RECOMMENDATIONS TO FACILITATE IMPLEMENTATION

For

The Long Island South Shore Estuary Reserve

September 2010

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1.0 INTRODUCTION

The following report has been prepared by Woods Hole Group, under contract to the New York State Department of State Division of Coastal Resources on behalf of the South Shore Estuary Reserve Council (Council). The Council is the management board charged with creating and implementing the South Shore Estuary Reserve Comprehensive Management Plan, as provided in Article 46, of the New York State Laws of 1993. The South Shore Estuary Reserve (Reserve) is a resource of unparalleled biological, economic, and social value. The Comprehensive Management Plan (CMP), adopted by the Council on April 12, 2001, called for the development of a dredging and dredged materials management plan as one of a number of priority actions aimed at fostering the conservation and enhanced use of the Reserve (Figure 1). This report is the fifth in a series of 5 reports that will provide the Council with the necessary background to prepare a Dredge Materials Management Plan (DMMP) for the Reserve. The reports address the following aspects of an overall plan:

- Assessment of Current Dredging Conditions and Future Needs
- Inventory and Distribution Assessment of Contaminated Sediments
- Investigation of Opportunities for Improved Sediment Management
- Investigation of Beneficial Use Opportunities
- Recommendations to Facilitate Implementation

Creation of a functioning DMMP will be contingent on collecting the additional information, operational capacity and implementation measures into an actionable plan by the Council. The benefits provided by a Reserve-wide dredging and dredged materials management plan are far reaching. The general concept is to identify management solutions for dredged materials that facilitate channel dredging and maritime center development, while also minimizing impacts to marine and cultural resources. The first component of this dredge materials management report quantified the current and future needs for dredging. Through this process, the volume and type of material produced by dredging activities in the Reserve was identified.

The fifth component of the dredge materials management report, and the subject of this section, involves the development of recommendations to facilitate creation of a Dredge Materials Management Plan for the SSER. This effort will provide information on how to carry out and implement the recommendations given in report sections 1-4. Where possible, specific tasks will be identified and responsible parties will be suggested. Additional tasks not addressed in Reports 1-4, but deemed necessary for completion and adoption of a Dredge Materials Management Plan will also be discussed. By combining results from the Assessment of Current Dredging Conditions and Future Needs, the Inventory and Distribution Assessment of Sediment Chemistry, the Investigation of Opportunities for Improved Sediment Management, the Investigation of Beneficial Use Opportunities, with the Recommendations for Implementation, the South Shore Estuary Reserve Council will have many of the basic components needed to prepare the Reserve-wide Dredging and Dredged Materials Management Plan recommended by the CMP.

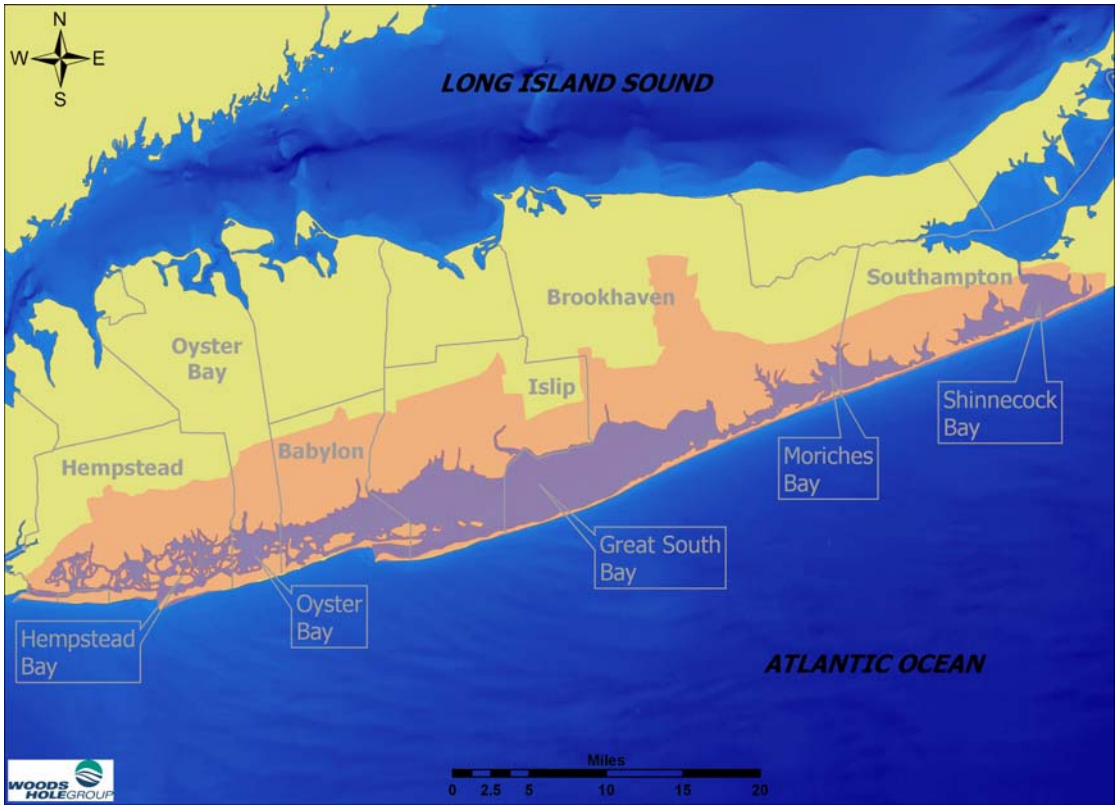

Figure 1. Site map showing extent of the South Shore Estuary Reserve, as well as encompassing towns and major water bodies.

2.0 IMPLEMENTATION OF RECOMMENDATIONS FROM REPORTS 1-4

2.1 REPORT #1 - ASSESSMENT OF CURRENT DREDGING CONDITIONS AND FUTURE NEEDS

1. Develop a program to maintain the SSER DMMP geodatabase as new dredging and dredge material placement projects are permitted and constructed.

   Implementation: Develop a process for review of USACE public notices published monthly on-line. This could be accomplished through an agreement with permitting agencies to compile project results, through an automated database entry process for project applicants, or through a third party that would review project records and update the database. Identify relevant projects and compile permit application materials, as well as copy of permit once it is issued. Information on actual construction of dredge projects, including contact information for the applicant, should be obtained from the USACE Work Start Notification Form. This information could be used to contact the responsible party for dates of work, volumes removed, and placement site location(s) for each project. Actual updates to the geodatabase prepared for these reports will require ESRI's ArcGIS software, or other similar GIS package, along with an experienced operator.

   Responsible Party: To be determined. Updates will be required on a continuing but irregular basis. As a result, this product is not a good candidate for consultant services. Level of effort is relatively small once the process is standardized.

2. Continue to fill data gaps in the SSER DMMP geodatabase for projects that have already been permitted and entered into the database. The focus should be on key fields that will be important to the dredge materials management process, such as shoaling rates, placement site capacity and status, sediment type, and construction costs.

   Implementation: The shoaling rate estimates developed as part of the SSER DMMP database were based on post-construction records including dates of work and volumes removed. For those projects requiring routine maintenance dredging, review of the shoaling rates should be performed by the project applicants so that the estimates can be refined. Dewatering site capacity and status for the large multi-project placement sites already in the SSER DMMP database should be determined by reviewing engineering plans for the sites, and by conducting field investigations. Additional information regarding sediment type and construction costs for projects already completed should be obtained by contacting the project applicant.

   Responsible Party: To be determined. Could be performed through consultant services for site assessment and contact of project applicants for previous projects.

Maintenance of records for new projects is not a good candidate for consultant services because the work is a small effort on an irregular schedule.

3. Identify and/or develop additional resource area feature classes (layers). Key resources include shellfish beds, shellfish closure areas, winter flounder spawning areas, threatened and endangered shorebird areas, marine mammal breeding/rookery areas (ex. Cupsogue Park, Atlantic Beach bridge area, etc.), and submerged aquatic vegetation areas.

   Implementation: Work with local, state, and federal regulatory agencies to develop a list of important environmental resources in the SSER with the potential to be impacted by dredging and dredge materials management. Identify existing GIS data layers that define the extent of the resources. Where GIS data do not exist, work with appropriate resource managers to generate the data.

   Responsible Party: To be determined. First compilation could be through consultant services. Periodic review and update should be scheduled on a 5 to 10 year interval.

4. Develop a map of sediment texture/grain size for Reserve water bodies. This information would help to refine the distribution of future dredge material as a function of grain size. It would also guide the selection process for suitable placement sites, help identify areas in the Reserve where new placement sites should be established, and contribute information for improved watershed management.

   Implementation: Much of the work to complete this recommendation was completed as part of the work on Report #2: *Inventory and Distribution Assessment of Contaminated Sediments.* The sediment texture/grain size data in the SSER DMMP database should be updated and maintained as new information becomes available from dredge construction records.

   Responsible Party: To be determined. First compilation could be through consultant services, but ongoing maintenance would require periodic updates on a 1 to 5 year interval.

5. Conduct an economic analysis of dredging and dredge material placement activities in the Reserve to look at impacts of the no dredge alternative, as well as upland placement and beneficial reuse alternatives.

   Implementation: This work should be contracted to an economics firm and should consider the economics associated with dredge materials management at the municipal, county, state, and federal levels. Commercial and private interest project activities should also be included.

Responsible Party: Consultant services needed.

6. Review habitat descriptions and activity requirements contained in the state designated Significant Coastal Fish and Wildlife Habitat narratives for SSER water bodies. Assess requirements for dredging and dredge material placement activities within the Reserve boundaries. Utilize the findings as a basis for discussions with state and federal regulatory agencies on the standardization of environmental time of year restrictions for dredging activities, opportunities for regional permit applications, opportunities for multi-year and multi-technique permit applications and opportunities for shared regional disposal or material reuse facilities.

   Implementation: The resulting document should address all special status or economically important species likely to inhabit the Reserve, as well as potential impacts to these species from the full range of dredging and placement alternatives. A menu of possible avoidance and minimization criteria should be developed so that project applicants could select appropriate measures during the early stages of project planning for resource protection. The document should be made available to all project applicants at the onset of the planning process.

   Responsible Party: To be determined. Possibly consultant services with guidance from NYS DEC, NYS-DOS, USACE and US-Fish and Wildlife Service.

7. Regionalize the management and permitting of government (federal, state, county, municipal) dredging and dredge material placement projects by county, town, watershed or maritime center. Projects would be grouped together and managed and permitted by a single entity. A single permit from each issuing agency would be sought for the group of projects, so that permit conditions, expiration dates, monitoring, etc. could be managed more easily. This approach would have the added benefit of minimizing administrative costs.

   Implementation: This has approach has already been implemented to a large degree by Suffolk County, who is responsible for permitting and implementing dredging and placement projects within their jurisdiction that have a public benefit. However, the permitting is still carried out on a project by project basis. Hold meetings with state and federal regulatory agencies to investigate the feasibility of applying for comprehensive permits that would allow multiple projects (grouped by town or geomorphic area) to proceed under a common set of conditions or permit. Application and maintenance of the comprehensive permits could then handled by appropriate county or municipal officials.

   Responsible Party: To be determined. Initiate with discussions between involved regulatory agencies: NYS-DEC, NYS-DOS, USACE, as well as County and municipal officials.

8. Where possible, incorporate flexibility for dredging and dredge material placement projects through the permitting process. This can be accomplished by incorporating one or more alternatives for dredging methodology, dewatering scenarios, and placement locations.

   Implementation: A range of alternatives for dredging methodology, dewatering, and placement should be considered by project applicants during the planning stages of any project. Where environmentally and economically viable, these alternatives should be included in the permit application documents to allow maximum flexibility at the time construction begins. The regulatory agencies would be notified of the particular approach selected through the work start notification procedure.

   Responsible Party: To be determined. Coordinate guidance with work on recommendation 7. Produce guidance in print form and via internet sources for project applicants. Utilize the DMMP and other venues to help inform applicants. Ultimate audience: Project Applicants, Engineers, and Consultants.

2.2 REPORT #2 - INVENTORY AND DISTRIBUTION ASSESSMENT OF SEDIMENT CHEMISTRY

9. Develop and maintain a sediment chemistry database so that areas of contamination can be identified, tracked, and managed in the DMMP. Establish a procedure to obtain sediment chemistry data from permit applications submitted to the NYSDEC and the USACE.

   Implementation: This recommendation is allied with recommendation 1, above, involving maintenance of the dredging database. In addition to recording the location and quantity of material handled, recommendation 9 advances project management by documenting sediment chemistry. Much of the available sediment chemistry data for dredge projects in the SSER has been collected as part of this project. However, new samples continue to be analyzed and no central repository exists for this information. A sediment chemistry database for the SSER showing the locations and results of sediment chemistry data would facilitate management actions and subsequent permit applications. All new sediment chemistry data submitted with a DEC permit application should be supplied to the responsible party so that the database can be maintained. The information should be easily accessible by all project applicants via ArcIMS or other web mapping application.

   Responsible Party: To be determined. As in recommendation 1, this is not a good candidate for consultant services because updates would be required on a continuing but irregular basis. Level of effort is relatively small once the process is standardized. Discuss with USACE and NYS-DEC to formulate options and advance implementation.

10. Investigate the possibility of increasing the percentage of fines used as the threshold for chemical analysis in TOGS 5.1.9 for certain dredge projects in the SSER.

    Implementation: Reserve managers should utilize the sediment texture and chemistry information gathered as part of this project to develop a recommendation for areas of the Reserve that could safely increase the fines percentage requirement from 10% to 15% for sediment chemistry analyses. The feasibility of implementing the recommendations should then be discussed with appropriate NYS DEC officials.

    Responsible Party: To be determined. Carry out in consultation with NYS DEC.

11. Collect additional information on specific types of contaminants present at remediation and SPDES sites in the SSER. Identify and review available Environmental Impact Statements prepared for Superfund and Brownfield sites to understand the likely pathways of contaminants from these sites.

    Implementation: Obtain and review Environmental Impact Statements prepared for Brownfield and State Superfund projects located within the SSER boundaries, focusing on sites that may impact channels and tributaries. Also, identify ongoing monitoring efforts and risk assessment studies conducted for these projects where data on sediment or groundwater contamination may be available. Review the documents and data to identify potential sources of sediment contamination for SSER dredging projects, where additional sediment chemistry data should be required prior to dredge permitting. Coordinate findings with advancement of recommendations 9 and 10.

    Responsible Party: Consultant services. Possible assistance from NYS-DEC.

2.3 REPORT #3 - INVESTIGATION OF OPPORTUNITIES FOR IMPROVED SEDIMENT MANAGEMENT

12. Continue to refine and update annual shoaling rates computed for SSER dredging projects as part of Report #1 - *Assessment of Current Dredging Conditions and Future Needs* report. Collect post-dredge records from project applicants describing volume removed, as well as dates and locations of dredging. Utilize the post-dredge information to refine and update shoaling rates on an annual basis.

    Implementation: Information on actual construction of dredge projects, including contact information for the applicant, should be obtained from the USACE Work Start Notification Form. This information should be used to contact the responsible party for dates of work, volumes removed, and placement site location(s) for each project. Utilize the data gathered to compute annual rates of shoaling for projects requiring routine maintenance dredging.

Responsible Party: To be determined. Collection of project records in the proposed database would facilitate applicant derivation shoaling rates when new permit applications are prepared. Consultation with NYS-DEC and USACE recommended. Since this would require a relatively low level of work effort spread over a long time frame it is difficult to envision either contractual services or state agency resources could be matched to the required work.

13. Advance preparation of watershed management plans and implementation of recommended actions.

    Implementation: Develop a comprehensive list of watershed management plans (WMPs) in the SSER and identify those communities where assistance is needed in preparing a Plan. NYS-DOS and NYS-DEC have partial inventories of existing WMPs. Assess the adequacy of sediment management measures in existing plans and recommend amendments where needed. Identify state and federal funding sources for WMP development and implementation of remedial actions. Distribute information on the sources of grant monies and application requirements to the various municipal and county officials within the SSER. Develop examples of successful remediation projects along with associated cost information to assist grant applications.

    Responsible Party: To be determined. Possible consultant services.

14. Identify and remediate direct discharges to tributaries and waters of the SSER.

    Implementation: Municipalities designated as MS4 communities already have or are in the process of preparing assessments and remediation plans for storm water discharges as a result of the US EPA Storm Water Phase 2 requirements. The requirements identify six minimum control measures, one of which includes identification and mapping of all direct discharge infrastructure contributing to waters of the SSER. In some cases information can be taken directly from existing Watershed Management Plans, from Department of Public Works or Engineering Department records, or from records of new infrastructure. NYS-DEC reviews annual reports on the MS4s and has the option to review the municipal storm water plans. In addition, NYS-DEC issues permits for other direct discharges. Does not review storm water management plans (only the annual reports) and annual reports on management measures to implement the US EPA requirements. NYS-DEC should review MS4 plans and other direct discharge permits for the region to confirm that sediment discharges into the estuary are a component of the assessments and that appropriate remediation measures are taken. If needed, NYS-DEC should recommend appropriate funding and technical assistance for the municipalities to enable planning and implementation of sediment management measures. NYS-DEC should prioritize remediation projects in areas where dredging records indicate the excessive shoaling rates.

Responsible Party: Request for discussion and possible assistance from municipal and County storm water management officials to NYS-DEC.

15. Perform an analysis of shoreline erosion within the SSER to identify specific areas that contribute sediment to navigation channels. May be in conjunction with a broader investigation of shoreline erosion and sediment transport. Evaluate the opportunity to implement non-structural, soft structural or ecosystem restoration measures to address the erosion while conserving natural resource benefits and water quality. Consider structural solutions to minimize sediment loading in areas where high erosion rates impair navigation services. Conversely, evaluate the feasibility of using eroding shoreline areas as beach nourishment sites or marsh restoration sites, provided measures can be taken to avoid adverse impacts to nearby navigation projects.

    Implementation: Inventory sites of known erosion or sediment transport impairments to navigation channels and create a list for more detailed investigation. Collect sources of historical shoreline data including NOS T-sheets and aerial photography covering the priority sites. Convert the various data sources into digital files and identify and digitize the mean high water shoreline on each source. Construct shore normal transects at representative locations and measure the shoreline displacement (seaward for accretion and landward for erosion) at each transect. Compute rates of shoreline change using the time elapsed between data sources and the shoreline displacement data.

    Responsible Party: Potential joint effort with SUNY Stony Brook, USACE or consultant services.

16. Repair dilapidated engineering structures that fail to protect navigation channels and basins from shoaling caused by longshore transport. Evaluate the feasibility of non-structural or soft structural alternatives, or reconfiguration of channel dimensions and alignment. Prioritize projects on the basis of shoaling rate data.

    Implementation: Conduct a field inventory of coastal engineering structures protecting the entrances to public navigation channels and basins. Document structure condition and littoral transport characteristics observed at each site. Prioritize the repair of existing structures based on condition reports, existing shoaling rate data and importance of navigation service provided. Complete engineering designs to repair or replace the structures, including analyses of design wave, water level, wind conditions and non-structural or soft structure feasibility.

    Responsible Party: To be determined. Coordinate inventory and assessment with Town and County infrastructure agencies. Construction by project owners with appropriate engineering consultants.

17. Consider the use of numerical tidal flushing/circulation modeling to optimize dredge designs at problem sites with rapid shoaling rates.

    Implementation: Identify public navigation sites with high shoaling rate problems. Perform numerical tidal flushing/circulation modeling to evaluate alternatives for channel redesign that will minimize shoaling and improve tidal exchange. Bathymetric surveys may be necessary to support accurate modeling. The School of Atmospheric and Marine Science at Stony Brook University has a partial circulation model that might be improved to address this need, if a cooperative agreement can be reached. (Contact Professor Robert Wilson). Identify sedimentation problem areas first, review available bathymetry and potential support through SUNY Stony Brook to formulate recommendations on further actions. It could be prohibitively expensive to develop such modeling without leveraging existing models.

    Responsible Party: Potential collaboration with SUNY Stony Brook, School of Atmospheric and Marine Science.

18. Evaluate the feasibility of purchasing and/or sharing Reserve-wide dredging resources.

    Implementation: Form a committee to review existing public navigation channel maintenance operations and opportunities for sharing resources, facilities or equipment. Review annual budget and operating capacity information from Suffolk County Division of Highways, Structures, & Waterways and Town of Hempstead Department of Conservation and Waterways for dredge related activities. Utilize information on dredging needs within the Reserve and operating budget data to evaluate the economic feasibility of sharing or acquiring additional dredging resources to meet Reserve needs. Nassau County and the Town of Oyster Bay should also investigate the feasibility of contracting for dredge services with the Town of Hempstead. Information on funding opportunities may be needed to support recommendations.

    Responsible Party: Suffolk County, Town of Hempstead and other parties responsible for maintaining navigation channels (possibly the US Army Corps who maintain the Intra-Coastal Waterway) get together and discuss opportunities for joint operations and/or equipment or facility sharing. Recommendations can be advanced within these agencies.

19. Quantify the capacity of existing SSER upland dewatering and placement sites. Utilize this information in conjunction with the dredging needs data to project life spans for the dewatering/placement sites.

    Implementation: Dewatering site capacity and status for the large multi-project placement sites should be determined by reviewing engineering plans for the sites prepared for permit applications, including field investigations of the placement

areas. Applicants should compare placement requirements and frequencies from the various dredge projects with the site capacity estimates to determine the feasibility of future use. Findings should be entered into the dredging and disposal sites database with assessment dates and sources for the capacity assessments. Permit reviewers at USACE and NYS-DEC should confirm proper disposal site assessments are completed.

Responsible Party: Project Applicants, dredging database compiler (see recommendation 1), USACE and NYS-DEC.

20. Design and permit additional dewatering/placement sites in each sub-region of the SSER.

    Implementation: Utilize information developed as part of Report #4: *Investigation of Beneficial Use Opportunities*, and the results of recommendation 19 (capacity assessment of existing sites), to identify new sites for dredge materials dewatering, processing, and placement. The number of new sites in each sub-region should be based on the capacity of existing sites as well as the needs for future dredging. Coordinate site evaluation with opportunities to excavate and reuse existing sites, or proposals to restore sites for natural habitat. Once appropriate site locations have been identified, engineering plans should be developed for use, maintenance, and decommissioning of the sites. Local, state, and federal permits should also be obtained for use of the sites, so that individual dredge projects or groups of projects permitted comprehensively can simply refer to placement at approved locations. As the largest and best organized dredging agencies in the region, Suffolk County and the Town of Hempstead are best placed to advance site permitting. These entities should work with affiliated state and federal partners to advance site inventory and planning. Additional local or private partners may be added based on their ability to use and contribute toward site development.

    Responsible Party: Suffolk County and Town of Hempstead in partnership with local, state, and federal regulatory agencies.

21. Evaluate the feasibility of designating 1-2 Reserve-wide environmental enhancement sites for beneficial reuse of dredged material.

    Implementation: Utilize information developed as part of Report #4: *Investigation of Beneficial Use Opportunities* to identify potential environmental enhancement sites for beneficial use of dredged material. This action must be completed in close cooperation with regulatory agencies and should consider the results of recommendation 20, (design and permit additional dewatering/placement sites). Review options with NYS-DEC and US Army Corps of Engineers before proceeding. As the largest and best organized dredging agencies in the region, Suffolk County and the Town of Hempstead are best placed to organize discussion with regulatory agencies. If appropriate, consult owners of large properties (Gateway National Recreation Area, Fire

Island National Seashore, New York State Parks, Nassau and Suffolk County) regarding interest in exploring the feasibility of using dredged material for habitat enhancement or environmental restoration. Consider opportunities to adapt areas vulnerable to sea level rise or areas with existing structures, erosion or maintenance problems that would be enhanced by habitat restoration. Once potential sites are identified, complete a feasibility assessment using consultant services to review alternatives for environmental enhancement (habitat, wetland, fisheries, etc.), in terms of engineering feasibility, regulatory feasibility, economics, construction techniques, potential impacts, site capacity and lifespan. Include investigations into available models for management structures capable of operating and maintaining such a facility.

Responsible Party: Partnership of local interests, state and federal regulatory agencies, and engineering consultants if viable sites are identified.

22. Organize meetings with key agencies to discuss upcoming dredge materials management projects in the SSER and to facilitate communication on improved sediment management practices. These meetings could be on a quarterly, semi-annual or annual schedule, based on recommendations from involved agencies. A list of possible participants includes but is not limited to Suffolk and Nassau County; Towns of Hempstead, Oyster Bay, Babylon, Islip, Brookhaven, and Southampton; NYS DEC; USACE; New York Marine Trades Association; Fire Island National Seashore; Citizens Campaign for the Environment; New York Sea Grant; and various other project stakeholders as interested. Solicit recommendations on the best location, timing and agenda for meeting. Seek opportunities to implement and update the dredging database (recommendation1) and report success on its functions.

    Implementation: Primary dredging interests in the region (Suffolk County, the Town of Hempstead, US Army Corps of Engineers and NYS-DEC) discuss value of meeting and determine location, schedule agenda and additional invitations. At minimum, share contact information to facilitate information exchange.

    Responsible Party: Suffolk County, Town of Hempstead, US Army Corps of Engineers and NYS-DEC.

2.4 REPORT #4 - INVESTIGATION OF BENEFICIAL USE OPPORTUNITIES

23. Conduct a parcel level screening for new dewatering and/or dredge materials processing sites in Nassau County using available assessor's parcel information.

    Implementation: This recommendation is closely related to recommendations 20 (design and permit additional dewatering/placement sites) and 21 (evaluate feasibility of designating 1-2 environmental enhancement sites). In coordination with those recommendations, obtain digital or paper copy assessor's parcel data from the Towns of Oyster Bay and Hempstead. Utilize the data to conduct a

screening analysis identical to the one performed on Suffolk County parcels as part of Report #4: *Investigation of Beneficial Use Opportunities.*

Responsible Party: Nassau County and/or Town of Hempstead.

24. Conduct field investigations of existing dewatering sites and select historically used placement sites based on suitability, potential for wetland impacts, and engineering constraints. Prepare reuse, expansion or remediation plans, as appropriate.

    Implementation: This recommendation is closely related to recommendation 19 (quantify capacity of existing SSER dewatering and placement sites) and 20 (design and permit additional dewatering and placement sites in each subregion). To support beneficial reuse opportunities, in coordination with recommendations 19 and 20, establish a field survey program to investigate the functionality of potential dewatering sites. Ownership and points of contact of the potential dewatering sites should be determined. Meetings with the points of contact and regional dredge materials management personnel (Town of Hempstead, Suffolk County) should be held to solicit participation in further evaluating the sites for use. The program should evaluate existing uses, zoning issues, site capacity, wetland type and extent, shoreline stability and condition of existing coastal structures, soils, proximity of transportation infrastructure (roadways, railroad, etc.), feasibility of barge access, as well as grading and other engineering requirements. The field survey information should be used to narrow the list of potential sites developed as part of this project. Various models for management of these sites should be developed and presented to the stakeholders. Based on identification of feasible sites, prepare reuse, expansion or remediation plans. Include provisions for use, maintenance and, if appropriate, decommissioning.

    Responsible Party: This work could be a candidate for consultant services, in coordination with dredging work advanced by the US Army Corps of Engineers, NYS-DEC, Suffolk County, the Town of Hempstead and the dredging database compiler (recommendation 1), in coordination with the results of recommendations 19 and 20.

25. Investigate regulatory feasibility of regional dredge materials processing and handling centers.

    Implementation: Meet with local, state, and federal regulatory agencies to discuss feasibility of establishing regional dredge materials processing and handling centers. Provide information on screening of prospective sites, and solicit input on environmental restrictions, engineering requirements, sampling and analysis requirements, environmental impact studies, necessary monitoring plans, and possible steps to streamline permitting.

Responsible Party: To be determined. Initial discussion with regulatory agencies should be initiated by primary regional dredging agencies US Army Corps of Engineers, Suffolk County and Town of Hempstead.

26. Solicit input from private materials handlers and processors as to the economics and interest in establishing regional centers for dredge materials handling.

    Implementation: Utilize site information gathered as part of Report #4: *Investigation of Beneficial Use Opportunities* to develop a point of contact list for private materials handlers and processors on Long Island. Host informational meetings for these organizations to solicit interest in operating new dredge materials processing sites with expanded capabilities and capacities. Request concept proposals from the processors that would provide additional information on site requirements, as well as start-up and operational costs. Produce an outline operating proposal, schematic design and cost estimate for one or more facilities that could be advanced if funding opportunities become available.

    Responsible Party: Regional dredging management agencies including Suffolk County, the Town of Hempstead and the US Army Corps of Engineers should discuss this recommendation and propose mechanisms to complete the work. This work could be a candidate for consultant services, particularly if combined with other consulting work contained in the other recommendations.

27. Prepare site design and construction documents and apply for permits for new environmental enhancement facilities.

    Implementation: This recommendation advances findings of recommendation 21 (evaluate the feasibility of designating 1-2 Reserve-wide environmental enhancement sites for beneficial reuse of dredged material). Based on findings from recommendation 21 that one or more sites are feasible for beneficial sediment placement, prepare designs and specifications for implementation. Utilize information developed as part of Report #4: *Investigation of Beneficial Use Opportunities* to support potential environmental enhancement sites, as well as findings from recommendation 21. Begin with schematic designs, looking at various alternatives for environmental assessment (habitat, wetland, fisheries, etc.), construction techniques, potential impacts, site capacity and lifespan, and economics. Include investigations into available models for management structures capable of operating and maintaining such a facility. Meet with regulatory agencies to discuss optimal project design and studies and impact analysis required for implementing environmental enhancement sites.

    Responsible Party: Town of Hempstead, Suffolk County and US Army Corps of Engineers are most likely to benefit directly from site construction. Coordinate site design with federal, state and local regulators, and seek funding assistance for habitat restoration.

Table 1. Summary of Responsible/Involved Parties by Recommendation

Recommendation	Town/ County	NYSDEC	NYSDOS	USACE	USFW	Academic	Consultant	To Be Determined
Report 1								
1								X
2							X	X
3							X	X
4							X	X
5							X	
6		X	X	X	X		X	X
7		X	X	X				X
8								X
Report 2								
9								X
10		X						X
11		X					X	
Report 3								
12		X		X				X
13							X	X
14	X	X						
15				X		X	X	
16	X							X
17						X	X	
18	X			X				
19		X		X				X
20	X	X	X	X				
21	X	X	X	X	X		X	X
22	X	X		X				
Report 4								
23	X							
24	X	X		X			X	
25	X			X				X
26	X			X			X	
27	X	X	X	X	X			