRM is concerned that road construction through sensitive ecological and cultural resource areas would be contradictory to objectives of the Reserve and would also prevent the public from accessing publicly owned property. The closure of Ferry Road would prevent access to the public cartop boat launch just south of the ferry landing. OCRM believes limitations to public access and construction of a connector road through important resource areas at Nutten Hook is inconsistent with Reserve objectives.

NECESSARY ACTION: No connector road between Ferry Road and Ice House Road at Nutten Hook at the Stockport Reserve component that would cross sensitive ecological and cultural resource areas or that would prevent the public from accessing publicly owned property should be constructed. Such construction is inconsistent with Reserve objectives. The Reserve must report on the status of this issue in cooperative agreement performance reports.

3. Management Plan

The Reserve's current management plan, approved in 1993, is long overdue for revision. The 1993 plan did not provide sufficient detail to guide the management of four individual and different site components, so the Reserve agreed to produce individual site management plans. However, that process and effort proved to be extremely labor intensive, particularly in light of the federally required five-year revision cycle. The Reserve and NOAA reconsidered that strategy, agreeing to production and revision of a consolidated management plan. The 1999 findings included a Necessary Action requiring the Reserve to revise, notice, print and distribute a consolidated management plan by the end of calendar year 2002.

The Reserve was not able to meet this deadline, although management teams composed of Reserve, DEC and/or OPRHP staff (depending upon ownership of property within each site) were formed for each of the four sites and have met to explore and define management needs and administrative structure as well as various alternative management options. Reserve staff have begun developing a draft revised plan. During the site visit the evaluation team discussed the management plan at length with the Reserve manager, reviewed the specific requirements for a plan, and discussed how OCRM supports a briefer, more strategic document. It is important for the Reserve to complete a final revised management plan as required by 15 CFR 921.33. NOAA will take failure to complete this plan into consideration in making future financial award decisions.

NECESSARY ACTION: The Reserve must complete, finalize, and submit the revised management plan to OCRM according to the following schedule:

a) By April 1, 2006, submit a revised draft plan to OCRM for review at the same time it is submitted for state interagency review.

b) By August 1, 2006, finalize the management plan.

OCRM will then publish a Federal Register notice regarding the management plan revision and authorize the Reserve to have the document printed. The Reserve is responsible for printing and distributing the final revised management plan. The Reserve must provide OCRM with: 1) documentation that the document has been submitted for printing; and 2) a copy of the final document on a compact disc. The document must also be posted electronically on the Department of Environmental Conservation/Hudson River Reserve web site at this time. Failure to meet this Necessary Action could result in the withholding of supplemental funding for biomonitoring and/or IOOS projects in FY 06 or subsequent years.

4. Coordination and Partnerships

The Reserve has developed and maintained an impressive number of diverse partnerships. Administratively, the Reserve staff work with the owners and managers of lands within the Reserve boundaries: the Office of Parks, Recreation and Historic Preservation (several regional, bureau, and park offices), the Palisades Interstate Parks Commission, and the Department of Environmental Conservation. At the Reserve's main headquarters, staff have coordinated throughout the years with Bard College and Hudsonia, Ltd. to maintain office and infrastructural facilities for their mutual benefit.

The success of the Tivoli Bays Visitor Center for both the Village of Tivoli and the Reserve is a testament to the successful partnership that has developed among the Reserve, the Village, and the Tivoli Free Library. The mayor of Tivoli and the director of the Library indicated their great satisfaction with being able to develop the Visitor Center and their hopes for a long-term relationship with the Reserve.

The Reserve has a particularly long-standing extensive relationship with the DEC's Hudson River Estuary Program. The Reserve has assisted the Estuary Program in carrying out key sections of the Hudson River Estuary Program Action Plan. The Estuary Program has provided significant funding to the Reserve since 1996 (over \$4 million) for Reserve staff positions and internships and for research and projects involving benthic mapping, submerged aquatic vegetation mapping, and habitat restoration planning. Many of these projects were initiated earlier by the Reserve but are now funded by the Estuary Program. Such a partnership is critical when funding is limited and no one can afford to duplicate the efforts of others. The director of the Estuary Program indicated to the evaluation team that she expects even greater interaction with the Reserve.

The Reserve has a collaborative partnership with the New York State Coastal Management Program. The two programs have partnered on a long-term habitat restoration project with the Army Corps of Engineers and are currently collaborating on the first major update to the state's "Significant Coastal Fish and Wildlife Habitats" for the Hudson River Estuary since 1990. The Reserve will serve as the source for much of the new data and as a clearinghouse for relevant scientific information. The Coastal Management Program serves on the Reserve's Estuary Training Program Steering Committee.

Partnerships with Cornell University and Sea Grant are also particularly strong and are discussed in following sections of this report.

B. RESEARCH AND MONITORING

1. Research Activities

The Reserve's research activities during the period covered by this evaluation have centered around at least three major initiatives: 1) submerged aquatic vegetation (SAV) project; 2) benthic mapping and assessment; and 3) Hudson River NERR vegetation community maps and change analysis. All are collaborative efforts involving numerous partners.

SAV project: The SAV project is a collaborative effort to produce high quality maps of the Hudson River's submerged aquatic vegetation beds for the Hudson River Estuary Program. The Reserve provides project management and serves on a management team that also includes Cornell University Department of Natural Resources, Cornell Institute for Resource Information Systems, Cornell Institute of Ecosystem Studies, NY Sea Grant, NOAA Coastal Services Center and the Estuary Program. During this evaluation review period, mapping of SAV from Troy to Yonkers using 1995 and 1997 aerial photography was completed, and an inventory from 2002 aerials was initiated. Reserve staff coordinated a multi-disciplinary effort to determine the ecological importance of SAV to the Hudson River Estuary; worked with other DEC staff to make spatial data available to all DEC staff through the Master Habitat Database and worked with partners to make spatial data available on the web-based Cornell University GIS Library; worked with a project team to organize a team of volunteer kayakers to collect SAV location information to track small-scale changes in SAV habitat location during the summer; and provided New York state environmental regulators with a tool to research the existence of SAV habitat in any project proposed below mean high water in the Hudson River Estuary.

Benthic mapping and assessment: The objective of this project is to produce high quality maps of the submerged river bottom for the Hudson River Estuary Program and to develop a deeper scientific understanding of habitat use, river bottom change, sediment transport, and other topics. Like the SAV project, this project involves a number of partners, including the Hudson River Estuary Program, the NOAA Coastal Services Center, NOAA Office of Ocean Exploration, Columbia University Lamont-Doherty Earth Observatory, the University of New York at Stony Brook, Queens College, Cornell Institute of Ecosystem Studies, Virginia Institute of Marine Science, and the U.S. Geological Survey Water Resources Division. During the period covered by this evaluation, baseline mapping of the Hudson River Estuary from the Verrazano Narrow to the dam at Troy was completed. A wide suite of acoustic and sediment sampling techniques were employed. The Reserve developed a set of interpretive maps showing sediment type and sediment environment and produced images of the estuary floor and sub-bottom; completed a pilot project that sought to determine the relationships of benthic invertebrate communities to interpretive map units in order to understand the links between the physical environment and various species of interest; and established a web site where the public can create maps of parts of the estuary using components of the benthic mapping database.

According to Reserve staff, fisheries management originally drove the need for benthic mapping; now it is and can be used for a variety of resource management activities, including remediation, power plant licensing, bridge construction, and shipwreck identification. The Reserve organized a pilot study in late 2002 to explore the feasibility of investigating ship wrecks in turbid water and stimulated the creation of a Committee for Hudson River Underwater Resources to promote the development of a management plan to protect Hudson River underwater resources.

Reserve vegetation mapping and change: Working with the Cornell Institute for Resource Information Systems, the Reserve developed plant community maps of all four site components using 1997 aerial photography. Staff then determined changes in coverage at each site using the results of a similar inventory in 1991, demonstrating the rapid expansion of the common reed (*Phragmites australis*) at Iona Island and lesser expansions at the other three Reserve sites. One of the challenges the Reserve faces is to obtain more information and data about *Phragmites* and other invasives and to translate that data into management options, which in turn may define restoration activities. The challenge of exotic and invasive control may help shape Reserve priorities in several topical and geographic areas.

Tidal wetlands mapping: Reserve staff worked with other DEC staff on an Estuary Action Plan project to complete the mapping of all tidal wetland habitat greater than ½ acre on the Hudson River Estuary from the city of Troy south to the Tappan Zee Bridge.

The Reserve is actively engaged in the education and training of both undergraduate and graduate students and promotes the Reserve sites as valuable research locations. In addition to participating in the NERRS Graduate Research Fellowship program, the Hudson River NERR is a collaborative partner in the Tibor T. Polgar Fellowship Program, which is underwritten by the Hudson River Foundation and administered by both the Reserve and the Foundation to fund eight (total) undergraduate and graduate fellows per year. The Reserve also collaborates with New York Sea Grant in the Cooperative Research Fellowship program, sharing in both costs and administration. During the period covered by this evaluation and through these three fellowship programs, Reserve staff oversaw the work of 58 graduate and undergraduate fellows, 32 of whom conducted research projects at Reserve sites.

ACCOMPLISHMENT: The Reserve is actively involved in mentoring the next generation of researchers. The Reserve's research activities have breadth and depth, providing information of direct applicability and use for managers. For example, the Reserve is providing New York state environmental regulators with a tool to assess and map SAV habitats in any project proposed below mean high water in the Hudson River Estuary. The Reserve's research has also been innovative in application; for example, the benthic mapping and assessment effort resulted in the organization of a pilot study to explore the feasibility of investigating ship wrecks in turbid water and stimulated the creation of a Committee for Hudson River Underwater Resources to promote the development of a management plan to protect Hudson River underwater resources.

2. Monitoring Activities

Systemwide Monitoring Program (SWMP): The systemwide monitoring program is now fully implemented at the Reserve at the Tivoli Bays site: three water quality data loggers have been deployed from May 1999 to the present, and a fourth has been deployed from 2002 to the present. The Reserve has maintained an operational weather station since April 1999 and has collected the full suite of nutrient data since 2002. The research coordinator has consistently participated and frequently led the NERRS research community in the planning and development of the SWMP for the NERRS.

Water quality monitoring: The Reserve has continued a long-term water quality monitoring program it began at all four site components in 1991. Staff have created a relational database for all the water quality monitoring data and have identified the primary contributor of nitrate within the Tivoli Bay South watershed and have identified a significant increase in chlorides in four of the five Reserve watershed. These findings have been the subject of a scientific forum/decision maker workshop.

Nekton monitoring program: Beginning in 2002, the Reserve has partnered with Simon's Rock College of Bard (a part of Bard College) in the establishment of a long-term nekton monitoring program at the Tivoli Bays. The Reserve and Simon's Rock College match funds to support an intern to work from April through September to monitoring anadromous and resident fish populations. The purpose of the program is to assess the inter-annual variability and document long-term trends in resident fish populations and anadromous fishes using the Tivoli Bays.

3. Site Profile

The Reserve has just begun (in 2004) to develop an ecological profile of the Reserve, which will compile more than 25 years of research and monitoring information about the Reserve. Initial plans estimate completion of the site profile in June 2005.

PROGRAM SUGGESTION: The Reserve is urged to complete the site profile as expeditiously as possible in keeping with its estimated time frame for completion in June 2005.

C. EDUCATION AND OUTREACH

1. Education and Outreach Programs

During the period covered by this evaluation, the Reserve filled the Education Coordinator position that had been vacant for almost 17 months. Although the Reserve had relied on Student Conservation Corps interns for assistance with educational programs (and still does to a lesser extent), a full-time position for a Reserve Educator/Assistant was also created and filled. The evaluation team was impressed with the energy and momentum that have been regained in the Reserve's education and outreach programs. The staff have resumed guided canoe trips, which they view as the Reserve's most obvious public "face," for the general public and various organized groups at three of the four Reserve sites. They added programs at an additional site on the estuary in 2004 to reduce visitor impacts on existing sites. The staff also offers a variety of nature walks and stream studies on a limited basis at the Tivoli Bays site.

Because so many groups offer educational programs in the Hudson River Estuary, the Reserve has been selective in educational and public outreach program development so as not to duplicate efforts in the region. Reserve staff made a strategic decision years ago not to provide direct delivery of K-12 programs at Reserve sites but rather to focus on teacher professional development and outreach to the general public. As the NERRS considers the development of a formal systemwide education program, the Reserve may consider enhancing professional teacher development programs. The staff offer canoe programs and field experiences for summer teacher institutes offered by other entities and continues to collaborate with the Hudson River Estuary Program to develop a Hudson River Estuary curriculum. In collaboration with New York Sea Grant, the Reserve provided assistance to the Hudson River Sloop Clearwater to develop a new program station for its onboard program focused on SAV and shallow water habitats of the Hudson River Estuary.

The development of the Tivoli Bays Visitor Center represented a heavy work load for Reserve staff, but staff told the evaluation team the work was "definitely worth it." In collaboration with the Village of Tivoli, the Reserve provides a program offering one day a week during the Village's summer program for local youth. It also established a monthly lecture series for the general public in cooperation with the Village and offers public nature walks and a variety of family programs. At Iona Island, the Reserve is working to serve 'at risk' children from urban New York City and other generally underserved audiences.

The Reserve designed and fabricated interpretive panels near the best-preserved ruins of an ice house on the Hudson River at the Stockport Flats site and maintained existing kiosks at two of the four reserve sites. Staff also maintain a web site and have produced a number of general interest publications as well as an impressive number of scientific and research-oriented publications. All of the Reserve staff have been involved in making presentations to a wide variety of audiences on diverse topics.

ACCOMPLISHMENT: The Reserve staff have developed numerous partnerships for educational and outreach programs and have been innovative in their collaborations (for example, the Town of Tivoli and the Tivoli Free Library at the Tivoli Bays Visitor Center) and target audiences (for example, ‘at risk’ children from New York City and participants in programs on board the Hudson River Sloop Clearwater).

During discussions with Reserve education staff, they indicated that they are in the process of identifying an appropriate “niche” for expanded program development based on audience needs. In particular they noted a need to integrate research data and information with educational programs and to match audiences with the appropriate level of detail. The education coordinator also indicated that staff had been thinking about elements that might be developed as part of a communications/outreach plan for the range of audiences that the Reserve targets in its education and training programs. NOAA concurs with that approach and suggests that the Reserve develop a communications/outreach plan or strategy. Such a plan could prioritize education training and outreach activities; target specific audiences and match them with particular mechanisms of outreach (web site, technical publications, workshops, CTP elements, etc.); and in collaboration with the research staff, could integrate research data and information at an appropriate level in the various education and outreach products. Development of this strategy relates to the Program Suggestion identified under “Operations and Management” that suggests the need for a process for the Reserve staff to collectively reassess program priorities in an ongoing manner.

PROGRAM SUGGESTION: Because of the cross-cutting nature of communications and outreach activities, the Reserve should consider development of a communications and outreach strategy or plan to, among other objectives, target and prioritize education, training, and outreach to specific user groups and audiences and appropriately match user groups with specific mechanisms of outreach and level of informational/data detail.

2. Coastal Training Program (CTP) [HR NERR’s “Estuary Training Program”]

In April 2002 the Reserve was able to hire a staff person to fill a position responsible for the coordination of the research translation function (identified as program suggestion in the

1999 Findings) and the development and implementation of the Coastal Training Program (CTP). (The Hudson River Reserve's 'local name' for the CTP is the Estuary Training Program.) During the time period covered by this evaluation, the Reserve has completed the development phase of the NERRS CTP model by completing the steering committee report, market analysis, needs assessment, strategic plan, and marketing plan documents. The Reserve also assessed the training needs of the Hudson River habitat restoration community and ecotourism operators. The CTP is focusing significantly on managers of Hudson River public lands, and staff are now working closely with partners, particularly Hudson River Estuary Program, to define workshops that are relevant to priority audiences and that further the objectives of the Hudson River Action Plan.

As a precursor to the Reserve's CTP, the Reserve has held decision maker workshops during the period covered by the evaluation, covering topics such as Hudson River habitats, benthic mapping, watershed protection, and (just after the site visit) managing visitor use. Staff have also convened scientific forums on habitat restoration, the invasive water chestnut, benthic mapping of Hudson River Estuary shoals, Hudson River integrated ocean observing, and (just after the site visit) rising chloride concentration in tributaries of the Hudson Estuary. This is an emerging issue that was highlighted by the Reserve's water quality monitoring program.

D. STEWARDSHIP AND RESOURCE MANAGEMENT

1. Restoration Activities

During the period covered by this evaluation, the Reserve has played a lead role in drafting the Restoration Plan for the Hudson River Estuary as called for under the Hudson Estuary Action Plan. The Restoration Plan proposes the creation of a science-based restoration program, and in this respect the research activities of the Reserve can be intrinsically tied to restoration activities. At a more local scale, the Reserve is providing technical support to several communities that are engaged in restoration activities.

Staff have also partnered with the New York Department of State and the U.S. Army Corps of Engineers under the framework of the Estuary Action Plan to evaluate and restore habitat in the estuary that was lost or degraded because of past Corps activities, and they have assisted on feasibility studies, surveys, analyses, and design work.

Phragmites australis, the common reed, is an invasive species in the Reserve, and as noted under the Research Activities subsection above, mapping work has been done to identify the change (increase) in reed populations over time at the four Reserve sites. The Reserve requested proposals to study ecosystem response to multiple methods of common reed removal, and at the time of the site visit, was reviewing those proposals.

Over 300 dams on tributaries to the Hudson River Estuary have been identified by the Reserve from a DEC Division of Water inventory of regulated dams. All are or were used for

power generation, not flood control. Staff have solicited a request for proposals to identify smaller dams not appearing in the inventory and to evaluate candidate sites for dam removal as a step towards habitat restoration.

In partnership with the Hudson River Estuary Program, the Reserve coordinated with Hudson River Natural Resource Damage Assessment (NRDA) trustees to evaluate candidate restoration sites that could be developed as part of a future NRDA claim settlement. Restored areas will be used to compensate for lost ecosystem services resulting from PCB (polychlorinated biphenyl) contamination farther upstream in the non-tidal river.

ACCOMPLISHMENT: The Reserve has successfully linked restoration needs to science-based research so that restoration projects are science-driven, collaborative, and justifiable within economic constraints (e.g., *phragmites* mapping and removal/restoration proposals) and is encouraged to continue to coordinate research and restoration priorities in other areas whenever possible. The Reserve continues to be a key player and contributor to the development and implementation of the Hudson River Estuary Restoration Plan.

2. Resource Management

The Reserve has initiated and/or completed a wide variety of resource management and protection projects and access enhancements at all four Reserve sites during the period covered by this evaluation. Management and stewardship present challenges because the four site components are geographically dispersed and each has unique ecological and human characteristics.

At the historic ice house at Stockport Flats/Nutten Hook, the Reserve has stabilized the ice house shoreline; rehabilitated and stabilized the historic powerhouse structure, installed security fencing in windows and doorways, and installed crack monitors on the structure to detect shifts and changes; and has installed two interpretive panels depicting icehouse history and the ice harvesting industry.

At Tivoli Bays, the Reserve has done significant trail maintenance throughout the entire component, constructed an access trail that connects the Tivoli Bays trail network to the Tivoli Village Hall/Tivoli Bays Visitor Center, and conducted a visitor impact assessment for two trails to develop trail standards and recommendations for modification and compliance. A seasonal floating dock was installed to provide access to the channels of tidal Stony Creek and repairs were made to the canoe launch steps and the path leading to the floating dock. Staff also made substantial repairs to Cruger Island Road and the canoe launch road. They created a new parking area on the canoe launch road to relieve parking pressure at the turnaround and designated handicapped parking.

At Iona Island, the Reserve established a trail and boardwalk along the marsh, while at Piermont Marsh, staff installed an interpretive kiosk at Tallman Mountain State Park, cleared state property at Paradise Avenue to improve visual access to Sparkill Creek, and constructed a footbridge to cross the drainage swale and provide access from Paradise Avenue.

3. Land Acquisition

The Reserve's land acquisition plan is being developed and revised as part of the management plan revisions.

V. CONCLUSION

Based upon the recent evaluation of the Hudson River National Estuarine Research Reserve, I find that the state of New York is adhering to the programmatic requirements of the National Estuarine Research Reserve System in its operation of the Hudson River NERR.

The Hudson River NERR has made notable progress in the following areas: (1) Operations and Management; (2) Research and Monitoring; (3) Education and Outreach; and (4) Stewardship and Resource Management.

The evaluation team identified the following areas where the Hudson River NERR could be strengthened or improved: (1) Operations and Management; (2) Research and Monitoring; and (3) Education and Outreach.

These evaluation findings contain seven recommendations: two Necessary Actions that are mandatory and five Program Suggestions that should be considered by the Hudson River National Estuarine Research Reserve prior to the next §312 evaluation of the program.

This is a programmatic evaluation of the Hudson River National Estuarine Research Reserve that may have implications regarding the state's financial assistance awards(s). However, it does not make any judgment about or replace any financial audits.

11/17/05

Date

/s/ Eldon Hout

Eldon Hout, Director

Office of Ocean and Coastal

Resource Management

LIST OF PERSONS CONTACTED

U.S. Senators

Honorable Hillary Rodham Clinton
Honorable Charles E. Schumer

U.S. Representatives

Honorable Michael R. McNulty
Honorable John E. Sweeney
Honorable Eliot L. Engel

New York State Department of Environmental Conservation

Lynette Stark, Deputy Commissioner of Natural Resources
Gordon Colvin, Chief, Bureau of Marine Resources, Division of Fish, Wildlife, and Marine Resources
Bill Rudge, Region 3 Natural Resources Supervisor
Fran Dunwell, Director, Hudson River Estuary Program
Steve Stanne, Hudson River Estuary Program
Beth Waterman, Hudson River Estuary Program
Kristin Marcell, Hudson River Estuary Program
Andy Kahnle, Unit Leader, Hudson River Fisheries Unit, Bureau of Marine Resources, Division of Fish, Wildlife, and Marine Resources

Hudson River National Estuarine Research Reserve

Betsy Blair, Manager
Ann-Marie Caprioli, Administrative Coordinator
Chuck Nieder, Research Coordinator
Serena Ciparis, Research Assistant
John Ladd, Benthic Habitat Coordinator
Dan Miller, Habitat Restoration Coordinator
Jean Valla McAvoy, Education Coordinator
Laurie Fila, Education Assistant
Emilie Hauser, Estuary Training Program Coordinator
Russ Edwards, Intern

Other State Agency Representatives

Jayne McLaughlin, Director, Taconic Region, New York State Office of Parks, Recreation and Historic Preservation
Tom Lyons, Bureau of Environmental Management, New York State Office of Parks, Recreation and Historic Preservation
Nancy Pierson, Bureau of Environmental Management, New York State Office of Parks, Recreation and Historic Preservation
Fred Anders, Coastal Management Program, Division of Coastal Resources, Department of State

Elected Officials

Marc Molinaro, Mayor, Village of Tivoli and New York State Legislator, Dutchess County

Academia

Jeannie Barnaba, Cornell University Institute for Resource Information Systems

Stuart Findlay, Cornell University Institute of Ecosystem Studies

Nordica Holochuck, New York Sea Grant, Cornell University

Robin Bell, Lamont Doherty Earth Observatory, Columbia University

Margie Turrin, Lamont Doherty Earth Observatory, Columbia University

Other Organizations and Representatives

Erik Kiviat, Executive Director, Hudsonia, Ltd.

Bonny Corrado, Director, Tivoli Free Library

Carol Ash, Director, Palisades Interstate Park Commission

Andy Mele, Executive Director, Hudson River Sloop Clearwater

Scott Keller, Assistant Director, Hudson River Valley Greenway

PERSONS ATTENDING THE PUBLIC MEETING

The public meeting was held on Wednesday, September 29, 2004, at 7:00 p.m., at the Tivoli Bays Visitor Center, Watts DePeyster Fireman's Hall, 1 Tivoli Commons, Tivoli, New York.

No members of the public attended the meeting.

WRITTEN COMMENTS RECEIVED AND RESPONSES

No written comments were received regarding the management or administration of the Hudson River NERR.

RESPONSE TO PREVIOUS (1999) EVALUATION FINDINGS

NECESSARY ACTION: The DEC must: (1) expedite administrative steps to retain the existing but currently vacant state civil service position designated for the Education Coordinator; and (2) recruit for and fill this position within one year from the receipt of the final findings. (3) Over the longer term, DEC must pursue its previous commitment to identify a secure source of state funding for the Education Coordinator position, sharing documentation of its efforts with NOAA.

Response: The DEC filled the Education Coordinator position in February, 2000 with the current incumbent, Jean Valla McAvoy. Although the findings directed DEC to pursue its previous commitment to identify a secure source of state funding for this position, it continues to be funded under the annual NOAA operations grant. This is largely due to the state's protracted hiring freeze and fiscal constraints, when virtually no new positions were being created, much less new positions funded by the State's General Fund. However, we note that during this period New York continued to fund three State-funded contractual positions with support from the Hudson River Estuary Program. The three positions are the benthic habitat coordinator, the habitat restoration coordinator, and the administrative coordinator.

NECESSARY ACTION: The Reserve must revise, notice, print, and distribute a consolidated management plan by the end of the calendar year 2002. A description and schedule for this task should be identified in the Reserve's fiscal Year 2001 federal grant application.

Response: This deadline was not met as a result of the tremendous growth in Reserve work load and programming associated with 1) growth in NERRS System-wide programs (SWMP and Coastal Training Program), 2) Reserve oversight of estuary-wide partnership projects with the Hudson River Estuary Program (SAV mapping, benthic mapping, and habitat restoration), and 3) development of the Tivoli Bays Visitor Center. However, the Reserve is well along in the revision process, and we anticipate having a complete preliminary draft plan ready for interagency review in the first quarter of 2005, with public notice and distribution of a draft plan in the second quarter, 2005. Over the last 12 months, the Reserve formed site management planning teams for each site. For the three sites that include OPRHP lands (Stockport Flats, Iona Island, and Piermont Marsh), these teams include Reserve program staff and OPRHP central office, regional office, and individual state park staff. During the winter and spring of 2004, these teams met monthly to review site status, management needs, and administrative structure. The Tivoli Bays site planning team is comprised of DEC staff, with input from key constituencies. During the fall, 2004, staff will be hosting public scoping meetings, as well as a meeting with involved agency staff to explore alternative management structures for steering a multi-component, multi-agency Reserve.

PROGRAM SUGGESTION: The DEC is encouraged to expand the Reserve staff with the addition of a Research Translator, using reprogrammed federal funds, to initially demonstrate the value of this role. Over the longer term, DEC should seek a source of state funding to convert this role to a permanent state-funded position.

Response: The Reserve hired Emilie Hauser as Coastal Training Coordinator in April 2002 to coordinate the research translation function, as well as the development and implementation of a coastal training program. The Reserve has completed its requirements related to training program planning and development, and has entered the implementation phase. No progress has been made in identifying a source of state funding to convert this role to a permanent state-funded position, for reasons identified in the response to the first Necessary Action, above. However, substantial progress was made in planning, developing, and launching a coastal training program, with its associated steering committee and partners.

PROGRAM SUGGESTION: The Reserve is encouraged to move forward with the development of design and operational plans to expand and enhance the Norrie Point facility as a Hudson River Center. The Reserve's planning should occur in the context of an overall facilities plan, information that will be required as the Reserve's management plan is updated.

Response: Although work on design and operational plans for conversion of the Norrie Point Environmental Center into a regional Hudson River Center was proceeding well in 1999, all work on this project was stopped following the Governor's January, 2000 announcement of his intention to site a Rivers and Estuaries Center on the Hudson. The announcement was followed by a long period of consultation, planning, and visioning for the center, as well as a multi-year selection process for a home site. In late 2003, the Governor announced that a site had been selected in the City of Beacon. In September, 2004, the Reserve was given approval by the DEC Executive Office to pursue a move of its offices and work spaces to Norrie Point.

PROGRAM SUGGESTION: The Reserve is encouraged to develop a joint plan in conjunction with Bard College and Hudsonia, Ltd. That would address needs and opportunities related to space, infrastructure, and relevant technological improvements. Over the longer term, the Reserve may want to consider the establishment of a more structured planning process.

Response: Over the last five years, the Reserve has had discussions with Bard administrators and faculty about potential collaborations. We contacted the Bard Center for Environmental Policy (a masters degree granting program) and several members of the Bard Biology Department to their interest in the field station expansion and partnering with the Reserve, but there was little interest in either joint ventures or collaborations on Hudson River topics. There appeared to be two reasons for this: 1) many of the faculty are engaged in doing research in exotic locales (for instance Africa and Madagascar), and they are not able to take on additional commitments, and 2) a new biology building is being erected, and most of their space needs are being met with this facility. The masters program was keenly interested in having us create a dedicated line

of funding for their graduate students, however we indicated our preference for maintaining competitive research fellowship programs.

We also spent considerable time pursuing an expansion and renovation of the Bard College Field Station. Initially it appeared that we would be able to pursue an expansion from both the State side (we received approval to pursue a sole source contract with Bard College) and the College's side (the administration was quite receptive to a state investment in the field station). On the basis of this, we applied for and received a NOAA capital award for \$650,000. However, in the detailed contract negotiations, it became clear that a) the State was unwilling to invest so much public funding in a private college facility, and b) the College was unwilling to undertake a large construction project in compliance with the subcontracting constraints imposed by the State. We continue to enjoy our work with motivated Bard graduate and undergraduate students who seek research fellowships, internships, and/or employment.

Finally, we asked Hudsonia, Ltd, the non-profit environmental group based at the Bard College Field Station, which has had a long-standing Bard College connection, to work with us to develop a joint vision for the field station and program, use, and occupancy plan, but they didn't provide the requisite information about their space needs, perhaps because of program overload, pre-occupation with financial worries, and reluctance to partner on capital development.

PROGRAM SUGGESTION: The Reserve should consider collaborating with the NYCMP in DOS and with other entities in the region to develop an effective mechanism for connecting resource managers/regulators and the scientific community in an institutional arrangement that would result in research needs being better matched with appropriate capabilities.

Response: The NOAA 1999 findings recommended “collaborating with the NYCMP in DOS, and with other entities in the region, to develop an effective mechanism for connecting resource managers/regulators with the scientific community in an institutional arrangement that would result in research needs being better matched with appropriate capacities.”

The Reserve has many mechanisms for making these kinds of connections, most notably through partnerships with the two primary coastal management entities at the state and regional level, the New York Coastal Management Program (NYCMP) and the Hudson River Estuary Program (HREP), as well as through the Estuary Training Program, the local name for the NERRS Coastal Training Program.

The Reserve has always enjoyed a collegial, collaborative relationship with the NYCMP and has partnered on a variety of projects, notably a long-term habitat restoration project with the Army Corps of Engineers. However, over the last two years, the Reserve has increased the level of interaction with the NYCMP through our collaboration on the Estuary Training Program, especially their participation on its Steering Committee. Although it is relatively early in the implementation phase of the

Estuary Training Program, we remain interested in modeling some of our activities after the NYCMP's multi-media approach to outreach to local governments. NYCMP and DEC are also collaborating on the first major update to the Significant Coastal Fish and Wildlife Habitats for the Hudson River Estuary since 1990, which will take into account substantial new habitat information. The Reserve will serve as the source for much of the new data and a clearinghouse for relevant scientific information.

The Reserve has also strengthened its close collaboration with another key coastal management entity, the Hudson River Estuary Program, a comprehensive state estuary management initiative. Through its partnership with the Estuary Program, the Reserve is working on several governor's priority issues identified in the Hudson River Action Plan. The Reserve has developed teams of scientists, educators, and managers to inventory, study and protect key resources, such as the river bottom and submerged aquatic beds.

The Hudson River Estuary Program also serves on the Estuary Training Program Steering Committee, and is the Reserve's most active partner in the Estuary Training Program. Together we have offered workshops to a wide variety of state and federal regulators about Hudson River habitats, including the existence of new maps and digital resources, as well as new scientific information about the functions and significance of these key habitats. These efforts have increased regulatory awareness of, and, we believe, protection of, the resources.

In addition, the Estuary Program is pursuing a partnership with the new Rivers and Estuaries Center in Beacon, a Governor's initiative that is in the early stages of developing an academic "think tank" and consortium that will focus globally on rivers and estuaries. Through the Estuary Program, the Reserve's suite of programs will link to the Rivers and Estuaries Center.

Finally, the Estuary Program has provided substantial administrative assistance to the Reserve by enabling the Reserve to employ HREP contracts to accomplish key tasks under federal operations grants.

LIST OF ACCOMPLISHMENTS AND RECOMMENDATIONS

ACCOMPLISHMENTS

Operations and Management

- **Staffing:** The Reserve staff are highly respected, knowledgeable, and dedicated. With an increase in the number of staff, the Reserve has increased its programmatic capacity and capability.
- **Facilities, Facilities Plan, and Infrastructure:** The Reserve has established a unique, community-based partnership in the development of the Tivoli Bays Visitor Center that engages the public and fosters stewardship of the estuary. The facility also provides a permanent physical presence for the Reserve to the public, which is important because the staff are currently headquartered at a location not nearly as visible or accessible.

Research and Monitoring

- **Research Activities:** The Reserve is actively involved in mentoring the next generation of researchers. The Reserve's research activities have breadth and depth, providing information of direct applicability and use for managers. For example, the Reserve is providing New York state environmental regulators with a tool to assess and map SAV habitats in any project proposed below mean high water in the Hudson River Estuary. The Reserve's research has also been innovative in application; for example, the benthic mapping and assessment effort resulted in the organization of a pilot study to explore the feasibility of investigating ship wrecks in turbid water and stimulated the creation of a Committee for Hudson River Underwater Resources to promote the development of a management plan to protect Hudson River underwater resources.

Education and Outreach

- The Reserve staff have developed numerous partnerships for educational and outreach programs and have been innovative in their collaborations (for example, the Town of Tivoli and the Tivoli Free Library at the Tivoli Bays Visitor Center) and target audiences (for example, 'at risk' children from New York City and participants in programs on board the Hudson River Sloop Clearwater).

Stewardship and Resource Management

- **Restoration Activities:** The Reserve has successfully linked restoration needs to science-based research so that restoration projects are science-driven, collaborative, and justifiable within economic constraints (e.g., *phragmites* mapping and removal/restoration proposals) and is encouraged to continue to coordinate research and restoration priorities in other areas whenever possible. The Reserve continues to be a key player and contributor to the development and implementation of the Hudson River Estuary Restoration Plan.

RECOMMENDATIONS

Operations and Management

- **PROGRAM SUGGESTION (Staffing):** The Department of Environmental Conservation should continue to pursue its previous commitment to identify a secure source of state funding for the Education Coordinator position.
- **PROGRAM SUGGESTION (Staffing):** The Reserve should establish an ongoing process for staff participation in program planning and prioritization, which will increase opportunities for focused, collaborative activities that address interrelated objectives.
- **PROGRAM SUGGESTION (Facilities, Facilities Plan, and Infrastructure):** The Reserve and the Department of Environmental Conservation are strongly encouraged to follow through with efforts to move the Reserve offices and work spaces out of the current Bard College Field Station configuration and complete whatever tasks are necessary for the transfer to the Norrie Point facility. The facilities plan should be revised to reflect these conditions and possible solutions as a part of the ongoing management plan revisions.
- **NECESSARY ACTION (Facilities, Facilities Plan, and Infrastructure):** No connector road between Ferry Road and Ice House Road at Nutten Hook at the Stockport Reserve component that would cross sensitive ecological and cultural resource areas or that would prevent the public from accessing publicly owned property should be constructed. Such construction is inconsistent with Reserve objectives. The Reserve must report on the status of this issue in cooperative agreement performance reports.
- **NECESSARY ACTION (Management Plan):** The Reserve must complete, finalize, and submit the revised management plan to OCRM according to the following schedule:
 - a) By April 1, 2006, submit a revised draft plan to OCRM for review at the same time it is submitted for state interagency review.
 - b) By August 1, 2006, finalize the management plan.OCRM will then publish a Federal Register notice regarding the management plan revision and authorize the Reserve to have the document printed. The Reserve is responsible for printing and distributing the final revised management plan. The Reserve must provide OCRM with: 1) documentation that the document has been submitted for printing, and 2) a copy of the final

document on a compact disc. The document must also be posted electronically on the Department of Environmental Conservation/Hudson River Reserve web site at this time. Failure to meet this Necessary Action could result in the withholding of supplemental funding for biomonitoring and/or IOOS projects in FY 06 or subsequent years.

Research and Monitoring

- **PROGRAM SUGGESTION (Site Profile):** The Reserve is urged to complete the site profile as expeditiously as possible in keeping with its estimated time frame for completion in June 2005.

Education and Outreach

- **PROGRAM SUGGESTION (Education and Outreach Programs):** Because of the cross-cutting nature of communications and outreach activities, the Reserve should consider development of a communications and outreach strategy or plan to, among other objectives, target and prioritize outreach to specific user groups and audiences and appropriately match user groups with specific mechanisms of outreach and level of informational/data detail.