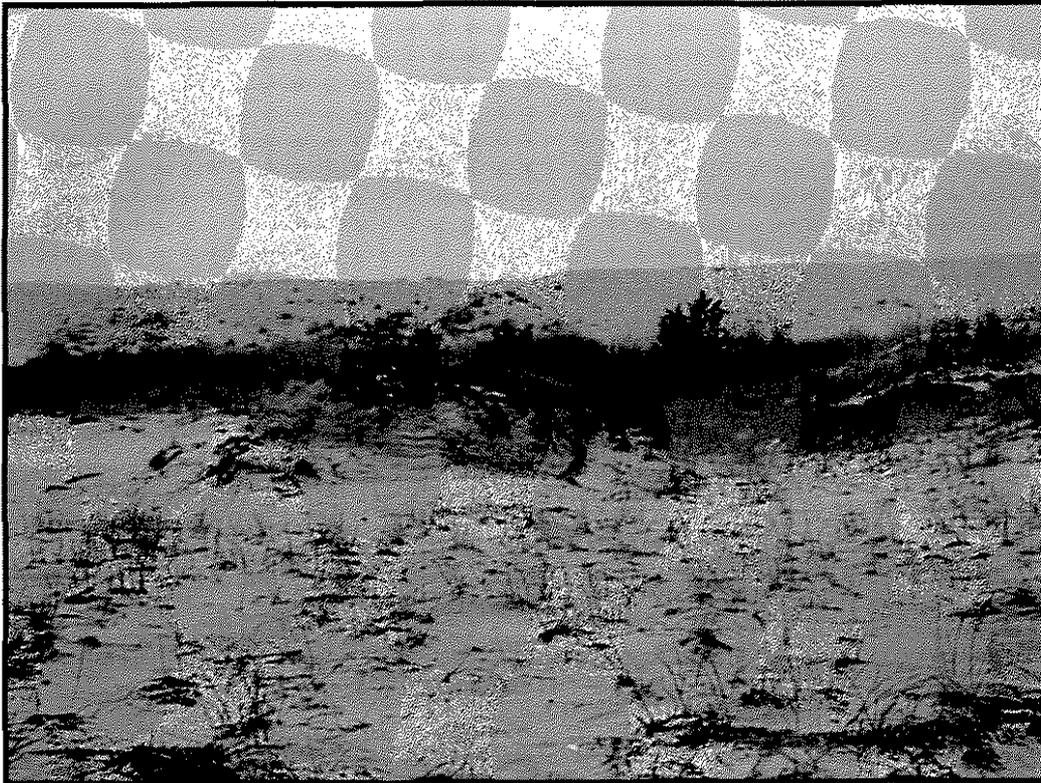


Atlantic Coast of New York, Jones Inlet to East
Rockaway Inlet, Island of Long Beach, New York
Storm Damage Reduction Project

DRAFT ENVIRONMENTAL ASSESSMENT



FEBRUARY 2006

**Prepared by: U.S. Army Corps of Engineers
New York District, Planning Division (CENAN-PL-E)
26 Federal Plaza
New York, New York 10278-0090**

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FOR THE

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ISLAND OF LONG BEACH, NEW YORK

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ABBREVIATIONS AND ACRONYMS

ac	Acre/Acres
BMP	Best Management Practices
BOD	Biological Oxygen Demand
CFR	Code of Federal Regulations
CMSA	Consolidated Metropolitan Statistical Area
CO ₂	Carbon Monoxide
District	United States Army Corps of Engineers, New York District
cy	Cubic Yard/Yards
EFH	Essential Fish Habitat
FEIS	Final Environmental Impact Statement
ft	Foot or Feet
HTRW	Hazardous, Toxic, and Radioactive Waste
LRR	Limited Re-evaluation Report
lf	Linear Foot/Feet
MLW	Mean Low Water
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NGVD	National Geodetic Vertical Datum
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NO _x	Nitrogen Oxides
NWI	National Wetlands Inventory
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSOPRHP	New York State Office of Parks, Recreation, and Historic Preservation
O ₃	Ozone
Project	The Atlantic Coast of New York, Jones Inlet to East Rockaway Inlet, Long Beach Island, New York Storm Damage Reduction Project
Project area	6.4 miles of the Long Beach barrier island including the developed community of Point Lookout and adjacent beaches owned by the Town of Hempstead (i.e., Nassau Beach, Lido Beach, and the City of Long Beach).
ROD	Record of Decision
EA	Environmental Assessment
SSA	Sole Source Aquifer
yr	Year
USGS	United States Geologic Survey
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

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EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers (USACE), New York District (District) and New York State Department of Environmental Conservation NYSDEC, is proposing to implement a cost-effective solution designed to restore the shoreline and provide shoreline protection for Long Beach Island, a barrier island located between Jones Inlet and East Rockaway Inlet, in Nassau County, New York (Figure 1). The Atlantic Coast of New York, Jones Inlet to East Rockaway Inlet, Long Beach Island, New York Storm Damage Reduction Project (Project), covers approximately 6.7 miles (of which 6.4 miles represents protection provided by the selected plan) of oceanfront along Long Beach Island, including the Town of Hempstead (Point Lookout and Lido Beach), Nassau County (Nickerson Beach), and the City of Long Beach.

In 1965, the USACE evaluated various storm protection options for the area and presented findings in the Beach Erosion Control and Interim Hurricane Study for the Atlantic Coast of Long Island, New York: Jones Inlet to East Rockaway Inlet (USACE 1965). Local interests did not support the plan and the project was terminated in 1971. Since that time, beach erosion and storm damage have continued in the area. At the request of the local interests following Hurricane Gloria in 1985, the USACE conducted a Reconnaissance Study (completed in 1989), and subsequently a Feasibility Study (completed in February of 1995), to evaluate an array of structural and non-structural measures to provide flood and storm protection for the Long Beach Island area (USACE 1989, 1995, 1998, 1999).

As a result of the Feasibility Study, several alternatives were evaluated and a final plan was selected. The plan, as presented in the Final Feasibility Study and Final Environmental Impact Statement (FEIS) for the Project, included widening of the existing beach with the hydraulic placement of beach fill material, rehabilitation of 16 groins at Long Beach, construction of six new groins west of Point Lookout at Lido Beach, and construction/rehabilitation of numerous dune walkovers and dune access points (USACE 1995, 1998). The December 1998 Record of Decision (ROD) (filed in the Federal Register, January 1999) granted approval of the plan as presented in the 1998 FEIS and was signed on December 23, 1998 and issued in January 1999.

Subsequent to the 1998 release of the FEIS for the Project, the proposed alternative was re-evaluated. The re-evaluation was conducted to address changes to the shoreline since the 1998 evaluation and changes in the Project scope (i.e., a reduction in the size of the Project area), and to address environmental concerns expressed by agencies and/or interest groups (USACE 1998, 2002). Furthermore, this re-evaluation allowed incorporation of advancements in engineering evaluation methods. As a result of project re-evaluation, several modifications were made to the plan that was selected in 1998 and are presented in the 2005 Limited Reevaluation Report (LRR) and subsequent plan modifications for the Project (USACE 2005a). The proposed Project modification is intended to provide a long-term, cost-effective solution for reducing erosion and maintaining the protective dune and beach berm in this area.

When compared to the original Project that was presented in the 1998 FEIS and approved through a Record of Decision in 1999, the proposed Project modification includes several new structural features and activities that are in addition to those proposed in the original Project (Table 2.1). These include placement of a sand barrier beneath the existing boardwalk in the

City of Long Beach, extension and rehabilitation of the eastern terminal groin, dune cross-over structures, boardwalk surface replacement, construction of a lifeguard headquarters in Point Lookout, construction of timber walls around: four existing comfort stations, two existing comfort stations with concession stands and one existing lifeguard headquarters in Long Beach, and the extension of existing dune cross-over structures in the Town of Hempstead. However, the overall Project area has been reduced in the proposed Project modification and several structural features and activities (vehicle access ramps, new groins, dune walkovers, impacts within a 136-acre shorebird nesting/foraging area) have been eliminated. As a result, the proposed modification has significantly reduced the area of fill placement and the amount of fill material required for the Project. Specifically, 170 fewer acres will be filled (i.e., approximately 104 acres in the upper beach zone, 35 fewer acres in the intertidal zone, and 31 fewer acres in the sub-tidal zone), the amount of fill material required for the Project has been reduced by 2,042,000 cubic yards (cy), and the amount of fill material needed for 5-yr renourishment activities has been decreased by 385,000 cy per yr. The Long Beach Limited Re-evaluation Report (LRR) and subsequent plan modifications provide specific details regarding proposed Project modification components (USACE 2005a).

The District has concluded that, similar to the original Project, the Project modification will still result in some short-term negative impacts to water quality, terrestrial and aquatic habitats and the species that utilize the habitats. There also is a possibility that cultural resources could be affected, however, studies to determine potential impacts are ongoing at this time. In addition, it has been determined that the proposed Project would exceed the Federal de minimis thresholds of 25 tons per year for NO_x air emissions.

Impacts to other environmental resources in the proposed Project Area are expected to be minor and less than those that would have resulted from the original Project. Specifically, the modification will include the placement of unvegetated hard structures (buildings, groins, and beach access walkovers, ramps) in dune/upper beach, intertidal, and subtidal areas. These structures will permanently cover the substrate beneath the footprint and non-mobile benthic species and will limit the use of the area directly within the structure footprint for foraging by shorebirds and wading birds and some fish species. However, these impacts are not significant because of the following: affected species will utilize other suitable habitat for foraging activities; the existing upper beach and dune areas in these locations are currently of relatively low value to most wildlife species and do not support any Federal or state-listed species; the direct loss of benthic species and vegetation will be minimal and would not affect populations; and groins are likely to reduce the overall rate of beach loss and erosion in the Project Area and will increase the forage base for many fish species by increasing invertebrate biomass. The changes in the conditions of the resources are not significant, and the proposed impacts on these resources as a result of the authorized project are not significantly different than those described in the FEIS which was approved for the original Project in 1999 (USACE 1998).

The use of BMP construction procedures and mitigation measures, pre-construction surveys for species of special concern in the Project Area, post-construction surveys to monitor affects of groins on coastal processes and species, and avoidance of key breeding/nesting and spawning periods, will reduce potential for negative impacts. Furthermore, implementation of the proposed Project will have significant overall beneficial impacts to the environment and

surrounding communities, including benefits to aquatic habitats and species, an increase in the availability of suitable habitat for Federal and state-listed species and a diversity of shorebird communities, improved shoreline stabilization and flood protection, and recreational opportunities.

Based on a thorough evaluation of potential impacts performed for the 1998 FEIS and this EA, it has been determined that with the exception of anticipated high NO_x emission levels, there will be no significant adverse impacts due to implementation of the proposed Project modification. Comments from agencies and interested parties have been addressed and all practicable means to avoid or minimize adverse environmental effects have been incorporated into the recommended plan.

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)
ATLANTIC COAST OF NEW YORK, JONES INLET TO EAST ROCKAWAY INLET,
ISLAND OF LONG BEACH, NEW YORK
STORM DAMAGE REDUCTION PROJECT

I. THE ACTION

Evaluation of an array of cost-effective shoreline protection measures to address significant beach erosion, elevate low protective beach features and deterioration of protective coastal structures along the densely populated southern coast of Long Beach Island. The approximately 6.4 mile Project area is located along the Atlantic Ocean shoreline of Long Beach Island, and includes the Town of Hempstead (Point Lookout and Lido Beach), Nassau County (Nickerson Beach), and the City of Long Beach.

II. DESCRIPTION OF ACTION

1. **Proposed Action:** The proposed action is a modification to the Atlantic Coast of New York, Jones Inlet to East Rockaway Inlet, Island of Long Beach, New York Storm Damage Reduction Project which received a favorable Record of Decision (ROD) in January 1999. Compared to the original Project, the Project modification entails an overall reduction in the Project area, which results in a reduction of 7,000 linear feet (lf) of project area (12,000 lf of beach fill area), a reduction of 2,042,000 cy of beach fill material needed for initial beach fill and 385,000 cy per yr for 5-year renourishment activities, a reduction of 17 acres (ac) of dune plantings and a reduction of 43,000 lf of sand fence. Specifically, there will be a reduction of 104 ac of filling in the upper beach zone, 35 fewer acres of filling in the intertidal zone, and 31 fewer acres of filling in the sub-tidal zone.

Structural components of the Project modification include the construction of 12 timber dune walkovers, 12 gravel surface dune walkovers, eight extensions of existing dune walkovers, eight gravel surface vehicle access ways, two swing gate vehicle access structures, one timber raised vehicle access way, construction of one lifeguard headquarters, construction of timber retaining walls around: four existing comfort stations, two existing comfort stations with concession stands, and one existing lifeguard headquarters, construction of four new groins (three of the seven groins originally proposed for the Project have been deferred indefinitely, and are not part of the proposed Project modification), the rehabilitation of 17 groins, the rehabilitation and extension of the eastern terminal groin, and a modification to the sand placement location in the City of Long Beach such that the sand barrier is placed beneath the existing boardwalk instead of in front of the boardwalk.

In addition to the decrease in the size of the Project Area and the amount of sand material required for the Project, when compared to the original Project, the Project modification would result in five fewer dune walkovers, one fewer vehicle access ramp, two fewer new groins (originally 6 new, now 4 new with 3 new groins as deferred subject to

changes in local shore conditions), and the construction activities originally proposed within a 136-acre shorebird nesting/foraging area would be excluded from the Project (Table 2.1). The proposed Project modification would, however, result in an increase of eight walkover extensions, 11,000 lf of boardwalk repair, construction of one lifeguard headquarter station, the construction of timber retaining walls around: four existing comfort stations, two existing comfort stations with concession stands and one existing lifeguard headquarters, the rehabilitation of two groins, and the extension of one groin. A comparison of components of the original selected plan and the proposed Project modification are shown in Table 2.1.

2. **Alternatives:** A full evaluation of alternatives was previously conducted for the Project, a plan was selected, and a favorable ROD was issued in 1999. During the re-evaluation of the Project, a number of similar alternatives were evaluated and a plan was selected that included only slight modifications to the originally selected plan. Therefore, since the alternatives evaluated in 1995, and subsequent Project modifications are similar, a re-evaluation of alternatives was not deemed necessary as part of this re-evaluation. The alternatives considered have been consolidated into two general categories in this Environmental Assessment: 1) No Action Alternative, and 2) Beach Restoration with Groin Rehabilitation, Extension, and Construction.

III. ANTICIPATED ENVIRONMENTAL IMPACTS

This action would result in impacts to benthic communities (potential burial and habitat disturbances) and water quality (turbidity and dissolved oxygen) during active construction activities. However, these effects would be short-term, as the benthic communities will naturally begin to re-establish shortly after construction is completed, forming a similar community within a 1- to 2-year period. Due to the sandy sediments in the Project Area, increased turbidity effects would generally be limited to the period of in-water construction, as this type of substrate tends to settle out of suspension quickly.

Buried cultural resources (i.e. shipwrecks) are known to occur in the Project area and additional buried cultural resources may be present. If present and within the area of proposed project activities, there is potential for impacts (i.e. burial, disturbance) to these resources. In accordance with NYSOPRHP permit conditions and Section 106 guidelines the USACE is conducting research to identify all potential buried cultural resources in the Project area. Results will be provided to NYSOPRHP and a determination for any further action will be made at that time.

Federal- and State-listed threatened and endangered species likely to occur in the Project Area include the piping plover and the sea beach amaranth. The Project would potentially result in direct and/or indirect disturbances to piping plover and other nesting shorebirds, including the State-listed least tern, roseate tern, and common tern, if any are present in the project vicinity during the time of construction. However, these impacts can largely be avoided if construction activities are restricted to September 2 through April 14 (outside of the nesting season). Therefore, the USACE has incorporated these construction window recommendations, as well as other recommendations from the U.S. Fish and Wildlife Service (USFWS), into the project

construction plans. In addition, the USACE will conduct a pre-construction survey for the sea beach amaranth and will avoid disturbing the plants if any are found within the construction area. As a result, significant adverse impacts to these species are not expected. The USACE is in the process of completing coordination and consultation processes with the USFWS, pursuant to the Fish and Wildlife Coordination Act and the Endangered Species Act.

No long-term adverse environmental impacts or consequences are anticipated to result from the proposed shore protection project.

IV. CONCLUSION

Given there are no anticipated significant impacts (primary or secondary) associated with the proposed shoreline protection project modification, this action has been determined to have no adverse environmental impact on the quality of the environment. Therefore, a Supplemental Environmental Impact Statement is not required.

Date

Richard J. Polo, Jr.
Colonel, U.S. Army
District Engineer

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1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), New York District (District) and New York State Department of Environmental Conservation is proposing to implement a cost-effective solution designed to restore the shoreline and provide shoreline protection for Long Beach Island, a barrier island located between Jones Inlet and East Rockaway Inlet, for Nassau County, New York (Figure 1). The Atlantic Coast of New York, Jones Inlet to East Rockaway Inlet, Long Beach Island, New York Storm Damage Reduction Project (Project), covers approximately 6.4 miles of oceanfront along Long Beach Island, including the Town of Hempstead (Point Lookout and Lido Beach), Nassau County (Nickerson Beach), and the City of Long Beach.

A Final Environmental Impact Statement (FEIS) was prepared for the proposed Project in 1998 (USACE 1998) and a favorable Record of Decision (ROD) was granted for the Project in 1999. Subsequent to the 1998 release of the FEIS for the Project, the proposed alternative was re-evaluated. The re-evaluation was conducted to address changes to the shoreline since the 1998 evaluation, changes in the Project scope (i.e., a reduction in the size of the Project area), and to address environmental concerns expressed by agencies and/or interest groups (USACE 1998, 2002). Furthermore, this re-evaluation allowed incorporation of advancements in engineering evaluation methods. As a result of project re-evaluation, several modifications were made to the plan that was selected in 1998 and are presented in the 2005 Limited Reevaluation Report (LRR) and subsequent Project modifications for the Project (USACE 2005a).

The scope of this Environmental Assessment (EA) is to evaluate and document potential environmental affects that may result from modifications to the proposed Project and is provided as a supplement to the Final Environmental Impact Statement (FEIS) prepared for the proposed Project in 1998 (USACE 1998). This report includes the documentation necessary to meet the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality's Guidance Regarding NEPA Regulations, the USACE Procedures for Implementing NEPA (Engineer Regulation [ER]-200-2-2), the USACE Planning Guidance Notebook (ER 1105-2-100), National Historic Preservation Act of 1966, as amended (NHPA) or the Abandoned Shipwreck Act of 1987, the USACE Civil Works Ecosystem Restoration Policy (ER 1165-2-501), and coordination and consultation with local citizens and natural resource agencies which included the United States Environmental Protection Agency (USEPA), the United States Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the New York State Department of Environmental Conservation (NYSDEC).

1.1 PROJECT HISTORY AND AUTHORIZATION

In October 1986, the Committee on Public Works and Transportation of the United States House of Representatives authorized the USACE to review the previous report on the Atlantic Coast of Long Island, New York, Jones Inlet to East Rockaway Inlet, to determine the feasibility of providing storm damage protection works for Long Beach Island. Subsequently, a reconnaissance study and report were completed in 1989, a Draft Feasibility Report and Environmental Impact Statement (DEIS) report were circulated in 1994, and a Final Feasibility Report and Final Environmental Impact Statement (FEIS) report, were circulated in 1998 (USACE 1998). A Record of Decision (ROD) was signed on December 23, 1998 and filed in

the Federal Register in January 1999. The 1995 Feasibility Report Recommended Plan was authorized for construction by the 1996 Water Resources Development Act (WRDA).

As a result of the Feasibility Study, several alternatives were evaluated and a final plan was selected. The plan included widening of the existing beach with the hydraulic placement of beach fill material, rehabilitation of 16 groins at Long Beach, construction of six new groins west of Point Lookout at Lido Beach, and sand removal from an offshore borrow area. However, since the 1998 release of the FEIS for the Project the proposed alternative was re-evaluated. The re-evaluation was conducted to incorporate advancements in engineering evaluation methods, to address changes to the shoreline since the 1998 evaluation and changes in the Project scope (i.e., a reduction in the size of the Project area), and to address environmental concerns expressed by agencies and/or interest groups. As a result of project re-evaluation, several modifications were made to the plan that was selected in 1998 for this Project.

In 2002, the New York District USACE initiated a limited re-evaluation study to explore options to refine the proposed project modification. The limited re-evaluation study was conducted with the intent of identifying and evaluating various means of maintaining the beach that are longer-term and less expensive than the current plan and that incorporate concerns addressed by agencies and/or interest groups. As a result of project re-evaluation, several modifications were made to the plan that was selected in 1998 and are presented in the 2005 LRR for this Project and subsequent plan modifications (USACE 2005a).

1.2 PURPOSE AND NEED FOR ACTION

The Project purpose remains the same as that presented in the 1995 Final Feasibility Report. The purpose is to evaluate an array of shoreline protection measures to address significant beach erosion and deterioration of protective coastal structures along the densely populated southern coast of Long Beach Island. Erosion has reduced the width of the protective beachfront and has exposed properties to a high risk of damage from ocean flooding and wave attack. Over time the Project area has experienced significant sand loss (USACE 1998, 2005a). Existing groins along the island have deteriorated and are becoming less effective at reducing sand loss along the shoreline and providing wave protection. Continuation of the trend in sand loss will increase the potential for economic losses and threat to human health and safety (USACE 1998, 2005a).

The purposes of the Project modifications are:

- 1) To reduce the threat of future damage to the shoreline due to wave attack, recession, and inundation from storms;
- 2) Mitigate or prevent the effect of long-term erosion;
- 3) Provide an economically justified plan;
- 4) Preserve, restore, and maintain existing ecological resources and habitats for native fish and wildlife, where possible; and,
- 5) Preserve or mitigate for the loss of historical, archaeological, and cultural resources in the Project area, if present.

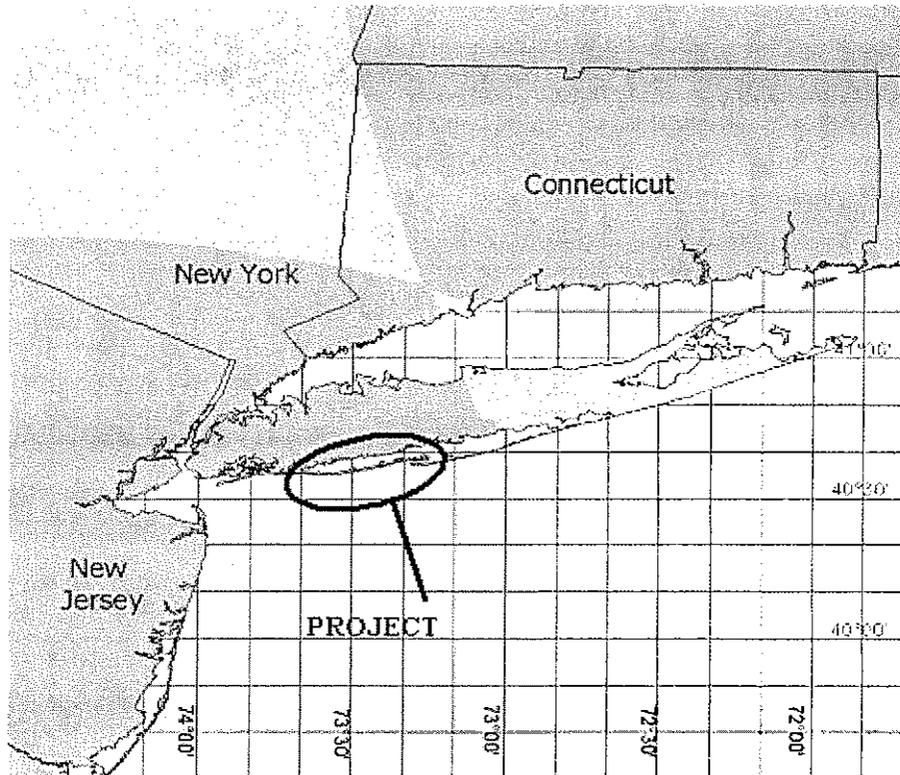


Figure 1: Project Area

2.0 MODIFICATIONS TO THE PROPOSED ACTION

The recommended plan for this Project includes the preferred plan (identified in the 1995 Feasibility Report and subsequent 1998 FEIS filing) with post-Feasibility modifications as detailed in the LRR [USACE 2005a]. The recommended plan provides the most comprehensive, effective, and cost-effective solution to provide storm protection in the Project area.

The proposed action is a modification to the Atlantic Coast of New York, Jones Inlet to East Rockaway Inlet, Island of Long Beach, New York Storm Damage Reduction Project that received a favorable Record of Decision (ROD) in 1999. When compared to the original Project, the Project modification entails an overall reduction in the Project area, which results in a reduction of 7,000 linear feet (lf) of project length (12,000 lf of beach fill area), a reduction of 2,042,000 cy of fill material needed for initial beach fill and 385,000 cy per yr for 5-year renourishment activities, a reduction of 17 acres (ac) of dune plantings and a reduction of 43,000 lf of sand fence. Specifically, there will be a reduction of 104 ac of filling in the upper beach zone, 35 fewer acres of filling in the intertidal zone, and 31 fewer acres of filling in the sub-tidal zone.

Structural components of the Project modification include the construction of 12 timber dune walkovers, 12 gravel surface dune walkovers, eight extensions of existing dune walkovers, 8 gravel surface vehicle access ways, two swing gate vehicle access structures, one timber raised vehicle access way, construction of 1 lifeguard headquarters, construction of timber retaining walls around: four existing comfort stations, two existing comfort stations with concession



stands and one existing lifeguard headquarters, construction of four new groins (three of the seven groins proposed for the Project have been deferred indefinitely, and are not part of the current proposed Project modification), the rehabilitation of 17 groins, the rehabilitation and extension of the eastern terminal groin, and a modification to the sand placement location in the City of Long Beach such that a sand barrier (instead of a dune) is placed beneath the existing boardwalk instead of in front of the boardwalk. Supplemental NEPA documentation would be prepared to address construction of the three deferred groins as appropriate.

In addition, to the decrease in the size of the Project Area and the amount of sand material required for the Project, when compared to the original Project, the Project modification would result in five fewer dune walkovers, one fewer vehicle access ramp, two fewer new groins, and the construction activities originally proposed within a 136-acre shorebird nesting/foraging area (Figure 16-17) would be excluded from the Project (Table 2.1). The proposed Project modification would, however, result in an increase of eight walkover extensions, 11,000 lf of boardwalk repair, construction of one lifeguard headquarters, the construction of timber retaining walls around: four existing comfort stations, two existing comfort stations with concession stands and one existing lifeguard headquarters, the rehabilitation of two groins, and the extension of the terminal groin. A comparison of components of the original selected plan and the proposed Project modification are shown in Table 2.1.

Table 2.1. Summary Comparison of the Original Proposed Project and the Currently Proposed Project Modifications.

Component	Original Project	Project Modification	Change
Beach fill material (for creation of beach berm, sand barrier and a dune)	41,000 lf, some within shorebird nesting area	29,000 lf, none within shorebird nesting area	-12,000 lf
Borrow area sand removal (i.e., total sand fill quantity, excluding 5-year renourishments)	8,642,000 cy	6,600,000 cy	-2,042,000 cy
Dune plantings	29 ac	12 ac	-17 ac
Sand fence	90,000 lf	47,000 lf	-43,000 lf
Dune walkovers (timber and/or gravel surface)	29	24	-5
Walkover extensions	0	8	+8
Vehicle access ramps (timber and/or gravel surface)	12	11	-1
Repair of existing boardwalk surface	0	11,000 lf	+11,000 lf
Relocation of lifeguard headquarters*	1	0	-1
Reconstruction of lifeguard headquarters*	0	1	+1



Construction of timber retaining wall around: existing comfort stations, comfort/lifeguard stations, and lifeguard headquarters	570 lf	2,774 lf	2,204 lf
5-yr renourishment	2,111,000 cy/yr	1,746,000 cy/yr	-385,000 cy/yr
New groins	6	4 (7 proposed, but 3 have been deferred)	- 2
Rehabilitation of existing groins	15	17	+ 2
100 ft Extension of Groin 58	0	1	+ 1
Rehab of Groin 58	1	1	0
Impacts to shorebird nesting/foraging area	136 ac	0 ac	No impacts

* 1995 Feasibility Plan included the relocation of the lifeguard headquarters in the Town of Hempstead, while the 2005 LRR includes the reconstruction (instead of relocation) of the same lifeguard headquarters.

2.1 PROJECT ELEMENTS

2.1.1 Beachfill

This component of the Project includes the following: 1) a dune with a top elevation of +15 ft above NGVD, a top width of 25 ft, and landward and seaward slopes of 1V:5H that will extend along the entire project area except where the City of Long Beach boardwalk is located; 2) a sand barrier with a top elevation of +15 ft above NGVD, a top width of 25 ft, a landward slope of 1V:3H and a seaward slope of 1V:5H, that will be located directly beneath the existing boardwalk in the City of Long Beach; and, 3) a beach berm that will extend 110 ft from the seaward toe of the recommended dune or sand barrier at an elevation of +10 ft NGVD, then will gradually slope to match the existing bathymetry (slope will be between 1V:20H in Point Lookout and 1V:35H in Long Beach and Lido Beach).

Approximately 41,000 lf of beach fill and a total of 8,642,000 cy of fill material were proposed in the original selected plan (USACE 1998). However, the Project area has been re-defined and now excludes portions of Long Beach that were originally part of the Project area. The resulting beach fill plan includes approximately 29,000 lf of beach fill that extends from Point Lookout west to the western boundary of the City of Long Island Beach. This modification results in a reduction of 7,000 lf of project length (12,000 lf of project area including areas with and without beach fill) and 2,042,000 cy of beach fill material.

The dune construction portion of beach fill actions includes implementation of dune stabilization methods. Specifically, 12 acres of beach grass will be planted and 47,000 feet of sand fence will be installed (USACE 2005a).



2.1.2 Rehabilitation of Existing Groins

Sixteen groins were proposed for rehabilitation in the plan selected in 1998. However, the existing groins within the Project were re-evaluated in the LRR (USACE 2005a). The groins were evaluated for structural condition, sand trapping effectiveness, and planform holding effectiveness. As a result of this survey, a total of 17 groins were recommended for rehabilitation, including 15 groins in Long Beach and two groins in Point Lookout (Figure 2).

Rehabilitation will consist of repositioning existing armor stone and adding additional stone where required. The restored groins will have an average rehabilitation length of 200 ft and an average width of 57 ft. Existing groins are on average 318 ft long and 37 ft wide. A primary armor weight of 5 tons was selected for the new armor in order to match the existing armor (USACE 2005a).

2.1.3 Construction of New Groins

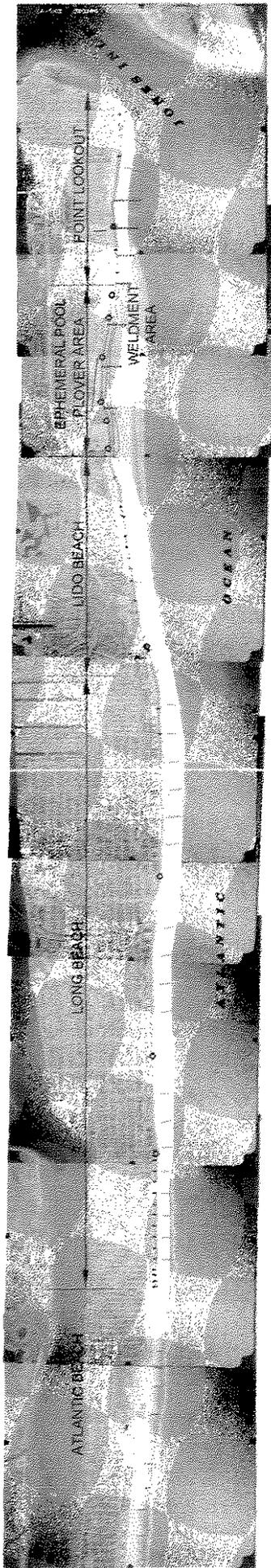
The selected 1995 plan proposed eventual construction of six new groins (all 765 ft long and 70 ft wide) at Point Lookout (USACE 1998). The recommended plan as discussed in the LRR completed in 2005 includes construction of seven new groins, of which only the first four are targeted for immediate construction. The remaining three groins would be deferred as needed based on the stability of the existing weldment area (USACE 2005a). Based on subsequent re-evaluation of the area, some modifications to the original design of the four new groins have been proposed. The Project requires the immediate construction of a new groin field at Point Lookout that will contain four groins that begin 800 feet west of existing Groin 55 in Point Lookout (Figure 2). The four groins would be constructed with tapered lengths and spaced at an interval of 800 feet (USACE 2005a). Groin lengths vary and range from 380 ft to 800 ft. Groin widths will be 115 ft.

A determination to construct the three westernmost groins will be triggered at a later date within the 50-year Project life and be based on monitoring data (USACE 2005a). The criterion for construction includes a change from an accreting beach to an eroding beach in the area where the structures are to be located. The criteria will be evaluated based upon field measurements and analysis (USACE 2005a).

2.1.4 Point Lookout Terminal Groin Rehabilitation and Extension

During re-evaluation of the proposed Project, the USACE determined that Groin #58 (i.e., West Groin), the terminal groin in Point Lookout, required an extension along with the rehabilitation recommended by the Feasibility Study (USACE 2005). Accordingly, the District plans to rehabilitate the existing portion of the groin, extend the length an additional 100 feet (currently 200 ft), and extend the width to between 107 and 170 ft (currently widths range from 50 to 107 ft), in accordance with design specifications presented in the "1999 USACE Terminal Groin Rehabilitation and Extension at Jones Inlet, Long Beach Island, New York Report" (Figure 2). Extending the terminal groin may decrease the amount of sediment lost toward the inlet after the beach fill component of the project is carried out (USACE 2005a).





NOTE: WELDMENT AREA IS A PART OF A SAND SPICAL THAT WILL CHANGE IN POSITION FROM YEAR TO YEAR

* GROIN COVERAGE IS NOT REPRESENTATIVE OF THE PROPOSED CONDITION (SEE FIGURES 14 TO 25 FOR AN ACCURATE DEPICTION OF THE GROIN COVERAGE).

LEGEND

- DUNE (WITH GRASS AND PROTECTIVE FENCING)
- SAND BARRIER
- ▭ BEACH FILL*
- NEW GROINS
- EXISTING GROINS
- DUNE WALKOVERS
- VEHICULAR ACCESS RAMPS
- TERMINAL GROIN EXTENSION



OFFSHORE AND COASTAL TECHNOLOGIES, INC.
 AND
 ANDREWS, MILLER & ASSOCIATES, INC.
 (JOINT VENTURE)

LONG BEACH ISLAND, NEW YORK
 STORM DAMAGE REDUCTION PROJECT
 LRR RECOMMENDED PLAN
 STUDY AREA

SCALE 1" = 3000'
 Figure No. 2

NASSAU COUNTY NEW YORK

It will also possibly retain additional longshore sediment transport without causing large changes in inlet dynamics (USACE 2005a). The median armor weight for the rehabilitated and new portions of Groin #58 is approximately 10 to 10.75 tons (USACE 2005a).

2.1.5 Dune Walkovers, Vehicle Access Structures, and Boardwalk Surface Replacement

Several dune walkovers and vehicle access points are proposed for the City of Long Beach and the Town of Hempstead (USACE 2005a). Construction of these structures will allow the public to gain safe access to the beach without harming the existing and enhanced dune system.

A total of 12 timber dune walkovers (including 8 wheelchair accessible and 4 zigzag), 12 gravel surface pedestrian walkovers, 8 extensions to existing walkovers, 11,000 lf of boardwalk repair, 8 gravel surface vehicle access ways, two swing gate vehicle access structures, and one raised timber vehicle access way, are currently proposed (Figure 2). Originally, 29 dune walkovers (both timber and gravel) and 12 vehicle access ramps were included in the selected plan (USACE 1998). Extensions to existing walkovers and boardwalk surface replacement were not components of the 1995 Feasibility plan.

2.1.6 Comfort Stations and Lifeguard Headquarters

The currently proposed plan includes the construction of timber retaining walls around: four existing comfort stations, two existing comfort stations with concession stands and one existing lifeguard headquarters, and the reconstruction (relocation) of one lifeguard headquarters.

2.1.7 Bird Nesting and Foraging Area

The proposed Project modification has excluded initial Project activities from within a 93.4-acre ephemeral pool and a 42.3-acre tern/piping plover nesting area located in Point Lookout, near the Jones Inlet ebb shoal attachment point (weldment point) (Figure 2 [USACE 2005a]). Project activities were proposed within this area as part of the original plan that was selected in 1995. However, the USACE reevaluated proposed Project activities in direct response to concerns regarding shorebird habitat from Federal and State agencies and other interested parties (USACE 1998) and in accordance with the Corps' Environmental Operating Principles. As a result, construction of a beach berm and dune within the bird nesting/foraging area has been eliminated from the initial proposed Project to allow for the continued unimpeded use of the area as shorebird nesting and foraging habitat. Three new groins were originally proposed within the ephemeral pool and tern/piping plover nesting area. However, based on a re-evaluation of the Project, construction of these groins has been deferred indefinitely, and is not part of the initial proposed Project modification. Supplemental NEPA documentation would be prepared to address construction of the three deferred groins as appropriate. No beach fill activities will take place within the bird foraging and nesting area.

2.1.8 Sand Removal from Offshore Borrow Area

An offshore borrow area, located approximately 1.5 miles south of Long Beach Island (Figure 3) between 25 feet mean low water and about 60 feet mean low water, has been identified as a



potential source of sand material for beach fill and dune construction activities (USACE 2005a). Approximately 6,600,000 cy of material will be removed from this area. The original plan selected in 1995 proposed 8,642,000 cy of sand removal (USACE 1998).

2.2 REASONABLY FORESEEABLE FUTURE ACTIONS

Reasonably foreseeable future actions of the Project include beach renourishment and maintenance of beach access locations. Renourishment will be conducted every 5-years over the 50-year life of the Project. During each renourishment, approximately 1,726,000 cy of sand will be added to the beach from the borrow area located approximately 1.5 miles offshore to the south of Long Beach Island. This borrow area contains approximately 36 million cy of suitable beach fill material (USACE 2005a). Approximately 2,111,000 cy per renourishment cycle of sand removal were proposed in the 1995 selected plan (USACE 1998). Maintenance of beach access locations includes replacing deteriorated or damaged ramps, railings, and stairs associated with dune walkovers and dune walkover extensions. Additionally, vehicle access locations will be monitored for excessive wear and maintained on an as-needed basis. The retaining timber walls around facilities such as comfort stations, concession stands and lifeguard headquarters will likely require periodic maintenance.

3.0 AFFECTED ENVIRONMENT

A detailed discussion of the affected environmental resources associated with the Project is found in the FEIS and FONSI (USACE 1998). The proposed Project modifications will not involve any additional affected environmental resources. Therefore, only those environmental resources that may be subjected to additional negative impacts from the currently proposed Project are discussed in this SEA.

The purpose of this section is to provide a brief summary of the affected environmental resources detailed in the FEIS and to update the information based on more recent studies and an evaluation of proposed project modifications as presented in the LRR and subsequent plan modifications (USACE 1998, 2005a).

3.1 DESCRIPTION OF PROJECT AREA

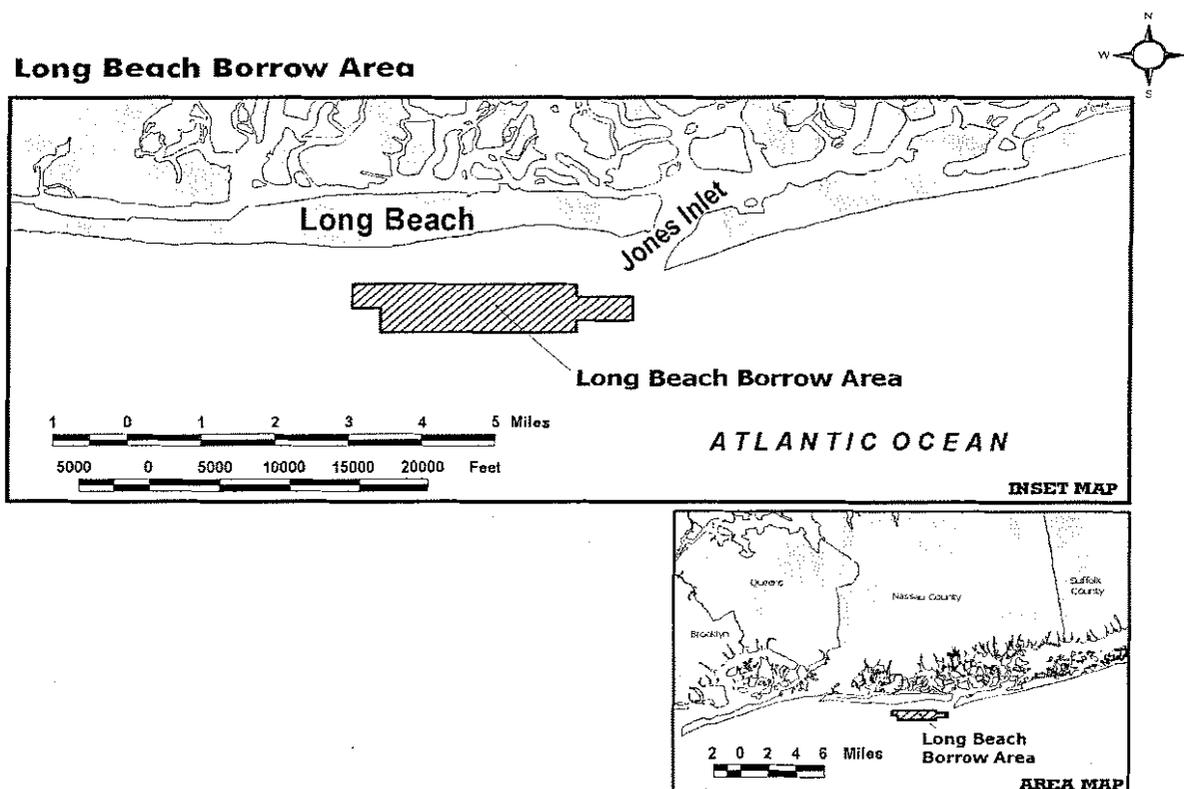
The Long Beach barrier island is approximately 9 miles long and varies in width from 1,500 to 4,000 ft. The island is located along the Atlantic (south) coast of Long Island, New York from Jones Inlet westerly to East Rockaway Inlet and parallels the south coast of Long Island (Figure 1). The island is separated from the mainland by an extensive bay system. The Project area covers approximately 6.7 miles (of which 6.4 miles represents protection provided by the selected plan), or 35,500 lf, of the Long Beach barrier island. The Project area is situated within Nassau County, New York, and from east to west includes the Town of Hempstead (Point Lookout and Lido Beach), Nassau County (Nickerson Beach) and the City of Long Beach (USACE 2005a).

The Project area consists of beaches, sand dunes, herbs, and low-growing shrubs, and has been highly modified as a result of human development. Upland areas in the vicinity of the Project



have been committed to residential, commercial and recreational development. Near shore and upper beach areas in the Project area are heavily utilized for beach recreation. Numerous stone groins currently exist in the Project area, including 23 at Long Beach, three at Point Lookout (including the terminal groin) and four at Lido Beach. Based on a 2003 assessment, over 50% of these are deteriorated to the point where they require rehabilitation (USACE 2005a). The offshore portion of the proposed project includes a 550-acre borrow area located approximately 1.5 miles south of Long Beach Island between 25 feet mean low water and to about 60 feet mean low water (Figure 3).

Figure 3. Location of the Long Beach Borrow Area.



3.2 PHYSICAL ENVIRONMENT

3.2.1 Topography, Geology, and Soils

The Project area is located in the Atlantic Coastal Plain Physiographic Province (Pickman 1993). Topography is low-lying, flat terrain with elevations generally ranging from 0 to 6 feet (ft) NGVD. Dominant landforms consist of shallow brackish lagoons and low relief sandy barrier islands and associated dunes. Long Beach Island is one of these barrier islands. Based on beach sediment grabs in the Project area, sand samples ranged in size from very fine to coarse, with a median grain size of 0.21 to 0.22 mm (i.e., fine sand). A thorough discussion of geologic features and substrate characteristics such as littoral materials, shoreline changes, and sediment budget, is found in the LRR report for this Project (USACE 2005a).



No prime, unique, or important farmland soils exist within the Project area; therefore the Farmlands Protection Policy Act does not apply to the proposed Project (Tunstead 1999).

3.2.2 Water Resources

The Project area is situated above the North Atlantic Coastal Plain Aquifer System, which is the sole source water supply for more than 3 million people and has been designated as a sole source aquifer (SSA) pursuant to Section 1424(e) of the Safe Drinking Water Act. Approximately 50% of the precipitation that falls on the land surface recharges the ground-water reservoir. Annual precipitation ranges from 40 to 44 inches in the Project area (United States Geologic Survey [USGS] 1995).

The Project area is classified by NYSDEC as Class SA, which defines surface water in the Project area as safe for primary contact recreation and shellfish harvesting (USACE 1998). Recent water quality data collected by USEPA and the New York City and Nassau County Public Health Departments show that overall bacteriological water quality in the Project area is very good (Jacobs 1999, Luke 1999, USEPA 1999b).

Tides in the Project area are semi-diurnal with mean range along the outer coast of Long Beach of 4.5 feet and a spring range of 5.4 feet. The mean range in Hempstead Bay is 3.9 feet with a spring range of 4.7 feet. Current velocities along the ocean shore range from 2.3 to 3.1 knots at flood tide and 2.2 to 2.6 knots during ebb tides. A thorough discussion of water resources, including wave action, sea level rise, stage-frequency and storms, may be found in the LRR for this Project (USACE 2005a).

3.2.3 Hazardous Toxic Radioactive Waste

Sediments beneath navigable waters proposed for dredging qualify as HTRW only if they are within the boundaries of a site designated by the EPA or a state for a response action (either a removal action or a remedial action) under CERCLA, or if they are part of a National Priority List (NPL) site under CERCLA. A preliminary assessment for HTRW at the borrow site shows there are no CERCLA sites present.

Sediments in the New York Harbor area have a long history of contamination as a result of heavy industrialization of the New York City area, and the large volume of treated and untreated wastewater produced by the city (USACE 1992a). Contaminants found in the area in the past include metals, Polychlorinated biphenyls (PCBs), and chemicals such as Dichlorodiphenyl trichloroethane (DDT) and Dichlorodiphenyl dichloroethane (DDE) (Rensselaer Polytechnic Institute Department of Decision Sciences and Engineering Systems 1999). Additionally, coliform bacteria and other pathogens have precluded swimming and shellfish harvesting at times along many sections of the New York State coast (NYSDEC 2000,1998).

Based on the 1998 FEIS, no Hazardous, Toxic, and Radioactive Waste (HTRW) sites, or New York State-listed Inactive Hazardous Waste Disposal Sites have been identified within the proposed Project area (NYSDEC and New York State Department of Health 1998). Investigations into the Project area in support of the FEIS revealed no land-based sources of



contamination. No major pollution or contaminant concerns have been noted near or in the vicinity of the Project.

The material to be placed on the beach is predominantly a medium to coarse-grained sand mixture (>90%). Silicon particles are believed to have no substantial chemical attraction to heavy metals and organics, and under ocean disposal testing guidance (USACOE & EPA, 1990), it is assumed to be contaminant free and therefore, testing of the sediments has not been done. Sand from the borrow areas are predominately quartzose sands; as such they lack affinity for binding of contaminants. The extremely low organic carbon and clay content of the borrow area sediments makes the presence of contaminants, at other than trace levels, extremely unlikely. Furthermore, the borrow area is geographically removed from the direct influence of any known point source of contaminants and from any historical disposal area. The sand present at the placement site consists entirely of material mentioned above and therefore, the probability of contaminants is non-existent.

3.3 NATURAL ENVIRONMENT

3.3.1 *Aquatic and Terrestrial Habitats*

Oceanfront beach and deepwater ocean habitats constitute the majority of the Project area. The beach community includes upper beach, intertidal, and nearshore subtidal areas. Except for beach grass, scattered herbs, and sparse low-growing shrub communities associated with the upper beach/dune area, most of the Project area is devoid of vegetation and is significantly impacted from human use of the area for recreational activities and significant development that abuts the upper beach zone in most of the Project area. The only undeveloped areas in the Project area, besides the beach itself, occur at Silver Point, and Lido Beach/Point Lookout.

The upper beach zone extends from dune areas to just above the high water line and includes dunes and supratidal areas of the beach. The area is predominately covered with sand. However, patches of herbaceous vegetation are found in the upper beach zone and are dominated by American beach grass (*Ammophila breviligulata*), other species found in this zone include spurge (*Euphorbia polygonifolia*), beach plum (*Prunus maritima*), seaside goldenrod (*Solidago sempervirens*), and sea rocket (*Cakile edentula*). The upper dune portion of this zone typically includes scattered patches of the herbs described above and stunted shrub species such as beach heather (*Hudsonia tomentosa*). In areas of low human disturbance, these areas can provide nesting and foraging areas for birds.

The intertidal zone extends from the high tide line to the low tide line and is submerged and exposed according to daily tidal cycles. Species diversity in this zone is relatively low due to limited ability of species to withstand the daily submersion and exposure. Micro and macro-invertebrates known to inhabit this zone include crabs, shrimp, bivalves, and worms. The intertidal zone provides key foraging habitat for shorebirds.

The affected near shore subtidal zone extends from the low water line down to 25 feet below mean low water (MLW) and is nearly continuously submerged. The area contains a rich diversity of aquatic micro and macro-invertebrates including crabs, shrimp, bivalves, worms, and finfish. In addition, numerous man-made groins extend from the intertidal zone into the subtidal



zone from 200 to 600 feet (USACE 1998). These structures provide habitat for numerous fish, macro-invertebrates, and birds.

The offshore subtidal zone is located approximately 1.5 miles south of Long Beach Island between 25 feet MLW and to about 60 feet MLW. The area contains a diversity of benthic organisms and phytoplankton and diverse assemblages of shellfish, gastropods, amphipods, isopods and crustaceans (USACE 2005a). The area also provides a migratory pathway and spawning, feeding and nursery area for many common mid-Atlantic fish species.

Based on USFWS National Wetland Inventory (NWI) maps, the Project area includes approximately 50% intertidal habitat, 30% subtidal habitat and 20% upland/upper beach habitat. The wetland/deepwater areas are devoid of vegetation and are considered non-jurisdictional (*i.e.*, unregulated) wetlands.

3.3.2 Aquatic and Terrestrial Wildlife

Finfish and Shellfish

Both the nearshore and offshore waters of the Project area support seasonally abundant populations of many recreational and commercial finfish (USFWS 1989, 1995, USACE 1998). Primary fish species include black sea bass (*Centropristis striata*), summer flounder (*Paralichthys dentatus*), winter flounder (*Pseudopleuronectes americanus*), weakfish (*Cynosion regalis*), bluefish (*Pomatomus saltatrix*), scup (*Stenotomus chrysops*), striped bass (*Morone saxatilis*), and Atlantic mackerel (*Scomber scombrus*). In addition, other common species in near shore waters include tautog (*Tautoga onitis*), northern puffer (*Sphoeroides maculatus*), windowpane (*Scophthalmus aquosus*) and American eel (*Anguilla rostrata*).

A number of migrant anadromous and catadromous species are found throughout the Project area. Common migrant species include the Atlantic sturgeon (*Acipenser oxyrinchus*), blueback herring (*Alosa aestivalis*), alewife (*Alosa pseudoharengus*), American shad (*Alosa sapidissima*), Atlantic silverside (*Menidia menidia*), striped bass, and American eel (Woodhead 1992).

The primary shellfish with important commercial or recreational value in the near shore portion of the Project area are the American oyster (*Crassostrea virginica*), hardshell clam [Quahog] (*Mercenaria mercenaria*), softshell clam (*Mya arenaria*), American lobster (*Homarus americanus*), and blue crab (*Callinectes sapidus*) (MacKenzie 1990). Surf clam (*Spisula solidissima*), razor clam (*Ensis directus*) and tellin (*Tellina agillis*) occur in the vicinity of the offshore borrow area. Surveys conducted by the USACE in 2003 indicate that the borrow area itself contains very small, to no, localized populations of surf clam (USACE 2005a).

Benthic Resources

Beginning in 1966, there have been at least 17 major sediment-benthic macrofauna sampling efforts in the region. As reported in these studies, the sediment composition of the Project area consists of a silty sand, medium coarse grain sand, and hard substrate community (USACE 1998, 2005a). The benthic community of the near shore portion of the Project area is dominated by



polychaetous annelids, followed by malacostracans, bivalves, and gastropods (Reid et al. 1991, Ray and Clarke 1995, Ray 1996, Way 1998, USACE 2005a). The silty-sand substrates are dominated by bivalves such as the blue mussel (*Mytilus edulis*), and polychaetes such as red-lined worms (*Nephtys incisa*) (Steimle and Stone 1973). Medium coarse sand substrates are dominated by bivalves (e.g., dwarf tellin [*Tellina agilis*]), echinoidea (e.g., sand dollar [*Echinarachnius parma*]), amphipods (e.g., *Protohaustrius deichmae* and *Unicola irrorata*), and polychaetes (e.g., burrowing scale worm [*Sthenelais limicola*], lumbrinerid thread worms (*Lumbrineris fragilis*), and mud worm (*Spiophanes bombyx*) (Steimle and Stone 1973). Hard substrates such as groins are dominated by blue mussel (Steimle and Stone 1973).

Sediments in the offshore borrow area contains over 75 taxa of benthic species (Steimle and Stone 1973). The most numerous species were polychaete worms (dominated by the tube-dwelling polychaete, *Asabellides oculata*) and blue mussel (USACE 1998).

Reptiles and Amphibians

Due to the lack of freshwater habitats and vegetation along the beach and shoreline, no reptiles or amphibians are expected to inhabit the Project area (USACE 1998, 2005a). Few reptiles or amphibians would be expected to utilize the terrestrial (placement area) portion of the project site, or its vicinity. The exception to this may have been the Diamondback Terrapin (*Malaclemys terrapin*), which exists in Jamaica Bay and is known to nest on the back dunes of ocean beaches. The lack of such a dune, recreational activity and the barrier formed by residential development make it highly unlikely that this species would be found in the vicinity of the project site.

Limited reptile and amphibian species are expected to occur in the Project area due to the high degree of recreational activity and the proliferation of residential development in adjacent areas. However, several species of marine turtles may be present in the adjacent Atlantic coastal waters during various times of the year, including the loggerhead (*Caretta caretta*), Leatherback (*Dermochelys coriacea*), green (*Chelonia mydas*), and Kemp's ridley sea turtles (*Lepidochelys kempi*) (see Section 3.3.3).

Birds

A wide diversity of bird species is likely to occur within, and in the vicinity of, the Project area. The most common species in the Project area are habitat generalists that are tolerant of development and that utilize beach habitat along the shoreline and deepwater habitats. Common species include herring gull (*Larus argentatus*), greater black-backed gull (*Larus marinus*), American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), barn swallow (*Hirundo rustica*), black-bellied plover (*Pluvialis squatarola*), black scoter (*Melanitta nigra*), bufflehead (*Bucephala albeola*), common grackle (*Quiscalus quiscula*), common yellowthroat (*Geothlypis trichas*), double-crested cormorant (*Phalacrocorax auritus*), European starling (*Sturnus vulgaris*), gray catbird (*Dumetella carolinensis*), mourning dove (*Zenaidura macroura*), rock dove/pigeon (*Columba livia*), sanderling (*Calidris alba*), song sparrow (*Melospiza melodia*), house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), and tree swallow (*Iridoprocne bicolor* [USACE 1998, 2003, USFWS 1992]). Permanent avian residents of the



surrounding area include various species of gulls, crows, pigeons, and sparrows, which are commonly associated with developed areas and areas of high human activity (USFWS 1992, USACE 1998, 2003). The piping plover (*Charadrius melodus*), a Federally-listed threatened bird, has been identified and is known to nest within upper beach areas of the Project area (see Section 3.3.3 and Appendix L)

Extensive use of beach, dune, and near shore areas for public recreation limits the potential of habitats in the Project area for bird nesting. The primary use of the Project area by birds is for resting and feeding activities.

Mammals

Under existing urban conditions due to the high degree of recreational activity, few mammalian species are likely to occur in the Project area. The USFWS (1993) reported that the general Project area includes year-round habitat for gray squirrel (*Sciurus carolinensis*), house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), Eastern cottontail (*Sylvilagus floridanus*), and feral cat (*Felis catus*) [USACE 1998, 2003, USFWS 1992]. This is consistent with results from studies conducted by the USACE on nearby Fire Island (USACE 2004). Several species of marine mammals, including the humpback whale (*Megaptera novaeangliae*) and finback whale (*Balaenoptera physalus*), dolphins and harbor seals (*Phoca vitulina*) may occasionally spend time in the adjacent harbor or coastal waters. Extensive use of beach, dune, and near shore areas for public recreation limits the potential of habitats in the Project area for mammals. The primary use of the Project area by mammals is for resting and feeding activities.

3.3.3 Threatened or Endangered Species and Habitats

All appropriate Federal and State agencies were consulted regarding the potential for species and habitats of special concern within the Project area during the preparation of the FEIS for this project (USACE 1998). Correspondence received from these agencies and USACE responses to correspondence relating to the original Project are presented in the FEIS (USFWS 1989, 1995, NMFS 1993, USACE 1998). Subsequent correspondence relating to species and habitats of special concern are presented in Appendix A (Federal and State correspondence), Appendix C (USFWS Fish and Wildlife Coordination Act 2(b) Report), and Appendix G (NMFS correspondence).

Federal Species or Habitats of Concern

The piping plover (*Charadrius melodus*), a Federally-listed threatened bird, has been identified and is known to nest within upper beach areas of the Project area (USFWS 1995, USACE 1998). The sea beach amaranth (*Amaranthus pumilus*), Federally-threatened plant, is also known to occur on barrier islands of Long Island. Field surveys did not locate this species in the Project area (USACE 1998). However, the species was found nearby on Jones Island and Rockaway Peninsula (USACE 1998). The USFWS has determined that habitats that occur in the Project area are suitable for sea beach amaranth (USFWS 1995). The Federally-endangered roseate tern (*Sterna dougalii*) utilizes habitats similar to those found in the Project area and has historically



occurred near the Project area. However, the species has not recently been documented on Long Beach Island.

Several species of threatened and endangered marine turtles may be present in the near shore waters of the Project area during summer and early fall. The Federally-listed endangered Kemp's ridley (*Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and green (*Chelonia mydas*) sea turtles, as well as the threatened loggerhead (*Caretta caretta*) sea turtle have foraging ranges that include the Project area (NMFS 1993, USACE 1998, USFWS 1989, 1995). Sea turtle nesting is unlikely to occur in the Project area, as it is located north of documented breeding grounds (NMFS 1993).

No Federally-protected habitats of concern occur within the Project area.

State Species or Habitats of Concern

The State-listed threatened common tern (*Sterna hirundo*) and least tern (*Sterna antillarum*) are known to occur in habitats similar to those found in the Project area. Surveys conducted in the early 1990's documented nesting least terns at Lido Beach, Atlantic Beach and Point Lookout (USACE 1998). The tern colony at Point Lookout was subsequently abandoned during a severe storm in 1991 (NYSDEC 1994, USACE 1998). Subsequent surveys found no nesting terns (NYSDEC 1994) in the immediate Project area. Other State-listed species that occur in the general area include the State-endangered piping plover, and sea beach amaranth. State-listed species that may occur in the vicinity of the Project area include the state-endangered roseate tern and state-special concern species black skimmer (*Rynchops niger*). These species are known to utilize coastal beach habitats similar to those found in the Project area and the species are commonly associated with nesting tern colonies.

New York State Department of State (NYSDOS) lists Nickerson Beach (formerly called Nassau Beach), located approximately 1 mile west of Point Lookout, as a significant coastal fish and wildlife habitat (NYSDOS 1987). Nickerson Beach consists of approximately 15 acres of sparsely vegetated dunes and adjacent pebble and shell areas. Despite heavy recreational use nearby, the area remains as an undeveloped barrier beach ecosystem (a rare occurrence in Nassau County). This area serves as key nesting habitat for the Federally and State-listed piping plover and has previously provided habitat for the State-listed least and common terns (NYSDEC 1994).

Essential Fish Habitat

Pursuant to Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), Federal agencies are required to consult with the NMFS regarding any action they authorize, fund, or undertake that may adversely affect Essential Fish Habitat (EFH). For assessment purposes, an adverse effect has been defined in the Act as follows: "Any impact which reduces the quality and/or quantity of EFH (Appendix G). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species fecundity), site specific or habitat wide impacts, including individual, cumulative, or synergistic consequences of actions."



Based on a review of the National Oceanic and Atmospheric Administration (NOAA) guide to EFH designations in the Northeastern United States, designated EFH occurs in the greater Project area as identified by the 10-minute by 10-minute squares that is bounded as follows: North 40° 40.0' N, East 73° 30.0' W, South 40° 30.0' N, and West 74° 40.0' and North 40° 40.0' N, East 73° 40.0' W, South 40° 30.0' N, and West 74° 50.0' (NMFS 2004). NOAA describes this square as "Atlantic Ocean waters within the square within the Hudson River estuary affecting the following: western Rockaway Beach, western Jamaica Bay, Rockaway Inlet, Barren I., Coney I. except for Norton Pt., Peardegat Basin, Mill Basin, southwest of Howard Beach, Ruffle Bar and many smaller islands."

3.4 CULTURAL RESOURCES

In accordance with the Advisory Council on Historic Preservation regulations for implementing the National Historic Preservation Act (NHPA), 36 Code of Federal Regulations [CFR] Part 800, The New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) and other interested parties were consulted regarding this Project during preparation of the FEIS and subsequent preparation of this SEA. Correspondence relating to cultural resources is presented in Appendix F. In addition, a site reconnaissance and an extensive evaluation of the history and prehistory of the Long Beach Island was conducted and compiled for this study (Pickman 1993). No known prehistoric or contact period archaeological sites occur in the Project area (Pickman 1993). Cultural resources likely to occur in the Project area are described below.

3.4.1 *Historic Resources*

Two historic structures, Granada Towers and the United States Post Office, are listed on the National Register of Historic Places, and occur on Long Beach (USACE 1998). One private residence is listed on the New York State Office of Parks, Recreation, and Historic Preservation's, historic structures inventory (USACE 1998). All structures occur well outside of the proposed Project area (Pickman 1993).

A transatlantic cable dating from 1873 may be located within the Project area (USACE 1998). The cable originally extended across Long Beach between Riverside and Edwards boulevards and extended west to Lido Beach (Pickman 1993).

3.4.2 *Shipwrecks*

Several dozen possible shipwrecks were identified in the initial near-shore survey of the project area (Panamerican Consultants 1996 and 1998) around Long Beach. Further testing on these sites will occur prior to construction. Two shipwrecks have been documented within the near shore sand placement zone near Lido Beach and Point Lookout (Pickman 1993, Panamerican Consultants 1996 and 1998). The 1837 wreck identified as the *Mexico* occurs near Lido Beach and a second unnamed wreck occurs near Point Lookout (Pickman 1993, Panamerican Consultants 1996 and 1998). Both wrecks are eligible for inclusion the National Register of Historic Places and further work on each of these sites will be required prior to construction.



A Programmatic Agreement with the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) will be completed by Spring 2006. This agreement will codify the requests made by the NYSOPRHP at the end of the EIS with regard to the future survey work in the Long Beach area, as well as outline the proposed testing strategy for the shipwrecks in the Lido Beach and Point Lookout areas. The agreement will also incorporate the steps to be taken if further buried resources are uncovered during the testing phases for the previously mentioned areas.

3.4.3 Submerged Sites

Prehistorically, the sea level was up to 360 feet lower than current levels. Thus, prehistoric settlements may have occurred in near shore areas that are currently flooded. Presence of lagoonal deposits of peat, silt, and clay in near shore areas may indicate that prehistoric sites located in the current near shore areas, may have survived disturbance following inundation of these areas (Pickman 1993). Similarly, clay deposits found in cores taken from the proposed offshore borrow area may also represent land surfaces that would occur on top of prehistoric deposits (Pickman 1993).

3.5 SOCIOECONOMIC ENVIRONMENT

The majority of the beaches within the study area are publicly owned and publicly accessible. Within the Town of Hempstead there are several privately owned properties and several special park districts, which are discussed further in the formulation section of the LRR (2005a). There is public transportation to the majority of the beaches (a public bus, which provides drop-offs along the main artery of the barrier island), as well as sufficient parking area along most of the project shorefront. There is full lateral beach access along the entire study area shorefront. As prescribed by Corps policy and regulations, costs of improvements in those areas that are not open to the public would be 100% non-Federal, unless protection to such areas is incidental to the project. The State has submitted a Public Access Plan, which is intended to conform to Federal policy. To allow for full public access and yet offset the levies that residents are charged for beach maintenance, several of the beach areas have adopted differential fees, which include higher fees for non-residents than residents.

The south shore of Long Beach Island is a continuous strip of sand beach serving the year-round inhabitants as well as the great influx of summer visitors and vacationers. Most visitors to Long Beach are from Nassau, Kings, Queens, and New York Counties. From 1999 to 2002 an average of 500,000 people visited the beach in the City of Long Beach, and from 1994 to 2002 an average of almost 500,000 in the eastern beaches of Point Lookout, Nassau County and Lido Beach. It is noted that due to the erosion, which has most severely affected the usage of the Point Lookout area, beach attendance has substantially declined. In comparison, the attendance in this area in 1984 was 523,065 while the average attendance from 1993 to 2002 was approximately 130,000.



3.5.1 General Setting

Based on 2000 data, the current population of Long Beach is 35,462; an increase of 5.8% from the 1990 population of 33,518 (Ersys 2002). Long Beach is ranked 18th in population size for the state and 886th in the nation. The average age of residents of Long Beach is 41 years. Approximately 54% of the population has some college education. The per capita income is \$31,069, which is approximately \$8,667 higher than New York State overall and significantly higher than that of nearby metropolitan areas such as Hempstead, New York and Jersey City, New Jersey. Of the 35,462 Long Beach residents, 77% are white, 5.8% are black, and 12.8% are Hispanic.

The study area is accessible to major population and commercial centers, through an extensive network of highways, roads and railways. Direct access from the major corridors to the barrier island is provided by three vehicular bridges from: Loop Parkway on the eastern end of the barrier island; Atlantic Beach bridge on the west; and the Long Beach causeway in the center. The communities are also served by the Long Island Railroad, which provides passenger rail service from eastern Long Island and New York City directly into the City of Long Beach. There is a public bus, which runs east to west along the major artery of the barrier island from Point Lookout to Atlantic Beach.

Based on 2000 data, the current population of Hempstead is 56,554; an increase of 23% from the 1990 population of 45,899 (Ersys 2002). Hempstead is ranked 11th in population size for the state and 514th in the nation. The average age of residents of Hempstead is 32.5 years. Approximately 9.8% of the population has some college education. The per capita income is \$15,735, which is approximately \$6,667 lower than New York State overall. Of the 56,554 Hempstead residents, 13.2% are white, 50.8% are black, and 31.8.8% are Hispanic.

3.5.2 Coastal Zone Management

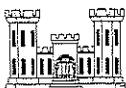
The Project area is located within the designated coastal zone regulated under the Wetland Act of 1970 and Article 42 of New York Codes, Rules, and Regulations, Part 600.2. The proposed project is consistent with the South Shore Estuary Reserve Management Plan and The City of Long Beach Local waterfront Revitalization Plan

3.5.3 Aesthetics and Scenic Resources

Aesthetics and scenic resources in the Project area are accessed primarily by boardwalks along the shore, and encompass a view of the ocean and beach recreational facilities to the south and commercial and residential development to the north. The beach extends to the east and west for many miles, as does the boardwalk. Groins are visible along the shore throughout the project area.

3.5.4 Recreation

The island is primarily residential with extensive recreational facilities to support recreational uses normally associated with beachfront open space. Facilities include bathhouses, boardwalks,



refreshment stands, bathrooms, showers, lifeguard stations, hotels/motels, and access ramps to beach areas. The beach areas provide recreational opportunities for year-round residents and are easily accessible by people from New York City and surrounding areas of Nassau County. Annual beach attendance on Long Beach Island is estimated at over 1.5 million visitors (USACE 1998). Annual beach use is reported to have declined in the Point Lookout area due to severe erosion of the shoreline and loss of beach area (USACE 2005a).

3.5.5 Transportation

The Project area is readily accessible through an extensive network of highways, roads and railways. Three major vehicular bridges provide direct access to the barrier island from major mainland corridors. The Long Island Railroad provides passenger rail service directly from eastern Long Island and New York City. A public bus operates along the major east/west artery of the barrier island from Point Lookout to city of Long Beach.

3.5.6 Noise and Air Quality

Noise level measurements have not been obtained in the Project area. In lieu of field measurements, the noise levels in the Project area can be approximated using existing land uses. The dominant land use in the Project area is primarily residential housing which has mean outdoor day-night sound levels range from 59 to 78 A-weighted decibel (USEPA 1978).

The proposed Long Beach Project is located in the New York-Northern New Jersey-Long Island Consolidated Metropolitan Statistical Area (CMSA) of Nassau County. According to the National Air Quality and Emissions Trends Report (USEPA 2004) the New York-Northern New Jersey-Long Island CMSA is designated as a severe nonattainment area for ozone (O₃). The area was previously designated as a nonattainment area for carbon monoxide (CO), but now is designated as attainment for CO and therefore, the area is currently considered to be a maintenance area for CO. All other hazardous air pollutant levels monitored by EPA in Nassau County (i.e., nitrogen dioxide, sulfur dioxide, particulate matter, and lead) are above EPA standards (USEPA 2004).

4.0 ENVIRONMENTAL IMPACTS

A detailed discussion of the environmental impacts associated with the Project may be found in the FEIS and FONSI (USACE 1998). Those impacts were determined to be insignificant, comments from agencies and interested parties were addressed, and all practicable means to avoid or minimize adverse environmental effects were incorporated into the recommended plan. Cultural Resource Final Approval was based on "continued Section 106 work" prior to any project construction as described in Section 4.4. Therefore, all required permits were obtained for the Project and a favorable ROD was issued in 1999.

Subsequent re-evaluations of the Project have resulted in some project modifications. The proposed modifications will not involve impacts to any additional environmental resources not addressed in the FEIS for the original project. However, the extent of impacts (i.e., acres of project footprint) has been reduced for some of the environmental resources that were identified



in the 1998 FEIS. Specifically, when compared to the original proposed Project, the Project modification discussed in the 2005 LRR would result in a reduction of 170 acres of impact (i.e., 104 acres of filling in the upper beach zone, 35 fewer acres of filling in the intertidal zone, and 31 fewer acres of filling in the sub-tidal zone), the amount of fill material required for the Project would be reduced by 2,042,000 cubic yards (cy), and the amount of fill material needed for renourishment activities would be decreased by 385,000 cy per cycle.

The purpose of this section is to provide a brief summary of the impacts to environmental resources as detailed in the FEIS and to update the information based on more recent studies and an evaluation of proposed project modifications as presented in the LRR (USACE 1998, 2005a). Only those environmental resources that are likely to exhibit negative impacts from the currently proposed Project are discussed in this SEA. The Fish and Wildlife Coordination Act 2(b) report for this Project is available in Appendix C.

4.1 OVERALL PROJECT AREA

The currently proposed Project represents a modification to the original approved Project that has reduced the overall amount of beach fill, dune fill, dune plantings, sand fence, and fill required for renourishment activities, and has reduced the number of dune walkovers, new groins and vehicle access ramps. In addition, the proposed project modification also has excluded Project activities within a 136-acre shorebird foraging/nesting area. Although, the Project has increased the number of proposed walkover extensions, ramps to walkovers/berms, new lifeguard headquarters, timber retaining walls around: four existing comfort stations, two existing comfort stations with concession stands and one existing lifeguard headquarters and now includes a 100-foot extension of Groin #58 (i.e., western groin at Jones Inlet), these changes are overall insignificant relative to the original approved Project and will have no significant negative environmental impacts.

In the 1998 FEIS, it was determined that offshore, near shore and onshore components of the Project could potentially cause some minor adverse impacts to water quality, aquatic habitats and species (i.e., benthic organisms, fish and their habitat), potential threat to several endangered marine and terrestrial species (i.e., sea turtles and piping plover), cultural resources (i.e., shipwrecks), and socio-economic impacts to recreational activities during construction (i.e., noise and restrictions to construction areas). Similar potential impacts are likely under the currently proposed Project. However, it is the physical extent (i.e., acreage of impacts) that has changed which translates to less overall impacts throughout the Project area relative to the original approved Project. No significant negative impacts, in addition to those described in the 1998 FEIS and highlighted below, are expected from the currently proposed Project modification.

4.2 PHYSICAL ENVIRONMENT

4.2.1 Topography, Geology, and Soils

Construction/extension of hard structures (groins, walkovers, access roads) and beach fill placement would result in permanent impacts on topography within the footprint of the proposed



activity. However, although impacts on topography would be permanent they would not result in significant negative impacts to Long Beach Island. Following Project activities the topography in beach fill areas will be characteristically similar to natural beach/dune communities found along the coast of Long Island. No impacts on geology would result from the Project structures because bedrock elevations would be below the depth of proposed fill and structure foundations.

No significant or long-term impacts would occur on native soil grain size, structure, nutrient status, or organic matter content as a result of the Project, because the average grain size of existing beach was compared to the sediment grain size of the borrow area, structures would retain and capture littoral materials native to the beach community, and the texture of the nourishment material to be used would be compatible with native sand material. Construction/extension of groins would result in continued protection of upland property from wave action and erosion that would accompany a storm with a recurrence interval of 100 years along the Long Beach shoreline and would reduce the amount of renourishment fill required. The groin structures would help to slow the long-term beach erosion rate in the Project Area.

4.2.2 Water Resources

Negligible increases in near shore turbidity and suspended solids may result during construction of the groins from disturbance of subsurface sediments. These increases in turbidity and suspended solids are likely to cause a short-term reduction in oxygen levels, a reduction in primary productivity and photosynthesis, and may clog gills and filter-feeding structures of some sessile aquatic species (Reilley et al. 1978, Courtenay et al. 1980). Periodic (every 5 years) renourishment activities would cause impacts similar to those generated during initial construction, but impacts would occur over a shorter period. However, because of tidal and current influences, and the relatively quick settling velocity of subsurface sediments (medium to fine grained sand), turbidity is expected to dissipate rapidly, both spatially and temporally (Naqvi and Pullen 1982) and the Project is not anticipated to have significant long-term impacts on water quality. Appendix B provides an evaluation of Project effects as related to the New York State Section 404(b)(1) water-quality guidelines.

The Project would have no significant impact on regional hydrology or groundwater resources.

The Project would have no significant impact on natural tidal fluctuations. Littoral currents in the Project area would be affected considerably as a result of the perpendicular shoreline orientation of the groins, the longest of which is designed to extend as far offshore as the existing groins in Point Lookout. The lengths of the four new groins will range from 450 lf to 775 lf. The groin system will dissipate onshore and alongshore wave-generated erosive forces, allowing littoral material to settle in the Project area.

4.3 NATURAL ENVIRONMENT

4.3.1 Aquatic and Terrestrial Habitats

Construction of the proposed Project modification would impact shoreline intertidal, subtidal, and upper beach and dune habitats. However, when compared to the original approved project,



the Project modification will affect 104 fewer acres in the upper beach zone, 35 fewer acres in the intertidal zone, and 31 fewer acres in the sub-tidal zone.

The upper beach zone and dunes represent terrestrial communities in the Project area. These areas are dominated by sand and beach grass, therefore some impacts to the dunes and associated vegetation are anticipated primarily due to construction of permanent vehicle and pedestrian access ramps and walkways, structures such as lifeguard headquarters, timber retaining walls around: four existing comfort stations, two existing comfort stations with concession stands and one existing lifeguard headquarters, and placement of the sand barrier (i.e., dune) under the existing boardwalk in the city of Long Beach. As such, some permanent long-term impacts to the vegetated beach and dune communities are anticipated. However, these impacts are not deemed significant because the existing vegetated beach and dune communities are currently of relatively low overall value as a result of recreational use of the area and close proximity to high density development. In addition, the proposed Project would offset the loss of these areas resulting from long-term erosion, that would occur under a No Action Alternative.

Placement of groins would result in a small loss of intertidal beach and subtidal aquatic habitats located within the groin footprint. However, overall habitat within the intertidal zone would increase as the beach is widened as a result of proposed beach fill activities. In addition, groin structures themselves would reduce the rate of beach loss in the Project Area and would provide vertical habitat for many marine organisms. The physical characteristics of the intertidal habitat will not be altered since the grain size of fill material will be the same as that of native sand in the Project area.

4.3.2 Aquatic and Terrestrial Wildlife

Finfish and Shellfish

Impacts during construction of the Project may include the mortality of clams, benthic fish communities, and other invertebrates present in the sandy habitat of the Project area during placement of fill material, at the borrow area, and the construction/extension of groins (Reilley et al. 1978, Courtenay et al. 1980, Naqvi and Pullen 1982). However, once constructed, the groins would improve habitat for some intertidal organisms (Carter 1989). For example, the crevices between the groin stones would provide protection from larger predators for the young of many species of finfish and shellfish.

Benthic feeding fish species (e.g., windowpane, summer and winter flounder) would experience temporary displacement until appropriate food sources recolonize the Project area (Courtenay et al. 1980). However, these and other fish that are present at the time of construction are expected to feed in the surrounding area and therefore will be unaffected by the temporary localized reduction in available benthic food sources.

The Project would impose a one-time impact for the local shellfish and finfish species within the Project area. Most sessile species present directly underneath the Project footprint would be buried during construction. Based on surveys conducted in 2003, there are only small populations of surf clam in the offshore borrow area (USACE 2005a). Therefore no long-term



significant impacts to surf clam populations are expected from the Project. Some species, such as rockweeds (*Fucus* spp.), oysters, and barnacles (*Balanus* spp.) would flourish on the newly constructed groins (Carter 1989).

In addition to the temporary impact to the fish and shellfish species of the Project area, a slight temporary increase in turbidity is also expected near the Project area during construction (Reilley et al. 1978, Courtenay et al. 1980, Naqvi and Pullen 1982). Increases in turbidity could affect the settling rate of shellfish ova and larva, and can clog and damage the gills of fish species (Uncles et al. 1998). However, the churned sediment would settle quickly and any impacts to the benthic fish and shellfish community would be minimal.

The Project would result in a long-term beneficial impact to both fish and shellfish species of the Project area. The groins would create areas suitable for recruitment and protection for numerous shellfish species. In addition, the groins would provide habitat and food source locations for fish species.

Benthic Resources

The proposed Project would cause short-term negative and long-term beneficial impacts to the benthic communities in the Project area. Negative impacts to the benthic community would include the smothering of existing sessile benthic communities within the groin area and adverse effects to benthic organisms as a result of increased turbidity during construction. Beneficial impacts to the benthic community include the increase in food source, spawning beds, and shelter of the Project area (Reilley et al. 1978, Naqvi and Pullen 1982).

Initial and subsequent beach nourishment would bury and kill some infaunal benthic organisms (organisms that live in bottom sediments) and epifaunal benthic organisms (organisms that live on the sediment surface), primarily in the intertidal zone. Adverse However, once buried, some shellfish species and polychaete worms that have the ability to burrow upwards could survive burial. effects of construction would be temporary because benthic resources would begin to recolonize the nourishment area immediately following construction. Recovery of the benthic community would probably occur in less than 1 year. The optimum time of year for beach nourishment is the fall and winter, prior to the spring recruitment and summer growth periods for benthic organisms.

Intertidal benthic communities on the outer New Jersey coast impacted by renourishment activities showed evidence of recovery within 2 months and impacts on nearshore sub-tidal benthic assemblages were not detected (USACE 1999b). In contrast, the same study revealed that dredging activities decreased the total abundance and biomass of benthic communities in offshore borrow areas, but recovery was evident within 8 to 9 months. Smith and Brumsickle (1989) estimated benthic infauna recovery rates of 41 days in Barnstable Harbor, Massachusetts. The beach and surf zone in the Project area have been described as having a low habitat value (USACE 1992a). Due to the sensitivity of infaunal organisms to the change in sand grain-size distribution and substrate porosity, it is possible that the species composition of the benthic community following recovery might be slightly different than the pre-construction community structure. In this case, however, the grain size of beach fill from the borrow area is known to be



very similar to the existing beach sand in the Project area. Thus, use of sand from this source would not result in any significant changes in benthic community structure

The sessile benthic community beneath and in close proximity to the proposed groins would experience direct impacts. Some mortality of shellfish and polychaetes is expected for individuals that cannot escape during the construction process. In addition, a short-term impact to the existing benthic habitat would result from burial of the benthic community, which would cause a temporary decrease in food availability for the surviving benthic community.

The construction and extension of groins would cause a transient increase in turbidity within the Project area. One study performed in 1995 found that increased turbidity resulted in increased biological oxygen demand (BOD) (Uncles et al. 1998). No long-term impacts to BOD would occur because sediment would settle quickly upon completion of construction. The groins would provide living spaces for the floral and faunal benthic species. Benthic resources would begin to recolonize the Project area immediately following Project completion. Infaunal organisms are likely to recolonize the area from nearby communities and re-establish to a similar community within a 1 to 2-year period (USACE 1996). It is possible that the species composition of the benthic community that reestablishes would be slightly different than the pre-construction composition (USACE 1996). Various floral species such as rockweed and spongomorpha (*Spongomorpha spp.*), and faunal species such as barnacle, oyster, and blue mussel, are expected to move into the area and colonize living space on the groin (Moore and Seed 1986).

Rockweeds are known to support numerous organisms, including both autotrophs and heterotrophs. In addition, rockweeds provide shelter, moisture at low tide, and food especially for the sessile epifaunal and epiphytic groups (Oswald et al. 1984). Gastropods, bivalves, and crustaceans are all common inhabitants of rockweeds. Thus, the benthic floral and faunal species increase throughout the Project area, the food source availability for the fish species, would also increase (Carter 1989).

In addition to creating living spaces and increasing food availability of the Project area, the proposed Project would provide shelter from wave attacks for the existing and surrounding benthic communities. Carter (1989) found that by orienting and streamlining, some bivalves and gastropods have reduced drag coefficients and increased the capability of resisting force.

Reptiles and Amphibians

Construction and maintenance of the protective berm, groins, and periodic beach nourishment activities would temporarily displaced reptiles and amphibians present in the Project area. This would be temporarily displaced during construction. No long-term impacts are predicted on reptiles and amphibians.

Birds

The shoreline of Long Beach Island provides feeding and resting areas for birds that pass through the area along the Atlantic flyway during annual migration in early spring and late fall (USACE 1998, 2003, 2005a). Heavy machinery and the increased noise levels may temporarily affect birds in the Project area during construction activities. These effects may indirectly result



in displacement of individuals and/or disruptions to nesting near construction activities. Several proposed access ramps would be located in close proximity to known shorebird nesting and foraging areas.

However, the overall impacts to bird species from the proposed Project are expected to be minimal. Avian species are mobile and are expected to avoid direct mortality. In addition, in accordance with recommendations by the USFWS most of the Project activities will occur from September through April, outside the key spring and fall migration periods to avoid disruption of migration activities (USFWS 1995, USACE 1998). Recreational use of the Long Beach shoreline is currently relatively high. Birds have adapted to the human use of the area and birds have continued to use the upper beach/dune area for nesting and foraging. Impacts to birds from the additional access areas to the beach are expected to be minimal.

Mammals

Although there is potential for Project construction activities to temporarily displace any mammals present in the area and limit access to feeding or nesting habitats, these species are mobile and are expected to avoid direct mortality (USACE 2004). In addition, the sparsely vegetated terrestrial habitats impacted by the project (upper beach and dune) typically provide low quality habitat for mammals and are used only for foraging activities. Mammals are expected to utilize other suitable areas for foraging.

4.3.3 Threatened and Endangered Species and Habitats

The USACE is currently coordinating with USFWS, NYSDEC, and NMFS to assess impacts to threatened and endangered terrestrial and aquatic species and habitats as a result of the Project. Agencies are evaluating the existing resources and anticipated Project impacts in conjunction with the public and agency review period for this SEA and USFWS review of a Biological Assessment prepared by the USACE for this Project. Previous comments from agencies have been incorporated into this EA and were taken into consideration during Project re-evaluation and during development of Project species monitoring and mitigation plans (USACE 1998). The Fish and Wildlife Coordination Act 2(b) report for this Project is available in Appendix C.

Federal Species or Habitats of Concern

Federally listed species known to occur in the Project area include the Federally-threatened bird, piping plover, the Federally-threatened plant, sea beach amaranth, and transient Federally-listed threatened loggerhead, as well as the endangered Kemp's ridley, leatherback, and green turtles.

The Project would potentially result in direct and/or indirect disturbances to nesting shorebirds and their broods, if any are present in the Project vicinity for this purpose at the time of construction. The USFWS recommended restricting construction activities to September 1 through April 15 to avoid direct adverse impacts to the shorebirds (USFWS 1995). Therefore, the USACE has incorporated this recommendation into its Project plans. The USACE will also prepare a Biological Assessment for piping plover (Appendix M), will help to facilitate the implementation of the USFWS' piping plover recovery plans through appropriate habitat



management within the project boundaries, will perform pre-construction surveys to evaluate and document use of the Project Area by Federal or state-listed species, and if necessary will perform monitoring of nest sites before, during, and after construction within the Project area (USACE 1998). Additionally, in accordance with recommendations by the USFWS, protective fencing will be used to exclude humans from any area inhabited by threatened or endangered species (USFWS 1995, USACE 1998).

In accordance with the USFWS recommendations for protection of the sea beach amaranth, the USACE will survey the beach area prior to construction and avoid disturbing locations of the plant during the growing season (July 1 through November 1). Any sea beach amaranth plants identified in the construction area will be protected from incidental disturbance by construction equipment/materials by surrounding them with safety fence for avoidance. Construction activities will avoid all delineated locations of the plant and will undertake all practicable measures to avoid incidental taking of the plant. If any sea beach amaranth plants are identified within the direct construction footprint, the USACE will reinitiate consultation with the USFWS to identify acceptable alternatives or mitigation. In accordance with USFWS' recommendations, following construction, the USACE will conduct follow-up surveys of sea beach amaranth within the Project area, and will provide summary reports annually to the USFWS (USACE 1998, USFWS 1999). In addition, the USACE will prepare a Biological Assessment for sea beach amaranth.

The Federally-listed threatened loggerhead, as well as the endangered Kemp's ridley, leatherback, and green turtles may utilize coastal resources in the Project vicinity for foraging (USACE 1998, NMFS 1993). However, no nesting is likely to occur in the Project area because these species of sea turtles nest south of the Project area (NMFS 1993). In addition, NMFS has indicated that the leatherback turtle feeds on pelagic prey and would not be affected by the Project. In accordance with NMFS recommendations, if hopper dredges are used in the inlets or offshore borrow area between mid-June and mid-November, NMFS-approved observers will be onboard the vessels to monitor the dredge material (NMFS 1993, USACE 1998). The District will coordinate with NMFS regarding any sea turtles observed or captured during dredging activities (NMFS 1993, USACE 1998).

The planned construction methods will enable all work to be staged and performed from the land and the groins, thereby reducing the temporary water quality impacts and general disturbances resulting from in-water construction activities. Additionally, transient turtles are expected to avoid the Project area during construction activities. Therefore, the project is not likely to adversely affect these protected species.

State Species or Habitats of Concern

No State-listed threatened or endangered species of reptiles, amphibians, mammals, or vegetation were identified in the Project area, although several State-listed bird species are known to use habitats similar to those found in the Project area. Impacts and considerations that offset the impacts to the State-listed least tern, roseate tern, and common tern and special concern species black skimmer, would be similar as described for Federally-listed species.



Other State-listed threatened species that occur in the general area include the northern harrier, osprey, and the transient peregrine falcon and bald eagle. Construction and operation of the Project is not expected to significantly impact these species because the Project would not affect their preferred nesting habitat, and other foraging habitat is readily available in the vicinity of the Project.

Essential Fish Habitat

Temporary impacts on EFH are predicted during periods of active construction and would be the same as those described in sections 4.3.2 (Finfish and Shellfish, and Benthic Resources impact sections). Habitat would be temporarily degraded during groin construction and beach fill placement, as elevated suspended sediment levels would temporarily lower dissolved oxygen and visual feeding efficiency, and irritate gill tissue. Although sessile benthic invertebrates would likely be smothered during construction, and aquatic habitat would essentially be unavailable to motile species during construction, implementation of the proposed Project is predicted to enhance EFH over the long term. The groins would create areas of recruitment and protection for numerous shellfish species, which would also provide habitat and food source locations for fish species.

4.4 CULTURAL RESOURCES

To date, the NHPA Section 106 process has not been completed for the Project. However, in the FEIS, NYSOPRHP granted the USACE final approval to allow the Project to move forward under the following specific conditions: 1) the USACE must continue the research necessary to complete the Section 106 requirements; 2) the USACE must inform NYSOPRHP of all findings; and, 3) work relating to Section 106 process must be completed prior to any construction activities.

4.4.1 Historic Resources

No structures will be affected by the proposed project. A transatlantic cable dating from 1873 may be located within the nearshore portion of the Project area (USACE 1999). However, deposition of sand during construction would help to protect the cable. No adverse impacts to the cable are expected from the Project (NYSOPRHP 1993).

4.4.2 Shipwrecks

Due to the possibility of several shipwrecks in the area near Long Beach, and the two identified wrecks in the areas of Lido Beach and Point Lookout, a Programmatic Agreement will be completed with the NYSOPRHP by Spring 2006. This agreement will outline the future undertakings with regard to the three areas in questions. This work will occur prior to any construction of the overall project. Coordination with the NYSOPRHP will occur throughout the testing phase to insure compliance with all stipulations in the agreement.



4.4.3 Submerged Sites

Based on cores taken at the proposed borrow area, potential lagoonal deposits occur at 20 feet depth. Submerged prehistoric sites would occur below this depth (Pickman 1993). Thus, dredging activities for the Project would have no impact on submerged prehistoric sites. Should dredging depth exceed 20 feet, additional studies would be required to determine whether prehistoric deposits exist within the borrow area.

4.5 SOCIOECONOMIC ENVIRONMENT

4.5.1 Floodplains

Affect on floodplains from the Project and proposed project modification are similar. The Project modification would be beneficial for the Project area as a result of reducing the impacts of tides and wave attacks to the beachfront in the Project area and reducing the movement of sediment, thus maintaining a wider beach and increasing storm protection and recreational opportunities.

4.5.2 Coastal Zone Management

As required under the Federal Coastal Zone Management Act, the USACE reviewed the proposed Project in relation to the applicable policies of the New York State Coastal Zone Management Program and determined that it is consistent with all relevant policies. The New York State Coastal Zone Management Program Consistency Statement is provided as Appendix D.

As described in the LRR, the USACE will conduct post-construction monitoring as requested, to evaluate affects of groins on the coastal environment (USACE 2003).

4.5.3 Aesthetics and Scenic Resources

The Project would result in the addition of several groins in the viewshed and some reconstructed/extended groins would be larger than the existing groins. However, these changes do not significantly reduce the aesthetic and scenic resources, because groins are already part of the viewshed in the Project area.

4.5.4 Recreation

No significant or long-term impacts to recreational resources in the Project area are anticipated as a result of the proposed Project. It is anticipated that no significant or long-term impacts on the surfability in the City of Long Beach. A more accurate approximation toward the temporary affects on the surfability of the waves can be closer to a four to six month period, but could be up to one or two years, depending on the frequency and strength of storms that occur following sand placement. Moving a sand barrier under the boardwalk allows for less extensive berm fill and less covering of the existing groins. It is likely that this would reduce negative impacts on surfing as well. Temporary disruption of recreational activities along the beach and boardwalk



may occur in the Project area as a result of construction activities. However, these impacts would be minor and would be limited to the duration of construction activities in the Project area. Potential long-term benefits to recreational resources in the Project area include additional areas available for sport fishing (i.e., additional groins), an increase in the size of recreational beach area, and protection of beaches.

4.5.5 Transportation

Temporary disruption of traffic on local roadways and thoroughfares in the Project area may occur due to the delivery of stone and other Project materials and equipment. These impacts would be minor and limited to the construction period. Project activities will not extend within the inlets, with the exception of stone delivery by barge, and would therefore not impede boat traffic in these areas. No long-term impacts on transportation resources in the Project area are anticipated as a result of the proposed Project.

4.5.6 Noise and Air Quality

Sources of noise for the proposed Project include land-based vehicles like trucks, bulldozers, and front-end loaders (or similar equipment) used to manipulate the material during placement. Additional noise may be caused by the hydraulic dredge, tugboats, and the pumpout station. Construction activities would result in short-term minor increases in noise generation as a result of the operation of construction equipment. No long-term significant impacts would occur.

Similar to noise impacts, sources of emissions/pollution include emissions from cutterhead dredges, tugboats, a pumpout station, and land based equipment (i.e. bulldozers, trucks, etc.). The project is expected to commence during the fourth quarter of calendar year 2006 and is expected to be completed within a 52-month construction schedule. Two construction schedule options were considered as part of the air quality analysis evaluation. Under Option 1, construction for the project would commence in the fourth quarter of 2006 and continue for 49 months, ending in the fourth quarter of 2010. Under Option 2, construction would occur over a 52 months, with construction activities conducted outside the "ozone season" (May 1 - September 30). Thus, all construction activities would be conducted in the fourth quarter of each year and continue through the first quarter of the following calendar year. Construction activities would commence in the fourth quarter of 2006 and continue intermittently in 6-month increments through the first quarter of 2011.

In accordance with USEPA standards, since the proposed Long Beach Project is located in a severe ozone nonattainment area and within a carbon monoxide maintenance area, the following de minimis emissions criteria apply:

- 25 tons per year of volatile organic compounds (VOCs) or,
- 25 tons per year of nitrogen oxides (NO_x) or,
- 100 tons per year of carbon monoxide (CO).



Based on an evaluation of the Proposed project, projected emissions from either construction schedule Option 1 or Option 2 are not regionally significant. However, both options would exceed the Federal de minimis thresholds of 25 tons per year for NO_x (USACE 2005b). Therefore, NO_x emissions from these activities must either be reduced to less than 25 tons per year or a formal conformity determination as outlined in 40 CFR 93.154 will be required.

Options to reduce emissions are currently being evaluated and include a reduction in the overall scope of the proposed Project; use of additives to lower emissions (e.g., PuriNO_x™ Technology); revising the methods for executing the project (e.g., using electric dredges); use of cleaner burning equipment (e.g., specifying equipment with engines meeting Tier II or Tier III emission levels); and/or, lengthening the project schedule and conducting the majority of the work outside the ozone season (May 1 - September 30). The formulation of the Clean Air Act Compliance Plan compares these alternatives (see LRR Appendix H).

If NO_x emissions cannot be reduced to below 25 tons per year, a conformity demonstration would require that the USACE provide either (1) a demonstration that emissions from the project are included in the SIP or (2) offsets for the project emissions within the same nonattainment area or (3) some combination of the above such that there is no net increase in emissions of NO_x resulting from the project.

4.6 ENVIRONMENTAL JUSTICE

In accordance with Executive Order 12898 (dated February 11, 1994), Federal agencies are required to identify and address the potential for disproportionately high and adverse environmental and human health effects on minority and low-income populations, resulting from the agencies' programs, policies, and activities.

Based on 2000 U.S. Census data, the population of Hempstead is composed predominately of racial "minority" populations. In this area, approximately 13% of the population is white, 51% of the population is black, 32% are Hispanic and the remaining 4.2% of the population includes other races such as Asian, Pacific Islanders, American Indians, and other races (Ersys 2000).

The population of Long Beach population is composed of predominately non-minority white populations. In this area, approximately 77% of the population is white, 5.8% of the population is black, 12.8% are Hispanic and the remaining 4.3% of the population includes other races such as Asian, Pacific Islanders, American Indians, and other races (Ersys 2000).

No significant or unacceptable adverse environmental or human health effects are expected to result from the proposed action. Therefore, there would be no disproportionately high and adverse impact to minority or low-income populations.

5.0 CONCLUSION

When compared to the original Project that was presented in the 1998 FEIS and approved through a Record of Decision in 1999, the proposed Project modification includes several structural features and activities (i.e., groin extension, new groins, rehabilitation of groins, dune



walkovers, and walkover extensions) that are in addition to those proposed in the original Project (Table 2.1). However, the overall Project area has been reduced in the proposed Project modification and several structural features and activities (vehicle access ramps, new groins, dune walkovers, impacts within a 136-acre shorebird nesting/foraging area) have been eliminated. As a result, the proposed modification has significantly reduced the area of fill placement and the amount of fill material required for the Project. Specifically, 170 fewer acres will be filled (i.e., approximately 104 acres of filling in the upper beach zone, 35 fewer acres of filling in the intertidal zone, and 31 fewer acres of filling in the sub-tidal zone), the amount of fill material required for the Project has been reduced by 2,042,000 cubic yards (cy), and the amount of fill material needed for 5-yr renourishment activities has been decreased by 385,000 cy per yr.

Similar to the original Project, the Project modification will still result in some short-term negative impacts to water quality, terrestrial and aquatic habitats and the species that utilize the habitats. There is also a possibility that cultural resources could be affected, however, studies to determine potential impacts are ongoing at this time. In addition, it has been determined that the proposed Project would exceed the Federal de minimis thresholds of 25 tons per year for NO_x air emissions.

Impacts to other environmental resources in the proposed Project Area are expected to be minor and less than those that would have resulted from the original Project. Specifically, the modification will include the placement of unvegetated hard structures (buildings, groins, and beach access walkovers, ramps) in dune/upper beach, intertidal, and subtidal areas. These structures will permanently cover the substrate beneath the footprint and non-mobile benthic species and will limit the use of the area directly within the structure footprint for foraging by shorebirds and wading birds and some fish species. However, these impacts are not significant because; affected species will utilize other suitable habitat for foraging activities; the existing upper beach and dune areas in these locations are currently of relatively low value to most wildlife species and do not support any Federal or State-listed species; the direct loss of benthic species and vegetation will be minimal and would not affect populations; and groins are likely to reduce the overall rate of beach loss and erosion in the Project Area and will increase the forage base for many fish species by increasing invertebrate biomass. The changes in the conditions of the resources are not significant, and the proposed impacts on these resources as a result of the authorized project are not significantly different than those described in the FEIS which was approved for the original Project in 1999 (USACE 1998).

The use of BMP construction procedures and mitigation measures, pre-construction surveys for species of special concern in the Project Area, and avoidance of key breeding/nesting and spawning periods, will reduce potential for negative impacts. Furthermore, implementation of the proposed Project will have significant overall beneficial impacts to the environment and surrounding communities, including benefits to aquatic habitats and species, an increase in the availability of suitable habitat for Federal and state-listed species and a diversity of shorebird communities, improved shoreline stabilization and flood protection, and recreational opportunity.

Based on a thorough evaluation of potential impacts performed for the 1998 FEIS and this EA, it has been determined that with the exception of anticipated high NO_x emission levels, there will be no significant adverse impacts due to implementation of the proposed Project modification.



Comments from agencies and interested parties have been addressed and all practicable means to avoid or minimize adverse environmental effects have been incorporated into the recommended plan.

6.0 CUMULATIVE IMPACTS

Cumulative effects of adjacent projects could have an effect on water quality, terrestrial and aquatic habitats and the species that utilize the habitats in the Long Beach area. Although these types of impacts would be short-term, and the communities would recover relatively quickly an investigation was pursued to identify any potential impacts from the other projects in the area. Investigation included a review of proposed and on-going shore protection, channel creation, maintenance dredging or environmental restoration projects. No activity was noted that would have an influence on the proposed project at Long Beach. This was due to several facts or combination of facts:

- That the investigated project was occurring too remotely to inflict impacts on the EA project area.
- That the investigated project window of impacts did not overlap temporally with the EA project.
- That none of the impacts of the investigated project the activity were germane to the EA project area.

The following paragraphs and the subsequent summary table provide identification of other proposed and on-going projects conducted by the New York District in the vicinity of Long Beach.

- The New York District is currently preparing to implement the next cycle of beach renourishment on the Atlantic Coast of the Rockaway Peninsula, to occur in 2007, under the project authority of Atlantic Coast of New York City, East Rockaway Inlet to Rockaway Inlet and Jamaica Bay. The renourishment sites are located remote from the EA site. Additionally, littoral drift modeling indicates that down drifting sediments do not cross Rockaway Inlet to impact the EA area. This project was subject to pre-, during and post-construction monitoring by New York District between 1993 and 1999. This data was evaluated for significant cumulative impacts. None were identified.
- In 1994 the New York District completed the shore protection project at Coney Island under the same authority, Atlantic Coast of New York City Rockaway Inlet to Norton Point, as this EA. No periodic renourishment is scheduled for 2005 so it does not overlap this EA. In 1992 the New York District completed an FSEIS in support of the previous beach nourishment under the same authority, Atlantic Coast of New York City Rockaway Inlet to Norton Point. This document contains additional evaluation of cumulative impacts. This project was subject to pre-, during and post-construction monitoring by the New York District between 1993 and 1999. This data was evaluated for significant cumulative impacts. None were identified.



- Since 1996, The New York District has been conducting a feasibility study for environmental restoration at several sites within Jamaica Bay. This study is not complete and there is no construction scheduled or EIS at this time. The study has identified several sites within Jamaica Bay for habitat restoration. Most of these sites are remote from the EA area. Preliminary plans anticipate on-site upland re-use of any disturbed sediments. Additionally construction on this project will not overlap the EA window. There are no cumulative impacts from the Jamaica Bay-Environmental Initiatives Study.
- Gerritsen Creek Section 1135 Environmental Restoration. This project may be constructed in FY06-07. It is located at the terminal end of a dead end basin remote from the EA area. The planned activity is to re-establish an inter-tidal marsh with upland re-use of any removed materials. This action will not create any potential cumulative impacts in the EA area.
- Rockaway Channel maintenance dredging was conducted in 2004 and the next periodic cycle is scheduled in 2006. Sediments from this activity are not sidecast. They were used to nourish Rockaway Peninsula beaches. In 2006 there is a potential for beneficial re-use for the Gerritsen Creek 1135 project (see above). The Rockaway Channel is located across Rockaway Inlet from the project site and littoral drift modeling indicates that down drifting sediments do not cross Rockaway Inlet to impact the EA area.
- Jones Inlet maintenance dredging was conducted in 1995 and most recently June 2005 and the next periodic cycle is not scheduled. Sediments from this activity are not sidecasted. The material is used to nourish Point Lookout beaches. The Jones Inlet is located east of the project site and littoral drift modeling indicates that down drifting sediments do cross the Long Beach project. This action will not create any potential cumulative impacts in the EA area.

Project Name	Type	Potential Cumulative Impact	Significance
East Rockaway Inlet to Rockaway Inlet	Shore Protection	Littoral Downdrift	Remote
Atlantic Coast of NYC – Rockaway Inlet to Norton Point	Shore Protection	Littoral Downdrift	No Overlap
Jamaica Bay Environmental Initiatives	Environmental Restoration	Littoral Downdrift	Remote Not Germane No Overlap
Gerritsen Creek Section 1135 Environmental Restoration	Environmental Restoration	Littoral Downdrift	Remote Not Germane
Rockaway Channel Maintenance Dredging	Dredging with beach replenishment	Littoral Downdrift	Remote
Jones Inlet	Dredging with beach replenishment	Littoral Downdrift	No Overlap



7.0 LIST OF PREPARERS

A list of preparers for this EA is provided below, including name, position, and role in preparation of the EA.

TABLE 5-1. LIST OF PREPARERS

Name	Position	Role in EA Preparation
U.S. Army Corps of Engineers, New York District		
Robert Smith	Project Environmental Manager	Project Management Review
Chris Ricciardi	Project Cultural Resource Specialist	Project Management Review
Northern Ecological Associates, Inc.		
David J. Santillo, Ph.D.	Principal	Program Manager, Principal Review
Stacie Grove	Project Manager	Introduction, Purpose and Need, Alternatives, Agency Coordination, Document Review, Topography, Geology, Soils, Vegetation, Wetlands, Wildlife, and Threatened and Endangered Species
Sandra Lare	Senior Scientist	Land Use and Zoning, Environmental Justice, Hazardous Waste, Aesthetics and Scenic Resources, Recreation, and Transportation
Stuart Eldridge Ph.D.	Senior Cultural Resource Specialist	Cultural Resources
Jack Wu	Associate Scientist	Regional Hydrogeology, Tidal Influences, Surface Water, Groundwater, Air Quality, Noise
Jack Wu	Environmental Scientist	Finfish and Shellfish, Benthic Resources, Coastal Zone Management, Floodplains, Navigation

8.0 COORDINATION WITH REGULATORY AGENCIES

All necessary permits were obtained for the 1998 proposed Project and a favorable ROD was filed in 1999. An extension of the Section 401 Water Quality Certificate has been obtained based upon the 1995 Feasibility Plan. It is anticipated that a modification to the Section 401 Water Quality Certificate extension will be needed to address the changes presented in the 2005 LRR. Similarly, coordination will continue with the New York State Department of State to obtain a consistency determination for the proposed project modifications. The USACE will also coordinate closely with NYSDEC and the USEPA regarding nonattainment for NO_x air emissions.

In addition, the USACE is continuing to coordinate with the USFWS pursuant to Section 2(b) of the Fish and Wildlife Coordination Act. A Final Fish and Wildlife Coordination Act Report was



issued by the USFWS for the original Project (USACE 1998). Coordination with the USFWS is ongoing pursuant to finalizing this final report, and also pursuant to completing consultations in compliance with Section 7 of the Endangered Species Act (ESA) and subsequent re-evaluation and modification to the Project. In addition, the USACE is consulting with the National Marine Fisheries Service in accordance with Section 7 of the ESA and Section 305(b)(2) of the MSFCMA.

In addition, this EA shall be distributed to all appropriate Federal, State, and local agencies and interested parties, pursuant to NEPA (see Appendix J for the Project Mailing List). All applicable Federal, State, and local policies will be complied with during review and implementation of the proposed Project.



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