

Fire Island National Seashore

National Park Service
U. S. Department of the Interior



Environmental Assessment

Dredge Sailors Haven, Talisman / Barrett Beach
and Watch Hill Channels and Marinas
for Public Use and Safety



Prepared for:
United States Department of the Interior
National Park Service
Fire Island National Seashore
120 Laurel Street
Patchogue, New York 11772

September 2013

FIRE ISLAND NATIONAL SEASHORE

Environmental Assessment

For

*Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and
Marinas for Public Use and Safety*

FIIS PMIS 201444A

Report #:

615/121743 - ENVIRONMENTAL ASSESSMENT - ACCESS CHANNEL/MARINA
DREDGING PROJECT AT SAILORS HAVEN, BARRETT BEACH, AND WATCH HILL

615/121744 - WETLAND DELINEATION REPORT- ACCESS CHANNEL/MARINA
DREDGING PROJECT AT SAILORS HAVEN, BARRETT BEACH, AND WATCH HILL

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NEPA Contractor:

The LA Group, P.C.

40 Long Alley

Saratoga Springs, NY 12866

(518) 587-8100



the LA group
Landscape Architecture
and Engineering, P.C.

EXECUTIVE SUMMARY

At Fire Island National Seashore, the National Park Service (NPS) proposes to re-dredge the existing navigational channels and their associated marinas and docking facilities so as to re-establish safe, public access to NPS facilities on Fire Island at Sailors Haven, Talisman/Barrett Beach and Watch Hill. These navigation channels provide vessel access on Great South Bay (GSB) that are utilized by the general public, concession operated ferries, NPS personnel, law enforcement, emergency response vessels and others. Sediment, primarily sands, has accumulated in the navigation channels, marinas and around some of the docking facilities at these three areas. This sediment accumulation is primarily the result of multiple storm events, including Hurricane Sandy in October 2012. It has caused the channels to narrow to a width significantly below the 100 foot width considered adequate for safe passage. Restoring channel depths and widths to their previous dimensions through re-dredging will provide the required, continued safe access to Fire Island at the project areas. Continuation of current conditions would ultimately result in damage to natural resources from boats running aground and property damage to vessels. Ultimately, it could lead to the cancellation of ferry operations, the inability of concessionaires to service their businesses, and the loss of public access to Fire Island National Seashore facilities.

This Environmental Assessment (EA) for assessing the potential adverse impacts of dredging and placement and use of dredge materials has been prepared in compliance with the National Environmental Policy Act (NEPA) to provide a decision-making framework that analyzes a reasonable range of alternatives to meet project objectives.

Resource topics addressed in this document include geological resources and coastal processes, water quality, estuarine resources including essential fish habitat, wetlands, terrestrial ecology (including invasive species), species of special concern, archeological resources, recreational resources, visitor experience and aesthetics, and socioeconomics. All other resource topics have been dismissed because the project would result in negligible or minor effects to those resources. No major effects are anticipated as a result of this project.

The public scoping process commenced on July 15, 2013 with a press release that briefly described the project and announced a public scoping period from July 5 through August 5, 2013. On the same day, the press release was posted on the NPS website *Planning, Environment, and Public Comment* (PEPC). A press release announcing the public comment period for the EA and the EA document was posted on PEPC indicating the 30-day public review and comment period.

TABLE OF CONTENTS	PAGE
EXECUTIVE SUMMARY	i
CHAPTER 1 PURPOSE AND NEED	1-1
1.1 Project Purpose	1-1
1.2. Project Need	1-1
1.3 Park Purpose and Significance	1-3
1.4 Project Background	1-3
1.5 Applicable Laws, Policies and Related Plans and Initiatives	1-3
1.5.1 Applicable Laws and Policies	1-3
1.5.2 Related Plans and Initiatives	1-3
1.6 Scoping and Impact Topics	1-4
1.6.1 Scoping	1-4
1.6.2 Impact Topics Retained For Analysis	1-4
1.6.3 Impact Topics Dismissed From Detailed Analysis	1-5
CHAPTER 2 ALTERNATIVES	2-1
2.1 Introduction	2-1
2.2 Alternative A: No Action	2-1
2.2.1 Sailors Haven	2-1
2.2.2 Talisman/Barrett Beach	2-1
2.2.3 Watch Hill	2-1
2.3 Alternative B: Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and Marinas for Public Use and Safety (Preferred Alternative)	2-1
2.3.1 Sailors Haven	2-2
2.3.2 Talisman/Barrett Beach	2-3
2.3.3 Watch Hill	2-3
2.4 Mitigation Measures	2-4
2.5 Alternatives Considered But Dismissed	2-6
2.6 Environmentally Preferable Alternative	2-6
CHAPTER 3 AFFECTED ENVIRONMENT	3-1
3.1 Introduction	3-1
3.2 Geological Resources and Coastal Processes	3-1
3.3 Water Quality	3-3
3.4 Estuarine Resources Including Essential Fish Habitat	3-4
3.5 Wetlands	3-9
3.6 Terrestrial Ecology	3-15
3.7 Species of Special Concern	3-17
3.8 Archeological Resources	3-22
3.9 Recreational Resources, Visitor Experience and Aesthetic Resources	3-23
3.10 Socioeconomics	3-26

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES.....4-1

4.1	Introduction	4-1
4.2	Geological Resources and Coastal Processes	4-2
	4.2.1 Impacts of Alternative A: No Action.....	4-2
	4.2.2 Impacts of Alternative B: Preferred Alternative.....	4-3
4.3	Water Quality	4-3
	4.3.1 Impacts of Alternative A: No Action.....	4-3
	4.3.2 Impacts of Alternative B: Preferred Alternative.....	4-4
4.4	Estuarine Resources Including Essential Fish Habitat.....	4-6
	4.4.1 Impacts of Alternative A: No Action.....	4-6
	4.4.2 Impacts of Alternative B: Preferred Alternative	4-7
4.5	Wetlands	4-9
	4.5.1 Impacts of Alternative A: No Action.....	4-9
	4.5.2 Impacts of Alternative B: Preferred Alternative	4-10
4.6	Terrestrial Ecology	4-12
	4.6.1 Impacts of Alternative A: No Action.....	4-12
	4.6.2 Impacts of Alternative B: NPS Preferred Alternative	4-13
4.7	Species of Special Concern.....	4-14
	4.7.1 Impacts of Alternative A: No Action.....	4-14
	4.7.2 Impacts of Alternative B: NPS Preferred Alternative	4-14
4.8	Archeological Resources	4-18
	4.8.1 Impacts of Alternative A: No Action.....	4-18
	4.8.2 Impacts of Alternative B: NPS Preferred Alternative	4-18
4.9	Recreational Resources, Visitor Experience and Aesthetics	4-18
	4.9.1 Impacts of Alternative A: No Action.....	4-18
	4.9.2 Impacts of Alternative B: NPS Preferred Alternative	4-20
4.10	Socioeconomics	4-20
	4.10.1 Impacts of Alternative A: No Action.....	4-20
	4.10.2 Impacts of Alternative B: NPS Preferred Alternative	4-21

CHAPTER 5 CONSULTATION AND COORDINATION..... 5-1

5.1	Planning and Public Involvement	5-1
5.2	Public Agencies, Tribes, Organizations and Persons Contacted	5-1
5.3	Internal Coordination	5-2
5.4	Wetlands Compliance	5-2
5.5	List of Preparers and Reviewers	5-3

LIST OF ACRONYMS

LIST OF REFERENCES

LIST OF TABLES

Table 2-1	Summary Comparison of Impacts	2-7
Table 3-1	EFH Listings for 2 Grids and for Great South Bay Estuary	3-6
Table 3-2	Threatened and Endangered Species	3-18
Table 3-3	Visitor Statistics 2008-2012.....	3-24
Table 4-1	Effects of the Preferred Action on Threatened and Endangered Species	4-17

LIST OF FIGURES

Figure 1-1	Regional and Site Location Map.....	1-1
Figure 1-2	Hurricane Sandy Overwash Area Near Talisman/Barrett Beach	1-1
Figure 2-1	Existing Sailors Haven Site Plan	2-1
Figure 2-2	Existing Talisman/Barrett Beach Site Plan	2-1
Figure 2-3	Existing Watch Hill Site Plan	2-1
Figure 2-4	Proposed Sailors Haven Site Plan.....	2-3
Figure 2-5	Proposed Talisman/Barrett Beach Site Plan	2-3
Figure 2-6	Proposed Watch Hill Site Plan.....	2-4
Figure 3-1	Sailors Haven NWI Wetlands	3-10
Figure 3-2	Sailors Haven NYSDEC Wetlands	3-10
Figure 3-3	Talisman NWI Wetlands.....	3-10
Figure 3-4	Talisman NYSDEC Wetlands.....	3-10
Figure 3-5	Watch Hill NWI Wetlands.....	3-10
Figure 3-6	Watch Hill NYSDEC Wetlands.....	3-10
Figure 3-7	Watch Hill Hydric Soils.....	3-10
Figure 3-8	Sailors Haven Field Delineated Wetlands	3-10
Figure 3-9	Talisman Field Delineated Wetlands	3-10
Figure 3-10	Watch Hill Field Delineated Wetlands	3-10
Figure 3-11	Intertidal Wetland – West Talisman/Barrett Beach	3-11
Figure 3-12	Intertidal Wetland – East Talisman/Barrett Beach	3-11
Figure 3-13	Intertidal Wetland – West Sailors Haven.....	3-11
Figure 3-14	Intertidal Wetland – East Sailors Haven	3-11

LIST OF APPENDICES

Appendix A	Compliance Documents
Appendix B	New York State Coastal Zone Management Policies

CHAPTER 1 PURPOSE AND NEED

1.1 Project Purpose

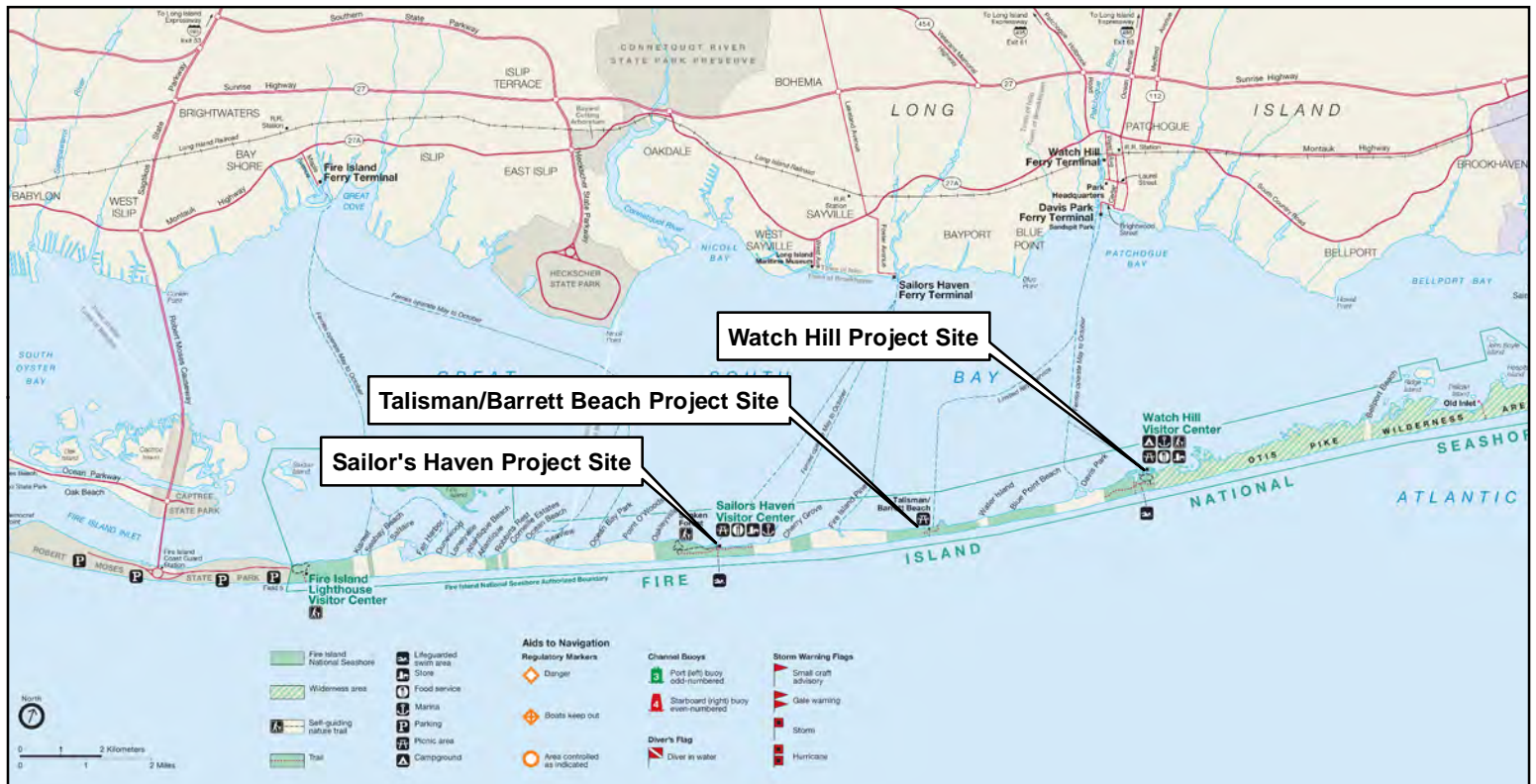
The purpose of the project is to re-dredge the existing navigational channels and their associated marinas and docking facilities so as to re-establish safe, public access to NPS facilities on Fire Island at Sailors Haven, Talisman/Barrett Beach and Watch Hill. These navigation channels provide vessel access from Great South Bay that are utilized by the general public, concession operated ferries, NPS personnel, law enforcement, and emergency response. Re-dredging the channels will restore safe vessel access to these areas on Fire Island. See Figure 1-1 for regional and site location map.

This Environmental Assessment (EA) for assessing the potential adverse impacts of dredging and placement and use of dredge materials has been prepared in accordance with the requirements of National Environmental Policy Act of 1969 as amended (NEPA) and its implementing regulations (40 CFR 1500-1508, and NPPS Director's Order #12, *Conservation Planning, Environmental Impact Analysis and Decision-Making* (DO-12, 2011) and accompanying DO-12 handbook (2001). This EA provides a decision-making framework that: 1) analyzes a reasonable range of alternatives to meet project objectives; 2) evaluates potential issues and impacts to park resources and values; and 3) identifies mitigation measures to lessen the degree or extent of these impacts. This EA evaluates a no action alternative (Alternative A) and one action alternative (Alternative B, also the Preferred Alternative). The action alternative is based on laws, regulations and policies, and public health and safety. The no action alternative represents current conditions and is used for comparison to the action alternative for each respective component. Measures to avoid and/or minimize adverse impacts to resources of concern have been incorporated into the project description and schedule for the preferred alternative. Where applicable, these measures are reiterated for relevant impact topics under Chapter Four, "Environmental Consequences."

1.2 Project Need

Most of Fire Island National Seashore's facilities on Fire Island are not accessible by road. Vehicle access is over sand trails and is limited to NPS, official vehicles including the Suffolk County Police, and a limited number of residents. All visitor access and the majority of other users (concessionaires, contractors, law enforcement, and emergency services) access these facilities by way of water. The navigation channels that lead to the facilities at Sailors Haven, Talisman/Barrett Beach, and Watch Hill are the primary routes for safe access to these areas. Sediment, primarily sands, has accumulated in the navigation channels, marinas and around some of the docking facilities at these three areas. This sediment accumulation has worsened due to multiple storm events, including Hurricane Sandy in October 2012. Figure 1-2 shows an overwash area near Talisman/Barrett Beach that resulted in the deposition of a large amount of sediment as a result of Hurricane Sandy.

At many points throughout the channels, water depths at mean low tide are currently less than six (6) feet (the depth considered acceptable for safe vessel travel). Shallow water depths can result in vessels running aground, particularly at extreme low tide events, such as full moon tides.



Fire Island National Seashore, Dredge Sailors Haven,
Talisman/Barrett Beach and Watch Hill Channels
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Figure 1-1 - Regional and Site Location Map

Nov 3, 2012

Talisman/Barrett Beach
Public Dock

Fire Island Pines

Overwash

Fire Island Beach Rd

Fire Island Blvd

Salt Walk

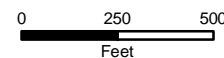
Ocean Walk

Image source: Google Earth. November 2012

Fire Island National Seashore, Dredge Sailors Haven, Talisman/Barrett Beach
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Figure 1-2 - Hurricane Sandy Overwash Area Near Talisman/Barrett Beach

1 inch = 500 feet



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Date 08/30/2013

As a result of sediment accumulation, the channels have also narrowed to a width significantly below the 100 feet considered adequate for safe passage. These conditions have increased the difficulty of navigation and access for two-way vessel traffic. This condition becomes a critical issue during summer weekends when boat traffic is at its peak. The lowered capacity of the navigation channels (both width and depth) has also increased the potential for property damage to vessels owned by the NPS, law enforcement agencies, emergency services, concessionaires, and FIIS visitors' private vessels. Restoring channel depths and widths to their previous dimensions through dredging will provide the required, continued safe access to Fire Island at the project areas. Continuation of current conditions will ultimately result in the cancellation of ferry operations, the inability of concessionaires to service their businesses, and the loss of public access to FIIS facilities.

1.3 Park Purpose and Significance

Approximately 26 miles of Fire Island was authorized by Congress as Fire Island National Seashore (FIIS) on September 11, 1964 (Public Law 88-587). The enabling legislation authorizes the establishment of Fire Island National Seashore:

For the purpose of conserving and preserving for the use of future generations relatively unspoiled and undeveloped beaches, dunes, and other natural features within Suffolk County, New York, which possess high values to the Nation as examples of unspoiled areas of great natural beauty in close proximity to large concentrations of urban population, the Secretary of the Interior is authorized to establish an area to be known as the "Fire Island National Seashore." (16 USC 459e(a))

FIIS is comprised of two separate and distinct units – Fire Island and the William Floyd Estate. FIIS's headquarters and primary maintenance facility are located in the village of Patchogue as is the Ferry Transportation Center that serves Watch Hill on Fire Island. The FIIS boundary encompasses just over 19,580 acres of marine and terrestrial property. FIIS boundary encompasses a county park, 17 private residential communities, and nearly 17,000 acres of bay and ocean waters. Approximately 14,664 acres are comprised of aquatic or submerged lands and 5,864 acres are upland or terrestrial lands.

FIIS itself is an interconnected mix of public and private lands. Public lands are made up of federal lands (6,242 acres, including approximately 1,363 acres designated as Wilderness) and non-federal lands (13,338 acres for which 916 acres are private). These lands are comprised of seventeen communities that were developed on Fire Island before the establishment of the park in 1964 are now retained within the boundary of FIIS. Most are clustered near the west end of FIIS and each has its own distinct heritage. The pre-existing residential and commercial uses were permitted to remain, as long as there is consistency with specific zoning standards of the individual municipalities.

1.4 Project Background

The construction of Sailors Haven Marina pre-dates the establishment of the park in 1964. This 50-acre tract of beach, dunes and old growth holly forest was first protected from development in the early 1950s by a concerned group of private citizens. When originally constructed, the marina was surrounded and protected by the landmass of the barrier island. As a result of natural processes, the 300-foot wide and 260-foot long marina basin now projects north from the north shore of Fire Island into Great South Bay.

The Talisman /Barrett Beach area is located near the center of Fire Island National Seashore across the Great South Bay from Bayport and Sayville, Long Island. This site was originally owned and operated as a marina by the Town of Islip which gave it to NPS in 2000. The marina facility was removed by NPS and replaced by the existing dock.

Watch Hill, the largest and most extensive of the visitor facilities on Fire Island National Seashore, is located in the center of Fire Island, across the Great South Bay from Patchogue. First opened to the public in 1967, Watch Hill serves as gateway to the Otis Pike Wilderness Area, the only federal wilderness area in New York State and one of the last large tracts of undeveloped of barrier beach on the northeast coast.

1.5 Applicable Laws, Policies and Related Plans and Initiatives

1.5.1 Applicable Laws and Policies

As with all units of the National Park System, the management of FIIS is guided by the 1916 Organic Act (which created the National Park Service), the General Authorities Act of 1970, the Act of March 27, 1978, relating to the management of the National Park System, and other applicable federal laws and regulations, such as the Endangered Species Act and the National Historic Preservation Act. Actions are also guided by the National Park Service Management Policies (2006) and FIIS legislation. Other applicable laws and policies include Clean Water Act Section 404.

1.5.2 Related Plans and Initiatives

The NPS mission statement at FIIS reflects the park's legislated mandate and is a synthesis of the park's mandated purpose and its primary significance:

*The National Park Service is committed to preserving Fire Island's National Seashore's cultural and natural resources, its values of maritime and American history, barrier island dynamics and ecology, biodiversity, museum collection objects, and wilderness. **The NPS is committed to providing access** (emphasis added) and recreational and educational opportunities to Fire Island National Seashore visitors in this natural and cultural setting close to densely populated urban and suburban areas, and to maintaining and exemplifying the policies of the National Park Service.*

The park is currently managed under the 1977 General Management Plan (GMP). The GMP identified the “primary management concern” as being “preservation and enhancement of the serenity and natural beauty of the Island, which includes the protection of the beaches, dunes, and other natural features fundamental to the concept of Fire Island National Seashore.”

The park is presently in the final stages of developing a new GMP for Fire Island. When approved, the Fire Island GMP will serve as the foundation for all subsequent planning and management decisions. Four Science Synthesis Papers were generated by the Cooperative Ecosystem Units to serve as support for the preparation of the GMP. Additional Natural Resource Reports and Technical Reports were produced by or for NPS. These documents were utilized for this EA and are listed in the References Section of this EA.

Other projects that have been completed but are still relevant to the project area are summarized below.

Sailors Haven Channel Dredging Projects

The entrance channel to the marina was dredged in 2002, 2004 and 2011 to restore and maintain a depth of 6 feet below mean low water, a length of approximately 250 feet and a 100-foot width in the channel in accordance with an Environmental Assessments prepared in 2001 and 2007. During each event up to 2,000 cubic yards of dredged material was deposited behind existing marina bulkheading to replace eroded sediments. This action was implemented to improve visitor and boater safety by removing the navigation hazard of the shoal at the marina entrance, and to maintain access to the marina.

Miscellaneous Other Projects

- EA Fire Island Community Short-Term Storm Protection (2008)
- Rehabilitation of Sailors Haven Marina and Ferry Dock (2005)
- Maintenance Dredging of Entrance Channel to Sailors Haven Marina (2001)

1.6 Scoping and Impact Topics

1.6.1 Scoping

Scoping is a required element of all EAs and involves the early input of NPS, involved agencies and the public. Through scoping, issues were identified which led to impact topics to be analyzed in this EA.

1.6.2 Impact Topics Retained for Analysis

To focus the environmental analysis, the issues identified during scoping were used to derive a number of “impact topics.” Impact topics are resources of concern that could be affected, either beneficially or adversely, by implementing any of the proposed alternatives, and are identified on the basis of federal laws, regulations, Executive Orders, NPS *Management Policies* (NPS 2006) and the results of scoping and coordination with other agencies and the public.

Impact topics retained for detailed analysis within this EA include:

- Geological Resources and Coastal Processes
- Water Quality
- Estuarine Resources including Essential Fish Habitat
- Wetlands
- Terrestrial Ecology (including Invasive Species)
- Species of Special Concern
- Archeology
- Recreational Resources, Visitor Experience and Aesthetics
- Socioeconomics

1.6.3 Impact Topics Dismissed from Detailed Analysis

A number of resource topics were considered but ultimately dismissed from detailed analysis. Resource topics that were dismissed are briefly described below with the reason for dismissal:

Floodplains

This topic was dismissed because even though work will occur within the floodplain, no negative impacts to floodplain values, human safety or capital investment are anticipated to occur.

Prime and Unique Farmland

This topic was dismissed due to no prime and unique farmlands being present at FIIS, therefore, none of the alternatives would impact this resource.

Air Quality

The Clean Air Act of 1963, as amended, and associated policies, requires the NPS to protect the park's air quality. Air quality in the park is affected primarily by automobile traffic and industrial emissions associated with the nearby urban environment. The preferred alternative calls for the use of barges and equipment to dredge three locations. These activities will have a minimal and short-term effect on air quality.

Cultural Resources

The NPS recognizes the following resource types: historic and prehistoric structures, cultural landscapes, ethnographic resources, museum collections, and archeological resources. Impacts to archeological resources are assessed in section 3.8. According to studies conducted by the park, there are no examples of the other cultural resource types within the project area. Therefore, historic and prehistoric structures, cultural landscapes, ethnographic resources, and museum collections have been dismissed from detailed analysis.

Minority and Low Income Populations

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations", requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental impacts of their programs and policies on minorities or low-income populations or communities as defined in the Environmental Protection Agency's Revised Draft Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses (1997). Neither of the alternatives under consideration for the project

would have disproportionately high or adverse human health, economic, social or environmental impacts on minority or low-income populations residing in the area of FIIS. For this reason, the environmental justice impact topic was dismissed from detailed analysis.

Energy Resources

NPS Management Policies (NPS 2006) require the NPS to conduct its activities in 11 ways that use energy wisely and economically. Management actions in all alternatives would comply with NPS sustainable energy design and energy management requirements. Because this project does not involve facilities development, energy resources impact topic was dismissed from detailed analysis.

Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian Trust Resources from a proposed project or action by agencies of the Department of the Interior be explicitly addressed in environmental documents. In the FIIS area there is one Federally-recognized tribe - Shinnecock Indian Nation, and one State-recognized tribe – Poospatuck Indian Reservation. There are no known Indian Trust Resources at FIIS. Therefore, the topic of Indian Trust Resources was dismissed from detailed analysis.

Land Use

The topic was dismissed since the NPS action would have no effect on non-NPS lands. All dredging activities will take place in the GSB and dredge materials will be placed on NPS lands.

CHAPTER 2 ALTERNATIVES

2.1 Introduction

This section describes the potential alternative actions that are under consideration or have been considered but dismissed as impractical. All alternatives analyzed must meet the purpose and need of the proposed action and be consistent with the purpose and objectives of FIIS.

2.2 Alternative A: No Action

2.2.1 Sailors Haven

The Park would not dredge the channel under the No Action Alternative. Small maintenance dredging projects at the mouth of the marina would continue on an as needed basis through 2016 with the dredge material graded into low lying areas and in the designated stockpiled areas directly east and west of the marina for future bulkhead stabilization and shoreline restoration projects. See Figure 2-1 for existing conditions at Sailors Haven.

2.2.2 Talisman/Barrett Beach

Under the no-action alternative the Park would not dredge the area around the existing dock. See Figure 2-2 for existing conditions at Talisman/Barrett Beach.

2.2.3 Watch Hill

Under the no-action alternative the Park would not dredge the channel or the marina. See Figure 2-3 for existing conditions at Watch Hill.

2.3 Alternative B: Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and Marinas for Public Use and Safety (Preferred Alternative)

A dredging methodology has not been selected for this project. Various kinds of dredges that may be utilized for this project, are described below.

Hydraulic Dredge

Hydraulic dredging is achieved by pumping material through a pipeline to nearby settling area. Sediment can then be de-watered, replanted or trucked off location. A hydraulic dredge floats on the water and excavates and pumps the material through a temporary pipeline to an offsite location, often several thousand feet away. This dredge acts like a floating vacuum cleaner that can remove sediment very precisely. With a hydraulic dredge, the dredge discharge line and return line are the only obstructions in the environment. The lines are usually laid on the ground surface. Hydraulic dredging provides the cleanest and least obtrusive method for sediment removal without damaging sensitive environments.



Fire Island National Seashore, Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and Marinas for Public Use and Safety, PMIS 201444A

Figure 2-1 - Existing Sailors Haven Site Plan

1 inch = 750 feet

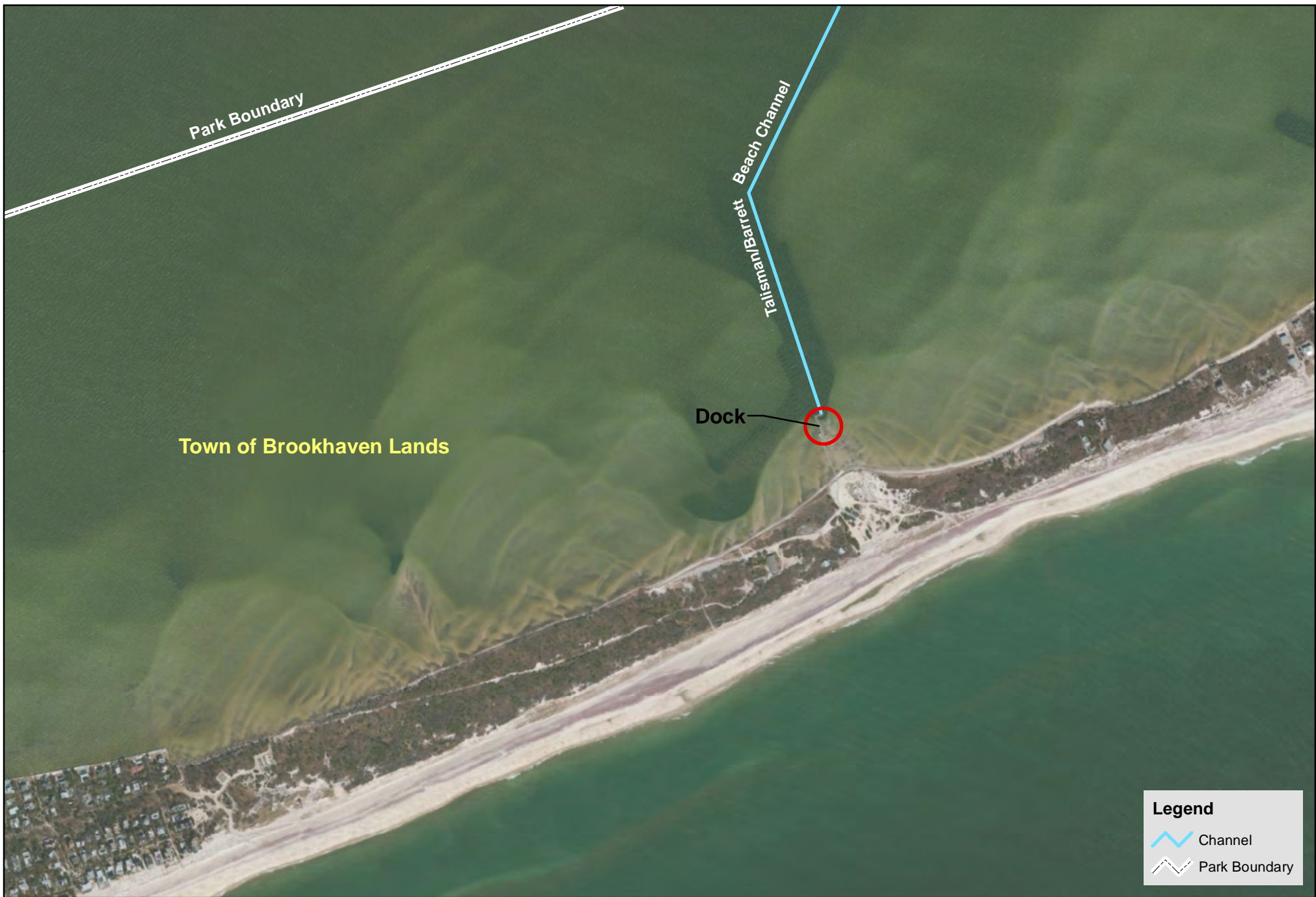
0 375 750

Feet





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Legend

 Channel

 Park Boundary


Fire Island National Seashore, Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and Marinas for Public Use and Safety, PMIS 201444A

Figure 2-2 - Existing Talisman/Barrett Beach Site Plan

1 inch = 750 feet

0 375 750

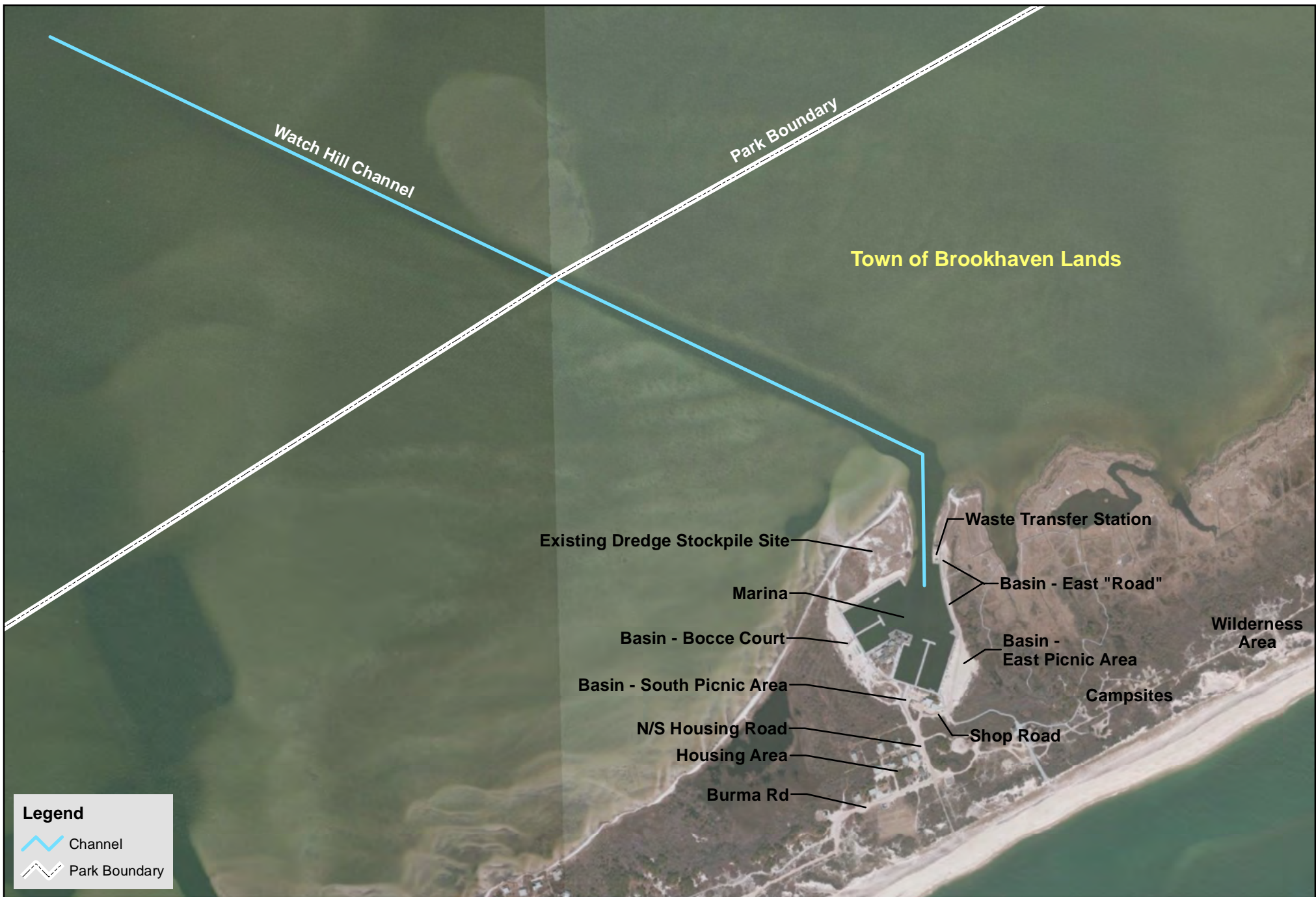
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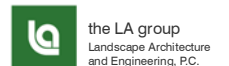
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Figure 2-3 - Existing Watch Hill Site Plan

1 inch = 750 feet
0 375 750
Feet



Project 201342
Date 08/14/2013

Hopper Dredge

The hopper dredge is a self-propelled vessel that features suction pipelines (known as drag arms) that are lowered from the side of the vessel to engage the bottom. Material is excavated through the suction pipes into a hopper contained within the hull of the vessel. A hopper dredge transports material by slurry through the drag arms into the hopper. Once the material has been loaded into the hopper, excess water is decanted either over the sides of the vessel or through discharge pipes extending through the vessel's bottom.

Typically, a hopper dredge, which is usually employed when depth of cut is shallow, can effectively excavate only soft mud/silt and loose sands. With modifications to the drag heads, firm to dense sands can also be excavated. Since the material is transported to the hopper as slurry, large amounts of water must be handled in the hopper. This can pose problems when grain size is small or when water quality is a concern.

Conventional Clamshell Dredge

A conventional clamshell or bucket dredge is operated from a barge-mounted crane. Once the open bucket is positioned over the target area, it is lowered by cable to the subsurface bed. After contact with the bottom, the crane operator closes the bucket to excavate the sediment. The speed at which the bucket is lowered and brought back to the surface can be varied to minimize sediment re-suspension and dispersion. The level of vertical accuracy of conventional clamshell equipment is 1 to 4 feet, depending upon sediment characteristics, operator skill level, tides, and sea-state. The conventional clamshell dredge is most effective in excavating unconsolidated silts and sands. A smaller, heavier bucket is required for excavation of dense material such as consolidated (i.e., stiff) clay.

Environmental Clamshell Dredge

The environmental clamshell dredge was developed to excavate contaminated sediment on projects requiring tight vertical tolerance and minimal sediment re-suspension/dispersion. The environmental clamshell dredge operates from the same barge platform as the conventional clamshell dredge, and moves in the same manner. More precise vertical and horizontal control is, however, achieved by using pressure, or depth, sensors, Differential Global Positioning Systems (DGPS), and modern computer software. Modifications to the bucket permit excavation of sediment in level cuts, as opposed to pockets. Additionally, the environmental clamshell bucket provides cover-and-seal closure to minimize water column sediment dispersion as the excavated material is brought to the surface. The environmental clamshell dredge is most effective in excavating unconsolidated silts and sands; it is not suitable for the excavation of stiffer materials.

2.3.1 Sailors Haven

Alternative B is the re-dredging of the Sailors Haven channel to reopen the channel to approximately 800 feet long and 100 feet wide and to a depth of six feet at mean low tide as needed to provide safe access to Sailors Haven facilities. The project also includes dredging some areas within the existing marina in order to reestablish depths to 6 feet. Estimated amounts of dredge material for removal are between 4,000 and 10,000 cubic yards. Current compliance documents and permits allow small maintenance dredging projects to continue on an as needed

basis with the dredge material graded into low lying areas and in designated stockpiled areas through 2016. However, the current compliance documents and permits pertain to only that portion of the channel at the mouth of the marina, and not the outer portion of the channel.

Dredged materials will be available for placement behind bulkhead areas to replace eroded sand. It will also be available to be placed along the eastern and western shorelines to maintain littoral processes by keeping sediment within the GSB system. These measures are intended to make these materials available to return to the sediment transport system of Great South Bay (GSB). All dredged material placed in bayside shoreline areas would meet gradation requirements. At the time of the dredging, any dredge materials that cannot be accommodated as above will be stockpiled on designated upland area(s) to be utilized behind the bulkheads and along the shoreline. See Figure 2-4 for the Sailors Haven Site Plan.

Dredging of Sailors Haven is expected to occur sometime between December 2013 and the end of February 2014. The window is based on completing the compliance and permitting for the project. Completing the work during the winter of 2013-2014 with current funding would allow safe access for the 2014 season. NPS will make every effort to schedule access channel dredging at Sailors Haven in the early December through February time period, and require completion of dredging by April 1.

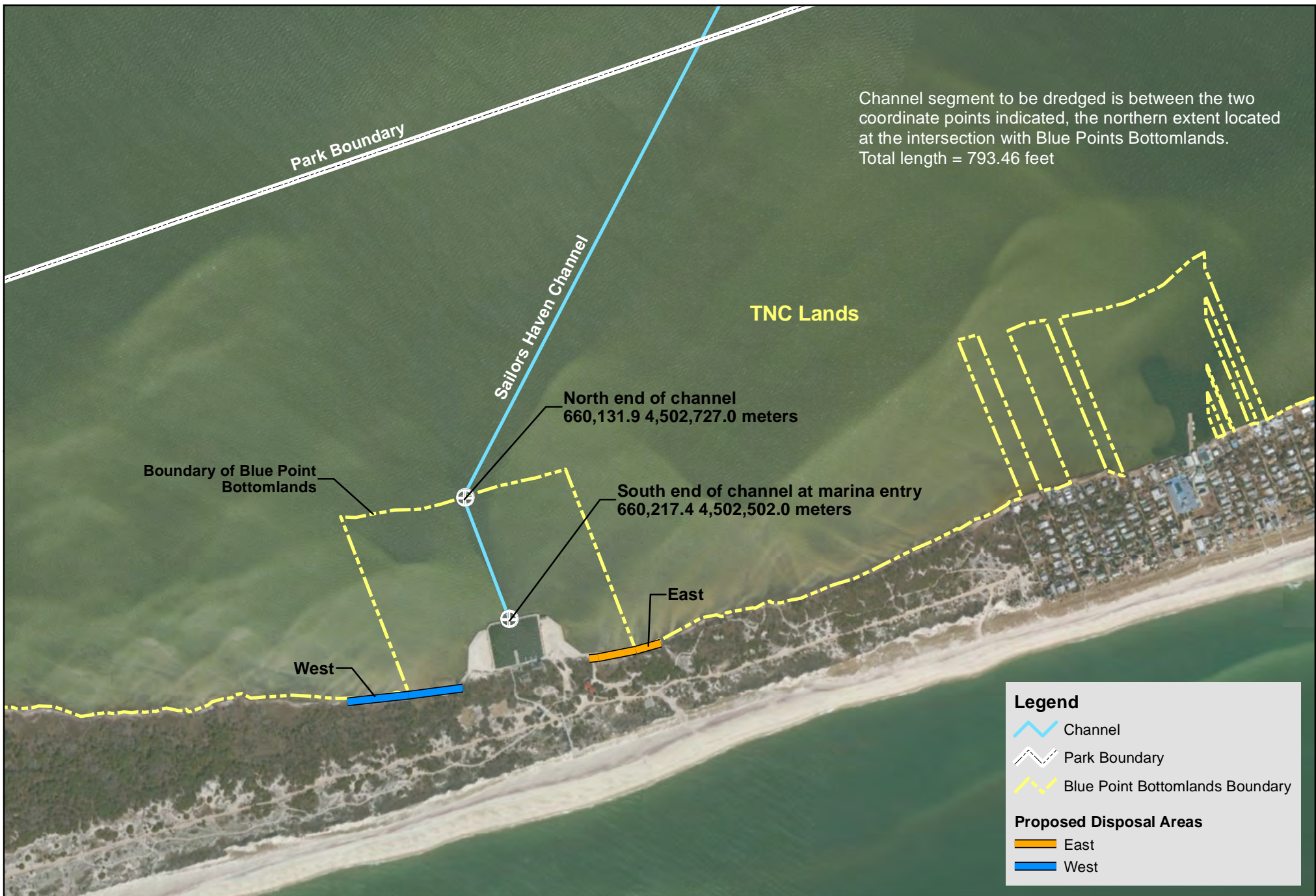
2.3.2 Talisman/Barrett Beach

Alternative B is the re-dredging of an area approximately 200 by 300 feet to a depth of 6 feet at mean low tide as needed to provide safe access to Talisman/Barrett Beach facilities. An estimated 10,000 cubic yards of material would be dredged from around the public dock, the area directly adjacent to the dock. Dredge materials are to be distributed generally along both west and east shorelines to maintain littoral processes by keeping sediment within the GSB system. This distribution would act as a series of feeder beaches designed to redistribute dredged sand along the beaches and make it available to the natural GSB sediment transport system. See for Figure 2-5 for the Talisman/Barrett Beach Site Plan.

Funding is not currently available for the dredging at Talisman/Barrett Beach. Pending future funding, dredging would be scheduled to occur between October 1 and December 15.

2.3.3 Watch Hill

Alternative B is the re-dredging of the navigation channel to the marina that encompasses an area approximately 6,620 feet long by 100 feet wide and to a depth of 6 feet at mean low tide as needed to provide safe access to Watch Hill facilities. There are also some areas within the existing marina that are in need of dredging in order to reestablish depths to 6 feet. An estimated 35,000 cubic yards would be dredged from the main navigation channel and the marina. Dredge materials are to be generally stockpiled in upland areas where they can be accommodated. Some dredge materials will be placed around the marina facility to raise and level existing public use areas including recreation areas. Should the amount of dredged material exceed the capacity of upland placement sites in the developed area and upland stockpile sites then the material may be utilized for at Sailors Haven and Talisman/Barrett Beach for sediment transport projects. See



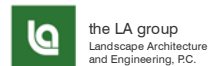
Fire Island National Seashore, Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and Marinas for Public Use and Safety, PMIS 201444A

Figure 2-4 - Proposed Sailors Haven Site Plan

1 inch = 750 feet

0 375 750

Feet



Project 201342
Date 08/14/2013



Fire Island National Seashore, Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and Marinas for Public Use and Safety, PMIS 201444A

Figure 2-5 - Proposed Talisman/Barrett Beach Site Plan

Figure 2-6 for the Watch Hill Site Plan. Also, the future placement of any dredged material that will be stockpiled at Watch Hill may include the potential placement on private or town owned property. These future actions, should they be considered, would need to be addressed under separate environmental assessment and permitting processes. This alternative use was considered but dismissed because the required compliance and permitting processes could not have been completed in the timeframe necessary to complete the project with current funding.

Dredging of Watch Hill is expected to occur sometime between December 2013 and the end of February 2014. The window is based on completing the compliance and permitting for the project. Completing the work during the winter of 2013-2014 with current funding would allow safe access for the 2014 season. NPS will make every effort to schedule access channel dredging at Watch Hill in the early December through February time period, and require completion of dredging by April 1.

2.4 Mitigation Measures

Measures to avoid and/or minimize adverse impacts to resources of concern have been incorporated into the project description and schedule for the preferred alternative. Where applicable, these measures are reiterated for relevant impact topics under Chapter Four, “Environmental Consequences.” A summary of the practices that will be employed to mitigate the temporary impacts associated with the project are provided below.

Project Timing

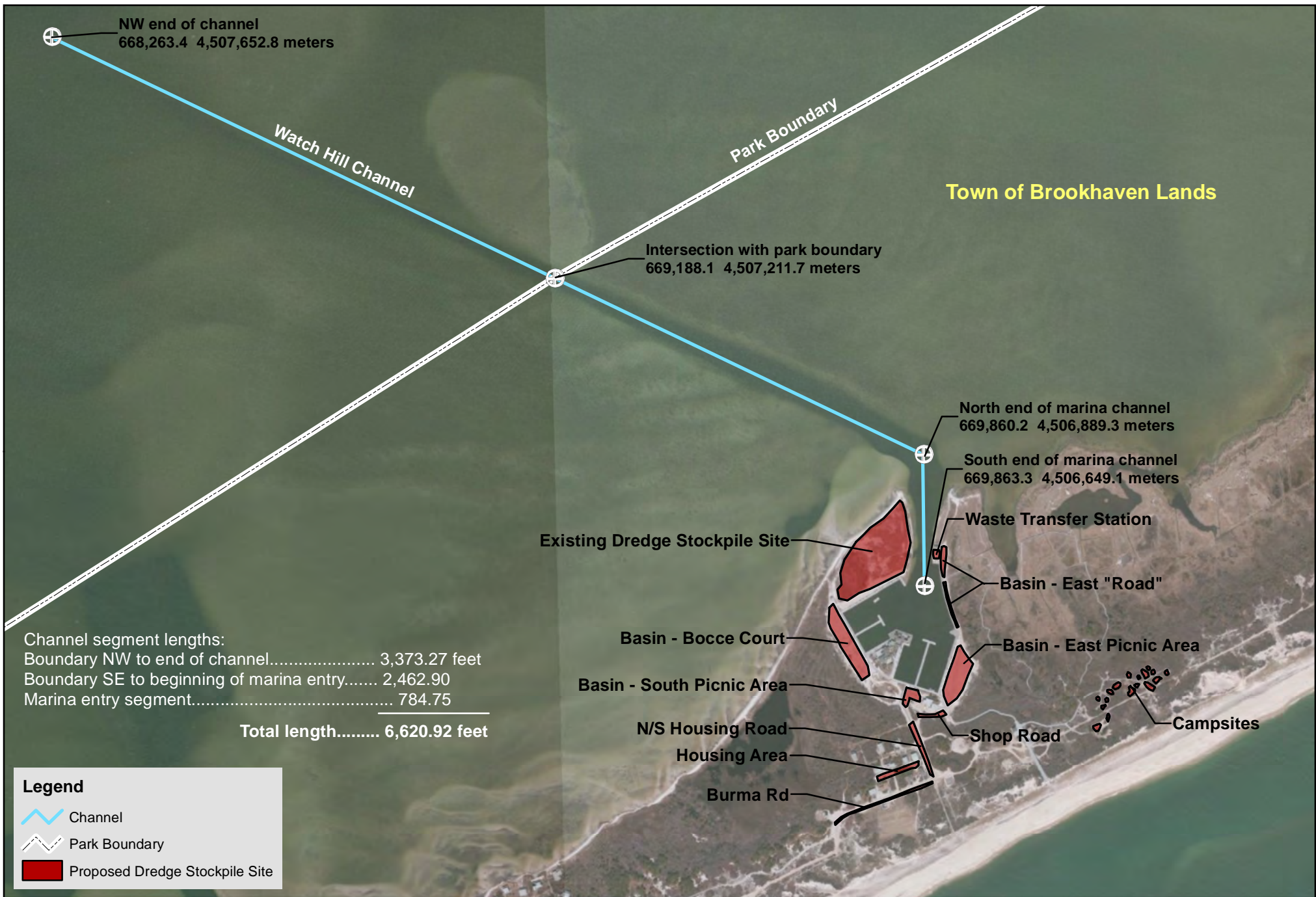
Dredging of Sailors Haven and Watch Hill are expected to occur between December 2013 and the end of February 2014. The later December to February dredging window for Sailors Haven and Watch Hill reflects the need to make use of currently available funding and to dredge these areas prior to Spring of 2014. The necessary time required for compliance, permitting, and awarding a construction bid would not allow the dredging to occur in time to meet the preferred window of October 1 to December 15.

Pending future funding, future dredging at Talisman/Barrett Beach would be scheduled to occur between October 1 and December 15 to minimize impacts to essential fish habitat and GSB coastal zone resources.

Water Quality Mitigation Measures

Although impacts on water quality are predicted to be minor and short term, the following practices will be employed to mitigate the temporary impacts associated with the project:

- If a hydraulic dredge is used, a diffuser will be employed to place the dredged material in order to reduce sediment re-suspension.
- A turbidity curtain will be placed across the entrance to the marinas at Sailors Haven and Watch Hill prior to dredging within the marina areas.
- Dredged material will be placed above the high tide water line and graded down at low tide to minimize re-suspension of material in the water column.



Fire Island National Seashore, Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and Marinas for Public Use and Safety, PMIS 201444A

Figure 2-6 - Proposed Watch Hill Site Plan

1 inch = 750 feet
 0 375 750
 Feet



the LA group
 Landscape Architecture
 and Engineering, P.C.

Project 201342
 Date 08/14/2013

Benthic Fauna Mitigation Measures

Project impact to native benthic organisms may be minimized using the following strategies:

- The length of fill placement segments would be a maximum of approximately 1 kilometer in length. The longer segments may be interspersed with breaks to further reduce the continuous length of affected benthos habitat.
- Material to be dredged comes from the nearby littoral system, and is therefore expected to be similar in nature to the existing beach material. Specific characteristics will be determined from sediment sampling in the near future.
- Placement of dredge material on beaches to restore littoral sediment transport is proposed to occur in the winter, prior to the warm season that is most conducive to re-colonization of benthic macro-invertebrates.
- The proposed beach fill is only planned to occur once in the near future. Based on recent history, subsequent full-scale maintenance dredging may not occur for another 20 to 30 years, barring extreme storm events.
- Due to the relatively narrow width of the sandy foreshore, the amount of beach fill would be limited to an average of approximately 5 cubic yards per linear foot. Placement of this material may be restricted to the foreshore and intertidal area landward of any low-tide terrace, potentially through the construction of a temporary sill. At Sailors Haven, the proposed placement of dredged material would expand on the experimental creation of a feeder beach in 2011, much of which has now eroded.

Essential Fish Habitat Mitigation Measures

The following measures are designed to offset potential impacts associated with the project:

- Dredging will occur only in those areas that have been dredged in the past.
- The outer limits and maximum depth of dredging will not exceed what occurred in previous dredging projects.
- Dragline dredging is prohibited.
- The NPS will make every reasonable effort to schedule channel dredging at Sailors Haven and Watch Hill as early as possible in the work schedule to minimize impacts to spawning winter flounder.
- If a clamshell dredge is used, no unfiltered barge overflow will be permitted unless it is within the turbidity curtain containment area.

Species of Special Concern Mitigation Measures

The following measures will be undertaken to ensure the protection of any sea turtle species:

- If a hopper dredge is used it will be equipped with turtle deflectors.
- A NMFS approved observer would be present during operation.
- All turtle captures, injuries or mortalities associated with the project would be reported to NMFS within 24 hours.
- If sea turtles are present during dredging or material transport, vessels transiting the area must post an observer.
- All contracted personnel involved in operating hopper dredges receive thorough training on measures of dredge operation that will minimize takes of sea turtles.
- Hydraulic pumps will only be turned on when the draghead is on the bottom. All NMFS monitoring specifications for hopper dredges would be adhered to.
- Any sturgeon observed in the hopper/basket will be netted, and if alive, placed in a flow through live well and released away from the project site.
- Any Atlantic sturgeon captured will be scanned for Passive Integrated (PIT) tags and tag numbers will be recorded and reported to NMFS.
- Fin clips will be taken from any Atlantic sturgeon by the observer and be provided to NMFS for genetic analysis.
- An incident report for incidental sea turtle or Atlantic sturgeon take shall be completed by the observer and provided to NMFS within 24 hours.

2.5 Alternatives Considered But Dismissed

There were no additional alternatives considered for this project. The action is to not dredge (Alternative A - No Action) or to dredge (Alternative B - Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and Marinas for Public Use and Safety). The placement of the dredge material is also limited due to the presence of wetlands and other factors.

2.6 Environmentally Preferable Alternative

In accordance with the DO-12 Handbook, the NPS identifies the environmentally preferable alternative in its NEPA documents for public review and comment [Sect. 4.5 E(9)]. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when

different alternatives impact different resources to different degrees, there may be more than one environmentally preferred alternative (43 CFR 46.30). In general, the environmentally preferable alternative is the alternative that causes the least damage to the biological and physical environment and best protects, preserves and enhances historical, cultural and natural resources.

Based on the impacts discussed in Chapter 4 as summarized below in Table 2-1 below, the environmentally preferred alternative is to *Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and Marinas for Public Use and Safety* (Alternative B). Table 2-1 presents a summary of comparison of impacts for Alternative A and Alternative B. Alternative A will result in either no impact or longer-term and localized impacts to natural resources. Alternative B would result in either no impact or short-term and localized impacts to natural resources and beneficial impacts to coastal processes. Feeder beaches along the edge of the Sunken Forest would also be beneficial in preventing or slowing bank erosion.

After review of potential resource impacts, and developing mitigation for impacts to natural resources, the preferred alternative achieves the greatest balance between the necessity of keeping the navigation channels open for safe access into Sailors Haven, Talisman/Barrett Beach and Watch Hill and restoring natural coastal processes of sediment movement in GSB, while preserving natural resources of the park.

Table 2-1
Summary Comparison of Impacts

Type of Resource	Alternative A - No Action Alternative	Alternative B - Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and Marinas for Public Use and Safety
Geological Res/Coastal Processes	Longer-term and localized	Long-term regional beneficial impact due to restorations of natural patterns of sediment movement.
Water Quality	Longer-term and localized	Short-term and localized.
Estuarine Resources Including Essential Fish Habitat	Longer-term and localized	Short-term and localized.
Wetlands	No impact	No impact due to avoidance of non-intertidal areas; no long-term net loss of wetland habitat; work would occur in floodplains but no negative impact to floodplain values, human safety, or capital investment anticipated.
Terrestrial Ecology	No impact	No impact due to the absence of resources in dredge or placement areas. May increase forage and breeding habitat.
Species of Special Concern	No impact	Effects are unlikely due to general absence during dredging.
Cultural Resources	No impact	No impact due to the absence of resources in dredge or placement areas.
Recreational Res/Visitor Experience/Aesthetics	Long-term localized impacts due to loss of access to facilities	Beneficial impact due maintenance of access to facilities
Socioeconomics	Negative	Beneficial

CHAPTER 3 AFFECTED ENVIRONMENT

3.1 Introduction

Chapter 3 describes the affected environment of FIIS in general and provides a description of the three specific project areas on FIIS – Sailors Haven, Talisman/Barrett Beach and Watch Hill. The affected environment description includes the existing conditions for each impact topic analyzed for the project areas and summarizes relevant data and research collected to inform the impact analyses. Where data or information was not available for the individual project areas it is presented for the general area of Fire Island's bayside on GSB. Existing conditions in Chapter 3 are organized by the impact topics retained for analysis as outlined in Chapter 1.

3.2 Geologic Resources and Coastal Processes

3.2.1 Fire Island National Seashore

Fire Island is perpetuated by a combination of littoral drift, onshore bottom currents, wind, inlet formation, tidal delta growth, and overwash. Sand is carried in the littoral drift, which moves in a westerly direction along the ocean beaches of Fire Island. Some of the sand is washed up on the beach, where it dries out and is picked up by wind. If natural processes or human activities do not interrupt the process, a dune eventually forms. Anything that reduces sand in the littoral drift may deprive the dune system of natural enrichment, thus reducing or eliminating the dunes' protection of the land behind them. During hurricanes and other severe storms, onshore winds and waves redistribute large volumes of sand. The ocean may sweep over and between the dunes, carrying sand from offshore deposits, beaches, and dunes to the back of the island, forming terraces and increasing the elevation of backshore lands. Storm tides pushed over the island accumulate in the bay. Where the dunes are weak, the land low, and the island narrow, an inlet may form. If an inlet remains open, a tidal delta eventually develops in the form of shoals behind the inlet.

Inlets, overwash and dune migration deliver sediment from the ocean to the bay where it forms substrate that evolves into tidal flats, marshes and beaches. These sediment inputs allow barrier islands to maintain themselves as they migrate landward under the influence of sea level rise. The creation and migration of inlets in the past extended their influence well beyond locations of present inlets (Nordstrom & Jackson, 2005).

Littoral transport naturally creates a dynamic bay shoreline as well. Sediment transport along the north shore of Fire Island has been disrupted by the presence of marinas and bulkheads (shoreline hardening). Marina basins and vessel channels can act as sediment sinks. In addition, projects such as inlet stabilization, oceanside dune building, and upland development further disrupt natural sediment transport processes. The combined impacts have resulted in a bay system that is sediment starved as well as areas of locally accelerated rates of erosion along the bay shoreline. In recent years, multiple large storms have resulted in significant over washes along the north shore. These new sand deposits create an opportunity to put the transport system back into balance while not contributing to future channel deposits.

3.2.2 Sailors Haven

Currently, littoral drift has resulted in the filling in of the navigation channel and marina at Sailors Haven. The channel has narrowed to a width below the 100 feet considered adequate for safe passage for two-way vessel traffic and depths of less than 6 feet at mean low tide which is considered unacceptable for safe vessel travel. A number of factors have contributed to the erosion along the edge of the Sunken Forest west of Sailors Haven marina as well as along the shoreline east of the marina. As reported in some places, the shoreline in this area is receding by approximately 12-24 inches annually resulting in a continuing loss of upland along the GSB shoreline (Allen, J. R., C. Labash, P. August, and N. Psuty, 2002). In 2011, a small maintenance channel dredging project resulted in the construction of a feeder beach restoration project along the western shoreline of Sailors Haven. A comparison of aerial photographs and project monitoring data indicates that this demonstration project was successful in redistributing the dredged material along the nearshore through natural sediment transport processes and provided short term and localized reduction in the rates of upland erosion along the Sunken Forest shoreline. The forces of Hurricane Sandy followed by several strong winter storms served to redistribute this material back out into GSB. In keeping with the management mandates of FIIS to protect the rare, maritime Sunken Forest resource that is recognized in the Park's formation legislation, the NPS is investigating a future shoreline restoration project on both sides of the marina. No definite plan has been developed at this time.

3.2.3 Talisman/Barrett Beach

Sand accumulation has occurred around the entire dock area. Sand that was previously behind the bulkhead of the marina that formerly existed at this location has spread out around the existing dock. Offshore transport and littoral transport have also contributed to the accumulation of sand around the existing dock. The existing dock has been reduced to a landing dock at the north end of the structure. Instead of using the current dock structure, many boats will moor in the adjacent shallow water areas and boaters will walk through shallow water into the beach area. They acquire access through an old unmarked channel that is largely kept open by frequent boat traffic. In addition, an over wash at the western boundary with Fire Island Pines during Hurricane Sandy created a substantial material deposit where it was released into GSB. Wave action from the Fire Island Pines Ferry is also having an impact to the bay shoreline immediately east of the federal boundary.

3.2.4 Watch Hill

Watch Hill Marina has two main issues related to sand transport. The first is the sanding in of the estimated one-mile long channel that provides access to the marina for the public ferry and other public and private vessels. The channel is well below the standard of 100 feet of channel width for safe two-way vessel traffic, and the 6 feet of depth at mean low tide considered being the safe level at low tide to accommodate all the vessels that need to use the channel. This condition becomes a critical issue during summer weekends when boat traffic is at its peak. The lowered capacity of the navigation channels has also increased the potential for property damage to NPS, law enforcement, emergency, and concessionaire vessels (see Chapter 4). The second issue is that sand behind and above bulkheads has washed out and needs to be replenished for

stabilization of the structure and for public safety. Dredging is also needed in the marina basin especially near the entrance channel and the docking area for larger boats.

3.3 Water Quality

3.3.1 Fire Island National Seashore

GSB is approximately 27 miles long with a maximum width of about 6 miles. The Bay is shallow, with an average depth at mean low water of just over 4 feet. The water quality of the GSB is influenced by tidal mixing, vertical mixing, bottom scouring and sediment suspension, primarily caused by currents, wave action and other physical forces. Long-term water quality in the general open waters of GSB has been adversely affected by land use activities and by inflow from tributaries along the southern shore of Long Island.

Several local factors affect the water quality at the three dredge sites. Boat traffic creates turbidity in the shallow waters of the GSB and the direct areas around the marinas and docks. Boats may illegally discharge sewage. FIIS marinas include sewage pumpout stations, but not all marinas on GSB have such facilities. Boats are also a potential source of hydrocarbons. Other potential threats include dredging, sedimentation and anything that reduces light penetration. Dredging has the capacity to impact turbidity and water clarity, however, water quality data is limited for the marinas and channels for the three dredge locations (Coastal Research Center, 2011).

3.3.2 Sailors Haven

Sailors Haven Marina is in a more exposed location and so it experiences greater circulation and flushing than Watch Hill. Much of the protection from waves is provided by human-made structures. Because of the increased circulation/flushing, overall water quality at Sailors Haven can be expected to be better than at Watch Hill. No site-specific turbidity data was found for the Sailors Haven area.

3.3.3 Talisman/Barrett Beach

Talisman/Barrett Beach is an open area on South Bay and therefore, constraints to water circulation are limited to the buildup of sand in the area of the dock. Little local water quality data, including data on turbidity, is available for Talisman/Barrett Beach, and the data that was located was for fecal coliform levels, which are not applicable to this project.

3.3.4 Watch Hill

Watch Hill Marina is located in a former salt marsh which was dredged to provide a protected harbor. Because of its configuration, circulation and flushing within the marina is poor and it functions as a settling basin for large amounts of organic materials deposited from the surrounding marsh and estuary. Poor water quality, manifested by high bacterial levels, is a recurring problem at the Watch Hill Marina. The reasons for the high bacterial levels have not been documented. A boat septic pump-out station is available at Watch Hill.

3.4 Estuarine Resources Including Essential Fish Habitat

3.4.1 Fire Island National Seashore

Habitat

Great South Bay is the largest shallow saltwater bay in New York State. Much of the bay is open water, but as the bay narrows at its western end near the Captree Bridge, open water merges into an extensive series of tidal salt marshes, salt marsh islands, and intertidal mudflats. These marshes and flats have developed on the protected northern edge of the barrier beach that shelters Great South Bay and the mainland from the Atlantic Ocean. Extensive tidal marshes and flats have developed on the bay side of Fire Island as well, primarily in the west end of the bay and outside of the project area. Eelgrass beds are concentrated in the shallow waters along the back side of Fire Island, especially at the western end, north and east of East and West Fire Island and north of Captree and Cedar Island. Cord grasses (*Spartina alterniflora* and *S. patens*) dominate the salt marshes. Common reed (*Phragmites australis*) borders portions of the high marsh, grading to dense thickets of bayberry (*Myrica pensylvanica*) and poison ivy (*Toxicodendron radicans*) in drier areas.

Fisheries

The shallow waters of Great South Bay are a highly productive and regionally significant habitat for marine finfish, shellfish and wildlife. This productivity is due to the many saltmarshes and mud flats fringing both the mainland and the barrier islands, to the estuarine habitats around stream and river outlets on the mainland and to the sandy shoals and extensive eel grass (*Zostera marina*) beds which characterize open-water areas of the bay. As a result, Great South Bay has a commercial and recreational fishery of regional importance, affording essential habitat to many economically valuable finfish species that are estuarine-dependent during at least one stage in their life histories. Spawning and nursery grounds for weakfish (*Cynoscion regalis*), winter (*Pseudopleuronectes americanus*) and summer flounder (*Paralichthys dentatus*) and blackfish (*Tautoga onitis*) are present in the bay. Great South Bay is also a significant nursery area for young-of-the-year and 2nd year Hudson River striped bass (*Morone saxatilis*), for one and two year-old ocean-spawned bluefish (*Pomatomus saltatrix*) as well as supporting striped bass from older age classes during the summer. Adult striped bass and bluefish congregate in the deeper waters of Fire Island Inlet. Atlantic sturgeon (*Acipenser oxyrinchus*) and American shad (*Alosa sapidissima*) and dozens of other species use the bay during migration. Forage fish such as killifish (*Fundulus* spp.), bay anchovy (*Anchoa mitchilli*) and Atlantic silverside (*Menidia menidia*) spawn in edge habitat around tidal marshes and islands. The bay also supports an economically significant shellfishery for hard-shelled clams (*Mercenaria mercenaria*) and is a major spawning, nursery and feeding area for blue crab (*Callinectes sapidus*).

Benthos

Submerged aquatic vegetation beds provide spawning and foraging habitat for mollusks, crustaceans, juvenile fish and diving ducks. A number of benthic habitats make up the bay bottom; the dominant eelgrass community is one that has been most extensively studied. Benthic habitat in Great South Bay can be classified as muddy sandflat and sandflat habitats. Dominant benthic species that are found in both habitats include polychaetes such as yellow-jawed clam worm (*Nereis succinea*), orbinid worm (*Haploscoloplos fragilis*), opal worm (*Lumbrineris*

brevipes), and thread worm (*L. tenuis*), and the bivalves northern dwarf-tellin (*Tellina agilis*) and Atlantic awningclam (*Solemya velum*), amphipods *Lysianopsis alba* and *Paraphoxus spinosus*, and the isopod *Idotea balthica*. Sandy bottom types characteristically contain populations of polychaetes (*Platynereis dumerillii*), feather-duster worm (*Sabella microphthalma*), opal worm (*Arabella iricolor*), and common bamboo worm (*Clymenella torquata*), bivalves such as northern quahog (*Mercenaria mercenaria*), Morton egg cockle (*Laevicardium mortuni*), slipper shell (*Crepidula fornicata*), and blue mussel (*Mytilus edulis*), and mud crab (*Dyspanapeus sayi*). Muddy sandflats are dominated by polychaetes of the genus *Harmothoe* and the bivalve amethyst gemclam (*Gemma gemma*). Atlantic oyster drill (*Urosalpinx cinerea*), a predator of bivalves, is abundant in eelgrass beds in Bellport Bay, and rock crab (*Cancer irroratus*) occurs in the higher salinity areas of Islip, South Oyster Bay, and Hempstead. The distribution and abundance of benthic species in the bay's eelgrass community is likely controlled by a number of factors that include eelgrass stem density, water temperature and salinity, sediment type, predation, food supply, and human harvest.

Essential Fish Habitat

Great South Bay is an area designated as essential fish habitat (EFH) for certain species. EFH is broadly defined to include “those waters and substrate necessary to fish for spawning, breeding or growth to maturity.” Under the 1996 amendments to the Magnuson-Stevens Act, the National Oceanic and Atmospheric Administration’s (NOAA) National Marine Fisheries Service (NMFS) is responsible for protecting EFH and must coordinate with other federal agencies, including NPS, to conserve and enhance EFH. NPS consulted with NMFS during preparation of this EA, and Appendix A contains correspondence from NMFS regarding the project.

The areas of Great South Bay around Sailors Haven, Talisman/Barrett Beach and Watch Hill are located in two 10-minute by 10-minute latitude and longitude areas (grids) designated by NMFS (West grid:4040730, East grid:40407250), and NMFS lists species and life stages for which EFH may occur in these areas. NMFS also provides a similar list of species for Great South Bay as a whole (a total of 13 10x10 grids). These listings provide an initial screening tool of species and their life stages that should be considered when evaluating potential impacts to EFH.

The following table is a compilation all of the species listed for the two 10x10 grids and the life stages for each of the species known to occur. Some of the species only occur in the saline water zone in Great South Bay which includes the Sailors Haven dredging location. Some species occur in both the saline zone and in the freshwater and saltwater mixing zone. The Talisman/Barrett Beach and Watch Hill dredging areas are located in the mixing zone. Seasonal occurrences of each species/life stages are also listed in Table 3-1 as are habitat requirements that will affect whether or not species may be present during the proposed dredging.

Table 3-1
EFH Listings for 2 Grids and for Great South Bay Estuary

<i>E=Eggs, L=Larvae, J=Juveniles, A=Adults</i>				
	West Grid	East Grid		
	4040730	40407250		
Species			Species Description - GSB¹ Presence	Timing of Presence/Habitat Suitability
Atlantic Salmon	A	A	saline - SH ¹ site possible	possible during dredging, but unlikely
Pollock	J	J	saline ² - SH site possible	juveniles present when temp <18°C
Whiting		E, L, J	not present in GSB	N/A
Red Hake		J	not present in GSB	N/A
Winter Flounder	E,L, J, A	E,L, J, A	saline and mixing - all 3 sites	L & A temps <25°C, E&L present Feb. and March
Windowpane Flounder	E,L, J, A	E,L, J, A	saline and mixing - all 3 sites	similar to winter flounder above
Atlantic Sea Herring	J, A	J, A	saline - SH site possible	N/A, too shallow; J:15-135m, A:20-130m
Bluefish	J, A	J, A	saline - SH site possible	N/A, J&A June-October
Long Finned Squid		J	offshore, not estuarine	N/A
Atlantic Butterfish	E,L, J, A	E,L, J, A	saline and mixing - all 3 sites	too shallow and cold: L,J&A:>33 feet, eggs 52-63° F
Atlantic Mackerel	E,L, J, A	E,L, J, A	saline and mixing - all 3 sites	J&A only, E earlier and float, too shallow for L
Summer Flounder	J, A	E,L, J, A	saline and mixing - all 3 sites	J possible if temp >39°F
Scup	J, A	J, A	saline and mixing - all 3 sites	not during dredging period
Black Sea Bass	A	J, A	saline and mixing - all 3 sites	not during dredging period
King Mackerel	E,L, J, A	E,L, J, A	saline and mixing - all 3 sites	N/A barrier island oceanside
Spanish Mackerel	E,L, J, A	E,L, J, A	saline and mixing - all 3 sites	barrier island oceanside
Cobia	E,L, J, A	E,L, J, A	saline and mixing - all 3 sites	barrier island oceanside
Sand Tiger Shark	L	L	coastal, not estuarine	N/A
Blue Shark	A	L,A	coastal, not estuarine	N/A
Dusky Shark	L	L,J	coastal, not estuarine	N/A
Sandbar Shark	L,J,A	L,J,A	coastal, not estuarine	N/A
Tiger Shark		L,J	coastal, not estuarine	N/A
Skipjack Tuna	A	A	offshore/pelagic	N/A
Bluefin Tuna		J, A	offshore/pelagic	N/A
Little Skate	J, A	J, A	saline only - SH possible	GSB seasonal use not specified (USFWS)
Winter Skate	J, A?	J, A?	saline only - SH possible	GSB seasonal use not specified (USFWS)
¹ SH=Sailors Haven, GSB = Great South Bay				
² Sailors Haven is near the border of the seawater and the mixing zones, Watch Hill and Barrett Beach are in the mixing zone.				

In addition to the species listed above and discussed below, eel grass is designated as a habitat area of particular concern (HAPC) for summer flounder (and a special consideration under EFH) and otherwise plays an important role for early life history and nursery activities for many species. As discussed above in section 3.4.1, eelgrass beds are concentrated in the shallow waters along the back side of Fire Island, especially at the western end, north and east of East and West Fire Islands and north of Captree and Cedar Island which are some distance from the areas to be affected. Eelgrass is not known to exist in the areas proposed for dredging at Sailors Haven or Talisman/Barrett Beach, either in the areas to be dredged or within any plume that may be generated during dredging. Submerged aquatic vegetation (SAV) is mapped in the vicinity of the WH channel, however, currently available data and mapping does not differentiate areas of the HAPC eelgrass within the SAV assemblage of species. The channel is shown as not having SAV (NOAA/NYS DOS, 2003). For the purpose of this assessment it is assumed that eelgrass may be part of the SAV assemblage that is mapped on either side of the Watch Hill channel.

The following is a brief description of species' potential to be present in the dredging areas during the period when dredging may be occurring. The time period for dredging Sailors Haven and Watch Hill will be December 2013 through February 2014 and possibly extending out until April 1, 2014. Dredging at Talisman/Barrett Beach will occur between October 1 and December 15. Species which may be affected during these time periods are in **bold** below.

Atlantic Salmon (*Salmo salar*)

The Great South Bay listing for EFH lists saline habitats for adult salmon, therefore adults may possibly be present at the Sailors Haven location during the time of dredging but the probability is low.

Pollock (*Pollachius virens*)

Juveniles are known to occur in saline habitats in Great South Bay, and suitable temperature (<18° C), depths (0-250m), and salinity (28-32%) would indicate that juvenile Pollock could be in the vicinity of Sailors Haven during the time of dredging.

Whiting (*Merluccius bilinearis*)

This species is listed as occurring in the eastern grid, but is not on the EFH list for Great South Bay species. This is because part the eastern grid is Atlantic Ocean waters. This means that whiting occurs in the ocean waters and not in Great South Bay.

Red Hake (*Urophycis chuss*)

The status of red hake is the same as that for Whiting.

Winter Flounder (*Pseudopleuronectes americanus*)

Eggs, larvae, juvenile and adults all occur in both grids in the saline zone and in the mixing zone. Juveniles and adults will be present when water temperatures are less than 25° C. Spawning adults are present from February to December with peak activity occurring in May. Eggs are reported as being present from February to June with peaks reported in April and May on Georges Bank. Larvae are often observed from March to July with peaks in April and May reported for Georges Bank. Dredging for Sailors Haven and Watch Hill from December through February will be occurring when juveniles and adults may be present as well as the earliest

spawning adults and eggs. All of these life stages, as well as some early juveniles may be present if dredging extends into March. Peaks of eggs and larvae will occur after the extended dredging period, should it occur. For the Talisman/Barrett Beach dredging period of October through December, it is only the adult and juvenile life stages that could be affected.

Windowpane Flounder (*Scophthalmus aquosus*)

Occurrences will be similar to winter flounder discussed above, and eggs, larvae, juvenile and adults all occur in both grids in the saline zone and in the mixing zone. Eggs and larvae are reported as being present from February to November with peaks in May and October. Therefore, eggs and larvae could be present towards the end of the anticipated December to February and possibly extended December through March period for the dredging of Sailors Haven and Watch Hill, but not during peak times. The October to December anticipated dredge schedule for Talisman/Barrett Beach coincides with the October peak of eggs and larvae. Juveniles and adults are likely to be present at all three periods during the dredging periods since juveniles and adults will occur when water temperatures are below 25° C and 26.8° C, respectively.

Atlantic Sea Herring (*Clupea harengus*)

Juveniles and adults are reported in the saline zone, but waters in and around the dredging areas are too shallow to provide suitable habitat. Juveniles typically occur at depths of 15 to 135 meters while adults prefer depths of 20 to 130 meters.

Bluefish (*Pomatomus salatrix*)

Juveniles and adults occur in the saline zone generally from June to October. This is outside of the timeframe for the proposed dredging at Sailors Harbor, the only one of the three sites in the saline zone.

Long-finned squid (*Loligo pealei*)

This is a pelagic species that does not occur in Great South Bay. See whiting above.

Atlantic Butterfish (*Peprilus triacanthus*)

All four life stages are listed for both grids. Water depths in the areas to be dredged are too shallow for larvae, juvenile and adults which prefer water depths greater than 33 feet. Eggs are typically found from shore to 600 feet and at temperatures between 52 and 63° F.

Atlantic Mackerel (*Scomber scombus*)

All four life stages are listed as occurring in saline habitats in Great South Bay. Eggs are floating and not deposited in bottom sediments, and larvae prefer water depths of 33 to 425 feet. Juveniles and adults may occur in the area of Sailors Haven when water temperatures are above 39° F.

Summer Flounder (*Paralichthys dentatus*)

Eggs and larvae are pelagic and do not occur in Great South Bay. Juveniles may be present at all three locations if water temperatures are still above 37° F at the time of dredging. Adults are only present in Great South Bay during the warmer months and would not be present when dredging occurs.

Scup (*Stenotomus chrysops*)

Juveniles and adults are listed for both grids, but scup occurrence in Great South Bay is limited to saline areas in the spring and summer months.

Black Sea Bass (*Centropristus striata*)

Adults are reported to occur in saline habitats in Great South Bay and typically occupy estuarine habitats from May to October, which is outside the timeframe when dredging will occur at Sailors Harbor.

The following species are listed as occurring in one or both grids, but are either barrier island oceanside or coastal not estuarine species; king mackerel, Spanish mackerel, cobia, sand tiger shark, blue shark, dusky shark, sandbar shark, tiger shark, skipjack tuna and Bluefin tuna.

Two skate species, **Little Skate** (*Leucoraja erinaceae*) and **Winter Skate** (*Leucoraja ocellata*) may occur in the saline zone of Great South Bay which includes the Sailors Haven Dredge site. Juvenile and/or adults may be present, but it is uncertain if they could be in the area during dredging operations because seasonal use patterns of estuaries is not well known (USFWS, 1986). For the purpose of the assessment, it was conservatively assumed that juveniles and adults of both species could possibly be present in and around the Sailors Haven dredging area.

3.4.2 Sailors Haven

A survey of benthic communities at Sailors Haven was conducted in 2002 by EEA, Inc. documented the occurrence of benthic macroinvertebrates representing 11 taxa. Species diversity was greater at Sailors Haven than at other sites. Annelid worms dominated the benthic community, with approximately 3,500 individuals per square meter of bottom. Arthropods and nematodes also occurred at high densities (1,500 and 750 individuals per square meter, respectively). Flatworms and mollusks were observed in lower densities.

3.4.3 Talisman/Barrett Beach

No site-specific information beyond that discussed above was found for the Talisman/Barrett Beach dredging site.

3.4.4 Watch Hill

No site-specific information beyond that discussed above was found for the Watch Hill dredging site.

3.5 Wetlands

3.5.1 Fire Island National Seashore

Based on National Wetlands Inventory (NWI) mapping, there are two wetland types in the project area. NWI wetland classifications are based on the system developed for the USFWS. Most of the marina channel is classified as estuarine, subtidal, unconsolidated bottom

permanently flooded (E1UBL). The shoreline stabilization areas east and west of the channel are classified as estuarine intertidal, irregularly exposed (E2USM). Under NPS criteria, unvegetated tidally influenced beaches, are considered wetlands, while permanently inundated areas, such as the marina channel are considered deepwater habitats. Both of these areas would be regulated under NYSDEC tidal wetland regulations, which would consider unvegetated tidally influenced areas (i.e., beaches) as “coastal shoals, bars or mudflats,” and areas permanently inundated (to a depth of 6 feet mean low water) as “littoral zone” wetlands.

Although sandy beaches do not meet the USACOE definition of a jurisdictional wetland, all beach areas below the high tide line are considered jurisdictional waters of the U.S. Permanently flooded marine habitats in the project area would also be considered jurisdictional waters. These areas would be subject to the USACOE regulatory program under the Clean Water Act of 1972, as amended, and the rivers and Harbors Act of 1899, as amended. Because the project will not impact wetlands, a Wetlands Statement of Findings (WSOF) will not be required. See Section 5.4.

Wetland Delineation – Non-intertidal Areas

Wetland field delineations were conducted in the upland areas of potential affect (APE) on July 9 through July 11, 2013. Wetlands were delineated by collecting GPS locations at the outermost boundary of each wetland using the methods set forth in the 1987 Corps of Engineers Wetland Delineation Manual for vegetated wetlands, and wetlands were classified according to the USFWS’s (Cowardin et. al., 1979) classification system of wetlands.

Prior to the wetland field surveys, information on potential wetland occurrences was collected, including the National Wetland Inventory (NWI) maps and New York State Department of Environmental Conservation (NYSDEC) regulated wetland mapping (Figures 3-1, 3-2, 3-3, 3-4, 3-5, 3-6) for each of the three sites, and existing soils mapping for Watch Hill (Figure 3-7). According to the National Resource Conservation Service (NRCS), there are no hydric soils at the Talisman/Barrett Beach and Sailors Haven sites.

Ten palustrine wetlands totaling 14.83 acres were delineated at the three sites. This is an approximate acreage due to the large size of three of the five wetlands delineated at the Watch Hill site. These three wetlands (WD-AA, WD-AB, and WD-AC) are defined by a closure line along certain boundaries of the wetland polygon. One boundary is depicted without a closure line indicating that the wetland extends beyond the map scale necessary for this project. Four wetlands were delineated at the Sailor’s Haven site totaling 0.32 acres (Figure 3-8), one wetland (1.18 acres) was delineated at the Talisman Beach site (Figure 3-9), and five of the ten wetlands were delineated at the Watch Hill site, totaling 13.33 acres (Figure 3-10).

Of the total area delineated, two wetlands could have been impacted by the project, WD-AE and WD-AD, located at the Watch Hill site. A number of dredge material stockpile/placement locations were preliminarily identified prior to the wetland delineation. During the wetland delineation it was determined that two of these preliminary candidate locations contained wetlands, so these two locations were removed from consideration as possible stockpile/placement areas.



Survey Area
 NWI Wetland

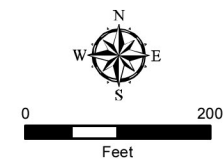


Figure 3-1
 Sailor's Haven NWI Wetlands
 Fire Island National Seashore, Dredge
 Sailors Haven, Talisman/Barrett
 Beach and Watch Hill Channels and
 Marinas for Public Use and Safety,
 PMIS 201444A

Source: Microsoft Virtual Earth, 2011; USFWS, 2010



- Survey Area
- Wetland Closure Line
- Field Deinated Wetland

Tidal Wetlands (NYSDEC)

- IM - Intertidal Marsh
- LZ - Littoral Zone
- SM - Coastal Shoals, Bars and Mudflats

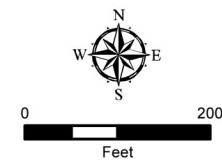


Figure 3-2
 Sailor's Haven NYSDEC Wetlands
 Fire Island National Seashore, Dredge
 Sailors Haven, Talisman/Barrett
 Beach and Watch Hill Channels and
 Marinas for Public Use and Safety,
 PMIS 201444A

Source: Microsoft Virtual Earth, 2011; NYSDEC, 2005



— Survey Area
 [Green Hatched Box] NWI Wetland

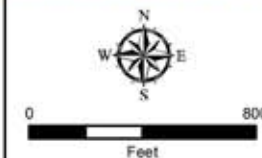


Figure 3-3
 Talisman NWI Wetlands
 Fire Island National Seashore, Dredge
 Sailors Haven, Talisman/Barrett
 Beach and Watch Hill Channels and
 Marinas for Public Use and Safety,
 PMIS 201444A

Source: Microsoft Virtual Earth, 2011; USFWS, 2010





— Survey Area
 NWI Wetland

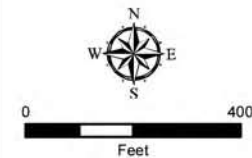
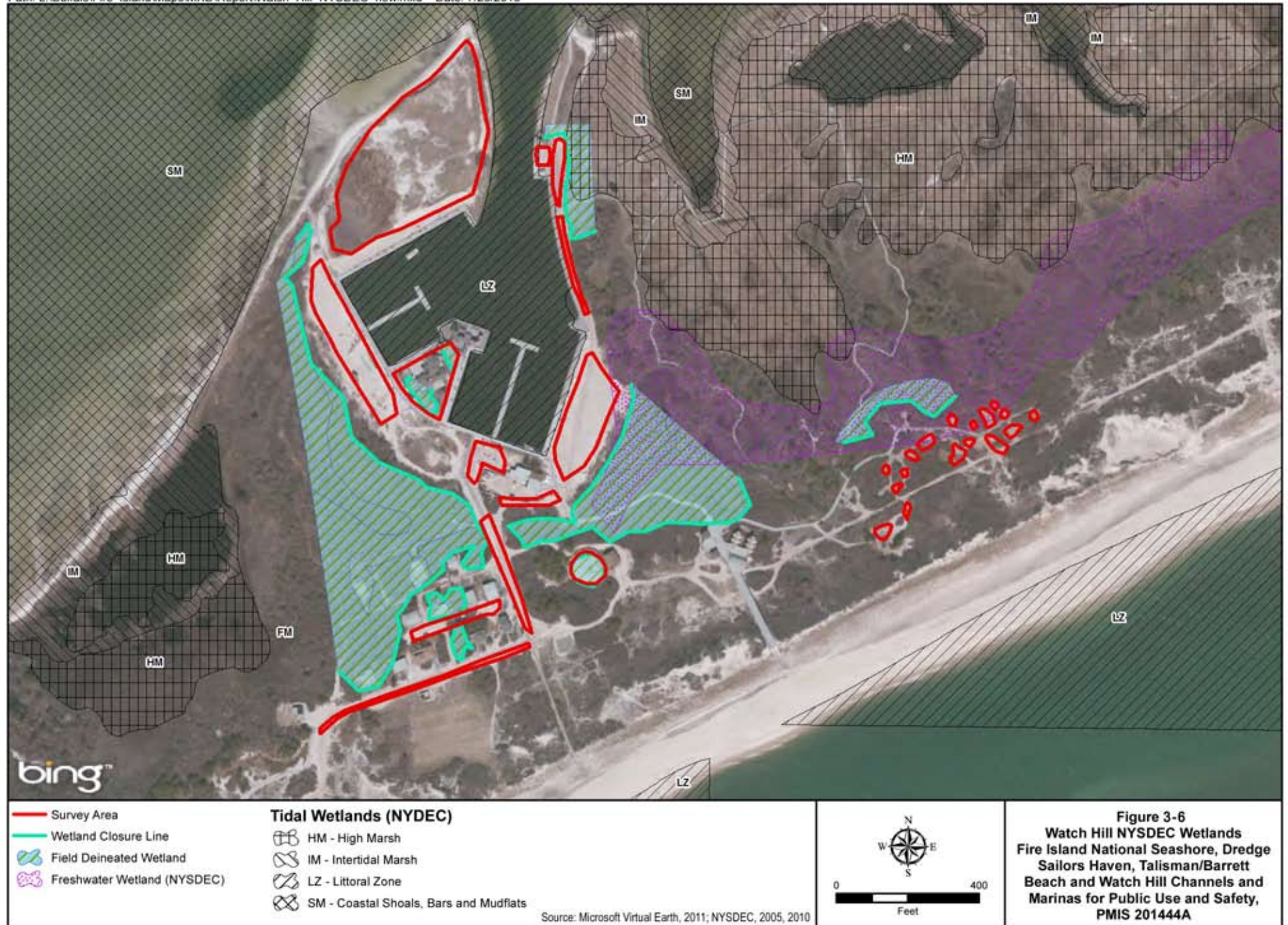


Figure 3-5
 Watch Hill NWI Wetlands
 Fire Island National Seashore, Dredge
 Sailors Haven, Talisman/Barrett
 Beach and Watch Hill Channels and
 Marinas for Public Use and Safety,
 PMIS 201444A

Source: Microsoft Virtual Earth, 2011; USFWS, 2010







bing

- Survey Area
- Wetland Closure Line
- ▨ Field Delineated Wetland
- Upland Data Point
- Wetland Data Point

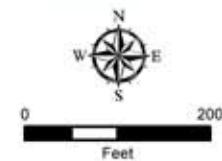


Figure 3-8
 Sailor's Haven Field Delineated Wetlands
 Fire Island National Seashore, Dredge
 Sailors Haven, Talisman/Barrett
 Beach and Watch Hill Channels and
 Marinas for Public Use and Safety,
 PMIS 201444A

Source: Microsoft Virtual Earth 2011



- | | |
|--|--|
|  Survey Area |  Upland Data Point |
|  Wetland Closure Line |  Wetland Data Point |
|  Field Delineated Wetland | |

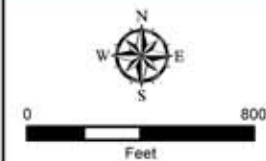
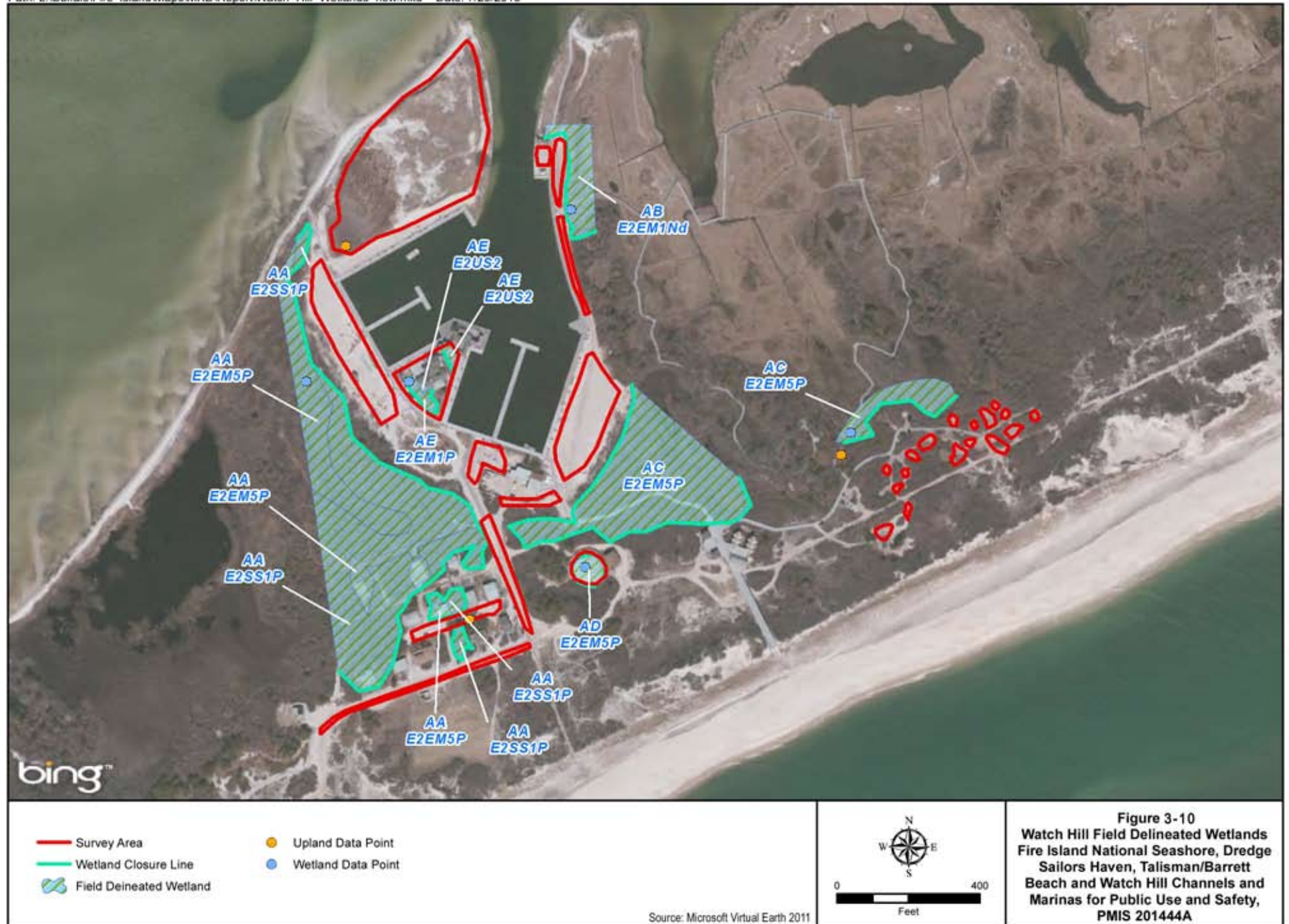


Figure 3-9
 Talisman Field Delineated Wetlands
 Fire Island National Seashore, Dredge
 Sailors Haven, Talisman/Barrett
 Beach and Watch Hill Channels and
 Marinas for Public Use and Safety,
 PMIS 201444A

Source: Microsoft Virtual Earth 2011



Figures 2-4, 2-5, and 2-6 indicate the proposed areas with stockpiled dredge materials that fall within the 100-foot freshwater and 300-foot tidal NYSDEC wetland buffers. These proposed areas may require a NYSDEC adjacent area permit as a part of the joint NYSDEC/USACOE application process.

Intertidal Areas

The Federal Highway Administration conducted topographic and hydrographic field surveys in August of 2013 to determine elevations in the area of potential dredge material shoreline placement. From the survey results, current mean higher high water (MHHW) and mean lower low water (MLLW) lines were interpolated based on datum conversions provided by NOAA's Vertical Datum Transformation Tool (VDATUM 3.2). The intertidal areas within the potential dredged material shoreline placement sites were then calculated as the area between the MLLW and MHHW lines. The results are as follows:

- Talisman/Barrett Beach West (Figure 3-11) – 1.36 acres.
- Talisman/Barrett Beach East (Figure 3-12) – 0.50 acres.
- Sailors Haven West (Figure 3-13) – 0.51 acres.
- Sailors Haven East (Figure 3-14) – 0.39 acres.

The intertidal areas proposed for dredge material placement along Great South Bay are predominately composed of sand (diameter between 0.075 and 4.0 millimeters), with low percentages of silt and gravel (USACE, 2005), and can be classified as sandy unconsolidated shore (E2US2). They are protected from the more severe wave action on the Atlantic side of Fire Island, but benthic organisms inhabiting this littoral zone must still be adapted to significant fluctuations in moisture (including exposure to air), salinity, wave energy and sediment perturbations. Therefore, the shoreline intertidal zone is typically populated by a relatively low diversity of benthic organisms that are better adapted to disturbances than perpetually submerged areas (Greene, 2002). For example, taxonomic richness was approximately twice as great at low-tide sampling areas around Fire Island than at the mid, high and wrack-line sampling locations (USACE, 2005). Further, greater numbers of benthic organisms were generally found on the bay side of Fire Island compared to the Atlantic side (USACE, 2005). This suggests that the higher-energy shoreline intertidal zones support lower diversity of benthic organisms. However, there is a strong seasonal influence. The total number of organisms at sampling stations on the bay side declined approximately three-fold from spring to fall while, in contrast, the number of organisms at ocean-side stations was several times greater in the fall than in the spring. *Oligochaeta* (segmented worms) was the dominant taxon in the intertidal zone of Fire Island facing the Great South Bay in 2005, followed by the phylum *Nematoda* (roundworms) (USACE, 2005).

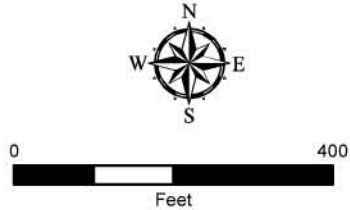
Shoreline intertidal benthic organisms provide valuable functions for the marine ecosystem of Fire Island, including nutrient processing (Dugan et al., 2011), enhancing substrate cohesion (Murray et al., 2002) and serving as a food source for higher trophic organisms such as shorebirds and juvenile fish (Dallas et al., 2012, Wilber et al., 2003).



- Survey Area
- Mean High Water
- Mean Low Water

Note: MLLW and MHHW elevations were calculated from 2013 topographic and hydrographic survey data using the NOAA vertical datum transformation tool (VDatum 3.2).
MHHW = .2125 NAVD88; MLLW = -0.2050 NAVD88

Source: Federal Highway Administration 2013
Service Layer Credits: Image courtesy of USGS © 2013



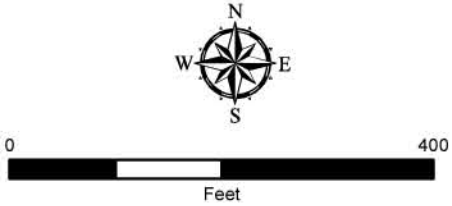
**Figure 3-11 - West
Intertidal Wetland - Talisman/Barrett Beach
Fire Island National Seashore, Dredge
Sailors Haven, Talisman/Barrett
Beach and Watch Hill Channels and
Marinas for Public Use and Safety,
PMIS 201444A**



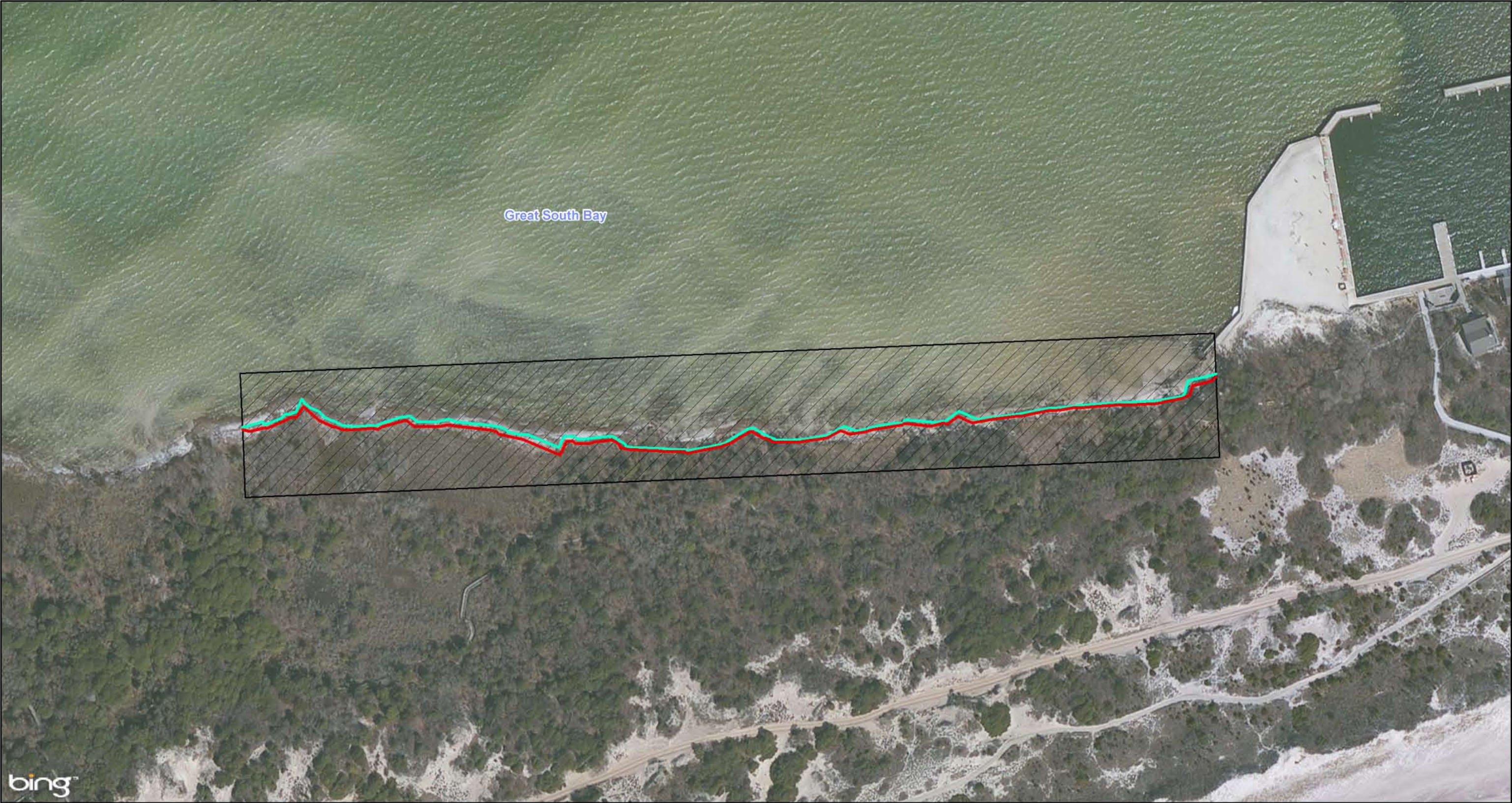
- Survey Area
- Mean High Water
- Mean Low Water

Note: MLLW and MHHW elevations were calculated from 2013 topographic and hydrographic survey data using the NOAA vertical datum transformation tool (VDatum 3.2).
MHHW = .2125 NAVD88; MLLW = -0.2050 NAVD88

Source: Federal Highway Administration 2013
Service Layer Credits: © 2013 Microsoft Corporation



**Figure 3-12- East
Intertidal Wetland - Talisman/Barrett Beach
Fire Island National Seashore, Dredge
Sailors Haven, Talisman/Barrett
Beach and Watch Hill Channels and
Marinas for Public Use and Safety,
PMIS 201444A**



- Survey Area
- Mean High Water
- Mean Low Water

Note: MLLW and MHHW elevations were calculated from 2013 topographic and hydrographic survey data using the NOAA vertical datum transformation tool (VDatum 3.2).
MHHW = .2908 NAVD88; MLLW = -0.1910 NAVD88

Source: Federal Highway Administration 2013
Service Layer Credits: © 2013 Microsoft Corporation

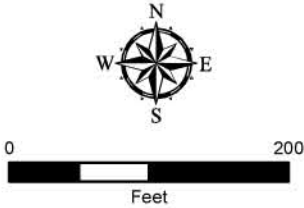


Figure 3-13- West
Intertidal Wetland - Sailors Haven
Fire Island National Seashore, Dredge
Sailors Haven, Talisman/Barrett
Beach and Watch Hill Channels and
Marinas for Public Use and Safety,
PMIS 201444A



- Survey Area
- Mean High Water
- Mean Low Water

Note: MLLW and MHHW elevations were calculated from 2013 topographic and hydrographic survey data using the NOAA vertical datum transformation tool (VDatum 3.2).
MHHW = .2908 NAVD88; MLLW = -0.1910 NAVD88

Source: Federal Highway Administration 2013
Service Layer Credits: © 2013 Microsoft Corporation

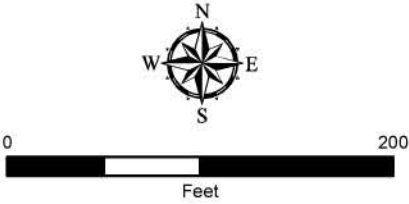


Figure 3-14- East
Intertidal Wetland - Sailors Haven
Fire Island National Seashore, Dredge
Sailors Haven, Talisman/Barrett
Beach and Watch Hill Channels and
Marinas for Public Use and Safety,
PMIS 201444A

3.5.2 Sailors Haven

Four wetland areas were delineated at Sailors Haven. Wetland WD-AG (0.11 acres) is classified as a NWI wetland, PFO1F, and is primarily covered in scrub/shrub habitat. Dominant vegetation is *Baccharis halimifolia*.

Wetland WD-AH (0.02 acres), wetland WD-AI (0.07 acres) and wetland WD-AJ (0.12 acres) are all isolated with no defined channel connecting the wetlands to the bay. These wetlands are located in concave depressions and impounded by a dune on the bay side by an upland bank along the boardwalk. The wetlands are dominated by *Phragmites australis* and *Baccharis halimifolia*.

3.5.3 Talisman/Barrett Beach

Wetland WD-AF (1.18 acres), which is classified as an NWI wetland (E2SS1P- Marsh), is located in a concave depression impounded by a dune on the bay side and upland bank along sand roads that provide access to the NPS maintenance facility. This wetland is adjacent to but not within the northeastern tip of one of the four proposed areas designated as potential sites for dredged material placement. Dominant vegetation is *Phragmites australis* and *Baccharis halimifolia*.

3.5.4 Watch Hill

The following are descriptions of the five (5) wetland areas delineated at the Watch Hill site. Wetland WD-AA (5.61 acres) is an emergent/scrub shrub tidal marsh classified as NWI wetland (E2SS1P) with a hydrologic connection to Great South Bay and dominant vegetation includes *Phragmites australis*, *Persicaria hydropiperoides*, *Juncus gerardii* and *Schoenoplectus pungens*. This wetland borders the toe slope of a scrub/shrub bank located on the west side of the Watch Hill marina complex. The south side of this wetland is bordered by sand driveways, ground level boardwalks and a NPS housing complex.

Wetland WD-AB (0.57 acres) is a tidal marsh classified as a NWI wetland (E2EM1Nd), with a hydrologic connection to Great South Bay and dominant vegetation includes *Spartina alterniflora* and *Phragmites australis*. This wetland borders the east side of a sand driveway and elevated boardwalk located on the east side of the channel accessing Great South Bay.

Wetland WD-AC (6.77 acres) is an area is classified as a NWI wetland (E2SS1P), with a hydrologic connection to the emergent tidal marsh identified as WD-AB. This wetland borders the east and west side of a forested secondary dune, the north side of the Watch Hill camp sites and the north side of an elevated boardwalk and bathhouse. The portion of this wetland located on the west side of the dune flows northeast in a defined perennial channel located at the north end of the dune into the tidal marsh located on the northeast side of the dune. Dominant vegetation includes *Myrica pensylvanica*, *Phragmites australis*, *Carex scoparia*, and *Rosa virginiana*.

Wetland WD-AD (0.15 acres) is isolated and disturbed wetland, located off of the beach behind the sand dunes, and was a former paddock currently surrounded by a berm and sand driveway. It

has a shallow water table and is covered in *Juncus roemerianus*, *Morella pensylvanica*, and *Schoenoplectus pungens*.

Wetland WD-AE (0.23 acres) drains into a defined channel that flows west into the harbor. It is located under an elevated, mixed-use building. Vegetation includes *Schoenoplectus pungens* and grows primarily where the area is exposed to sun around the pilings and on the perimeter of the building. The area under the building has saturated hydric soil and no vegetation due to the shade.

3.5.5 Wetland Functions and Values

This section provides a listing of the general functions and values of the wetlands in the Project area based on the USACE *Highway Methodology Workbook for Wetland Functions and Values: A Descriptive Approach 1999*. The 13 functions and values that are considered are listed below.

1. Ground Water Recharge/Discharge
2. Floodflow Alteration
3. Fish and Shellfish Habitat
4. Sediment/Toxicant/Pathogen Retention
5. Nutrient Removal/Retention/Transformation
6. Production Export
7. Sediment/Shoreline Stabilization
8. Wildlife Habitat
9. Recreation
10. Educational/Scientific Value
11. Uniqueness/Heritage
12. Visual Quality/Aesthetics
13. Threatened or Endangered Species Habitat

Evaluation of Wetland Functions

Groundwater Recharge/Discharge. This function considers the potential for a wetland to serve as a groundwater recharge/discharge area. There is one large freshwater NYSDEC wetland present at the Watch Hill site, however, all other delineated wetlands are tidal marsh wetlands. Therefore the surveyed wetlands serve as groundwater discharge areas. Freshwater may discharge into the wetlands which ultimately lowers the salinity.

Floodflow Alteration. This function considers the effectiveness of a wetland in reducing flood damage by water retention for prolonged periods following precipitation events. All ten of the wetlands are estuarine wetlands which typically protect the coastline from erosion and flooding and therefore serve as a buffer to the upland dunes and infrastructure. These wetlands are important features in a landscape during storm surge events.

Fish and Shellfish Habitat. This function considers the effectiveness of seasonal watercourses or permanent waterbodies associated with wetlands for fish habitat. All of the delineated wetlands, except for wetland AB and the intertidal wetlands along the shoreline are too dry to

support fish and shellfish habitat. A portion of AB has a direct connection to the bay, is tidally influenced and therefore regularly flooded. This wetland provides habitat for some species of fish and shellfish, along with the intertidal wetlands.

Sediment/Toxicant/Pathogen Retention. This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediment, toxicants, or pathogens in runoff from surrounding uplands before it is discharged into the bay or ocean. Areas surrounding the delineated wetlands throughout the Project area do not experience much human-induced runoff. There is no agriculture, silviculture, urban and rural development within the Project area across the three sites.

Nutrient Removal/Retention/Transformation. This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands, and the ability of the wetland to process these nutrients into other forms or trophic levels. This function is not applicable to the Project area because significant anthropogenic sources of nutrient runoff are not present at the three sites. However, the shoreline intertidal wetlands do contribute to the processing of nutrients present in waters of GSB.

Production Export. This function evaluates the effectiveness of the wetland to produce food or usable products for man or other living organisms. While most of the wetlands delineated provide some level of food for wildlife, especially the shoreline intertidal wetlands, many of the wetlands are small and do not provide a significant export.

Sediment/Shoreline Stabilization. This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion. This is an important function of the estuarine wetlands within the Project area. The delineated intertidal wetlands provide stabilization by absorbing energy created by ocean currents which would otherwise degrade the shoreline, especially at Sailors Haven and Talisman/Barrett beach sites.

Wildlife Habitat. This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with a wetland and/or the wetland edge. Coastal wetlands provide habitat for 85% of the nation's waterfowl and migratory bird species (EPA, 2013). Various bird species, amphibians, reptiles and deer were observed during field surveys at the three sites.

Recreation. This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities. Fishing is conducted on the beaches of Fire Island. Fishing areas are located outside the Project area across the three sites.

Educational/Scientific Value. This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research. There are trails and an educational facility at the Watch Hill site as well as trails throughout the Talisman/Barrett Beach and Sailors Haven sites. The facility and trails provide visitors a chance to learn about coastal ecosystems of Fire Island which include the tidal wetlands within the Project area. Additional opportunities include photography and wildlife viewing.

Uniqueness/Heritage. This value considers the effectiveness of the wetland or associated waterbodies to provide certain special values. The delineated wetlands at Sailor's Haven abut the sunken forest and therefore serve as a buffer against storm surges and high tides. The sunken forest is considered a significant habitat according to the New York Natural Heritage Program (NYNHP). Habitat within the sunken forest is of high quality with rare and globally rare community types. The majority of the wetlands offer no unique viewing opportunities or other cultural values.

Visual Quality/Aesthetics. This value considers the visual and aesthetic quality or usefulness of the wetland. The wetlands that can be seen from trails offer some unique wildlife viewing opportunities.

Threatened or Endangered Species Habitat. All endangered species issues related to this Project are addressed in Section 3.7. Threatened or endangered plant and wildlife species were not observed during the wetland surveys.

3.6 Terrestrial Ecology

3.6.1 Fire Island National Seashore

The terrestrial ecology of FIIS is heavily influenced by the dynamics of the coastal barrier island geology, height above sea level, soils and the plant communities (McElroy et.al, 2009). The plant community provides stability to the physical conditions and each community exists with a specific set of environmental conditions found in the coastal environment. The barrier island is composed of separate structural zones based on the geology and soils, and plant communities are found within specific areas based on the physical geological character. At FIIS the physical geological zones are outer beach and back bay beach, primary dune, interdune secondary dune and salt marshes. One or more plant communities are found in each of this dune zone (McElroy, et.al., 2009).

The project sites described below include the outer beach and back bay beach, primary dune, and salt marsh, while dredge material placement areas are found at the primary dune (Watch Hill) and back bay beach (Sailors Haven and Talisman/Barrett Beach) locations. There are five plant communities found on primary or secondary dunes. These communities are dominated by beach grass, cord grass salt meadow grass, heathers, greenbrier and poison ivy. Maritime Scrubland is the zone behind the primary dune and is the upland portion of the interdunal swale. The common plants in this community are serviceberry, bayberry, beach plum, autumn olive and high bush blueberry.

Wildlife

Terrestrially-oriented wildlife that uses open water areas and tidal zones surrounding FIIS include gulls, terns, and shorebirds such as herring gull (*Larus argentatus*), common tern (*Sterna hirundo*), ruddy turnstone (*Arenaria interpres*), and sanderling (*Caladris alba*). Piscivores, such as double-crested cormorants (*Phalacrocorax auritus*) may also forage in the project area. In addition, ducks and geese, including scaups (*Aythya spp.*), scoters (*Melanitta spp.*), long-tailed ducks (*Clangula hyemalis*), and brant (*Branta bernicla*), feed in the area. In general, the nesting

and breeding season for these avian species occurs during late spring through early summer. Wildlife occurrences in other areas of the park include migratory birds such as brown thrashers (*Orpheus rufus*), eastern towhees (*Pipilo erythrophthalmus*), warblers (e.g., *Dendroica spp.*), and sparrows (e.g., *Melospiza spp.*).

Mammals found in FIIS include eastern cottontail rabbit (*Sylvilagus floridanus*), white-footed mouse (*Peromyscus leucopus*), red fox (*Vulpes vulpes*), and white-tailed deer (*Odocoileus virginianus*). Reptiles common in the park include black racers (*Coluber constrictor*). Common insects include ticks, grasshoppers, and butterflies. Harbor seals are occasionally sighted in winter on the ocean beach as are harp seal, hooded seal and gray seal. Fire Island's beach and intertidal invertebrate communities, an important component of the ecosystem which serves as forage for shore birds, includes several species of insects. A recent survey found that of the five dominant taxa collected along the bayside were three types of insects: Ephydriidae (shore flies), *Lasius neoniger* (turfgrass ant), Muscidae (muscid flies). Of the five dominant taxa collected along the oceanside two were the insects Ephydriidae and *Clivina* sp. (ground beetle). Results of the study found the most abundant species in all collections (benthic core, wrack sight and pitfall trap) to be the tenebrionid beetle (*Phaleria testacea*), the talitrid amphipod (*Talorchestia longicornis*), the ant (*Lasius nenoiger*), the anthicid beetle (*Mecynotarsus candidus*), homopterans and the planthopper (*Delphacodes* sp). The most common taxonomic groups were: Coleoptera, Diptera, Amphipoda, and Hymenoptera.

Non-Native Species

FIIS has the usual assortment and extensive populations of exotic invasive plant species. An invasive plant mapping project initiated in 2002 found fifteen invasive plant species on Fire Island. An invasive species control program was initiated for FIIS in 2008. The most prominent invasive plant species on Fire Island include Japanese Black Pine (*Pinus thunbergiana*); Autumn Olive (*Eleagnus umbellata*); and Mugwort (*Artemesia vulgaris*).

Other invasive plants of concern on Fire Island include: common reed (*Phragmites australis*) Garlic Mustard (*Alliaria petiolata*); Oriental Bittersweet (*Celastrus orbiculatus*); Spotted Knapweed (*Centaurea maculosa*); Japanese Honeysuckle (*Lonicera japonicus*); Multiflora Rose (*Rosa multiflora*); Common Mullein (*Verbascum thapsus*); Japanese Knotweed (*Polygonum cuspidatum*); Canada Thistle (*Cirsium arvense*); Chinese/Japanese Wisteria (*Wisteria ssp.*); Japanese Barberry (*Berberis thunbergii*); and Bamboo.

3.6.2 Sailors Haven

The Sunken Forest is an old growth maritime holly maritime forest in excellent condition. It is the older of only two such occurrences in the world (Assessment of Natural Resources, 2009). NYNHP reports that the Sunken Forest is a significant resource that is ranked globally as G1/G2 – critically imperiled/imperiled globally because of extreme rarity throughout its range, and as ranked by NYS as S1 – considered as a critically impaired resource with high ecological and conservation value. Preservation of this unique natural resource is one of the main reasons for the creation of FIIS. The Sunken Forest, primarily located behind the secondary dune located to the west of Sailors Haven, currently exists within a protected landscape with some human and animal disturbance. The Sunken Forest is 200-300 years old and is at climax conditions. Trees on

the dune ridges are pruned by wind exposure and salt spray and therefore do not exceed 30 feet in height. Very little understory exists due to browsing by the local deer population. The surrounding communities include maritime scrubland /successional maritime forest, scrub forest, maritime dunes, and highbush blueberry shrub swamp. Bay shoreline erosion in the area of the Sunken Forest occurs on the upper foreshore slopes through storm surges and excessive high tides. The sand that is pulled away from the upper slope slips to the lower terrace and is eventually pulled away and out into the bay through wind and wave interaction. The upper slopes become newly vulnerable to erosion and the process begins all over again. Much of the sand eroded from the foreshore banks ends up filling sink holes created by dredging as well as new shoals.

3.6.3 Talisman/Barrett Beach

Talisman/Barrett Beach is located at the approximate center of the barrier island and extends from the eastern boundary of Fire Island Pines eastward to the western boundary of the small enclave of houses informally known as Spatangaville. This site is generally more remote than Sailors Haven and Watch Hill as visitors typically are seeking a less developed, lower density experience. The terrestrial environment is comprised of both ocean and bayside beach with a dune environment between.

3.6.4 Watch Hill

The project area around Watch Hill consists of a dune environment that also contains a number of wetland areas as described previously in Section 3.5. Vegetation in the area is dominated by shrub and herbaceous plant species with varying densities. Most locations proposed for dredge material placement are currently unvegetated, such as the areas directly adjacent to the marina, and existing roads and campsites. Watch Hill is adjacent to the west end of the Otis Pike Fire Island High Dune Wilderness, the only federally designated wilderness in the state of New York. Otis Pike Wilderness spans approximately 8 miles along the barrier island between Smith Point County Park on the east and Watch Hill on the west.

3.7 Species of Special Concern

3.7.1 Fire Island National Seashore

To ascertain the potential presence of species listed as threatened or endangered in the region, the following agencies were consulted: US National Marine Fisheries Service (USNMFS), US Fish and Wildlife Service (USFWS), and NYDEC Natural Heritage Program (NYNHP). Table 3-2 lists the species identified, the concerned agency or agencies and state and/or federal status.

Table 3-2
Threatened and Endangered Species

Common Name	Species Name	Concerned Agency	Status*
Marine Species			
Loggerhead turtle	<i>Caretta caretta</i>	USNMFS	FT, ST
Kemp's ridley turtle	<i>Lepidochelys kempii</i>	USNMFS	FE, SE
Green sea turtle	<i>Chelonia mydas</i>	USNMFS	FT, ST
Leatherback sea turtle	<i>Dermochelys coriacea</i>	USNMFS	FE, SE
Atlantic Sturgeon	<i>Acipenser oxyrinchus</i>	USNMFS	FE
Terrestrial Animal Species			
Piping plover	<i>Charadrius melodus</i>	USFWS, NYNHP	FE, SE
Roseate tern	<i>Sterna dougallii</i>	USFWS	FT
Common tern	<i>Sterna hirundo</i>	NYNHP	ST
Least tern	<i>Sternula antillarum</i>	NYNHP	ST
Terrestrial Plant Species			
Seabeach amaranth	<i>Amaranthus pumilus</i>	USFWS, NYNHP	FT, SE
Small whorled pogonia	<i>Isotria medeoloides</i>	USFWS	FT, SH
Sandplain gerardia	<i>Agalinus acuta</i>	USFWS	FE

*FE: federally endangered; FT: federally threatened; SE: state endangered; ST: state threatened; SR: rare; SH: state historic species not found within the last 15 years.

Marine

Consultation with NOAA resulted in the identification of the following marine species to be evaluated in this EA; NW Atlantic Ocean distinct population segment (DPS) of loggerhead, Kemp's ridley sea turtle, green sea turtle, leatherback and 5 DPS of Atlantic Sturgeon - subadult and adult life stages.

Generally speaking, sea turtles could occur in Long Island waters when water temperatures are warm (i.e. above 18° C), generally between April 1 and November 15; however they are only occasionally observed in Great South Bay and had not been reported near Sailors Haven (FIIS, 2005).

Loggerhead (*Caretta caretta*)

There are 5 distinct population segments (DPS) of loggerhead with ESA endangered status, including the northeast Atlantic Ocean DPS. Loggerheads are predominantly an oceanic species, but adult loggerheads do make infrequent use of bays, sounds and estuaries (<http://www.nmfs.noaa.gov/pr/species/turtles/loggerhead.htm>). Others report that juveniles are more frequently found in shallow estuarine habitats with limited ocean access compared to non-nesting adults (Conant et al., 2009). Loggerheads occupy waters with surface temperatures

ranging from 13.3-28.0°C (56-82°F) during non-nesting season. Temperatures from 27-28°C are most suitable for nesting females (Ernst and Lovich, 2009).

Kemp's (Atlantic) Ridley (*Lepidochelys kempii*)

This is an ESA endangered species throughout its range that extends north to New England. Neretic juvenile Kemp's ridleys will make use of estuarine waters in the northwest Atlantic during the warmer months and neretic adults are occasionally found on the Atlantic coast (NOAA/USFWS, 2011). Long Island's waters have been identified as critical habitat for immature Atlantic ridleys between 2 to 5 years of age. Preferred habitats include sheltered areas along the coastline such as large estuaries bays and lagoons (NYSDEC, 2003).

Green Sea Turtle (*Chelonia mydas*)

This is an ESA threatened species in the part of its range that includes New York State. They inhabit shallow waters such as shoals and lagoons with an abundance of submerged vegetation including grasses and algae. Inlets, bays and estuaries are preferred habitats (NYSDEC, 2003). Abundant submerged vegetation does not exist at any of the three dredging locations.

Leatherback (*Dermochelys coriacea*)

This is an endangered ESA species throughout its range. Leatherback sea turtles are the most pelagic sea turtle. In the Atlantic, leatherbacks have been found off the coast of Long Island (NYSDEC, 2003). Leatherbacks are highly unlikely to be present in the areas proposed to be dredged.

Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)

The five designated Atlantic sturgeon DPS, including the New York bight DPS, comprise an ESA endangered species. Because this species makes large scale marine migrations, members of any of the DPS may occur in the area. Subadults wander among coastal and estuarine habitats, undergoing rapid growth. Seasonal movement is north in the spring/summer and south in the fall and early winter. Trawling surveys in Bath, Maine near Bath Iron Works captured subadults between April and November, but took none from December until the end of the study in February 1998. These seasonal movement patterns can also be expected to occur in the Long Island area due to similarities in seasonal water temperature patterns. This suggests that subadults may move to deeper bottoms during the coldest months, as do other motile marine organisms. (USFWS and NOAA, 1998). This deeper water occurrence in winter has also been documented for adults (Fox and Breece, 2010).

Terrestrial Animal Species

The two federally listed threatened and endangered species known to occur at FIIS are in **bold** below.

Piping Plover (*Charadrius melodus*)

The piping plover was added to the ESA of 1973 list as a threatened in 1986.

Piping plover return to the New York area in early to mid-March and establish nesting territories by early April. Nesting sites are above the high tide line at beaches, sand flats, sand spits, and gently sloping dunes. Nests have also been found on unvegetated dredged soil. At Fire Island observed nest density has been 0.2 pairs per Km² (0.2 pairs per 3,280 ft. or 0.2 pairs per 0.62

miles). This density is much lower than seen in other areas of the New York coast. The piping plover migrates south sometime in October and generally winter along the southern coast in the United States.

Annual observations are made on nesting success of piping plover in the Atlantic coastal areas. A slow increase in the population has occurred since the implementation of the recovery plan. Population fluctuation does occur as a result of development and coastal storms. Following coastal storms, there has been a pattern of increased number of nests being observed. This was documented followings in 1938 and 1954 (Hecht et al., 1996).

Conservation efforts have included reducing development along beach area protecting nesting sites from intrusion by fencing, limiting beach access by pets and motor vehicles during nesting and fledgling, and tidal wetland protection. Population recovery occurs when human induced mortality is controlled by limiting disturbance (pets, vehicles, recreation near nesting areas) and predation (Hecht et.al, 1996).

Roseate Tern (*Sterna dougallii dougallii*)

The Roseate tern was added to the ESA list as an endangered species in November 1987 while the Caribbean population was identified as threatened. The first recovery plan was prepared in 1989 and was updated in 1998 (USFWS, 1998) and the most recent review is in 2010 (Amaral, 2010). Breeding colonies are found mostly on islands and the colonies are a mix of the common tern and the roseate tern. A roseate tern typically constructs nest under objects such as rock over hangs, within logs or drift wood piles, and in vegetation. Birds will nest within 2-6 feet of each other. Nesting on FIIS is not a common occurrence. Most nesting occurs on small islands off Long Island's north shore, including Great Gull Island. Roseate terns arrive in the New York area in April to late May and feed for a few weeks prior to starting courtship.

Common Tern (*Sterna hirundo*)

The common tern is listed by NYS as a threatened species, but is not an ESA- listed species. Nesting sites includes beach dunes, spoil areas, constructed jetties and salt marshes. (Andrle and Carroll, 1988). A large population is found at Great Gull Island in the Long Island Sound. The common tern returns to the northern breeding ground in April to mid-May to establish nesting sites. Birds depart from the breeding grounds in by mid-October.

Least Tern (*Sterna antillarum*)

The least tern is identified as threatened in NYS. This tern arrives in the northern breeding grounds earlier than the other terns. Nests are found on open sandy beaches, dredge spoils and gravelly beaches. The least tern will occupy the same areas as the Piping plovers and other shore birds. In late August to early September the least tern will begin migration to the winter grounds.

Terrestrial Plant Species

FIIS is an important example of a barrier island in a temperate zone which creates a unique environment with a diversity of plants and animals. It is also is near and within a metropolitan area along with areas of extensive suburban development providing increased refuge space for plants and animals in the region.

The following plants are identified as threatened or endangered under the ESA of 1973:

Seabeach Amaranth

Seabeach amaranth is a threatened species under the ESA and may become endangered in the future if its decline continues. It was listed in 1993. This is an annual plant that is found throughout Fire Island, but not on the bay side near the marinas as documented in FIIS annual inventories. The plant doesn't compete well in areas of established growth but will stabilize in disturbed areas. The plant flowers between June and July and seeds are produced in July or August depending on weather. (Suiter, 2011)

Sandplain Gerardia

Also known as sandplain false foxglove, this plant grows in dry, sandy short grass fields, or roadsides or in opening of oak shrub forest. Soils must be nutrient poor, acidic, vegetation has to be sparse, and to prevent overgrowth by other species. Areas disturbed by mowing, grazing or fire may be suitable habitat for sandplain gerardia.

Small Whorled Pogonia

This plant was added to the endangered species list in 1994 as a threatened species by USFWS. This plant is found on acidic sloping soils in second growth forest, with light to moderate leaf litter with or without fern or shrub cover but there has to be an open canopy (Nature Serve Explorer, 2012). In a typical second growth young successional forest a variety of other plants including ferns, evergreen forbs, orchids and club mosses may also be found along with small whorled pogonia. In areas where the plant is growing successfully, avoiding disturbance by human intrusion and preserving a buffer area around the small whorled pogonia are the recommended best management practices.

3.7.2 Sailors Haven

An investigation performed by a FIIS Park Biologist found that there were no threatened or endangered plant species found at Sailors Haven dredge material deposit locations.

3.7.3 Talisman/Barrett Beach

A plant survey performed by a FIIS Park Biologist found that there were no threatened or endangered plant species found at Talisman/Barrett Beach dredge material deposit locations.

3.7.4 Watch Hill

A plant survey performed by a FIIS Park Biologist found there were no threatened or endangered plant species found at Watch Hill dredge material deposit locations.

3.8 Archeological Resources

3.8.1 Fire Island National Seashore

An archeological Phase 1A sensitivity assessment and Phase 1B field investigation were completed for the areas of proposed dredge placement locations at Sailors Haven, Talisman/Barrett Beach and Watch Hill. A site file research consisting of known archeological resources, State/National Register properties, and previously conducted archeological surveys and assessments in the vicinity of the project areas was completed.

An examination of the archeological site files at the Office of Parks, Recreation and Historic Preservation (OPRHP) and the New York State Museum (NYSM) identified three reported historic archeological sites within a one mile radius of the project area. No precontact sites are inventoried in the files within one mile of the project area. Two of the sites are within the Sailors Haven search radius and located over one-half mile from the project area. The sites include a historic midden associated with the Point of Woods community with site findings consisting of materials dating to the early 20th century found along the beach with later deposits inland. The second site is the *Elizabeth* shipwreck identified on the ocean side of the island. The third site is located just less than one mile east of Talisman/Barrett Beach and is described as remains associated with the Blue Point Life Saving Station. No known sites are in the vicinity of Watch Hill.

The Phase IB investigation included limited terrestrial portions of proposed dredge placement areas. The Areas of Potential Effect (APE) within the Sailors Haven and Talisman/Barrett Beach project areas is limited to the bay side beach area. Because of previous disturbance, the field methodology consisted of a surface reconnaissance along the accessible portions of the beach in these areas and photo documenting existing conditions.

3.8.2 Sailors Haven

The area of potential effect for Sailors Haven has been manipulated and heavily disturbed. Structural elements of the marina, piers, bulkheads, decking have all been modified and/or replaced over the years and are not historic. Two shovel tests were excavated just inland from the beach at one location within Sailors Haven. A surface reconnaissance was conducted of the accessible beach portions of the APE. Two shovel tests were excavated in a vegetated area at Sailors Haven West where surveyor stakes were noted. No cultural materials were recovered from the tests.

3.8.3 Talisman/Barrett Beach

The APE at Talisman/Barrett Beach also is limited to the beach and extends a total of 3,101 feet. As per consultation with OPRHP, no subsurface testing was conducted along the beach.

3.8.4 Watch Hill

The APE at Watch Hill consists of several noncontiguous parcels immediately surrounding the marina including several roadways, a former horse paddock, and existing camp sites.

All of these selected areas have undergone prior disturbances associated with their initial construction, the on-going maintenance of these features, as well as installation of exiting utilities. No testing was necessary for the area surrounding the marina. Five shovel tests were excavated within unoccupied campsites and one shovel test was excavated between the staff residences. None of the tests excavated in the camp sites contained any cultural material.

3.9 Recreational Resources, Visitor Experience and Aesthetic Resources

3.9.1 Fire Island National Seashore

Recreational Resources

FIIS is comprised of a total of 79 miles of bayshore and oceanfront shoreline. Facilities include 4 public docks, 2 public marinas (244 boat slips), 1 public campground (26 campsites), back country camping areas, 3 picnic areas, 3 visitor centers, 1 museum, lighthouse tower and historic home tours; 26 miles of ocean beach, and 12 miles of boardwalks. There are a wide variety of recreational activities available at FIIS many of which are restricted or require a permit. Off-road driving on the beach is permitted by permit only, and is limited to the fall and early winter months when visitation is low and there are no threats to nesting or breeding wildlife.

Visitation and Visitor Experience

Visitation counts at FIIS are derived from visitation observed at a number of Seashore facilities. However, in addition to NPS owned lands, FIIS boundary encompasses a county park, 17 private residential communities, and nearly 17,000 acres of bay and ocean waters. These areas represent uncontrolled points of entry and current visitation tracking does not fully account for visitor use in these areas.

Visitation is relatively stable. Throughout most of FIIS' history annual visitation has been around 500,000 visitors per year with some notable highs and lows. The year 2004 was FIIS's busiest with a visitation count of approximately 820,000, while in the year 1995, it received the lowest number of visitors with a visitation count of about 400,000 (NPS, 2012). Table 3-3 shows visitation trends throughout the national seashore from 2008 through 2012.

Visitors to Fire Island arrive by either private boat or commercial ferry or water taxi, and the marinas are essentially full by mid-morning on weekends when weather is favorable. School groups arrive by commercial ferry during the week, so there are no conflicts with other individuals coming by boat on the weekends. There are no public roads within FIIS; visitors may explore the park on foot or transfer to other park sites via water taxis. Because of their isolation in the center of FIIS, Watch Hill, Sailors Haven, and Talisman/Barrett Beach are highly dependent on water access into the marina docks by ferry, private boat or water taxi.

Table 3-3
Visitor Statistics 2008-2012

	2008	2009	2010	2011	2012
Park-wide					
-Recreational	604,577	569,667	613,057	519,173	483,334
-Non-Recreational	<u>246,348</u>	<u>234,312</u>	<u>214,029</u>	<u>238,761</u>	NA
Total Visits	850,925	803,979	827,086	757,934	NA
Sailors Haven	64,986	61,948	66,358	58,817	52,308
-Recreational Total Visits					
Talisman/Barrett Beach*					
-Recreational	294,564	280,652	311,719	240,638	210,726
-Non-Recreational	<u>238,773</u>	<u>228,270</u>	<u>208,527</u>	<u>277,784</u>	<u>191,055</u>
Total Visits	533,337	508,922	520,246	518,422	401,781
Watch Hill					
-Recreational Total Visits	60,892	53,521	53,813	48,002	48,303

Note: Non-recreational visits, where counted, are estimated private ferry rides, private moored boats, and walk-ins.

*The number of visitors that arrive by boat at Talisman/Barrett Beach are estimated at 43,000.

On Fire Island, educational and interpretive activities occur at the visitor centers at Otis Pike Wilderness, Fire Island Lighthouse, Watch Hill and Sailors Haven. Park-wide outreach programs are aimed toward informing the surrounding communities about the resources at FIIS and finding ways to provide focused programs to local schools and other interest groups. To meet this goal, Seashore staff regularly coordinates with local teachers to identify roles FIIS, can fill in different curriculums and plan field trips for classes. Educator workshops are conducted annually. Several curriculum-based activities on the topic of shoreline dynamics were developed for use by middle and high school educators taking self-guided classes to FIIS and equipment for the activities is available at park sites for their use.

Aesthetic Resources

Many visitors come to FIIS to enjoy the spectacular range of vistas. The ability to see landscape features, color and detail in distant views can be affected by air pollution and diminishing dark skies. Scenic views and historic landscapes can also be marred by certain development on public and private lands outside park boundaries. In 67 studies conducted from 1988–2011 in 53 NPS units, scenic views were *extremely important* or *very important* to 90% of visitor groups and dark night skies were found to be *extremely or very important* to 62% of visitor groups servicewide (NPS, 2013). The value visitors place on these resources indicates strong public support for the preservation and protecting these resources.

3.9.2 Sailors Haven

Recreational Resources

Sailors Haven is home to the Sunken Forest Preserve established in 1960 to protect the Maritime Holly Forest, a significant ecological community (NYNHP) found behind the sand dunes of the Great South Bay just west of the Sailors Haven Visitor Center. This 50-acre tract of beach, dunes and old growth holly forest was first protected from development in the early 1950s by a concerned group of private citizens. Sailors Haven is located near the center of the island, across the Great South Bay from Sayville, New York. It is accessible by Sayville Ferry, private boat, and foot only. In addition to a one and a half mile long boardwalk trail through the Sunken

Forest, Sailors Haven offers a visitor center, snack bar, gift shop, picnic tables, lifeguarded beach (summer only), a 48-slip marina with electricity and free pump out, restrooms and bathhouse.

Visitation and Visitor Experience

Visitation to Sailors Haven Marina is estimated at 52,000 annually. Activities permitted within the project area are boating, fishing, swimming, walking on established trails, and picnicking. Visitation at Sailors Haven primarily occurs around the Sunken Forest and lifeguarded beach area, and most visitor use occurs on weekends, peaking from late morning to mid-afternoon. Numerous school groups visit the marina during the week for educational programs at the Sunken Forest in the spring and fall. Ranger-led interpretive activities are conducted daily throughout the summer months, and by reservation for schools and other organized groups (NPS, 2007).

3.9.3 Talisman/Barrett Beach

The Talisman /Barrett Beach area is located near the center of Fire Island National Seashore across the Great South Bay from Bayport and Sayville, Long Island. It is presently accessible by private boat, by foot, and by charter ferry service from Patchogue or Sayville. Barrett Beach/Talisman offers a dock for boaters to load and unload only, a boardwalk trail leading across the island to the ocean beach, restrooms, and a picnic area. This site was originally owned and operated by the Town of Islip which gave it to NPS in 2000.

Visitation and Visitor Experience

Visitation at Talisman/Barrett Beach is estimated at 43,000 annually. It continues to be a favorite out-of-the way beach, where smaller boats regularly anchor offshore. There is a dock at the former Barrett Beach Marina site for the drop-off of passengers on private vessels and water taxis. Groups may arrange for charter service to Barrett Beach from Patchogue or Sayville. Facilities at this site include bayshore restrooms and picnic tables, and a quiet stretch of ocean and bay beach.

3.9.4 Watch Hill

Recreational Resources

Watch Hill, the largest and most extensive of the visitor facilities on FIIS, is located in the center of Fire Island, across the Great South Bay from Patchogue, Long Island. First opened to the public in 1967, Watch Hill serves as gateway to the Otis Pike Wilderness Area, the only federal wilderness area in New York State and one of the last large tracts of undeveloped barrier beach on the northeast coast. Access to Watch Hill is by private boat or by seasonal ferry service from Patchogue, New York. Visitor facilities include a 26 walk-in site campground (by reservation through recreation.gov), 183-slip marina, restaurant, visitor center, nature trail, and seasonally life-guarded beaches. The site provides a wide range of outdoor experiences, including ocean swimming, backcountry hiking, and bird watching.

Visitation and Visitor Experience

Visitation at Watch Hill is estimated at 48,000 annually. Besides the marina where boaters are able to enjoy water activities, Watch Hill has a boardwalk nature trail with interpretive signage

through primitive sheltered coves. NPS offers tours through this area plus guided canoe programs through an extensive salt marsh. The oceanside beach is the most popular experience for visitors at Watch Hill.

3.10 Socioeconomics

3.10.1 Fire Island National Seashore

FIIS' estimated 4,100 residences lie within the towns of Babylon, Islip, and Brookhaven, containing two villages and a number of hamlets. The 2010 Census reported a total of 408 year-round residents occupied 120 residences. This represents a decline of approximately 17 percent from the U.S. Census in 2000 which identified 491 year-round residents on Fire Island (U.S. Census Bureau 2000a). During the summer season this number swells to an estimated 12,000. In addition, it is estimated that there were approximately 519,000 recreational visits to FIIS in 2011. However, actual visitation could be as high as 2.2 million if summer residents and visitors from private communities were included (NPS, 2004).

FIIS has a notable impact on local economies. Park visitation is one of the primary ways the NPS contributes to the local economy. On average, every tax dollar spent on national parks results in roughly \$4 in visitor spending in the surrounding communities) (NPS, 2011).

In 2010, FIIS had over 613,000 recreational visitors with over 43,600 staying overnight. This resulted in an estimated \$35 million spent within FIIS or surrounding communities. Nearly \$31million was generated from non-local visitors. It is estimated that the monetary impacts from visitor spending supported 443 jobs with a total labor income of approximately \$17.9 million and a value added impact of nearly \$29.2 million (NPS, 2012).The FIIS payroll also impacts the local economy. It is estimated that the FIIS payroll created 72 jobs (including NPS jobs), with a total labor income of approximately \$4.9 million and a value added impact of \$5.6 million in 2010 (NPS, 2012).

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

NEPA requires that environmental documents disclose the environmental impacts of the proposed federal action, present reasonable alternatives to that action, and identify and evaluate any adverse environmental effects that cannot be avoided should the preferred alternative be implemented. This section analyzes the environmental impacts of two project alternatives – No Action and the Preferred Alternative - on Geologic Resources and Coastal Processes, Water Quality, Estuarine Resources Including Essential Fish Habitat, Wetlands and Floodplains, Terrestrial Ecology, Species of Special Concern, Archeological Resources, Recreational Resources, Visitor Experience and Aesthetics, and Socioeconomics. These analyses provide the basis for comparing the effects of the alternatives. NEPA requires consideration of context, intensity and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate impacts.

General Methodology for Analyzing Impacts

In accordance with the CEQ regulations, direct, indirect and cumulative impacts are described (40 CFR 1502.16) and, where measureable, the intensity of the impacts is assessed in the context of the park's purpose and significance and any resource-specific context that may be applicable (40 CFR 1508.27). Where appropriate, mitigating measures for adverse impacts are also described and incorporated into the evaluation of impacts. The specific methods used to assess impacts for each resource may vary; therefore, these methodologies are described under each impact topic. Overall, these impact analyses and conclusions are based on a review of existing literature and park studies, information provided by on-site experts and other agencies, professional judgment and park staff knowledge and insight.

Type of Impact

Impacts are discussed by type, as follows:

- **Direct:** Impacts that would occur as a result of the proposed action at the same time and place of implementation (40 CFR 1508.8).
- **Indirect:** Impacts that would occur as a result of the proposed action but later in time or farther in distance from the action (40 CFR 1508.8).
- **Adverse:** An impact that causes an unfavorable result to the resource when compared to the existing conditions.
- **Beneficial:** An impact that would result in a positive change to the resource when compared to the existing conditions.

The impacts of the alternatives are assessed by considering the context of the affected resource (40 CFR 1508.27). Context refers to the affected environment within which an impact would occur, such as local, park-wide, regional, global, affected interests, society as a whole or any combination of these. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short and long-term effects are relevant.

Cumulative Impacts

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7).

There are no known past, present or reasonably foreseeable future actions that have the potential to affect the same resources as the proposed action. Therefore, any potential cumulative impacts are very unlikely, thus, cumulative impacts are not analyzed.

4.2 Geological Resources and Coastal Processes

4.2.1 Impacts of Alternative A: No Action

4.2.1.1 Sailors Haven

Under the no-action alternative a channel section approximately 120 feet wide and 250 feet long at the mouth of the marina could continue to be dredged up through September 11, 2016 under the authorities of previous NEPA compliance documentation (NEPA Environmental Assessment Sailors Haven Channel Dredging Project Fire Island National Seashore, November 2007) and existing permits from NYSDEC, USACOE and the Town of Brookhaven. The 2007 EA did not identify potential adverse impacts to geologic resources and coastal processes as a result of this Alternative.

4.2.1.2 Talisman/Barrett Beach

Sand from the area that comprised the old marina, from littoral drift and from offshore transport would continue to fill in the area around the new dock and the navigational channel. These processes could continue to a point where the area becomes intertidal, particularly during lower tides. This shoaling could result in sediment continuing to accumulate in the area possibly to the point of interfering with longshore transport of sediment.

4.2.1.3 Watch Hill

Sediment transport may continue to fill in the navigation channel. If and when the channel stops functioning as a sediment sink, more materials may move in the direction of prevailing winds and currents, potentially leading to increased accumulation of sediments in other areas as compared to what is happening currently.

4.2.1.4 Conclusion

No significant adverse impacts to geological resources and coastal processes were identified because coastal processes would continue naturally.

4.2.2 Impacts of Alternative B: Preferred Alternative

4.2.2.1 Sailors Haven

Maintenance dredging of the existing main navigation channel and marina at Sailors Haven would have no effect on geological resources and coastal processes. Sand from the dredging will be distributed along the eastern and western shorelines, including on downdrift beach area, as erosion control and sediment transport measures which would have an overall beneficial impact. Thus, sand trapped by the marina and channel is put back into the geologic transport system.

4.2.2.2 Talisman/Barrett Beach

Maintenance dredging of the area of the former marina at Talisman/Barrett Beach would have no likely effect on geological resources and coastal processes. Dredge materials are to be distributed generally along both west and east shorelines, including on downdrift beach areas, as erosion control and sediment transport measures which would have an overall beneficial impact of putting dredged sand that has accumulated around the dock back into the geologic transport system.

4.2.2.3 Watch Hill

Maintenance dredging of the existing main navigation channel and marina at Watch Hill would have no likely effect on geological resources and coastal processes, although, unlike Sailors Haven and Talisman/Barrett Beach, dredge material at Watch Hill will not be returned to the sediment transport system. Dredge materials are to be generally stockpiled in upland areas where they can be accommodated. Some dredge materials will be placed around the marina facility to raise and level existing public use areas. In the future, some of the stockpiled material may be used for future erosional head/feeder beach activities. This potential future use of materials would require on-going communication and coordination with the Town, local communities and landowners, as well as separate compliance and permitting activities.

4.2.2.4 Conclusion

At Sailors Haven and Talisman/Barrett Beach, the preferred alternative would have long term beneficial impacts on coastal processes by the distribution of dredged materials which would serve as future sediment transport control strategies.

4.3 Water Quality

4.3.1. Impacts of Alternative A: No Action

4.3.1.1 Sailors Haven

The November 2007 EA identified localized and temporary increases in turbidity and corresponding loss of water clarity and lower dissolved oxygen in the vicinity of the dredged area as short-term adverse impacts to water quality.

4.3.1.2 Talisman/Barrett Beach

Sediment may continue to accumulate around the existing dock, further rendering the dock area that was part of the former marina inaccessible. The current very shallow depths will continue to decrease, resulting in increased sand re-suspension and resultant turbidity as a result of prop wash.

4.3.1.3 Watch Hill

Sediment will continue to accumulate in the navigation channels and in the marina. The current very shallow depths will continue to decrease, resulting in increased sand re-suspension and resultant turbidity as a result of prop wash. Continued sand deposition at the entrance of the marina could result in decreased water circulation in the marina which could decrease water quality due to a lack of marina flushing. This more stagnant water within the marina would be released into the bay during storm tides.

4.3.1.4 Conclusion

The no action alternative would have localized, possibly longer-term impacts on water quality. Sediment would be re-suspended in the shallower channel areas at Sailors Haven and Watch Hill as vessels continue to use them to access FIIS facilities. This would occur throughout the spring, summer and fall. During times of more intense traffic, such as on weekends and holidays, heavy vessel traffic could result in near-constant, localized elevated levels of suspended sediment in and around the channels during the daytime. Similar impacts would occur around the dock at Talisman/Barrett Beach as vessels attempt to access the dock. Because natural sediment transport processes, including deposition in the channels and around the Talisman/Barrett Beach dock, will continue to occur under this alternative, the result will be that localized sediment re-suspension from vessel traffic could occur well into the future.

4.3.2 Impacts of Alternative B: Preferred Alternative

For all of the three dredging sites discussed below, potential impacts to water quality, specifically turbidity, can vary depending on the type of dredge equipment that is used. In a USACE study of bucket dredges in Boston Harbor, it was found that conventional buckets generated higher turbidity than enclosed (environmental) buckets, with the depth-averaged total suspended solids (TSS) being approximately four times less for the environmental buckets (Hayes, et al., 2000). Re-suspension of sediment for hopper dredges, absent any overflow discharges, may be less than for cutterhead dredges, which themselves cause lower turbidity than conventional or environmental bucket dredges (USACE, 1986).

4.3.2.1 Sailors Haven

Dredging in the channel and the marina will cause there to be temporary, localized increases in turbidity and a corresponding loss of water clarity in the immediate vicinity of the dredging. To contain and control the dispersion of turbidity and silt when dredging the marina, a turbidity curtain will be utilized. The newly dredged areas will create a "sink" for future deposition. However, absent another major storm, repeat dredging should not be needed for some time. The

entrance channel is subjected to circulation and flushing which will limit the potential impacts to being local, minor and short term. Dredging will also allow for greater circulation of water between the marina and the bay which would lessen the stagnation of water in the marina and release of this stagnant water into the bay during storm tides.

4.3.2.2 Talisman/Barrett Beach

Dredging of the immediate channel near the dock and the dock area itself will cause there to be temporary, localized increases in turbidity and a corresponding loss of water clarity in the immediate vicinity. The newly dredged areas will create a "sink" for future deposition. However, absent another major storm, repeat dredging should not be needed for some time.

4.3.2.3 Watch Hill

The dredging in the channel and the marina will cause there to be temporary, localized increases in turbidity and a corresponding loss of water clarity in the immediate vicinity. NMFS recommended turbidity curtain when dredging the marina. The entrance channel is subjected to circulation and flushing which will limit these potential impacts to local, minor and short term. The newly dredged areas will create a "sink" for future deposition. However, absent another major storm, repeat dredging should not be needed for some time. Dredging will also allow for greater circulation of water between the marina and the bay which would lessen the stagnation of water in the marina and release of this stagnant water into the bay during storm tides.

4.3.2.4 Conclusion

Impacts to water quality will be increased turbidity and decreased light penetration at the dredge locations and in their immediate vicinities. Impacts are expected to be short term because the materials to be dredged are mostly sands which settle out of the water column relatively quickly. In the context of the Park's submerged lands, and in the context of the GSB complex, the area to be affected is insignificant. The total area of submerged lands to be directly affected by dredging represent less the 1/10 of 1% of FIIS submerged lands and less than 2/100 of 1% of the GSB complex. Even if the total affected area was assumed to be doubled to include areas outside of the immediate dredge area that also experience increased turbidity, the area to be affected, in a relative sense is very small. Because of the short-term and localized nature of the impacts, they are expected to be minor.

Although impacts on water quality are predicted to be minor and short term, the following practices will be employed to mitigate the temporary impacts associated with the project:

- If a hydraulic dredge is used, a diffuser will be employed to place the dredged material in order to reduce sediment re-suspension.
- A turbidity curtain will be placed across the entrance to the marinas at Sailors Haven and Watch Hill prior to dredging within the marina areas.
- Dredged material will be placed above the high tide water line and graded down at low tide to minimize re-suspension of material in the water column.

4.4 Estuarine Resources Including Essential Fish Habitat

4.4.1 Impacts of Alternative A: No Action

4.4.1.1 Sailors Haven

The November 2007 EA concluded that multiple dredgings of the channel just outside the marina would not adversely impact estuarine resources including essential fish habitat. Short-term and temporary impacts to benthic organisms which could serve as food sources were identified, but no impacts to motile fish species were anticipated to occur due to the timing of dredging and the mobility of fish and their ability to avoid dredge equipment.

4.4.1.2 Talisman/Barrett Beach

Under Alternative A, sand will continue to accumulate in the area that was formerly the Barrett Marina and now is on both sides of the outer end of the existing dock, and continue to block access to the dock. Currently this area is very shallow, and while providing suitable benthos habitat, it provides limited fish habitat with adequate depths available for only the smaller species of fish that inhabit Great South Bay. Additional accumulation of sand in the area would continue the trend of decreasing water column depth and available fish habitat. In the short term there would be no impact to fisheries in general, essential fish habitat and benthos under this alternative. However, in the longer term, and with the continued accumulation of sand, it is possible that this current aquatic habitat could transition to intertidal habitat which would result in a relatively small loss of aquatic habitat in GSB. Furthermore, under Alternative A, continued sand accumulation can lead to an increase in the frequencies and locations of vessels running aground as well as increases in where surface sediment habitats are impacted by vessel propeller wash. These physical disturbances could happen at any time of the year when boats are using the channel. Impacts can include direct mortality of less mobile species or life stages, dislodgment of deposited eggs, deposition of re-suspended sediment on top of larvae and eggs, and overall decreases in biological productivity of the affected areas. The impacts to fisheries in general, essential fish habitat and benthos are expected to be localized and relatively infrequent in nature, but frequency could likely increase as more of the channel becomes filled in over time. Generally speaking, benthic aquatic species and those fish species that have eggs present in the surface sediment in spring, summer and fall will be most affected, but at relatively low levels in the GSB estuarine habitat.

4.4.1.3 Watch Hill

The types of impacts that will occur at Watch Hill under Alternative A include increased vessel disturbance of bottom substrate as a result of increased amounts of material accumulating in the channel over time and the accompanying impacts to biota described above. Even though the degree of impact could potentially be higher at Watch Hill, the impact to fisheries in general, essential fish habitat, and benthos will be localized. However, over time and with sediments continuing to accumulate in the channel, both the amount of area that is impacted, and the frequency with which areas are impacted will increase. Furthermore, under Alternative A, continued sand accumulation can lead to an increase in the frequencies and locations of vessels running aground as well as increases in where surface sediment habitats are impacted by vessel

propeller wash. These physical disturbances could happen at any time of the year when boats are using the channel. Impacts can include direct mortality of less mobile species or life stages, dislodgment of deposited eggs, deposition of re-suspended sediment on top of larvae and eggs, and overall decreases in biological productivity of the affected areas. The impacts to fisheries in general, essential fish habitat and benthos are expected to be localized and relatively infrequent in nature, but frequency could likely increase as more of the channel becomes filled in over time. Generally speaking, benthic aquatic species and those fish species that have eggs present in the surface sediment in spring, summer and fall will be most affected, but at relatively low levels in the GSB estuarine habitat.

4.4.1.4 Conclusion

Overall, direct, adverse impacts to estuarine resources, including essential fish habitat, under Alternative A are expected to be localized in nature, but having the potential to occur over the long term. These impacts will occur throughout the annual period that vessels travel in the three areas – generally spring, summer and fall. During times of more intense traffic, such as on weekends and holidays, heavy vessel traffic could result in near-constant, localized elevated levels of suspended sediment in and around the channels during the daytime. Similar impacts would occur around the dock at Talisman/Barrett Beach as vessels attempt to access the dock. The species that will be affected, including those species for which essential fish habitat has been designated, will be more numerous than those impacted under Alternative B. Because natural sediment transport processes, including deposition in the channels and around the Talisman/Barrett Beach dock, will continue to occur under this alternative, the result will be that localized sediment re-suspension from vessel traffic could occur well into the future. It is also possible that additional accumulation of sediment at Talisman-Barrett Beach could result in transformation of marine habitat into intertidal habitat. Impacts will be localized, but longer term, and may or may not be perceptible.

4.4.2 Impacts of Alternative B: Preferred Alternative

4.4.2.1 Sailors Haven

The following EFH species and their life stages may be present in and around the Sailors Haven dredging area when dredging occurs sometime between December through February and possibly extending into March:

- Atlantic salmon – adults
- Pollock – juveniles
- Winter flounder – eggs (starting in February), larvae (starting in March), juveniles, adults
- Windowpane flounder – eggs and larvae (starting in February), juveniles, adults
- Atlantic mackerel – juveniles and adults
- Summer flounder – juveniles (if water temperature is above 37° F)
- Little skate – juveniles and adults
- Winter skate – juveniles and adults

For those species where only adults, only juveniles, or both adults and juveniles will be the life stages present, impacts are unlikely. These are highly mobile life stages which are capable of

avoiding relatively slow moving dredging equipment. All of the species listed above, with the exception of winter flounder and windowpane flounder fall into this group of species. Non-mobile eggs and limited-mobility larvae of winter flounder and windowpane flounder may be present in the dredge area during the time of dredging. Impacts to these two species are expected to be relatively more likely. However, effects will be localized and may or may not be perceptible. Impacts will be short-term because the slightly altered (deeper) habitat will remain suitable for future use by all life stages of winter flounder and windowpane flounder. Recruitment may be reduced locally, but in the context of the overall recruitment in the GSB system, any effects are, again likely to be imperceptible. It is even possible or likely that eggs could be laid in the affected area after dredging takes place. Dredging is proposed to take place only in those areas that have been previously dredged and will not be occurring during peak egg laying periods.

Dredging will also remove benthic organisms which may serve as food sources for fish species. These impacts are also expected to be localized and short term. Various studies of the effects of dredging of benthic organisms found that recovery was relatively rapid – measured in months, and some studies found that the number of species and the abundance of organisms within species were significantly higher after dredging (Carter, Hague and Floyd, 2008; Rathod, 2011). Timing of dredging activities in the period from December through February and possibly extending into March will mean that benthic organism levels will likely have recovered to pre-dredging levels by the following summer or possibly fall.

There will not be impacts to HAPC eelgrass, either directly through dredging, or indirectly through any sediment plume that may be generated since eelgrass is not reported for the Sailors Haven area (NOAA/NYSDOS, 2003).

4.4.2.2 Talisman/Barrett Beach

The Talisman/Barrett Beach dredging location provides very limited fish habitat due to very shallow water depths. However, areas directly adjacent to the dredged location do contain deeper waters, so it would not be appropriate to exclude any species that may be present in the general area from this evaluation of potential impacts.

The following species and life stages may be present in and around the area to be dredged.

- Winter flounder – adults and juveniles
- Windowpane flounder – adults and juveniles
- Summer flounder – juveniles (if water temperature is above 37° F)

(Note: there are fewer species at this site (and at Watch Hill) as compared to Sailors Haven since strictly saline species that may occur at Sailors Haven, such as Atlantic mackerel, will not utilize mixing zone waters at Talisman/Barrett Beach and Watch Hill.)

Because no eggs or larvae of any of these three species will be present during October to mid-December when dredging may occur, and only highly mobile adults and/or juveniles may be present, impacts are unlikely. Impacts to benthos are expected to be the same as described above, and will be short term and localized. There will be no impacts to HAPC eelgrass at this location since it is not known to occur in the area (NOAA/NYSDOS, 2003).

4.4.2.3 Watch Hill

The following EFH species and their life stages may be present in and around the Watch Hill dredging area when dredging occurs sometime between December through February and possibly extend into March:

- Winter flounder – eggs (starting in February), larvae (starting in March), juveniles, adults
- Windowpane flounder – eggs and larvae (starting in February), juveniles, adults
- Summer flounder – juveniles (if water temperature is above 37° F)

Impacts for these three species at this location are expected to be the same types as discussed above for Sailors Haven. There is significantly more area that will be affected at Watch Hill as compared to Sailors Haven, and this may increase the numbers of affected eggs and larvae, so the level of impact at Watch Hill may be higher than Sailors Haven, but it will still be localized and short term, and occur in an area that has been previously dredged. Impacts to benthos are expected to be the same as described above, and will also be short term and localized.

Since the proposed dredging is limited to the channel, potential impacts to eelgrass, should it actually be present in the SAV assemblage, should be avoided. Care should be taken during dredging operations to limit vessel activity outside of the channel area where eelgrass may be present.

4.4.2.4 Conclusion

Overall, impact intensities to estuarine resources, including essential fish habitat, under Alternative B are considered to be localized and short term for the following reasons. In the context of the Park's submerged lands, and in the context of the GSB complex, the area to be affected is insignificant. The total area of submerged lands to be directly affected by dredging represent less the 1/10 of 1% of FIIS submerged lands and less than 2/100 of 1% of the GSB complex. In areas affected (made deeper) by dredging, benthos will recover quickly, and the minor change in depth will not preclude the future functioning of the areas as essential fish habitat. Dredging, at most, will increase water depth by a few feet, which is not significant change in this aspect of aquatic habitat. There will also be very little to no impact to HAPC eelgrass due to its general absence from the affected areas.

4.5 Wetlands

4.5.1 Impacts of Alternative A: No Action

4.5.1.1 Sailors Haven

The repeated dredging of the channel on an as needed basis would have no impacts on wetlands (November 2007 EA).

4.5.1.2 Talisman/Barrett Beach

Under the no action alternative there would be no appreciable change to existing wetlands at Talisman/Barrett Beach, therefore, no impacts are anticipated.

4.5.1.3 Watch Hill

Under the no action alternative there would be no appreciable change to existing wetlands at Watch Hill therefore no impacts are anticipated.

4.5.1.4 Conclusion

Under the no action alternative there would be no appreciable change to existing wetlands at any of the dredge locations, therefore, no impacts are anticipated.

4.5.2 Impacts of Alternative B: Preferred Alternative

4.5.2.1 Sailors Haven

Sandy dredge material will be placed behind bulkhead areas to replace eroded sand and also be available to be placed along the eastern and western shorelines for erosion control and sediment transport restoration. Dredge material will be initially placed above the high tide elevation and then spread into the intertidal zone during periods around low tide. Material will be spread to achieve a 20:1 slope to replicate the natural angle of repose within the intertidal zone. The single palustrine wetland area that was delineated at Sailors Haven will be avoided.

For the intertidal areas typical beach nourishment (i.e., shoreline fill) practices can cause significant mortality to benthic organism populations at the placement site. For instance, Peterson et al. 2000 noted an 86% to 99% decline in the predominant macro-invertebrate populations approximately 5 to 10 weeks after sand placement along a 0.5-kilometer segment of an ocean-facing beach in North Carolina. The rate of recovery can vary from weeks to months depending on several factors, such as the season of fill placement, the design (e.g., length, thickness and slope) of the nourished segment and the similarity between sediment characteristics of the borrow area and the fill site. For example, recovery of benthic invertebrate populations at a Bogue Banks, North Carolina nourishment site took over one year, attributed to excessive coarse material and shell hash (Dallas et al., 2012). In another study, longer benthic recovery times were associated with elevated levels of fines (USACE, 2005). However, recovery of benthic organism populations has been reported to take between 2 and 7 months for two nourishment activities in New Jersey, where the fill material was relatively similar to the existing beach material (USACE, 2005). Therefore, using material similar in composition is considered the key component in assuring rapid recovery of benthic organisms (Dallas et al., 2012, USACE, 2005, Greene, 2002).

Timing of material placement can also significantly affect benthic recovery, but there is some conflict in literature about whether it is best to conclude nourishment by October, prior to the greatest population drop (USACE, 2005) or during the winter months when the benthic population is lowest (Dallas et al., 2012). Given the drop in organism numbers on the bay side compared to the beach side in the fall season (in 2005), there may be minimal impact in placing material in the proposed dredge material placement sites anytime between the fall and early spring. Other factors that can aid recovery include (1) limiting the thickness of material to less than 1 meter and applying material at a slower rate to promote upward migration (Greene, 2002), (2) placing dredge material in shorter sections with intermittent unfilled areas that provide a

source for faster recruitment (Dallas et al. 2012) and (3) placing material landward of any low-tide terrace (i.e., creating a “feeder beach”) to limit burial of benthic communities (Nordstrom and Jackson, 2005).

Considering the above information, and in accordance with NPS *Management Policies* (NPS 2006) and the Organic Act (16 USC § 1), Project impact to native benthic organisms may be minimized using the following strategies:

- The length of dredge material placement segments would be a maximum of approximately 1 kilometer in length. The longer segments may be interspersed with breaks to further reduce the lengths of affected benthos habitat.
- Material to be dredged comes from the nearby littoral system, and is therefore expected to be similar in nature to the existing beach material. Specific characteristics will be determined from sediment sampling in the near future.
- Placement of dredge material on beaches to restore littoral sediment transport is proposed to occur in the winter, prior to the warm season that is most conducive to re-colonization of benthic macro-invertebrates.
- The proposed beach placement is only planned to occur once in the near future. Based on recent history, subsequent full-scale maintenance dredging may not occur for another 20 to 30 years barring extreme storm events.
- Due to the relatively narrow width of the sandy foreshore, the amount of dredge material would be limited to an average of approximately 5 cubic yards per linear foot. Placement of this material may be restricted to the foreshore and intertidal area landward of any low-tide terrace, potentially through the construction of a temporary sill. At Sailors Haven, the proposed placement would expand on the experimental creation of a feeder beach in 2011, much of which has now eroded.

These strategies are expected to help ensure full recovery of the benthic intertidal communities and associated ecological functions within six months of material placement along the shoreline, pending design details and fill methods to be developed by USACE and NPS.

4.5.2.2 Talisman/Barrett Beach

Sandy dredge materials will be distributed generally along both west and east shorelines as erosion control and sediment transport measures. Dredge material will be initially placed above the high tide elevation and then spread into the intertidal zone during periods around low tide. Material will be spread to achieve a 20:1 slope to replicate the natural angle of repose within the intertidal zone. The four palustrine wetland areas that were delineated at Talisman/Barrett Beach will be avoided, therefore, none of the delineated wetland areas will be impacted.

See the previous section for a discussion of intertidal placement of dredge material which is also applicable to this site.

4.5.2.3 Watch Hill

Dredge materials are to be generally stockpiled in upland areas where they can be accommodated. Some dredge materials will be placed around the marina facility to raise and level existing public use areas including picnic and recreation areas. A total of five palustrine wetland areas were delineated at Watch Hill.

A number of possible dredge material stockpile locations were preliminarily identified at Watch Hill prior to wetlands being delineated at the site. During the wetland delineation it was determined that two of the areas preliminarily identified as possible dredge material placement locations contained wetlands. These two locations were then eliminated from consideration as dredge material placement areas, thus avoiding potential wetland impacts. There will be no impacts to palustrine wetlands at Watch Hill. There will be no intertidal zone placement of dredge materials at the Watch Hill site.

4.5.2.4 Conclusion

The preferred alternative will avoid any disturbance of delineated palustrine wetlands at all of the identified dredge material placement locations at Sailors Haven, Talisman/Barrett Beach and Watch Hill. Erosion control and sediment measures will result in the beneficial effects on deepwater habitats and jurisdictional waters of FIIS. There will be no net loss of intertidal area for the project as a whole, therefore, the preferred alternative will have no likely effect on wetlands.

4.6 Terrestrial Ecology

4.6.1 Impacts of Alternative A: No Action

4.6.1.1 Sailors Haven

The November 2007 EA reported that terrestrial wildlife and vegetation would not be impacted by dredging the channel section nearest the marina. Placement of dredge material from previous dredging activities behind the western bulkhead at Sailors Haven has resulted in providing sediment into the longshore sediment transport system that has moved sand into the area in front of the sunken forest.

4.6.1.2 Talisman/Barrett Beach

Under the no action alternative there would be a continuation of existing conditions. No appreciable change to terrestrial resources at the Talisman/Barrett Beach dredge locations would occur, therefore, no impacts are anticipated.

4.6.1.3 Watch Hill

Under the no action alternative there would be a continuation of existing conditions. No appreciable change to terrestrial resources at the Watch Hill dredge locations would occur, therefore, no impacts are anticipated.

4.6.1.4 Conclusion

Under the no action alternative there would be a continuation of existing conditions. No appreciable change to terrestrial resources at any of the three dredge locations would occur, therefore, no impacts are anticipated.

4.6.2 Impacts of Alternative B: NPS Preferred Alternative

4.6.2.1 Sailors Haven

The removal of accumulated sand and sediments from the Sailors Haven channel will not disturb the habitats of the threatened or endangered plant species described in Section 3.6. No direct impacts by dredging on sea beach amaranth, sandplain gerardia or small whorl pogonia will occur as a result of sediment removal. The small whorl pogonia is a plant that is normally found in a second growth forest area, and none of the dredge material placement areas contain second growth. All the dredge material placement areas are locations of prior disturbance, and are habitats that could support either seabeach amaranth or sandplain gerardia. The dredge material placement areas have been examined by qualified FIIS Park Biologist. That examination failed to detect either of the two plants in the areas designated for dredge material placement for the Sailor Haven dredging project.

The highest sensitivity for terrestrial resources is in the Sunken Forest, a critically impaired resource with high ecological and conservation value. Dredge materials from this location will be placed behind marina bulkheads to replace eroded sand. It will also be placed along the eastern and western shorelines of Sailors Haven. These areas are adjacent to but outside the bayshore boundary of the Sunken Forest. Placement of sand in these areas could reduce shoreline erosion in the vicinity of the Sunken Forest.

4.6.2.2 Talisman/Barrett Beach

Dredge materials from this location will be distributed generally along both west and east shorelines as erosion control and sediment transport measures. Dredge material will be initially placed above the high tide elevation and then spread into the intertidal zone during periods around low tide. Since no terrestrial resources will be impacted, no impacts are identified.

4.6.2.3 Watch Hill

Dredge materials from this location are to be generally stockpiled in upland areas where they can be accommodated in existing sandy, previously disturbed areas. Since no terrestrial resources will be impacted, no impacts are identified.

4.6.2.4 Conclusion

The dredging process and dredge material placement sites would occur in previously disturbed upland areas or along the bayshore beach areas. Since no terrestrial resources will be impacted no impacts are identified.

4.7 Species of Special Concern

4.7.1 Impacts of Alternative A: No Action

4.7.1.1 Sailors Haven

A positive impact identified in the November 2007 EA for this alternative, limited dredging at the mouth of the marina, was an increase in available area seabird foraging areas in the dredge material placement locations.

4.7.1.2 Talisman/Barrett Beach

Under the no action alternative there would be a continuation of existing conditions and there will be no impacts to the piping plover or roseate tern.

4.7.1.3 Watch Hill

Under the no action alternative there would be a continuation of existing conditions and there will be no impacts to the piping plover or roseate tern.

4.7.1.4 Conclusion

Under the no action alternative there would be a continuation of existing conditions. No appreciable change to terrestrial resources at any of the three dredge locations would occur therefore no impacts are anticipated.

4.7.2 Impacts of Alternative B: NPS Preferred Alternative

4.7.2.1 Fire Island National Seashore – Marine Species

Aquatic species of special concern - Loggerhead, Kemp's Ridley, and Green Sea Turtle - may occur in Great South Bay and in the vicinity of the areas to be dredged. However, they will occur when water temperatures are warm, generally above 18° C between April 1 and November 15. It is highly unlikely that any of the three species will be present in or around the Sailors Haven or Watch Hill project areas which will occur between December and February and possibly extend into March.

The proposed dredging timeframe for Talisman/Barrett Beach is October through December 15, so it is possible that one or more of these species may be present. In order to mitigate potential impacts during the early part of the Talisman/Barrett Beach dredge time period, measures such as turtle deflectors on hopper dredges (if they are used for the project) and having an NMFS approved observer present during dredging will be employed. See the mitigation measures section 4.7.2.6 below.

It is possible that DPS Atlantic sturgeon may also be present in and around the areas to be dredged. Subadults and adults are generally known to make use of estuarine habitats during warmer months and then make use of deeper habitats during winter months. This lessens the potential for encountering Atlantic sturgeon since peak use times will have passed. Nonetheless,

some sturgeon may be present in the area since sturgeon are present in NY waters during winter months and can still be migrating through the project area. It is likely that only motile adults and subadults that could be present, so the potential for sturgeon being encountered by dredge equipment is also lessened, but not eliminated, since entrainment or impingement in/on dredge equipment is still possible, although unlikely.

In the enacting rules and regulations establishing endangered species status for the NY bight Atlantic sturgeon DPS (50 CFR Parts 223 and 224, FR Vol.77, No.24, p. 5895, February 6, 2012) it is stated that sturgeon will avoid areas during dredging operations. NOAA has stated during their informal review of a draft of this EA that Atlantic sturgeon interactions with dredges generally occur when the animal is on the bottom foraging, resting, overwintering, etc. NOAA has also stated that deeper waters are used by sturgeon for overwintering and resting. The areas to be dredged are not deep waters as the affected areas are less than six feet deep, therefore, sturgeon involved in overwintering and resting activities are highly unlikely to be encountered. This leaves foraging Atlantic sturgeon that could potentially be encountered. Atlantic sturgeons generally forage on benthic invertebrates which could include the areas proposed to be dredged. Although the likelihood of impacts during dredging are considered to be low, measures should be taken to further reduce the potential impacts. See section 4.7.2.6.

The type of dredge equipment that is used may influence the likelihood of encountering aquatic species. Generally speaking, accidental removal of fish or turtles is relatively more likely to occur with hydraulic or mechanical/hydraulic dredging methods (i.e. hopper dredge, cutterhead dredge,) as compared to mechanical (bucket) dredging. The suction component of the mechanical/hydraulic methods can pull in fish or turtles with the sediment being removed, a process referred to as entrainment. Effects on entrained organisms will vary depending on the degree of physical impacts. Mortality often occurs, but it is not uncommon for entrained organisms to pass through the dredge equipment unharmed, in which case, they can be returned to the water.

4.7.2.2 Sailors Haven - Terrestrial

Once sediment is removed from the Sailors Haven channel it will be stockpiled or placed at locations identified in Section 2.3.1 as illustrated by Figure 2-4. A search of these areas by a FIIS Park Biologist confirmed that none of the identified threatened and endangered plant species are present at the dredge material placement areas. The selected dredge material placement sites are not utilized by the piping plover, roseate tern, common tern or least tern, therefore, direct impacts will not occur. The placement of material along the shoreline will increase the amount of available habitat for these bird species. The selected period for dredging is between December to February and possibly extending into March. The plover and terns all complete their nesting and rearing of young by the end of September and have left FIIS region well before the beginning of the proposed dredging project. These birds do not return to the Northeast until April, therefore, work at the dredge sites could continue beyond January without impacting the plover or terns.

4.7.2.3 Talisman/Barrett Beach - Terrestrial

Once sediment is removed from the Talisman/Barrett Beach channel it will be placed at locations identified in Section 2.3.1 as illustrated by Figure 2-5. A search of these areas by a FIIS Park Biologist confirmed that none of the identified threatened or endangered plant species are present at the dredge material placement areas.

The proposed areas for the dredge material placement from the Talisman/Barrett Beach are not currently used as a nesting site for either the piping plover or the roseate tern. Dredging is proposed to occur between October and December when both the plover and the tern are on their wintering grounds to then south. The other state threatened species of shore birds (common tern and least tern) will also be at their over-winter sites in the south between September to April, therefore, the proposed dredging will not impact these species. In general, the dredging window that will avoid construction activity between the months of April to the end of September will be protective of the state threatened and federally listed bird species. No appreciable change to species of special concern at the Talisman/Barrett Beach dredge location would occur, therefore, no impacts are anticipated.

4.7.2.4 Watch Hill - Terrestrial

Once sediment is removed from the Watch Hill channel it will be stockpiled or placed at locations identified in Section 2.3.1 as illustrated by Figure 2-6. A search of these areas by a FIIS Park Biologist confirmed that none of the identified threatened and endangered plant species are present at the dredge material placement areas.

The proposed areas for the dredge material from the Watch Hill are not currently used as a nesting site for either the piping plover or the roseate tern. Dredging is proposed to occur between December and February when both the plover and the tern are on their wintering grounds to the south. The other state threatened species of shore birds (common tern and least tern) will also be at their over-winter sites in the south between September to April, therefore, the proposed dredging schedule will not impact these species. In general, the dredging window that will avoid construction activity between the months of April to the end of September will be protective of the state threatened and federally listed bird species.

4.7.2.4 Conclusion

Since a FIIS Park Biologist made the finding that none of the plant and animal species of concern is present at any of the dredge material placement areas, Alternative B is very unlikely to have an adverse effect on terrestrial threatened and endangered species. The piping plover, common tern and least tern all nest in areas of open sand and may use dredge material placement areas for nesting or foraging. If, in the future, plovers are found to be using dredge material placement areas, NPS would develop a habitat/species protection plan.

Table 4-1 presents a summary of the impacts of Alternative B to marine and terrestrial threatened and endangered species.

Table 4-1
Effects of the Preferred Action on Threatened and Endangered Species

Common Name	Status*	Potential Effect: Presence/Absence During Dredging
Marine Species		
Loggerhead turtle <i>Caretta caretta</i>	FT, ST	Species may be present at Talisman/Barrett Beach only. Adverse impacts unlikely.
Kemp's ridley turtle <i>Lepidochelys kempii</i>	FE, SE	Species may be present at Talisman/Barrett Beach only. Adverse impacts unlikely.
Green sea turtle <i>Chelonia mydas</i>	FT, ST	Species may be present at Talisman/Barrett Beach only. Adverse impacts unlikely.
Leatherback sea turtle <i>Dermochelys coriacea</i>	FE, SE	No effect. Ocean species, not documented in GSB.
Atlantic Sturgeon <i>Accipenser oxyrinchus</i>	FE	Adverse impacts unlikely.
Terrestrial Animal Species		
Piping plover <i>Charadrius melodus</i>	FE, SE	No adverse impacts. Nesting occurs after dredging will be completed.
Roseate tern <i>Sterna dougallii</i>	FT, SE	No adverse impacts. Not present during dredging.
Common tern <i>Sterna hirundo</i>	ST	No adverse impacts. Not present during dredging.
Least tern <i>Sternula antillarum</i>	ST	No adverse impacts. Not present during dredging.
Terrestrial Plant Species		
Seabeach amaranth <i>Amaranthus pumilus</i>	FT, SE	No adverse effect. No plants have been documented in any of the project areas by FIIS by FIIS Park Biologist.
Seabeach knotweed <i>Polygonum glaucum</i>	SR	No adverse effect. No plants have been documented in any of the project areas by FIIS by FIIS Park Biologist.
Small whorled pagonia	FT, SH	No adverse effect. No plants have been documented in any of the project areas by FIIS Park Biologist.

*FE: federally endangered; FT: federally threatened; SE: state endangered; ST: state threatened; SR: rare.

The following measures will be undertaken to ensure the protection of any sea turtle species as well as Atlantic sturgeon:

- If a hopper dredge is used it will be equipped with turtle deflectors.
- A NMFS approved observer would be present during operation.
- All turtle captures, injuries or mortalities associated with the project would be reported to NMFS within 24 hours.
- If sea turtles are present during dredging or material transport, vessels transiting the area must post an observer.
- All contracted personnel involved in operating hopper dredges receive thorough training on measures of dredge operation that will minimize takes of sea turtles.
- Hydraulic pumps will only be turned on when the draghead is on the bottom. All NMFS monitoring specifications for hopper dredges would be adhered to.

- Any sturgeon observed in the hopper/basket will be netted, and if alive, placed in a flow through live well and released away from the project site.
- Any Atlantic sturgeon captured will be scanned for Passive Integrated (PIT) tags and tag numbers will be recorded and reported to NMFS.
- Fin clips will be taken from any Atlantic sturgeon by the observer and be provided to NMFS for genetic analysis.
- An incident report for incidental sea turtle or Atlantic sturgeon take shall be completed by the observer and provided to NMFS within 24 hours.

4.8 Archeological Resources

4.8.1 Impacts of Alternative A: No Action

Under the no action alternative, there would be no physical disturbances at Watch Hill or Talisman/Barrett Beach, so there would be no potential for impacting any cultural resources. For Sailor Haven, the November 2007 EA found that the dredging of the marina opening would not impact archeological resources.

4.8.2 Impacts of Alternative B: NPS Preferred Alternative

The archeological investigations conducted for the project did not identify any archeological resources that could be impacted by the project. On July 22, 2013, NYSOPRHP issued a letter confirming that the preferred alternative project would have no adverse effect (as per 36 CFR Section 800.5(b)) on any significant historic properties listed, or eligible for listing, in the National Register of Historic Places.

4.8.3 Conclusion

There will be no impacts to archeological resources under Alternative A or Alternative B.

4.9 Recreational Resources, Visitor Experience and Aesthetics

4.9.1 Impacts of Alternative A: No Action

4.9.1.1 Sailors Haven

Under the no action alternative, access into the marina by boat or ferry would be minimally improved and only during the near future. Repeated small maintenance dredging as is permitted through September 11, 2016 under existing permits, will allow only that portion of the channel near the mouth of the marina to be maintained. (November 2007 EA). Due to multiple storm events, including Hurricane Sandy in October 2012, sediment, primarily sands, has already accumulated in the primary navigation channels. At many points throughout the channel, water depths at mean low tide are currently less than six (6) feet (the depth considered acceptable for

safe vessel travel). Shallow water depths can result in vessels running aground, particularly at extreme low tide events, such as full moon tides. The channel has also narrowed to a width significantly below the 100 feet considered adequate for safe passage. These conditions have increased the difficulty of navigation and access for two-way vessel traffic. This condition becomes a critical issue during summer weekends when boat traffic is at its peak. The lowered capacity of the navigation channels (both width and depth) has also increased the potential for property damage to vessels owned by the NPS, law enforcement agencies, emergency services, concessionaires, and Seashore visitors' private vessels. Continuation of current conditions will ultimately result in the cancellation of ferry operations, the inability of concessionaires to service their businesses, and the loss of public access to Seashore facilities. Sand accumulation will continue to fill in the main access channel and worsen existing conditions. The loss of public access to this facility would potentially impact 52,000 visitors per year.

4.9.1.2 Talisman/Barrett Beach

The no action alternative would result in the continuation and likely worsening of current conditions. Sediment transport may continue to fill in the areas around the dock eventually resulting in the abandonment of the dock for public access and facility use by others, including NPS and law enforcement. Recreational use of the bay and ocean beaches will begin to diminish as the ability to access the site through the public dock by water taxi or private vessel is restricted and eventually cut off entirely to this location. Since access to boat mooring remains unaffected in the shallows near the dock, public access will be moderately impacted. Potentially, this could affect over 43,000 visitors per year.

4.9.1.3 Watch Hill

The No Action Alternative would result in the continuation and likely worsening of current conditions. Sediment transport may continue to fill in the navigation channel and areas within the marina eventually resulting in the restriction of use and/or abandonment of the facility for public access and facility use. Recreational use of the marina and other visitor facilities will begin to diminish as the ability to access the site by public ferry, private vessel, NPS, law enforcement, and emergency services is restricted and potentially, cut off entirely. This will result in a loss of concessionaire revenues and cut off public access to the marina and ocean beach areas. Potentially, this could affect over 48,000 visitors per year.

4.9.1.4 Conclusion

The no action alternative would result in restricted access to the two main public marinas on Fire Island and critical public access points to FIIS. It will create a loss in capacity for FIIS to accommodate public users at Sailors Haven, Talisman/Barrett Beach and Watch Hill facilities. Continuation of current conditions will ultimately result in the cancellation of ferry operations, the inability of concessionaires to service their businesses, and the loss of public access to FIIS facilities. In addition, it will put pressure on other public marina and recreational facilities in the vicinity to absorb the demand. It would also result in the loss of the public's ability to access important interpretive and other educational programming and experiences which in turn support FIIS and all of its resources and activities. The impacts associated with the no

action alternative at all three locations will have a considerable long term adverse impact on recreational resources, visitor experience and aesthetics.

4.9.2 Impacts of Alternative B: NPS Preferred Alternative

4.9.2.1 Fire Island National Seashore

The Preferred Alternative will restore full access previously available at all three locations to the marina and other visitor facilities. Impacts to recreational resources, visitor experience and aesthetics will be beneficial.

4.9.2.2 Sailors Haven

The Preferred Alternative will restore full access to the marina and other visitor facilities. Impacts to recreational resources, visitor experience and aesthetics will be beneficial.

4.9.2.3 Talisman/Barrett Beach

The Preferred Alternative will restore full access to the dock and other visitor facilities. Impacts to recreational resources, visitor experience and aesthetics will be beneficial.

4.9.2.4 Watch Hill

The Preferred Alternative will restore full access to the marina and other visitor facilities. Impacts to recreational resources, visitor experience and aesthetics will be beneficial.

4.9.2.5 Conclusion

Unimpeded water access to the three interior public areas on FIIS which are not reasonably accessible by land will be beneficial for all park visitors and, taken together, the impacts associated with the preferred alternative at all three locations will have a long term beneficial impact on recreational resources, visitor experience and aesthetics.

4.10 Socioeconomics

4.10.1 Impacts of Alternative A: No Action

4.10.1.1 Fire Island National Seashore

The decrease in visitors could result in a loss of over \$1 million of concession revenues. In addition, FIIS would be forced to eliminate concessions at Sailors Haven and Watch Hill which not only support Seashore programs and facilities, but also employ local residents and provide sales tax and other fiscal benefits to the community and region. With no public able to utilize the three sites, NPS would also have to reduce its workforce in these areas by at least 10 staff, which would affect payroll for those individuals and negatively impact the local economy.

4.10.1.2 Sailors Haven

Potentially over 52,000 visitors and residents could lose access to Sailors Haven resulting in a substantial loss in economic benefits.

4.10.1.3 Talisman/Barrett Beach

The access to the public dock at Barrett Beach would continue to deteriorate. Potentially, over 43,000 visitors and residents could lose access to Talisman/Barrett Beach resulting in a substantial loss in public recreational and economic benefits.

4.10.1.4 Watch Hill

Potentially, over 48,000 visitors and residents could lose access to Watch Hill resulting in a substantial loss in public recreational and economic benefits.

4.10.1.5 Conclusion

The collective loss of access to Fire Island would result in major long-term impacts for FIIS, the public, and the economies of the nearby municipalities. The loss of access to resources would increase and intensify the use at other Seashore facilities potentially creating capacity issues. The loss of visitors would result in lower revenues from closed concessions, the marinas and the ferries. The loss of both FIIS and concessionaire jobs would result in reduced payroll and diminished spending in the local communities. Restricted water access for NPS would also result in decreased maintenance for all three sites.

4.10.2 Impacts of Alternative B: NPS Preferred Alternative

4.10.2.1 Fire Island National Seashore

Channel access would be maintained at all three locations and there would be no disruption in ferry services at Sailors Haven and Watch Hill. Widening of the existing channels and increasing water depths in the channels and in the marinas would result in improved conditions for ferries, vessels owned by the NPS, law enforcement agencies, emergency services, concessionaires, and FIIS visitors' private vessels. Restoring channel depths and widths to their previous dimensions through dredging will provide the required, continued safe access to Fire Island.

4.10.2.2 Sailors Haven

The preferred alternative would result in the public's restored use and enjoyment of Sailors Haven. The dredging project would be completed during the off-season, therefore, visitation and socioeconomic benefits derived should not be adversely impacted.

4.10.2.3 Talisman/Barrett Beach

The preferred alternative would result in the public's restored use and enjoyment of Talisman/Barrett Beach. The dredging project would be completed during the off season, therefore, visitation and socioeconomic benefits derived should not be adversely impacted.

4.10.2.4 Watch Hill

The preferred alternative would result in the public's restored use and enjoyment of Watch Hill. The dredging project would be completed during the off season therefore there are no inconveniences to the public anticipated.

4.10.2.5 Conclusion

The dredging project would be completed during the off season, therefore, visitation and socioeconomic benefits derived should not be adversely impacted. The preferred alternative would result in the public's continued use and enjoyment of Sailors Haven, Talisman/Barrett Beach, and Watch Hill. Impacts would be beneficial to the public, FIIS, and NPS.

CHAPTER 5 CONSULTATION AND COORDINATION

This section outlines the process undertaken by the NPS to contact persons, agencies and organizations for information or that assisted in identifying important issues, developing alternatives or analyzing impacts, or that will review and comment on the EA. Copies of correspondence received from agencies, organizations and from the public during the scoping and EA review processes are included in Appendix A.

5.1 Planning and Public Involvement

A stakeholders and cooperators meeting was held at FIIS' Patchogue Ferry Terminal on July 9, 2013. Attendees included representatives of the Town of Brookhaven, The Nature Conservancy, NYSDEC, NYSDOS, USACOE, New Jersey Institute of Technology and Rutgers University. Scoping letters dated July 16, 2013 were sent to stakeholders and cooperators, including the following NOAA/NMFS, NYSOPRHP, USFWS, NYSDEC, Town of Brookhaven, NYSDOS and USACOE.

The public will have two opportunities to formally comment on the project: once during scoping and again following release of the Environmental Assessment. The public scoping process commenced on July 15, 2013 with a press release that briefly described the project and announced a public scoping period from July 5 through August 5, 2013. On the same day, the press release was posted on the NPS PEPC website (<http://parkplanning.nps.gov/fiis>) through August 5, 2013.

Coordination between NPS DSC, NPS FIIS, NPS NER, NFWS, USACOE and NPS' NEPA Contractor has been ongoing since May 2013. Notification of the EA was made to the State of New York, various federal agencies, affected communities, area landowners and parties who have expressed an interest in this project. A copy of the EA was available for download from the PEPC webpage.

The EA comment period extended for a period of 30 days.

5.2 Public Agencies, Tribes, Organizations and Persons Contacted

The NPS initiated informal consultations with NOAA/NMFS, USFWS, and NYDOS in regards to threatened and endangered species, essential fish habitat (EFH), and coastal zone management consistency (CZM). These agencies will all be sent the EA for review. NPS' NEPA Contractor received correspondence from NYNHP regarding state listed animals, plants and significant natural communities see response letter in Appendix A.

The NPS consulted for Section 106 of the National Historic Preservation Act of 1966, as amended, with the State Historic Preservation Officer. NPS received concurrence and a determination of No Adverse Effect in a letter from NYSOPRHP dated July 22, 2013. See response letter in Appendix A.

5.3 Internal Coordination

Internal scoping for this EA began with a pre-scoping conference call between NPS and their NEPA Contractor occurred on May 21, 2013. A cultural resources kickoff conference call on May 28, 2013 included NPS, NPS' NEPA contractor and the NEPA cultural resources Subcontractor. A project kick-off conference call occurred on May 30, 2013. Participants included NPS, NEPA Contractor and cultural resources and wetlands Subcontractors, EFLHW and USACOE. Site visits were conducted on June 19, 2013 to dredging locations at Watch Hill, Sailors Haven and Talisman/Barrett Beach. A review of each site included background information including any history of maintenance dredging; estimated dredge amounts from each location, potential locations for material disposition, and potential environmental issues related to each site. NPS completed internal project scoping on June 20, 2013 at the Watch Hill Ferry Terminal in Patchogue, New York. In attendance were NPS representatives from Fire Island National Seashore, Denver Service Center, Northeast Regional Office, Eastern Federal Lands Highway Division, Army Corps of Engineers, LA Group (NEPA Contractor), and Ecology & Environment (NEPA Subcontractor).

5.4 Wetlands Compliance

NPS wetland protection policies are found in NPS *Management Policies* § 4.6.5 (NPS, 2006). NPS Procedural Manual (P.M.) #77-1: Wetland Protection (NPS, 2012c) establishes procedures for implementing these policies. Projects that involve sediment restoration in the intertidal zone are subject to NPS wetland protection policies and procedures because estuarine or marine intertidal zones (including beach areas between the extreme high and extreme low spring tidal elevations) are defined as wetlands under P.M. #77-1.

The NPS has a “no net loss of wetlands” policy and strives to achieve a net gain of wetlands through restoration (NPS *Management Policies* § 4.6.5, 2006). Where wetlands have been degraded due to previous or ongoing human actions, the NPS will restore them to pre-disturbance conditions to the greatest extent possible.

For new activities, that are either located in or otherwise could have adverse impacts on wetlands, the NPS will employ the following sequence:

- Avoid adverse wetland impacts to the extent practicable;
- Minimize impacts that cannot be avoided; and
- Compensate for remaining unavoidable adverse wetland impacts by restoring wetlands that have been previously destroyed or degraded.

All actions proposed by the NPS that have the potential to cause adverse impacts on wetlands require NEPA compliance. If the action will result in adverse impacts on wetlands, a Wetland Statement of Findings must be prepared, circulated for public review and comment, and approved in accordance with NPS wetland protection procedures (P.M. #77-1§ 5.3.4 and 5.3.5).

This Environmental Assessment documents compliance status with these NPS wetland protection procedures by presenting the rationale for undertaking the projects with potential adverse impacts to wetlands, and by documenting the existing conditions and anticipated adverse impacts. The NPS determined that the placement of dredge material in the intertidal wetland habitat will result in the creation of a greater area of new intertidal habitat – the project will result in no long-term net loss of wetland habitat. The NPS also determined that the actions of this project are considered accepted actions according to Procedural Manual #77-1: Wetland Protection Section 4.2.1.h: Actions designed to restore degraded (or completely lost) wetland, stream, riparian, or other aquatic habitats or ecological processes. Therefore, a Wetland Statement of Findings report is not required for this NEPA process. Hence, the NPS finds that the proposed project actions are consistent with the policies.

5.5 List of Preparers and Reviewers

National Park Service, Fire Island National Seashore

K. Christopher Soller, Superintendent
Michael Bilecki, Chief of Resource Management
Diane Abell, Landscape Architect/ Park Planner
Chris Olijnk, Chief of Cultural Resources
James Dunphy, Chief of Facilities Management
Paula Valentine, Public Information Specialist

National Park Service, Northeast Regional Office

Jacki Katzmire, Regional Environmental Coordination
Bill Griswold, Regional Archeology Advisor
Patti Rafferty, Regional Coastal Ecologist
Charles Roman, Regional Coastal Ecologist
Sarah Killinger, Resource Planning Specialist

National Park Service, Denver Service Center

Mike Tomkosky, Project Manager
Lee Terzis, Cultural Resource Specialist
Elaine Rideout, NEPA Lead Natural Resource Specialist
Kevin Noon, PhD, PWS Service-Wide Wetland Scientist, NPS Water Resources Division
Karen Vaag, Project Specialist

Eastern Federal Lands Highway Division

John Wilson, Project Manager
Bonnie Dubose, Lead Designer
Chris Burnell, Highway Design Manager
Lisa Landers, Environmental Protection Specialist
Kevin Rose, Environmental Compliance Team Leader

US Army Corps of Engineers

Tom Shea, Project Manager
Steve Weinberg, Project Engineer
Catherine J. Alcoba, Biologist

NEPA Consultants

Kevin Franke, Project Manager, The LA Group
Tracey Clothier, NEPA Specialist, The LA Group
Dean Long, Natural Resources Specialist, The LA Group
Rob Frasier, Wetland Delineator, The LA Group
Kelly Holzworth, GIS Specialist, The LA Group
Matthew Kirk, Principal in Charge, Hartgen Archeological Associates
Lori Blair, Archeologist, Hartgen Archeological Associates
Anne Elizabeth Kaitano, Project Manager, Ecology & Environment
Justin Zoladz, Wetland Delineator, Ecology & Environment
Steven McCloud, Environmental Scientist, Ecology & Environment

LIST OF ACRONYMS

APE	Areas of Potential Effect
CEQ	Council on Environmental Quality
DGPS	Differential Global Positioning Systems
DSC	Denver Service Center
DPS	Distinct Population Segments
EFH	Essential Fish Habitat
EMAP	Environmental Monitoring and Assessment Program
EPA	Environmental Protection Agency
FIIS	Fire Island National Seashore (also Seashore)
GMP	General Management Plan
GSB	Great South Bay
HAPC	Habitat Area of Particular Concern
MHHW	Mean Higher High Water
MLLW	Mean Lower Low Water
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NWI	National Wetlands Inventory
NYS	New York State
NYNHP	New York Natural Heritage Program
NYSDEC	New York State Department of Environmental Conservation
NYSM	New York State Museum
NYSDOS	New York State Department of State
NYSOPRHP	New York Office of Parks Recreation and Historic Preservation
PIT	Passive Integrated Tags
SAV	Submerged Aquatic Vegetation
SCDHS	Suffolk County Department of Health Services
TN	Total Nitrogen
USFWS	United States Fish & Wildlife Service
USACOE	United States Army Corps of Engineers
USGS	United States Geological Service
USNMFS	United States National Marine Fisheries Service
VDATUM	Vertical Datum Transformation Tool
WSOF	Wetland Statement of Findings

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APPENDICES

APPENDIX A
COMPLIANCE DOCUMENTS



United States Department of the Interior

NATIONAL PARK SERVICE FIRE ISLAND NATIONAL SEASHORE

120 Laurel Street
Patchogue, New York 11772
(631) 687-4750

IN REPLY REFER TO:

H-4217 (FIIS-CR)

August 27, 2013

Mr. Brian Yates
New York State Office of Parks, Recreation and Historic Preservation
Peebles Island Resource Center
P.O. Box 189
Waterford, New York 12188-0189

**Re: 13PR03324
NPS, FHWA
Phase I Archeological Assessment Fire Island National Seashore Dredge
Project – Sailors Haven, Talisman/Barrett Beach and Watch Hill, Town of
Brookhaven, Suffolk County, New York**

Dear Mr. Yates:

Enclosed for your records is the Phase I Archeological Assessment report for the three dredging sites that comprise the NPS/FHWA proposed dredging project at Fire Island National Seashore: Sailors Haven, Talisman/Barrett Beach and Watch Hill.

You had previously reviewed a preliminary version of this report, and on July 22, 2013 you issued a letter to Ms. Lee Terzis of NPS Denver Service Center stating that New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) had reviewed said report in accordance with Section 106 of the National Historic Preservation Act of 1996, as amended, and it's implementing regulations 36 CFR Part 800 – Protection of Historic Properties, and made the determination that the proposed undertaking will have no adverse effect [as per 36 CFR § 800.5(b)] on any significant historic properties listed or eligible for listing, in the National Register of Historic Places.

We greatly appreciate your support and guidance on completing our Section 106 requirements for this project.

Sincerely,

K. Christopher Soller
Superintendent, Fire Island National Seashore

Enclosure: Phase I Archeological Investigation – Final Report
(Dredge Sailors Haven, Talisman/Barrett Beach, and Watch Hill Channels and
Marina for Public Use and Safety)



New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau
Pebbles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

July 22, 2013

Ms. Lee Terzis
NPS Denver Service Center
2680 Natchez Parkway
Tupelo, Mississippi 38804

Re: NPS, FHWA
Phase I Archaeological Assessment: Fire Island National Seashore Dredge Project – Sailors Haven, and Talisman/ Barrett Beach, Town of Brookhaven, Suffolk County, New York
13PR03324

Dear Ms. Terzis:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the submitted preliminary report *Phase I Archaeological Assessment: Fire Island National Seashore Dredge Project – Sailors Haven, and Talisman/ Barrett Beach, Town of Brookhaven, Suffolk County, New York* received by our office July 17, 2013. We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966, *as amended*, and its implementing regulations 36 CFR Part 800 – Protection of Historic Properties.

Results of the survey indicate that a Phase IB archaeological field investigation was conducted for the terrestrial portion of the project's area of potential effects (APE). Field methods consisted of a surface reconnaissance and limited shovel tests. No cultural resources were collected. Based upon these results, it is determined that the proposed undertaking will have *No Adverse Effect* [as per 36 CFR § 800.5(b)] on any significant historic properties listed, or eligible for listing, in the National Register of Historic Places.

Based upon the provided information, and continued consultation with our office, our agency concurs with the provided determination and findings.

Should you have any questions, please feel free to contact me directly at (518) 237-8643, Extension 3288 or via electronic mail at Brian.Yates@oprhp.state.ny.us. If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Wm. Brian Yates
Historic Preservation Specialist



U.S. Fish and Wildlife Service

Natural Resources of Concern

This resource list is to be used for planning purposes only — it is not an official species list.

Endangered Species Act species list information for your project is available online and listed below for the following FWS Field Offices:

LONG ISLAND ECOLOGICAL SERVICES FIELD OFFICE
340 SMITH ROAD
SHIRLEY, NY 11967
(631) 286-0485

Project Name:

Fire Island National Seashore

Project Counties:

Suffolk, NY

Project Type:

Dredge / Excavation

Endangered Species Act Species List (USFWS Endangered Species Program).

There are a total of 4 threatened, endangered, or candidate species, and/or designated critical habitat on your species list. Species on this list are the species that may be affected by your project and could include species that exist in another geographic area. For example, certain fishes may appear on the species list because a project could cause downstream effects on the species. Please contact the designated FWS office if you have questions.

Species that may be affected by your project:

Birds	Status	Species Profile	Contact
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U.S. Fish and Wildlife Service

Natural Resources of Concern

Piping Plover (<i>Charadrius melodus</i>) Population: except Great Lakes watershed	Threatened	species info	Long Island Ecological Services Field Office
Roseate tern (<i>Sterna dougallii dougallii</i>) Population: northeast U.S. nesting pop.	Endangered	species info	Long Island Ecological Services Field Office
Flowering Plants			
Sandplain gerardia (<i>Agalinis acuta</i>)	Endangered	species info	Long Island Ecological Services Field Office
Seabeach amaranth (<i>Amaranthus pumilus</i>)	Threatened	species info	Long Island Ecological Services Field Office

FWS National Wildlife Refuges (USFWS National Wildlife Refuges Program).

There are 6 refuges in your refuge list

Wertheim National Wildlife Refuge (631) 286-0485 C/O LONG ISLAND NWR COMPLEX P.O. BOX 21 SHIRLEY, NY 11967	refuge profile
Amagansett National Wildlife Refuge (631) 286-0485 C/O LONG ISLAND NWR COMPLEX P.O. BOX 21 SHIRLEY, NY 11967	refuge profile
Elizabeth Alexandra Morton National Wildlife Refuge (631) 286-0485 C/O LONG ISLAND NWR COMPLEX P.O. BOX 21 SHIRLEY, NY 11967	refuge profile
Seatuck National Wildlife Refuge (631) 286-0485 C/O LONG ISLAND NWR COMPLEX P.O. BOX 21 SHIRLEY, NY 11967	refuge profile



U.S. Fish and Wildlife Service

Natural Resources of Concern

Target Rock National Wildlife Refuge (631) 286-0485 C/O LONG ISLAND NWR COMPLEX P.O. BOX 21 SHIRLEY, NY 11967	refuge profile
Conscience Point National Wildlife Refuge (631) 286-0485 C/O LONG ISLAND NWR COMPLEX P.O. BOX 21 SHIRLEY, NY 11967	refuge profile

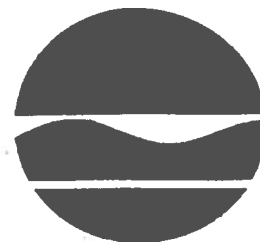
FWS Migratory Birds (USFWS Migratory Bird Program).

Most species of birds, including eagles and other raptors, are protected under the Migratory Bird Treaty Act (16 U.S.C. 703). Bald eagles and golden eagles receive additional protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668). The Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

NWI Wetlands (USFWS National Wetlands Inventory).

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands in the U.S., via the National Wetlands Inventory Program (NWI). In addition to impacts to wetlands within your immediate project area, wetlands outside of your project area may need to be considered in any evaluation of project impacts, due to the hydrologic nature of wetlands (for example, project activities may affect local hydrology within, and outside of, your immediate project area). It may be helpful to refer to the USFWS National Wetland Inventory website. The designated FWS office can also assist you. Impacts to wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Project Proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • Fax: (518) 402-8925
Website: www.dec.ny.gov



Joe Martens
Commissioner

June 24, 2013

RECEIVED
JUN 26 2013

Kelly Holzworth
The LA Group
40 Long Alley
Saratoga Springs, NY 12866

The LA Group

Dear Ms. Holzworth:

In response to your recent request, we have reviewed the New York Natural Heritage Database with respect to an Environmental Assessment for the Proposed Dredge Channels to Sailors Haven and Watch Hill, areas as indicated on the maps you enclosed, located in the Town of Brookhaven, Suffolk County.

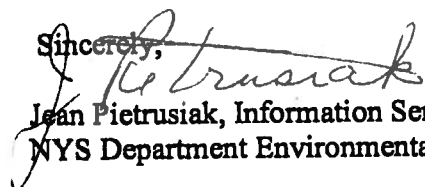
Enclosed is a report of rare or state-listed animals and plants, and significant natural communities, which our database indicates occur, or may occur, on your site or in the immediate vicinity of your site. For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

The enclosed report may be included in documents that will be available to the public. However, any maps displaying locations of rare species are considered sensitive information, and should not be included in any document that will be made available to the public, without permission from the New York Natural Heritage Program.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Sincerely,


Jean Pietrusiak, Information Services
NYS Department Environmental Conservation
583

Enc.

cc: Reg. 1, Wildlife Mgr.



**The following state-listed animals have been documented
at your project site, or in its vicinity.**

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing. The list may also include significant natural communities that can serve as habitat for Endangered or Threatened animals, and/or other rare animals and rare plants found at these habitats.

For information about potential impacts of your project on these populations, how to avoid, minimize, or mitigate any impacts, and any permit considerations, contact the Wildlife Manager or the Fisheries Manager at the NYSDEC Regional Office for the region where the project is located. A listing of Regional Offices is at <http://www.dec.ny.gov/about/558.html>.

The following species and habitats have been documented at or near the project site, generally within 0.5 mile. Potential onsite and offsite impacts from the project may need to be addressed.

COMMON NAME	SCIENTIFIC NAME	NY STATE LISTING	FEDERAL LISTING	
Birds				
Common Tern Breeding	<i>Sterna hirundo</i>	Threatened		1840
Least Tern Breeding	<i>Sternula antillarum</i>	Threatened		8732
Piping Plover Breeding	<i>Charadrius melodus</i>	Endangered	Threatened	2496

This report only includes records from the NY Natural Heritage databases. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at <http://www.dec.ny.gov/animals/7494.html>.

Information about many of the rare plants and animals, and natural community types, in New York are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NatureServe Explorer at <http://www.natureserve.org/explorer>.



**The following rare plants, rare animals, and significant natural communities
have been documented at your project site, or in its vicinity.**

We recommend that potential onsite and offsite impacts of the proposed project on these species or communities be addressed as part of any environmental assessment or review conducted as part of the planning, permitting and approval process, such as reviews conducted under SEQRA. Field surveys of the project site may be necessary to determine the status of a species at the site, particularly for sites that are currently undeveloped and may still contain suitable habitat. Final requirements of the project to avoid, minimize, or mitigate potential impacts are determined by the lead permitting agency or the government body approving the project.

The following animals, while not listed by New York State as Endangered or Threatened, are of conservation concern to the state, and are considered rare by the New York Natural Heritage Program.

COMMON NAME	SCIENTIFIC NAME	NY STATE LISTING	HERITAGE CONSERVATION STATUS
Birds			
Snowy Egret <i>Breeding</i>	<i>Egretta thula</i>	Protected Bird	Imperiled in NYS
Fire Island Wilderness Watch Hill, 1998-06-05: The egrets were observed on dredge spoil on the bay side of a barrier island with a sandy substrate with grass that is open in the center. The dredge spoil is colonized by <i>Ammophila brevifoliosa</i> and weedy annuals.			7557

The following significant natural communities are considered significant from a statewide perspective by the NY Natural Heritage Program. They are either occurrences of a community type that is rare in the state, or a high quality example of a more common community type. By meeting specific, documented criteria, the NY Natural Heritage Program considers these community occurrences to have high ecological and conservation value.

COMMON NAME	SCIENTIFIC NAME	NY STATE LISTING	HERITAGE CONSERVATION STATUS
Wetland/Aquatic Communities			
High Salt Marsh		High Quality Occurrence of Uncommon Community Type	
Fire Island Wilderness: This is a large complex of marsh barrier beach segments with minimal to marginal ditching disturbance and minimal disruption to overwash and other dynamic processes. Human disturbance on marsh is minimal although it can be heavy in some adjacent and nearby communities.			3814
Salt Panne		High Quality Occurrence of Uncommon Community Type	
Fire Island Wilderness: The salt pannes are in a good landscape setting. The pannes are ditched, but recovering with good vegetation diversity. The pannes often found with a complex of high marsh as well as panne species.			5199
Salt Shrub		High Quality Occurrence	
Fire Island Wilderness: This is a large salt shrub in a dynamic, relatively intact barrier beach. The community is degraded by <i>Phragmites australis</i> invasion, but contains relatively intact natural processes, good connectivity and harbors some rare elements, such as <i>Helianthus angustifolius</i> and <i>Sabatia stellaris</i> .			3877



**The following rare plants and rare animals have
historical records
at your project site, or in its vicinity.**

The following rare plants and animals were documented in the vicinity of the project site at one time, but have not been documented there since 1979 or earlier, and/or there is uncertainty regarding their continued presence. There is no recent information on these plants and animals in the vicinity of the project site and their current status there is unknown. In most cases the precise location of the plant or animal in this vicinity at the time it was last documented is also unknown.

If suitable habitat for these plants or animals is present in the vicinity of the project site, it is possible that they may still occur there. We recommend that any field surveys to the site should include a search for these species, particularly for sites that are currently undeveloped and may still contain suitable habitat.

COMMON NAME	SCIENTIFIC NAME	NYS LISTING	HERITAGE CONSERVATION STATUS	
Dragonflies and Damselflies				
Rambur's Forktail	<i>Ischnura ramburii</i>	Unlisted	Imperiled in NYS	
1913-pre: Fire Island. The damselfly was found on an island that is over 3 miles long.				12587
Vascular Plants				
Golden Dock	<i>Rumex fueginus</i>	Endangered	Critically Imperiled in NYS	
1924-08-19: Fire Island Villages. Beach of bay.				7497
Narrow-leaf Sea-blite	<i>Suaeda linearis</i>	Endangered	Critically Imperiled in NYS	
1968-10-03: Fire Island Wilderness Watch Hill. Salt marsh.				8747

This report only includes records from the NY Natural Heritage databases. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at <http://www.natureserve.org/explorer>, and from USDA's Plants Database at <http://plants.usda.gov/index.html> (for plants).

Upland/Terrestrial Communities

Maritime Beach

High Quality Occurrence of Uncommon Community Type

Fire Island: A 32 mile long maritime beach along the south shore of Fire Island, 7 miles of which is designated as Federal Wilderness Area where driving is not allowed for most of the year. Natural processes are affected by stabilization and nourishment in some areas.

5384

Maritime Holly Forest

High Quality Occurrence of Rare Community Type
and Globally Rare

Fire Island Sunken Forest: This is a moderate-sized, old growth maritime holly forest in excellent condition within a protected landscape with some disturbance.

5615

The following plants are listed as Endangered or Threatened by New York State, and/or are considered rare by the New York Natural Heritage Program, and so are a vulnerable natural resource of conservation concern.

COMMON NAME	SCIENTIFIC NAME	NY STATE LISTING	HERITAGE CONSERVATION STATUS
Vascular Plants			
Seabeach Amaranth	<i>Amaranthus pumilus</i>	Threatened and Federally Listed as Threatened	Imperiled in NYS and Globally Rare
Fire Island Pines, 2006-08: This is a narrow barrier beach in front of a foredune.			
1963			
Seabeach Amaranth	<i>Amaranthus pumilus</i>	Threatened and Federally Listed as Threatened	Imperiled in NYS and Globally Rare
Fire Island Sunken Forest, 2006-08: A barrier beach.			
7024			
Seabeach Knotweed	<i>Polygonum glaucum</i>	Rare	Vulnerable in NYS and Globally Uncommon
Fire Island Sunken Forest, 1990-09: A barrier beach.			
8797			
Seabeach Amaranth	<i>Amaranthus pumilus</i>	Threatened and Federally Listed as Threatened	Imperiled in NYS and Globally Rare
Fire Island Wilderness, 2006-08: A barrier beach.			
4094			

This report only includes records from the NY Natural Heritage databases. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

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Information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org. For descriptions of all community types, go to <http://www.dec.ny.gov/animals/29384.html> and click on Draft Ecological Communities of New York State.

Tracey Clothier

Subject: FW: FIIS Dredge Sailors Haven, Watch Hill, Barrett Beach

From: Rideout, Elaine [<mailto:elaine Rideout@nps.gov>]
Sent: Thursday, May 30, 2013 1:31 PM
To: Kevin Franke
Cc: Lee Terzis
Subject: FIIS Dredge Sailors Haven, Watch Hill, Barrett Beach

Contacts and very preliminary discussions

Danielle Palmer - NOAA - T&E species

Work on Great South Bay side - species
4 Sea turtles depending on timing
Atlantic Sturgeon
Any work/transiting Atlantic would bring in whales
no breeding areas/essential foraging ground

If use currituck, clam shell, or cutterhead hydraulic dredge - no timing restrictions
May have timing restrictions otherwise
if can, specify dredge type

don't consider placement of dredged material/beach nourishment an issue

Nov to mid May turtles typically gone; don't know about sturgeon timing presence in GSB

possible/typical mitigation if feasible for project - turbidity curtain to keep species from physically entering dredge area - may not be possible for access channel

Expect this to be informal consultation - not likely to adversely affect - 30 day consultation; don't have to ask for species list - can submit EA as BA; don't require BA unless formal consult/take to occur

willing to review informal submittals prior to formal request for concurrence

Diane Rusanowsky - NOAA - EFH

Dredge disposal
-easy path - put on beach and grade it at low tide - use diffuser - minimize plume
-Hard path - longer time frame - placing offshore and allowing wave action to redeposit
- If don't have ready placement site - breach contingency plan upland stockpile sites (ACOE)

EFH assessment - 30 days
include in EA appendix or impact analysis

preference for dredging to occur - Oct thru Dec - winter flounder spawning begins around mid-January - starts exclusion period

suitable upland sites should avoid wetlands/destruction of dune grass
thinks NOAA T&E have allowed dispensation for use of currituck as far as turtle impacts - may be true for sturgeon as well

EFH evaluation

use their website include both ocean and bay side 10 minute squares; look at sheets for each species; don't forget winter skate

may as well include all species rather than go thru list and dismiss some - won't change conclusions - any exclusions need narrative rationale

use table or create own

can group evaluation of species by what makes sense (e.g., pelagic eggs, larvae)

can submit EFH assessment separately or incorporate in EA - need project description, BMPs

equipment restrictions - don't like drag line

if don't narrow dredge type - evaluate all with discussion of types/relative impacts, entrainment issues, seasonal window to avoid most vulnerable times

keep evaluation broad

will review informally ahead of formal transmittal

Matthew Maraglio - NY State - CZM

will work on turning around quickly; not always needing 90 days before final decision; 60 day review max - can get an extra 15 on top of that

Seasonal restrictions for GSB E&W - Sept 15 - Dec 15 for doing work - maybe some flexibility in time frame for Sandy - not sure how agency will treat the restrictions for Sandy projects - haven't done Fed water project yet - need to discuss internally

doesn't recall equipment restrictions

May have placement guidelines

Likely policy 7, 21, 22 and maybe for wetlands - confirm policies that apply

CZM determination as EA appendix OK

will do informal review too

Elaine Rideout
National Park Service

Denver Service Center
12795 W. Alameda Parkway
Lakewood, CO 80228
(303) 969-2260

Tracey Clothier

Subject: FW: Fire Island NS - Access channel/marina dredging project at Sailors Haven, Talisman/Barrett Beach, and Watch Hill

----- Forwarded message -----

From: **Papa, Steve** <steve_papa@fws.gov>

Date: Tue, Jul 2, 2013 at 11:15 AM

Subject: Re: Fire Island NS - Access channel/marina dredging project at Sailors Haven, Talisman/Barrett Beach, and Watch Hill

To: "Rideout, Elaine" <elaine Rideout@nps.gov>

Cc: Michael Bilecki <michael_bilecki@nps.gov>

Hi,

I think this captures the major points of our discussion.

Steve

On Tue, Jul 2, 2013 at 12:50 PM, Rideout, Elaine <elaine Rideout@nps.gov> wrote:

Hi Steve,

I just wanted to follow up on our conversation today and document it for the project files. If there is anything in error below please let me know.

You indicated that the NPS doesn't need to submit a letter asking for a species list and initiating informal consultation - that our telephone call today would suffice for that. And that we will address the following federally listed species:

- piping plover
- roseate tern
- seabeath amaranth
- sandplain gerardia
- small-whorled pogonia

It's expected that there would be no effect on the later four species and that the plover may not be affected but probably better to go with a not likely to adversely affect. We would of course provide the needed rationale/evaluation for those findings in our environmental assessment. I did forget to ask about using the environmental assessment to make those determinations and not producing a separate biological assessment document. I wanted to confirm with you that's acceptable.

Also as you mentioned, if the EA includes statements that the upland placement of material may result in a benefit to plovers as potential nesting habitat then a habitat/species protection plan needs to be discussed in the EA and the area managed/protected if plovers do indeed use it. It may be that we would want to discourage birds from nesting there - later removal of the material to put in back in the sediment transport system may be considered an adverse modification of habitat - you would have to check into it further how that would be treated.

I appreciate your willingness to take a look at our document informally before it goes out officially for public/agency review. And as I mentioned I'm in contact with Danielle Palmer with NOAA/NMFS regarding the federally protected marine mammals and fish.

Thanks much Steve,
Elaine

--

Elaine Rideout
National Park Service
Denver Service Center
12795 W. Alameda Parkway
Lakewood, CO 80228
(303) 969-2260

--

Steven T. Papa
U.S. Fish and Wildlife Service
Long Island Field office
340 Smith Rd
Shirley, NY 11967
(631) 286-0485 (tel)
(631) 286-4003 (fax)
Steve_Papa@fws.gov

Tracey Clothier

Subject: FW: EFH mitigation recommendations

From: Rideout, Elaine [<mailto:elaine Rideout@nps.gov>]

Sent: Wednesday, July 03, 2013 1:19 PM

To: James Dunphy; Michael Bilecki; Diane Abell; Chris Olijnyk; Patricia Rafferty; Lee Terzis; Mike Tomkosky; John S. Wilson; Jack Van Dop; Lisa Landers; Kevin Franke; Tracey Clothier

Subject: EFH mitigation recommendations

This is a list of actions that Diane R with NOAA/NMFS essential fish habitat brought up :

- no drag line
- silt curtain across harbor to enclose that work area
- if clamshell - no unfiltered barge overflow or it is maintained w/i silt curtained harbor
- control resuspended material - BMPs to prevent color/minimize plume at placement areas - if hydraulic use diffuser; place material high enough on beach to avoid impacting water and then grade down at low tide
- Schedule/Complete access channels (where plume probably can't be maintained w/i area) first if practicable so that those impacts occur early and can avoid/minimize spawning impacts (the prime spawning time for winter flounder is Feb, March, April). It may not be practicable to expect that all the access channels will be done first. If that's the case, Diane would be ok with stating in the EA something to the effect that NPS would make every reasonable effort to schedule the channel dredging as early as possible. That said, can we at least put in the contract that Watch Hill access channel because of its higher quantities be scheduled first?
- Complete work by April 1. Extending the work beyond this window would require assessing the impacts on more species. (This does not imply that its desirable to have the work occur later in the winter up to the April 1 date. The earlier in the year the better to minimize impacts - see above bullet)
- Barrett Beach work will be undertaken within the EFH seasonal window period of Oct - Dec. (Keep in mind that other agencies have their own preferences as to when the best time to dredge is and they don't precisely overlap. For the NOAA/NMFS T&E office that covers fed listed marine mammals/fishes/sea turtles - turtles that could potentially be in/near the project waters leave sometime in Nov so for them winter dredging is better to avoid impacts.. NY DOS CZM office has a preferred window for the great south bay of Sept 15 - Dec 15.)

--

Elaine Rideout
National Park Service
Denver Service Center
12795 W. Alameda Parkway
Lakewood, CO 80228
(303) 969-2260

Tracey Clothier

Subject: FW: Fire Island NS - Access channel/marina dredging project at Sailors Haven, Talisman/Barrett Beach, and Watch Hill
Attachments: Hopper Dredge RPM's and Operating Conditions 7_9_2013.docx

From: **Danielle Palmer - NOAA Federal** <danielle.palmer@noaa.gov>

Date: Tue, Jul 9, 2013 at 9:15 AM

Subject: Re: Fire Island NS - Access channel/marina dredging project at Sailors Haven, Talisman/Barrett Beach, and Watch Hill

To: "Rideout, Elaine" <elaine Rideout@nps.gov>

Cc: Michael Bilecki <michael_bilecki@nps.gov>

HI Elaine,

I think that captures our conversation, although I have a few things to clarify. You are correct that you don't need to submit a letter requesting information on species that may be present in the project area; however, you will need to send us a letter requesting consultation (with your effects determination and a request for our concurrence with this determination), and once we receive that and all the necessary information, we will be able to initiate (informal) consultation.

Also, just to clarify, for this action, there are no suggested SOP's for clamshell or cutterhead dredges for this action, but that doesn't mean we don't have them. Based on the projects location, and the low risk of an interaction with these dredges in this area, I don't see the need for them. If you were operating in an area where essential habitat for sea turtles or Atlantic sturgeon was known to occur (i.e., nesting area, spawning ground, overwintering ground), then we would have specific SOP's that we ask that you implement.

I have attached the SOPs for the hopper dredge. If you have any questions regarding these, or any of the other comments above, just let me know.

Thanks!
Danielle

On Tue, Jul 9, 2013 at 10:52 AM, Rideout, Elaine <elaine Rideout@nps.gov> wrote:

Danielle,

This is to follow up on our conversation today. If there is anything in error below please let me know.

You indicated that the NPS doesn't need to submit a letter asking for a species list and initiating informal consultation - that our telephone call today would suffice for that. Do not need separate BA. And that we should address the following federally listed species in the EA:

Four turtles

NW Atlantic Ocean distinct population segment (DPS) of loggerhead

Kemp's ridley

Green

Leatherback

5 DPS of Atlantic Sturgeon - subadult and adult life stages

Do not need to mention whales (no work on oceanside) or hawksbill (very rare in area).

EA should characterize the benthic community in the dredge areas based on available information for NMFS to complete their ESA determination.

If dredging is expected to occur sometime December 2013 through March 2014 for Sailors Haven and Watch Hill, turtles would not be expected to be present during that time. Dredging at Barrett Beach is not expected to happen in the same time frame due to current lack of funding. If dredging at Barrett Beach is scheduled within the preferable EFH window (Oct -Dec) for the benefit of minimizing impacts to EFH, then NMFS for ESA consultation is OK with using that window. The sea turtle seasonal window approximately Dec to May is guidance only.

NMFS would prefer prohibiting use of a hopper type dredge (with the exception of the currituck) because there is more risk of entrainment/impingement to turtles/fish. If the contract will not specify a dredge type then three types of dredges (cutterhead, clamshell, hopper) will need to be assessed. There will be required standard operating procedures such as observers on the dredge, inspection of material coming into the hopper, use of a turtle deflector placed on the use of a hopper dredge. Danielle will send SOPs for inclusion in the EA. NMFS does not have required SOPs for the other types of dredges.

Other dredging mitigation such as enclosing the areas being dredged with a turbidity curtain if possible may be suggested by NMFS.

Thanks for your willingness to take a look at our document informally before it goes out officially for public/agency review.

--

Elaine Rideout
National Park Service
Denver Service Center
12795 W. Alameda Parkway
Lakewood, CO 80228
(303) 969-2260

Danielle Palmer
NOAA-NMFS
Section 7 Fisheries Biologist
978-282-8468



National Park Service
U.S. Department of the Interior

Fire Island National Seashore
120 Laurel Avenue
Patchogue, NY 11772

631-774-0520 Phone
www.nps.gov/fiis

Fire Island National Seashore News Release

Release Date: July 15, 2013

Contact: Paula Valentine, Public Affairs 631-287-4759

Michael Bilecki, Chief of Resources Management 631-687-4760

Public Scoping for Fire Island National Seashore Dredging Projects

Patchogue, NY –Fire Island National Seashore Superintendent Chris Soller announced that the National Park Service (NPS) has begun planning for proposed projects to dredge the existing navigational channels and their associated marinas and docking facilities at three sites on Fire Island. The purpose of the projects is to re-establish safe, public access to NPS facilities in the aftermath of Hurricane Sandy and other storm events. Recent storms have deposited sediment into the navigation channels, marinas and some of the docking facilities at Sailors Haven, Watch Hill and Talisman/Barrett Beach, creating conditions that have increased the difficulty of navigation and access for two-way vessel traffic. “These channels are the ‘major highways’ into the Seashore’s primary visitor facilities on Fire Island,” stated Soller, “and we want to restore them to conditions that support safe navigation as efficiently and environmentally soundly as possible.”

The environmental assessment (EA) for reducing the adverse impacts of dredging and placement and use of dredge materials will be prepared in compliance with the National Environmental Policy Act (NEPA) to provide a decision-making framework that: 1) analyzes a reasonable range of alternatives to meet project objectives; 2) evaluates potential issues and impacts to park resources and values; and 3) identifies mitigation measures to lessen the degree or extent of these impacts.

The public has two opportunities to formally comment on the project: during the public scoping period for the EA, and again during a 30-day public review following release of the EA. Public scoping comments about the proposed projects, **Dredge Sailors Haven, Watch Hill, and Barrett Beach Channels and Marinas for Public Use and Safety**, may be submitted electronically from **July 15 through August 5, 2013** at the National Park Service Planning, Environment and Public Comment (PEPC) web site:

<http://parkplanning.nps.gov/fiis>

or by mail:

**Fire Island National Seashore
Attn: Superintendent –
Dredging EA Scoping Comments
120 Laurel Street
Patchogue, NY 11772-3596**

No public meetings are planned during the public scoping period for this project. The EA is expected to be available online for a 30-day public review by early September 2013. Funded projects may not begin until after October 1, 2013. For more information about Fire Island National Seashore, visit the park’s web site at www.nps.gov/fiis.

www.nps.gov

About the National Park Service. More than 20,000 National Park Service employees care for America’s 401 national parks and work with communities across the nation to help preserve local history and create close-to-home recreational opportunities. Learn more at www.nps.gov.

- More -

Exploring Fire Island



Proposed Projects: Dredge Sailors Haven, Watch Hill, and Barrett Beach Channels and Marinas for Public Use and Safety

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United States Department of the Interior

NATIONAL PARK SERVICE
Fire Island National Seashore
120 Laurel Street
Patchogue, NY 11772

IN REPLY REFER TO:

L7617 (FIIS)

July 15, 2013

Dear Fire Island National Seashore Stakeholders and Cooperators:

The National Park Service is developing an Environmental Assessment to re-dredge the existing navigational channels and their associated marinas and docking facilities so as to re-establish safe, public access to National Park Service (NPS) facilities on Fire Island at Watch Hill, Talisman/Barrett Beach and Sailors Haven. These navigation channels provide vessel access on Great South Bay that are utilized by the general public, concession operated ferries, NPS personnel, law enforcement and others. Re-dredging the channels will restore safe vessel access to these areas on Fire Island which are not accessible by road.

Sediment, primarily sands, has accumulated in the navigation channels, marinas and around some of the docking facilities at these three areas. This sediment accumulation is primarily the result of multiple storm events, including Hurricane Sandy in October 2012. As a result of sediment accumulation, the channels have also narrowed to a width significantly below the 100 feet considered adequate for safe passage. These conditions have increased the difficulty of navigation and access for two-way vessel traffic. The lowered capacity of the navigation channels (both width and depth) has also increased the potential for property damage to vessels owned by the NPS, law enforcement agencies, emergency services, concessionaires, and Seashore visitors' private vessels. Restoring channel depths and widths to their previous dimensions through dredging will provide the required, continued safe access to Fire Island at the project areas. Continuation of current conditions would ultimately result in the cancellation of ferry operations, the inability of concessionaires to service their businesses, and the loss of public access to Fire Island National Seashore facilities.

An Environmental Assessment for reducing the adverse impacts of dredging and placement and use of dredge materials will be prepared in compliance with the National Environmental Policy Act (NEPA) to provide a decision-making framework that: 1) analyzes a reasonable range of alternatives to meet project objectives; 2) evaluates potential issues and impacts to park resources and values; and 3) identifies mitigation measures to lessen the degree or extent of these impacts.

The National Park Service encourages public participation throughout the NEPA process. The public has two opportunities to formally comment on the project: once during scoping and again following release of the Environmental Assessment. We are currently in the scoping phase of this project and invite you to submit your written comments online at the NPS Planning, Environment, and Public Comment (PEPC) website at <http://parkplanning.nps.gov/fiis> for "Dredge Sailors Haven, Watch Hill, and Barrett Beach Channels and Marinas for Public Use and Safety."

If you are unable to submit comments electronically through the website, you may submit written comments to me at the above address. Comments must be received by August 5, 2013 in order to be considered during the preparation of the Environmental Assessment. We look forward to hearing from you.

Sincerely,

A handwritten signature in black ink, reading "K. Christopher Soller". The signature is written in a cursive, flowing style.

K. Christopher Soller
Superintendent

APPENDIX B

NEW YORK STATE COASTAL ZONE MANAGEMENT POLICIES

NEW YORK STATE COASTAL ZONE MANAGEMENT POLICIES

FIRE ISLAND NATIONAL SEASHORE

Environmental Assessment to

Dredge Sailors Haven, Talisman/Barrett Beach and Watch Hill Channels and
Marinas for Public Use and Safety

FIIS PMIS: 201444A

Report #: 615/121743

Prepared For:

United States Department of the Interior
National Park Service
Fire Island National Seashore
120 Laurel Street
Patchogue, New York 11772

Prepared By:

NEPA Contractor:
The LA Group, P.C.
40 Long Alley
Saratoga Springs, NY 12866
(518) 587-8100

For Review and Approval By:

New York State Department of State
Division of Coastal Resources
One Commerce Plaza, Suite 1010
99 Washington Avenue
Albany, New York 12231

September 2013

NEW YORK STATE COASTAL ZONE MANAGEMENT POLICIES

EXPLANATION

The Coastal Zone Management Act of 1972 (16 U.S.C. 1451 *et seq.*) (the Act) was enacted by Congress to balance the competing demands of growth and development with the need to protect coastal resources. Its stated purpose is to “. . . preserve, protect, develop, and, where possible to restore or enhance, the resources of the nation’s coastal zone . . .”. The primary means of achieving this balance is through coastal zone management programs adopted by the states and designed to regulate land use activities that could affect coastal waters. The Act offers incentives to encourage the coastal states and territories to exercise their full authority over coastal areas through development of coastal zone management programs, consistent with the minimum Federal standards. The Coastal Zone Act Reauthorization Amendments of 1990 strengthened the Act by requiring the state programs to focus on controlling land use activities, and on the cumulative effect of activities in coastal zones.

The State of New York currently administers its federally approved coastal zone program (N.Y. Executive Law §910 *et seq.* [Consol. 1996]) through the New York State Department of State (NYSDOS). Pursuant to the Federal Coastal Zone Management Act, New York State has defined its coastal zone boundaries and the policies to be utilized to evaluate projects occurring within the designated zones. In 1981, New York State adopted the Waterfront Revitalization and Coastal Resources Act, creating the New York State Coastal Management Program (CMP). The CMP embodies 44 policy statements supportive of the Act’s intent to promote a balance between economic development and coastal resource preservation and optimization. Local Waterfront Revitalization Programs (LWRP) have not been adopted for the Town of Brookhaven or the Town of Islip.

At Fire Island National Seashore (FIIS), the National Park Service (NPS) proposes to re-dredge the existing navigational channels and their associated marinas and docking facilities so as to re-establish safe, public access to NPS facilities on Fire Island at Sailors Haven, Talisman/Barrett Beach and Watch Hill. These navigation channels provide vessel access on Great South Bay (GSB) that are utilized by the general public, concession operated ferries, NPS personnel, law enforcement and others. Sediment, primarily sands, has accumulated in the navigation channels, marinas and around some of the docking facilities at these three areas. This sediment accumulation is primarily the result of multiple storm events, including Hurricane Sandy in October 2012. It has caused the channels to narrow to a width significantly below the 100 feet and depth less than 6 feet at low tide considered adequate for safe passage. Restoring channel depths and widths to their previous dimensions through re-dredging will provide the required, continued safe access to Fire Island at the project areas. Continuation of current conditions would ultimately result in the cancellation of ferry operations, the inability of concessionaires to service their businesses, and the loss of public access to Fire Island National Seashore facilities.

An Environmental Assessment (EA) for reducing the adverse impacts of dredging and placement and use of dredge materials has been prepared for the project in compliance with the National Environmental Policy Act (NEPA) to provide a decision-making framework that: 1) analyzes a reasonable range of alternatives to meet project objectives; 2) evaluates potential issues and impacts to park resources and values; and 3) identifies mitigation measures to lessen the degree

or extent of these impacts. The EA evaluates a no action alternative (Alternative A) and one action alternative (Alternative B, also the Preferred Alternative). The action alternative is based on laws, regulations and policies, and public health and safety. The no action alternative represents current conditions and is also a baseline for comparison to the action alternatives for each respective component. Measures to avoid and/or minimize adverse impacts to resources of concern have been incorporated into the project description and schedule for the preferred alternative. Where applicable, these measures are reiterated for relevant impact topics under EA Chapter Four, "Environmental Consequences." The most critical measures to minimize and avoid impacts are the to limit the action to areas that have previously been dredged or disturbed, and to incorporate a seasonal timeframe for dredging that is sensitive to potentially adverse effects on aquatic organisms and essential fish habitat as well as species of special concern and consistent with recommendations from NOAA/NMFS, USFWS and NYNHP.

This coastal management policies consistency evaluation is being provided in order to: (1) support the NPS consistency determination, pursuant to 15 CFR Part 930 Subpart C, regarding the consistency of the activity with the NYS CMP; (2) enable New York State to consider the effects of the proposed project on the land and water uses and natural resources of its coastal area; and (3) to provide information permitting New York State to agree or disagree with the NPS consistency determination pursuant to 15 CFR Part 930 Subpart C.

The following coastal consistency policies (1, 7, 9, 12, 15, 17, 19, 21, 23, 31, 35 and 44) are applicable to the proposed project and are addressed for consistency with coastal policies:

POLICY 1: Restore, Revitalize, and Redevelop Deteriorated and Underutilized Waterfront Areas for Commercial, Industrial, Cultural, Recreational, and Other Compatible Uses.

The project will restore the accessibility of recreational areas at Fire Island National Seashore through dredging of areas historically dredged in the past. It will also reestablish safe vessel access in the channel and marina areas.

POLICY 2: Facilitate the Siting of Water-Dependent Uses and Facilities on or Adjacent to Coastal Waters.

The project involves the re-dredging of navigational channels and marinas and will not alter the uses of the project area, therefore, this policy is not directly applicable to this project.

POLICY 3: Further Develop the State's Major Ports of Albany, Buffalo, New York, Ogdensburg, and Oswego as Centers of Commerce And Industry, And Encourage The Siting, In These Port Areas, Including Those Under The Jurisdiction Of State Public Authorities, Of Land Use And Development Which Is Essential To, Or In Support Of, The Waterborne Transportation Of Cargo and People.

The project is not located near any of the State's major ports included in this policy, therefore, this policy is not directly applicable to this project.

POLICY 4: Strengthen the Economic Base of Smaller Harbor Areas By Encouraging The Development and Enhancement Of Those Traditional Uses and Activities Which Have Provided Such Areas With Their Unique Maritime Identity.

The project maintains the existing recreational access and will not alter the uses of the project area, therefore, this policy is not directly applicable to this project.

POLICY 5: Encourage the Location Of Development in Areas Where Public Services And Facilities Essential To Such Development Are Adequate.

The project involves the re-dredging of navigational channels and marinas. The restoration of these channels will maintain existing uses, therefore, this policy is not directly applicable to this project. Encouraging, expediting or siting of development is not consistent with the National Park Service's mission statement for Fire Island National Seashore.

POLICY 6: Expedite Permit Procedures in Order To Facilitate The Siting Of Development Activities At Suitable Locations.

The project involves the re-dredging of navigational channels and marinas and will not alter the uses of the project area, therefore, this policy is not directly applicable to this project. Encouraging, expediting or siting of development is not consistent with the National Park Service's mission statement for Fire Island National Seashore.

POLICY 7: Significant Coastal Fish and Wildlife Habitats Will Be Protected, Preserved, and Where Practical, Restored So As To Maintain Their Viability As Habitats.

Re-dredging of navigational channels and marinas at Sailors Haven, Talisman/Barrett Beach and Watch Hill will be implemented in a way that protects the essential fish habitat (EFH) of Great South Bay.

Some EFH species only occur in the saline water zone in Great South Bay which includes the Sailors Harbor dredging location. Seasonal occurrences of each species/life stages and habitat requirements that will affect whether or not species may be present during the proposed dredging are addressed in the EA.

The following EFH species and their life stages may be present in and around the Sailors Haven dredging area when dredging occurs sometime between December through February and possibly extending into March.

- Atlantic salmon – adults
- Pollock – juveniles
- Winter flounder – eggs (starting in February), larvae (starting in March), juveniles, adults
- Windowpane flounder – eggs and larvae (starting in February), juveniles, adults
- Atlantic mackerel – juveniles and adults
- Summer flounder – juveniles (if water temperature is above 37° F)
- Little skate – juveniles and adults
- Winter skate – juveniles and adults

For those species where only adults, only juveniles, or both adults and juveniles will be the life stages present, impacts are unlikely. These are highly mobile life stages which are capable of avoiding relatively slow moving dredging equipment. All of the species listed above, with the exception of winter flounder and windowpane flounder fall into this group of species.

Non-mobile eggs and limited-mobility larvae of winter flounder and windowpane flounder may be present in the dredge area during the time of dredging. Impacts to these two species are expected to be relatively more likely. However, affects will be localized and may or may not be perceptible. Impacts will be short-term because the slightly altered (deeper) habitat will remain suitable for future use by all life stages of winter flounder and windowpane flounder.

Recruitment may be reduced locally, but in the context of the overall recruitment in the GSB system, any affects are, again, likely to be imperceptible. It is even possible or likely that eggs could be laid in the affected area after dredging takes place. Dredging is proposed to take place only in those areas that have been previously dredged and will not be occurring during peak egg laying periods.

Dredging will also remove benthic fauna which may serve as food sources for fish species. These impacts are also expected to be localized and short term. Various studies of the effects of dredging of benthic infauna found that recovery was relatively rapid – measured in months, and some studies found that the number of species and the abundance of organisms within species were significantly higher after dredging (Carter, A. E. Hague and L. Floyd. 2008); Benthic Infauna Recovery Following Channel Dredging in the Vicinity of Bogue Inlet, North Carolina.; Rathod, J. 2011; Physical and Biological Impact on Marine Benthic Polychaetes Due to Dredging in the MorMugao Harbor, GOA and its Restoration After Dredging; Journal of the Bombay Natural History Society. 108(1):12-17). Timing of dredging activities in the period from December through February and possibly extending into March will mean that benthic infauna levels will likely have recovered to pre-dredging levels by the following summer or possibly fall.

For the intertidal areas typical beach nourishment (i.e., shoreline fill) practices can cause significant mortality to infaunal populations at the placement site. For instance, Peterson et al. 2000 noted an 86% to 99% decline in the predominant macro-invertebrate populations approximately 5 to 10 weeks after sand placement along a 0.5-kilometer segment of an ocean-facing beach in North Carolina. The rate of recovery can vary from weeks to months depending on several factors, such as the season of fill placement, the design (e.g., length, thickness and slope) of the nourished segment and the similarity between sediment characteristics of the borrow area and the fill site. For example, recovery of benthic invertebrate populations at a Bogue Banks, North Carolina nourishment site took over one year, attributed to excessive coarse material and shell hash (Dallas et al. 2012). In another study, longer benthic recovery times were associated with elevated levels of fines (USACE 2005). However, recovery of benthic infauna populations has been reported to take between 2 and 7 months for two nourishment activities in New Jersey, where the fill material was relatively similar to the existing beach material (USACE 2005). Therefore, using material similar in composition is considered the key component in assuring rapid recovery of benthic infauna (Dallas et al. 2012, USACE 2005, Greene 2002).

Timing of beach fill can also significantly affect benthic recovery, but there is some conflict in literature about whether it is best to conclude nourishment by October, prior to the greatest population drop (USACE 2005) or during the winter months when the benthic population is lowest (Dallas et al. 2012). Given the drop in organism numbers on the bay side compared to the beach side in the fall season (in 2005), there may be minimal impact in placing material in the proposed Project fill sites anytime between the fall and early spring. Other factors that can aid recovery include (1) limiting the thickness of fill to less than 1 meter and applying fill at a slower rate to promote upward migration (Greene 2002), (2) placing fill in shorter sections with intermittent unfilled areas that provide a source for faster recruitment (Dallas et al. 2012) and (3) placing fill landward of any low-tide terrace (i.e., creating a “feeder beach”) to limit burial of benthic communities (Nordstrom and Jackson 2005).

Considering the above information, and in accordance with NPS *Management Policies* (NPS 2006) and the Organic Act (16 USC § 1), Project impact to native benthic infauna may be minimized using the following strategies:

- The length of fill placement segments would be a maximum of approximately 1 kilometer in length. The longer segments may be interspersed with breaks to further reduce the lengths of continuous nourishment.
- Material to be dredged comes from the nearby littoral system, and is therefore expected to be similar in nature to the existing beach material. Specific characteristics will be determined from sediment sampling in the near future.
- Beach fill is proposed to occur in the winter, prior to the warm season that is most conducive to recolonization of benthic macro-invertebrates.
- The proposed beach fill is only planned to occur once in the near future. Based on recent history, subsequent full-scale maintenance dredging may not occur for another 20 to 30 years barring extreme storm events.
- Due to the relatively narrow width of the sandy foreshore, the amount of beach fill would be limited to an average of approximately 5 cubic yards per linear foot. Placement of this material may be restricted to the foreshore and intertidal area landward of any low-tide terrace, potentially through the construction of a temporary sill. At Sailor’s Haven, the proposed beach fill would expand on the experimental creation of a feeder beach in 2011, much of which has now eroded.

These strategies are expected to help ensure full recovery of the benthic intertidal communities and associated ecological functions within six months of material placement along the shoreline, pending design details and fill methods to be developed by USACE and NPS.

There will not be impacts to HAPC eelgrass, either directly through dredging, or indirectly through any sediment plume that may be generated, since eelgrass is not reported for the Sailors Haven area (NOAA/NYSDOS, 2003).

The Talisman/Barrett Beach dredging location provides very limited fish habitat due to very shallow water depths. However, areas directly adjacent to the dredged location do contain deeper waters, so it would not be appropriate to exclude any species that may be present in the general area from an evaluation of potential impacts.

The following species and life stages may be present in and around the area to be dredged.

- Winter flounder – adults and juveniles
- Windowpane flounder – adults and juveniles
- Summer flounder – juveniles (if water temperature is above 37° F)

Because no eggs or larvae of any of these three species will be present during October to mid-December when dredging may occur, and only highly mobile adults and/or juveniles may be present, impacts are unlikely. Impacts to benthos are expected to be the same as described above, and will be short term and localized.

There will not be impacts to HAPC eelgrass, either directly through dredging, or indirectly through any sediment plume that may be generated, since eelgrass is not reported for the Talisman/Barrett Beach area (NOAA/NYSDOS, 2003).

The following EFH species and their life stages may be present in and around the Watch Hill dredging area when dredging occurs sometime between December through February and possibly extend into March.

- Winter flounder – eggs (starting in February), larvae (starting in March), juveniles, adults
- Windowpane flounder – eggs and larvae (starting in February), juveniles, adults
- Summer flounder – juveniles (if water temperature is above 37° F)

Impacts for these three species at this location are expected to be the same types as discussed above for Sailors Haven. There is significantly more area that will be affected at Watch Hill as compared to Sailors Haven, and this may increase the numbers of affected eggs and larvae, so the level of impact at Watch Hill may be higher than Sailors Haven, but it will still be localized and short term, and occur in an area that has been previously dredged. Impacts to benthos are expected to be the same as described above, and will also be short term and localized.

Since the proposed dredging is limited to the channel, potential direct impacts to eelgrass, should it actually be present in the submerged aquatic vegetation assemblage, should be avoided. Care should be taken during dredging operations to limit vessel activity outside of the channel area where eelgrass may be present.

The following measures will be undertaken during the re-dredging of the three sites to offset potential impacts associated with the project:

- Dredging will occur only in those areas that have been dredged in the past.
- Dragline dredging is prohibited.
- If a clamshell dredge is used, no unfiltered barge overflow will be permitted unless it is within the turbidity curtain containment area.
- In order to reduce potential adverse effects on aquatic organisms and essential fish habitat, a dredging window between December through February (no later than April 1) has been established for Sailors Haven.
- In order to minimize potentially adverse effects on aquatic organisms and essential fish habitat, a dredging window of October 1 through December 15 has been established for Talisman/Barrett Beach.

- In order to reduce potential adverse effects on aquatic organisms and essential fish habitat, a dredging window between December through February, and no later than April 1, has been established for Watch Hill.

The window for dredging at Sailors Haven and Watch Hill is based on completing the compliance and permitting for the project. Completing the work during the 2013-2014 winter with current funding would allow safe access for the 2014 season. Because the spawning period for winter flounder starts in February, the NPS will make every effort to schedule access channel dredging at Sailors Haven and Watch Hill in the early December through February time period. Requiring completion of dredging by April 1 would avoid other later spawning species. Funding is not currently available for the dredging at Talisman/Barrett Beach. Pending future funding, dredging would be scheduled to occur between October 1 and December 15 to minimize impacts to essential fish habitat and GSB coastal zone resources.

Adverse impacts to Species of Special Concern are anticipated to be unlikely. However, the following measures will be undertaken to ensure the protection of sea turtles and Atlantic sturgeon:

- If a hopper dredge is used it will be equipped with turtle deflectors.
- A NMFS approved observer would be present during operation.
- All turtle captures, injuries or mortalities associated with the project would be reported to NMFS within 24 hours.
- If sea turtles are present during dredging or material transport, vessels transiting the area must post an observer.
- All contracted personnel involved in operating hopper dredges receive thorough training on measures of dredge operation that will minimize takes of sea turtles.
- Hydraulic pumps will only be turned on when the draghead is on the bottom. All NMFS monitoring specifications for hopper dredges would be adhered to.
- Any sturgeon observed in the hopper/basket will be netted, and if alive, placed in a flow through live well and released away from the project site.
- Any Atlantic sturgeon captured will be scanned for Passive Integrated (PIT) tags and tag numbers will be recorded and reported to NMFS.
- Fin clips will be taken from any Atlantic sturgeon by the observer and be provided to NMFS for genetic analysis.
- An incident report for incidental sea turtle or Atlantic sturgeon take shall be completed by the observer and provided to NMFS within 24 hours.

POLICY 8: Protect Fish And Wildlife Resources In The Coastal Area From The Introduction Of Hazardous Wastes And Other Pollutants Which Bio-Accumulate In The Food Chain Or Which Cause Significant Sublethal Or Lethal Effect On Those Resources.

The project does not involve hazardous waste or other pollutants, therefore, this policy is not directly applicable to this project.

POLICY 9: Expand Recreational Use Of Fish And Wildlife Resources In Coastal Areas By Increasing Access to Existing Resources, Supplementing Existing Stocks, And Developing New Resources.

The project involves the improvement of water access to FIIS to previously existing conditions which could possibly result in increasing access to existing fish and wildlife-related recreational activities.

POLICY 10: Further Develop Commercial Finfish, Shellfish, And Crustacean Resources In The Coastal Area By Encouraging The Construction Of New, Or Improvement Of Existing On-Shore Commercial Fishing Facilities, Increasing Marketing Of The State's Seafood Products, Maintaining Adequate Stocks, And Expanding Aquaculture Facilities.

The project involves the re-dredging of navigational channels and marinas and will not alter the uses of the project area, therefore, this policy is not directly applicable to this project.

POLICY 11: Buildings And Other Structures Will Be Sited In The Coastal Area So As To Minimize Damage To Property And The Endangering Of Human Lives Caused By Flooding And Erosion.

The project does not involve any buildings or structures, therefore, this policy is not directly applicable to this project.

POLICY 12: Activities or Development in the Coastal Area Will Be Undertaken So As To Minimize Damage to Natural Resources and Property from Flooding and Erosion By Protecting Natural Protective Features Including Beaches, Dunes, Barrier Islands and Bluffs.

The Environmentally Preferred Alternative involves the following activities that are consistent with minimizing damage to natural resources:

(1) The re-dredging of between 4,000 and 10,000 cubic yards of sandy material from the Sailors Haven channel to reopen the channel to approximately 800 feet long and 100 feet wide and to a depth of six feet at mean low tide as needed to provide safe access to Sailors Haven facilities. Dredged materials will be utilized for beneficial projects such as for the placement behind existing bulkhead areas to replace eroded sand and for the placement along the eastern and western shorelines for erosion control and sediment transport restoration. These measures are intended to make these materials available to return to the sediment transport system of Great South Bay (GSB). Such bayside shoreline placement projects would have the capacity to create feeder beaches which are beneficial in areas where there are manmade features such as marina bulkheads. Feeder beaches along the edge of the Sunken Forest would be beneficial in preventing or slowing bank erosion. All dredged material placed in bayside shoreline areas would meet gradation requirements.

(2) The re-dredging of an estimated 10,000 cubic yards from an area approximately 200 by 300 feet to a depth of 6 feet at mean low tide would be dredged from around the public dock and the

area directly adjacent to the dock as needed to provide safe access to Talisman/Barrett Beach facilities. Dredge materials are to be distributed generally along both west and east shorelines as erosion control and sediment transport measures. This distribution would act as a series of feeder beaches designed to redistribute dredged sand along the beaches and make it available to the natural GSB sediment transport system.

(3) The re-dredging of the navigation channel of an estimated 35,000 cubic yards that encompasses an area approximately 6,620 feet long by 100 feet wide and to a depth of 6 feet at mean low tide as needed to provide safe access to Watch Hill facilities. There are also some areas within the existing marina that are in need of dredging in order to reestablish depths to 6 feet. Dredge materials are to be generally stockpiled in upland areas where they can be accommodated. Some dredge materials will be placed around the marina facility to raise and level existing public use areas including recreation areas.

(4) Marina dredge material will be tested for grain size and for hazardous materials. No material will be utilized that does not meet standards for grain size nor if it contains hazardous materials. Material not meeting established criteria will be disposed of in the appropriate manner as determined by NYSDEC, NYSDOS, USACOE and NPS.

(5) Palustrine wetland field delineations were conducted in the upland areas of potential affect (APE) on July 9 through July 11, 2013. Wetlands were delineated by collecting GPS locations at the outermost boundary of each wetland using the methods set forth in the 1987 Corps of Engineers Wetland Delineation Manual for vegetated wetlands, and wetlands were classified according to the USFWS's (Cowardin et. al., 1979) classification system of wetlands.

Ten palustrine wetlands totaling 14.83 acres were delineated at the three sites. This is an approximate acreage due to the large size of three of the five wetlands delineated at the Watch Hill site. These three wetlands (WD-AA, WD-AB, and WD-AC) are defined by a closure line along certain boundaries of the wetland polygon. One boundary is depicted without a closure line indicating that the wetland extends beyond the map scale necessary for this project.

Four wetlands were delineated at the Sailor's Haven site totaling 0.32 acres (Figure 3-8), one wetland (1.18 acres) was delineated at the Talisman Beach site (Figure 3-9), and five of the ten wetlands were delineated at the Watch Hill site, totaling 13.33 acres (Figure 3-10). Of the total area delineated, two wetlands could have been impacted by the project, WD-AE and WD-AD, located at the Watch Hill site. As a result of wetlands having been identified at these locations, these two areas will no longer be considered as potential areas for dredge material stockpiling. The Federal Highway Administration conducted topographic and hydrographic field surveys in August of 2013 to determine elevations in the area of potential beach fill. From the survey results, current mean higher high water (MHHW) and mean lower low water (MLLW) lines were interpolated based on datum conversions provided by NOAA's Vertical Datum Transformation Tool (VDATUM 3.2). The intertidal areas within the potential dredged material shoreline placement sites were then calculated as the area between the MLLW and MHHW lines. The results are as follows:

- Talisman/Barrett Beach West (Figure 3-11) – 1.36 acres.
- Talisman/Barrett Beach East (Figure 3-12) – 0.50 acres.

- Sailor's Haven West (Figure 3-13) – 0.51 acres.
- Sailor's Haven East (Figure 3-14) – 0.39 acres.

The intertidal areas proposed for fill placement along Great South Bay are predominately composed of sand (diameter between 0.075 and 4.0 millimeters), with low percentages of silt and gravel (USACE, 2005), and can be classified as sandy unconsolidated shore (E2US2). They are protected from the more severe wave action on the Atlantic side of Fire Island, but benthic organisms inhabiting this littoral zone must still be adapted to significant fluctuations in moisture (including exposure to air), salinity, wave energy and sediment perturbations. Therefore, the shoreline intertidal zone is typically populated by a relatively low diversity of invertebrate species that are better adapted to disturbances than perpetually submerged areas (Greene, 2002). For example, taxonomic richness was approximately twice as great at low-tide sampling areas around Fire Island than at the mid, high and wrack-line sampling locations (USACE, 2005). Further, greater numbers of benthic organisms were generally found on the bay side of Fire Island compared to the Atlantic side (USACE, 2005). This suggests that the higher-energy shoreline intertidal zones support lower diversity of infauna. However, there is a strong seasonal influence. The total number of organisms at sampling stations on the bay side declined approximately three-fold from spring to fall while, in contrast, the number of organisms at ocean-side stations was several times greater in the fall than in the spring. Oligochaeta (segmented worms) was the dominant taxon in the intertidal zone of Fire Island facing the Great South Bay in 2005, followed by the phylum Nematoda (roundworms) (USACE, 2005). Shoreline intertidal benthic organisms provide valuable functions for the marine ecosystem of Fire Island, including nutrient processing (Dugan et al., 2011), enhancing substrate cohesion (Murray et al., 2002) and serving as a food source for higher trophic organisms such as shorebirds and juvenile fish (Dallas et al., 2012, Wilber et al., 2003).

POLICY 13: The Construction Or Reconstruction Of Erosion Protection Structures Shall Be Undertaken Only If They Have A Reasonable Probability Of Controlling Erosion For At Least Thirty Years As Demonstrated In Design And Construction Standards And/OR Assured Maintenance Or Replacement Programs.

The project does not involve the construction or reconstruction of any erosion protection structures, therefore, this policy is not applicable to this project.

POLICY 14: Activities And Development, Including The Construction Or Reconstruction Of Erosion Protection Structures, Shall Be Undertaken So That There Will Be No Measurable Increase In Erosion Or Flooding At The Site Of Such Activities Or Development, Or At Other Locations.

The project involves the re-dredging of navigational channels and marinas to restore pre-existing conditions, therefore, this project will not result in erosion or flooding, and this policy is not directly applicable to this project.

POLICY 15: Mining, Excavation or Dredging In Coastal Waters Shall Not Significantly Interfere With the Natural Coastal Processes Which Supply Beach Materials to Land Adjacent To Such Waters and Shall Be Undertaken In A Manner Which Will Not Cause

An Increase in Erosion of Such Land.

Maintenance re-dredging of the three existing main navigation channels, marinas and docks would have no likely effect on geological resources and coastal processes. Dredged materials will be generally stockpiled in upland areas where they can be safely and usefully accommodated or distributed generally along suitable shorelines areas as erosion control and sediment transport measures where they would have an overall long term beneficial environmental impact.

The preferred alternative would have long term beneficial impacts on coastal processes by the distribution of dredged materials which would serve as future erosion control and sediment transport control strategies.

The preferred alternative will avoid any disturbance of delineated palustrine wetlands at all of the identified dredge material deposit locations at Sailors Haven, Talisman/Barrett Beach and Watch Hill. Erosion control and sediment measures will result in the beneficial component to cumulative effects on deepwater habitats and jurisdictional waters of the Seashore.

There will be no net loss of intertidal area for the project as a whole.

The U.S. Army Corps of Engineers is responsible for developing the engineering drawings that will depict the fill template, including the anticipated equilibrium profile. The anticipated amount of shoreline intertidal area will be calculated based on those drawings and submitted when available. The U.S. Army Corps of Engineers will also be responsible for collecting sediment samples from the proposed dredge area and conducting a grain size analysis. The grain size analysis will be submitted when available.

Because the dredge areas are in close proximity to the proposed shoreline placement areas, the grain size distribution of the dredge and fill areas are expected to be similar. When grain size distributions of the dredge and fill areas are similar, the equilibrium profile can be expected to match the existing profile, translated in the offshore direction (Dean and Dalrymple 2002). Therefore, it is expected that the amount of intertidal habitat present after the beach fill has equilibrated will be the same as the existing intertidal area, resulting in no long-term net loss of this wetland type.

POLICY 16: Public Funds Shall Only Be Used For Erosion Protective Structures Where Necessary to Protect Human Life, And New Development Which Requires a Location Within Or Adjacent To an Erosion Hazard Area to Be Able To Function, Or Existing Development; and Only Where the Public Benefits Outweigh the Long Term Monetary And Other Costs Including the Potential for Increasing Erosion and Adverse Effects On Natural Protective Features.

The project does not involve the construction or reconstruction of any erosion protection structures, therefore, this policy is not applicable to this project.

POLICY 17: Non-Structural Measures To Minimize Damage to Natural Resources And

Property From Flooding And Erosion Shall Be Used Whenever Possible.

Littoral transport naturally creates a dynamic system of sand transport on the bay side of Fire Island, which results in beach erosion or accretion. The system along the north shore of Fire Island has been disrupted by the presence of marinas and artificial bulkheads (shoreline hardening). Some marina basins and most vessel channels act as sediment sinks that hold laterally transported sand and draw down the sediments behind and around the marina bulkheads. In addition, projects such as inlet stabilization, oceanside dune building, and upland development resulted in the Great South Bay (GSB) experiencing a disruption of natural sediment transport processes. This ultimately resulted in a deficit in its natural sand transport system and an accelerated rate of erosion along the bay shoreline. In recent years, multiple large storms have resulted in significant over washes along the north shore. Decreasing these new sand deposits create an opportunity to put the transport system back into balance while not contributing to future channel deposits.

POLICY 18: To Safeguard the Vital Economic, Social and Environmental Interests of the State and Of Its Citizens, Proposed Major Actions in the Coastal Area Must Give Full Consideration to Those Interests, And To the Safeguards Which the State Has Established To Protect Valuable Coastal Resource Areas.

The project involves the re-dredging of navigational channels and marinas, therefore, this policy is not directly applicable to this project. Through re-dredging, the economic and social benefits provided by FIIS will be maintained.

POLICY 19: Protect, Maintain, and Increase the Level and Types of Access to Public Water-Related Recreation Resources and Facilities.

This policy is indirectly related to the re-dredging of navigational channels and marinas because the action would keep open all visitor access and the majority of other users' (concessionaires, contractors, law enforcement, and emergency services) access to these facilities by way of water. Most of Fire Island National Seashore's facilities on Fire Island are not accessible by road. Vehicle access is over sand trails and is limited to NPS, permitted vehicles and official vehicles only. The navigation channels that lead to the facilities at Sailors Haven, Talisman/Barrett Beach, and Watch Hill are the primary routes for safe access to these areas. Sediment, primarily sands, has accumulated in the navigation channels, marinas and around some of the docking facilities at these three areas. This sediment accumulation is primarily the result of multiple storm events, including Hurricane Sandy in October 2012. At many points throughout the channels, water depths at mean low tide are currently less than six (6) feet (the depth considered acceptable for safe vessel travel). Shallow water depths can result in vessels running aground, particularly at extreme low tide events, such as full moon tides.

As a result of sediment accumulation, the channels have also narrowed to a width significantly below the 100 feet considered adequate for safe passage. These conditions have increased the difficulty of navigation and access for two-way vessel traffic. This condition becomes a critical issue during summer weekends when boat traffic is at its peak. The lowered capacity of the navigation channels (both width and depth) has also increased the potential for property damage

to vessels owned by the NPS, law enforcement agencies, emergency services, concessionaires, and Seashore visitors' private vessels.

Restoring channel depths and widths to their previous dimensions through dredging will provide the required, continued safe access to Fire Island at the project areas. Continuation of current conditions will ultimately result in the cancellation of ferry operations, the inability of concessionaires to service their businesses, and the loss of public access to FIIS facilities.

POLICY 20: Access To The Publicly-Owned Foreshore And To Lands Immediately Adjacent To The Foreshore Or The Water's Edge That Are Publicly-Owned Shall Be Provided And It Shall Be Provided In A Manner Compatible With Adjoining Uses.

The project involves the re-dredging of navigational channels and marinas and will not alter the uses of the project area, therefore, this policy is not directly applicable to this project. The project will maintain the level of access to the foreshore and the water's edge public lands in a manner that has historically been compatible with existing private lands within the FIIS.

POLICY 21: Water-Dependent and Water-Enhanced Recreation Will Be Encouraged And Facilitated, and Will Be Given Priority Over Non-Water-Related Used Along The Coast.

The project is essential to facilitating public access to FIIS facilities. Since there are no public roads within the Seashore, visitors to Watch Hill, Sailors Haven, and Talisman/Barrett Beach must arrive by either private boat or commercial ferry or water taxi and therefore highly dependent on water access into the marina docks. Public access also occurs at these areas by persons who anchor their vessels in the shallow waters around the marinas and dock facilities and then walk ashore and access FIIS facilities. No impact is anticipated on the use and operation by the public at this site since the dock and beaches will be closed to the public during the dredging operations.

POLICY 22: Development, When Located Adjacent To The Shore, Will Provide For Water-Related Recreation, Whenever Such Use Is Compatible With Reasonably Anticipated Demand For Such Activities, And Is Compatible With The Primary Purpose Of The Development.

The project does not involve any proposed development. The project involves the re-dredging of navigational channels and marinas and will not alter the uses of the project area, therefore, this policy is not directly applicable to this project.

POLICY 23: Protect, Enhance and Restore Structures, Districts, Areas or Sites That Are Of Significance in the History, Architecture, Archaeology or Culture of the State, Its Communities or the Nation.

An archeological Phase 1A sensitivity assessment and Phase 1B field investigation were completed for the areas of proposed dredge placement locations at Sailors Haven, Talisman/Barrett Beach and Watch Hill. A site file research consisting of known archeological

resources, State/National Register properties, and previously conducted archeological surveys and assessments in the vicinity of the project areas was completed.

NYSOPRHP issued a letter on July 22, 2013 confirming that the preferred alternative would have no adverse effect (as per 36 CFR Section 800.5(b)) on any significant historic properties listed, or eligible for listing, in the National Register of Historic Places. This letter serves to satisfy Section 106 of the National Historic Preservation Act of 1996, as amended.

POLICY 24: Prevent Impairment Of Scenic Resources Of Statewide Significance.

The project involves the re-dredging of navigational channels and marinas and does not involve scenic resources of statewide significance, therefore, this policy is not directly applicable to this project.

POLICY 25: Protect, Restore Or Enhance Natural And Man-Made Resources Which Are Not Identified As Being Of Statewide Significance, But Which Contribute To The Overall Scenic Quality Of The Coastal Area.

The project involves the re-dredging of navigational channels and marinas and will have no effect on scenic resources, therefore, this policy is not directly applicable to this project.

POLICY 26: Conserve And Protect Agricultural Lands In The State's Coastal Area.

The project involves the re-dredging of navigational channels and marinas and will not involve agricultural lands, therefore, this policy is not directly applicable to this project.

POLICY 27: Decisions On The Siting And Construction Of Major Energy Facilities In The Coastal Area Will Be Based On Public Energy Needs, Compatibility Of Such Facilities With The Environment And The Facility's Need For A Shorefront Location.

The project does not involve any major energy facilities, therefore, this policy is not directly applicable to this project.

POLICY 28: Ice Management Practices Shall Not Interfere With the Production of Hydroelectric Power, Damage Significant Fish and Wildlife and Their Habitats, or Increase Shoreline Erosion or Flooding.

The project does not involve any ice management practices, therefore, this policy is not directly applicable to this project.

POLICY 29: Encourage The Development Of Energy Resources On The Outer Continental Shelf, In Lake Erie And In Other Water Bodies, And Ensure The Environmental Safety Of Such Activities.

The project involves the re-dredging of navigational channels and marinas and will not alter the uses of the project area, therefore, this policy is not directly applicable to this project.

POLICY 30: Municipal, Industrial, And Commercial Discharge Of Pollutants, Including But Not Limited To, Toxic And Hazardous Substances, Into Coastal Waters Will Conform To State And National Water Quality Standards.

The project does not involve the discharge of any pollutants, therefore, this policy is not directly applicable to this project.

POLICY 31: State Coastal Area Policies and Management Objectives of Approved Local Waterfront Revitalization Programs Will Be Considered While Reviewing Coastal Water Classifications and While Modifying Water Quality Standards; However, Those Waters Already Overburdened With Contaminants Will Be Recognized As Being A Development Constraint.

The dredging in the channels and marinas will cause there to be temporary, localized increases in turbidity and a corresponding loss of water clarity in the immediate vicinity. NMFS has recommended that a turbidity curtain be put in place when dredging the marinas.

The entrance channel is subjected to circulation and flushing which will limit these potential impacts to local, minor and short term. The newly dredged areas will create a "sink" for future disposition. However, absent another major hurricane, repeat dredging should not be needed for some time. No impact is anticipated on the use and operation by the public at this site since the dock and beaches will be closed during the dredge operations.

Water quality impacts are spread among the three dredge sites. Dredging will occur in stages and Talisman/Barrett Beach will likely not be dredged in 2013 due to no current funding source being accessible. Since the public facilities will be closed during the time of the dredging, there are no other water quality issues that would contribute to cumulative impacts.

Although impacts on water quality are predicted to be minor and short term, the following practices will be employed to mitigate the temporary impacts associated with the project:

- If a hydraulic dredge is used, a diffuser will be employed to place the dredged material in order to reduce sediment re-suspension.
- A turbidity curtain will be placed across the entrance to the marinas at Sailors Haven, Talisman/Barrett Beach, and Watch Hill prior to dredging within the marina areas.
- Dredged material will be placed above the high tide water line and graded down at low tide to minimize re-suspension of material in the water column.

POLICY 32: Encourage The Use Of Alternative Or Innovative Sanitary Waste Systems In Small Communities Where The Costs Of Conventional Facilities Are Unreasonably High, Given The Size Of The Existing Tax Base Of These Communities.

The project does not involve a community, therefore, this policy is not directly applicable to this project.

POLICY 33: Best Management Practices Will Be Used To Ensure The Control Of Stormwater Runoff And Combined Sewer Overflows Draining Into Coastal Waters.

The project does not involve any new impervious surface that could contribute to runoff, therefore, this policy is not directly applicable to this project.

POLICY 34: Discharge of Waste Materials into Coastal Waters from Vessels Subject To State Jurisdiction Will Be Limited So As To Protect Significant Fish and Wildlife Habitats, Recreational Areas and Water Supply Areas.

The project involves the re-dredging of navigational channels and marinas and will not involve the discharge of waste materials. Any dredge materials that are determined to be unacceptable for upland use or beach replenishment would be removed from the park and disposed of at a proper disposal site. This policy is not directly applicable to this project.

POLICY 35: Dredging and Filling In Coastal Waters and Disposal of Dredged Material Will Be Undertaken In A Manner That Meets Existing State Permit Requirements, And Protects Significant Fish and Wildlife Habitats, Scenic Resources, Natural Protective Features, Important Agricultural Lands, and Wetlands.

NYSDEC issued a permit for previous dredging at Sailors Haven, and similar permits will be obtained for this project.

Significant Fish and Wildlife Habitats — See Policy 7

Scenic Resources – See Policies 24 and 25

Natural Protective Features – See Policy 17

Important Agricultural Lands – See Policy 26

Wetlands – See Policy 44

POLICY 36: Activities Related To the Shipment and Storage Of Petroleum And Other Hazardous Materials Will Be Conducted In A manner That Will Prevent Or At Least Minimize Spills Into Coastal waters; All Practicable Efforts Will Be Undertaken To Expedite the Cleanup Of Such Discharges; And Restitution For Damages Will be Required When These Spills Occur.

The project does not involve the storage or shipment of petroleum or other hazardous materials, therefore, this policy is not directly applicable to this project.

POLICY 37: Best Management Practices Will Be Utilized To Minimize The Non-Point Discharge Of Excess Nutrients, Organics And Eroded Soils Into Coastal Waters.

The project will utilize best management practices to minimize the non-point discharge of excess nutrients, organics and eroded soils into coastal waters. Dredged materials will be generally stockpiled in upland areas where they can be safely and usefully accommodated or distributed generally along suitable shorelines areas as erosion control and sediment transport measures. These measures will have long term beneficial environmental impacts on coastal processes.

POLICY 38: The Quality And Quantity Of Surface Water And Groundwater Supplies, Will Be Conserved And Protected, Particularly Where Such Waters Constitute The Primary Or Sole Source Of Water Supply.

The project involves the re-dredging of navigational channels and marinas, therefore, this policy is not directly applicable to this project.

POLICY 39: The Transport, Storage, Treatment And Disposal Of Solid Wastes, Particularly Hazardous Wastes, Within Coastal Areas Will Be Conducted In Such A Manner So As To Protect Groundwater And Surface Water Supplies, Significant Fish And Wildlife Habitats, Recreation Areas, Important Agricultural Land, And Scenic Resources.

No such wastes are involved with this project. The project involves the re-dredging of navigational channels and marinas, therefore, this policy is not directly applicable to this project.

POLICY 40: Effluent Discharged From Major Steam Electric Generating and Industrial Facilities into Coastal Waters Will Not Be Unduly Injurious To Fish and Wildlife And Shall Conform To State Water Quality Standards.

The project involves no such effluent discharges, therefore, this policy is not directly applicable to this project.

POLICY 41: Land Use Or Development In The Coastal Area Will Not Cause National Or State Air Quality Standards To Be Violated.

The project does not involve land use or development or any other potential source of significant air emissions.

POLICY 42: Coastal Management Policies Will Be Considered If The State Reclassifies Land Areas Pursuant To The Prevention Of Significant Deterioration Regulations Of The Federal Clean Air Act.

No State land reclassification is involved, therefore, this policy is not directly applicable to this project.

POLICY 43: Land Use Or Development In The Coastal Area Must Not Cause The Generation Of Significant Amounts Of Acid Rain Precursors: Nitrates And Sulfates.

The project does not involve any potential source of significant air emissions, therefore, this policy is not directly applicable to this project.

POLICY 44: Preserve and Protect Tidal and Freshwater Wetlands and Preserve The Benefits Derived From These Areas.

See Item 5 under Policy 12 above. The project will protect tidal and freshwater wetlands and the benefits they provide.



As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

NPS Report Number/Report Numbers:

615/121743 - ENVIRONMENTAL ASSESSMENT - ACCESS CHANNEL/MARINA
DREDGING PROJECT AT SAILORS HAVEN, BARRETT BEACH, AND WATCH HILL

615/121744 - WETLAND DELINEATION REPORT- ACCESS CHANNEL/MARINA
DREDGING PROJECT AT SAILORS HAVEN, BARRETT BEACH, AND WATCH HILL

PMIS #: 201444A

September 2013