

FINDING OF NO SIGNIFICANT IMPACT

Hudson-Raritan Estuary Ecosystem Restoration Feasibility Study Multiple Sites within Hudson-Raritan Estuary New York and New Jersey

The U.S. Army Corps of Engineers, New York District (Corps) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The final Integrated Feasibility Report and Environmental Assessment (IFR/EA) dated 24 April 2020, for the Hudson-Raritan Estuary Ecosystem Restoration Feasibility Study addresses aquatic ecosystem restoration opportunities and feasibility within the Hudson-Raritan Estuary (HRE), New York and New Jersey. The final recommendation is contained in the report of the Chief of Engineers, dated **26 May 2020**.

The Final IFR/EA, incorporated herein by reference, evaluated various alternatives that would address the ongoing long-term and large-scale ecosystem degradation within the estuary in the study area. The recommended plan is the National Ecosystem Restoration (NER) Plan and includes:

- The reporting officers recommend construction authorization at this time of a National Ecosystem Restoration (NER) Plan that will provide for the restoration of approximately 381 acres of estuarine wetland habitat (including 16 acres/six (6) miles of tidal channels), 50 acres of freshwater riverine wetland habitat, 27 acres of coastal and maritime forest habitat, 39 acres of shallow water habitat and 52 acres of oyster habitat. Two (2) fish ladders would be installed and three (3) weirs would be modified to re-introduce or expand fish passage (24 miles) and control flow rate and water volume along the Bronx River. Additionally, 1.6 miles of streambank restoration and 72 acres of bed and channel restoration is recommended. Monitoring and adaptive management of each restoration site within this interim recommendation has been budgeted for a period up to 5-years post-construction. Future spin-off feasibility studies to be undertaken under the existing Hudson-Raritan Estuary Ecosystem Restoration Authority The NER Plan provides an estimated net increase of 339 average annual functional capacity units (AAFCUs).

For all alternatives, the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the recommended plan are listed in Table 2:

Table 1: Restoration Sites Recommended for Construction

Location	Recommended Restoration	Site
Jamaica Bay Planning Region		
Jamaica Bay	Perimeter Shoreline Estuarine Habitat Restoration	Dead Horse Bay (Tier 2) ¹ Fresh Creek
	Jamaica Bay Marsh Island Restoration	Duck Point Stony Creek Pumpkin Patch West Pumpkin Patch East Elders Center
	Small-Scale Oyster Restoration	Head of Jamaica Bay
Harlem River, East River, and Western Long Island Sound Planning Region		
Flushing Creek	Estuarine Habitat Restoration	Flushing Creek
Bronx River	Freshwater Riverine Habitat Restoration	Bronx Zoo and Dam Stone Mill Dam Shoelace Park Bronxville Lake Garth Woods/Harney Road
Newark Bay, Hackensack River, and Passaic River Planning Region		
Hackensack River	Estuarine Habitat Restoration	Metromedia Tract Meadowlark Marsh
Lower Passaic River	Estuarine Habitat Restoration	Oak Island Yards (Tier 2) ¹
	Freshwater Riverine Habitat Restoration	Essex County Branch Brook Park
Upper Bay Planning Region		
Upper New York Bay	Small-Scale Oyster Restoration	Bush Terminal
Lower Bay Planning Region		
Sandy Hook Bay	Small-Scale Oyster Restoration	Naval Weapons Station Earle

¹ Tier 2: Site requires remedial activities to take place prior to or in coordination with restoration.

Table 2: Summary of Potential Effects of the Recommended Plan

	Insignificant effects	Insignificant effects as a result of mitigation*	Resource unaffected by action
Aesthetics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aquatic resources/wetlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Invasive species	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish and wildlife habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Threatened/Endangered species/critical habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historic properties	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other cultural resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Floodplains	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hazardous, toxic & radioactive waste	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hydrology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Navigation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Noise levels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public infrastructure	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Socio-economics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental justice	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soils	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tribal trust resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climate change	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The alternatives prepared for each restoration site were developed by varying and combining site-appropriate measures (e.g., wetland restoration, streambank restoration, bed restoration) aimed at meeting region- and site-specific objectives. Measures were selected with the following considered:

- The capacity of the measures to address site-specific water resource problems was assessed through comparison with applicable screening criteria.
- Rigorous scrutiny occurred to avoid any measures that were impractical or too costly relative to the ecological uplift provided.

- The various measures for each alternative were selected to work in concert with each other, to provide the greatest ecological uplift for each site.
- The measures for all sites were selected to act synergistically to address key stressors in a particular watershed.
- Restoration concept designs were discussed with non-federal study sponsors and potential construction sponsors at design charrettes or coordination meetings.

For the Jamaica Bay Perimeter sites, range of one (1) to six (6) alternatives were developed for each site and advanced one alternative based on a system wide Cost Effective/Incremental Cost Analysis (CE/ICA). The HRE study optimized the 2010 recommended alternative. The recommended alternatives are:

(1) *Fresh Creek* – Habitat Restoration consisting of 16.1 acres of Low Marsh, 4.4 acres of High Marsh, 3.6 acres and 10.7 acres of Coastal Scrub/Shrub Wetlands and Maritime Forest respectively, and the restoration of 45.08 acres of the existing channel.

(2) *Dead Horse Bay* – Habitat Restoration consisting of 19 acres of Low Marsh, 5.4 acres of High Marsh, 6.2 acres of Scrub/Shrub Wetlands, 8 acres of Adjacent Upland, and restoration of 2.31 acres of the existing channel. Restoration would be implemented in coordination with the National Park Service (NPS) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) activities.

For the Jamaica Bay Marsh Islands, three (3) alternatives were developed at the five (5) marsh island locations. The alternatives were based on lessons learned and cost-effectiveness to develop the optimal marsh island size and design. Cost effectiveness analysis of prior marsh restoration efforts clearly indicated that the primary drivers of cost and cost efficiency are the depth of the placement site, which determines the resulting volume of material needed for restoration, and availability of material within a given dredge cycle. Prior screenings acknowledged the scalability of the Recommended Plan: the final size of the plan could be scaled up or down within limits dictated by the existing condition bathymetry as well as the imposed constraint of the 1974 marsh island footprint without significantly impacting the cost efficiency of the selected plan. The three (3) alternatives developed for the present study were based upon the constraints of minimum restoration area/volume, maximum restoration area, available volume of sand for beneficial use and sustainability. The recommended alternatives are:

(1) *Duck Point* – Habitat Restoration consisting of 24.9 acres of Low Marsh, 5.6 acres of High Marsh, 8.1 acres of Scrub/Shrub Wetlands, 1.03 acres of Channel Restoration and 7.57 acres of Shallow Marine Habitat.

(2) *Stony Creek* – Habitat Restoration consisting of 26 acres of Low Marsh, 22.5 acres of High Marsh, 3.49 acres of Scrub/Shrub Wetlands, 1.43 acres of Channel Restoration and 8.67 acres of Shallow Marine Habitat.

(3) *Pumpkin Patch West* – Habitat Restoration consisting of 13.7 acres of Low Marsh, 8.61 acres of High Marsh, .9 acres of Scrub/Shrub Wetlands, .74 acres of Channel Restoration, and 3.88 acres of Shallow Marine Habitat.

(4) *Pumpkin Patch East* – Habitat Restoration consisting of 15.6 acres of Low Marsh, 10.1 acres of High Marsh, 3.1 acres of Scrub/Shrub Wetlands, .58 acres of Channel Restoration, and 5.22 acres of Shallow Marine Habitat.

(5) *Elders Center* – Habitat Restoration consisting of 15.2 acres of Low Marsh, 10.9 acres of High Marsh, 1.4 acres of Scrub/Shrub Wetlands, .95 acres of Channel Restoration, and 5.49 acres of Shallow Marine Habitat.

For the Flushing Creek site, three (3) alternatives were developed that varied the area footprint, acreage of various habitat types while considering the existing bathymetry to minimize costs. The recommended alternative is:

(1) *Flushing Creek* – Habitat Restoration consisting of 9.76 acres of Low Marsh, 2.47 acres of High Marsh, 1.8 acres of Scrub/Shrub Wetlands, 3.89 acres of Coastal Maritime Forest and 1.37 acres of Shallow Marine Habitat.

For the Bronx River, Lower Passaic River, and Hackensack river sites, a minimum of three alternatives were developed for each site. Typically, three (3) restoration alternatives or concept plans were developed, varying the type and magnitude of target ecosystem characteristics achievable within the site. The three (3) alternatives comprised the following:

- Alternative A or 1 maximizes the restoration potential for each site through the placement of a mosaic of habitats, or TECs, and solutions for stressors of water resources. Typically, this alternative has the highest anticipated restoration benefits and the greatest ecological lift through a range of benefits.
- Alternative B or two (2) focuses largely on correcting the most significant environmental stressors and restoring targeted habitats and ecological functions for a particular site. The alternative removes key stressors and has moderate to high ecological lift.
- Alternative C or three (3) focuses on correcting the most significant environmental stressors for a particular site. The alternative has moderate ecological lift, achieved only through removing key stressors.

The recommended alternatives are:

(1) *Bronx Zoo and Dam* – Habitat Restoration consisting of 1.16 acres of Freshwater Emergent Wetlands, .48 acres of Forested Freshwater Scrub/Shrub Wetlands, .42 acres of Invasive Removal/Native Planting, the stabilization of 750 linear feet of stream bank, and incorporation of a fishway which will open .8 miles of previously unavailable stream habitat.

(2) *Stone Mill Dam* – Habitat Restoration consisting of .032 acres of Invasive Removal/Native Planting, restoration .5 acres of the channel bed, and the incorporation of a Fishway which will open 22.9 miles of previously unavailable stream habitat (following fishway installation at Bronx Zoo).

(3) *Shoelace Park* – Habitat Restoration consisting of 2.07 acres of Freshwater Emergent Wetlands, 1.1 acres of Forested Freshwater Scrub/Shrub

Wetlands, 7.9 acres of invasive plant removal/native planting, 5.7 acres of channel bed and the stabilization of 7,415 linear feet of stream bank.

(4) *Bronxville Lake* – Habitat Restoration consisting of .86 acres of Freshwater Emergent Wetlands, 2.49 acres of Forested Freshwater Scrub/Shrub Wetlands, 1.39 acres of Invasive plant removal/native planting, restoration of .65 acres of channel bed, and the creation of a 0.3 acre Forebay that will trap sediment and debris.

(5) *Garth Woods-Harney Road* – Habitat Restoration consisting of 0.82 acres of Freshwater Emergent Wetlands, 1.67 acres of a Freshwater Wet Meadow, 0.57 acres of Forested Freshwater Scrub/Shrub Wetlands, 1.63 acres of invasive plant removal/native planting, restoration of 2.19 acres of channel bed, and the stabilization of 200 linear feet of stream bank.

(6) *Essex County Branch Brook Park* – Habitat Restoration consisting of the creation of 10.25 acres of Freshwater Emergent Wetlands; restoration of 8.8 acres of Freshwater Forested Scrub/Shrub Wetlands, 8.91 acres of Invasives Removal/Native Planting, and the restoration of 18.09 acres of channel bed.

(7) *Metromedia Tract (Hackensack River)* – Habitat Restoration consisting of 26.5 acres of Low Marsh, 11.7 acres of High Marsh, 13.8 acres of Scrub/Shrub Wetlands, 2.79 acres of existing channel restoration, and 6.5 acres of Shallow Marine Habitat.

(8) *Meadowlark Marsh (Hackensack River)* – Habitat Restoration consisting of 56.2 acres of Low Marsh, 6.5 acres of High Marsh, 5.4 acres of Scrub/Shrub Wetlands, .7 acres of adjacent Upland, and the restoration 4.6 acres of an existing channel.

(9) *Oak Island Yards* – Habitat Restoration consisting of 5.32 acres of Low Marsh, .85 acres of High Marsh, .44 acres of Scrub/Shrub Wetlands, 2.85 acres of adjacent Upland, and the restoration of 1.36 acres of an existing channel. Restoration would be sequenced following the United States Environmental Protection Agency's (USEPA) remedial action implemented for the lower 8.3 miles of the Lower Passaic River.

For the scale oyster reef restoration sites, conceptual plans were developed for small-scale restoration at five (5) sites in the draft feasibility report, which were subsequently refined to three (3) sites. The designs incorporated restoration techniques that have been tested during regional stakeholder pilot programs implemented between 2010 and 2019, and include combinations of restoration techniques most suitable for the conditions, such as bathymetry, tidal currents, and substrate at each site. It is envisioned that, between the HRE Feasibility Study oyster reef restoration projects and continuing restoration efforts by the sponsors and other entities in the HRE study area, there will be considerably more functioning oyster reef habitat by 2050. The recommended alternatives are:

(1) *Naval Weapons Station Earle* – Habitat Restoration consisting of 10 acres of Reef Creation (oyster castles, shell and gabions)

(2) *Bush Terminal* – Habitat Restoration consisting of 31.9 acres of Reef Creation (spat on shell, oyster castles and gabions)

(3) *Head of Jamaica Bay* – Habitat Restoration consisting of 10.1 acres of Reef Creation (spat on shell and gabions)

The expected environmental effects of implementing the Recommended Plan would be overwhelmingly beneficial to the flora and fauna of the HRE, and beneficial to the public living in the HRE study area. Implementation of the Recommended Plan would be a substantial first step in the large-scale restoration of the HRE and would realize habitat restoration and expansion of available habitat for a host of fauna, including providing the ability for anadromous and catadromous species to access the full length of the Bronx River for first time in centuries; marsh restoration at 8 sites in Jamaica Bay, and small-scale restoration of the eastern oyster (*Crassostrea virginica*). Site restoration would involve construction in proximity to ecological resources. Each site would have short-term construction-related effects with varying spatial and temporal scales and degrees of intensity. Construction designs would include practices that avoid and minimize effects to significant resources. All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the Recommended Plan. Best management practices (BMPs) as detailed in the IFR/EA will be implemented, if appropriate, to minimize impacts. Specific measures will be developed for each site based on its specific impacts. Construction designs and timing would include standard measures.

No compensatory mitigation is required as part of the recommended plan.

Public review of the draft IFR/EA and FONSI was completed on 1 May 2017. All comments submitted during the public review period were responded to in the Final IFR/EA and FONSI. A 30-day state and agency review of the Final IFR/EA was completed on 15 April 2020. Comments from state and federal agency review did not result in any changes to the final IFR/EA.

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the U.S. Army Corps of Engineers contacted the United States Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) were contacted regarding federally listed threatened and endangered species under the Endangered Species Act (ESA). The following determinations per planning region were made:

1) Jamaica Bay Planning Region Sites–

NMFS Species: Four (4) different species of protected marine turtles (threatened Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead *{Caretta caretta}*, the threatened North Atlantic DPS of green *{Chelonia mydas}*, and the endangered Kemp's ridley *{Lepidochelys kempii}* and leatherback sea turtles *{Dermochelys coriacea}*) and the endangered Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) may be present in the bay. USACE determined that construction at Dead Horse Bay, Fresh Creek, and Head of Jamaica Bay would have no effect on the listed

species and that construction at the marsh island sites may affect, but is not likely to adversely affect (NLAA), listed species (October 2019). NMFS concurred with the USACE NLAA determination for the marsh island restoration sites on October 29, 2019. The District will continue to consult with NMFS with regard to any potential impacts to threatened and endangered species.

USFWS Species: USACE determined that construction of the Jamaica Bay sites would have no effect on piping plover (*Charadrius melodus*), roseate tern (*Sterna dougallii dougallii*) or seabeach amaranth (*Amaranthus pumilus*). Additionally, USACE determined that construction at all Jamaica Bay sites with the exception of the Head of Jamaica Bay oyster restoration, may affect, but is not likely to adversely affect red knot (October, 2019). USFWS concurred on with the USACE NLAA determination on 2 March 2020.

2) Newark Bay, Hackensack River, and Passaic River Planning Region Sites–

NMFS Species: The Section 7 Mapper indicated that endangered adult shortnose sturgeon and threatened and endangered adult and sub-adult Atlantic sturgeon may occur in the proposed project areas. The range for Atlantic and shortnose sturgeon, in the vicinity of the proposed projects, includes the Hudson River to the dam at Troy (NYSDEC, NYNHP). Although Atlantic and shortnose sturgeon that spawn in the Hudson River out-migrate to surrounding coastal waters near the project area, there is a lack of information linking Atlantic and shortnose sturgeon to the Hackensack River. Coordination with NMFS indicated no occurrence of threatened or endangered species within the Hackensack River project area. The District has determined that the construction activities at Meadowlark Marsh and Metromedia Track will have no effect on Atlantic and shortnose sturgeon.

USFWS Species: No listed species under USFWS jurisdiction utilize the proposed restoration sites within the Newark Bay, Hackensack River and Passaic River Planning Region.

3) Harlem River, East River and Western Long Island Sound Planning Region Sites–

NMFS Species: According to NMFS correspondence (April 27, 2016), the endangered Atlantic sturgeon and shortnose sturgeon may be present in the East River and their adjacent bays and tributaries, which could include the Flushing Creek and Bronx River restoration sites. Disruptions to marine wildlife are expected to be insignificant and short-term during construction, and BMPs would be employed to minimize impacts from suspended sediments. If construction activities are determined to make the water habitat unsuitable for wildlife, the use of timing restrictions or noise attenuating tools will be implemented. USACE has determined that construction activities at these sites will have no effect on Atlantic and shortnose sturgeon (October 2019).

USFWS Species: No listed species under USFWS jurisdiction utilize the proposed restoration sites within the Harlem River, East River and Western Long Island Sound Planning Region.

Pursuant to section 106 of the National Historic Preservation Act of 1966, as amended, the U.S. Army Corps of Engineers determined that historic properties may be adversely affected by the Recommended Plan. The Corps and the Advisory Council for Historic Preservation, the New Jersey State Historic Preservation Office (NJSHPO), the New York State Historic Preservation Office (NYSHPO), the National Park Service, and the New York City Landmarks Preservation Commission (NYCLPC) entered into a Programmatic Agreement (PA), dated 4 March 2020. All terms and conditions resulting from the agreement shall be implemented in order to minimize adverse impacts to historic properties.

Pursuant to the Clean Water Act of 1972, as amended, the discharge of dredged or fill material associated with the recommended plan has been found to be compliant with section 404(b)(1) Guidelines (40 CFR 230). The Clean Water Act Section 404(b)(1) Guidelines evaluation is found in Appendix F-5 of the IFR/EA.

A water quality certification pursuant to section 401 of the Clean Water Act will be obtained from the New York State Department of Environmental Conservation and New Jersey Department of Environmental Protection prior to construction. In letters dated 16 April 2020 and 7 February 2020 respectively the New Jersey Department of Environmental Protection and the New York State Department of Environmental Conservation stated that the Recommended Plan appears to meet the requirements of the water quality certification, pending confirmation based on information to be developed during the pre-construction engineering and design phase. All conditions of the water quality certification will be implemented in order to minimize adverse impacts to water quality.

A determination of consistency with the State of New York Coastal Zone Management program pursuant to the Coastal Zone Management Act of 1972 was obtained from the Department of State on 16 December 2019. All conditions of the consistency determination shall be implemented in order to minimize adverse impacts to the coastal zone.

A determination of consistency with the New York City Coastal Zone Management program pursuant to the Coastal Zone Management Act of 1972 was also obtained from the Office of Waterfront and Open Space Planning on 5 December 2019. All conditions of the consistency determination shall be implemented in order to minimize adverse impacts to the coastal zone.

A determination of consistency with the State of New Jersey Coastal Zone Management program pursuant to the Coastal Zone Management Act of 1972 will be obtained from the Division of Land Use Regulation prior to construction. In a letter dated 16 April 2020, the State of New Jersey stated that the Recommended Plan appears to meet the requirements of state Coastal Zone Management plans, pending confirmation based on information to be developed during the pre-construction engineering and design phase. All conditions of the consistency determination shall be implemented in order to minimize adverse impacts to the coastal zone.

All applicable environmental laws have been considered and coordination with appropriate agencies and officials has been completed.

Technical, environmental, and cost effectiveness criteria used in the formulation of alternative plans were those specified in the Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies. All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the Recommended Plan would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

Date

Thomas D. Asbery
Colonel, Corps of Engineers
District Commander