# North Shore of Long Island
# Bayville, New York
# Coastal Storm Risk Management
# Feasibility Study

# Appendix A: Environmental Documentation

# February 2016

# North Shore of Long Island
# Bayville, New York
# Coastal Storm Risk Management Project
# Feasibility Study

## Draft Integrated Feasibility Report and Environmental Assessment

## February 2016

## Appendix A1:

## Essential Fish Habitat Assessment

EFH ASSESSMENT WORKSHEET FOR FEDERAL AGENCIES (modified 08/04)

**PROJECT NAME: Bayville Coastal Storm Risk Management Study**

**DATE: November 12, 2015 PROJECT NO.: NA LOCATION: Bayville, Long Island, New York**

**PREPARER: U. S. Army Corps of Engineers, New England District**

Step 1. Use the Habitat Conservation Division EFH webpage, Guide to Essential Fish Habitat Designations in the Northeastern United States to generate the list of designated EFH for federally-managed species for the geographic area of interest (http://www.nero.noaa.gov/hcd/index2a.htm). Use the species list as part of the initial screening process to determine if EFH for those species occurs in the vicinity of the proposed action. Attach that list to the worksheet because it will be used in later steps. Make a preliminary determination on the need to conduct an EFH Consultation.

| 1. INITIAL CONSIDERATIONS | | |
|---|---|---|
| EFH Designations | Yes | No |
| Is the action located in or adjacent to EFH designated for eggs? | x | |
| Is the action located in or adjacent to EFH designated for larvae? | x | |
| Is the action located in or adjacent to EFH designated for juveniles? | x | |
| Is the action located in or adjacent to EFH designated for adults? | x | |
| Is the action located in or adjacent to EFH designated for spawning adults? | x | |
| If you answered no to all questions above, then EFH consultation is not required -go to Section 5. If you answered yes to any of the above questions proceed to Section 2 and complete remainder of the worksheet. | | |

Step 2. In order to assess impacts, it is critical to know the habitat characteristics of the site before the activity is undertaken. Use existing information, to the extent possible, in answering these questions. Please note that, there may be circumstances in which new information must be collected to appropriately characterize the site and assess impacts.

| 2. SITE CHARACTERISTICS | |
|---|---|
| Site Characteristics | Description |
| Is the site intertidal, sub-tidal, or water column? | **Outflows:** intertidal |
| What are the sediment characteristics? | **Outfalls and Outfall channels (Oyster Bay):** sand and silt<br>**Floodwalls (Oyster Bay and Long Island Sound):** variable<br>**Reinforced dune (Long Island Sound):** gravel and sand, fine to coarse |
| Is Habitat Area of Particular Concern (HAPC) designated at or near the site? If so what type, size, characteristics? | No |
| Is there submerged aquatic vegetation (SAV) at or adjacent to project site? If so describe the spatial extent. | No |
| What is typical salinity and temperature regime/range? | Salinity for Oyster Bay and Cold Spring Harbor (ppt): range 15 – 18.5<br>Temperature for Oyster Bay and Cold Spring Harbor (C°): range 4.2 – 23.4, average 13.2 |
| What is the normal frequency of site disturbance, both natural and man-made? | Frequent disturbance from both flooding and wave overtopping of bulkheads and dunes due to coastal storm events and high tides. |
| What is the area of proposed impact (work footprint & far afield)? | **Long Island Sound Floodwall:** 3,850 linear feet long and 2 ft wide<br>**Long Island Sound Reinforced Dune:** 2,940 linear feet long and 5 ft wide<br>**Oyster Bay Floodwall:** 2,800 linear feet and 2 feet wide<br>**Oyster Bay Set-back Floodwall:** 5,300 linear feet and 2 feet wide<br>**Oyster Bay Outfalls and Outfall channels:** ~0.33 acres of vegetated high salt marsh |

Step 3. This section is used to describe the anticipated impacts from the proposed action on the physical/chemical/biological environment at the project site and areas adjacent to the site that may be affected.

| 3. DESCRIPTION OF IMPACTS | | | |
|---|---|---|---|
| Impacts | Y | N | Description |
| Nature and duration of activity(s) | | | Bulkheads and reinforced dunes will be built along the Long Island Sound (LIS) shoreline. Sand will be used as backfill to cover the bulkheads and dunes, and then planted with native beach grass for aesthetics and sand stabilization. On Oyster Bay, a floodwall will be built in the Mill Neck Creek neighborhood adjacent to the salt marsh and a set-back floodwall will be built down the center lane of West Harbor Drive. Three pump stations and four outfalls and associated out fall channels will be constructed to remove flood waters from within line of protection. Total construction time estimated for two years (beginning 2019, ending 2021). |
| Will benthic community be disturbed? | x | | Burial of benthic infauna and some epifauna will occur in the intertidal zone on the Long Island Sound beach and in vegetated salt marsh on Oyster Bay when the reinforced dunes, bulkheads, outfalls, and outfall channels are built. On Oyster Bay, infauna and epifauna in the project footprint will be covered with stone fill for the construction of the four outfalls and associated outfall channels (5' x 200'). Benthic resources in those areas will be killed if they are unable to move from the construction area; however, the stones of the outfalls and channels are expected to be recolonized by other species such as crabs and isopods. On the Long Island Sound, sand will be placed on the reinforced dunes and behind bulkheads. The sand is expected to recolonize within one to three months, but the benthic community structure (species composition and abundance) will be changed in that time; it will take approximately one year for the community structure to fully recover to pre-construction conditions. The construction of the bulkheads (total combined length is 3,850 linear feet) on the LIS will displace existing sand resources. Sand that is in front of the bulkheads, specifically in areas where the beach is narrow and exposed to frequent wave activity will erode more quickly during storm and high tide events. Approximately 10 feet of rip rap (measured out from the bulkhead toward the sea) will be placed in front of the bulkheads. The rip rap will be buried with sand after |

| | | | |
|---|---|---|---|
| | | | construction, but sand is expected to erode due to high tides, wave refraction, and coastal storms, permanently exposing the rip rap beneath. This will change the benthic community and species abundance in that area. Species adapted to cobble habitat such as crabs will thrive, while those suited only for sandy substrates will move to adjacent areas. Temporary and permanent loss of benthic prey species and the shift in composition will impact, but not significantly affect, EFH for any designated species utilizing the project area. Bottom feeders are opportunistic and will relocate to nearby undisturbed areas for foraging. |
| Will SAV be impacted? | | x | None present |
| Will sediments be altered and/or sedimentation rates change? | x | | The reinforced dunes on the LIS will be created using sand on site, if additional sand is required, grain size of new sand will be similar in nature to existing sand. The construction of the bulkheads (total combined length is 3,850 linear feet) on the LIS will displace existing sand resources. Sand that is in front of the bulkheads, specifically in areas where the beach is narrow and exposed to frequent wave activity, will erode more quickly during storm and high tide events due to wave refraction. Approximately 10 feet of rip rap (measured out from the bulkhead toward the sea) will be placed in front of the bulkheads. The rip rap will be buried with sand after construction, but sand is expected to erode due to high tides, wave refraction, and coastal storms, permanently exposing the rip rap beneath. This will change the benthic community and species abundance in that area. Species adapted to cobble habitat such as crabs will thrive, while those suited only for sandy substrates will move to adjacent areas. Net transport of sand along coast and offshore will be accentuated. |
| Will turbidity increase? | x | | Turbidity will temporarily increase in the construction zone. This could impact visually-oriented species of aquatic organisms; however, they should be capable of relocating for foraging. Temporary and minimal impact to EFH expected. |
| Will water depth change? | | x | N/A |
| Will contaminants be released into sediments or water column? | | x | No. All new fill material (sand and stone) will be coarse in nature and not contain hazardous contaminants. |
| Will tidal flow, currents or wave | x | | Tidal flow and wave patterns will change only during storm events |

| | | | |
|---|---|---|---|
| patterns be altered? | | | as flow will not reach inland during most storms. No effect anticipated on EFH. |
| Will ambient salinity or temperature regime change? | | x | Currently, the stormwater drainage system in Bayville is ineffective at controlling the volume of stormwater present during extreme rainfall events. This means that the majority of stormwater sheer flows into Oyster Bay through the salt marshes affecting salinity of the marshes. With the construction of three pump stations and four outfalls, stormwater will be captured and released at those points, impacting salinity in and around the outfalls. No major salinity changes are anticipated as the water will quickly dissipate to the Bay. |
| Will water quality be altered? | | x | Water quality is not expected to be altered as a result of the proposed project. Setting tanks (10,000 gallon rectangular tanks) at each pump station, and catch basins within the conveyance storm sewers have been designed in the stormwater drainage plans. These measures will provide settling time for stormwater during periods of low and mid flow. Suspended sediments will settle out in the tanks/catch basins and will not flow into the surface water or salt marsh via the outfalls. Additionally, oil separators in the settling tanks will remove oil and grease and other floatables from stormwater; therefore, water quality will not be negatively impacted as a result of the proposed project. |

Step 4. This section is used to evaluate the consequences of the proposed action on the functions and values of EFH as well as the vulnerability of the EFH species and their life stages. Identify which species from the EFH species list (generated in Step 1) will be adversely impacted from the action. Assessment of EFH impacts should be based upon the site characteristics identified in Step 2 and the nature of the impacts described within Step 3. The Guide to EFH Descriptions webpage (http://www.nero.noaa.gov/hcd/list.htm) should be used during this assessment to determine the ecological parameters/preferences associated with each species listed and the potential impact to those parameters.

| 4. EFH ASSESSMENT | | | |
|---|---|---|---|
| Functions and Values | Y | N | Describe habitat type, species and life stages to be adversely impacted |
| Will functions and values of EFH be impacted for: | | | |
| Spawning | | x | No spawning adults of any EFH designated species were identified as utilizing the project area. |
| Nursery | | x | The location of the reinforced dunes and bulkheads are along the beach of the Long Island Sound in Bayville. Although some constructed bulkheads in reaches, particularly the Pine Lane Reach, will regularly interact with high water from high tides, habitat in those areas is not likely used for nursery areas due to the fact that it is intertidal. |
| Forage | x | | Prey for all life stages (excluding eggs) of winter flounder, windowpane flounder, and juvenile summer flounder, will be buried under bulkheads/reinforced dunes where none exist currently. This will cause temporary loss of forage habitat; however, adult and juvenile flounders are mobile and will be able to relocate to undisturbed areas. Additionally, it is unlikely that an area in the intertidal zone of a beach is preferred habitat for any species of flounder. Areas of reaches on Long Island Sound where bulkheads will be built (total combined is 3,850 linear feet) are anticipated to experience erosion of the beach in front of the bulkhead over time. Buried rip rap will be exposed and EFH species will lose sandy forage habitat that is present. The use of stone in construction of the outfalls and outfall channels in the vegetated salt marsh on Oyster Bay will bury any benthic organisms in those areas and change the habitat of those areas (combined 0.33 acres) to cobble. This will permanently impact the species structure (composition and abundance) of benthos in those areas; however, benthic organisms that can withstand cobble habitats will thrive. Forage for EFH species is not |

| | | | |
|---|---|---|---|
| | | | expected to be significantly affected by this project, as nearby areas will provide food resources. |
| Shelter | | x | The project location is in the intertidal zone of both the beach and salt marsh. It is unlikely that these areas are utilized by EFH species for shelter. |
| Will impacts be temporary or permanent? | x | | Impacts will be both temporary and permanent. Permanent impacts will affect the benthic community structure in the portions of the project footprint where bulkheads, outfalls, and outfall channels are built as benthos will be buried by the construction. Erosion of the sandy beach in front of the bulkheads, and construction of the outfalls and outfall channels on Oyster Bay will cause permanent changes to the species composition by removal of the sandy/silty substrate; although, species adapted to cobble habitat will thrive. Temporary impacts will be caused by the construction of the reinforced dunes. Reinforced dunes will be covered with sand that will recolonize rapidly from adjacent benthic populations. Temporary impacts will also be realized from increased turbidity in the project area; however, turbidity will be short term and localized to the immediate project area. |
| Will compensatory mitigation be used? | x | | Mitigation of the impacts to vegetated salt marsh will occur. The USACE policy of no net loss to wetlands will be followed. Plans for mitigation are in progress with the USFWS. |

Step 5. This section provides the Federal agency's determination on the degree of impact to EFH from the proposed action. The EFH determination also dictates the type of EFH consultation that will be required with NOAA Fisheries.

| 5. DETERMINATION OF IMPACT | | |
|---|---|---|
| | | Federal Agency's EFH Determination |
| Overall degree of adverse effects on EFH (not including compensatory mitigation) will be:<br><br>(check the appropriate statement) | | **There is no adverse effect on EFH**<br>EFH Consultation is not required |
| | x | **The adverse effect on EFH is not substantial.**<br>This is a request for an abbreviated EFH consultation. This worksheet is being submitted to NMFS to satisfy the EFH Assessment requirement. |
| | | **The adverse effect on EFH is substantial.**<br>This is a request for an expanded EFH consultation. A detailed written EFH assessment will be submitted to NMFS expanding upon the impacts revealed in this worksheet. |

Step 6. Consultation with NOAA Fisheries may also be required if the proposed action results in adverse impacts to other NOAA-trust resources, such as anadromous fish, shellfish, crustaceans, or their habitats. Some examples of other NOAA-trust resources are listed below. Inquiries regarding potential impacts to marine mammals or threatened/endangered species should be directed to NOAA Fisheries' Protected Resources Division.

| 6. OTHER NOAA-TRUST RESOURCES IMPACT ASSESSMENT | |
|---|---|
| Species known to occur at site (list others that may apply) | Describe habitat impact type (i.e., physical, chemical, or biological disruption of spawning and/or egg development habitat, juvenile nursery and/or adult feeding or migration habitat). |
| alewife | n/a |
| blueback herring | n/a |
| rainbow smelt | n/a |
| Atlantic sturgeon | n/a |
| Atlantic menhaden | n/a |
| American shad | n/a |
| American eel | n/a |
| American lobster | n/a |
| blue mussels | n/a |
| soft-shell clams | n/a |
| quahog | n/a |
| Other species: | n/a |

# North Shore of Long Island
# Bayville, New York
# Coastal Storm Risk Management Project
# Feasibility Study

## Draft Integrated Feasibility Report and Environmental Assessment

## February 2016

## Appendix A2:

## Coastal Zone Management Act
## Consistency Determination

# COASTAL ZONE ACT CONSISTENCY DETERMINATION
# Bayville, Coastal Storm Risk Management, Bayville, Nassau County, New York
# Prepared November 2015

## I. Introduction

The Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C. §§1451-1464) was enacted by Congress in an effort to balance the often competing demands of growth and development with the protection of coastal resources. Its stated purpose is to "…preserve, protect, develop, where possible, to restore or enhance, the resources of the nation's coastal zone…" The Act established the framework for achieving this balance by encouraging the states to develop coastal zone management programs, consistent with minimum federal standards, designed to regulate land use activities that could impact coastal resources. The Coastal Zone Act Reauthorization Act Amendments of 1990 further strengthened the act by requiring the state programs to focus more on controlling land use activities and the cumulative effects of activities within designated coastal zones.

The State of New York administers its federally approved coastal zone program through the Department of State (DOS), Office of Planning and Development. Pursuant to the Federal CZMA, New York has defined its coastal zone boundaries and developed policies to be utilized to evaluate projects within the designated coastal zone, as set forth in New York's State Coastal Policies pursuant to the Waterfront Revitalization and Coastal Resources Act of 1981 (Article 42 of the Executive Law). The Long Island Sound Coastal Management Program (LIS CMP) refines the NY CMP and integrates capabilities of state and local government into an enforceable program for the Sound.

The LIS CMP replaces the state CMP for the Sound shorelines of Westchester County, New York City to the Throgs Neck Bridge, Nassau County, and Suffolk County. Its specially tailored standards are used for consistency decisions made by the DOS and other state agencies except where there is an approved Local Waterfront Revitalization Program (LWRP). The Village of Bayville has an approved LWRP that was adopted and approved by the New York Secretary of State in 2003.

The following consistency determination identifies the NY coastal policies relevant to the proposed coastal storm risk management project.

## II. Location and Description of the Proposed Work

USACE is proposing to construct coastal storm risk management (CSRM) measures in the Village of Bayville, Nassau County, New York. The following are components of the proposed CSRM project:

(a) On the Long Island Sound of Bayville: 3,850 linear feet of I-wall type concrete floodwall combined with 2,940 linear feet of sheetpile reinforced dunes. For initial analysis, the top elevation of the structure has been established at 14' NAVD88 (~2% ACE with wave setup).

(b) On the Oyster Bay side of Bayville: 2,800 linear feet of I-wall type of concrete floodwall adjoining the Mill Neck Creek neighborhood. Additionally, a 5,300 linear foot set-back floodwall will be built down the center lane of West Harbor Drive to 13' NAVD88 (initial analysis, ~2% ACE without wave setup which is not a significant design factor for the Bay side).

(c) Drainage features: With the floodwalls and reinforced dunes in place, pump stations will be required to pump storm water through the line of protection and into Oyster Bay. Three pump stations with a combined capacity of 159 cfs have been sized to handle the large volume of storm water expected within the study area. New drainage lines will be constructed to deliver storm water to the pump stations. Emergency natural gas powered auxiliary power generators will be co-located with all three pump stations to ensure operation during power outages.

The entirety of the CSRM project lies within the Bayville LWRP.

## III. New York State Coastal Policies

### *Developmental Policies*

**Policy 1. Restore, revitalize, and redevelop deteriorated and underutilized waterfront areas for commercial, industrial, cultural, recreational, and other compatible areas.**

Not applicable.

**Policy 2. Facilitate the siting of water-dependent uses and facilities on or adjacent to coastal waters.**

The proposed CSRM project will facilitate the development and continuation of water-dependent uses and facilities adjacent to coastal waters by providing protection from damaging waves and flooding to assure continued safe and economic use of the shoreline. Existing and future water dependent businesses and recreational facilities will benefit from the protection level offered by the proposed project.

**Policy 3. Further develop the State's major ports of Albany, Buffalo, New York, Ogdensburg, and Oswego as centers of commerce and industry, and encourage the siting, in these port areas, including those under the jurisdiction of state public authorities, of land use and development which is essential to, or in support of, the waterborne transportation of cargo and people.**

Not applicable.

**Policy 4. Strengthen the economic base of smaller harbor areas by encouraging the development and enhancement of those traditional uses and activities which have provided such areas with their unique maritime identity.**

Not applicable.

**Policy 5. Encourage the location of development in areas where public services and facilities essential to such development are adequate.**

Not applicable.

**Policy 6. Expedite permit procedures in order to facilitate the siting of development activities at suitable locations.**

Not applicable.

## *Fish and Wildlife Policies*

**Policy 7. Significant coastal fish and wildlife habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.**

A portion of the project area lies adjacent to and/or within the New York Department of Environmental Conservation-identified "Significant Coastal Fish and Wildlife Habitat" of Oyster Bay and Cold Spring Harbor. Approximately 0.33 acres of vegetated salt marsh will be permanently impacted by the construction of four outfalls and their associated outfall channels (5' x 200'). Level stone fill will be placed within the salt marsh at the locations of the outfalls and outfall channels. All other impacts associated with the project will be temporary and mitigated in place.

Early coordination with the U.S. Fish and Wildlife Service (USFWS) has provided the Corps a potential plan for mitigation of the 0.33 acres of impacted wetlands, but is subject to approval and further coordination with the USFWS and Oyster Bay National Wildlife Refuge (OBNWR). The proposed mitigation site is located in the 84-acre Frost Creek designated unit of the Oyster Bay National Wildlife Refuge approximately 1.5 miles from the study area. It is a small (approximately 0.35 acres) disjunct parcel of Frost Creek unit within the OBNWR. Salt marsh habitat dominates the Frost Creek unit which is mostly made up of smooth cordgrass (*Spartina alterniflora*); however, in the identified parcel the non-native common reed (*Phragmites australis*) has taken over. Eradication of common reed within the parcel using a variety of measures that will be determined in collaboration with the USFWS and OBNWR was identified as possible mitigation for the 0.33 acres of impacted salt marsh.

**Policy 8. Protect fish and wildlife resources in the coastal area from the introduction of hazardous wastes and other pollutants which bio-accumulate in the food chain or which cause significant sublethal or lethal effect of those resources.**

Not applicable. No HTRW sites exist within the project area nor will the project introduce HTRW to the project area. A 401 Water Quality Certificate will be obtained for the fill portion of this project, and all permit requirements will be addressed and/or implemented by the USACE prior to and/or during construction.

**Policy 9. Expand recreational use of fish and wildlife resources in coastal areas by increasing access to existing resources, supplementing existing stocks, and developing new resources.**

Not applicable.

**Policy 10. Further develop commercial finfish, shellfish, and crustacean resources in the coastal area by encouraging the construction of new, or improvement of existing on-shore commercial fishing facilities, increasing marketing of the state's seafood products, maintaining adequate stocks, and expanding aquaculture facilities.**

Not applicable.

## *Flooding and Erosion Hazards Policies*

**Policy 11. Buildings and other structures will be sited in the coastal area so as to minimize damage to property and the endangering of human lives caused by flooding and erosion.**

Not applicable.

**Policy 12. Activities or development in the coastal area will be undertaken so as to minimize damage to natural resources and property from flooding and erosion by protecting natural protective features including beaches, dunes, barrier islands, and bluffs.**

This proposal is a coastal storm risk management project that will reduce damages to property and natural resources caused by flooding. The plan chosen for this project was done so to reasonably maximize net benefits over time with the least environmental damages. Reinforced dunes and bulkheads along the Long Island Sound shore beaches will be constructed to preserve properties behind the line of protection. A floodwall and a set-back floodwall (down the center line of West Harbor Drive) will be constructed along the Oyster Bay side shoreline to provide protection from back bay flooding.

No dunes, barrier islands, or bluffs exist within the project area. Coordination with State and Federal resource agencies is on-going to avoid and minimize damages to natural resources within the project area. Approximately 0.33 acres of vegetated salt marsh in the project area has been identified as a permanent loss due to construction. Under USACE's National No Net Loss of wetlands policy, USACE and USFWS are currently working together to create a mitigation plan for those impacted wetlands.

**Policy 13. The construction or reconstruction of erosion protection structures shall be undertaken only if they have a reasonable probability of controlling erosion for at least thirty years as demonstrated in design and construction standards and/or assured maintenance or replacement programs.**

Not applicable. The project as proposed does not involve erosion protection.

**Policy 14. Activities and development, including the construction or reconstruction of erosion protection structures, shall be undertaken so that there will be no measureable increase in erosion or flooding at the site of such activities or development, or at other locations.**

Not applicable. This proposal is a coastal storm risk management project that will reduce damages to property caused by flooding. There are no erosion protection structures involved in this project.

**Policy 15. Mining excavation or dredging in coastal waters shall not significantly interfere with the natural coastal processed which supply beach materials to land adjacent to such waters and shall be undertaken in a manner which will not cause an increase in erosion of such land.**

Not applicable.

**Policy 16. Public funds shall only be used for erosion protective structures where necessary to protect human life, and new development which requires a location within or adjacent to an erosion hazard area to be able to function, or existing development; and only where the public benefits outweigh the long term monetary and other costs including the potential for increasing erosion and adverse effects on natural protective features.**

Not applicable. No erosion protection structures have been proposed for this project.

**Policy 17. Non-structural measures to minimize damage to natural resources and property from flooding and erosion shall be used whenever possible.**

Non-structural measures to minimize damage to natural resources and property from flooding were examined during the scoping phase of the project and are detailed below.

- Buy-out plan- A buy-out plan to permanently evacuate the project area was explored, but dropped from further consideration due to the prohibitively high cost of purchasing land and relocating residents.
- Floodplain management and zoning- Through proper land use regulation, floodplains can be managed and regulated to reduce losses by controlling the future use of floodplain lands. As Bayville is already fully developed, this plan is not effective to mitigate existing flooding hazards.
- Floodproofing/House raising- Floodproofing and raising building elevation, while effective for buildings, have their limitations. Those measures fail to protect non-building assets and can generate a false sense of security and discourage timely evacuations. In addition, this alternative is very costly which would likely prohibit its implementation.

## *General Policy*

**Policy 18. To safeguard the vital economic, social, and environmental interests of the state and of its citizens, proposed major actions in the coastal area must give full consideration to those interests, and to the safeguards which the state has established to protect valuable coastal resource areas.**

The construction actions of the proposed project will adhere to all Federal and State requirements governing those actions. The preparation and public notification of an Environmental Assessment, Section 404(b)(1) Clean Water Act Evaluation, Clean Air Act Conformity Record of Non-Applicability, and this CZM Consistency Determination signify compliance with this policy.

**Policy 19. Protect, maintain, and increase the level and types of access to public water-related recreation resources and facilities.**

The Village of Bayville has very limited public access to the beach on the Long Island Sound. The majority of beach shoreline is owned by private residences. However, the Town beaches that are open to non-residents will remain accessible to the public upon project completion. During construction, the beach area will not be accessible, constituting a temporary impact to public access. Traffic on West Harbor Drive will likely be diverted and access to the recreation area, West Harbor Memorial Park, on the Oyster Bay side may be limited. This will be a temporary impact, as turn lanes and pedestrian crossovers into the Park will be implemented as part of the project.

**Policy 20. Access to the publicly-owned foreshore and to lands immediately adjacent to the foreshore or the water's edge that are publicly-owned shall be provided and it shall be provided in a manner compatible with adjoining uses.**

Construction of walkovers across the reinforced dune/bulkheads on the Long Island Sound side will be allowed for residents who wish to build them on their property. As part of the project, a walk-over will be built where the public beach is located. On the Oyster Bay side, access will be achieved by the construction of pedestrian crosswalks and turn lanes through the setback floodwall on West Harbor Drive.

### *Recreation Policies*

**Policy 21. Water-dependent and water-enhanced recreation will be encouraged and facilitated, and will be given priority over non-water-related uses along the coast.**

Not applicable.

**Policy 22. Development, when located adjacent to the shore, will provide for water-related recreation, whenever such use is compatible with reasonably anticipated demand for such activities, and is compatible with the primary purpose of the development.**

Not applicable.

### *Historic and Scenic Resources Policies*

**Policy 23. Protect, enhance, and restore structures, districts, areas or sites that are of significance in the history, architecture, archaeology or culture of the state, its communities, or the nation.**

A review of the New York State Museum site files indicates a prehistoric site, consisting of a small village with a burial, was located at the western end of the Mill Basin portion of the project area. Prior to and during construction, field investigations may be required to determine if the site remains within the project area. Coordination and consultation with the New York State Historic Preservation Office, the Shinnecock Indian Nation, and the Unkechaug Indian Nation, a state-recognized tribe is ongoing and will result in a Programmatic Agreement. There are no buildings or structures within the project area are listed on or determined eligible for the National Register of Historic Places. No other adverse effects are anticipated.

**Policy 24. Prevent impairment of scenic resources of statewide significance.**

Not applicable. No scenic areas of statewide significance exist within the project area.

**Policy 25. Protect, restore or enhance natural and man-made resources which are not identified as being of statewide significance, but which contribute to the overall scenic quality of the coastal area.**

Implementation of the proposed project will have negative short-term impacts to aesthetics and scenic resources. Construction equipment and vehicles which are generally not considered visually appealing will be in the Village during the implementation of the plan.

Long-term impacts of the proposed action will have negative and positive impacts. The view shed toward the water on both the bayside and Long Island Sound side will be altered, as the new floodwall and bulkheads/reinforced dunes will block views. Along much of the shoreline on the sound side, bulkheads and dunes already exist so this plan will only affect the areas in which the proposed bulkhead/reinforced dunes have higher top elevations than the existing or there is no existing protection. The dunes will be planted with native dune vegetation which will add aesthetic value.

## *Agricultural Lands Policy*

**Policy 26. Conserve and protect agricultural lands in the state's coastal area.**

Not applicable. No agricultural lands exist within the project area.

## *Energy and Ice Management Policies*

**Policy 27. Decisions on the siting and construction of major energy facilities in the coastal area will be based on public energy needs, compatibility of such facilities with the environment, and the facility's need for a shorefront location**

Not applicable.

**Policy 28. Ice management practices shall not interfere with the production of hydroelectric power, damage significant fish and wildlife and their habitats, or increase shoreline erosion or flooding.**

Not applicable.

**Policy 29. Encourage the development of energy resources on the outer continently shelf, in Lake Erie and in other water bodies, and ensure the environmental safety of such activities.**

Not applicable.

## *Water and Air Resources Policies*

**Policy 30. Municipal, industrial, and commercial discharge of pollutants, including but not limited to, toxic and hazardous substances, into coastal waters will conform to state and national water quality standards.**

Not applicable.

**Policy 31. State coastal area policies and management objectives of approved local waterfront revitalization programs will be considered while reviewing coastal water classifications and while modifying water quality standards; however, those waters already overburdened with contaminants will be recognized as being a development constraint.**

The Village of Bayville has an approved LWRP (February 2003), which has been used in the evaluation of the environmental impacts of the proposed project.

**Policy 32. Encourage the use of alternative or innovative sanitary waste systems in small communities where the costs of conventional facilities are unreasonably high, given the size of the existing tax base of these communities.**

Not applicable.

**Policy 33. Best management practices will be used to ensure the control of stormwater runoff and combined sewer outflows draining into coastal waters.**

During construction, best management practices, such as silt fencing, will be used to reduce turbidity in coastal waters. Drainage features that will be included in the project will impact storm water flows. With the floodwalls and reinforced dunes in place, pump stations will be required to pump storm water through the line of protection and into Oyster Bay. Pump stations were designed with consideration of the USACE policy (EM 1110-2-1413) concerning minimum facility. Three pump stations with a combined capacity of 159 cubic feet per second (cfs) were sized to handle the large volume of storm water expected during storm events within the study area. All three pump stations will be co-located with an emergency natural gas power auxiliary power generator in case of power failure to ensure operation. New drainage lines will be constructed to efficiently deliver storm water to the pump stations. Setting tanks (10,000 gallon rectangular tanks) at each pump station, and catch basins within the conveyance storm sewers have been designed in the stormwater drainage plans. These measures will provide settling time for stormwater during periods of low and mid flow, reducing turbidity.

**Policy 34. Discharge of waste materials into coastal waters from vessels subject to state jurisdiction will be limited so as to protect significant fish and wildlife habitats, recreational areas and water supply areas.**

Not applicable.

**Policy 35. Dredging and filling in coastal waters and disposal of dredged material will be undertaken in a manner that meets exiting State permit requirements, and protects significant fish and wildlife habitats, scenic resources, natural protective features, important agricultural lands, and wetlands.**

Stone will be used as fill for the outfalls and outfall channels located in a combined total of ~0.33 acres of vegetated salt marsh on the Oyster Bay side. A 401 Water Quality Certificate will be obtained from the State of New York prior to the start of any work. All permit requirements will be addressed and implemented by USACE prior to and/or during construction of the project. Coordination with State and Federal resource agencies is on-going to identify sensitive resources and mitigate impacts that are unavoidable.

**Policy 36. Activities related to the shipment and storage of petroleum and other hazardous materials will be conducted in a manner that will prevent or at least minimize spills into coastal waters; all practicable efforts will be undertaken to expedite the cleanup of such discharges; and restitution for damages will be required when these spills occur.**

The contractor is required to submit an "Environmental Protection Plan", including a "Spill Control Plan", which includes the procedures to be taken in the event that an oil spill has occurred, prior to the commencement of work. Thus, this action will be consistent with Coastal Zone Management policy.

**Policy 37. Best management practices will be utilized to minimize the non-point discharge of excess nutrients, organics and eroded soils into coastal waters.**

No non-point discharges are expected as a result of the proposed project. Additionally, the project will be managed in a manner that will comply to the maximum extent practicable with the requirements of the State of New York's Water Quality Certificate and those of the Federal Agencies.

**Policy 38. The quality and quantity of surface water and groundwater supplies, will be conserved and protected, particularly where such waters constitute the primary or sole source of water supply.**

Surface and ground water quality is not expected to be altered as a result of the proposed project. Setting tanks (10,000 gallon rectangular tanks) at each pump station, and catch basins within the conveyance storm sewers have been designed in the stormwater drainage plans. These measures will provide settling time for stormwater during periods of low and mid flow. Suspended sediments will settle out in the tanks/catch basins and will not flow into the surface water via the outfalls. Additionally, oil separators in the settling tanks will remove oil and grease and other floatables from stormwater; therefore, water quality will not be negatively impacted as a result of the proposed project.

**Policy 39. The transport, storage treatment and disposal of solid wastes, particularly hazardous wastes, within coastal areas will be conducted in such a manner so as to protect groundwater and surface water supplies, significant fish and wildlife habitats, recreation areas, important agricultural lands and scenic resources.**

Not applicable. This project will not involve the transportation of solid or hazardous wastes.

**Policy 40. Effluent discharged from major steam electric generating and industrial facilities into coastal waters will not be unduly injurious to fish and wildlife and shall conform to State water quality standards.**

Not applicable.

**Policy 41. Land use or development in the coastal area will not cause National or State air quality standards to be violated.**

The project has been evaluated for Section 176 of the Clean Air Act and a Record of Non-Applicability has been prepared. Total direct and indirect emissions from this project have been estimated (NOx = 23.94 tons per year and VOC = 3.382 tons per year), and are below the conformity threshold value of NOx = 100 tons per year and VOC = 50 tons per year (40CFR§93.153(b)(1) & (2)).

**Policy 42. Coastal Management policies will be considered if the State reclassifies land areas pursuant to the prevention of significant deterioration regulations of the Federal Clean Air Act.**

Not applicable.

**Policy 43. Land use or development in the coastal area must not cause the generation of significant amounts of the acid rain precursors: nitrates and sulfates.**

Not applicable.

**Policy 44. Preserve and protect tidal and fresh water wetlands and preserve the benefits derived from these areas.**

Approximately 0.33 acres of permanent impacts to vegetated salt marsh will occur as a result of the construction of four outfalls and their associated outfall channels (5' x 200') on the Oyster Bay side of the project area. Early coordination with the USFWS has provided the Corps a potential plan for mitigation of the 0.33 acres of impacted wetlands, but is subject to approval and further coordination with the U.S. Fish and Wildlife Service (USFWS) and Oyster Bay National Wildlife Refuge (OBNWR).

The proposed mitigation site is located on a parcel in the 84-acre Frost Creek designated unit of the Oyster Bay National Wildlife Refuge approximately 1.5 miles west of the study area. A small (approximately 0.35 acres) disjunct parcel of the Frost Creek unit is situated between Michael F. Road and Walton Avenue within the census-designated hamlet of Locust Valley, NY. This parcel was identifies by the USFWS as a potential area for mitigation through the eradication of the non-native common reed (*Phragmites australis*).

Salt marsh habitat dominates the Frost Creek unit. Meandering creek channels transect the primary salt marsh and allow inlet and outlet of tidal flows. The vast majority of vegetative cover is composed of North Atlantic low salt marsh. The most common plant species of this classification if smooth cordgrass (*Spartina alterniflora*). Within the Frost Creek unit, stands of common reed can be found along the southern boundary and within the small disjunct parcel to the south and east of the primary unit. Removal of common reed from these areas would greatly benefit the salt marsh community by allowing native plants to recolonize invaded patches. Native plant recolonization of restoration sites will in turn provide an opportunity for reestablishment of a diverse and abundant assemblage of native invertebrate, fish, amphibian, reptile, bird, and mammal species.

Coordination with the USFWS and OBNWR is on-going to determine the best plan for mitigation of the unavoidable impacts.

**Based upon the foregoing, it is determined that the proposed action is consistent with New York Department of State's Coastal Zone Management Program.**

# North Shore of Long Island
# Bayville, New York
# Coastal Storm Risk Management Project
# Feasibility Study

## Draft Integrated Feasibility Report and Environmental Assessment

## February 2016

## Appendix A3:

## Clean Water Act Section 404(b)(1) Guidelines Evaluation

**INTRODUCTION**

This document presents Section 404(b)(1) guidelines evaluation for the coastal storm risk management project Bayville, Nassau County, New York. The recommended plan consists of approximately 14,890 linear feet of raised bulkheads, floodwalls, and reinforced dunes covered with sand. The project spans portions of the Long Island Sound shorefront and Oyster Bay shoreline of Bayville. Because the project follows the actual perimeters of the shore, its total length is the combined length of both the bay and ocean sides. The discharge to waters of the U.S. that may occur related to the project is the placement of bulkheads into intertidal waters along the Long Island Sound shoreline, as well as the placement of fill for the construction of outfalls and outfall channels (5' x 200') in the high zone of vegetated salt marsh on Oyster Bay. Best management practices will be fully utilized to ensure that turbidity and sedimentation are limited to the area immediately adjacent to the project site and minimized to the greatest extent possible. This evaluation is based on the regulations presented in 40 CFR 230, Section 404(b)(1): Guidelines for Specification of Disposal Sites for Dredged or Fill Material. The regulations implement Sections 404(b) and 401(1) of the Clean Water Act, which govern disposal of dredged and fill material inside the territorial seas baseline [§230.2(b)].

As stated in Section 230.10(a)(4): For actions subject to NEPA, where the U. S. Army Corps of Engineers (USACE) is the permitting agency, the analysis of alternatives required for NEPA environmental documents, including supplemental USACE NEPA documents will in most cases provide the information for the evaluation of alternatives under these Guidelines. The Environmental Assessment (EA), to which this evaluation is an appendix, provides the documentation necessary to attest that the project is fully in compliance with the Section 404(b) (1) guideline. The EA provides a full project description and location, description of existing conditions, full alternatives analysis, and description of potential impacts as a result of the project and the project's construction. The analysis provided within the EA coastal storm risk management plan will not cause or contribute to significant degradation of the waters of the United States, as is demonstrated in the following sections and tables.

**404(b) (1) EVALUATION**

Study Description

A. Location - The study area is located on the north shore of Long Island in the Village of Bayville, Nassau County within the Town of Oyster Bay.

B. General Description – Coastal storm risk management elements include:
-Long Island Sound side: 3,850 linear feet of I-wall type concrete floodwall combined with 2,940 linear feet of sheetpile reinforced dunes. For initial analysis the top elevation of the structure has been established at elevation +14' NAVD88 (~2% ACE with wave setup).
-Oyster Bay side: 2,800 linear feet of I-wall type concrete floodwall (top elevation +13' NAVD88) adjoining the Mill Neck Creek neighborhood. A 5,300 linear foot set-back floodwall (top elevation +13' NAVD88) built down the center lane of West Harbor Drive.
-Drainage features: Three pump stations with a combined capacity of 159 cfs to pump water through the line of protection. Four outfalls and associated outfall channels (5' x 200') will be sited within the high marsh zone of the salt marsh in Oyster Bay.

C. Authority and Purpose - The North Shore of Long Island, New York project, including the Bayville study, was authorized by a resolution of the Committee on Public Works and Transportation of the U.S. House of Representatives adopted 13 May 1993. This study authority covered the North Shore of Long Island, Nassau County, New York for recommendations advisable in the interest of beach erosion control, storm damage reduction, and related purposes.

D. General Description of Fill Material - Construction of the storm protection reinforced dunes, bulkheads, floodwalls, pump stations, and outfalls would require the placement of armor stone, bedding stone, concrete, geotextile fabric, and sand.

1. General Characteristics of Material - Sand would be required to cover the reinforced dune and used as backfill placed behind bulkheads. Quarry stone, bedding stone, armor stone, and steel sheetpile would be used to construct the protection elements and outfalls.

2. Quantity of Material - Construction of the protection elements would require the following quantities of materials (estimated):

-Mill Neck Creek Floodwall: approx 1,381 cubic yards (cy) of concrete; 1,189 tons of sheet piling; 2,846 tons of 18" and 10" rip rap stone; 1,256 cy of fill.

-West Harbor Drive Set-Back Floodwall: approx 1,828 cy of concrete; 781 tons of sheet piling; 5,096 fill for the raised road.

-Long Island Sound Bulkheads: 3,250 cy of concrete; 2,992 tons of sheet piling; 5,000 cy of 24" rip rap; 3,333 cy of 10" rip rap; 10,000 cy of stone fill; 2,500 cy of stone filter layer.

-Long Island Sound Reinforced Dune: 5,556 cy sand; 222 cy concrete; 1,247 tons of sheet piling.

-Combined Outfalls: 2,190 of 16" rip rap stone for the four outfalls and outfall channels.

3. Source of Material - Sources for fill material may include on-site and off site substrate dependent upon the composition of soils at the site-specific locations. Rocks and concrete materials will be obtained from commercial sources proximal to the project location. The sand will come from inland sources.

E. Proposed Discharge Site

1. Location - The study area location is described in sections A & B, above.

2. Size - The size/dimensions of the coastal storm risk management measures are described in B, above. The area where the outfalls and outfall channels will be constructed include a total area of ~0.33 acres of vegetated salt marsh.

3. Type of Sites/Habitat - The potential coastal storm risk management measures would result in the following cover type impacts:

-Long Island Sound- habitat is sandy intertidal zone of beach.

-Oyster Bay- habitat is high zone of tidal salt marsh and upland area.

4. Time and Duration of Disposal - The Selected Plan will be constructed in various elements over a two-year period. Construction of the first elements is projected to begin in Sep 2019 and end Sep 2021.

5. Disposal Method - Construction equipment such as bulldozers, backhoes, dump trucks, will be used.

## 2.0 FACTUAL DETERMINATIONS

### Review of Compliance – Section 230.10(a)-(d)

| | YES | NO |
|---|---|---|
| a. The discharge represents the least environmentally damaging practicable alternative and, if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose. | X | |
| b. The activity does not appear to: 1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally listed threatened and endangered species or their habitat; and 3) violate requirements of any Federally designated marine sanctuary. | X | |
| c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values. | X | |
| d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem. | X | |

### Technical Evaluation Factors (Subparts C-F)

| | | N/A | Not Significant | Significant |
|---|---|---|---|---|
| **a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)** | | | | |
| | 1) Substrate | | X | |
| | 2) Suspended particulates/turbidity | | X | |
| | 3) Water column impacts | | X | |
| | 4) Current patterns and water circulation | | X | |
| | 5) Normal water circulation | | X | |
| | 6) Salinity gradients | | x | |
| **b. Potential Impacts on Biological Characteristics on the Aquatic Ecosystem (Subpart D)** | | | | |
| | 1) Threatened and endangered species | | X | |
| | 2) Fish, crustaceans, mollusks, and other organisms in the aquatic food web | | X | |
| | 3) Other wildlife (mammals, birds, reptiles and amphibians) | | X | |
| **c. Potential Impacts on Special Aquatic Sites (Subpart E)** | | | | |
| | 1) Sanctuaries and refuges | | X | |
| | 2) Wetlands | | X | |
| | 3) Mud Flats | | X | |
| | 4) Vegetated Shallows | X | | |
| | 5) Coral reefs | X | | |
| | 6) Riffle and pool complexes | X | | |
| **d. Potential Effects on Human Use Characteristics (Subpart F)** | | | | |

| | | | | |
|---|---|---|---|---|
| | 1) Municipal and private water supplies | X | | |
| | 2) Recreational and commercial fisheries | | X | |
| | 3) Water-related recreation | | X | |
| | 4) Aesthetic impacts | | X | |
| | 5) Parks, national and historic monuments, national seashores, wilderness areas, research sites and similar preserves | | X | |

**Evaluation and Testing – Subpart G**

| **a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)** | | | |
|---|---|---|---|
| | 1) Physical characteristics | | X |
| | 2) Hydrography in relation to known or anticipated sources of contaminants | | X |
| | 3) Results from previous testing of the material or similar material in the vicinity of the project | | |
| | 4) Known, significant sources of persistent pesticides from land runoff or percolation | | |
| | 5) Spill records for petroleum products or designated hazardous substances (Section 311 of CWA) | | X |
| | 6) Public records of significant introduction of contaminants from industries, municipalities or other sources | | |
| | 7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities | | |
| | 8) Other sources (specify) | | |
| **List appropriate references –** See Environmental Assessment | | | |
| | | **YES** | **NO** |
| **b. An evaluation of the appropriate information factors in 3a above indicates that there is reason to believe the proposed dredged material is not a carrier of contaminants or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to require constraints.** | | X | |

**4. Disposal Site Delineation - Section 230.11(f)**

| **a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)** | | |
|---|---|---|
| | 1) Depth of water at disposal site | |
| | 2) Current velocity, direction, variability at disposal site | |
| | 3) Degree of turbulence | |
| | 4) Water column stratification | |
| | 5) Discharge of vessel speed and direction | |
| | 6) Rate of discharge | |

| | | |
|---|---|---|
| | 7) Dredged material characteristics (constituents, amount, and type of material, settling velocities) | |
| | 8) Number of discharges per unit of time | |
| | 9) Other factors affecting rates and patterns of mixing (specify) | |
| **List appropriate references** – See Environmental Assessment | | |
| | **YES** | **NO** |
| **b. An evaluation of the appropriate information factors in 4a above indicated that the disposal sites and/or size of mixing zone are acceptable.** | X | |

**Actions to Minimize Adverse Effects (Subpart H)**

| | **YES** | **NO** |
|---|---|---|
| All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge. | X | |

**Factual Determination – Section 230.11**

| A review of appropriate information, as identified in Items 2-5 above, indicates there is minimal potential for short or long-term environmental effects of the proposed discharge as related to: | | |
|---|---|---|
| | **YES** | **NO** |
| a. Physical substrate at the disposal site (review Sections 2a, 3, 4 and 5 above) | X | |
| b. Water circulation, fluctuation and salinity (review Sections 2a, 3, 4 and 5) | X | |
| c. Suspended particulates/turbidity (review Sections 2a, 3, 4 and 5) | X | |
| d. Contaminant availability (review Sections 2a, 3 and 4) | X | |
| e. Aquatic ecosystem structure, function and organisms (review Sections 2b, 2c, 3 and 5) | X | |
| f. Proposed disposal site (review Sections 2, 4 and 5) | X | |
| g. Cumulative effects on the aquatic ecosystem | X | |
| h. Secondary effects on the aquatic ecosystem | X | |

**Findings of Compliance or Non-Compliance**

| | **YES** | **NO** |
|---|---|---|
| The proposed disposal site for discharge of dredged or fill material complies with Section 404(b)(1) guidelines. | X | |

Date_____ Signed_____

David A. Caldwell
Colonel, Corps of Engineers
Commander

# North Shore of Long Island
# Bayville, New York
# Coastal Storm Risk Management Project
# Feasibility Study

## Draft Integrated Feasibility Report and Environmental Assessment

## February 2016

## Appendix A4:

## Clean Air Act Conformity
## Record of Non-Applicability

**DRAFT RECORD OF NON-APPLICABILITY (RONA)**

November 18, 2015

Project/Action Name: Bayville Coastal Storm Risk Management Feasibility Study, Bayville, NY

Project/Action Point of Contact: Grace Moses, Phone: 978-318-8717

Begin Date: September 2019

End Date: September 2021

1. The project described above has been evaluated for Section 176 of the Clean Air Act. Project related emissions associated with the Federal action were estimated to evaluate the applicability of General Conformity regulations (40CFR§93 Subpart B).
2. Total direct and indirect emissions from this project have been estimated (NOx = 23.94 tons per year and VOC = 3.382 tons per year), and are below the conformity threshold value of NOx = 100 tons per year and VOC = 50 tons per year (40CFR§93.153(b)(1) & (2)).
3. The project/action is not considered regionally significant under 40CFR§93.153(i).
4. Supporting documentation and emissions estimates are attached.

Date: _____ Signed: _____
(Name/Title of Environmental Coordinator)

**General Conformity Review and Emission Inventory for the Bayville, NY CSRM project**

Estimates from Project Manager

18-Nov-15

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Project Emission Sources and Estimated Power | | | | | | NOx Emission Estimates | | VOC Emission Estimates | |
| Equipment/Engine Category | # of Engines | hp | LF | hrs/day | Days of Operation | hp-hr | NOx EF (g/hp-hr) | NOx Emissions (tons) | VOC EF (g/hp-hr) | VOC Emissions (tons) |
| Asph transfer vehicle 15 ton hopper | 1 | 300 | 1.00 | 8 | 1.75 | 4,200 | 9.200 | 0.04 | 1.300 | 0.01 |
| Compactor vibroplate 18"x21.5" plate | 1 | 5 | 1.00 | 8 | 6.875 | 275 | 9.200 | 0.00 | 1.300 | 0.00 |
| Compactor roller vibratory 26.5 wide, 0.8 ton, WB | 1 | 11 | 1.00 | 8 | 291.375 | 25,641 | 9.200 | 0.26 | 1.300 | 0.04 |
| Crane Hyd S/P 9T/44' Boom, 4x4 | 1 | 375 | 1.00 | 8 | 19.5 | 58,500 | 9.200 | 0.59 | 1.300 | 0.08 |
| Crane, Hyd S/P RT 4WD 15T/80' Boom | 1 | 450 | 1.00 | 8 | 13.5 | 48,600 | 9.200 | 0.49 | 1.300 | 0.07 |
| Crane, Hyd TM 25T/80' Boom 6x4 | 1 | 112 | 1.00 | 8 | 38 | 34,048 | 9.200 | 0.35 | 1.300 | 0.05 |
| Crane, Hyd TM 90T/114' Boom 8x5 | 1 | 192 | 1.00 | 8 | 10.5 | 16,128 | 9.200 | 0.16 | 1.300 | 0.02 |
| Crane, Mech LB, crawler, D/C 2.5CY/60T/50' Boom | 1 | 285 | 1.00 | 8 | 566.5 | 1,291,620 | 9.200 | 13.10 | 1.300 | 1.85 |
| Grader, motor artc, 12' blade | 1 | 135 | 1.00 | 8 | 10.75 | 11,610 | 9.200 | 0.12 | 1.300 | 0.02 |
| Dozer, Crawler, LGP | 1 | 250 | 1.00 | 8 | 340.625 | 681,250 | 9.200 | 6.91 | 1.300 | 0.98 |
| Dozer, Crawler, universal blade | 1 | 300 | 1.00 | 8 | 3.75 | 9,000 | 9.200 | 0.09 | 1.300 | 0.01 |
| Crusher, 36"x54", single rotor | 1 | 225 | 1.00 | 8 | 1.75 | 3,150 | 9.200 | 0.03 | 1.300 | 0.00 |
| Hyd Excavator, crawler, 70,000lb, 2.0CY/21.6' Max DD | 1 | 227 | 1.00 | 8 | 402.375 | 730,713 | 9.200 | 7.41 | 1.300 | 1.05 |
| Hyd Excavator, crawler, 110,000lb, 3.0CY/27.5' Max DD | 1 | 329 | 1.00 | 8 | 145.5 | 382,956 | 9.200 | 3.88 | 1.300 | 0.55 |
| LDR, WH 9.0CY AR FE Bkt 4x4 | 1 | 369 | 1.00 | 8 | 119 | 351,288 | 9.200 | 3.56 | 1.300 | 0.50 |
| LDR, WH 1.25CY FE Bkt 4x4 | 1 | 69 | 1.00 | 8 | 0.875 | 483 | 9.200 | 0.00 | 1.300 | 0.00 |
| LDR, WH 3.50CY FE Bkt 4x4 | 1 | 182 | 1.00 | 8 | 36.375 | 52,962 | 9.200 | 0.54 | 1.300 | 0.08 |
| LDR, WH 1.75CY FE Bkt 4x4 | 1 | 148 | 1.00 | 8 | 17.875 | 21,164 | 9.200 | 0.21 | 1.300 | 0.03 |
| LDR/BH, WH 1.25CY FE Bkt, 12' depth, 24" dipper, 4x2 | 1 | 93 | 1.00 | 8 | 58.625 | 43,617 | 9.200 | 0.44 | 1.300 | 0.06 |
| LDR/BH, WH 0.80CY FE Bkt, 9.8' depth, 24" dipper, 4x5 | 1 | 87 | 1.00 | 8 | 164.75 | 114,666 | 9.200 | 1.16 | 1.300 | 0.16 |
| Roller, VIB, DD, SP 2.7T, 47" | 1 | 36 | 1.00 | 8 | 7.875 | 2,268 | 9.200 | 0.02 | 1.300 | 0.00 |
| Roller, VIB, DD, SP 6T, 66" | 1 | 133 | 1.00 | 8 | 2.875 | 3,059 | 9.200 | 0.03 | 1.300 | 0.00 |
| TRK, HWY 8,600lb GVW, 4x2 2 Axel 3/4T pickup | 1 | 137 | 1.00 | 8 | 10.5 | 11,508 | 9.200 | 0.12 | 1.300 | 0.02 |
| TRK, HWY 8,800lb GVW, 4x4 2 Axel 3/4T pickup | 1 | 137 | 1.00 | 8 | 147.375 | 161,523 | 9.200 | 1.64 | 1.300 | 0.23 |
| TRK, HWY 35,000lb GVW 4x2 2 Axel | 1 | 310 | 1.00 | 8 | 58.625 | 145,390 | 9.200 | 1.47 | 1.300 | 0.21 |
| TRK, HWY 45,000lb GVW 6x4 3 Axel | 1 | 330 | 1.00 | 8 | 0.875 | 2,310 | 9.200 | 0.02 | 1.300 | 0.00 |
| TRK, HWY 50,000lb GVW 6x4 3 Axel | 1 | 330 | 1.00 | 8 | 141.875 | 374,550 | 9.200 | 3.80 | 1.300 | 0.54 |
| DUMP TRK, HWY 16-20CY, 75,000lb GVW 6x4 2 Axel | 1 | 360 | 1.00 | 8 | 18 | 51,840 | 9.200 | 0.53 | 1.300 | 0.07 |
| Concrete Vib, 2.5", Generator | 1 | 7.5 | 1.00 | 8 | 2.25 | 135 | 9.200 | 0.00 | 1.300 | 0.00 |
| Concrete pump and boom, 177CY/HR, 75' boom TM | 1 | 405 | 1.00 | 8 | 0.5 | 1,620 | 9.200 | 0.02 | 1.300 | 0.00 |
| HYD Crane, SP, RT, 15T/49' boom , 4x4 | 1 | 450 | 1.00 | 8 | 12.625 | 45,450 | 9.200 | 0.46 | 1.300 | 0.07 |
| Concrete Vib, 2.5", Generator | 1 | 7.5 | 1.00 | 8 | 1 | 60 | 9.200 | 0.00 | 1.300 | 0.00 |
| Asph paver, 10', SP | 1 | 230 | 1.00 | 8 | 7.375 | 13,570 | 9.200 | 0.14 | 1.300 | 0.02 |
| Roller, Static SP Pneu, 9 tires, 14T/68" | 1 | 100 | 1.00 | 8 | 7.375 | 5,900 | 9.200 | 0.06 | 1.300 | 0.01 |
| Roller, vibr, SP DD 2.7T/47" | 1 | 36 | 1.00 | 8 | 11.125 | 3,204 | 9.200 | 0.03 | 1.300 | 0.00 |
| TRK, HWY, 45,000lb GVW, 6x4 3 axle | 1 | 330 | 1.00 | 8 | 6.125 | 16,170 | 9.200 | 0.16 | 1.300 | 0.02 |
| | | | | | | | | | | |
| **Total Emissions** | | | | | | | **NOx Total** | **47.87** | **VOC Total** | **6.76** |
| **Total Emissions Per Year** | | | | | | | **NOx Total** | **23.94** | **VOC Total** | **3.38** |

**Horsepower Hours**

hp-hr = # of engines*hp*LF*hrs/day*days of operation

**Load Factors**

Load Factor (LF) represents the average percentage of rated horsepower used during a source's operational profile. For this worst case estimate, LF is held at 1 for all equipment. Typical is 0.4 to 0.6

**Emission Factors**

NOx Emissions Factor for Off-Road Construction Equipment is 9.20 g/hp-hr

VOC Emissions Factor for Off-Road Construction Equipment is 1.30 g/hp-hr

Emissions (g) = Power Demand (hp-hr) * Emission Factor (g/hp-hr)

Emissions (tons) = Emissions (g) * (1 ton/907200 g)

# North Shore of Long Island
# Bayville, New York
# Coastal Storm Risk Management Project
# Feasibility Study

## Draft Integrated Feasibility Report and Environmental Assessment

## February 2016

## Appendix A5:
## Pertinent Correspondence

# Bayville, New York
# Coastal Storm Risk Management Project
# Feasibility Study

**Draft Feasibility Report**
**November 2015**

## Appendix A5:
## Pertinent Correspondence

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
3817 Luker Road
Cortland, NY 13045

October 2, 2015

Colonel David A. Caldwell
District Engineer, New York District
U.S. Army Corps of Engineers
26 Federal Plaza, Rm. 2109
New York, NY 10278-0090

Subject: Bayville, New York Coastal Storm Risk Management Feasibility Study, U.S. Fish and Wildlife Service Draft Planning Aid Report

Attention: Peter M. Weppler, Chief, Environmental Analysis Branch

Dear Colonel Caldwell:

This letter transmits the U.S. Fish and Wildlife Service's (Service) Draft Planning Aid Report (PAR) for the U.S. Army Corps of Engineers' (Corps) feasibility study entitled, "Village of Bayville, New York Storm Damage Reduction Feasibility Study," for the north shore of Long Island within the Incorporated Village of Bayville, New York. This report was developed in support of the Service's Fish and Wildlife Coordination Act (FWCA) responsibilities (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*) in reviewing Corps' water resources development projects. This report does not constitute the report of the Secretary of Interior as required by section 2(b) of the FWCA.

The Service appreciates the opportunity to coordinate with the Corps on this study. If you have any questions or require additional information, please contact Mr. Chris Allen of the Long Island Field Office at (631) 286-0485.

Sincerely,

Patricia Cole

for David A. Stilwell
Field Supervisor

cc: NYSDEC, Stony Brook, NY (R. Marsh)
USFWS, Long Island Field Office, Shirley, NY

# U.S. FISH AND WILDLIFE SERVICE PLANNING AID REPORT FOR THE U.S. ARMY CORPS OF ENGINEERS' VILLAGE OF BAYVILLE, OYSTER BAY, NASSAU COUNTY, NEW YORK STORM DAMAGE REDUCTION FEASIBILITY STUDY


Prepared By:

Christopher Allen
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Shirley, NY

Field Supervisor:

David A. Stilwell
U.S. Fish and Wildlife Service
Cortland, NY


Prepared For:
U.S. Army Corps of Engineers
New York District
New York, NY

## Table of Contents

**List of Figures**



**List of Tables**

## EXECUTIVE SUMMARY

This is the U.S. Fish and Wildlife Service's (Service) Planning Aid Report (PAR) for the U.S. Army Corps of Engineers' (Corps) feasibility study entitled, "Village of Bayville, New York Storm Damage Reduction Feasibility Study." We anticipate that this draft report will be finalized once the Corps' feasibility study has been concluded. The Corps' study was authorized by a Resolution adopted on May 13, 1993, by the Committee on Public Works and Transportation, U.S. House of Representatives.

The Corps has indicated that the project is still under development via coordination with the local cost share sponsors, New York State Department of Environmental Conservation, and the Village of Bayville. Therefore, detailed plans were unavailable to the Service at the time the Corps requested consultation. As such, the PAR briefly summarizes the proposed alternatives, characterizes the existing environment, identifies important fish and wildlife resources, including rare and declining habitats in the study area, identifies information needs and provides recommendations for additional studies, field investigations, and analyses. The PAR also addresses federally-listed species such as the piping plover (*Charadrius melodus*; threatened) and New York State-listed species such as the least tern (*Sterna antillarum*) and common tern (*Sterna hirundo*). The PAR will assist the Corps and the Service in better understanding the baseline environmental conditions, the foreseeable effects of the action, and available opportunities for mitigating unavoidable impacts to fish and wildlife resources.

The study area is located on the mainland of Long Island in the Village of Bayville (Village), Oyster Bay, Nassau County, NY. The Village is approximately 1.5 square miles in area. It is bordered by the Long Island Sound, an "Estuary of National Significance" to the north, and the Oyster Bay National Wildlife Refuge (OBNWR) to the south. The U.S. Environmental Protection Agency administers the Long Island Sound Study in cooperation with local, state, and federal agencies, non-governmental organizations, and the public that work and reside within the Long Island Sound watershed. The OBNWR is administered by the Service's Long Island National Wildlife Refuge Complex. Both waterbodies contain resources of significance to the Service and the American people.

## IDENTIFICATION OF AUTHORITY, SCOPE, AND PURPOSE THE PLANNING AID REPORT (PAR)

Under the authorities of Public Law 85-624 (72 Stat. 563; August 12, 1958), and as amended by Public Law 89-72 (Stat. 213; July 9, 1965), the Fish and Wildlife Coordination Act (FWCA; 48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*) provides for the equal and integrated consideration of fish and wildlife conservation needs, and requires coordinated planning with other features of federal water resource development proposals. Pursuant to our authorities and shared responsibilities under the FWCA, the Service has prepared the enclosed Planning Aid Report (PAR) for the U.S. Army Corps of Engineers' (Corps) use and consideration in this phase of the feasibility study.

The U.S. House of Representatives, Committee on Public Works and Transportation, authorized the Bayville Feasibility Study by a resolution adopted on May 13, 1993. The Corps formally initiated the feasibility study in 2001. At that time, the Corps began data collection activities including surveying and mapping, and the development of baseline information on coastal processes and related environmental resources concurrently with the feasibility study. Following Hurricane Sandy, the Disaster Relief Appropriations Act of 2013, Public Law 113-2, provided 100 percent of the federal funding needed to complete the feasibility study (U.S. Army Corps of Engineers 2014).

The project continues to undergo design modifications through coordination with the local cost share sponsors, the New York State Department of Environmental Conservation (NYSDEC), and the Village of Bayville (Village). Detailed plans were unavailable to the Service at the time the Corps requested consultation. As such, the PAR briefly summarizes the proposed alternatives; characterizes the existing environment; identifies important fish and wildlife resources, including rare and declining habitats in the study area; identifies information needs; and provides recommendations for additional studies, field investigations, and analyses. The PAR will assist the Corps and the Service in better understanding the baseline environmental conditions, the foreseeable effects of the action, and available opportunities for mitigating unavoidable impacts to fish and wildlife resources.

**Figure 1.** In 2012, Hurricane Sandy caused extensive damage to West Shore Drive near the Village of Bayville.

The Long Island Sound shoreline in the study area has historically experienced coastal erosion and related storm damage, most recently from Hurricane Sandy in 2012 (Figure 1) and Hurricane Irene in 2011, and also from the two storms of September 1996 and October 1996, the March 1993 Blizzard of the Century, the December 1992 northeaster, Hurricane Danielle of September 1992, and the Halloween Storm of 1991 (U.S. Army Corps of Engineers 2014). The Corps is currently conducting a feasibility study to evaluate a range of structural and non-structural project alternatives that may reduce adverse flooding effects during future coastal storm events along this shoreline (U.S. Army Corps of Engineers 2014).

## STUDY AREA

The study area includes the Village of Bayville, Oyster Bay, Nassau County, NY. Bayville is located at 40.907277N, -73.557131W (Figure 2). The Village has a total area of 1.5 square miles (sq. mi.), of which 1.4 sq. mi. is land and 0.1 sq. mi., or 3.4 percent, is water. The 2000 U.S. Census reported 7,135 people, 2,566 households, and 1,906 families residing in the Village for a population density of 5,065.7 people per square mile.

**Figure 2.** Map showing location of the Study Area (red outline).


Climate, Topography, and Ecology

Long Island, which is a part of the Atlantic Coastal Plain, comprises the easternmost lowland region of New York State. Nearly all storm and frontal systems moving eastward across the continent, pass through or in close proximity to New York State. Storm systems often move northward along the Atlantic coast and have an important influence on the weather and climate of Long Island and the lower Hudson Valley. Long Island has a climate similar to that of other

coastal areas of the Northeastern United States; it has warm, humid summers and cool, wet winters. Due to its coastal location, Long Island temperatures are mild compared to mainland New York State. The coldest month is January, with average temperatures ranging from approximately 23° to 38° Fahrenheit (F). The warmest month is July, with average temperatures ranging from approximately 66° to 82° F (National Oceanic and Atmospheric Administration 2015).

The Long Island Sound shoreline west of Port Jefferson, NY, is highly irregular, indented by several deep harbors and bays: Little Neck Bay, Manhasset Bay, Hempstead Harbor, Oyster Bay, Cold Spring Harbor, Huntington Bay, Stony Brook Harbor, and Port Jefferson Harbor (Davies *et. al.* 1973). These bays and harbors occupy positions which were formerly the valleys of the north-draining streams of Cretaceous time (Fuller 1914). They are separated by peninsulas or necks which project into Long Island Sound, and narrow beaches of the necks are backed in some areas by the fresh cliffs or bluffs of the shore scarp (Davies *et. al.* 1973). The terrain is largely rolling and hilly, especially in the western portion of the Village, due to its position on the Harbor Hill terminal moraine. The portion of the Village to the east of Washington Avenue, and the Village's extreme western end, are low-lying (U.S. Army Corps of Engineers 2014).

## PLAN DEVELOPMENT

The Corps is considering several storm risk prevention measures during their feasibility study including beach nourishment, development and installation of flood control structures around the perimeter of the Village of Bayville, and non-structural measures such as building relocation, real estate acquisition, and flood control proofing threatened properties. These improvement measures are discussed in detail in the following section. Figure 3 below presents the tentative plan layout.

Figure 3. Plan Layout

Project Flood Control Structures Description

The project's purpose is to design a coastal flood control system capable of reducing the Village of Bayville's vulnerability to catastrophic flooding events. Flood control structures as defined by the Federal Emergency Management Agency (FEMA) are structures that are intended to retain fill and offer protection against flooding and waves, and that are constructed along, or parallel to, the shoreline (Jones *et. al.* 2005). Primary function may be used to differentiate various types of flood control structures. Seawalls and bulkheads are primarily used to retain upland property and intercept wave forces, whereas dikes, revetments, and breakwaters are used to intercept wave action. The following coastal flood control structures and measures are being considered by the Corps for the Bayville Feasibility Study:

- Beach Nourishment:
    - Beach nourishment has been characterized throughout literature. One study defined beach nourishment as the introduction of new sand, placed on a beach by hydraulic or mechanical means, which has an immediate effect of increasing the dry beach width (Valverde *et. al.* 1999). Offshore dredging is a common practice used to harvest sand resources for beach nourishment operations. On Long Island, beach nourishment is primarily used to control erosion and to protect shoreline structures from storm and flood events.

- Seawall and Floodwall:
    - Gravity seawalls are those that rest directly on the soil substratum and rely on that soil for support in the same manner as conventionally designed shallow foundations. Gravity seawalls depend principally on their own weight for stability against lateral loading conditions such as waves. In contrast, pile-supported seawalls rely on deep pile foundation for stability (U.S. Army Corps of Engineers 1989).

- Revetments:
    - Revetments are structures commonly made of stone or concrete and are designed to protect ocean and estuary shoreline scarps, embankments, or shore structures against erosion by wave action or currents (U.S. Army Corps of Engineers 2002).

- Interior Drainage Structures:
    - Pumping station are mechanical facilities designed to intake and discharge excess flood waters across a protection line and can be of various types and configurations. Pumping stations may consist of buildings for housing pumping equipment, inflow facilities, discharge facilities, gate structures, gravity flow conduits, headwalls, and retaining walls. A station located on the protection line will usually discharge directly, either by pumping into open water or into a discharge chamber constructed monolithically with the pumping station. Pumping stations may also be located some distance away from the protection line. This type of pumping station requires discharge piping. Piping may be

installed over, though, or under the protection line depending on the site conditions (U.S. Army Corps of Engineers 1989).

- Concrete drainage channels are flood control facilities constructed for the purpose of conveying heavy storm water flows through and from areas which would otherwise be inundated. Channels are frequently constructed of concrete materials and are commonly classified as either trapezoidal or rectangular. Trapezoidal channels have sloped sides and are formed by excavating in situ materials while rectangular channels have vertical or near vertical sides which are formed with reinforced concrete retaining walls, I-walls, or U-frame structures (U.S. Army Corps of Engineers 1995).

- Reinforced Dunes:
  - Reinforced dunes are large engineered container devices which hold sand and function to prevent erosion of coastal shorelines. Typically, these erosion control structures are made of synthetic textile materials. Once filled with sand, the textile container can be capped and buried. Frequently, this allows for the recreation of the landscapes natural contours.

- Non-structural Measures:
  - Structure relocation, real estate acquisition, and flood proofing of threatened properties.

Project Alternatives Under Consideration

The following section presents a list of alternatives that have been identified by the Corps as potential project designs. Several of the alternatives include a combination of individual structure types and flood control methods.

- Alternative A:
  - Beach nourishment only.

- Alternative B:
  - Beach fill in combination with structures such as floodwalls, buried rubble-mound seawalls, reinforced dunes, stone revetments, interior drainage features, and pump stations.

- Alternative C:
  - Non-structural measures such as relocations, real estate acquisition, and flood proofing of threatened properties.

## EVALUATION FRAMEWORK

The Service undertook a site visit of the feasibility study area on August 4 and 18, 2015, and coordinated with the Corps to obtain up-to-date project information throughout the development of this PAR. An inter-agency coordination meeting including staff from the Corps and the

Service's Ecological Services and Refuge offices will be held (tentatively scheduled for October 2015) to discuss all aspects of the project. Data and information on the Long Island Sound and the Oyster Bay National Wildlife Refuge (Oyster Bay NWR; OBNWR) were obtained from external and internal reports and consultation with state and federal agencies, including, but not limited to, the NYSDEC – Region 1, and the Service's Division of Refuges and Wildlife.

Data and information were analyzed to develop a qualitative description of significant fish and wildlife resources in the study area, identify the potential impacts of the proposed preliminary alternatives on fish and wildlife resources, identify opportunities for fish and wildlife enhancement, and to offer preliminary mitigation measures to avoid, minimize, and compensate for potential impact to fish and wildlife resources in the study area. The Service's Mitigation Policy, Recovery Plans for listed species, etc. were also used to assist in the development of this report and recommendations contained herein. We note that are comments are very preliminary as we did not receive any detailed descriptions of the proposed alternatives and, therefore, do not understand the full extent and scope of the proposed study.

## FISH AND WILDLIFE RESOURCES

### Existing Conditions

The study area is located on the mainland of Long Island in Village of Bayville, Nassau County, NY. The Village is 1.5 sq. mi. in area and has shoreline on both the New York State Department of State (NYSDOS)-designated Oyster Bay Harbor Complex (including Mill Neck Creek and Oak Neck Creek) to the south and Long Island Sound to the north. The Village has more than five miles of shoreline, approximately equally divided between the Sound-side and the bayside.

The Long Island Sound, a federally-designated Estuary of National Significance, is a major coastal estuary (1,320 sq. mi.) and is near the most densely-populated region of the United States, abutting the New York-Connecticut metropolitan area. More than 23 million people live within 50 miles of the estuary.

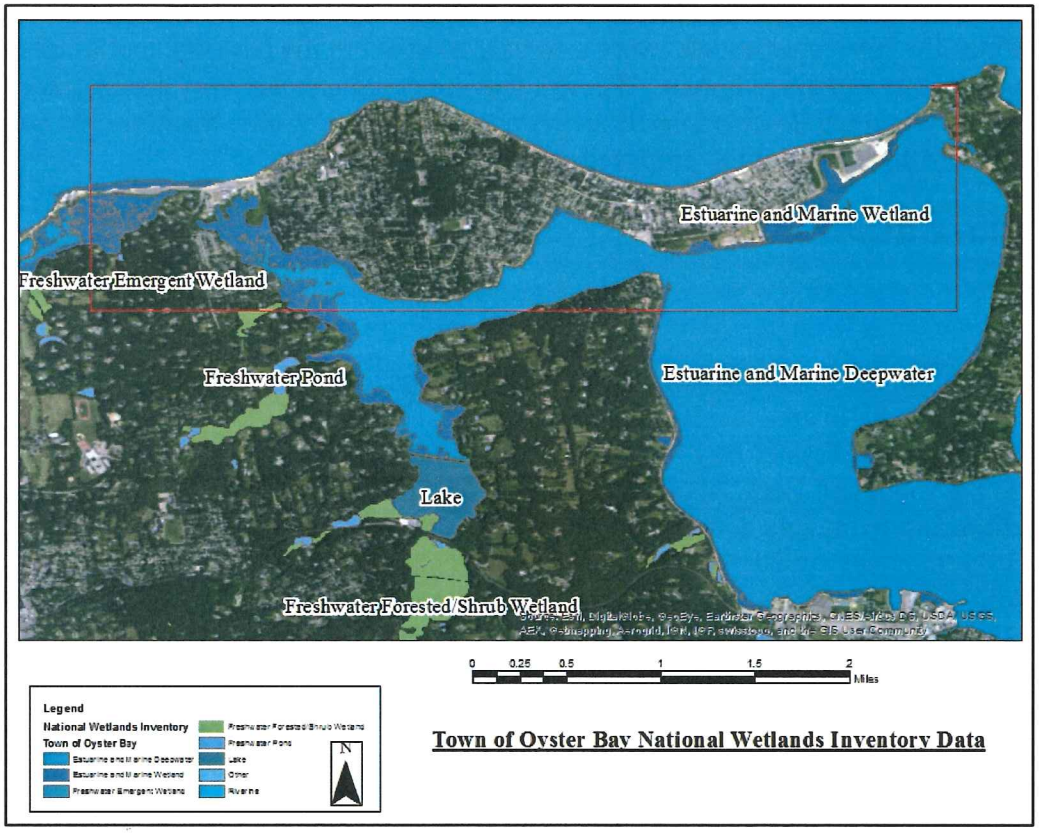
The average depth of the Sound is 63 feet (ft). The average salinity for western Long Island Sound is 23 parts per thousand. Average winter and summer water temperatures are 37° and 69° F, respectively. The sea floor comprises a variety of benthic habitats that support a large commercial and recreational fishery. It can also be a sink for wastes and contaminants derived from sources such as wastewater treatment plants, urban runoff, riverine input, and airborne transport (Wolfe *et. al.* 1991).

Water depths in Oyster Bay and Cold Spring Harbor range from 6 to 30 ft below mean low water (with depths of 30 to 60 ft between Centre Island and Cove Neck and 70 ft near Whitewood Point), and have a tidal range of approximately 7 feet. Habitats include intertidal mudflats, salt marsh, and sand islands and scattered forested headlands. The harbor complex is bordered by residential development, and extensive recreational boating facilities, with only a few areas of undeveloped salt marsh remaining. In spite of this, Oyster Bay is one of several major embayments on the north shore of Long Island, which are considered rare in this ecological sub-region (New York State Department of State 2015)

## Wetland Habitat

The Service defines wetlands as transitional lands between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. The OBNWR includes approximately 3,204 acres (ac.) of bay bottom, salt marsh, and a small freshwater wetland which includes the channels and marshes of Frost, Oak Neck, and Mill Neck Creeks.

**Figure 4.** National Wetlands Inventory data for the Bayville project Study Area and northern shore of the Town of Oyster Bay, NY.




A summary of wetland habitat found within the vicinity of the refuge is provided below in Table 1.

**Table 1.** Oyster Bay National Wildlife Refuge Wetlands

| Habitat Type | Total Acres Within Refuge |
|---|---|
| **Open Water** | 2947.7 |
| **High Marsh** | 65.0 |
| **Intertidal Marsh** | 162.0 |
| **Robust Emergent Marsh** | 0.3 |
| **Shrub Swamp** | 1.0 |

High marsh is dominated by salt hay (*Spartina patens*), short-growth-form cordgrass (*S. alterniflora*), salt grass (*Distichilis spicata*), black grass (*Juncus gerardii*), and salt marsh bulrush (*Scirpus robustus*). Intertidal marshes are flooded by the Long Island Sound tides daily and is typically dominated by smooth cordgrass (*Spartina alterniflora*). A small amount of robust emergent marsh also occurs in the refuge. Dominant vegetation types include invasive common reed (*Phragmites spp.)*, cattails (*Typha spp.*), and cordgrass (*Spartina spp.*).

Federal Threatened and Endangered Species and Birds of Conservation Concern

The Service has legal responsibility for the welfare of federal trust resources including migratory birds, anadromous fish, endangered animals and plants occurring in the United States, and Federal wildlife refuges. The Service has statutory authority and responsibility for enforcing the Endangered Species Act (ESA) of 1973, as amended (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.)*, the Fish and Wildlife Act (FWCA) of 1956 (16 U.S.C. 742a–j), the Migratory Bird Treaty Act (MBTA) of 1938 (16 U.S.C. 703–712), and the Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668-668c). The following section discusses trust resources that may occur within the study area.

Federal Threatened and Endangered Species

The piping plover (*Charadrius melodus*; threatened) is a small species of shorebird which breeds in the northeastern Atlantic coast. The bayside at Centre Island Town Park, which is adjacent to the study area provides breeding habitat for the piping plovers. Plovers nest above the high tide line on coastal beaches, sand flats at the ends of sandspits and barrier islands, gently sloping fore dunes, blowout areas behind primary dunes, sparsely vegetated dunes, and wash over areas cut into or between dunes. Feeding areas include intertidal portions of ocean beaches, wash over areas, mudflats, sandflats, wrack lines, and shorelines of coastal ponds, lagoons, or salt marshes (U.S. Fish and Wildlife Service 1996). Plover broods prefer ephemeral pools and bay tidal flats over other habitat types due to higher arthropod abundance and relatively increased availability of escape cover (Elias *et. al.* 2000). Wintering plovers on the Atlantic Coast are generally found at accreting ends of barrier islands, along sandy peninsulas, and near coastal inlets (U.S. Fish and Wildlife Service 1996).

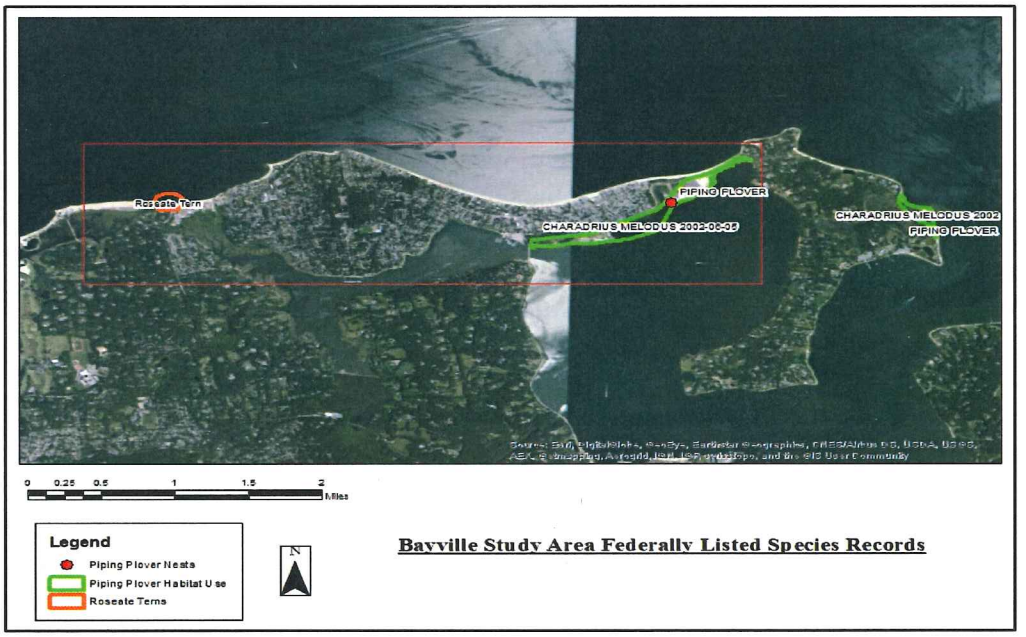
The red knot (*Calidris canutus rufa*; threatened) is a medium-sized shorebird which breeds in the central and northwestern Canadian Arctic. In New York, red knot has been reported from several locations on Long Island (U.S. Fish and Wildlife Service 2014). Preferred wintering and migration microhabitats are muddy or sandy coastal areas, more specifically, the mouths of bays and estuaries, unimproved tidal inlets and tidal flats (Niles *et. al.* 2008). The species preferentially feed in microhabitats such as creek mouths and wrack lines and is a specialized molluscivore (Piersma and Van Gils 2011). Within the nonbreeding portion of the range, red knot habitat is primarily threatened by the effects of sea level rise, shoreline stabilization, and coastal development (U.S. Fish and Wildlife Service 2014).

The roseate tern (*Sterna dougallii dougallii*; endangered) is an exclusively marine species of seabird. In North America, the roseate tern typically breeds on small islands in two distinct geographical areas from May to July (U.S. Fish and Wildlife Service 1998). The northeastern

population of birds breeds from North Carolina to Maine and includes several locations on Long Island, mostly in the Towns of East Hampton and Southold. Post breeding adult roseate terns and offspring have been observed feeding in the northeastern Atlantic as late as August. Roseate terns feed primarily on marine fish. Studies of tern colonies in Stratton Island, Maine, indicate that adult roseate terns fed young a diet restricted to sand lance (*Ammodytes spp.*) over a one-year period (Shealer and Kress 1994).

The northern long-eared bat (*Myotis septentrionalis;* threatened) is a medium-sized bat found across much of the eastern and northcentral United States. White Nose Syndrome is responsible for much of the species' recent population decline. Northern long-eared bat typically winters in caves and abandoned mines. There are approximately 90 hibernacula known to occur across the state (U.S. Fish and Wildlife Service 2015). During the summer months, literature indicates northern long-eared bat prefers decaying hardwood snags for roosting (Menzel *et. al.* 2002). However, northern long-eared bats have been observed roosting in a wide verity of tree species including softwood species. Other roosting habitat includes human made structures such as buildings, utility poles, and barns (U.S. Fish and Wildlife Service 2015).

**Figure 5.** Federally-listed species observation records within the Study Area.




Birds of Conservation Concern and Migratory Birds

The primary statutory authority for *Birds of Conservation Concern 2008* (BCC 2008) is the FWCA of 1980, as amended; other authorities include the ESA, the FWCA of 1956, and 16 U.S.C. § 701. The 1988 amendment (Public Law 100-653, Title VIII) to the FWCA requires the Secretary of the Interior, through the Service to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." *BCC 2008* is the most recent effort by the Service to carry out this proactive conservation mandate and update *Birds of Conservation Concern 2002* (U.S. Fish and Wildlife Service 2002). We recommend that these

lists be consulted in accordance with Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds."

BCC birds identified in this PAR are protected under the MBTA, which prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The word "take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." The unauthorized taking of birds is legally considered a "take" under the MBTA and is a violation of the law. Neither the MBTA nor its implementing regulations, 50 CFR Part 21, provide for permitting of "incidental take" of migratory birds. Bald and golden eagles are afforded additional legal protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d).

**Table 2.** BCR 30 (New England/Mid-Atlantic Coast) *BCC 2008* list: (a) ESA candidate, (b) ESA delisted, (c) non-listed subspecies or population of Threatened or Endangered species, (d) MBTA protection uncertain or lacking, (nb) non-breeding in this BCR.

| Common Name | Scientific Name | Status | Common Name | Scientific Name | Status |
|---|---|---|---|---|---|
| Red-throated Loon | *Gavia stellate* | (nb) | Rusty Blackbird | *Euphagus carolinus* | (nb) |
| Pied-billed Grebe | *Podilymbus podiceps* | | Purple Sandpiper | *Calidris maritima* | (nb) |
| Horned Grebe | *Podiceps auritus* | (nb) | Least Tern | *Sternula antillarum* | (c) |
| American Bittern | *Botaurus lentiginosus* | | Gull-billed Tern | *Gelochelidon nilotica* | |
| Least Bittern | *Ixobrychus exilis* | | Black Skimmer | *Rynchops niger* | |
| Snowy Egret | *Egretta thula* | | Short-eared Owl | *Asio flammeus* | (nb) |
| Bald Eagle | *Haliaeetus leucocephalus* | (b) | Whip-poor-will | *Antrostomus vociferus* | |
| Peregrine Falcon | *Falco peregrinus* | (b) | Red-headed Woodpecker | *Melanerpes erythrocephalus* | |
| Black Rail | *Laterallus jamaicensis* | | Loggerhead Shrike | *Lanius ludovicianus* | |
| Wilsons Plover | *Charadrius wilsonia* | | Brown-headed Nuthatch | *Sitta pusilla* | |
| American Oystercatcher | *Haematopus palliatus* | | Sedge Wren | *Cistothorus platensis* | |
| Solitary Sandpiper | *Tringa solitaria* | (nb) | Wood Thrush | *Hylocichla mustelina* | |
| Lesser Yellowlegs | *Tringa flavipes* | (nb) | Blue-winged Warbler | *Vermivora cyanoptera* | |
| Upland Sandpiper | *Bartramia longicauda* | | Golden-winged Warbler | *Vermivora chrysoptera* | |
| Whimbrel | *Numenius phaeopus* | (nb) | Prairie Warbler | *Setophaga discolor* | |
| Hudsonian Godwit | *Limosa haemastica* | (nb) | Cerulean Warbler | *Setophaga cerulea* | |
| Marbled Godwit | *Limosa fedoa* | (nb) | Worm-eating Warbler | *Helmitheros vermivorum* | |
| Red Knot | *Calidris canutus* | (nb), (a) | Kentucky Warbler | *Geothlypis formosa* | |
| Semipalmated Sandpiper | *Calidris pusilla* | (nb) | Henslow's Sparrow | *Ammodramus henslowii* | |
| Buff-breasted Sandpiper | *Calidris subruficollis* | (nb) | Nelson's Sharp-tailed Sparrow | *Ammodramus nelsoni* | |
| Short-billed Dowitcher | *Limnodromus griseus* | (nb) | Saltmarsh Sharp-tailed Sparrow | *Ammodramus caudacutus* | |
| Seaside Sparrow | *Ammodramus maritimus* | (c) | | | |

**Table 3.** Cornell ebird records for Center Island Park. (Center Island Park is located adjacent to the study area.)

| Common Name | Scientific Name | Common Name | Scientific Name | Common Name | Scientific Name | Common Name | Scientific Name |
|---|---|---|---|---|---|---|---|
| Mallard | *Anas platyrhynchos* | Killdeer | *Charadrius vociferus* | White-winged Scoter | *Melanitta fusca* | Yellow-rumped Warbler | *Setophaga coronata* |
| Peregrine Falcon | *Falco peregrinus* | Common Tern | *Sterna hirundo* | Long-tailed Duck | *Clangula hyemalis* | Savannah Sparrow | *Passerculus sandwichensis* |
| Osprey | *Pandion haliaetus* | Tree Swallow | *Tachycineta bicolor* | Red-breasted Merganser | *Mergus serrator* | White-throated Sparrow | *Zonotrichia albicollis* |
| Cooper's Hawk | *Accipiter cooperii* | American Robin | *Turdus migratorius* | Common Loon | *Gavia immer* | White-crowned Sparrow | *Zonotrichia leucophrys* |
| Piping Plover | *Charadrius melodus* | Cedar Waxwing | *Bombycilla cedrorum* | Horned Grebe | *Podiceps auritus* | House Finch | *Haemorhous mexicanus* |
| Herring Gull | *Larus argentatus* | Yellow Warbler | *Setophaga petechia* | Sanderling | *Calidris alba* | Eastern Phoebe | *Sayornis phoebe* |
| Forster's Tern | *Sterna forsteri* | Red-winged Blackbird | *Agelaius phoeniceus* | Ring-billed Gull | *Larus delawarensis* | Blue-headed Vireo | *Vireo atricapilla* |
| Mourning Dove | *Zenaida macroura* | Baltimore Oriole | *Icterus galbula* | Great Black-backed Gull | *Larus marinus* | Ruby-crowned Kinglet | *Regulus calendula* |
| Barn Swallow | *Hirundo rustica* | Greater Yellowlegs | *Tringa melanoleuca* | Bufflehead | *Bucephala albeola* | Palm Warbler | *Setophaga palmarum* |
| Song Sparrow | *Melospiza melodia* | Dunlin | *Calidris alpina* | Mallard (hybrid) | *Anas platyrhynchos* | American Goldfinch | *Spinus tristis* |
| Common Grackle | *Quiscalus quiscula* | Greater Scaup | *Aythya marila* | Common Goldeneye | *Bucephala clangula* | Short-billed Dowitcher | *Limnodromus griseus* |
| Boat-tailed Grackle | *Quiscalus major* | Lesser Scaup | *Aythya affinis* | Blue Jay | *Cyanocitta cristata* | Least Tern | *Sternula antillarum* |
| Double-crested Cormorant | *Phalacrocorax auritus* | Black-bellied Plover | *Pluvialis squatarola* | Laughing Gull | *Leucophaeus atricilla* | Eastern Kingbird | *Tyrannus tyrannus* |
| Great Blue Heron | *Ardea herodias* | Carolina Wren | *Thryothorus ludovicianus* | Northern Mockingbird | *Mimus polyglottos* | Bank Swallow | *Riparia riparia* |
| Great Egret | *Ardea alba* | Brant | *Branta bernicla* | Greater Scaup | *Aythya marila* | Common Yellowthroat | *Geothlypis trichas* |
| Red-tailed Hawk | *Buteo jamaicensis* | Northern Flicker | *Colaptes auratus* | American Black Duck | *Anas rubripes* | Barrow's Goldeneye | *Bucephala islandica* |
| Rock Pigeon | *Buteo jamaicensis* | American Crow | *Corvus brachyrhynchos* | Lesser Scaup | *Aythya affinis* | Snowy Owl | *Bubo scandiacus* |
| House Sparrow | *Passer domesticus* | Black-capped Chickadee | *Poecile atricapillus* | Black Scoter | *Melanitta americana* | Northern Cardinal | *Cardinalis cardinalis* |
| Surf Scoter | *Melanitta perspicillata* | Golden-crowned Kinglet | *Regulus satrapa* | Common Merganser | *Mergus merganser* | American Wigeon | *Anas americana* |
| Gadwall | *Anas strepera* | Redhead | *Aythya americana* | Snow Bunting | *Plectrophenax nivalis* | Hooded Merganser | *Lophodytes cucullatus* |

New York State Breeding Bird Atlas Data

Black rail (*Laterallus jamaicensis*), black-billed cuckoo (*Coccyzus erythropthalmus*), blue winged warbler (*Vermivora pinus*), Canada warbler (*Cardellina canadensis*), fox sparrow (*Passerella iliaca*), golden-winged warbler (*Vermivora chrysoptera*), gull-billed tern (*Gelochelidon nilotica*), horned grebe (*Podiceps auritus*), hudsonian godwit (*Limosa haemastica*), least bittern (*Ixobrychus exilis*), least tern (*Sternula antillarum*), pied-billed grebe (*Podilymbus podiceps*), prairie warbler (*Setophaga discolor*), purple sandpiper (*Calidris maritima*), rusty blackbird (*Euphagus carolinus*), saltmarsh sparrow (*Ammodramus caudacutus*), seaside sparrow (*Ammodramus maritimus*), short-eared owl (*Asio flammeus*), snowy egret (*Egretta thula*), upland sand piper (*Bartramia longicauda*), wood thrush (*Hylocichla mustelina*), and worm eating warbler (*Helmitheros vermivorum*).

## COASTAL FISH AND WILDLIFE HABITATS

Institutional Significance

Within the study area, the NYSDOS Division of Coastal Resources has designated the Oyster Bay and Cold Spring Harbor Significant Coastal Fish and Wildlife Habitat. It consists of a complex of bays and harbors that are approximately 5,281 ac. in area. Specifically, the fish and wildlife habitat consists of the open water and tidal wetland areas, extending from the Bayville Bridge to the west to Whitewood Point to the east, including Plum Point Marsh on Centre Island (New York State Department of State 2015).

The Oyster Bay Harbor/Cold Spring Harbor complex is one of several major embayments on Long Island's north shore. This protected coastal bay system is important to fish and wildlife throughout the year. The harbor complex is one of the most important waterfowl wintering areas (November-March) on the north shore. Least terns often forage on schools of baitfish within Oyster Bay. Although suitable maritime beach nesting habitat is limited within the overall habitat area, at least one piping plover pair was observed on the beach at Plum Point marsh on

Centre Island in 2002. At the time of the visit on August 18, 2015, one pair of nesting piping plover had been reported to have fledged four plover chicks this year. The nest location was on the eastern portion of Centre Island and not within the project Study Area.

The feasibility study area falls within the Three Harbors Significant Coastal Habitat identified by the Service's Northeast Coastal Areas Study (U.S. Fish and Wildlife Service 1992). Habitat diversity in this area is relatively high, ranging from rich, dense upland forests and marshy lowlands to open bay and sound waters and sand beaches. Human development is prominent and extensive over much of the terrestrial landscape. The primary areas of significant fish and wildlife habitat are open bay waters, wetlands and undeveloped beaches. The entire complex is drained by the Oyster Bay and Huntington Bay drainage basins. The majority of open waters of the larger bays ranges from 6 to 30 ft. below mean low water in depth, with maximum depths of 50-70 feet. Tidal fluctuation is approximately 7 ft. in this area. Elevations along the shore range from sea level to 60 ft. or more on the bluffs and even higher in the interior of the "necks" and at the heads of the harbors. Although salt marshes, mudflats, and sand beaches line sections of shoreline, much of the area is bordered by residential development ranging from large, sparsely-developed estates to densely-populated communities and heavily-used marinas. There are a few important areas of relatively undisturbed salt marshes, dominated by saltmarsh cordgrass (*Spartina alterniflora*) and saltmeadow cordgrass (saltmeadow hay; *S. patens*), although total acreage is not very extensive. Narrow, sparsely vegetated sand, gravel and cobble beaches are found on several of the spits, shorelines and small islands in and along the bays. Bottom sediments in Long Island Sound in this nearshore area are predominantly coarse sands and gravels, like the beaches. Red maple (*Acer rubrum*) swamps are common and relatively well-developed in the area. Upland forests range from rich deciduous slope forests of tulip poplar (*Liriodendron tulipifera*), red oak (*Quercus rubra*) and spicebush (*Lindera benzoin*) to dry morainal woodlands of chestnut oak (*Quercus prinus*) and mountain laurel (*Kalmia latifolia*) (U.S. Fish and Wildlife Service 1992).

The open waters of the major embayments of Northport Bay, Oyster Bay, Lloyd Harbor and Cold Spring Harbor contain regionally significant concentrations of wintering and migrating waterfowl, particularly species of special emphasis in the region such as greater scaup (*Aythya marila*), American black duck (*Anas rubripes*), American wigeon (*Anas americana*), canvasback (*Aythya valisineria*), red-breasted merganser (*Mergus serrator*), mallard (*Anas platyrhynchos*), Canada goose (*Branta canadensis*), common goldeneye (*Bucephala clangula*), bufflehead (*Bucephala albeola*), and oldsquaw (*Clangula hyemalis*). From year to year, use of these bays by wintering waterfowl is influenced in part by the extent of ice cover. These bays are also highly productive marine shellfish and finfish areas. Oyster Bay and others in this area are among the most important oyster-producing waters in New York State, if not the region. American oysters (*Crassostrea virginica*) are generally found in waters greater than 6 ft. in depth, and many of these underwater beds are leased for commercial harvest. Hard-shelled clams (*Mercenaria mercenaria*) are also abundant in this area and are harvested both commercially and recreationally.

These bays also serve as important nursery and feeding areas (April - November) for scup (*Stenotomus chrysops*), bluefish (*Pomatomus saltatrix*), Atlantic silverside (*Menidia menidia*), menhaden (*Brevoortia tyrannus*), winter flounder (*Pseudopleuronectes americanus*), striped bass

(*Morone saxatilis*), and blackfish (*Tautoga onitis*). Winter flounder occur throughout the year, spawning during the winter months (January - March), and are one of the most abundant fisheries resources in the bays. In addition to shellfish and finfish, these bays may also be important feeding habitat for juvenile federally-listed Kemp's ridley sea turtles (*Lepidochelys kempii*; endangered), although more data are needed to document the extent of habitat use by this and other sea turtle species, including loggerhead (*Caretta caretta*). Large numbers of Northern diamondback terrapin (*Malaclemys t. terrapin*) have been observed in these waters, and nesting is known to occur here.

Important wetlands, especially salt marshes, of this complex include those at Mill Neck Creek, Oak Neck Creek, Lloyd Point, and Crab Meadow, the latter being one of the few large areas of undeveloped salt marsh remaining on the north shore of Long Island. These are extremely valuable areas for many wetland associated species of birds, especially as feeding areas for waterfowl, wading birds, gulls, terns, and shorebirds. Known or probable breeding birds of special regional emphasis include green-backed heron (*Butorides striatus*), black-crowned night-heron (*Nycticorax nycticorax*), snowy egret (*Egretta thula*), clapper rail (*Rallus longirostris*), American black duck, and least bittern (*Ixobrychus exilis*). Wintering bald eagles (*Haliaeetus leucocephalus*) have also been reported using these areas. Ospreys (*Pandion haliaetus*) nest and feed in these areas.

Oyster Bay National Wildlife Refuge (OBNWR)

The OBNWR is situated on the north shore of Long Island in eastern Nassau County and is the largest refuge in the LINWR Complex. The OBNWR is specifically located south of the Village of Bayville, west of the Village of Center Island, and north of the Village of Oyster Bay. This 3,209-ac. refuge includes subtidal (bay bottom to mean high tide line) habitats, saltmarsh, and a freshwater pond. Bay bottom comprises 78 percent of the Refuge; unconsolidated shoreline is 3 percent; Saltmarsh cordgrass fringe along the shore accounts for 5 percent; another 5 percent includes high marsh habitat with salt meadow hay and saltgrass (*Distichlis spicata*) at the west end of the harbor; and an estuarine stream bed, approximately 9 percent, makes up the remainder.

The state of New York designated Oyster Bay as a significant coastal fish and wildlife habitat and the NYSDOS has singled out the OBNWR as having the greatest waterfowl concentration on Long Island's north shore. More than 126 bird species have been documented at the Refuge, including 23 species of waterfowl. Numerous waterfowl species over-winter in Oyster Bay; more than 20,000 ducks have been reported for one survey during peak use. The numbers of waterfowl using Oyster Bay are lowest from May through August and start to increase in September and October. The Refuge is especially important for wintering waterfowl such as black ducks, greater scaup, bufflehead, canvasback, and long-tailed ducks. Puddle ducks such as black duck, gadwall, and mallards start migrating to the Refuge during early autumn and diversity begins to increase in November. The most common waterfowl species using the Refuge in winter include greater scaup, bufflehead, and black duck. These three species comprise approximately 85 percent of all ducks using the Refuge. Greater scaup comprise more than half of all ducks using the Refuge; bufflehead make up close to 20 percent; and black duck, the most common puddle duck species, close to 10 percent. Other conspicuous species at the

Refuge include long-tailed ducks, American widgeon, gadwall, green-winged teal, red-breasted merganser, common goldeneye, Canada goose, and mute swan. Waterbirds, which use the Refuge, include common loon, red-throated loon, horned grebe, pied-billed grebe, American coot, belted kingfisher, great blue heron, black-crowned night heron, green heron, great egret, and snowy egret. Heron numbers peak in August. Other waterbirds the Refuge supports in large numbers include double-crested cormorants, Forster's (*Sterna forsteri*) and common terns, wading birds, and Shorebird species such as black-bellied plover, dunlin, greater yellowlegs, and least and spotted sandpipers.

Certain areas of the OBNWR, like Mill Neck Creek and Frost Creek, provide excellent breeding grounds for black duck, clapper rail, and osprey. Osprey, a New York State species of concern, nest along the Mill Neck Creek marsh and have successfully raised their young within the Refuge. Other raptor species observed at Oyster Bay include northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), merlin (*F. columbarius*), and sharp-shinned hawk (*Accipiter striatus*).

Gulls are also common on the Refuge. Herring gulls (*Larus argentatus*) are the most common in winter and decline during the warmer months. Great black-backed gulls (*L. marinus*) are present year-round but occur in lower numbers than herring gulls. Ring-billed gulls (*L. delawarensis*) are more common in the winter months, but their numbers are lower than herring gulls. Laughing gulls (*Leucophaeus atricilla*) and Bonaparte's gulls (*Chroicocephalus philadelphia*) use the Refuge in summer and winter, respectively. Common and least tern use are heaviest from May through August. Forster's terns are present on the Refuge in good numbers during September and October.

Northern diamondback terrapin (*Malaclemys terrapin terrapin)* are commonly found within the salt marshes and tidal creeks of the Refuge, particularly in the Frost Creek and Mill Neck Creek sections. The Refuge is considered to have one of the largest populations of diamondback terrapins on Long Island.

Rare, Threatened, and Endangered Species Federal and State-designated threatened and endangered species known to use the OBNWR include the bald eagle; peregrine falcon; northern harrier; least tern; and Kemp's Ridley and loggerhead sea turtles. Peregrine falcons typically migrate through the OBNWR during the autumn and spring. Bald eagles sporadically visit the Refuge during winter migration. Northern harriers are observed during spring and autumn migration at the OBNWR. Atlantic loggerhead and Kemp's Ridley sea turtles are known to forage in Oyster Bay; however, sightings of the turtles are rare and on those occasions, they are usually victims of an injury or cold stun.

## FISH AND WILDLIFE RESOURCE CONCERNS AND PLANNING OBJECTIVES

The FWCA requires equal consideration of fish and wildlife resources in the development of water resource development projects. This section identifies specific resource problems, opportunities for conserving and enhancing fish and wildlife resources and preliminary fish and wildlife resource planning objectives.

Resource Concerns

A number of fish and wildlife resource concerns are present in the feasibility study area. The U.S. Environmental Protection Agency's (USEPA) Long Island Sound Study has identified the loss and degradation of coastal habitat, as well as the reduction in the abundance and diversity of natural areas, including the loss of coastal and inland wetlands, and eelgrass beds in the shallow, near-shore areas, as priority management issues for the Long Island Sound region. In association with the loss and degradation identified above, Audubon NY has described point and non-point water pollution as a significant concern in the Oyster Bay area. Sources of pollution include contaminants, oil spills, suburban runoff, excessive sedimentation, and sewage and storm water discharges.

Overall, the area's fish and wildlife populations are under considerable pressure from shoreline and upland development and recreation. The value of open water and benthic (bottom) bay and sound habitats to waterfowl, finfish, and shellfish is threatened by contaminants, oil spills, suburban runoff, excessive sedimentation, sewage and storm water discharges, waste disposal, dredging activities, and construction of shoreline structures. These waters are subject to low oxygen levels (hypoxia) during the summer months which, when prolonged, can stress and even kill marine organisms. Wetland habitats are additionally threatened by ditching, draining and filling activities not specifically designed or intended to enhance the fish and wildlife values of these habitats. Piping plovers and terns are extremely vulnerable to human disturbance, both from off-road vehicles and pedestrians, during the nesting season, which can lead to seasonal or even permanent abandonment of the beach sites. Predators, especially dogs, cats, and rats, can be destructive to the beach nesting colony and are clearly a major problem in some, if not most, areas. Nesting beaches, as well as adjacent marsh and tidal flat feeding areas, are potentially threatened by unregulated dumping of dredge spoils or by shoreline structures that might accelerate beach erosion (U.S. Fish and Wildlife Service 1994).

Construction of shoreline structures, such as docks, piers, bulkheads, or revetments, in areas not previously disturbed by development, may result in the loss of productive areas which support the fish and wildlife resources of Oyster Bay Harbor/Cold Spring Harbor. Elimination of salt marsh and intertidal areas, through loss of tidal connection, ditching, excavation, or filling, would result in a direct loss of valuable habitat area (New York State Department of State 2015).

Opportunities for Conserving and Enhancing Fish and Wildlife Resources

In order to facilitate habitat protection and restoration in the context of this feasibility study, it is important to identify those habitat types that are under threat. Once identified, opportunities for conserving and enhancing fish and wildlife resources can then be considered. The USEPA's Long Island Sound Study, has identified up to 12 habitat types which are priority habitats for protection. Four of these habitat types occur within the feasibility study area and are described, below:

- Beaches and Dunes: These habitats are the transitional sandy or cobble shoreline area between the land and the Sound. These dynamic systems are in a constant state of erosion and deposition due to tidal action, currents, and wind. Many rare plants and animals, such as prickly-pear cactus (*Opuntia spp.*), golden-aster (*Chrysopsis spp.*),

beach heather (*Hudsonia tomentosa*), piping plover, and horned lark (*Eremophila alpestris*) occur in this habitat complex.

- Estuarine Embayments: Estuarine embayments are confined areas of the Sound that have narrow inlets and significant freshwater inflow. They are generally shallower than the open Sound, and the restricted flow causes greater sedimentation. These areas are important nurseries for finfish and are concentration sites for wildlife. The best bay scallop production occurs in estuarine embayments.

- Intertidal Flats: Intertidal flats are shallow areas of bays and harbors that lay between the spring high- and low-tide marks. These flats contain no rooted vegetation. The sediments may be muddy to sandy and support important species, such as juvenile flounder, clams, and crabs.

- Tidal Wetlands: Tidal wetlands are the transitional zone between the land and submerged systems. These areas are dominated by rooted plants that are flooded by the tide. Healthy wetlands help trap sediments, store flood water, and reduce wave energy during storms. Two-thirds of all marine species depend on tidal wetlands for a portion of their life cycle.

Planning Recommendations for Fish and Wildlife Resources

The following planning recommendations were developed by the Service while considering the fish and wildlife resource concerns discussed above.

1. Gathering of pre-project water quality and morphometry survey information.

2. Evaluation of instream flow impacts of point source water flows on Oyster Bay wetlands, intertidal, subtidal, and water column.

3. Reduction of sources of point and non-point pollution and continuation of protection of wetland sites, should continue.

4. Insurance against point source pollution and increased sediment load to the Oyster Bay National Wildlife Refuge due to project alternatives.

5. Avoidance of dredged material placement in the Long Island Sound and Oyster Bay National Wildlife Refuge due to project alternatives. Placing dredge material in this area would be detrimental, but such activities may be designed to maintain or improve the habitat for certain species of wildlife.

6. Evaluation of alternative strategies for the protection of shoreline property, including innovative, natural based features.

7. Control of invasive nuisance plant species, through a variety of means, may improve fish and wildlife species use of the area and enhance overall wetland values.

8. Protection of subtidal bay area by prohibiting the dredging of new navigation channels within Oyster Bay.

9. Incorporation of time-of-year restrictions of December 16 to September 14 when maintaining existing boat channels to minimize adverse effects on aquatic organisms, and to allow for the upland placement of dredged material when wildlife populations are least sensitive to disturbance.

10. Vegetated upland buffer zones should be protected or established to reduce non-point source pollution and sedimentation from upland sources.

11. Vegetated upland buffer zones should be protected or established to reduce non-point source pollution and sedimentation from upland sources.

12. With regard to open water and benthic habitats in the large bays and nearshore environments of Long Island Sound, specifically as it applies to the conservation of waterfowl, marine turtles, finfish and shellfish dependent upon these areas, appropriate protective measures should be taken.

13. If hazardous materials contamination testing has not been conducted in areas to be restored as habitat, USFWS recommends that it be done before any restoration work is initiated.

14. Recommendation that the direct, indirect, and cumulative impacts and conservation needs of the *Birds of Conservation Concern 2008* be considered.

15. Identification of degraded wetlands within the Study Area through survey and mapping efforts.

    a. Develop a wetland habitat restoration plan for the purpose of enhancing water quality and increasing valuable habitat for sensitive fish and wildlife resources.

16. Within the Study Area, determination of the quantity and quality of suitable habitat for nesting and foraging piping plover.

    a. Development of a piping plover habitat restoration plan to preserve, enhance, restore, and/or create nesting and foraging habitat for piping plover.

In addition, the following are some general recommendations for improving and maintaining lands in and adjacent to the study area for wildlife habitat that the Village could practice and recommend to landowners:

1. Reduction of mowing on Village lands and along the water's edge.

    a. Reseeding and management of portions of these areas as native grasslands or emergent wetlands.

2. Development of a program to eradicate exotic plants on Village lands.

    a. Use of only native plants during the restoration project.

3. Control of bank erosion through use of biological engineering to the extent possible and necessary.

## DESCRIPTION OF POTENTIAL PROJECT RELATED IMPACTS

Threatened and Endangered Species

*Piping Plover*

Breeding habitat occurs primarily at Centre Island Town Park to the east of the Study Area. Suitable breeding habitat is also present at Stehli Beach, to the west and to the south of the Village of Bayville, where one pair of nesting piping plover was reported in 2015. The portion of the Long Island Sound shoreline within the Study Area supports a limited amount of plover foraging habitat. Project related activities near these areas could affect nesting and foraging behaviors of plover during breeding/nesting season.

Beach nourishment may increase sand compaction levels and result in scarps or bluffs which can eliminate an organisms ability to access shoreline feeding habitat. Heavy pipes or machinery emplaced on target beaches during sand redistribution operations can crush organisms or discourage and impede their normal movement behaviors. Shorebird nests, eggs, or broods can be buried during beach nourishment activities as well.

Hardened coastal structures could adversely modify existing suitable foraging habitat characteristics of the shoreline (e.g., off and on site substrate erosion, flooding, and beach nourishment regimes). Plovers prey on a verity of invertebrate species such as earthworms, larval insects, amphipods, isopods, tiny crabs and shrimp, polychaete worms, and small mollusks (Sibley *et. al.* 2001). Studies of shoreline armoring on the Washington coast have revealed that hardened coastal structures can reduce invertebrate fauna diversity (Morely *et. al.* 2012). Avoidance, minimization, and mitigation recommendations for this species should be discussed during the project section 7 ESA consultation, if necessary.

*Red Knot*

Within the feasibility study area, the OBNWR may offer stopover and feeding habitat for red knot during the species' migration spring and late summer migration. In addition, the beach habitat along Long Island Sound may provide limited foraging habitat. Construction activities (e.g., equipment operation and transportation, material movement, and staging areas) and structural improvements to the shoreline (e.g., bulkheads and seawalls) could negatively affect the species habitat during and after project implementation as discussed above. Avoidance, minimization, and mitigation recommendations for this species should be discussed during the project section 7 ESA consultation, if necessary.

*Roseate Tern*

The project area does not support suitable breeding habitat or significant feeding grounds for roseate terns. Although roseate terns have been observed nesting on sand dunes of barrier islands, no such habitat occurs within the proposed project action area. At this time, we do not expect the northeastern population of roseate terns to be directly or indirectly impacted by alternatives being evaluated in the feasibility study.

*Northern Long-Eared Bat*

Within the feasibility study area, it appears suitable summer roosting and maternity habitat may be present. During the site visit, pump station locations were inspected. These areas supported undeveloped hardwood and conifer stand, shrub, and grassland habitat. During project implementation, construction activities such as tree clearing and equipment transportation may have the potential to affect individual roosting bats. We recommend a habitat assessment be conducted within the feasibility study area to verify the extent of any such habitat. If project activities require the removal or disturbance of habitat suitable for roosting northern long-eared bats, then further consultation with the Service under the ESA may be required

Migratory Bird Species

Based on the information provided, the project area provides habitat for tree, shrub, and/or ground nesting migratory birds during a portion of the year. The MBTA protects migratory birds and their nests, eggs, young, and parts from possession, sale, purchase, barter, transport, import and export, and take. We recommend that any vegetation clearing activities take place outside of the avian breeding season (February 1 through August 31). If vegetation clearing must take place within the breeding season, a qualified biologist should conduct nesting bird surveys prior to ground disturbance. A non-disturbance buffer should be implemented for nests identified within the project area. Detailed recommendations for avoidance and minimization are provided in the following section. The Service recommends developing a project avian management plan to further avoid and minimize impacts and compensate for any loss of migratory bird habitat.

For a list of bird species with the potential to occur on or near the project site, please refer to the list of trust resources provided above. A comprehensive list of plant and wildlife including bird species which occur specifically on the OBNWR can be found at the following World Wide Web address:

http://www.fws.gov/northeast/planning/Long%20Island%20Refuges/finalCCP/08_AppendixA_Species_2.pdf

Oyster Bay National Wildlife Refuge

OBNWR biological resources and regional significance have been illustrated throughout this document. The Service and the Corps should coordinate with Refuge staff to better understand the relationship and potential impacts of the proposed project on the fish and wildlife resources in the area. In addition, a detailed project description and a precise project boundary should be

made available to Service and Refuge staff in order to determine if any OBNWR properties are associated with project land modification activities (i.e., new structural development, maintenance right of ways, etc.). The following section has been constructed to characterize the potential project related impacts to wetland habitats found within the general Study Area and especially refers to such habitat occurring within the OBNWR.

## WETLANDS: FUNCTIONS, IMPACTS, AND STRATAGIES TO AVOID, MINIMIZE, AND MITIGATE

### Wetlands Functions and Potential Project Related Impacts

Salt marsh is common in undeveloped portions of the Study Area, yet these habitats are declining on a national scale. Intertidal and shallow subtidal habitats, such as the wetlands found within the Study Area, provide a suite of ecosystem services, including primary production, provision of fish and shellfish habitat and nursery areas, biogeochemical cycling of nutrients, carbon sequestration, sediment trapping, and wave attenuation (Currin *et. al.* 2010). Construction of seawalls and bulkheads can affect the quality and abundance of wetland resources by accelerating erosion rates and altering natural flood disturbance regime frequencies and intensities. Loss of wetlands and wetland soils can result in a reduced capacity for local water quality maintenance. Likewise, the installation of pump stations and the establishment of outfall structures may adversely affect wetland habitats within the Study Area. Adverse effects to salt marsh obligate aquatic plants, especially halophytes, and salt marsh dependent wildlife including species of invertebrates, fishes, amphibians and reptiles, and birds species may occur as freshwater is introduced into the salt marsh's naturally saline aquatic system.

Pursuant to the Fish and Wildlife Service's Mitigation Policy (Federal Register 46 (15): 7644 - 7663, January 23, 1981), actions which may affect high value and relatively scarce habitat types, such as wetlands, should not result in the net loss of in-kind habitat value. We recommend extensive early coordination between the Corps and Service to identify opportunities and project designs that first avoid impacts to wetland habitat. If permanent loss of wetland habitat cannot be avoided, we recommend further coordination between the Corps and the Service to identify opportunities to replace any lost in-kind habitat function and values. Specifically, a Wetlands Mitigation Plan should be developed that proposes a compensatory strategy such as physical modification of replacement habitat to the same kind of habitat lost, restoration or rehabilitation of previously altered habitat, increased management of similar replacement habitat so that the in-kind value of the lost habitat is replaced, or purchase of conservation credits at an approved wetland mitigation bank.

### Wetlands Avoidance and Minimization Measures

The following section presents measures to avoid and minimize project related adverse impacts to wetlands within the Study Area:

1. Impacts to wetlands should be minimized by selecting a project design alternative which incorporates a reduced footprint.

2. Project facilities should be designed away from aquatic resources by incorporating buffers into the site plan to the maximum extent practicable.
3. Temporary impacts should be rectified by repairing, rehabilitating, or restoring affected wetlands to pre-construction or pre- disturbance conditions.
4. To the extent practicable, excavation equipment should work from an upland site (e.g., from the top of the bank) to minimize impacts to salt marshes and other aquatic resources.
5. In work areas near wetland areas, existing vegetation should be preserved, disturbed soil should be re-vegetated with appropriate native species, or temporary biodegradable geotextile matting should be installed as soon as possible before, during, or after construction to reduce soil loss and siltation of adjacent aquatic habitats.

Wetlands Mitigation Opportunities

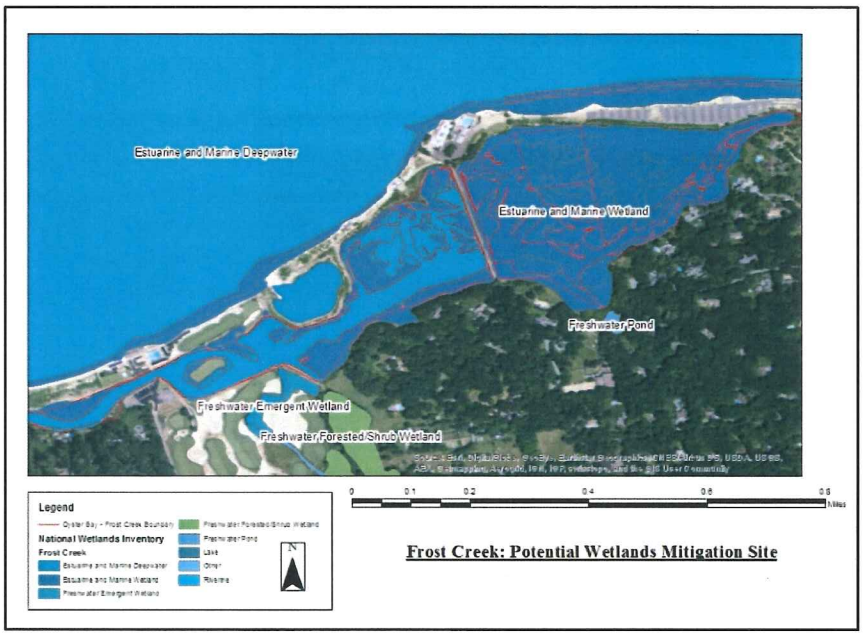
Mitigation for unavoidable impacts to wetland habitats may be necessary if avoidance and minimization measures do not achieve the "no net loss of wetlands" standard. During a phone conversation between the Corps and the Service in August 2015, the Corps requested recommendations for mitigation sites, should it be needed. The following section presents a possible site for wetlands compensatory mitigation. Note that use of this site for this purpose, if allowed by the National Wildlife Refuge, would require coordination with, and a special use permit from, the Refuge.

*Possible Mitigation Site*

Frost Creek is an 84-ac. designated unit of the OBNWR located in northern portion of the Town of Oyster Bay, Nassau County, NY. The unit begins just east of Peacock Point, north of The Creek Club golf course and Fox Lane, and west of Bayville Road. The northernmost boundary of the unit includes a portion of and continues along the shoreline of the Long Island Sound. A small disjunct parcel of the unit is situated between Michael F. Road and Walton Avenue within the census-designated hamlet of Locust Valley, NY.

**Figure 6.** Frost Creek Unit - Potential mitigation site flyover, photograph taken in 2012, post-Hurricane Sandy.

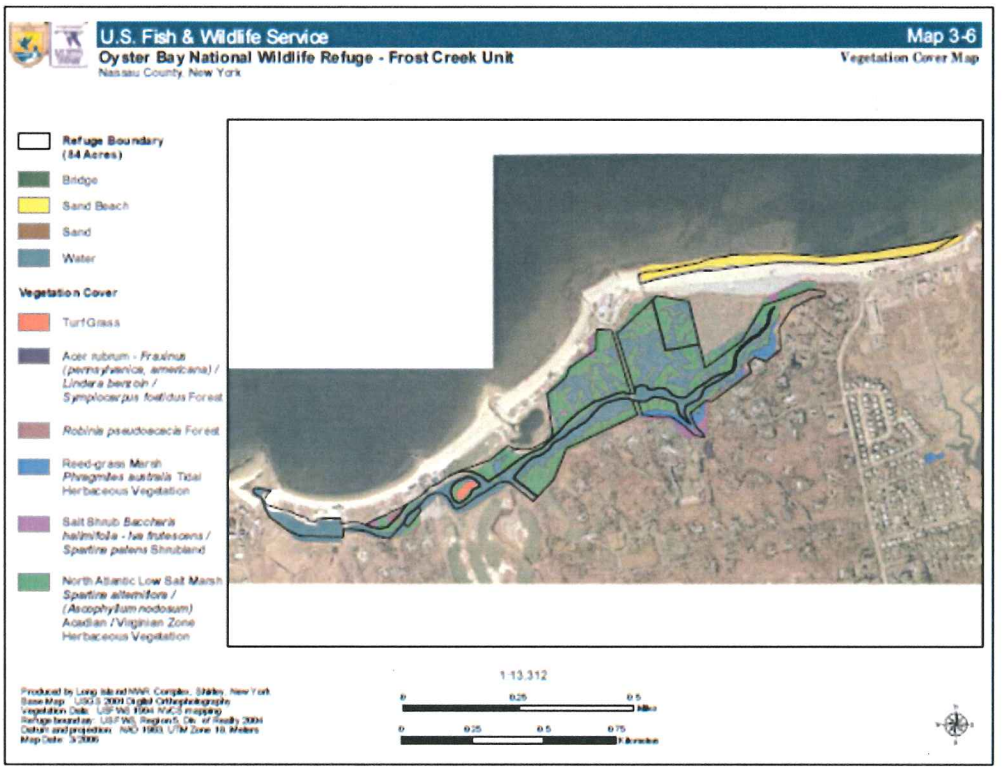
**Figure 7.** Frost Creek Unit - Map of National Wetlands Inventory habitat types.




*Existing Conditions*

Salt marsh habitat dominates the Frost Creek unit. Meandering creek channels transect the primary salt marsh and allow inlet and outlet of tidal flows. The vast majority of vegetative cover is composed of North Atlantic low salt marsh. The most common plant species of this classification is smooth cordgrass. Smooth cordgrass provides cover for waterfowl, wading birds, shorebirds, and muskrats (*Ondatra zibethicus*), as well as habitat for commercially important fish and shellfish (Webb *et. al.* 1985). Smooth cordgrass also stabilizes shorelines against erosion and filter heavy metals and toxic materials from the water column (Kiesling *et. al.* 1988). Salt shrub, and forest consisting of black locust (*Robinia pseudoacacia*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), and American ash (*Fraxinus americana*) is also found within the unit. Other vegetation cover types include reed-grass marsh dominated by common reed (*Phragmites australis*) and turf grass.

**Figure 8.** Existing vegetation cover types of the Frost Creek Unit, Oyster Bay National Wildlife Refuge.




*Salt Marsh Restoration Concept*

Common reed is a warm-season, rhizomatous, stoloniferous perennial, grass species. While the species is native to the U.S., Saltonstall identified a non-native haplotype, likely introduced from Europe in the late 1700s, that is responsible for a recent widespread North American invasion (Saltonstall 2002). Today, in much of the Northern Atlantic states, including New York, it is considered a noxious weed. Common reed reduces native biodiversity in salt marsh plant communities by establishing robust colonies in disturbed habitat patches. The rhizomatic regeneration characteristic of the species reproductive cycle compromises management and eradication efforts.

Within the Frost Creek unit, stands of common reed can be found along the southern boundary and within the small disjunct parcel to the south and east of the primary unit. Removal of common reed from these areas would greatly benefit the salt marsh community by allowing native plant species to recolonize invaded patches. Native plant recolonization of restoration sites will in turn provide an opportunity for reestablishment of a diverse and abundant assemblage of native invertebrate, fish, amphibian, reptile, bird, and mammal species.

*Common Reed Management Methods*

Anthropogenic alteration of a natural system's physical features often creates habitat conditions that support invasive species. Salt marsh tidal restriction in Connecticut has resulted in reductions of soil water salinity, lowering of the water table, as well as a relative drop in salt

marsh elevation as a result of tidal restriction structure. These factors are considered favorable to the establishment and spread of common reed and other less salt tolerant species (Roman *et. al.* 1984). Reversing such changes to the environment and rectifying undesirable habitat conditions can be challenging. Factors which affect successful restoration and revegetation include elevation of the site in relation to tidal regime, slope, exposure to wave action, soil chemical and physical characteristics, nutrient supply, and salinity (Broome *et. al.* 1988). Studies have reported that removal or reduction of existing tidal flow restriction factors can result in a significant improvements to native halophyte communities (Roman *et al.* 1984). In addition, vegetation structure changes within a salt marsh system have been attributed to decreases in marsh elevation. In existing salt marsh areas, salt marsh obligate species decline in lower elevation habitats. However, salt marsh vegetation communities may reestablish successfully at higher elevations (Sinicrope *et. al.* 1990). Development of a multi-faceted management plan that defines specific control measures may reduce time and cost related resource expenditures associated with remedial activity implementation. The following section describes methods for removing and controlling common reed grass in salt marsh habitats. We recommend adopting a combination of alternatives.

1. Improvement of water quality within the primary salt marsh by removing adjacent sources of pollution:
   a. Install water quality filtration systems between the marsh and source of pollution.
   b. Relocate, retrofit, or otherwise modify pollution sources to reduce impacts to marshes habitat.

2. Restoration of historic marsh elevations:
   a. Determine the influence of elevation on the site's native and non-native species.
   b. Identify areas within the site that could benefit from increased or decreased elevation.
   c. Determine the most appropriate method to achieve higher or lower elevation.
      - Active management measures could include using dredged material to fill low areas.
      - Passive procedures allow natural processes (e.g., sedimentation) to fill lower areas.

3. Restoration of marsh tidal flooding regimes:
   a. Install self-regulating tidal floodgate structures.
   b. Remove non-critical tidal flood restriction structures.
   c. Increase the size of culverts and install additional culverts as conditions permit.
   d. Eliminate artificially created marsh drainage ditches.

4. Mechanical removal, chemical application, and native planting:
   a. Mechanical removal of common reed can be achieved with the use of machine or hand tool.
   b. After removal of above ground common reed vegetation, application of herbicide to neutralize the plant's rhizome mass can be an effective long-term treatment measure.
   c. Install native salt marsh species in areas that have been treated for common reed:
      - Container planting of native species or hydroseeding the landscape with a native species mix:

- Suggested plant pallet - Smooth cordgrass, saltmeadow cordgrass, pickleweed (*Salicornia virginica*), salt grass.

## EVALUATION OF COMPARISON ALTERNATIVES

Alternatives Summary

Alternative A includes beach nourishment only. Potentially significant impacts to coastal fish and wildlife resources may occur as a result of nourishment activities along the Long Island Sound shoreline potion of the Study Area. As discussed above, increased beach sand compaction, heavy equipment operation, and scarping of shoreline habitat could result in loss of ecosystem productivity.

Alternative B includes beach fill in combination with structures such as floodwalls, buried rubble-mound seawalls, reinforced dunes, stone revetments, interior drainage features, and pump stations. This alternative would be expected to have potentially adverse effects to the surrounding coastal habitats including direct loss of wildlife habitat, increased shoreline erosion, and habitat conversion resulting from construction activities and installation of permanent shoreline hardening structures.

Alternative C includes implementation of non-structural measures such as relocations, real estate acquisition, and flood proofing of threatened properties. Significant effects to biological resources are not likely to occur during any of the activities proposed in this alternative. Impacts that may occur are expected to be discountable from a fish and wildlife resource prospective with incorporation of the avoidance, minimization, and mitigation measures described in this document.

At this time, none of the alternative project designs include provisions for fish and wildlife habitat preservation, restoration, or creation. As such, it is expected that none of the three alternatives will improve habitat for fish and wildlife resources.

## LIST OF ADDITIONAL RECOMENDATIONS

- Coordination with the Service's Long Island Field Office staff is required pursuant to the ESA. As part of the ESA consultation process, the Corps is required to prepare and submit to the Service a determination of effect regarding any potential project related impacts to federally listed threatened or endangered species. We look forward to receiving the determination document.
- Coordination with the Project Leader of the Service's LINWRC regarding the project's need for a special use permit (if applicable).
- Conduction of species-specific surveys to identify and determine species presence or likely absence.
- In addition to previously discussed avoidance and minimization measures for species protected under the MBTA:
    - We recommend a Service-approved avian biologist be present on-site during ground disturbing activities throughout the nesting and breeding season.

- The avian biologist should conduct an initial nesting bird clearance survey within the project footprint and in suitable habitat no more than 30 days prior to implementation of construction.
- Thereafter, the avian biologist should conduct nesting bird clearance surveys no more than 3 days prior to implementation of construction.

- We suggest a 300-ft nest buffer for non-listed species and a 500-ft nest buffer for raptor species be established and maintained until chicks have fledged.
  - No construction related activity or personnel will be permitted in the nest buffer with the exception of the project avian biologist.

## FUTURE FWCA ACTIVITIES AND FUNDING NEEDS

Projecting the specific FWCA activities that would be necessary to adequately describe existing fish and wildlife resources, assess impacts and evaluate alternative plans, and develop necessary conservation measures is difficult because the scope of the potential study has not been well defined. Required activities will be directly related to problems evaluated and potential solutions and their likely impacts upon fish and wildlife resources.

The Service would anticipate providing assistance in scoping, designing and analyzing the results of studies needed to evaluate effects of project features on the Long Island Sound shoreline and nearshore habitats, as well as Oyster Bay habitats including those within the OBNWR. Study results would be used to prepare Fish and Wildlife Coordination Act Reports evaluating fish and wildlife habitat with and without the project and providing recommendations on management measures. Our funding estimate for these activities is $60,000. Should the study continue, detailed scopes of work and associated funding needs will be developed under our transfer funding agreement.

## SUMMARY OF FINDINGS AND SERVICE POSITION

The Service understands that the Corps has not selected a preferred project alternative and that the current project design is incomplete and may be modified in the coming months. We do not yet have enough information to provide the Corps with a thorough fish and wildlife resources impact analysis and to complete the next required phase of the feasibility study, which is the FWCA 2(b) official report of the Secretary of the Interior Report.

In order to better assist the Corps in avoiding and minimizing project related effects to biological resources, we recommend that the Corps continue to coordinate with the Service to provide additional project description information, including specific project alternatives and project boundary.

We also request more information regarding presence and absence of federally protected species and other trust resources described in this report. In addition, we suggest further analysis and investigation be conducted to determine the potential for project facilities to effect environmental resources such as wetlands, water quality, maritime beach, and natural strand habitat found within the OBNWR and along the Long Island Sound coast.

## LITERATURE CITED


Broome, S.W., E.D. Seneca, and W.W. Woodhouse. 1988. "Tidal Salt Marsh Restoration." *Aquatic Botany* 32.1: 1-22.

Currin, C.A., W.S. Chappell, and A. Deaton. 2010. "Developing Alternative Shoreline Armoring Strategies: the Living Shoreline Approach in North Carolina." Puget Sound shorelines and the impacts of armoring—proceedings of a state of the science workshop, May 2009 . 91-102.

Davies, D.S., E.W. Axelrod, and J. Sturges O'Connor. 1973. "Erosion of the North Shore of Long Island." Technical Report No. 18. Page 101, Figure 55, Tab 15, Reference 99.

Elias, S.P., J.D. Fraser, and P.A. Buckley. 2000. "Piping Plover Brood Foraging Ecology on New York Barrier Islands." *The Journal of Wildlife Management.* Pp 346-354

Fuller, M.L. 1914. The Geology of Long Island, New York. United States Geological Survey. Professional Paper No. 82.

Jones, C., B. Battaliao, I. Broker, K. Coulton, J. Gangai, D. Hatheway, J. Lowe, R. Noble. 2005. "Coastal Structures". Federal Emergency Management Agency Focused Study Report: 1.

Kiesling, R.W., S.K. Alexander, J.W. Webb. 1988. Evaluation of Alternative Oil Spill Cleanup Techniques in a *Spartina Alterniflora* Salt Marsh. *Environmental Pollution.* 55(3): 221-238.

Menzel, M.A., S.F. Owen, W.M. Ford, J.W. Edwards, P.B. Wood, B.R. Chapman, and K.V. Miller. 2002. Roost tree selection by northern long-eared bat (*Myotis septentrionalis*) maternity colonies in an industrial forest of the central Appalachian mountains. *Forest Ecology and Management*, *155*(1), 107-114.

Morley, S.A., J.D. Toft, and K.M. Hanson. 2012. "Ecological Effects of Shoreline Armoring on Intertidal Habitats of a Puget Sound Urban Estuary." *Estuaries and Coasts* 35.3: 774-784.

National Oceanic and Atmospheric Administration. 2015. NowData – NOAA Online Weather Data. National Oceanic and Atmospheric Administration. Accessed Online on September 30, 2015.

New York State Department of State. 2015. Significant Costal Fish and Wildlife Resources Habitat Assessment Form. Accessed online on September 1, 2015, at http://www.dos.ny.gov/opd/programs/consistency/Habitats/LongIsland/Oyster_Bay_Cold_Spring_Harbor.pdf

Niles L.J., H.P. Sitters, A.D. Dey, P.W. Atkinson, A.J. Baker, K.A. Bennett, R. Carmona, K.E. Clark, N.A. Clark, C. Espoz, P.M. Gonzales, B.A. Harrington, D.E. Hernandez, K.S. Kalasz, R.G. Lathrop, R.N. Matus, C.D.T. Minton, R.I.G. Morrison, M.K. Peck, W. Pitts, R.A. Robinson, and I.L. Serrano. 2008. "Status of the Red Knot *(Calidris canutus rufa)* in the Western Hemisphere". *Studies in Avian Biology* No. 36.

Piersma, T., and J.A. van Gils. 2011. The Flexible Phenotype. A Body-Centred Integration of Ecology, Physiology, and Behavior. Oxford University Press Inc., NY.

Roman, C.T., W.A. Niering, and R.S. Warren. 1984. "Salt Marsh Vegetation Change in Response to Tidal Restriction." *Environmental Management* 8.2: 141-149.

Saltonstall K. 2002. Cryptic Invasion by a Non-Native Genotype of the common Reed, Phragmites Australis, into North America. *Proceedings of the National Academy of Sciences* 99:2445–2449

Shealer, D.A., and S.W. Kress. 1994. "Post-Breeding Movements and Prey Selection of Roseate Terns at Stratton Island, Maine." *Journal of Field Ornithology*: 349-362.

Sibley, D.A., C. Elphick, and J.B. Dunning. 2001. "The Sibley Guide to Bird Life & Behavior." New York: Alfred A. Knopf: 260.

Sinicrope, T.L., P.G. Hine, R.S. Warren, and W.A. Niering. 1990. Restoration of an Impounded Salt Marsh in New England. *Estuaries*, *13*(1), 25-30.

U.S. Army Corps of Engineers. 1989. Structural and Architectural Design of Pumping Stations. Engineering Manual 1110-2-3104, U.S. Army Corps of Engineers, Washington D.C.

_____. 1995. Structural Design of Concrete Lined Flood Channels. Engineer Manual 1110-2-2007, U.S. Army Corps of Engineers, Washington, D.C.

_____. 2002. Coastal Engineering Manual. Engineer Manual 1110-2-1100, U.S. Army Corps of Engineers, Washington, D.C.

_____. 2014. Unpublished Report. Bayville Coastal Storm Risk Management Feasibility Study. New England District, U.S. Army Corps of Engineers, 696 Virginia Road Concord, MA.

U.S. Fish and Wildlife Service. 1992. Northeast Coastal Areas Study. Long Island Sound Coastal and Estuary Office, Charlestown, RI.

_____. 1994. Northeast Coastal Areas Study, Significant Coastal Habitats. Accessed Online on September 30, 2015: http://training.fws.gov/Pubs5/necas/web_link/2_three%20harbors.htm

_____. 1996. Piping Plover (*Charadnus melodus*), Atlantic Coast Population, Revised Recovery Plan. Hadley, MA. 258 pp.

_____. 1998. Roseate Tern Recovery Plan – Northeastern Population, First Update. Hadley, MA. 75 pp.

_____. 2002. Birds of conservation concern 2002. Arlington, VA, USA: Division of Migratory Bird Management.

_____. 2014. "Rufa Red Knot Background Information and Threats Assessment." Pleasantville, NJ.

_____. 2015. Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Northern Long-Eared Bat with 4(d) Rule; Final Rule and Interim Rule. Federal Registrar. Vol. 80, No. 63.

Valverde , H.R., A.C. Trembanis, and O.H. Pilkey. 1999. "Summary of beach Nourishment Episodes on the U.S. East Coast Barrier Islands." *Journal of Coastal Research*: 1100-1118.

Webb, J.W., S.K. Alexander, J.K. Winters. 1985. Effects of Autumn Application of Oil on *Spartina alterniflora* in a Texas Salt Marsh. Environmental Pollution. 38(4): 321-337.

Wolfe, D.A., R. Monahan, P.E. Stacey, D.R.G. Farrow, and A.N.D.A. Robertson. 1991. Environmental Quality of Long Island Sound: Assessment and Management issues. *Estuaries*, *14*(3), 224-236.

# Appendix 1: Photograph Compendium

Bayville CSRM FS Study Area Trust Resources

Staging Area 1 and Road Location (existing) 1(Bayville Village Parking Lot)

Seawall Route (Long Island Sound)

Road Location (existing) 2

Outfall Area 1, Pump Station 1, Seawall Route (Oyster Bay NWR)

Road Location (existing) 3, Seawall Route (Oyster Bay NWR)

Staging Area 2, Road (existing) Location 4, Seawall Route (Oyster Bay NWR)

Outfall 2 (South Side), Outfall 2 (North Side), Pump Station 2

Road Location (existing) 5

Pump Station 3, Outfall 3, Seawall Route (Oyster Bay NWR)

# Appendix 2: Information for Planning and Conservation [IPaC] Trust Resources Report

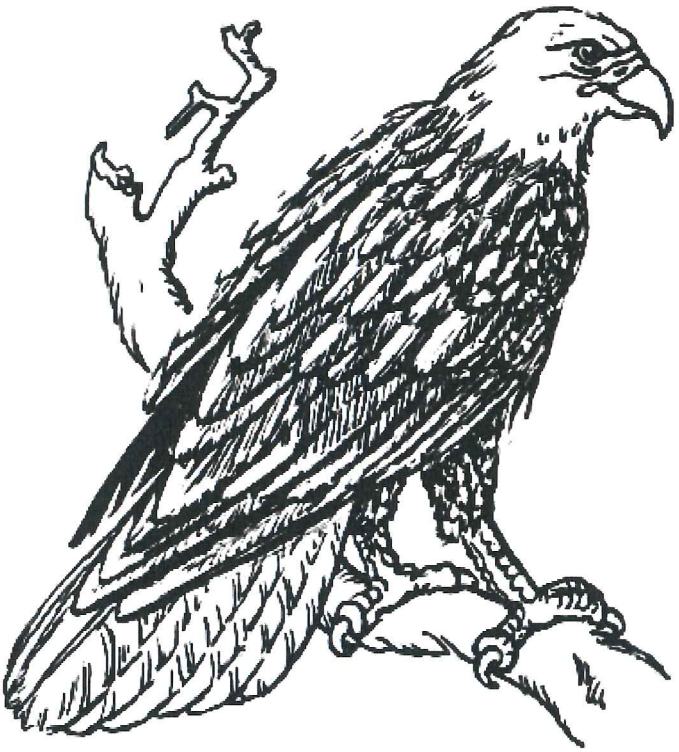
Bayville CSRM FS Study Area Trust Resources

U.S. Fish & Wildlife Service

# My project

## *IPaC Trust Resource Report*

Generated May 07, 2015 01:59 PM MDT



US Fish & Wildlife Service

# IPaC Trust Resource Report

## Project Description

NAME

My project

PROJECT CODE

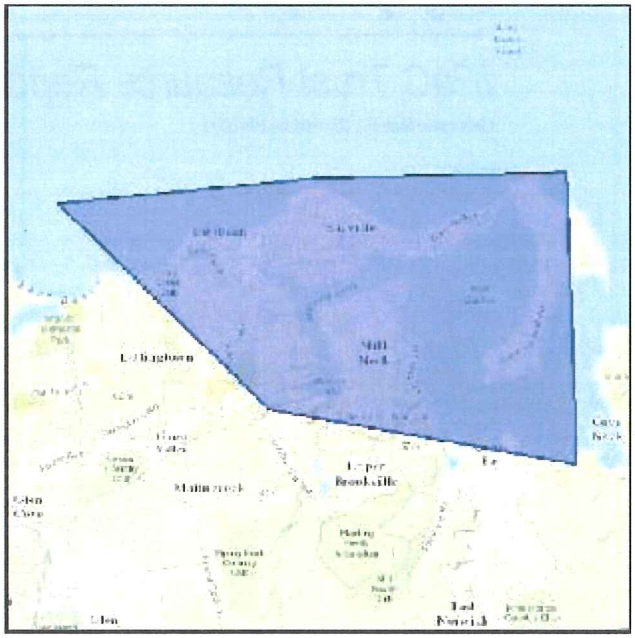
KI443-NSBMB-CEVBA-NFU5R-6W5UZA

LOCATION

Nassau County, New York

DESCRIPTION

No description provided



## U.S. Fish & Wildlife Contact Information

Species in this report are managed by:

**Long Island Ecological Services Field Office**
340 Smith Road Shirley, NY 11967
(631) 286-0485

# Endangered Species

Proposed, candidate, threatened, and endangered species that are managed by the Endangered Species Program and should be considered as part of an effect analysis for this project.

## Birds

**Piping Plover** Entire, except those areas where listed as endangered above **Threatened**

DESCRIPTION
Size: 18 cm (7.25 in) in length. Color: Breeding season: Pale brown above, lighter below; black band across forehead; bill orange with black tip; legs orange; white rump. Male: Complete or incomplete black band encircles the body at the breast. Female: Paler head band; incomplete breast band. Winter coloration: Bill black; all birds lack breast band and head band.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B079

CRITICAL HABITAT
There is **final** critical habitat designated for this species.

**Red Knot** **Threatened**

DESCRIPTION
Length: 25-28 cm. Adults in spring: Above finely mottled with grays, black and light ochre, running into stripes on crown; throat, breast and sides of head cinnamon-brown; dark gray line through eye; abdomen and undertail coverts white; uppertail coverts white, barred with black. Adults in winter: Pale ashy gray above, from crown to rump, with feathers on back narrowly edged with white; underparts white, the breast lightly streaked and speckled, and the flanks narrowly barred with gray. Adults i...

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0DM

CRITICAL HABITAT
**No critical habitat** has been designated for this species.

**Roseate Tern** U.S.A. (Atlantic Coast south to NC), Canada (Newf., N.S, Que.), Bermuda **Endangered**

DESCRIPTION
The roseate tern is about 4O centimeters in length, with light-gray wings and back. Its first three or four primaries are black and so is its cap. The rest of the body is white, with a rosy tinge on the chest and belly during the breeding season. The tail is deeply forked, and the outermost streamers extend beyond the folded wings when perched. During the breeding season the basal three-fourths of the otherwise entirely black bill and legs turn orange-red.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B07O

CRITICAL HABITAT
**No critical habitat** has been designated for this species.

# Flowering Plants

### Sandplain Gerardia Endangered

DESCRIPTION
No description available

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q24K

CRITICAL HABITAT
**No critical habitat** has been designated for this species.

### Seabeach Amaranth Threatened

DESCRIPTION
No description available

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=Q2MZ

CRITICAL HABITAT
**No critical habitat** has been designated for this species.

# Mammals

### Northern Long-eared Bat Threatened

DESCRIPTION
The northern long-eared bat is a medium-sized bat about 3 to 3.7 inches in length but with a wingspan of 9 to 10 inches. As its name suggests, this bat is distinguished by its long ears, particularly as compared to other bats in its genus, Myotis, which are actually bats noted for their small ears (Myotis means mouse-eared). The northern long-eared bat is found across much of the eastern and north central United States and all Canadian provinces from the Atlantic coast west to the southern No...

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0JE

CRITICAL HABITAT
**No critical habitat** has been designated for this species.

# Critical Habitats

Potential effects to critical habitat(s) within the project area must be analyzed along with the endangered species themselves.

There is no critical habitat within this project area

# Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service ( ). There are no provisions for

[1]

allowing the take of migratory birds that are unintentionally killed or injured.

You are responsible for complying with the appropriate regulations for the protection of birds as part of this project. This involves analyzing potential impacts and implementing appropriate conservation measures for all project activities.

### American Oystercatcher

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
No description available

### American Bittern

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
The American Bittern is a medium-sized heron of approximately 60-85cm in length. Adult plumage is brown with heavy white streaks. A distinguishing feature of this bird is a black streak that extends from the eye down the side of its neck. Males and females are similar in appearance, but males are slightly larger. Juveniles are distinguishable from adults by the lack of a black neck streak (Lowther et al. 2009). <p>Life History information provided for the American Bittern is summarized from t...

### Bald Eagle

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
A large raptor, the bald eagle has a wingspread of about 7 feet. Adults have a dark brown body and wings, white head and tail, and a yellow beak. Juveniles are mostly brown with white mottling on the body, tail, and undersides of wings. Adult plumage usually is obtained by the 6th year. In flight, the bald eagle often soars or glides with the wings held at a right angle to the body.

## Black Rail

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

## Black-billed Cuckoo

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
The Black-billed Cuckoo is a slender and long-tailed cuckoo bird generally measuring 28-31 cm in length and 45-55 g in weight. This bird has a moderately long and curved bill, marked by a hooked tip on the upper-mandible of the darkly colored bill. Plumage on the upper part of the head and body are a grayish-brown while the under-plumage areas are a dull weight. The ring around the pupil of the eye is generally a bright orange-red color (Bent 1940, Oberholser 1974, Nolan 1975, National Geogra...

## Blue-winged Warbler

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

## Canada Warbler

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

## Fox Sparrow

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Wintering

DESCRIPTION
No description available

## Golden-winged Warbler

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

## Gull-billed Tern

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

## Horned Grebe

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Wintering

DESCRIPTION
No description available

## Hudsonian Godwit

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Migrating

DESCRIPTION
No description available

## Least Bittern

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

## Least Tern

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
Least terns are the smallest member of the gull and tern family. They are approximately 9" in length. Unlike gulls, terns will dive into the water for small fish. The body of least terns is predominately gray and white, with black streaking on the head. Least terns have a forked tail and narrow pointed wings. Least terns less than a year old have less distinctive black streaking on the head and less of a forked tail.

## Pied-billed Grebe

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
No description available

## Prairie Warbler

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

## Purple Sandpiper

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Wintering

DESCRIPTION
No description available

## Red Knot

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Wintering

DESCRIPTION
Length: 25-28 cm. Adults in spring: Above finely mottled with grays, black and light ochre, running into stripes on crown; throat, breast and sides of head cinnamon-brown; dark gray line through eye; abdomen and undertail coverts white; uppertail coverts white, barred with black. Adults in winter: Pale ashy gray above, from crown to rump, with feathers on back narrowly edged with white; underparts white, the breast lightly streaked and speckled, and the flanks narrowly barred with gray. Adults i...

## Rusty Blackbird

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Wintering

DESCRIPTION
No description available

## Rusty Blackbird

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Wintering

DESCRIPTION
No description available

## Saltmarsh Sparrow

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

## Saltmarsh Sparrow

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

## Seaside Sparrow

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Year-round

DESCRIPTION
No description available

## Short-eared Owl

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Wintering

DESCRIPTION
The short-eared owl is an owl of about 0.7 to 0.8 lbs with females slightly larger in size than males. Plumage is brown, buff, white and rust colors. Patches of brown and buff occur mostly on the back side, while the underside is colored more lightly, being mostly white. Females and males have similar plumage. Some distinguishing characteristics of this owl are its gray white fascial disk, and black coloring around yellow eyes. Juveniles have similar plumage to adults, but upper parts and head a...

## Snowy Egret

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

## Upland Sandpiper

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
The Upland Sandpiper is a medium-sized shorebird of about 28-32 cm in length. Some distinguishing features of the Upland Sandpiper include its dove-like head, thin neck, long thin legs, camouflage olive-brown coloring, and yellow bill with a black tip. The under parts of the Upland Sandpiper are whitish or yellowish in color. The sides and breast of the Upland Sandpiper are strongly patterned with dark and pale brown buff. The call of the Upland Sandpiper is a distinctive, long wolf whistle. ...

## Wood Thrush

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

## Worm Eating Warbler

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

DESCRIPTION
No description available

## Black Skimmer

This is a bird of conservation concern and has the highest priority for conservation

SEASON
Breeding

# Refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. If your project overlaps or otherwise impacts a Refuge, please contact that Refuge to discuss the authorization process.

**Oyster Bay National Wildlife Refuge** 3,387.54 acres

PHONE
(631) 286-0485

ADDRESS
C/o Long Island Nwr Complex
340 Smith Road
Shirley, NY 11967

HOME PAGE
http://www.fws.gov/refuges/profiles/index.cfm?id=52563

# Wetlands

Impacts to NWI wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes.

Project proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Wetland data is unavailable at this time.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

AUG 2 2 2014

John R. Kennelly
Planning Branch
Department of the Army
New England District, Corps of Engineers
696 Virginia Road
Concord, Massachusetts 01742-2751

Dear Mr. Kennelly:

This is in response to the letter dated July 8, 2014 requesting scoping comments on the Bayville, New York Coastal Storm Risk Management Feasibility Study and Environmental Assessment (EA). The purpose of the study is to evaluate alternatives to manage the risk of coastal storm damage in the community of Bayville, New York in Nassau County. Bayville is a low-lying community situated between Oyster Bay to the south and the Long Island Sound to the north. The community periodically experiences severe inland inundation, which can leave the community stranded for prolonged periods of time. Existing seawalls have been severely damaged by wave attack and wave run-up and no longer provide adequate protection to homes along the waterfront or inland.

The combined feasibility study and EA should clearly document the direct and indirect impacts of the no action alternative and the restoration alternatives. This will entail a discussion of the historical storm impacts and a discussion of the expected risks in the absence of any action to protect the community as well as the remaining risk associated with each alternative.

The scoping material provided includes schematics of seawalls and reinforced dunes to be evaluated at varying heights to provide protection from flooding from the south side of the community. The study should provide a cost benefit analysis comparing the cost of the proposed project and the cost of clean-up and recovery in the absence of the project, which is estimated for the expected life span of the project. Additionally, the EA should evaluate and discuss the life span of the seawalls and dunes. The lifespan of seawalls and reinforced dunes can vary depending on the height and construction technique of the barriers. Though protective barriers can increase resiliency in high energy environments and provide a long term solution in

independence, air pollution, and global climate change. Should you have any questions regarding ways that the sustainability of this project can be enhanced, please feel free to contact our office.

Thank you for the opportunity to comment. Should you have any questions concerning this letter please feel free to contact Stephanie Lamster of my staff at 212-637-3465.

Sincerely,

Grace Musumeci, Chief
Environmental Review Section

cc: Ronald Pinzon, Army Corps of Engineers
New York District

**From:** Mark, Erika L NAE
**To:** Moses, Grace NAE
**Subject:** FW: Bayville Feasibility Study
**Date:** Monday, November 16, 2015 12:23:11 PM

---

-----Original Message-----
From: Deonarine, Sarah (DEC) [mailto:sarah.deonarine@dec.ny.gov]
Sent: Wednesday, August 27, 2014 2:07 PM
To: Mark, Erika L NAE <Erika.L.Mark@usace.army.mil>
Cc: McReynolds, Dawn (DEC) <dawn.mcreynolds@dec.ny.gov>; Pinzon, Ronald R NAN02 <Ronald.R.Pinzon@usace.army.mil>
Subject: [EXTERNAL] Bayville Feasibility Study

Dear Ms. Mark,

Below are the comments from DEC Marine Resources on the different measures to possibly be considered in the Bayville feasibility study. The comments will be very general as it was difficult to parse out details of proposed alternatives on the maps provided. If you need these formally submitted, I can put it on DEC letterhead.

Mill Neck Creek / Oyster Bay Harbor – Wetlands

This area has vital wetland resources along its shoreline and USFWS refuge status. The feasibility study should include evaluation of alternatives that avoid (do not impact current wetland condition). Impact would be considered direct (i.e. filling) to achieve alternatives desired or indirect (i.e. scour or erosion of wetland due to deflective nature of vertical structures). Can proposed structures be moved landward, use alternative softer structures, consider armoring vertical walls and or berms (as an example)? Are there other alternatives that would achieve desired flood protection, such as raising houses, and how were they considered? If an alternative is chosen that has an impact, mitigation measures will have to be evaluated.

Long Island Sound

Discussion should include an analysis of how proposed seawall or dune core might affect beach habitat (loss of beach due to location of proposed structure (filling in existing beach habitat), in addition to deflective nature of hard structure, as an example. Assess alternatives that avoid impact to habitat. Are certain areas experiencing significant erosion, are certain areas experiencing accretion of the beach and how does that effect alternative chosen? Do large non-structured expanses of beach need vertical or hardened structures to achieve proposed erosion protection? Can dunes alone suffice?

Where vertical seawalls already exist, reconstruction in place would be acceptable. Avoid and minimize seaward placement. Will toe armor alleviate scour and loss of existing beach? Large expanses of new structures (connecting existing structures) will require considerations as discussed above.

Alternatives analyzed that affect natural resources or process should include a discussion of mitigation measures for that effect. That should be considered in any cost benefit analysis.

Storm water and/or pumping stations

Bayville is a regulated MS4 (GP-0-10-002) and is part of the Oyster Bay Watershed Improvement Area. The surface waters of Oyster Bay and eastern Mill Neck Creek are classified as "SA" (6 NYCRR §885.6) – shellfishing would be their best usage (6 NYCRR §701.10) and the area is used as a commercial and recreational shellfishing area conditionally, but they are impaired for pathogens. To address this, a pathogen TMDL was developed, which identified stormwater as making up 88% of the pathogen load to Oyster Bay and Mill Neck Creek. The TMDL also states that the Village of Bayville installed leaching pits that infiltrate stormwater into the ground instead of directly into Mill Neck Creek. Since Bayville is a contributing MS4 to Oyster Bay, the Village has to demonstrate a reduction in pathogens and it is likely that these projects would contribute to this load through an increased number of outfalls and pumping stations.

This feasibility study will need to evaluate how changes in stormwater proposed for each of the alternatives evaluated will affect the water quality of the TMDL and MS4 regulated area. It should evaluate BMPs such as infiltration basins or other pre-treatment measures before discharge so as to work towards the required overall reduction in pathogens. If construction disturbs an acre or more, which these projects in total would likely exceed, these projects would also come under the jurisdiction of the SPDES Construction Stormwater General Permit and would be subject to those rules as well.

Waterbodies

It appears that the waterbodies are incorrectly named on the design plans as they currently stand.

Thank you for giving us the opportunity to comment on the proposed feasibility study. We look forward to working with you on this project and others in the future.

Sincerely,

Sarah Deonarine

Coastal Resiliency Planning & Assessment
NYS DEC, Bureau of Marine Resources
205 N. Belle Mead Road, Suite 1
East Setauket, NY 11733-3456
(631) 444-0467

sarah.deonarine@dec.ny.gov <mailto:sarah.deonarine@dec.ny.gov>

***PLEASE NOTE THIS IS A NEW E-MAIL ADDRESS***

New York State Department of State
Draft General comments on US Army Corps of Engineers Village of Bayville, New York Storm Damage Reduction Feasibility Study and Plan Sheets

September 5, 2014

1. The ownership of land proposed for the construction for flood defenses along Mill Neck Bay is unclear (Washington Ave. to Flowers Oyster Co. area).
    a. Is there a strip of public property between the marsh and the homes that would allow construction?
    b. If private property must be acquired for the construction, are the owners willing to participate? If owners of private property are willing to provide land agreements for a project, is an environmentally enhanced shoreline treatment an option? The objective would be to replicate conditions that support the biological community and environmental services of the unstructured shoreline as nearly as possible.

2. For the same area along Mill Neck Bay cited in item 1 above, there could be issues regarding the expenditure of public funds to benefit private properties with respect to coastal policies and/or with state support for construction or maintenance. More information is needed on property ownership, ratio of public benefits to public expenses, and how construction and maintenance of proposed measures will be funded. For coastal consistency, public benefits must exceed the public expenditures for flooding and erosion control projects (see state Coastal Policy 16).
    a. *Note: The Village of Bayville has an approved Local Waterfront Revitalization Program, so interpretation of coastal consistency will be with respect to the Village's LWRP policies.

3. If a landward solution is not feasible in the Mill Neck Bay area either because existing homes would have to be moved, or because owners decline the necessary property agreements, what are the vulnerabilities to the adjacent areas of the community and are there alternative means to address them other than armoring the shoreline?

4. The preliminary plan sheets indicate non-structural measures in the form of flood-proofing and home raising are cost prohibitive. This finding is based on old data. During the New York Rising planning process the Village deferred decisions on such measures to the individual home owners for possible funding sources such as FEMA.

    a. Is there a possibility that Corps actions could be integrated with FEMA actions to accomplish more home elevations of flood proofing and achieve better flood resilience?
    b. Is there more current data available on the cost of elevating and flood proofing homes and businesses that are vulnerable to flooding? If so, is such data reportable for individual home and businesses? It could turn out that elevating or flood proofing some homes is cost effective.
    c. During the site visit, a resident in the Mill Neck Bay area on Washington Ave told us she recently elevated her home. Information on whether other residents have also completed elevations on their own will factor into feasibility for non-structural solutions.
    d. While a non-structural solution for the whole Village might not be cost effective an analysis at the neighborhood level might find non-structural solutions are viable in some

areas. A combination of non-structural and structural/hybrid ("living shorelines") solutions could be feasible.

e. Adaptive transformation through incremental implementation of non-structural measures over time would be preferable to permanent dependence on structural protective measures. If non-structural measures alone are insufficient, a combination of non-structural and "living shorelines" type solutions would be preferable to structured shorelines. The alternatives shown in the plan sheets do not show these types of multi-pronged approaches.

5. Alternative A1/B1:
    a. A bulkhead-seawall structure in the Mill Neck Creek area would impede marsh migration with sea level rise. If site and property owner limitations suggest a vertical structure is the only available means of adequate flood protection, what is the projected time frame for loss of the adjacent wetlands due to sea level rise, and what mitigation options are available to address it?
    b. For the sheet pile with backfill option along West Harbor Drive, there would be similar concerns about wetlands gradually drowning as they are trapped between rising sea level on Oyster Bay and the vertical piling. What is the projected time frame for loss of the wetlands and are there any available mitigation measures?
    c. Options discussed for the Northeast corner of the project (reach 5) area include installing a new bulkhead/seawall seaward of the existing bulkheads. While the beach size is relatively stable, would the beach width decrease with the additional bulkhead/seawall? Permanent foundations and excavations are prohibited by the state Coastal Erosion Hazard Area regulations in certain areas, and the proposed design may be contrary to that program. Extensions/repairs to existing bulkheads would be preferable.
    d. How does the reinforced dune construction on the north side of the President's Streets square with Army Corps requirements for public access under ER 1165-2-130. We understood the adjacent owners did not want to allow public access. If public access is being provided we would like a description of that. If public access is not provided how is the Corps able to participate in the project with a condition that seems contrary to federal guidance?

6. Alternative A3/B3:
    a. The proposed reinforced dune along Mill Neck Bay area would be preferable over the vertical wall structure in Alternative A1/B1. Reasons include the opportunity for the wetland to migrate up the constructed bank, maintenance of land-water exchange for living resources, improved access for residents to and from the water, improved environmental services such as storm water filtration, and elimination of reflected wave and boat wake scour that might accompany the bulkhead option.

7. General comments on sand resources:
    a. Some of the alternatives include placing additional sand on area beaches. Is the material proposed for placement compatible with the native biological community?
    b. Does removal of sand from the source compromise an aquatic or estuarine biological community?
    c. Is maintenance material required for the proposed design to function effectively, and if so what certainty is there that the material and funding will be available in the future?

d. Does placement or removal of sand for the project compromise existing sediment transport pathways?
e. Any existing impairments to sand supply should be noted in the project report, and corrective measures should be among the options examined.
f. Is there any opportunity to utilize sand resources dredged from navigation channels in the area for protective restoration measures? The Department of State would tend to support a regional sediment management approach.

8. The western boundary of proposed management measures does not include the area where Bayville Avenue intersects Bayville Road, on the west end of the Village. Reports during development of the New York Rising Community Reconstruction Plan for Bayville suggested this area is vulnerable to flooding. As one of only two land routes into the Village this access way is important for safety reasons.
    a. Has the Corps analysis investigated this area? The reasons this area is or is not vulnerable to flooding should be included in the project report.
    b. If the area is vulnerable to flooding will that be addressed by the proposed measures, or are additional measures possible to address that vulnerability?

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

July 8, 2014

Engineering/Planning Division
Planning Branch

Jeffrey Zappieri
Consistency Unit Supervisor
NYS Department of State
Office of Planning and Development
99 Washington Avenue
One Commerce Plaza, Suite 1010
Albany, NY 12231

Dear Mr. Zappieri,

The U.S. Army Corps of Engineers (USACE), New York District (District) invites you and/or a member(s) of your staff to participate in a coordinated scoping meeting and site visit for the Bayville, NY Coastal Storm Risk Management Feasibility Study. The District in partnership with the New York State Department of Environmental Conservation and the Incorporated Village of Bayville is currently conducting a feasibility study focused on managing the risk of coastal storm damage to this low-lying coastal community.

The purpose of this letter is to invite you to attend a meeting for interested state and federal agencies, town officials, and non-governmental organizations. The meeting and site visit will occur on Tuesday July 29, 2014 from 12:30 – 2:30 p.m. During the meeting participants will have the opportunity to visit the study area, discuss alternatives, and to provide feedback and suggestions to the USACE study team.

The North Shore of Long Island, New York Bayville Study was authorized by a Resolution by the Committee on Public Works and Transportation, U.S. House of Representatives, adopted 13 May 1993. A reconnaissance report was completed in 1995 and the feasibility study was initiated in 2001. Data collection activities including surveying and mapping, and the development of baseline information on coastal processes and related environmental resources were initiated at that time. In the aftermath of Hurricane Sandy, the Disaster Relief Appropriations Act of 2013, Public Law 113-2, provided 100% of the federal funding required to complete the study. The District is currently preparing a feasibility study report with an Environmental Assessment (EA) which is scheduled for completion in 2016.

The Village of Bayville, NY is located in Nassau County and has a population of approximately 6,700 middle-income permanent residents (based upon 2010 U.S. Census figures). This low-lying community is situated between two bodies of water (Oyster Bay and Long Island Sound) and periodically experiences severe inland inundation. After inundation has occurred, the waters leave the community stranded for extended periods of time. Additionally, a number of small, single-family residences have been severely damaged by wave attack and wave run-up, destroying the existing seawalls, which were thought to be adequate to prevent such damages.

The Village of Bayville has historically incurred major losses due to coastal erosion and flooding. After the onset of the December 1992 northeaster, hundreds of residences and businesses were flooded by high tides with standing water up to five feet for up to a week. Bayville was also affected by Hurricane Irene in 2011 and Hurricane Sandy in 2012 which flooded the interior sections of the Village from both the Long Island Sound and Oyster Bay sides. The north shore beachfront facing Long Island Sound is approximately 1.5 miles long with beach widths ranging from 100 to 200 feet. The majority of the beachfront properties are built behind concrete bulkheads and the rest are behind small dunes. The portion of the community located between Bayville Avenue and the southern bay front is generally a low-lying residential area. Bayville Avenue serves as a critical emergency egress route and is the only road connecting Centre Island (located to the east of the Village of Bayville) with the mainland.

The purpose of the feasibility study is to formulate a comprehensive coastal storm risk management plan which is economically justified, socially and technically feasible and does not have significant impacts on environmental and cultural resources. Many measures are being considered, including structural measures (floodwalls, reinforced dunes, beach nourishment, pump stations etc.) as well as non-structural measures (elevating structures, storm water management, floodplain management/zoning, etc.). The selected plan will likely be a combination of several different measures.

Meeting participants will meet at 12:30 p.m. at the Village Hall located at 34 School St, Bayville, NY. Please RSVP with Ms. Erika Mark, of our Environmental Resources Section, at (978) 318-8250 or by e-mail at Erika.L.Mark@usace.army.mil.

If any additional information is required please contact Ms. Erika Mark or Mr. Ronald Pinzon, the Project manager, at (917) 790-8627 or by e-mail at Ronald.R.Pinzon@usace.army.mil. Lastly, if you have any comments pursuant to the meeting, we ask you to please submit written correspondence to this office no later than 29 August, 2014.

Sincerely,

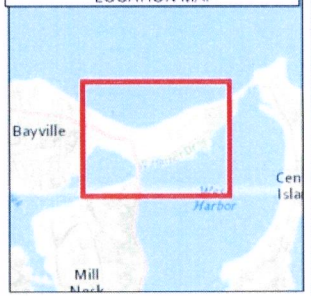
John R. Kennelly
Chief, Planning Branch

Enclosures


LEGEND

Photo Location

LOCATION MAP




NOTES & SOURCES

TITLE

Bayville NY
North Shore of Long Island
Coastal Storm Risk Management
Feasibility Study Area
Photo Location Map
Site Visit - October 2013

US Army Corps of Engineers
New England District

PLATE 1

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

July 8, 2014

Engineering/Planning Division
Planning Branch

Steven T. Papa
U.S. Fish and Wildlife Service
Long Island Field office
340 Smith Rd
Shirley, New York 11967

Dear Mr. Papa:

The U.S. Army Corps of Engineers (USACE), New York District (District) invites you and/or a member(s) of your staff to participate in a coordinated scoping meeting and site visit for the Bayville, NY Coastal Storm Risk Management Feasibility Study. The District in partnership with the New York State Department of Environmental Conservation and the Incorporated Village of Bayville is currently conducting a feasibility study focused on managing the risk of coastal storm damage to this low-lying coastal community.

The purpose of this letter is to work with your office pursuant to the Fish and Wildlife Coordination Act, as amended and Section 7(c) of the Endangered Species Act of 1973, as amended, and to invite you to attend a meeting for interested state and federal agencies, town officials, and non-governmental organizations. The meeting and site visit will occur on Tuesday July 29, 2014 from 12:30 – 2:30 p.m. During the meeting participants will have the opportunity to visit the study area, discuss alternatives, and to provide feedback and suggestions to the USACE study team.

The North Shore of Long Island, New York Bayville Study was authorized by a Resolution by the Committee on Public Works and Transportation, U.S. House of Representatives, adopted 13 May 1993. A reconnaissance report was completed in 1995 and the feasibility study was initiated in 2001. Data collection activities including surveying and mapping, and the development of baseline information on coastal processes and related environmental resources were initiated at that time. In the aftermath of Hurricane Sandy, the Disaster Relief Appropriations Act of 2013, Public Law 113-2, provided 100% of the federal funding required to complete the study. The District is currently preparing a feasibility study report with an Environmental Assessment (EA) which is scheduled for completion in 2016.

The Village of Bayville, NY is located in Nassau County and has a population of approximately 6,700 middle-income permanent residents (based upon 2010 U.S. Census figures). This low-lying community is situated between two bodies of water (Oyster Bay and Long Island Sound) and periodically experiences severe inland inundation. After inundation has occurred, the waters leave the community stranded for extended periods of time. Additionally, a number of small, single-family residences have been severely damaged by wave attack and wave run-up, destroying the existing seawalls, which were thought to be adequate to prevent such damages.

The Village of Bayville has historically incurred major losses due to coastal erosion and flooding. After the onset of the December 1992 northeaster, hundreds of residences and businesses were flooded by high tides with standing water up to five feet for up to a week. Bayville was also affected by Hurricane Irene in 2011 and Hurricane Sandy in 2012 which flooded the interior sections of the Village from both the Long Island Sound and Oyster Bay sides. The north shore beachfront facing Long Island Sound is approximately 1.5 miles long with beach widths ranging from 100 to 200 feet. The majority of the beachfront properties are built behind concrete bulkheads and the rest are behind small dunes. The portion of the community located between Bayville Avenue and the southern bay front is generally a low-lying residential area. Bayville Avenue serves as a critical emergency egress route and is the only road connecting Centre Island (located to the east of the Village of Bayville) with the mainland.

The purpose of the feasibility study is to formulate a comprehensive coastal storm risk management plan which is economically justified, socially and technically feasible and does not have significant impacts on environmental and cultural resources. Many measures are being considered, including structural measures (floodwalls, reinforced dunes, beach nourishment, pump stations etc.) as well as non-structural measures (elevating structures, storm water management, floodplain management/zoning, etc.). The selected plan will likely be a combination of several different measures.

Meeting participants will meet at 12:30 p.m. at the Village Hall located at 34 School St, Bayville, NY. Please RSVP with Ms. Erika Mark, of our Environmental Resources Section, at (978) 318-8250 or by e-mail at Erika.L.Mark@usace.army.mil.

If any additional information is required please contact Ms. Erika Mark or Mr. Ronald Pinzon, the Project manager, at (917) 790-8627 or by e-mail at Ronald.R.Pinzon@usace.army.mil. Lastly, if you have any comments pursuant to the meeting, we ask you to please submit written correspondence to this office no later than 29 August, 2014.

Sincerely,

John R. Kennelly
Chief, Planning Branch

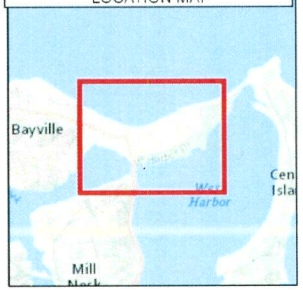
Enclosures

CF:
Michelle Potter (michelle_potter@fws.gov)
Sharon Ware (sharon_ware@fws.gov)


LEGEND

Photo Location

LOCATION MAP




NOTES & SOURCES

TITLE

Bayville,NY
North Shore of Long Island
Coastal Storm Risk Management
Feasibility Study Area
Photo Location Map
Site Visit - October 2013

US Army Corps of Engineers
New England District

PLATE 1

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

July 8, 2014

Engineering/Planning Division
Planning Branch

Shinnecock Indian Nation Tribal Office
P.O. Box 5006
Southhampton, New York 11969

Dear Sir/Madam,

The U.S. Army Corps of Engineers (USACE), New York District (District) invites you and/or a member(s) of your staff to participate in a coordinated scoping meeting and site visit for the Bayville, NY Coastal Storm Risk Management Feasibility Study. The District in partnership with the New York State Department of Environmental Conservation and the Incorporated Village of Bayville is currently conducting a feasibility study focused on managing the risk of coastal storm damage to this low-lying coastal community.

The purpose of this letter is to invite you to attend a meeting for interested state and federal agencies, town officials, and non-governmental organizations. The meeting and site visit will occur on Tuesday July 29, 2014 from 12:30 – 2:30 p.m. During the meeting participants will have the opportunity to visit the study area, discuss alternatives, and to provide feedback and suggestions to the USACE study team.

The North Shore of Long Island, New York Bayville Study was authorized by a Resolution by the Committee on Public Works and Transportation, U.S. House of Representatives, adopted 13 May 1993. A reconnaissance report was completed in 1995 and the feasibility study was initiated in 2001. Data collection activities including surveying and mapping, and the development of baseline information on coastal processes and related environmental resources were initiated at that time. In the aftermath of Hurricane Sandy, the Disaster Relief Appropriations Act of 2013, Public Law 113-2, provided 100% of the federal funding required to complete the study. The District is currently preparing a feasibility study report with an Environmental Assessment (EA) which is scheduled for completion in 2016.

The Village of Bayville, NY is located in Nassau County and has a population of approximately 6,700 middle-income permanent residents (based upon 2010 U.S. Census figures). This low-lying community is situated between two bodies of water (Oyster Bay and Long Island Sound) and periodically experiences severe inland

inundation. After inundation has occurred, the waters leave the community stranded for extended periods of time. Additionally, a number of small, single-family residences have been severely damaged by wave attack and wave run-up, destroying the existing seawalls, which were thought to be adequate to prevent such damages.

The Village of Bayville has historically incurred major losses due to coastal erosion and flooding. After the onset of the December 1992 northeaster, hundreds of residences and businesses were flooded by high tides with standing water up to five feet for up to a week. Bayville was also affected by Hurricane Irene in 2011 and Hurricane Sandy in 2012 which flooded the interior sections of the Village from both the Long Island Sound and Oyster Bay sides. The north shore beachfront facing Long Island Sound is approximately 1.5 miles long with beach widths ranging from 100 to 200 feet. The majority of the beachfront properties are built behind concrete bulkheads and the rest are behind small dunes. The portion of the community located between Bayville Avenue and the southern bay front is generally a low-lying residential area. Bayville Avenue serves as a critical emergency egress route and is the only road connecting Centre Island (located to the east of the Village of Bayville) with the mainland.

The purpose of the feasibility study is to formulate a comprehensive coastal storm risk management plan which is economically justified, socially and technically feasible and does not have significant impacts on environmental and cultural resources. Many measures are being considered, including structural measures (floodwalls, reinforced dunes, beach nourishment, pump stations etc.) as well as non-structural measures (elevating structures, storm water management, floodplain management/zoning, etc.). The selected plan will likely be a combination of several different measures.

Meeting participants will meet at 12:30 p.m. at the Village Hall located at 34 School St, Bayville, NY. Please RSVP with Ms. Erika Mark, of our Environmental Resources Section, at (978) 318-8250 or by e-mail at Erika.L.Mark@usace.army.mil.

If any additional information is required please contact Ms. Erika Mark or Mr. Ronald Pinzon, the Project manager, at (917) 790-8627 or by e-mail at Ronald.R.Pinzon@usace.army.mil. Lastly, if you have any comments pursuant to the meeting, we ask you to please submit written correspondence to this office no later than 29 August, 2014.

Sincerely,

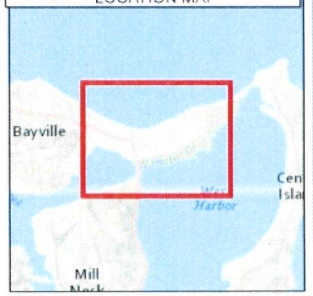
John R. Kennelly
Chief, Planning Branch

Enclosures


LEGEND

Photo Location

LOCATION MAP




NOTES & SOURCES

TITLE

Bayville,NY
North Shore of Long Island
Coastal Storm Risk Management
Feasibility Study Area
Photo Location Map
Site Visit - October 2013

US Army Corps of Engineers
New England District

PLATE 1

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

July 8, 2014

Engineering/Planning Division
Planning Branch

NY DEC
Region 1 Marine Headquarters
Ms. Dawn McReynolds
205 North Belle Meade Road
East Setauket, New York 11733

Dear Ms. McReynolds,

The U.S. Army Corps of Engineers (USACE), New York District (District) invites you and/or a member(s) of your staff to participate in a coordinated scoping meeting and site visit for the Bayville, NY Coastal Storm Risk Management Feasibility Study. The District in partnership with the New York State Department of Environmental Conservation and the Incorporated Village of Bayville is currently conducting a feasibility study focused on managing the risk of coastal storm damage to this low-lying coastal community.

The purpose of this letter is to invite you to attend a meeting for interested state and federal agencies, town officials, and non-governmental organizations. The meeting and site visit will occur on Tuesday July 29, 2014 from 12:30 – 2:30 p.m. During the meeting participants will have the opportunity to visit the study area, discuss alternatives, and to provide feedback and suggestions to the USACE study team.

The North Shore of Long Island, New York Bayville Study was authorized by a Resolution by the Committee on Public Works and Transportation, U.S. House of Representatives, adopted 13 May 1993. A reconnaissance report was completed in 1995 and the feasibility study was initiated in 2001. Data collection activities including surveying and mapping, and the development of baseline information on coastal processes and related environmental resources were initiated at that time. In the aftermath of Hurricane Sandy, the Disaster Relief Appropriations Act of 2013, Public Law 113-2, provided 100% of the federal funding required to complete the study. The District is currently preparing a feasibility study report with an Environmental Assessment (EA) which is scheduled for completion in 2016.

The Village of Bayville, NY is located in Nassau County and has a population of approximately 6,700 middle-income permanent residents (based upon 2010 U.S. Census figures). This low-lying community is situated between two bodies of water

(Oyster Bay and Long Island Sound) and periodically experiences severe inland inundation. After inundation has occurred, the waters leave the community stranded for extended periods of time. Additionally, a number of small, single-family residences have been severely damaged by wave attack and wave runup, destroying the existing seawalls, which were thought to be adequate to prevent such damages.

The Village of Bayville has historically incurred major losses due to coastal erosion and flooding. After the onset of the December 1992 northeaster, hundreds of residences and businesses were flooded by high tides with standing water up to five feet for up to a week. Bayville was also affected by Hurricane Irene in 2011 and Hurricane Sandy in 2012 which flooded the interior sections of the Village from both the Long Island Sound and Oyster Bay sides. The north shore beachfront facing Long Island Sound is approximately 1.5 miles long with beach widths ranging from 100 to 200 feet. The majority of the beachfront properties are built behind concrete bulkheads and the rest are behind small dunes. The portion of the community located between Bayville Avenue and the southern bay front is generally a low-lying residential area. Bayville Avenue serves as a critical emergency egress route and is the only road connecting Centre Island (located to the east of the Village of Bayville) with the mainland.

The purpose of the feasibility study is to formulate a comprehensive coastal storm risk management plan which is economically justified, socially and technically feasible and does not have significant impacts on environmental and cultural resources. Many measures are being considered, including structural measures (floodwalls, reinforced dunes, beach nourishment, pump stations etc.) as well as non-structural measures (elevating structures, storm water management, floodplain management/zoning, etc.). The selected plan will likely be a combination of several different measures.

Meeting participants will meet at 12:30 p.m. at the Village Hall located at 34 School St, Bayville, NY. Please RSVP with Ms. Erika Mark, of our Environmental Resources Section, at (978) 318-8250 or by e-mail at Erika.L.Mark@usace.army.mil.

If any additional information is required please contact Ms. Erika Mark or Mr. Ronald Pinzon, the Project manager, at (917) 790-8627 or by e-mail at Ronald.R.Pinzon@usace.army.mil. Lastly, if you have any comments pursuant to the meeting, we ask you to please submit written correspondence to this office no later than 29 August, 2014.

Sincerely,

John R. Kennelly
Chief, Planning Branch

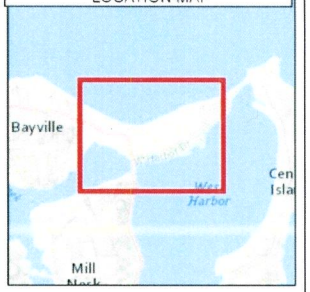
Enclosures

CF:
Rob Marsh, rfmarsh@gw.dec.state.ny.us
Sue McCormick, sdmccorm@gw.dec.state.ny.us


LEGEND

Photo Location

LOCATION MAP




NOTES & SOURCES

TITLE

Bayville,NY
North Shore of Long Island
Coastal Storm Risk Management
Feasibility Study Area
Photo Location Map
Site Visit - October 2013

US Army Corps of Engineers
New England District

PLATE
1

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

July 8, 2014

Engineering/Planning Division
Planning Branch

Ruth Pierpont
NY State Deputy Commissioner/Deputy SHPO
Peebles Island Resource Center
P.O. Box 189
Waterford, New York 12188-0189

Dear Ms Pierpont,

The U.S. Army Corps of Engineers (USACE), New York District (District) invites you and/or a member(s) of your staff to participate in a coordinated scoping meeting and site visit for the Bayville, NY Coastal Storm Risk Management Feasibility Study. The District in partnership with the New York State Department of Environmental Conservation and the Incorporated Village of Bayville is currently conducting a feasibility study focused on managing the risk of coastal storm damage to this low-lying coastal community.

The purpose of this letter is to invite you to attend a meeting for interested state and federal agencies, town officials, and non-governmental organizations. The meeting and site visit will occur on Tuesday July 29, 2014 from 12:30 – 2:30 p.m. During the meeting participants will have the opportunity to visit the study area, discuss alternatives, and to provide feedback and suggestions to the USACE study team.

The North Shore of Long Island, New York Bayville Study was authorized by a Resolution by the Committee on Public Works and Transportation, U.S. House of Representatives, adopted 13 May 1993. A reconnaissance report was completed in 1995 and the feasibility study was initiated in 2001. Data collection activities including surveying and mapping, and the development of baseline information on coastal processes and related environmental resources were initiated at that time. In the aftermath of Hurricane Sandy, the Disaster Relief Appropriations Act of 2013, Public Law 113-2, provided 100% of the federal funding required to complete the study. The District is currently preparing a feasibility study report with an Environmental Assessment (EA) which is scheduled for completion in 2016.

The Village of Bayville, NY is located in Nassau County and has a population of approximately 6,700 middle-income permanent residents (based upon 2010 U.S.

Census figures). This low-lying community is situated between two bodies of water (Oyster Bay and Long Island Sound) and periodically experiences severe inland inundation. After inundation has occurred, the waters leave the community stranded for extended periods of time. Additionally, a number of small, single-family residences have been severely damaged by wave attack and wave run-up, destroying the existing seawalls, which were thought to be adequate to prevent such damages.

The Village of Bayville has historically incurred major losses due to coastal erosion and flooding. After the onset of the December 1992 northeaster, hundreds of residences and businesses were flooded by high tides with standing water up to five feet for up to a week. Bayville was also affected by Hurricane Irene in 2011 and Hurricane Sandy in 2012 which flooded the interior sections of the Village from both the Long Island Sound and Oyster Bay sides. The north shore beachfront facing Long Island Sound is approximately 1.5 miles long with beach widths ranging from 100 to 200 feet. The majority of the beachfront properties are built behind concrete bulkheads and the rest are behind small dunes. The portion of the community located between Bayville Avenue and the southern bay front is generally a low-lying residential area. Bayville Avenue serves as a critical emergency egress route and is the only road connecting Centre Island (located to the east of the Village of Bayville) with the mainland.

The purpose of the feasibility study is to formulate a comprehensive coastal storm risk management plan which is economically justified, socially and technically feasible and does not have significant impacts on environmental and cultural resources. Many measures are being considered, including structural measures (floodwalls, reinforced dunes, beach nourishment, pump stations etc.) as well as non-structural measures (elevating structures, storm water management, floodplain management/zoning, etc.). The selected plan will likely be a combination of several different measures.

Meeting participants will meet at 12:30 p.m. at the Village Hall located at 34 School St, Bayville, NY. Please RSVP with Ms. Erika Mark, of our Environmental Resources Section, at (978) 318-8250 or by e-mail at Erika.L.Mark@usace.army.mil.

If any additional information is required please contact Ms. Erika Mark or Mr. Ronald Pinzon, the Project manager, at (917) 790-8627 or by e-mail at Ronald.R.Pinzon@usace.army.mil. Lastly, if you have any comments pursuant to the meeting, we ask you to please submit written correspondence to this office no later than 29 August, 2014.

Sincerely,

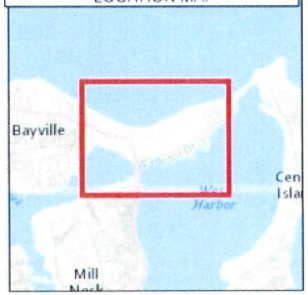
John R. Kennelly
Chief, Planning Branch

Enclosures


LEGEND

Photo Location

LOCATION MAP




NOTES & SOURCES

TITLE

Bayville,NY
North Shore of Long Island
Coastal Storm Risk Management
Feasibility Study Area
Photo Location Map
Site Visit - October 2013

US Army Corps
of Engineers
New England District

PLATE
1

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

July 8, 2014

Engineering/Planning Division
Planning Branch

Mark Murray-Brown
Section 7 Coordinator
Protected Resources Division
NOAA National Marine Fisheries Service
55 Great Republic Drive
Gloucester Massachusetts 01930

Dear Mr. Murray-Brown,

The U.S. Army Corps of Engineers (USACE), New York District (District) invites you and/or a member(s) of your staff to participate in a coordinated scoping meeting and site visit for the Bayville, NY Coastal Storm Risk Management Feasibility Study. The District in partnership with the New York State Department of Environmental Conservation and the Incorporated Village of Bayville is currently conducting a feasibility study focused on managing the risk of coastal storm damage to this low-lying coastal community.

The purpose of this letter is to work with your office pursuant to Section 7 of the Endangered Species Act and to invite you to attend a meeting for interested state and federal agencies, town officials, and non-governmental organizations. The meeting and site visit will occur on Tuesday July 29, 2014 from 12:30 – 2:30 p.m. During the meeting participants will have the opportunity to visit the study area, discuss alternatives, and to provide feedback and suggestions to the USACE study team.

The North Shore of Long Island, New York Bayville Study was authorized by a Resolution by the Committee on Public Works and Transportation, U.S. House of Representatives, adopted 13 May 1993. A reconnaissance report was completed in 1995 and the feasibility study was initiated in 2001. Data collection activities including surveying and mapping, and the development of baseline information on coastal processes and related environmental resources were initiated at that time. In the aftermath of Hurricane Sandy, the Disaster Relief Appropriations Act of 2013, Public Law 113-2, provided 100% of the federal funding required to complete the study. The District is currently preparing a feasibility study report with an Environmental Assessment (EA) which is scheduled for completion in 2016.

The Village of Bayville, NY is located in Nassau County and has a population of approximately 6,700 middle-income permanent residents (based upon 2010 U.S. Census figures). This low-lying community is situated between two bodies of water (Oyster Bay and Long Island Sound) and periodically experiences severe inland inundation. After inundation has occurred, the waters leave the community stranded for extended periods of time. Additionally, a number of small, single-family residences have been severely damaged by wave attack and wave run-up, destroying the existing seawalls, which were thought to be adequate to prevent such damages.

The Village of Bayville has historically incurred major losses due to coastal erosion and flooding. After the onset of the December 1992 northeaster, hundreds of residences and businesses were flooded by high tides with standing water up to five feet for up to a week. Bayville was also affected by Hurricane Irene in 2011 and Hurricane Sandy in 2012 which flooded the interior sections of the Village from both the Long Island Sound and Oyster Bay sides. The north shore beachfront facing Long Island Sound is approximately 1.5 miles long with beach widths ranging from 100 to 200 feet. The majority of the beachfront properties are built behind concrete bulkheads and the rest are behind small dunes. The portion of the community located between Bayville Avenue and the southern bay front is generally a low-lying residential area. Bayville Avenue serves as a critical emergency egress route and is the only road connecting Centre Island (located to the east of the Village of Bayville) with the mainland.

The purpose of the feasibility study is to formulate a comprehensive coastal storm risk management plan which is economically justified, socially and technically feasible and does not have significant impacts on environmental and cultural resources. Many measures are being considered, including structural measures (floodwalls, reinforced dunes, beach nourishment, pump stations etc.) as well as non-structural measures (elevating structures, storm water management, floodplain management/zoning, etc.). The selected plan will likely be a combination of several different measures.

Meeting participants will meet at 12:30 p.m. at the Village Hall located at 34 School St, Bayville, NY. Please RSVP with Ms. Erika Mark, of our Environmental Resources Section, at (978) 318-8250 or by e-mail at Erika.L.Mark@usace.army.mil.

If any additional information is required please contact Ms. Erika Mark or Mr. Ronald Pinzon, the Project manager, at (917) 790-8627 or by e-mail at Ronald.R.Pinzon@usace.army.mil. Lastly, if you have any comments pursuant to the meeting, we ask you to please submit written correspondence to this office no later than 29 August, 2014.

Sincerely,

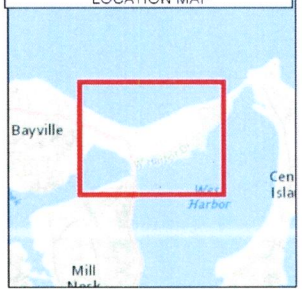
John R. Kennelly
Chief, Planning Branch

Enclosures


LEGEND

Photo Location

LOCATION MAP




NOTES & SOURCES

TITLE

Bayville,NY
North Shore of Long Island
Coastal Storm Risk Management
Feasibility Study Area
Photo Location Map
Site Visit - October 2013

US Army Corps of Engineers
New England District

PLATE 1

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

July 8, 2014

Engineering/Planning Division
Planning Branch

Mr. Lou Chiarella
Habitat Conservation Division
NOAA National Marine Fisheries Service
55 Great Republic Drive
Gloucester MA 01930

Dear Mr. Chiarella,

The U.S. Army Corps of Engineers (USACE), New York District (District) invites you and/or a member(s) of your staff to participate in a coordinated scoping meeting and site visit for the Bayville, NY Coastal Storm Risk Management Feasibility Study. The District in partnership with the New York State Department of Environmental Conservation and the Incorporated Village of Bayville is currently conducting a feasibility study focused on managing the risk of coastal storm damage to this low-lying coastal community.

The purpose of this letter is to initiate coordination with your office pursuant to the Essential Fish Habitat recommendations as required under the Magnuson-Stevens Fishery Conservation and Management Act amendments and the Fish and Wildlife Coordination Act and to invite you to attend a meeting for interested state and federal agencies, town officials, and non-governmental organizations. The meeting and site visit will occur on Tuesday July 29, 2014 from 12:30 – 2:30 p.m. During the meeting participants will have the opportunity to visit the study area, discuss alternatives, and to provide feedback and suggestions to the USACE study team.

The North Shore of Long Island, New York Bayville Study was authorized by a Resolution by the Committee on Public Works and Transportation, U.S. House of Representatives, adopted 13 May 1993. A reconnaissance report was completed in 1995 and the feasibility study was initiated in 2001. Data collection activities including surveying and mapping, and the development of baseline information on coastal processes and related environmental resources were initiated at that time. In the aftermath of Hurricane Sandy, the Disaster Relief Appropriations Act of 2013, Public Law 113-2, provided 100% of the federal funding required to complete the study. The District is currently preparing a feasibility study report with an Environmental Assessment (EA) which is scheduled for completion in 2016.

The Village of Bayville, NY is located in Nassau County and has a population of approximately 6,700 middle-income permanent residents (based upon 2010 U.S. Census figures). This low-lying community is situated between two bodies of water (Oyster Bay and Long Island Sound) and periodically experiences severe inland inundation. After inundation has occurred, the waters leave the community stranded for extended periods of time. Additionally, a number of small, single-family residences have been severely damaged by wave attack and wave run-up, destroying the existing seawalls, which were thought to be adequate to prevent such damages.

The Village of Bayville has historically incurred major losses due to coastal erosion and flooding. After the onset of the December 1992 northeaster, hundreds of residences and businesses were flooded by high tides with standing water up to five feet for up to a week. Bayville was also affected by Hurricane Irene in 2011 and Hurricane Sandy in 2012 which flooded the interior sections of the Village from both the Long Island Sound and Oyster Bay sides. The north shore beachfront facing Long Island Sound is approximately 1.5 miles long with beach widths ranging from 100 to 200 feet. The majority of the beachfront properties are built behind concrete bulkheads and the rest are behind small dunes. The portion of the community located between Bayville Avenue and the southern bay front is generally a low-lying residential area. Bayville Avenue serves as a critical emergency egress route and is the only road connecting Centre Island (located to the east of the Village of Bayville) with the mainland.

The purpose of the feasibility study is to formulate a comprehensive coastal storm risk management plan which is economically justified, socially and technically feasible and does not have significant impacts on environmental and cultural resources. Many measures are being considered, including structural measures (floodwalls, reinforced dunes, beach nourishment, pump stations etc.) as well as non-structural measures (elevating structures, storm water management, floodplain management/zoning, etc.). The selected plan will likely be a combination of several different measures.

Meeting participants will meet at 12:30 p.m. at the Village Hall located at 34 School St, Bayville, NY. Please RSVP with Ms. Erika Mark, of our Environmental Resources Section, at (978) 318-8250 or by e-mail at Erika.L.Mark@usace.army.mil.

If any additional information is required please contact Ms. Erika Mark or Mr. Ronald Pinzon, the Project manager, at (917) 790-8627 or by e-mail at Ronald.R.Pinzon@usace.army.mil. Lastly, if you have any comments pursuant to the meeting, we ask you to please submit written correspondence to this office no later than 29 August, 2014.

Sincerely,

John R. Kennelly
Chief, Planning Branch

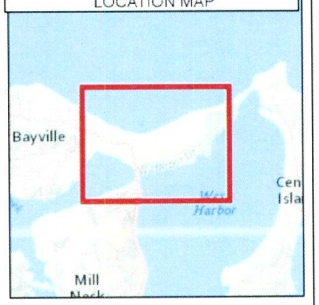
Enclosures

CF: Mr. Chris Boelke (Christopher.Boelke@noaa.gov)


LEGEND

Photo Location

LOCATION MAP




NOTES & SOURCES

TITLE

Bayville,NY
North Shore of Long Island
Coastal Storm Risk Management
Feasibility Study Area
Photo Location Map
Site Visit - October 2013

US Army Corps of Engineers
New England District

PLATE 1

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

July 8, 2014

Engineering/Planning Division
Planning Branch

The Honorable Paul Rupp
Mayor of Bayville
34 School Street
Bayville, New York 11709

Dear Mayor Rupp,

The U.S. Army Corps of Engineers (USACE), New York District (District) invites you and/or a member(s) of your staff to participate in a coordinated scoping meeting and site visit for the Bayville, NY Coastal Storm Risk Management Feasibility Study. The District in partnership with the New York State Department of Environmental Conservation and the Incorporated Village of Bayville is currently conducting a feasibility study focused on managing the risk of coastal storm damage to this low-lying coastal community.

The purpose of this letter is to invite you to attend a meeting for interested state and federal agencies, town officials, and non-governmental organizations. The meeting and site visit will occur on Tuesday July 29, 2014 from 12:30 – 2:30 p.m. During the meeting participants will have the opportunity to visit the study area, discuss alternatives, and to provide feedback and suggestions to the USACE study team.

The North Shore of Long Island, New York Bayville Study was authorized by a Resolution by the Committee on Public Works and Transportation, U.S. House of Representatives, adopted 13 May 1993. A reconnaissance report was completed in 1995 and the feasibility study was initiated in 2001. Data collection activities including surveying and mapping, and the development of baseline information on coastal processes and related environmental resources were initiated at that time. In the aftermath of Hurricane Sandy, the Disaster Relief Appropriations Act of 2013, Public Law 113-2, provided 100% of the federal funding required to complete the study. The District is currently preparing a feasibility study report with an Environmental Assessment (EA) which is scheduled for completion in 2016.

The Village of Bayville, NY is located in Nassau County and has a population of approximately 6,700 middle-income permanent residents (based upon 2010 U.S. Census figures). This low-lying community is situated between two bodies of water (Oyster Bay and Long Island Sound) and periodically experiences severe inland

inundation. After inundation has occurred, the waters leave the community stranded for extended periods of time. Additionally, a number of small, single-family residences have been severely damaged by wave attack and wave run-up, destroying the existing seawalls, which were thought to be adequate to prevent such damages.

The Village of Bayville has historically incurred major losses due to coastal erosion and flooding. After the onset of the December 1992 northeaster, hundreds of residences and businesses were flooded by high tides with standing water up to five feet for up to a week. Bayville was also affected by Hurricane Irene in 2011 and Hurricane Sandy in 2012 which flooded the interior sections of the Village from both the Long Island Sound and Oyster Bay sides. The north shore beachfront facing Long Island Sound is approximately 1.5 miles long with beach widths ranging from 100 to 200 feet. The majority of the beachfront properties are built behind concrete bulkheads and the rest are behind small dunes. The portion of the community located between Bayville Avenue and the southern bay front is generally a low-lying residential area. Bayville Avenue serves as a critical emergency egress route and is the only road connecting Centre Island (located to the east of the Village of Bayville) with the mainland.

The purpose of the feasibility study is to formulate a comprehensive coastal storm risk management plan which is economically justified, socially and technically feasible and does not have significant impacts on environmental and cultural resources. Many measures are being considered, including structural measures (floodwalls, reinforced dunes, beach nourishment, pump stations etc.) as well as non-structural measures (elevating structures, storm water management, floodplain management/zoning, etc.). The selected plan will likely be a combination of several different measures.

Meeting participants will meet at 12:30 p.m. at the Village Hall located at 34 School St, Bayville, NY. Please RSVP with Ms. Erika Mark, of our Environmental Resources Section, at (978) 318-8250 or by e-mail at Erika.L.Mark@usace.army.mil.

If any additional information is required please contact Ms. Erika Mark or Mr. Ronald Pinzon, the Project manager, at (917) 790-8627 or by e-mail at Ronald.R.Pinzon@usace.army.mil. Lastly, if you have any comments pursuant to the meeting, we ask you to please submit written correspondence to this office no later than 29 August, 2014.

Sincerely,

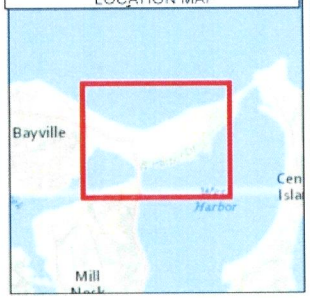
John R. Kennelly
Chief, Planning Branch

Enclosures


LEGEND

Photo Location

LOCATION MAP




NOTES & SOURCES

TITLE

Bayville NY
North Shore of Long Island
Coastal Storm Risk Management
Feasibility Study Area
Photo Location Map
Site Visit - October 2013

US Army Corps of Engineers

PLATE 1

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

July 8, 2014

Engineering/Planning Division
Planning Branch

Ms. Grace Musumeci
US EPA, Region 2
290 Broadway, 25th Floor
New York, New York 10007

Dear Ms. Musumeci,

The U.S. Army Corps of Engineers, New York District (District) invites you and/or a member(s) of your staff to participate in a coordinated scoping meeting and site visit for the Bayville, NY Coastal Storm Risk Management Feasibility Study. The District in partnership with the New York State Department of Environmental Conservation and the Incorporated Village of Bayville is currently conducting a feasibility study focused on managing the risk of coastal storm damage to this low-lying coastal community.

The purpose of this letter is to initiate coordination with your office pursuant to the Clean Air Act and to invite you to attend a meeting for interested state and federal agencies, town officials, and non-governmental organizations. The meeting and site visit will occur on Tuesday July 29, 2014 from 12:30 – 2:30 p.m. During the meeting participants will have the opportunity to visit the study area, discuss alternatives, and to provide feedback and suggestions to the USACE study team.

The North Shore of Long Island, New York Bayville Study was authorized by a Resolution by the Committee on Public Works and Transportation, U.S. House of Representatives, adopted 13 May 1993. A reconnaissance report was completed in 1995 and the feasibility study was initiated in 2001. Data collection activities including surveying and mapping, and the development of baseline information on coastal processes and related environmental resources were initiated at that time. In the aftermath of Hurricane Sandy, the Disaster Relief Appropriations Act of 2013, Public Law 113-2, provided 100% of the federal funding required to complete the study. The District is currently preparing a feasibility study report with an Environmental Assessment (EA) which is scheduled for completion in 2016.

The Village of Bayville, NY is located in Nassau County and has a population of approximately 6,700 middle-income permanent residents (based upon 2010 U.S. Census figures). This low-lying community is situated between two bodies of water (Oyster Bay and Long Island Sound) and periodically experiences severe inland

inundation. After inundation has occurred, the waters leave the community stranded for extended periods of time. Additionally, a number of small, single-family residences have been severely damaged by wave attack and wave run-up, destroying the existing seawalls, which were thought to be adequate to prevent such damages.

The Village of Bayville has historically incurred major losses due to coastal erosion and flooding. After the onset of the December 1992 northeaster, hundreds of residences and businesses were flooded by high tides with standing water up to five feet for up to a week. Bayville was also affected by Hurricane Irene in 2011 and Hurricane Sandy in 2012 which flooded the interior sections of the Village from both the Long Island Sound and Oyster Bay sides. The north shore beachfront facing Long Island Sound is approximately 1.5 miles long with beach widths ranging from 100 to 200 feet. The majority of the beachfront properties are built behind concrete bulkheads and the rest are behind small dunes. The portion of the community located between Bayville Avenue and the southern bay front is generally a low-lying residential area. Bayville Avenue serves as a critical emergency egress route and is the only road connecting Centre Island (located to the east of the Village of Bayville) with the mainland.

The purpose of the feasibility study is to formulate a comprehensive coastal storm risk management plan which is economically justified, socially and technically feasible and does not have significant impacts on environmental and cultural resources. Many measures are being considered, including structural measures (floodwalls, reinforced dunes, beach nourishment, pump stations etc.) as well as non-structural measures (elevating structures, storm water management, floodplain management/zoning, etc.). The selected plan will likely be a combination of several different measures.

Meeting participants will meet at 12:30 p.m. at the Village Hall located at 34 School St, Bayville, NY. Please RSVP with Ms. Erika Mark, of our Environmental Resources Section, at (978) 318-8250 or by e-mail at Erika.L.Mark@usace.army.mil.

If any additional information is required please contact Ms. Erika Mark or Mr. Ronald Pinzon, the Project manager, at (917) 790-8627 or by e-mail at Ronald.R.Pinzon@usace.army.mil. Lastly, if you have any comments pursuant to the meeting, we ask you to please submit written correspondence to this office no later than 29 August, 2014.

Sincerely,

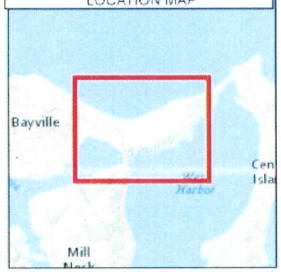
John R. Kennelly
Chief, Planning Branch

Enclosures


LEGEND

Photo Location

LOCATION MAP




NOTES & SOURCES

TITLE

Bayville NY
North Shore of Long Island
Coastal Storm Risk Management
Feasibility Study Area
Photo Location Map
Site Visit - October 2013

US Army Corps of Engineers
New England District

PLATE
1

**DEPARTMENT OF THE ARMY**
**U.S. ARMY CORPS OF ENGINEERS, NEW YORK DISTRICT**
**JACOB K. JAVITS FEDERAL BUILDING**
**26 FEDERAL PLAZA**
**NEW YORK NY 10278-0090**

February 19, 2016

Planning Division
Environmental Analysis Branch

Ruth L. Pierpont, Deputy Commissioner for Historic Preservation/
Deputy State Historic Preservation Officer
New York Division for Historic Preservation
Peebles Island State Park
P.O. Box 189
Waterford, New York 12188-0189

RE: CORPS
Proposed Shore Replenishment and Associated Dredging
Villages of Bayshore
Nassau County, NY
02PR01730

Dear Ms. Pierpont:

The U.S. Army Corps of Engineers, New York District (District), is preparing an Environmental Assessment for a Coastal Storm Risk Management (CSRM) Feasibility Study in the Village of Bayville in the Town of Oyster Bay, Nassau County, New York (Attachment 1). The study is being conducted under the authority of a resolution adopted by the Committee on Public Works and Transportation of the U.S. House of Representatives on May 13, 1993 to look at beach erosion control and storm damage reduction on the North Shore of Long Island, New York. The CSRM Feasibility Study will be completed with funds authorized by the Disaster Relief Appropriation Act of 2013 (P.L. 113-2).

The tentatively selected plan includes: 1) 3,850 linear feet of I-wall type concrete floodwall combined with 2,940 linear feet of sheetpile reinforced dunes along the Long Island Sound shoreline; 2) 2,800 linear feet of I-wall type concrete floodwall will be constructed adjoining the Mill Neck Creek neighborhood along the Oyster Bay shoreline; and 3) 5,300 linear foot set-back floodwall located down the center lane of West Harbor Drive. Traffic crossovers (raised road) will be constructed at two intersections to reduce traffic impacts to local residents. Three pump stations with a combined capacity of 159 cubic feet per second will be constructed to handle the volume of storm water expected within the study area. New drainage lines will be constructed to efficiently deliver storm water to the pump stations and to prevent making the interior drainage problem worse than it currently is once the perimeter protection is constructed (Attachment 2).

The Area of Potential Effect (APE) was determined to consist of the proposed project area and staging areas (see Attachment 2). The potential mitigation site may be located within the Oyster Bay National Wildlife Refuge (OBNWR). It is assumed that if a site within the OBNWR is used, it will have been previously investigated and no historic properties will have been identified. Currently, two paved parking areas are being proposed for use as construction staging areas.

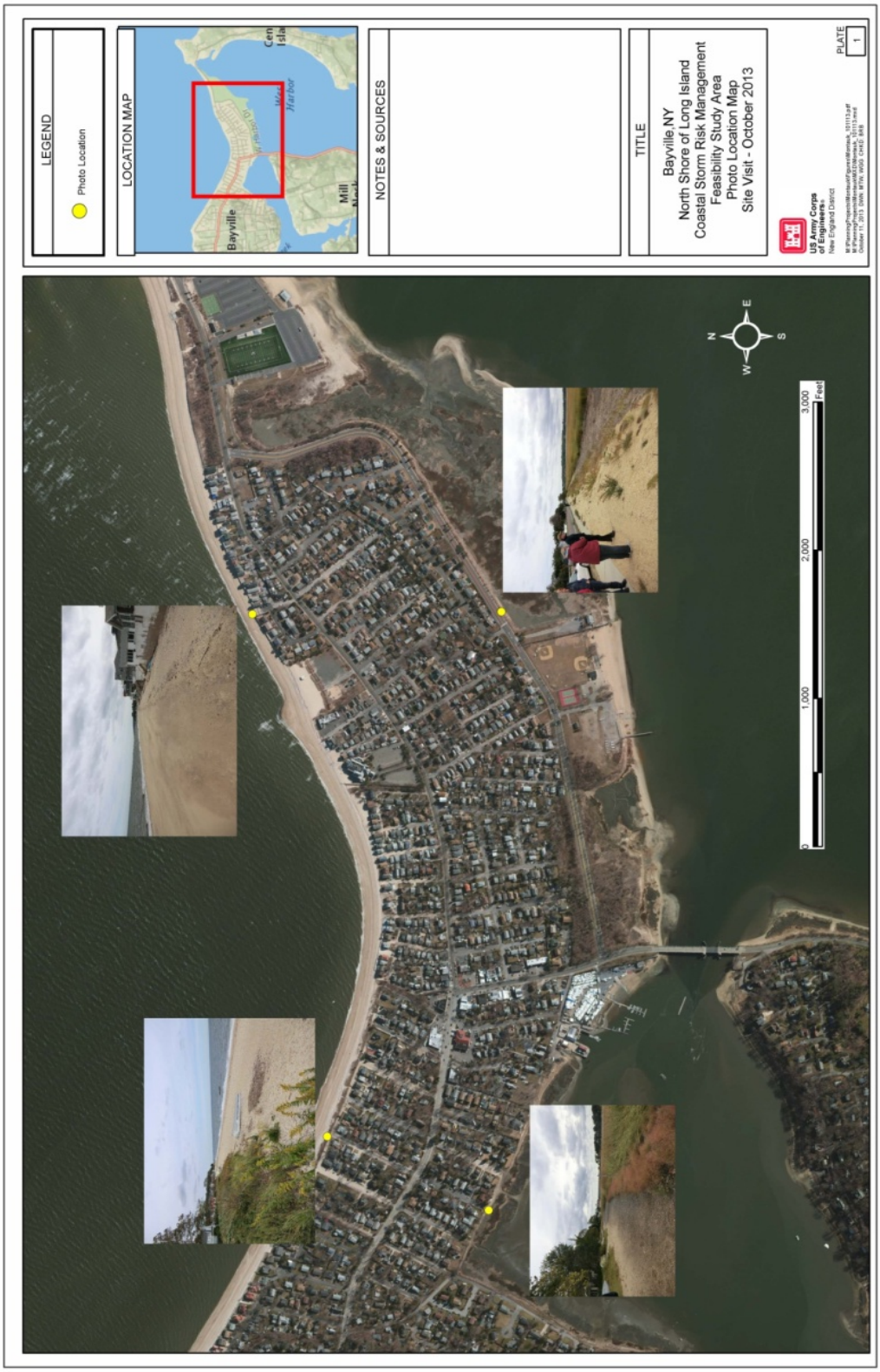
Based on research completed in 2004, the New York State site files indicates approximately 20 prehistoric sites within one mile of the project area (Attachment 3). One of these sites, identified as a village site with a burial, was identified at the western end of the Oyster Bay shoreline where a road raising and flood wall are proposed (see Attachment 3). None of the other prehistoric sites are within the APE. No historic period archaeological sites and no structures or buildings listed or eligible for listing on the National Register of Historic Places are within the APE and no further investigations for these resources will be required.

It is unclear if any of the village site remains either underneath the road or along the Oyster Bay shoreline within the APE. Prior to and during construction, additional research and field investigations will be required to determine if any remains of the site are located within the APE and a Programmatic Agreement regarding these investigations will be required. In addition, the District will be consulting with the Shinnecock Indian Nation and coordinating with the Unkechaug Indian Nation, regarding this proposed action.

Please review the attached documentation and provide your comments, in accordance with Section 106 of the National Historic Preservation Act, regarding this determination. If you have any questions or need any additional information, please contact me at (917) 790-8703 or Nancy.J.Brighton@usace.army.mil. Thank you for your consideration.

Sincerely,

Nancy J. Brighton
Supervisory Archaeologist




Attachment 1: Bayville, Nassau County, New York


Attachment 2: Map of the project area (red and white lines) included in the Area of Potential Effect

NEA
NORTHERN ECOLOGICAL ASSOCIATES, INC.

Maine Office:
451 Presumpscot Street
Portland, ME 04103

New York Office:
Village Square, 33 Church Street
Fredonia, NY 14063

Pennsylvania Office:
134 Broad Street
Stroudsburg, PA 18360

# FINAL REPORT

# REMOTE SENSING SURVEY TIDAL ZONE AND NEAR SHORE PROJECT AREAS VILLAGE OF BAYVILLE, NASSAU COUNTY, NEW YORK

**Contract Number: DACW51-01-D-0018**
**Delivery Order No. 0025**

**Prepared for:**

**U.S. Army Corps of Engineers**
**New York District**
**26 Federal Plaza**
**New York, New York 10278-0090**

**Prepared by:**

**Hunter Research, Inc.**
**Dolan Research, Inc.**
**Enviroscan, Inc.**
**and**
**Northern Ecological Associates, Inc.**

**OCTOBER 2003 (REVISED APRIL 2004)**

# Draft Finding of No Significant Impact

## I. Name of Action

North Shore of Long Island, Bayville, Nassau County, New York, Coastal Storm Risk Management Feasibility Study

## II. Description of Action

The proposed plan for the North Shore of Long Island, Bayville, Nassau County, New York, Coastal Storm Risk Management Feasibility Study includes floodwalls, raised ground surfaces, and buried floodwalls. For each segment of the project, features were chosen to match the existing surroundings, *i.e*. elevated bulkheads where the shoreline is already bulkheaded and buried floodwalls (seawalls covered with sand and a vegetation cap) on the existing dunes.

| | |
|---|---|
| Long Island Sound | 3,850 feet seawall and 2,940 feet buried floodwall |
| Oyster Bay (south side) | 2,800 feet floodwall |
| West Harbor Drive | 5,300 feet floodwall |

With the floodwalls and buried floodwalls in place, pumps will be required to pump storm water through the alignment into the Bay. Three pump stations have been proposed for Jefferson Avenue, June Avenue and the east end of First Street.

Construction is anticipated to begin in 2018 and be completed in 2020.

## III. Anticipated Environmental Impacts

A full assessment of impacts associated with the No Action Alternative and Proposed Action were evaluated in the attached draft *North Shore of Long Island, Bayville, New York, Coastal Storm Risk Management, Feasibility Study, Draft Feasibility Report and Environmental Assessment*.

Minor short-term impacts to surface water with an increase in suspended sediments in the water. This will be localized to the immediate construction area and anticipated to dissipate quickly. The implementation of Best Management Practices (BMP) such as silt fencing during construction will minimize the impacts. A 401 Water Quality Certificate will be obtained from the State of New York prior to the start of construction and all permit requirements will be addressed and/or implemented.

At the pump stations, settling tanks and catch basins will provide settling time for stormwater during low and mid flow. Suspended sediments will settle out and not flow into the surface water or salt marsh via the outfalls. Oil separators on the settling tanks will remove oil and grease and other floatables from stormwater.

Approximately 0.33 acres of permanent impacts to vegetated salt marsh where the four outfalls and associated rock will be placed. Initial coordination with the US Fish and Wildlife Service (USFWS) has resulted in a potential plan for mitigation of the 0.33 acres of wetlands in conjunction with the adjacent Oyster Bay National Wildlife Refuge (OBNWR), dependent upon additional coordination with the USFWS and the OBNWR.

On the Oyster Bay Side the construction of outfalls and outfall channels in 0.33 acres of saltmarsh will minimize the foraging and nursery habitat for finfish utilizing the area. The proposed action is also expected to have short term and long term impacts on fish species in limited areas of construction on the shore of Long Island Sound. Impacts to finfish associated with construction include the burial of benthic food resources and forage area, as well as direct impacts from an increase in turbidity while construction is underway during periods of high tide.

Motile species would likely avoid burial during the construction of the floodwalls by relocating outside of the area. However, the potential for some fish mortality does exist. Demersal fishes that may reside just offshore of the construction footprint (e.g., winter, windowpane, and summer flounder) would be temporarily displaced until benthos repopulate the area. Repopulation is expected to take one to three months. Resident fish are expected to feed in surrounding areas, and be relatively unaffected by temporary, localized, reductions in available benthic food sources. Increased levels of turbidity in the water column may cause visual impairment or respiratory stress to species in the project area. These impacts are expected to be localized and short term in duration due to the coarse, sandy nature of the material that is in the area.

Temporary and permanent loss of benthic prey species and the shift in composition will impact, but not significantly affect, EFH for any designated species utilizing the project area. Bottom feeders are opportunistic and will relocate to nearby undisturbed areas for foraging. Therefore, no more than minimal impacts are expected to occur on finfish resources.

Burial of benthic infauna and some epifauna will occur in the intertidal zone on the Long Island Sound beach and in the vegetated salt marsh on Oyster Bay when the buried floodwalls, floodwalls, outfalls, and outfall channels are built. On Oyster Bay, infauna and epifauna in the project footprint will be covered with stone fill for the construction of the four outfalls and associated outfall channels. Benthic resources in those areas will be killed if they are unable to move from the construction area; however, the stones of the outfalls and channels are expected to be recolonized by other species such as crabs and isopods.

A temporary impact to benthos from increased turbidity is expected to be localized to the immediate construction area and short term in duration. The coarse, sandy nature of the sediment to be used on the Long Island Sound buried floodwalls will cause only temporary turbidity as this material is expected to settle rapidly from the water column. Stones used in construction of the outfalls and outfall channels will contribute only a slight increase in turbidity during placement. Work will not be conducted during periods of high tide when these areas are most at risk of impacts from turbidity. Therefore, only minimal impacts to benthic resources are anticipated

No short or long term impacts are expected to commercial shellfish resources. To comply with the Migratory Bird Treaty Act, vegetation clearing will take place outside of the avian breeding season (February 1 through August 31). If vegetation clearing must take place with the breeding season, a qualified biologist will conduct nesting bird surveys prior to disturbances. If nests are identified, a non-disturbance buffer will be implements.

A portion of the Long Island Sound shoreline supports a limited amount of piping plover and red knot foraging habitat. Avoidance, minimization and mitigation recommendations for both species will be determined as part of the on-going Section 7 ESA consultation, if necessary. Project implementation should not impact Kemp's ridley and loggerhead turtles and Atlantic surgeon, who are known to reside in within the Oyster Bay. Within the proposed project area, particularly in the locations of the pump stations, there is habitat suitable for roosting and other uses by the Northern Long-eared bat. A bat habitat assessment will be conducted, which will determine what additional requirements may be undertaken to avoid impacting roosting season.

No state threatened or endangered species are known to occur within the project area.

There are no known HTRW sites within the project area. Best management practices including a project hazardous materials management plan will guard against any impacts related to project construction activities and materials.

Heavy equipment used during construction may contribute to a temporary increase in noise levels, however not beyond those cited in local ordinances. Based on an assessment of the estimated construction schedule, the proposed project will be below de minimis levels and will have no negative impact on air quality.

Long-term impacts of the proposed action will have negative and positive impacts. The view shed toward the water on both the bayside and Long Island Sound side will be altered, as the new floodwall and bulkheads/reinforced dunes will block views. Along much of the shoreline on the sound side, bulkheads and dunes already exist so this plan will only affect the areas in which the proposed bulkhead/reinforced dunes have higher top elevations than the existing or there is no existing protection. The dunes will be planted with native dune vegetation which will add aesthetic value.

## IV. Conclusions

The use of Best Management Practices during construction will be implemented through all phases of construction and include measures to be implemented prior to, during and after the completion of the project. Construction activities will be guided by resulting USFWS, ESA, and other coordination as it is finalized, in addition to 401 Water Quality Certificate permit requirements.

Given that there are no anticipated long-term adverse impacts associated with the implementation of the recommended plan, a Finding of No Significant Impact (FONSI) has been determined for this action. Furthermore, as the recommended plan would have no negative impacts on the quality of the environment, an Environmental Impact Statement is not required.

Date:_____ _____

David A. Caldwell
Colonel, US Army
Commander