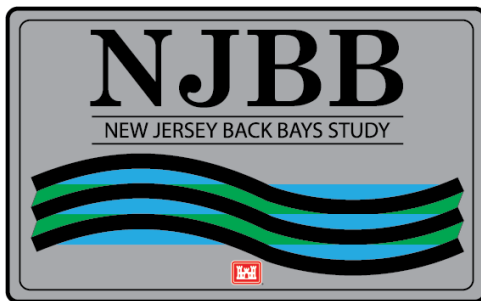

**ENVIRONMENTAL APPENDIX
US FISH AND WILDLIFE SERVICE
COORDINATION**

**NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
FEASIBILITY STUDY**

PHILADELPHIA, PENNSYLVANIA

APPENDIX F.10

August 2021



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United States Department of the Interior
FISH AND WILDLIFE SERVICE



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In reply refer to: 16-CPA-0267a

Peter Blum, Chief
Planning Division
Philadelphia District
U.S. Army Corps of Engineers
Philadelphia, Pennsylvania 19107-3390
Attn: Steve Allen

SEP 14 2018

Dear Mr. Blum:

The U.S. Fish and Wildlife Service (Service) is providing the following comments pursuant to the Fish and Wildlife Coordination Act (48 Stat.401; 16 U.S.C. 661 *et seq.*) (FWCA) regarding the U.S. Army Corps of Engineers, Philadelphia District's (Corps) New Jersey Back Bay Feasibility Study (Study), Monmouth, Ocean, Burlington, Atlantic, and Cape May Counties, New Jersey. These comments are also intended to meet our statutory responsibilities pursuant to the National Environmental Policy Act of 1969 (87 Stat. 884, as amended; 42 U.S.C. 4321 *et seq.*) (NEPA) and do not preclude additional comments on forthcoming environmental documents including a Federal Environmental Impact Statement (EIS). The Study is one of nine feasibility studies that are underway by several other Corps Districts in the Northeast as part of a North Atlantic Coast Comprehensive Study (NACCS). The New Jersey Department of Environmental Protection's (NJDEP) Bureau of Coastal Engineering is the local cost-sharing sponsor of the Study.

AUTHORITY

The following comments on the proposed action are provided to assist the Corps in seeking comments on potential alternatives pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA); FWCA; the 2014 Memorandum of Understanding between the Corps and the Service regarding implementation of Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds; the Migratory Bird Treaty Act of 1918 (40 Stat. 755; 16 U.S.C. Section 703-712); NEPA; the Clean Water Act of 1977 (86 Stat. 816, 33 U.S.C. 1344 *et seq.*) (CWA), the Emergency Wetlands Resource Act of 1986 (P.L. 99-645; 100 Stat. 3582); the National Wildlife Refuge System Improvement Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd - ee); the Wilderness Act (78 Stat. 890; 16 U.S.C. 1131 *et seq.*) (WA), EO 11988, Floodplain Management (May 24, 1977; 42 FR 26951); and EO 11990, Protection of Wetlands (May 24, 1977; 42 FR 26961).

INTRODUCTION

The Corps states a draft EIS will be forthcoming which will evaluate a suite of alternatives that support long-term resilience and sustainability of the coastal ecosystem and surrounding communities. The EIS will focus on Statewide or watershed scale strategies (including a municipal or community level scale) for potential implementation. Factors under consideration include sea level rise; local subsidence; and predicted storm frequency and intensity; and economic costs and risks associated with large scale flood and storm events. Preliminary alternatives under consideration include a suite of structural and non-structural alternatives, in addition to several natural and nature-based features.

The following comments are intended to assist the Corps in identifying a single project or series of projects that are sufficiently protective of fish and wildlife resources and their respective habitats, while meeting the stated Study purpose which is to confirm whether sites are likely to provide the “greatest flood risk management benefits, as well as any associated feasible ecosystem restoration benefits.”

STUDY AREA

The geographic boundary of the Study Area includes five counties of New Jersey (Monmouth, Ocean, Burlington, Atlantic and Cape May counties) and a drainage area of over 1,300 square miles. The Study Area includes parts of the Atlantic coast and the entire Back Bay system from Manasquan River to the Cape May Canal (Figure 1).

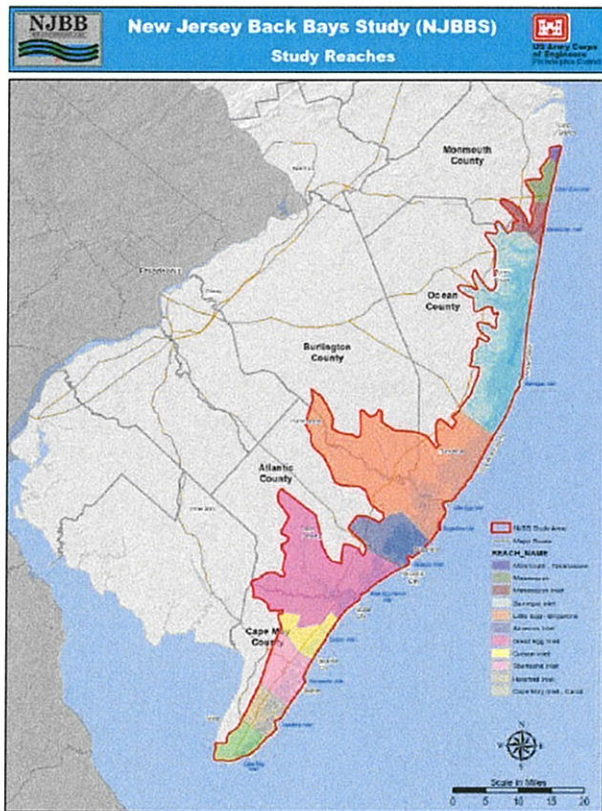


Figure 1 – New Jersey Back Bay Study Area

National Wildlife Refuges

The geographic area also encompasses all 47,485 acres of lands managed by the Edwin B. Forsythe National Wildlife Refuge Program, Atlantic County, New Jersey (EBFNWR) and up to 5,500 acres of the Cape May National Wildlife Refuge, Cape May County, New Jersey (Albers pers. comm., 2018; Hanlon pers. comm., 2018). Parts of the EBFNWR are designated as “National Wilderness Areas” at the Holgate and Little Egg Inlet Units (Units), and as such remain unmaintained for navigation purposes pursuant to the WA (Figure 2); the WA mandates that these Units be managed to preserve their wilderness character. Aside from Old Inlet (a designated Wilderness area located within the National Park Service’s (NPS) Fire Island National Seashore), Little Egg Inlet is also the only unmodified inlet between Montauk, New York, and Gargathy Inlet, Virginia (Rice 2014). In addition, the two EBFNWR Units are habitat for approximately 30 percent of New Jersey’s piping plover (*Charadrius melodus*) population. The piping plover is listed as threatened pursuant to the ESA. The Service provided substantive comments to the Corps on the ecological value of the two EBFNWR WA Units in a Planning Aid Report that evaluated the use of Little Egg Inlet as a potential sand source for the Barnegat Inlet to Little Egg Inlet Storm Damage Reduction Project (U.S. Fish and Wildlife Service 2016). As of this date the use of Little Egg Inlet as a sand source for beach nourishment has not occurred partly due to the incompatibility that dredging represented for a designated WA Unit and also because of its incompatibility with the management of a National Wildlife Refuge.

Any Study alternative proposed for advancement by the Corps which may impact (directly or indirectly) a designated WA Unit will likely receive the same level of concern from the Service as did for the proposed dredging of Little Egg Inlet. The Service recommends that any Study alternative consider the enabling legislation for which the Refuge lands were acquired. This includes not advancing any Study alternative that may adversely affect a WA Unit.

Coastal Barrier Resources Act

Numerous parts of the Study Area on the Atlantic Coast are also managed pursuant to the Coastal Barrier Resources Act of 1982 (16 U.S.C. 3501 *et seq.*) (CBRA) which established the Coastal Barrier Resources System (CBRS), a defined set of geographic units along the Atlantic, Gulf of Mexico, Great Lakes, U.S. Virgin Islands, and Puerto Rico coasts. Congress enacted CBRA to minimize the loss of human life, wasteful Federal expenditures, and damage to natural resources associated with coastal barriers. The Secretary of the Interior, through the Service, is responsible for administering CBRA. The CBRS units are depicted on a set of maps that are maintained by the Service and are available for viewing and download on the Service’s CBRA website at <https://www.fws.gov/CBRA/>. Most new Federal expenditures and financial assistance that encourage development are prohibited within the CBRS. The Corps is required to consult with the Service prior to committing funds for projects or actions within or affecting the CBRS. Activities that are proposed in a CBRS Unit must meet the purposes of CBRA or meet the exceptions allowed by CBRA.

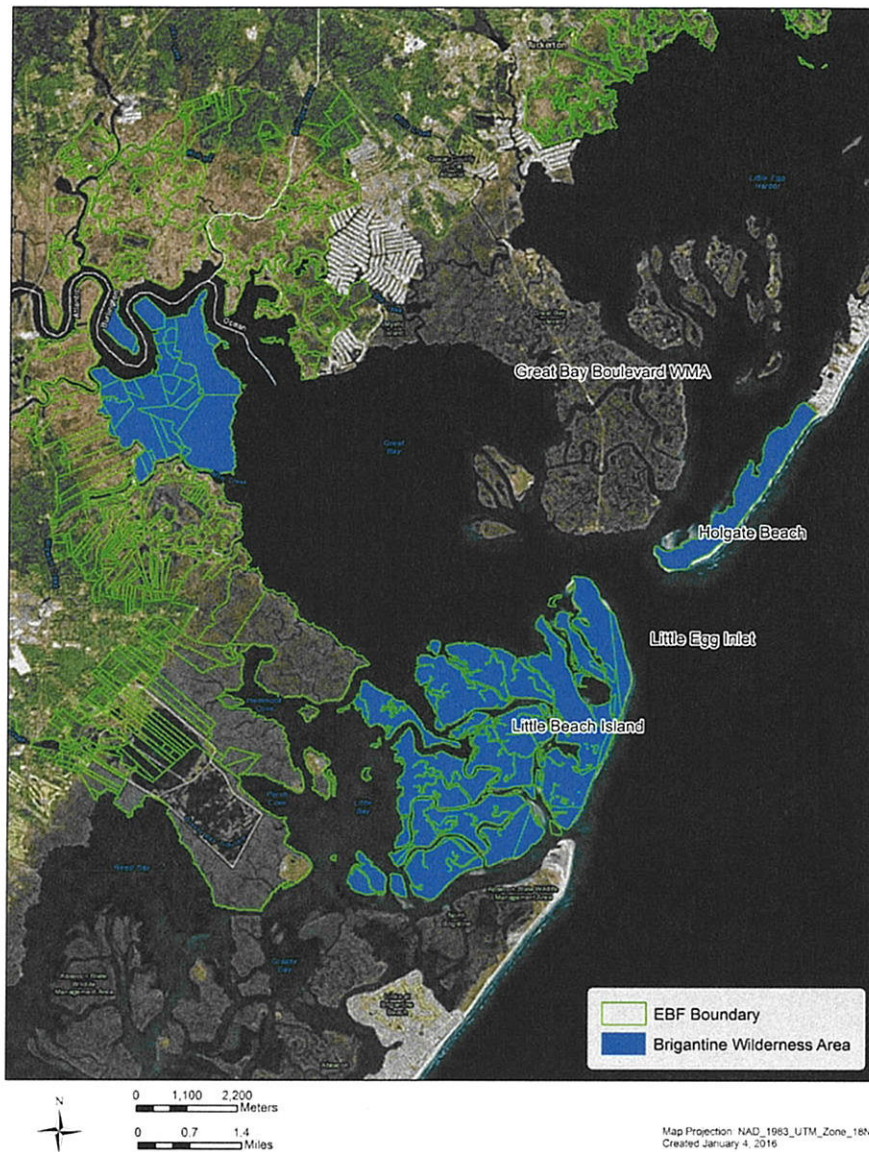


Figure 2. Wilderness Areas of EBFNWR

National Estuary Program and National Estuarine Research Reserves

The Study Area also includes the Barnegat Bay Partnership ([BBP], a National Estuary Program administered by the Environmental Protection Agency) located at Ocean County College, New Jersey and the Jacques Cousteau National Estuarine Research Reserve ([JCNERR], administered by the National Oceanic and Atmospheric Administration (NOAA)) located in Tuckerton, Ocean County, New Jersey. Both the BBP and JCNERR receive Federal funding and engage numerous stakeholders in their individual study areas both of which are encompassed by the Corps' Study Area; thus, it is imperative that the Corps include these groups to identify ecological relevant project(s) that offer long-term community resilience while providing needed benefits to the coastal ecosystem (see <http://www.prepareyourcommunitynj.org/>).

To that end, the BBP and its numerous Federal (including the Corps), State, local, and non-government agencies, academic institutions and other stakeholders have developed a Draft (July 2018) Comprehensive Conservation and Management Plan (CCMP) for public review to “reflect the changes in the Barnegat Bay’s condition and emerging threats, such as climate change and sea level rise.” The current draft CCMP can be accessed by visiting the following web site <https://www.barnegatbaypartnership.org/wp-content/uploads/2018/07/Full-Document-BBP-CCMP-Draft.pdf>.

The Corps should seek input from the BBP and JCNERR, as they have extensive knowledge of Barnegat Bay-Little Egg Harbor estuary and conduct substantial monitoring, research and outreach with the communities most affected in the Bay. Both the BBP and JCNERR can provide valuable information which will ensure the Corps Feasibility Study and the draft EIS is robust and current.

Great Egg Harbor River National Scenic and Recreation River

The Great Egg Harbor River (GEHR) was established by Congress as a Wild and Scenic River in 1992 and encompasses 308 square miles. The GEHR is an ecologically important watershed and supports one of only a few remaining river herring (*Alosa spp.*) spawning runs left in New Jersey (NJDEP 2016). The entire GEHR watershed is in the geographic boundary of the Study Area. A CMP was developed in cooperation with the Great Egg Harbor National Scenic and Recreational River Council (Council) and the NPS. A copy of the CMP can be obtained at <http://www.gehwa.org/river-council/>.

The GEHR is an ecologically important watershed and supports an important river herring spawning runs in New Jersey (Smith 2012). The entire GEHR watershed is in the geographic boundary of the Study Area. The Corps should coordinate with the NPS and the Council and similarly evaluate each alternative that may affect this significant and valuable watershed to ensure compatibility with the GEHR CMP and Congress’ intent to establish the Wild and Scenic River.

Essential Fish Habitat

Portions of the tidally inundated areas of the Study Area are deemed essential fish habitat (EFH) and as such are regulated pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (90 Stat. 331; 16 U.S.C. 1801-1882). The National Marine Fisheries Service (NMFS) has designated much of the Study Area essential to the life stages of numerous recreational and commercial finfish species. Alternatives under consideration by the Corps should be coordinated with the NMFS to assess potential impacts to EFH.

OTHER RELATED CORPS ACTIVITIES IN THE STUDY AREA

There is numerous overlapping and potentially interrelated Corps projects, already approved under separate Congressional authorization, which may affect any one of the Study Area’s proposed project alternatives. Most relevant of these authorized and ongoing projects involve the Corps’ Operations and Maintenance Dredging Program (O&M). The Corps O&M Program

maintains the entire length of the Intercoastal Waterway from Manasquan River to the Cape May Canal (Canal), and includes the management of two Corps' confined disposal facilities (CDFs) on the Canal. In addition, the Corps maintains inlets on the Atlantic Coast and Delaware Bay, all of which are in the Study Area and may become interrelated to several of the Study alternatives under consideration. The inlets include Barnegat, Absecon, Great Egg Harbor, Corson, Townsend, Hereford, and Cape May. In most cases, each of these maintenance projects includes a beach nourishment component.

The Corps also maintains several 50-year Storm Damage Reduction Projects along the Atlantic Coast of NJ, all of which are located in the subject Study Area. Each of these O&M and Storm Damage Reduction Projects could become interrelated with the current Feasibility Study (potential source of clean sand needed for nature based projects) and as such should be closely evaluated with the current Feasibility Study to determine potential beneficial use compatibility.

Finally, the Corps was selected as one of three Corps Districts in the Nation to implement an Engineering With Nature initiative – a program that couples existing Corps authorities with potential beneficial use projects. Mordecai Island, Ocean County, New Jersey and the beneficial use of dredged material is an excellent on-the-ground approach to construction of an environmentally beneficial project while providing coastal resilience. The Mordecai Island also had the added benefit of protecting an adjacent sea grass bed and provides needed shorebird nesting and horseshoe crab (*Limulus polyphemus*) spawning habitat. Other ongoing discussions of similar beneficial use projects include removing accumulated dredged material from the Corps CDF on the Cape May Canal and placing the resultant dredged material as a beneficial use for neighboring bay communities, all the while providing added horseshoe crab spawning habitat and foraging habitat for the listed red knot (*Calidris canutus rufa*).

FISH AND WILDLIFE RESOURCES

Federally Listed Species

Any activity that may adversely affect listed species should be addressed in formal Section 7 ESA consultation, such as the one completed in December 2005 when the Service evaluated the Corps Coastal Storm Damage Reduction Program for the Atlantic Coast. However, the Service recommends that the Corps minimize impacts on federally listed species such that informal consultation can be completed for any alternative(s) selected by the Corps for advancement.

Piping Plover

As previously discussed, there are known nesting occurrences of the piping plover along New Jersey's Atlantic Coast shoreline. The largest nesting plover population in New Jersey is at the Gateway National Park - Sandy Hook Unit (NJDEP 2017). Specific to the Study Area, the next largest congregation of plovers is located at the EBFNWRs Holgate and Little Beach Units. Approximately 30 pairs of plovers have occupied the EBFNWR lands for breeding for the last ten years (Table 1). The Piping Plover Recovery Plan established a region-wide goal of 1.5 chicks fledged per breeding pair (U.S. Fish and Wildlife Service 1996a). Analysis of trends in abundance and productivity from 1986-2009 indicates the breeding productivity within New Jersey was 1.18 chicks per pair (Hecht and Melvin 2009).

TABLE 1. NUMBER OF PIPING PLOVER NESTING PAIRS AND PRODUCTIVITY ON E.B. FORSYTHE NATIONAL WILDLIFE REFUGE, 1993 TO 2015

Year	Nesting Pairs	Plover Chicks Fledged	Fledging Rate (Chicks/Pairs)
1993	18*	4*	0.22*
1994	31	9	0.29
1995	9*	8*	0.89*
1996	35	13	0.37
1997	22	6	0.27
1998	31	26	0.84
1999	33	39	1.18
2000	30	29	0.97
2001	36	29	0.81
2002	35	20	0.57
2003	34	32	0.94
2004	38	8	0.21
2005	32	8	0.25
2006	30	10	0.33
2007	39	16	0.41
2008	25	1	0.04
2009	17	24	1.41
2010	26	31	1.19
2011	24	27	1.13
2012	31	20	0.65
2013	37	21	0.57
2014	26	45	1.73
2015	38	52	1.37
Mean	29.43	20.78	0.71

These small, territorial shorebirds are present on the Atlantic Coast between March and the end of August. Piping plovers nest above the high tide line, usually on sandy ocean beaches and barrier islands, but also on gently sloping foredunes, blowout areas behind primary dunes, washover areas cut into or between dunes, the ends of sand spits, and deposits of suitable dredged or pumped sand. Threats to piping plover include beach stabilization efforts (beach armoring, sand fences, sea walls, groins, jetties, and riprap); habitat loss; and intensive recreational use.

Based on the propensity of the piping plover to historically nest on the Atlantic Coast and its many inlets, including many areas in the Study Area including Little Egg Inlet, the Service recommends that the Corps fully evaluate the effects of any alternative being considered in the

subject Feasibility Study on piping plover habitat. This analysis will aid in the preparation of a biological assessment in the future for any alternative selected pursuant to ESA.

Seabeach Amaranth

Seabeach amaranth (*Amaranthus pumilus*) is found in the Study Area from Monmouth County to Cape May County, New Jersey. It is an annual plant endemic to Atlantic Coast beaches and barrier islands (U.S. Fish and Wildlife Service 1996b), occurring historically from Nantucket, Massachusetts to Folly Beach, South Carolina. By 1987, the plant was extirpated from nearly three-fourths of its earlier range (Hancock and Hosier 2003). Although the species recolonized much of those former areas between 1990 and 2000, populations in the recolonized states dropped sharply after an initial surge. Numbers remain very low and local extirpations are occurring again. The seabeach amaranth recovery objective is to have 75 percent of the sites with suitable habitat within the historical range occupied for 10 consecutive years (U.S. Fish and Wildlife Service 1996b).

The primary habitat of seabeach amaranth consists of overwash flats at accreting ends of islands, lower foredunes, and upper strands of non-eroding beaches (landward of the wrackline), although the species occasionally establishes small temporary populations in other habitats, including sound-side beaches, blowouts in foredunes, inter-dunal areas, and on sand and shell material deposited for beach replenishment or as dredge spoil. Seabeach amaranth usually is found growing on a nearly pure sand substrate, occasionally with shell fragments mixed in.

Seabeach amaranth occupies elevations from 8 inches to 5 feet above mean high tide. The plant is intolerant of even occasional flooding during its growing season. Seabeach amaranth is dependent on a terrestrial, upper beach habitat that is not flooded during the growing season from May into the fall. Such habitat is sparsely vegetated with annual herbs and, less commonly, perennial herbs (mostly grasses) and scattered shrubs. Vegetative associates of seabeach amaranth include sea rocket (*Cakile edentula*), seabeach spurge (*Chamaesyce polygonifolia*), and other species of open, sandy beach habitats. Seabeach amaranth is often associated with beaches managed for the protection of beach nesting birds such as the piping plover and the State-listed (endangered) least tern (*Sterna antillarum*) and black skimmer (*Rynchops niger*), and (Species of Concern) American oystercatcher (*Haematopus palliatus*) and common tern (*Sterna hirundo*). Threats to seabeach amaranth include beach stabilization efforts (beach armoring, sand fences, sea walls, groins, jetties, and riprap); habitat loss; intensive recreational use; invasive species such as the Asiatic sand sedge (*Carex kobomugi*); and herbivory by webworms.

The Service recommends that the Corps fully evaluate the effects of any alternative being considered in the subject Feasibility Study on seabeach amaranth. This analysis will aid in the preparation of a biological assessment in the future for any alternative selected pursuant to ESA.

Red knot

A final rule to list the red knot as threatened under the ESA was published on December 11, 2014, with an effective date of January 12, 2015. Small numbers of red knots may occur in New Jersey year-round, while large numbers of birds rely on Delaware Bay and Atlantic Coast

stopover habitats during the spring (mid-May through early June) and fall (late-July through October) migration periods, respectively. These small shorebirds fly up to 9,300 miles from south to north every spring and reverse the trip every autumn, making the red knot one of the longest-distance migrating animals. Migrating birds break their spring migration into non-stop segments of 1,500 miles or more, ending at stopover sites called staging areas. Red knots converge in large flocks on stop-over and staging areas along the Delaware Bay and Atlantic Coast, including the Study Area. Threats to the red knot include disturbance, reduced food availability at staging areas, and loss of stopover habitat. Available records indicate that red knots occur in the Study Area, including Holgate, Little Beach and nearby State managed lands (*i.e.*, Island Beach State Park, Barnegat Lighthouse State Park, North Brigantine Natural Area, Malibu Beach Wildlife Management Area, Corson's Inlet State Park, Strathmere Natural Area, Cape May Point State Park). These records indicate red knots use the Study Area annually during both spring and fall migration, with flocks sometimes numbering hundreds of birds.

For red knots, unimproved tidal inlets are a preferred nonbreeding habitat. Along the Atlantic Coast, dynamic and ephemeral (lasting only briefly) features are important red knot habitats, including sand spits, islets, shoals, and sandbars, features often associated with inlets. From South Carolina to Florida, red knots are found in significantly higher numbers at inlets than at other coastal sites (U.S. Fish and Wildlife Service 2014). Threats to red knot include beach stabilization efforts (beach armoring, sand fences, sea walls, groins, jetties, and riprap); habitat loss; and intensive recreational use.

Specific to the Study Area, the red knot concentrated during fall migration of previous years at the northern tip of Corson's Inlet and from Prescott Terrace in Strathmere south to the northern tip of Sea Isle City, utilizing beaches, back bays, and marshes for foraging and roosting. Southbound migrating red knots may occur as early as July 15 and as late as November 15.

The Service recommends that the Corps fully evaluate the effects of any alternative being considered in the subject Feasibility Study on the red knot. This analysis will aid in the preparation of a biological assessment in the future for any alternative selected pursuant to ESA.

Northern long-eared bat

The proposed Study Area is located within the summer range of the northern long-eared bat (*Myotis septentrionalis*) (NLEB). During the summer, NLEB typically roost singly or in colonies underneath bark, crevices, or hollows of both live and dead trees and/or snags (typically ≥ 3 inches dbh). The NLEB bat is opportunistic in selecting roosts, selecting varying roost tree species throughout its range. During the winter, NLEBs predominately hibernate in caves and abandoned mine portals. Maternity colonies generally consist of 30 to 60 females and young. Males and non-reproductive females may occur within the breeding and foraging range of maternity colonies, but some individuals are solitary in the summer and may roost in cooler places such as caves and mines. Roosting NLEBs have also been observed in man-made structures, such as buildings, barns, sheds, cabins, under eaves of buildings, and in bat houses.

The Service recommends that the Corps fully evaluate the effects of any alternative being considered in the subject Feasibility Study on the NLEB. This analysis will aid in the preparation of a biological assessment in the future for any alternative selected pursuant to ESA.

CONSERVATION ACTIVITIES

Section 7(a)(1) of the ESA requires all Federal agencies to utilize their authorities, in consultation with the Service, to develop and carry out programs to conserve all species listed under the ESA. Additionally, Section 2(c)(1) of the ESA declares that all Federal agencies shall utilize their authorities to further the purposes of ESA. The purpose of the ESA is to protect and recover threatened and endangered species and the ecosystems upon which they depend. To avoid future Project delays, the Service recommends coordination with the Service to fulfill this important conservation mandate. Whenever possible the Corps should adopt a strategy of incorporating the habitat needs of the aforementioned species in the design of any Study alternative considered.

MIGRATORY BIRDS

The Corps entered into a Memorandum of Understanding (MOU) with the Service on September 5, 2014 (expires 2019) and committed to following Service recommendations to conserve migratory birds. Some of the applicable responsibilities of both parties of the MOU for the subject Study include: supporting EO 13186; emphasizing an interdisciplinary, collaborative approach to migratory bird conservation in cooperation with other governments, State and Federal agencies and non-federal partners; working to protect, restore, and enhance migratory bird habitats; and in general promoting collaborative approaches towards the development of reasonable and effective conservation measures for actions that promote bird conservation. It is recommended that the Corps seek opportunities to further bird conservation as specified in EO 13186 and embraced in the jointly signed MOU.

OTHER FISH AND WILDLIFE AND THEIR HABITATS

American Eel

American eel (*Anguilla rostrata*), are distributed in the Atlantic Ocean from Greenland to Brazil. Along the Atlantic coast of the United States, eels are found from Maine and Florida. The American eel spawns in the Sargasso Sea, a warm water area in the middle of the North Atlantic between the Azores and West Indies. American eel larvae spend 9 to 12 months as leptocephali larvae (glass eels) during which time they are transported by the Gulf Stream into coastal U.S. waters, including all of the waters identified in the Corps Study Area. American eels are managed under an interstate fishery management plan developed by the Atlantic States Marine Fisheries Commission (ASMFC) and implemented in 2001. Total American eel landings declined markedly from 1979 until 1996, and have since remained relatively low but stable. The ASMFC indicate the American eel population in U.S. waters is depleted.

(<https://www.nefsc.noaa.gov/sos/spsyn/op/eel/>, <http://www.asmfc.org/species/american-eel>).

American eel stocks along the U.S. Atlantic coast underwent a status review by the Service in 2011 in response to a petition to list the species as threatened or endangered under the ESA. On October 7, 2015 the Service determined the listing of the American eel was not warranted.

The Service recommends that any alternative selected during the development of a draft EIS identify potential adverse impacts to the American eel and any nature based mitigation strategies that could mitigate or potentially aid in the recovery of American eel.

River Herring

River Herring collectively known as Alewife (*Alosa pseudoharengus*) and Blueback Herring (*Alosa aestivalis*) are confirmed in numerous waterways of the Study Area. They include: Absecon Creek; Doughty Creek; Mill Creek; numerous creeks(12) in Barnegat Bay; the Great Egg Harbor River and 15 of its tributaries; Little Egg Harbor and three of its tributaries; the Manasquan River; Tuckahoe River; Toms River; and the Mullica River and 11 of its tributaries (including the Bass River) (NJDEP 2005). River herring are anadromous fish that spend the majority of their adult lives at sea, only returning to freshwater in the spring to spawn. Historically river herring spawned in virtually every river and tributary along the Atlantic coast. Alewives spawn in rivers, lakes, and tributaries of the Northeast. Blueback herring prefer to spawn in swift flowing rivers and tributaries and are most numerous in waters from Chesapeake Bay south. Mature alewife (ages three to eight) and blueback herring (ages three to six) migrate rapidly downstream after spawning. Juveniles remain in tidal freshwater nursery areas in spring and early summer, but may also move upstream with the encroachment of saline water. As water temperatures decline in the fall, juveniles move downstream to more saline waters. Little information is available on the life history of juvenile and adult river herring after they emigrate to the sea and before they mature and return to freshwater to spawn. Shad and river herring once supported the largest and most important commercial and recreational fisheries along the Atlantic coast. Since colonial times, the blockage of spawning rivers by dams and other impediments, combined with habitat degradation and overfishing, have severely depleted shad and river herring populations. Commercial landings for these species have declined dramatically from historic highs (see <http://www.asmfc.org/species/shad-river-herring>).

In 2011, the river herring underwent a status review by NOAA to determine if the alewife and blueback should be listed as threatened or endangered pursuant to ESA. On August 7, 2013 NOAA determined that listing was not warranted for the alewife and blueback herring. As part of their determination NOAA agreed to fund and implement, in conjunction with the ASMFC and other partners, a coordinated coast-wide effort to continue to address data needs and proactively conserve river herring and their habitat. In their determination NOAA emphasized that they would be working with effected stakeholders to continue implementing important conservation efforts. NOAA indicated that they would likely revisit the status review of river herring by the end or 2018.

The NMFS indicated that the river herring is in major decline warranting designation as a Species of Concern (Greene pers. comm., 2017). Species of Concern are those species about which NOAA has concerns regarding status and threats, but for which insufficient information is available to warrant listing under the ESA. The Service concurs in NMFS' finding and recommends that any alternative selected during the development of a draft EIS should identify potential adverse impacts to river herring and any nature based mitigation strategies that could mitigate or potentially aid in the recovery of the river herring.

Striped Bass

The striped bass (*Marone saxatilis*) is found throughout the Study Area. The Atlantic Striped Bass Conservation Act (16 U.S.C. Section 5151 *et seq.*) is intended to support and encourage the development, implementation, and enforcement of effective interstate action for the conservation and management of the Atlantic striped bass. The Atlantic Coastal Fisheries Cooperative Management Act provides a vehicle for the Secretary of Commerce, in cooperation with the Secretary of the Interior, to support the Atlantic States Marine Fisheries Commission's striped bass management efforts.

Striped bass are one of the species most sought-after by recreational anglers on the Atlantic Coast. From 2005-14, recreational harvest along the Atlantic coast averaged 26.2 million pounds, generating significant revenues to the Nation's economy. Recreational landings for striped bass make up roughly 75-80% of the coastal landings. Along the Atlantic Coast, the striped bass ranges from the St. Lawrence River in Canada to St. John's River in Florida. Striped bass larvae and post larvae drift downstream toward nursery areas located in river deltas and the inland portions of the coastal sounds and estuaries. Juveniles typically remain in estuaries for two to four years and then migrate out to the Atlantic Ocean. Striped bass spend the majority of their adult life in coastal estuaries or the ocean.

Commercial fishermen harvest striped bass with a variety of gear including gill nets, pound nets, haul seines, and hook-and-line. From 2005-14, commercial harvest averaged 6.7 million pounds. Striped bass are managed directly by the state jurisdictions on the Atlantic Coast through the ASMFC (<https://chesapeakebay.noaa.gov/fish-facts/striped-bass>).

The Service recommends that any alternative selected during the development of a draft EIS identify potential adverse impacts to the striped bass and any nature based mitigation strategies that could mitigate loss of habitat or potentially aid in striped bass conservation.

Seagrasses or Submerged Aquatic Vegetation

Seagrasses or submerged aquatic vegetation (SAV) is found in the Study Area. It is found in shallow salty and brackish waters in many parts of the world, from the tropics to the Arctic Circle. Seagrasses serve as habitat and food for many recreationally and commercially important estuarine and marine species [*e.g.*, bay scallop (*Argopecten irradians*), blue mussel (*Mytilus edulis*), blue crab (*Callinectes sapidus*), and weakfish (*Cynoscion regalis*)]. Seagrass beds support commercial fisheries, biodiversity, and also play a significant role in nutrient cycling, carbon sequestration, filtering of essential elements, and wave dampening. Seagrasses can form dense underwater meadows. Because of these benefits, seagrasses are believed to be the third most valuable ecosystem in the world (only preceded by estuaries and wetlands) (<https://ocean.si.edu/ocean-life/plants-algae/seagrass-and-seagrass-beds>). Threats to seagrass beds include dredging, filling, prop wash, turbidity, algae blooms and the general eutrophication of the seagrasses host waters.

In the Study Area, the BBP has been working cooperatively with the NJDEP in monitoring the health of seagrass populations in Barnegat Bay. In their State of the Bay report for 2016, much of

the Bay's seagrass population was defined as "degraded" (see https://www.barnegatbaypartnership.org/wp-content/uploads/2017/08/BBP_State-of-the-Bay-book-2016_forWeb-1.pdf).

The Service recommends that any alternative selected during the development of a draft EIS identify potential adverse impacts to SAV and any nature based mitigation strategies that could mitigate for the loss of habitat or potentially aid in SAV habitat restoration.

Shellfish

Harvested species in the Study Area include hard clams (*Mercenaria mercenaria*), Eastern oysters (*Crassostrea virginica*), and bay scallops (*Argopecten irradians*). Overall, the abundance of hard clams in Barnegat Bay in 2012 was down approximately 23% from the last survey completed in 1985/1986. For Little Egg Harbor, the overall abundance in 2011 was down approximately 57% compared with the 1985/1986 survey. However, the abundance of hard clams in Little Egg Harbor increased 32% between 2001 and 2011 (see https://www.barnegatbaypartnership.org/wp-content/uploads/2017/08/BBP_State-of-the-Bay-book-2016_forWeb-1.pdf).

In the Study Area of Barnegat Bay, NJDEP has designated the Bay's waters for harvesting as 75% "approved," 6% "prohibited," and 19% "seasonal and special restricted" for shellfish harvest (see https://www.barnegatbaypartnership.org/wp-content/uploads/2017/08/BBP_State-of-the-Bay-book-2016_forWeb-1.pdf). To date, there have been no substantial changes in the percentages of classified waters over the past five years. Threats to shellfish include poor water quality that is generally attributable to contamination from stormwater runoff and other nonpoint sources rather than single, point source discharges. This can be seen in the northern portion of the Barnegat Bay, which represents a majority of the prohibited and special restricted waters. Additional threats to shellfish include overharvesting, the general eutrophication of host waters, algae blooms, pathogens, and loss of seagrass beds.

The Service recommends that any alternative selected during the development of a draft EIS identify potential adverse impacts to shellfish populations and any nature based mitigation strategies that could mitigate for the loss of habitat or potentially aid in shellfish recruitment and restoration.

NATIONAL ENVIRONMENTAL POLICY ACT

The goal of the NEPA is to reduce adverse impacts to the environment, including cumulative impacts and to take actions that protect, restore, and enhance the environment (40 CFR Parts 1500 to 1508). The Study Area is a mosaic of habitats ranging from tidal to non-tidal. Since Colonial times, 39 % of wetlands in New Jersey have been destroyed by human activities (Dahl 1990). Just in Barnegat Bay over 238 acres of tidal wetlands and 284 acres of freshwater wetlands were lost since 2007 (see https://www.barnegatbaypartnership.org/wp-content/uploads/2017/08/BBP_State-of-the-Bay-book-2016_forWeb-1.pdf). These historic losses have contributed to an increase of flooding and poor water quality and the general degradation of Barnegat Bay and other Study Area waters. Any additional losses of wetlands

associated with some of the Study alternatives would be considered substantial and should be avoided to the maximum extent practicable. Should the proposed Project involve an adverse effect to the aquatic environment, the goals of NEPA would not be fulfilled (*i.e.*, to protect and enhance the quality of the human environment). The filling of an undetermined amount of wetlands and waters of the U.S. is not supported by several Congressional initiatives aimed at the protection and restoration of wetlands and flood plains (E.O. for Flood Plains, and Wetlands) and the New Jersey Wildlife Action Plan.

The Service strongly recommends the Corps expend considerable effort on alternatives that provide an ecological uplift (*i.e.*, *Mordecai Island*) and not pursue alternatives that are considered hard structures (*i.e.*, groins or inlet tide gate structures) that could further degrade the aquatic environment.

Purpose and Need

Pursuant to NEPA, it is vital that the purpose and need statement be easily understood in order to develop a proper scope of analysis for identifying reasonable and practicable alternatives for consideration; analyze those alternatives in depth; and select the preferred alternative. Further discussion should be offered by the Corps in the purpose and need statement regarding other reasonably expected projects that can be expected with any alternative considered (dune fortification, dredging, and additional wetland and open water fills) and the interrelationship or interdependence of any existing authorized Corps project to the Study's alternatives under consideration.

Federally Listed Species

Approximately one-third of the State's piping plover population is found in the Study Area. Other Federal listed species confirmed in the Study Area include the threatened seabeach amaranth, red knot, and northern long-eared bat. Based on some preliminary alternatives identified by the Corps (*i.e.*, tide gates; storm surge barriers; hardened shorelines; groins; dune construction; new levee construction; and increases in dredging frequency and volumes, including beach nourishment along the Atlantic Coast and the ICWW) it is reasonable to expect that any one of these activities could adversely affect a listed species. As such, the Corps should continue coordinating with the Service to determine the extent of any adverse impacts that could be associated with any Study alternative.

The Corps should be aware of another Feasibility Study underway by the Corps of Engineers, New York District as part of the NACCS. The New York District is evaluating the potential impacts of similar structures identified in the NJBBS, including a proposed levee/tide gate structure that would span New York Harbor from Breezy Point, Brooklyn, New York to Sandy Hook, Monmouth County, New Jersey. The Gateway National Park at Sandy Hook currently provides habitat for approximately 60 % of New Jersey's piping plover population. The New York District's NACCS study also has the potential to adversely affect the piping plover.

A shoreline hardening project selected by the Corps as a preferred alternative for either the Sandy Hook or Little Egg Inlet area could significantly impact the continued existence of this

species. As such, the Corps should evaluate the activities identified by the New York District (and the other seven NACCS studies) to ensure that the cumulative effects of any Study alternative being considered in the NACCS effort would not adversely affect, either individually or cumulatively, a federally listed species.

Cumulative Effects

The EIS should describe that the Study Area is impaired due to the cumulative actions of humans over the last two centuries and that any additional loss of wetlands or open waters in the Study Area will further exacerbate an already impacted Study Area. The draft EIS should reference that wetlands, and their corresponding ecological functions and values (including flood protection), continue to be lost in New Jersey due to development, the effects of sea level rise, and the subsidence of marsh plains. The EIS should also reference that the current mitigation strategy of converting lesser quality aquatic habitats (*i.e.*, a *Phragmites* dominated marsh) to another of higher value does not result in added flood protection to the region. To offset the continuing cumulative effects of declining wetland acreage in the Study Area the Service recommends that the Corps (1) minimize impacts to the aquatic environment by seeking Study alternatives that avoid the filling of wetlands or open waters, and (2) for wetland impact areas that are deemed unavoidable, develop a viable mitigation plan to offset adverse impacts to the aquatic environment as specified in the 2015 Presidential Memorandum (Obama 2015). In the Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment, for which the Department of Defense is a signature party, the White House said “Agencies shall each adopt a clear and consistent approach for avoidance and minimization of, and compensatory mitigation for, the impacts of their activities and the projects they approve” (Obama, 2015). The Corps cumulative analysis of impacts and corresponding compensation, if any, should also be consistent with the Executive Order 11988 (Floodplain Management), and EO 11990 (Protection of Wetlands). A restoration strategy whereby the selection of a preferred Study alternative would also result in a “net benefit to the aquatic environment” should also be major themes throughout the Study’s draft EIS.

Indirect Effects

The draft EIS should discuss what, if any flooding impacts may occur as the Corps evaluates the potential construction of any Study alternative being considered. This should include a discussion on how a study alternative may exacerbate an already known flooding condition or place undue hydrologic stress on a barrier island system that may not be designed for coastal storms or projected rising sea levels. The latter example could apply should the Corps select a tide gate system that prohibits flood waters from entering the Back Bay may place undue stress on a dune system making it potentially prone to breach.

The Service is also concerned that flood waters that would normally be accommodated in the Study Area may be diverted to other areas outside the Study Area (*i.e.*, Shark, Navesink, or Shrewsbury Rivers, and Raritan and Delaware Bays) and cause indirect flooding of lands and communities in these watersheds. The feasibility Study should reference the potential indirect effects of converting known estuarine marshes to a freshwater habitat as tidal flow may be restricted upstream of planned levees or flood control structures. Several of the Study

alternatives under consideration have the potential to prohibit the passage of aquatic organisms upstream and downstream of any planned construction site. The conversion of aquatic habitats and/or the blocking of fish passage would necessitate mitigation requirements, and potentially exacerbate already depressed fisheries, and require large quantities of mitigation to offset impacts on the aquatic environment.

Alternative Analysis

The Council of Environmental Quality states (40 CFR Part 1508.25) that a range of actions, alternatives, and impacts shall be considered in a NEPA document. For a proposed action or any reasonable alternative, the Federal action agency should determine the area that will be affected. In 1989 the EPA defined the geographic scope for an alternative analysis to "...include all areas that would be reasonable to consider in the industry." and that "...the basic project purpose will generally determine the appropriate geographical scope."

The Service objects to the selection of hard engineered solutions, such as a levee, tide gate, or flood wall, unless they are accompanied by significant ecological gains for the Study Area. As discussed earlier, there are numerous opportunities for the Corps to pursue beneficial alternatives in the aquatic environment. The Service recommends the Corps to work closely with the effected stakeholders and pursue alternatives that improve water quality, finfish and shellfish habitat, wetlands habitat and fish passage. Improvement in aquatic functions and habitat can lead to additional flood storage and storm attenuation in the Study Area.

The Service also requests that the scope of alternatives include an array of nature based alternatives that utilize dredged material for large scale wetland and island restoration projects. The Corps should fully consider the utilization of the millions of cubic yards of dredged material currently found in the dozens of CDFs found within the Study Area, including the Corps' owned and operated CDF located adjacent to the Cape May Canal. Barring a CDF that contains contaminants of ecological concern, the use of dredged material for an ecological beneficial use can improve ecological functions of the bay while providing coastal resilience to adjoining communities facing flood risk. The Corps only has to review their very successful work at Mordecai Island which utilized dredged material for the restorations of an island and wetland habitat. This new habitat provides ecological uplift for Barnegat Bay, nesting habitat for shorebirds, storm resilience for Long Beach Island, protects an existing sea grass bed, and provides for safe navigation with the boating public. This initiative could result in the adoption many of the restoration projects identified in the Corps Final Selection Report dated December 2001, for the New Jersey Intercoastal Waterway (Corps 2001).

The use of nature based alternatives has considerable ecological and community benefits that appear just as practicable economically and environmentally as a seawall or other hard structure that offers minimum ecological benefit. The Corps needs to determine why dredged material that is contained in a CDF (that is free of contamination) cannot be utilized for sediment enrichment projects such as marsh and island creation and for coastal resilience for targeted Back Bay communities.

CLEAN WATER ACT

The Congressional intent of the CWA "... is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." As the NJDEP and the Corps are aware, the U.S. Congress passed the CWA to enable Federal agencies to restore, and maintain the chemical, physical, and biological integrity of the Nation's waters.

Alternatives that are not water dependent (i.e., in-water fills for the purpose of constructing levees, groins, or seawalls) should be avoided whenever possible. Hard structures or tide gates may likely generate sufficient interest from the public to warrant reconsideration, as the losses of wetlands or waters of the US and the costs of mitigation may outweigh any gains a hard structure or tide gate may represent.

Non-water dependent alternatives that may be economically viable and meet the purpose of the Study could include a "retreat" program for businesses and residences that suffer repeatable flood losses. Properties eligible for a "retreat" program could be bought-out, relocated outside the flood plain or be raised above a certain storm height elevation. For properties that are vacated, the use of upland areas for the construction of berms or levees is a preferred alternative over any losses to the aquatic environment. The implementation of a "retreat" program should be carefully coordinated with representatives of the Housing and Urban Development Authority (HUD), the Federal Emergency Management Authority (FEMA), and NJDEPs Blue Acres Program - as each of these agencies manages programs to acquire or relocate flood prone properties and businesses.

SERVICE CONCLUSIONS AND RECOMMENDATIONS

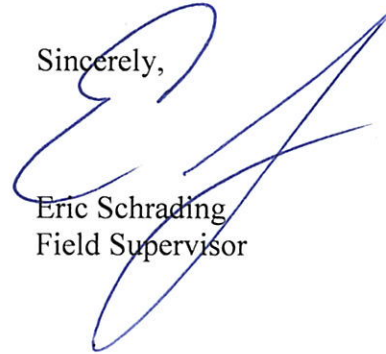
The Service has significant concerns to the selection of hard engineered solutions, such as levees, tide gates, or flood walls being constructed in the Study Area. The Service prefers the selection of nature based alternatives as was constructed on Mordecai Island, as the template used in selecting Study alternatives. The Corps should be seeking alternatives that avoid or minimize activities in the aquatic environment with a goal of improving water quality and the habitats of numerous fish, shellfish, and migratory birds whenever possible. The Corps should focus on the Study Areas population declines of numerous species, wetland and seagrass losses, and fish migration impediments, as they develop a robust Study alternative analysis. Finally, the Corps should utilize the efforts of the BBP, JCNERR, and NJDEP to develop viable solutions for the affected communities while providing a path forward towards ecological restoration of New Jersey Back Bay habitats.

The Service requests the following be incorporated into the Corps draft NEPA document. The Service will maintain our coordination status pursuant to FWCA and NEPA to ensure that the Project is sufficiently protective of fish and wildlife resources, including species protected under the ESA, and their respective habitats. The Service recommends the Corps implement the following measures:

- evaluate all Study alternatives to ensure compliance with the enabling legislation which authorized the acquisition of Refuge lands and avoid the advancement of any alternative that may affect a WA Unit;
- coordinate with the BBP and JCNERR to further the selection of alternatives that align with the work they are implementing with many stakeholders in the Study Area;
- coordinate with the NPS and the Council to ensure compatibility with their CMP;
- consult with the NMFS to ensure the effects any Study alternative are evaluated pursuant to ESA and the Magnuson-Stevens Fishery Conservation and Management Act;
- work with the Corps O&M Division to evaluate the beneficial use of dredged material, (including the utilization of sediment currently stored in dozens of CDFs) to meet the Study's purpose and need objectives;
- continue informal ESA consultation with the Service on potential effects of Study alternatives considered;
- evaluate the cumulative effects on listed species regarding actions taken by the Corps of Engineers to further the goals of the NACCS;
- adopt a strategy for the selection of Study alternatives that prioritize the habitat needs of any affected listed species or fish and wildlife resource;
- seek opportunities to further migratory bird conservation pursuant to EO 13186 and highlighted in the MOU between the Corps of Engineers and the Service;
- evaluate impacts to the American eel, striped bass, seagrasses, shellfish, and river herring and develop Study alternatives that further conservation efforts for these species;
- avoid the selection of hard structure Study alternatives by seeking Study alternatives that provide an ecological uplift while meeting the Study's purpose and need (*i.e.*, Mordecai Island)
- evaluate the interrelationship and interdependence of the current Study with other previously authorized Corps activities;
- ensure the Study's NEPA document advances the goals of EOs 11988, 11990 and 13112; and
- partner with HUD, FEMA and NJDEPs Blue Acres Program to identify businesses and residents that are prone to flooding and work towards developing a "Retreat" program.

Thank you again for allowing the Service to continue providing comments pursuant to FWCA, NEPA and ESA on the subject feasibility investigation. If you require additional information on the above, please contact Mr. Steve Mars at 609-382-5267.

Sincerely,



Eric Schradling
Field Supervisor

CF: USFWS, Region 5 (ARD for ES and NWR)
USFWS, (EBFNWR and CMNWR)
USEPA
NOAA
NJDEP

REFERENCES

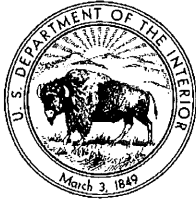
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- _____. 1996b. Recovery Plan for Seabeach Amaranth (*Amaranthus pumilus*) Rafinesque. Atlanta, Georgia. 59 pp.
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B. PERSONAL COMMUNICATIONS

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- Greene, K. 2017. Supervisor. National Marine Fisheries Service, Highlands, New Jersey.
- Hanlon, H. 2018. Biologist. U.S. Fish and Wildlife Service, Cape May National Wildlife Refuge, Cape May, New Jersey.



United States Department of the Interior
FISH AND WILDLIFE SERVICE



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In reply refer to: 16-CPA-0267b

Peter Blum, Chief
Planning Division
Philadelphia District
U.S. Army Corps of Engineers
Philadelphia, Pennsylvania 19107-3390
Attn: Steve Allen

MAR 29 2019

Dear Mr. Blum:

The U.S. Fish and Wildlife Service (Service) is continuing to provide comments pursuant to the Fish and Wildlife Coordination Act (48 Stat.401; 16 U.S.C. 661 *et seq.*) (FWCA) regarding the U.S. Army Corps of Engineers, Philadelphia District's (Corps) New Jersey Back Bays Coastal Storm Risk Management Interim Feasibility Study and Environmental Scoping Document - Main Report dated March 1, 2019. These comments follow previous comments made by the Service on September 14, 2018 and are intended to meet our statutory responsibilities pursuant to the National Environmental Policy Act of 1969 (87 Stat. 884, as amended; 42 U.S.C. 4321 *et seq.*) (NEPA) and do not preclude additional comments on the draft Federal Environmental Impact Statement (EIS).

The geographic boundary of the New Jersey Back Bays Coastal Study Area (includes five counties of New Jersey (Monmouth, Ocean, Burlington, Atlantic and Cape May counties) and a drainage area of over 1,300 square miles. The Study Area includes parts of the Atlantic Coast and the entire Back Bay system from Manasquan River to the Cape May Canal, New Jersey and includes numerous land holdings of the Edwin B. Forsythe and Cape May National Wildlife Refuges (Project Study Area).

AUTHORITY

The following comments on the proposed action are provided to assist the Corps in seeking comments on potential alternatives pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA); FWCA; the 2014 Memorandum of Understanding between the Corps and the Service regarding implementation of Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds; the Migratory Bird Treaty Act of 1918 (40 Stat. 755; 16 U.S.C. Section 703-712); NEPA; the Clean Water Act of 1977 (86 Stat. 816, 33 U.S.C. 1344 *et seq.*) (CWA), the Emergency Wetlands Resource Act of 1986 (EWRA) (100 Stat. 3582; 16 U.S.C. 3901-3932); the National Wildlife Refuge System Improvement Act of 1966, as amended by the National Wildlife Refuge System Improvement

Act of 1997 (NWRSA) (111 Stat. 1252; 16 U.S.C. 668 et seq.); the Wilderness Act (WA)(78 Stat. 890; 16 U.S.C. 1131 *et seq.*), EO 11988, Floodplain Management (May 24, 1977; 42 FR 26951); and EO 11990, Protection of Wetlands (May 24, 1977; 42 FR 26961).

INTRODUCTION

The Service provided scoping comments on the subject Feasibility Study on September 14, 2018. Although the March 1, 2019 Main Study Report acknowledges that substantive comments were received by the Service, the Corps response to these concerns was general in scope and breadth. Rather than reiterate our concerns in this correspondence, the Service requests that the Corps prepare a streamlined response to our September 14, 2018 comments (and that of other agency's comments) in order that they are readily identified and sufficiently responsive.

Upon reviewing the current March 1, 2019 Main Report, we offer the following additional comments (by Section as identified in the Corps' Main Report) that should be addressed prior to the development and selection of a preferred alternative(s). The Service emphasizes the use of natural and nature-based alternative solutions that can meet project objectives. The Service expects a robust alternative analysis be completed that complements the efforts of numerous stakeholders in the Project Study Area; avoids impacts on the numerous fish and wildlife species and their habitats; and supports the mission of the Service's National Wildlife Refuge System of which two Refuges are managed in the Project Study Area (Edwin B. Forsythe and Cape May National Wildlife Refuges).

COMMENTS

3.6 Study Area

Each of the five areas evaluated (Coastal Lakes, Shark River, North, Central and South) which describe current conditions and the physical settings of the Project Study Area should also include a description of all Federal entities (Barnegat Bay and Delaware Bay National Estuary Programs, Jacques Cousteau National Estuarine Research Reserve (JCNERR), two National Wildlife Refuges and the National Pinelands Reserve) and State land holdings (State Forests, Parks, or Wildlife Management Areas).

3.6.1 Coastal Lakes Region

Acknowledge that Wreck Pond, located in Allenhurst, Monmouth County, New Jersey is a tidally influenced watershed with the Atlantic Ocean. In recent years river herring (*Alosa* sp.) have been documented passing through the existing non-gated culvert to watershed areas upstream of the Atlantic Ocean (McCulloch pers. comm. 2019).

4.2.1 Problems

Rising sea level represents a threat to numerous habitats important for fish and wildlife species. These threats include the loss of valuable breeding habitats for threatened and endangered species; migratory and shorebird nesting species; commercially important shellfish and finfish

species should be added to the ongoing threat assessments performed by the Corps. Historical acreage losses of wetlands (which has been shown to provide storm surge protection) in the Study Area from human development and coastal erosion should be discussed along with the projected acreage losses of habitats due to sea level rise.

4.4 b. Universal Constraints

Include compliance with the Department of the Interior if a selected alternative(s) lies within the jurisdictional boundary of the New Jersey Pinelands National Reserve. In addition, the Corps should ensure compliance with the State's Coastal Zone Management Act (N.J.A.C. 7:13-1.1 *et seq.*) and the Coastal Zone Management Act of 1972 (P.L. 92-583) (86 Stat. 1280; 16 U.S.C. 1451-1464) and Section 320 of the CWA (86 Stat. 816; 33 U.S.C. 1251 *et seq.*) (for activities that occur in a National Estuary Reserve).

4.4 c. Study-Specific Constraints

Reference should be made of the management plans for the New Jersey Pinelands National Reserve, Barnegat and Delaware Bay National Estuary Programs and the JCNERR. These management plans should be fully considered in the selection of the preferred alternative(s).

5.3 Existing Studies and Projects

Coastal engineering or maintenance dredging projects that the Corps conducted (if any) at Corson's Inlet, Great Egg Harbor Inlet, Townsend Inlet, and Hereford Inlet should be included in the discussion of existing studies and projects.

5.4 Shoreline Types

The Corps should discuss shoreline types (also in Section **5.8 Historical Shoreline Changes**) from a historical perspective and how sea level rise will contribute future changes in the Study Area. This discussion should be consistent with the historical losses of tidal marshes and future adverse impacts to New Jersey's marsh plains from projected rising seas.

5.5 Economics

The Corps should consider the economic wealth of the current wetland and forest systems in the Project Study Area and the ecological services they provide (fish and shellfish production, carbon sequestration, water quality benefits, and recreational and commercial use of the Study Area's waterways, National, State and local municipal parklands, refuges, and beaches). In 2016, more than 103 million Americans (40 percent of the U.S. population 16 years and older) participated in some form of fishing, hunting, or other wildlife associated recreation such as birdwatching or outdoor photography (U.S. Department of the Interior *et al.* 2016). This usage equated to an estimated \$156.9 billion in expenditures on equipment, travel, licenses, and fees. The United States Environmental Protection Agency (2006) provided estimates of the economic value of wetlands worldwide at \$14.9 trillion. Human based recreation is a strong economic interest for the State of New Jersey and rising sea levels represent a threat to the State's

economy. The Corps should consider discussing the growing data of the value of wetlands from a coastal resilience perspective. To highlight one of the many functions that wetlands perform (e.g., flood protection), a regional study showed that wetlands on the New Jersey Coast avoided \$430 million in direct flood damages during Hurricane Sandy (Narayan *et al.* 2017).

5.8 Historical Shoreline Changes

The Corps should acknowledge that the effects of shoreline erosion and sea level rise, coupled with coastal storm flooding is continuing to place the region's economy at risk.

6.14 Special Status Species

The Service has proposed the listing of the eastern black rail (*Laterallus jamaicensis*) as threatened, and is evaluating the listing of the monarch butterfly (*Danaus plexippus*), and the saltmarsh sparrow (*Ammodramus caudacutus*) for listing under the ESA. These three species may be present in the Project Study Area. Proposed species (black rail) are subject to the conference procedures under Section 7 of the ESA. Species being evaluated for listing (monarch butterfly and salt-marsh sparrow) do not receive any substantive or procedural protection under the ESA. Despite the current status of the monarch butterfly and salt marsh sparrow (*i.e.*, non-listed), each of these species are in decline range-wide.

6.2.2 Coastal Barrier Resources Act Areas

The Corps should acknowledge that the Service is the Federal lead agency responsible for the administration of the Coastal Barrier Resources Act of 1982 (P.L. 97-348) (96 Stat. 1653; 16 U.S.C. 3501 *et seq.*).

6.2.8 National Estuary Programs

The Corps should identify that the Delaware National Estuary Program is also located in the Project Study Area.

6.21 Climate and Climate Change

The Corps should acknowledge that the 2018 precipitation rate was the highest since record keeping began in 1895, with a statewide average of 64 inches of precipitation being recorded (see <https://www.nj.gov/dep/drought/rainfall.html>).

7.1 Economic and Social Without Project Conditions

The Corps should reference the Union of Concerned Scientists 2017 and 2018 publications and its conclusions regarding future without project impacts, economic risk, sea level rise, and chronic flooding predictions for New Jersey communities (Union of Concerned Scientists 2017, 2018).

8.2 Sea Level Change

The Service requests that the Corps compare its sea level projections against that of the rates predicted by the National Oceanic and Atmospheric Administration (see <https://coast.noaa.gov/digitalcoast/tools/slr>) and that of the Intergovernmental Panel on Climate Change (2014).

11. Environmental Laws and Compliance

The Service requests that the following authorities also be included: the EWRA; the National Wildlife Refuge System Administration Act of 1966, as amended by the NWRSA; and the WA.

11.1 National Environmental Policy Act

Pursuant to NEPA (40 CFR Part 1508.7, Effects), the Corps should evaluate the direct and indirect effects of each of the alternatives considered, including those that may occur later in time and are reasonably foreseeable. For example, the placement of tidal gates at Barnegat Inlet may increase navigation use at Little Egg Inlet, an unmaintained and natural inlet (without a dredging history) bordering a designated Wilderness Unit of the Edwin B. Forsythe National Wildlife Refuge. This increased navigational use may warrant new dredging at the inlet or other waterways that are within or adjoin refuge lands.

In addition, the Corps should evaluate a change in use of a tidal gate where it could evolve (once constructed) from a storm protection structure whose project purpose would be served once or twice a year to a structure whose project purpose would be to halt rising sea levels on a daily basis. Each of these alternatives will have different scopes of environmental review pursuant to NEPA (alternatives considered, cumulative impacts and effects [direct and indirect]).

SERVICE CONCLUSIONS AND RECOMMENDATIONS

The Service appreciates the efforts by the Corps to discuss the array of alternatives being considered and for their commitment in ensuring the production of a comprehensive and transparent NEPA document. As the Corps further refines its environmental analysis, the Service will continue to provide comments and recommendations to ensure that the Project(s) maximize their benefits on the human environment, including fish, wildlife, and their respective habitats. The Service reiterates our concerns over alternatives that focus on hard engineered solutions, such as levees, tide gates, or flood walls being constructed in the Project Study Area. The Service prefers the selection of Engineered with Nature or Nature-based alternatives as was constructed on Mordecai Island, and now being considered in Delaware Bay and Seven Mile Island in Avalon, New Jersey.

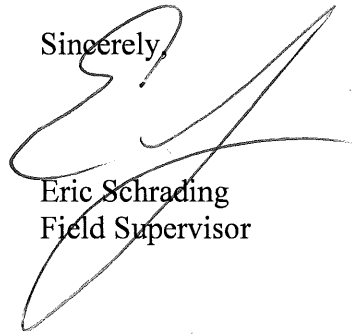
The Corps should be seeking alternatives that avoid or minimize activities in the aquatic environment with a goal of improving water quality and the habitats of numerous fish, shellfish, and migratory birds whenever possible. The Corps should focus on the Study Areas' population declines of numerous fish and wildlife species, wetland and seagrass losses; and fish migration impediments, as they develop a robust alternative analysis. Finally, the Corps should utilize the

efforts of the Pinelands Commission, the Barnegat Bay Partnership, the Jacques Cousteau National Estuary Research Reserve, the NJDEP, and the Edwin B. Forsythe and Cape May National Wildlife Refuges to develop viable solutions for the affected communities while providing a path forward towards ecological restoration of New Jersey Back Bay habitats.

In addition to the recommendations contained in the Service's September 14, 2018 letter, the Service requests the following additional concerns be incorporated into the Corps NEPA document. The Service will maintain our coordination status pursuant to FWCA and NEPA to ensure that the Project is sufficiently protective of fish and wildlife resources, including species protected under the ESA, and their respective habitats.

Thank you again for allowing the Service to continue providing comments pursuant to FWCA, NEPA and ESA on the subject feasibility investigation. If you require additional information on the above, please contact Mr. Steve Mars at 609-382-5267.

Sincerely,



Eric Schradling
Field Supervisor

CF: USFWS- Region 5 (ARD for ES and NWR)
USFWS - EBFNWR and CMNWR
USEPA (Montella, Spinweber)
NOAA (Greene, Hanson)
NJDEP (Kopkash, Keller)
BBPNEP (Hales)
DBNEP (Kreeger)
JCNERR (Auermuller)
New Jersey Pinelands Commission

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B. PERSONAL COMMUNICATIONS

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