2025 DREDGED MATERIAL MANAGEMENT PLAN UPDATE FOR THE PORT OF NEW YORK AND NEW JERSEY

Draft Integrated Report and Supplemental Environmental Assessment

U.S. Army Corps of Engineers
New York District

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EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers (USACE), New York District (NY District) is the primary Federal agency responsible for the dredging and maintenance of the approximately four dozen Federally authorized navigation channels within the Port of New York and New Jersey (hereafter referred to as “Port” or “Harbor”). Current USACE regulation (Engineer Regulation [ER] 1105-2-100) requires each USACE District to prepare a dredged material management plan (DMMP) for new work construction dredging, maintenance dredging of Federal navigation channels, and dredging outside of Federally maintained channels that require Federal permits, when it is demonstrated there is insufficient dredged material placement capacity to accommodate 20 years of maintenance. This report, the 2025 DMMP Update, carries forward the current DMMP for the Port (initially developed in 1999 and last updated in 2008) through the five-year period of 2025 through the end of calendar year 2029.

The NY District determined that a 2025 DMMP Update was needed to address several material changes that have occurred since the last DMMP update in 2008. First, dredged material placement capacity and demand has changed, and several previously identified placement locations are no longer available or are running out of capacity. Second, Section 125a(2)(B) of Water Resources Development Act (WRDA) 2020 (33 United States Code [USC] 2326g) modified the determination of the Federal Standard, specifying that the Federal Standard must include the economic and environmental benefits, efficiencies, and impacts of beneficial use of dredged material. The Federal Standard is defined as the least costly dredged material disposal or placement alternative(s) that are consistent with sound engineering practices and environmental requirements (33 Code of Federal Regulations [CFR] 335.7). Third, USACE beneficial use policy has changed; current Federal law requires that USACE policy maximize the beneficial use of dredged material (33 USC 2326g). In alignment with this law, the USACE Beneficial Use of Dredged Material Command Philosophy Notice (25 January 2023) increased the beneficial use of dredged material goal to 70% by the year 2030.

In light of these changes, the purpose of the 2025 DMMP Update is to: 1) ensure sufficient dredged material placement capacity to meet placement demand; 2) identify the Federal Standard for dredged material placement in compliance with 33 USC 2326g; and 3) identify placement opportunities that maximize beneficial use of dredged material in compliance with 33 USC 2326g and the USACE Beneficial Use of Dredged Material Command Philosophy Notice (25 January 2023).

The objective of the 2025 DMMP Update is to develop a regionally supported, comprehensive plan to ensure adequate dredged material placement capacity for the Port through the year 2029. Where appropriate, subsequent DMMPs or DMMP Updates will be prepared for dredging activities performed beyond the period of analysis (2025 - 2029). The NY District prepared a Draft Supplemental Environmental Assessment (SEA) for the 2025 DMMP Update in accordance with requirements of the National Environmental Policy Act of 1969 (NEPA), as amended, and USACE Procedures for Implementing NEPA (ER 200-2-2). The Draft SEA is integrated with the 2025 DMMP Update report (Integrated Report and SEA) and builds upon the Draft Programmatic Environmental Impact Statement (PEIS) that was prepared for the 1999 DMMP and finalized during the 2008 DMMP Update.

The Study Area for the 2025 DMMP Update encompasses Federal, State, local, and private navigation channels, berthing areas, and other navigational facilities in the Port where dredging is proposed through 2029 and potential dredged material placement locations in the region. The Study Area includes New York City, portions of Nassau and Westchester Counties in New York, portions of Monmouth, Middlesex, Union, Essex, Bergen, Passaic, and Hudson Counties in New Jersey, and portions of Luzerne and Lehigh Counties in Pennsylvania. The Study Area lies within the New York – New Jersey Harbor Estuary and the New York Bight Apex in the Atlantic Ocean.

The NY District determined that there remains sufficient dredged material placement capacity for the forecasted placement demand over the five-year period of analysis (2025-2029). Dredged material placement demand and capacity were analyzed for three main material types: material suitable for placement at the Historic Area Remediation Site (HARS) in the New York Bight Apex (inclusive of silt, non-beach quality sand, and rock); beach quality sand; and non-HARS suitable material (also referred to as upland material within the report). There is an estimated 27.2 million cubic yards (MCY) of capacity for HARS suitable material (silt, sand, and rock), sufficient for placement of the expected 13.5 MCY of expected dredged material placement demand. For planning purposes, the NY District estimates that the Ocean Dredged Material Disposal Site (ODMDS) designation process will allow for an additional 20 to 50 MCY of placement capacity for HARS-suitable material within the Study Area after 2027. There is an estimated 25.1 MCY of capacity for beach quality sand, which is more than sufficient for the forecasted 4.4 MCY of placement demand expected over the five-year period of analysis. Across all identified upland placement sites, there is an estimated 17.6 MCY of placement capacity, sufficient for the 3.4 MCY of expected placement demand through 2029.

Pursuant to ER 1105-2-103, a DMMP must also identify a base plan, consisting of placement at the Federal Standard placement alternative. For the purposes of this 2025 DMMP Update, the economic and environmental benefits, efficiencies, and impacts of beneficial use of dredged material were qualitatively assessed and considered jointly with unit placement costs when evaluating the Federal Standard. Given the significant number of dredged material placement locations and the wide geographic range of forecasted dredge projects within the Harbor, a more general, management measure approach was taken to determine a Harbor-wide Federal Standard for each of the three material types considered. Historical cost data from recent dredge projects (2009-2024) within the Harbor were used to estimate unit placement costs for each management measure under consideration. Given these estimated unit placement costs and qualitatively assessed beneficial use potential, benthic remediation (i.e., placement at the HARS) was determined to be the Federal Standard for HARS suitable material. For beach quality sand, placement at borrow areas was determined to be the lowest cost management measure for beach quality sand. For non-HARS suitable material, placement as non-structural fill was determined to be the Federal Standard. Regardless of these Harbor-wide Federal Standard determinations, the Federal Standard should be evaluated on a project-specific basis prior to bid solicitation, given suitable placement options anticipated to be available at the time of dredging.

The Draft SEA evaluates the 2025 Interim DMMP Update Alternative (Proposed Action) and the No Action Alternative, which serves as a baseline against which the Proposed Action is compared. A 20-year 2025 DMMP Update Alternative was screened out of consideration and not carried forward for detailed analysis because the long-term capacity for HARS suitable material is too uncertain. In accordance with NEPA and the USACE Procedures for Implementing NEPA (ER 200-2-2), the affected environment and environmental consequences were evaluated for the following resources: bathymetry; socioeconomics; water resources; wetlands; vegetation; benthic fauna; fish and wildlife; special status species; special status habitats; floodplains; cultural resources; recreation; visual resources; coastal resources; hazardous, toxic, and radioactive waste; air quality; noise and vibration; and cumulative effects.

The 2025 Interim DMMP Update is an administrative planning activity that provides an array of dredged material management measures that could be implemented by various Federal, State, local, and private projects. No construction, dredging, or dredged material management is recommended. The 2025 Interim DMMP Update does not commit the NY District to a decision regarding the uses of resources or the location of a project. For these reasons, the Proposed Action will have no effect on the environmental resources present in the Study Area. As a result, impact avoidance, minimization, and mitigation are not required. Project proponents are responsible for complying with the applicable environmental requirements, including but not limited to NEPA, for dredged material management activities occurring in the future. There will be additional opportunities for environmental coordination as dredged material management measures occur in the future.

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ACRONYMS AND ABBREVIATIONS

AER	Aquatic Ecosystem Restoration
APE	Area of Potential Effect
BMP	Best Management Practice
CAA	Clean Air Act
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resources System
CO	Carbon Monoxide
CEHA	Coastal Erosion Hazard Area
CFR	Code of Federal Regulations
CSRM	Coastal Storm Risk Management
CY	Cubic Yards
CZMA	Coastal Zone Management Act
CWA	Clean Water Act
DA	Department of the Army
DMMP	Dredged Material Management Plan
EA	Environmental Assessment
EFH	Essential Fish Habitat
EM	Engineer Manual
EIS	Environmental Impact Statement
EO	Executive Order
EQ	Environmental Quality
ER	Engineer Regulation
FRM	Flood Risk Management
FONSI	Finding of No Significant Impact
HAPC	Habitat Area of Particular Concern
HARS	Historic Area Remediation Site
HDCI	Harbor Deepening Channel Improvements
HTRW	Hazardous, Toxic, and Radioactive Waste
HWQMR	Harbor-Wide Water Quality Monitoring Report
MCY	Million Cubic Yards
MDS	Mud Dump Site
mg/L	Milligrams Per Liter
MMPA	Marine Mammal Protection Act
MMT	Million Metric Tons
MPRSA	Marine Protection, Research, and Sanctuaries Act
MSA	Metropolitan Statistical Area
MTA	Metropolitan Transit Authority
NAAQS	National Ambient Air Quality Standards
NED	National Economic Development
NEPA	National Environmental Policy Act
NIDCD	National Institute on Deafness and Other Communication Disorders
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection

NJDOT	New Jersey Department of Transportation
N.J.S.A.	New Jersey Statutes Annotated
NO_2	Nitrogen Dioxide
NY District	New York District
NYSDEC	New York State Department of Environmental Conservation
NYS DOS	New York State Department of State
O_3	Ozone
O&M	Operations and Maintenance
ODMDS	Ocean Dredged Material Disposal Sites
OPA	Otherwise Protected Area
OSE	Other Social Effects
PADEP	Pennsylvania Department of Environmental Protection
PEIS	Programmatic Environmental Impact Statement
PANYNJ	Port Authority of New York and New Jersey
Pb	Lead
PCB	Polychlorinated Biphenyls
PDT	Project Delivery Team
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter 2.5 Micrometers or Less in Diameter
PM_{10}	Particulate Matter 10 Micrometers or Less in Diameter
Port	Port of New York and New Jersey
RDT	Regional Dredge Team
RED	Regional Economic Development
ROSBA	Rockaway Offshore Sand Borrow Area
SAV	Submerged Aquatic Vegetation
SBOBA	Seabright Offshore Borrow Area
SEA	Supplemental Environmental Assessment
SHPO	State Historic Preservation Office
SO_2	Sulfur Dioxide
TCDD	2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin
tpy	Tons Per Year
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
WRDA	Water Resources Development Act
ZSF	Zone of Siting Feasibility

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1 INTRODUCTION

1.1 Purpose and Need

The United States Army Corps of Engineers (USACE), New York District (NY District) is the lead Federal agency for the 2025 Dredged Material Management Plan (DMMP) Update for the Port of New York and New Jersey (hereafter referred to as “Port” or “Harbor”). The Port is the largest seaport on the East Coast and plays a vital role in the economic well-being of the region and the Nation (Figure 1-1). Thousands of commercial and recreational vessels travel through the Port annually, including large container ships, bulk vessels, oil tankers, cruise ships, and barges. The Port must be periodically dredged to create and maintain sufficient depths for the safe and efficient operation of vessels in navigation channels, berthing areas, and other navigational facilities. Dredging is the process of excavating underwater materials such as naturally accumulated sediment or existing rock. A DMMP is a planning document that estimates the quantity of dredged material that will be generated over a specific period of time and identifies potential dredged material placement locations. Current USACE regulation (Engineer Regulation [ER] 1105-2-100) requires each USACE District to prepare a DMMP for new work construction dredging, maintenance dredging of Federal navigation channels, and dredging outside of Federally maintained channels that require Federal permits, when it is demonstrated there is insufficient dredged material placement capacity to accommodate 20 years of maintenance.

The DMMP for the Port was prepared in 1999 and last updated in 2008 (2008 DMMP Update). The NY District determined that a 2025 DMMP Update was needed to address several changes that have occurred since the 2008 DMMP Update. First, dredged material placement capacity and demand has changed, and several previously identified placement locations are no longer available or are running out of capacity. Second, Section 125a(2)(B) of Water Resources Development Act (WRDA) 2020 (33 United States Code [USC] 2326g) modified the determination of the Federal Standard, specifying that the Federal Standard must include the economic and environmental benefits, efficiencies, and impacts of beneficial use of dredged material. The Federal Standard is defined as the least costly dredged material disposal or placement alternative(s) that are consistent with sound engineering practices and environmental requirements (33 Code of Federal Regulations [CFR] 335.7). Third, USACE beneficial use policy has changed; current Federal law requires that USACE policy maximize the beneficial use of dredged material (33 USC 2326g). In alignment with this law, the USACE Beneficial Use of Dredged Material Command Philosophy Notice (25 January 2023) increased the beneficial use of dredged material goal to 70% by the year 2030.

In light of these changes, the purpose of the 2025 DMMP Update is to: 1) ensure sufficient dredged material placement capacity to meet placement demand; 2) identify the Federal Standard for dredged material placement in compliance with 33 USC 2326g; and 3) identify placement opportunities that maximize beneficial use of dredged material in compliance with 33 USC 2326g and the USACE Beneficial Use of Dredged Material Command Philosophy Notice (25 January 2023).

The 2025 DMMP Update was prepared in partnership with the Port Authority of New York and New Jersey (PANYNJ), the New Jersey Department of Environmental Protection (NJDEP), the New York State Department of Environmental Conservation (NYSDEC), the United States Environmental Protection Agency (USEPA), the New Jersey Department of Transportation (NJDOT) Office of Maritime Resources, the New York City Economic Development Corporation (NYC EDC), and the Pennsylvania Department of Environmental Protection (PADEP).

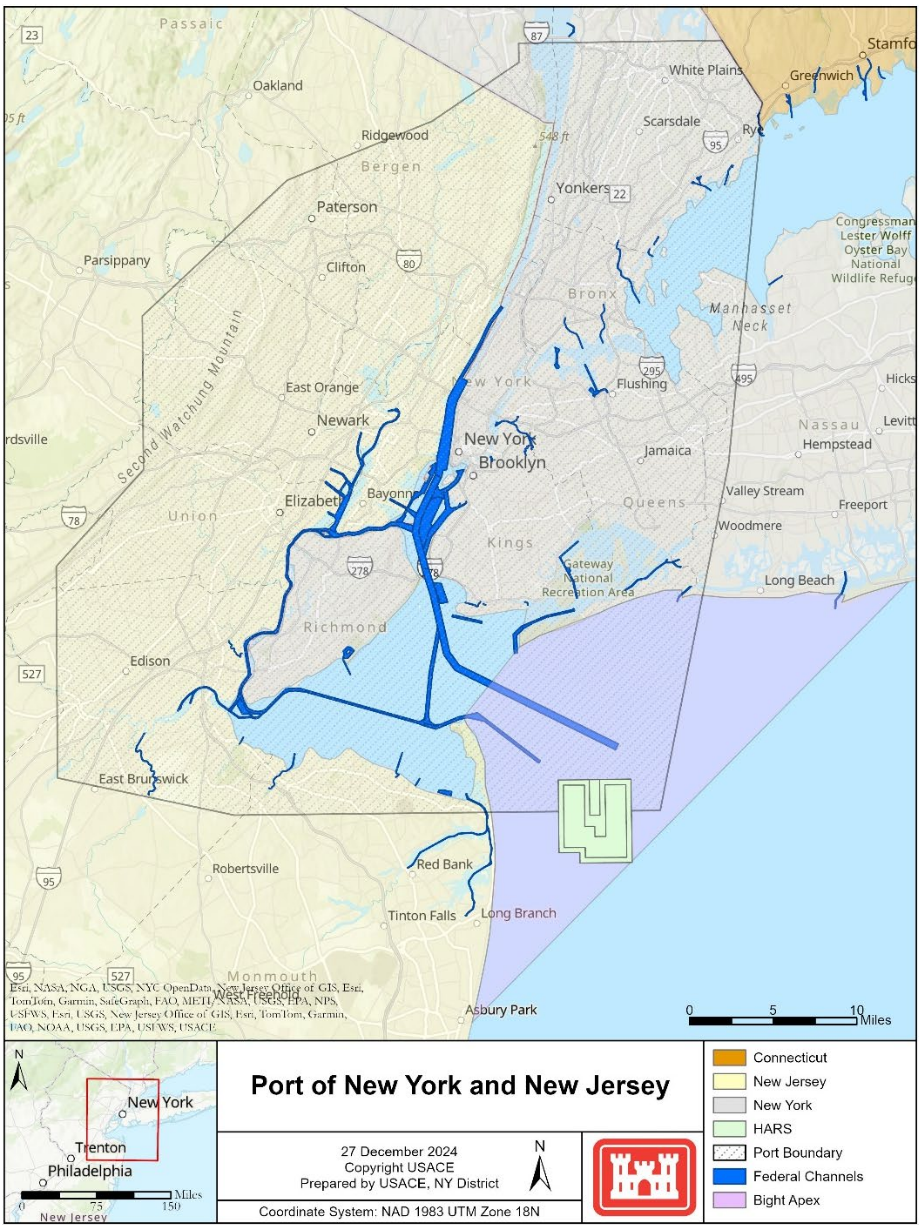

Figure 1-1. Port of New York and New Jersey

1.2 Study Authority

The U.S. Congress provides the legal authority to conduct navigation studies, implement navigation improvement projects, and maintain such projects. The Port encompasses approximately four-dozen separately authorized Federal navigation channels. Relevant Congressional authorizations in the Study Area include but are not limited to Section 435 of WRDA 1996 (Pub. L. No. 103-303) and Section 101(a)(2) of WRDA 2000 (P.L. 106-541). Statutes relevant to the scope of management measures that may be employed with respect to dredged material include Section 10 of the Rivers and Harbors Appropriations Act of 1899, Section 404 of the Clean Water Act (CWA), and Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA).

USACE planning policy (ER 1105-2-100) requires each USACE District to prepare a DMMP for new work construction dredging, maintenance dredging of Federal navigation channels, and dredging outside of Federally maintained channels that require Federal permits, when it is demonstrated there is insufficient dredged material placement capacity to accommodate 20 years of maintenance. In accordance with ER 1105-2-100, all dredged material management studies must include an assessment of potential beneficial uses for environmental purposes such as fish and wildlife habitat creation, ecosystem restoration and enhancement, and/or storm damage reduction.

1.3 Study Objective

The objective of the 2025 DMMP Update is to develop a regionally supported, comprehensive plan to ensure that there is adequate dredged material placement capacity for the Port through the year 2029. The 2025 DMMP Update evaluates existing and future dredged material placement needs, updates capacities at existing placement sites identified in the 2008 DMMP Update, and evaluates new placement options with an emphasis on beneficial use. Placement options are also assessed with respect to the Federal Standard and the applicable laws, rules, regulations, and executive orders (EOs).

1.4 Study Area Description

The Study Area encompasses Federal, State, local, and private navigation channels, berthing areas, and other navigational facilities in the Port where dredging is proposed through 2029 and potential dredged material placement locations in the region (Figure 1-2). The Study Area includes New York City, portions of Nassau and Westchester Counties in New York, portions of Monmouth, Middlesex, Union, Essex, Bergen, Passaic, and Hudson Counties in New Jersey, and portions of Luzerne and Lehigh Counties in Pennsylvania. The Study Area includes New York's 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, and 17th Congressional Districts, New Jersey's 5th, 6th, 7th, 8th, 9th, and 10th Congressional Districts, and Pennsylvania's 7th and 8th Congressional Districts. The Study Area lies within the New York – New Jersey Harbor Estuary and the New York Bight Apex. The network of 49 Federally authorized navigation channels within the Study Area extends from the Atlantic Ocean and New York Bight into the Port and the marine terminals of PANYNJ. See Table 1-1: List of authorized Federal navigation channels within the Port for a full list of authorized and actively maintained navigation channels within the Port.

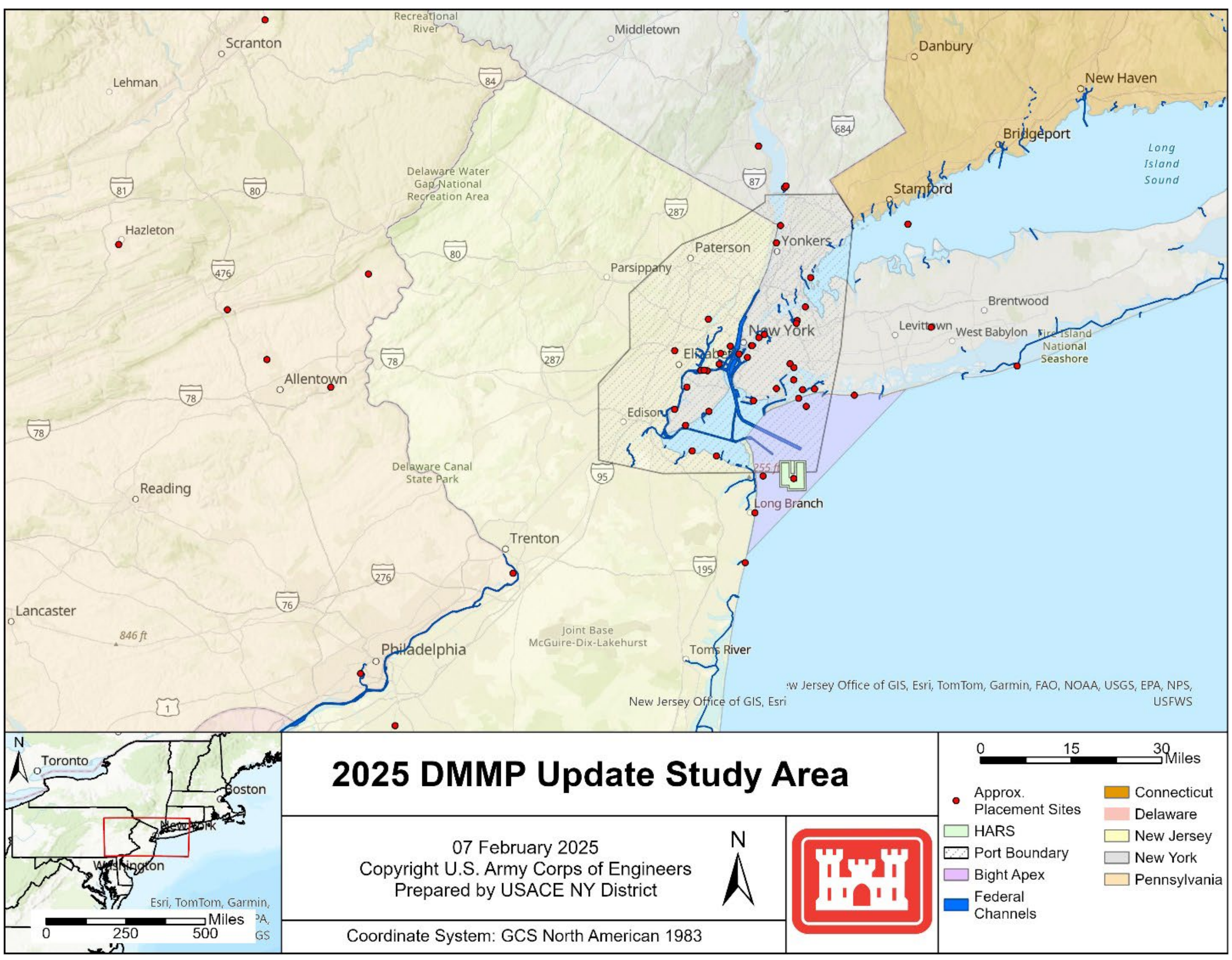

Figure 1-2. 2025 DMMP Update Study Area

Table 1-1: List of authorized Federal navigation channels within the Port

Navigation Channel	Authorizations
Ambrose Channel	Rivers and Harbors Acts of 1884, 1899, 1917, 1933, 1937, 1958, 1965; Water Resource Development Act of 1982, 2000
Anchorage Channel	Rivers and Harbors Acts of 1899, 1917, 1930, 1937, 2000
Arthur Kill (inclusive of South of Shooters Island)	Rivers and Harbors Acts of 1874, 1902, 1910, 1922, 1933, 1935, 1950, 1965; Water Resource Development Act of 1986, 1996, 2000
Bay Ridge and Red Hook Channels	Rivers and Harbors Acts of 1899, 1930
Bronx River	Rivers and Harbors Act of 1913
Buttermilk Channel	Rivers and Harbors Acts of 1902, 1935, 1962
Cheesequake Creek	Rivers and Harbors Act of 1880
Coney Island Channel	Rivers and Harbors Act of 1907
Coney Island Creek	Rivers and Harbors Act of 1935
Eastchester Creek	Rivers and Harbors Acts of 1930, 1950
East River and South Brother Island	Rivers and Harbors Acts of 1915, 1916, 1970
East River Battery to Throggs Neck	Rivers and Harbors Acts of 1915, 1916, 1970
East Rockaway Inlet	Rivers and Harbors Act of 1930
Flushing Bay and Creek	Rivers and Harbors Act of 1962
Gowanus Creek	Rivers and Harbors Acts of 1881, 1952
Gravesend Anchorage	Rivers and Harbors Act of 1965, Water Resource and Development Act of 1982, 2000
Great Kills Harbor	Rivers and Harbors Acts of 1927, 1938
Hackensack River	Rivers and Harbors Acts of 1912, 1922-27, 1954, 1966
Harlem River	Rivers and Harbors Acts of 1878, 1913
Hudson River	Rivers and Harbors Acts of 1913, 1937
Jamaica Bay and Rockaway Inlet	Rivers and Harbors Acts of 1910, 1945, 1950
Keyport Harbor	Rivers and Harbors Act of 1882
Kill Van Kull	Rivers and Harbors Acts of 1874, 1902, 1910, 1922, 1933, 1935, 1950, 1965; Water Resource Development Act of 1986, 1996, 2000
Sandy Hook Bay at Leonardo Federal Channel New Jersey	Rivers and Harbors Act of 1950
Main Ship Channel	Rivers and Harbors Acts of 1884, 1933, 1937, 1958, 1965; Water Resource Development Act of 1982
Mamaroneck Harbor	River and Harbor Acts of 1922, 1935, and 1960
Matawan Creek	Rivers and Harbors Act of 1881
Milton Harbor	Rivers and Harbors Acts of 1965

Navigation Channel	Authorizations
New Jersey Pierhead	Rivers and Harbors Act of 1935
New Rochelle Harbor	Rivers and Harbors Acts of 1922
Newark Bay (Main Channel, Pierhead, Port Elizabeth, Port Newark, South Elizabeth)	Rivers and Harbors Acts of 1902, 1907, 1915, 1922, 1943, 1945, 1954, 1962, 1964, 1966; Water Resource Development Act of 1974, 1976, 1986, 1996, 2000
Newtown Creek	Rivers and Harbors Acts of 1910, 1930, 1937
Passaic River	Rivers and Harbors Acts of 1907, 1927, 1911, 1912, 1930
Perth Amboy Anchorage & Second Channel	Rivers and Harbors Acts of 1933, 1935, 1950, 1965; Water Resource Development Act of 1985
Port Chester Harbor	Rivers and Harbors Acts of 1910, 1930
Port Jersey	Water Resources Development Acts of 1986, 1999, 2000
Raritan Reaches	Rivers and Harbors Acts of 1933, 1935, 1950, 1965; Water Resource Development Act of 1985
Raritan River to Arthur Kill Cutoff	Rivers and Harbors Act of 1935
Raritan River Channel	Rivers and Harbors Acts of 1919, 1930, 1937, and 1940
Red Hook Flats	Rivers and Harbors Act of 1965, Water Resource and Development Act of 1982, 2000
Sandy Hook Channel	Rivers and Harbors Acts of 1884, 1933, 1937, 1958, 1965; Water Resource Development Act of 1982
Sheepshead Bay	Rivers and Harbors Act of 1912
Shoal Harbor Compton Creek	Rivers and Harbors Acts of 1935, 1945, 1954
Shrewsbury River	Rivers and Harbors Acts of 1919, 1935, 1950, 1965
Wallabout Creek	Rivers and Harbors Act of 1899
Washington Canal and South River	Rivers and Harbors Act of 1930
Westchester Creek	Rivers and Harbors Acts of 1922, 1954
Woodbridge Creek	Rivers and Harbors Acts of 1902, 1907, 1915, 1922, 1943, 1945, 1954, 1962, 1964, 1966; Water Resource Development Act of 1974, 1976, 1986, 1996, 2000

The Harbor estuary is located on the upper-middle portion of the Atlantic Seaboard between the southeastern part of New York and the northeastern part of New Jersey, approximately 190 miles southwest of Boston, Massachusetts and approximately 75 miles northeast of Philadelphia, Pennsylvania. The Harbor estuary is formed by the confluence of, among smaller tributaries, the Hudson River, East River, Raritan River, Jamaica Bay, and Newark Bay, which is itself formed by the confluence of the Hackensack and Passaic Rivers. Situated within the most populated urban area of the United States, the Harbor estuary is a diverse, productive ecosystem created by the mixing of fresh and salt water.

The New York Bight is an area of the Atlantic Ocean between the Harbor and the edge of the continental shelf, bounded by the New Jersey shoreline to Cape May and the Long Island shoreline to Montauk Point. The New York Bight provides important habitat for marine life, supports a variety of ecosystem processes such as nutrient cycling, and supports commerce, recreation, and navigation, among other benefits. The New York Bight Apex is the portion of the New York Bight that is closest to the mouth of the Harbor estuary. For purposes of the 2025 DMMP Update, the New York Bight Apex is defined as the area of the Atlantic Ocean bounded by an imaginary line between Sandy Hook, New Jersey, and Rockaway Point, New York; proceeding east along the south shore of Long Island, New York to Jones Beach State Park; southwest to Asbury Park, New Jersey; then north along the New Jersey shoreline to Sandy Hook, New Jersey (Figure 1-1).

1.5 Prior DMMP Updates

1.5.1 1999 DMMP Implementation Report

The 1999 DMMP Implementation Report for the Port of New York and New Jersey was developed to demonstrate sufficient dredged material placement capacity identify how much material must be dredged to maintain the Federal navigation channel(s) and establish a plan to manage the dredged material in an economically sound and environmentally acceptable manner through 2040 (USACE, 1999). In addition to the maintenance of the Federal channels, the 1999 Implementation Report considered private and local/State dredging needs as recommended in the “Port Dredging Plan” prepared by the PANYNJ in 1996 (PANYNJ, 1996). The 1999 Implementation Report is a regionally supported, comprehensive plan to meet all the dredged material management needs for the Port. A Draft Programmatic Environmental Impact Statement (PEIS) was prepared in 1999 to study the potential environmental impacts associated with the 1999 DMMP Implementation Report.

1.5.2 2008 DMMP Update

In 2005, the NY District initiated an update to the 1999 DMMP Implementation Report by preparing a preliminary status report of progress toward the DMMP goals, for review by the implementing and regulatory agencies. In 2008, the DMMP update and final revision to the 1999 PEIS were completed. The 2008 DMMP Update updated placement locations, dredging volumes, and beneficial use options since the previous report.

1.6 DMMP Update Process

The scope of the 2025 DMMP Update is comprehensive in nature and identifies the placement locations required to ensure sufficient placement capacity meets the placement demand through the year 2029 while prioritizing beneficial use. The 2025 DMMP Update involved the following sequential phases:

I) Identify and Quantify Existing and Future Placement Needs,
II) Update Capacities of Existing Placement Areas,
III) Identify New Placement Options with Emphasis on Beneficial Use,
IV) Evaluate placement costs, assess beneficial use potential
V) Identify the Federal Standard and Base Plan,

From 2009 to 2024, the primary beneficial use of dredged material was placement at the Historic Area Remediation Site (HARS) (Table 1-2). The HARS is an approximately 15-square nautical mile area of the New York Bight Apex in the Atlantic Ocean where a significant portion of the dredged material from the Port is placed to remediate contamination associated with historical ocean disposal. Other dredged material placement locations included upland placement, confined disposal facilities, the Sea Bright Offshore Borrow Area (SBOBA), and beaches (Table 1-2).

1.6.1 Beneficial Uses

Dredged material is a valuable resource, with a range of potential uses that can provide benefits to the environment and economy. Depending on the material type and quality, dredged material can be used to support USACE projects across other business lines such as Flood Risk Management (FRM), Coastal Storm Risk Management (CSRM), and Aquatic Ecosystem Restoration (AER). In addition, dredged material can be used to support non-USACE projects ranging from wetland restoration to mine reclamation. USACE policy requires that the beneficial use of dredged material is maximized (33 USC 2326g). The USACE Beneficial Use of Dredged Material Command Philosophy Notice (25 January 2023) increased the beneficial use of dredged material goal from 30-40% to 70% by the year 2030. Dredged material management categories, including beneficial use, are described in EM 1110-2-5025 and the Beneficial Use of Dredged Material Command Philosophy Notice (25 January 2023). Beneficial uses include:

1. **Habitat Improvement**
    a. Wetland habitats: Dredged material placed to construct or nourish wetland habitats. Wetlands are periodically inundated habitats, characterized by vegetation that

survives in wet (hydric) soils. Examples include tidal freshwater and saltwater marshes, relatively permanently inundated freshwater marshes, bottomland hardwoods, freshwater swamps, and freshwater riverine and lake habitats.

   b. Upland habitats: Dredged material placed upland to construct or improve upland habitats. Upland habitats include terrestrial communities not normally subject to inundation. Types may range from bare ground to mature forest.

   c. Aquatic habitats: Dredged material placed to improve submerged habitats extending from near sea, river, or lake level down several feet. Types of aquatic habitat include tidal flats, oyster beds, seagrass meadows, fishing reefs, clam flats, and freshwater aquatic plant beds.

   d. Island habitats: Dredged material placed to construct, improve, or maintain upland islands and/or high zone wetland habitats. Islands and/or high zone wetland habitats in this category are surrounded by water or wetlands.

2. **Beach/Shoreline Nourishment:** Shoreline stabilization and erosion control is a concern along many beaches, embayments, and shorelines. Beach nourishment is the placement of dredged material directly onto a beach or river shoreline, in the littoral zone, nearshore, or shallow water with the intent to expand, stabilize or nourish the beach or shoreline. Material for beach nourishment can come from borrow areas, adjacent beaches, or beneficially placed from dredging projects.

3. **Parks and Recreation:** Dredged material can be placed to support the development or enhancement of recreational areas ranging from simple projects such as fill for a recreation access to large and complex projects that support both public and private commercial and noncommercial recreation facilities.

4. **Agricultural, Horticultural, Forestry, and Aquacultural:**

   a. Agricultural: The addition of dredged sediment can improve the physical and chemical characteristics of a marginal soil. Some placement sites, especially in river systems, have provided livestock pastures.

   b. Horticultural: Horticulture crops are generally considered vegetable, fruit, nut, and ornamental varieties of commercially grown plants. Dredged sediment applications on soils for vegetable production, orchards, and nurseries do not differ from the agricultural planning and uses of dredged material.

   c. Forestry: Improvement of marginal timberland with applications of dredged material. There are several rapidly growing pulpwood species that could be grown in large placement sites with several compartments once the compartments are nearing completion.

   d. Aquacultural: Aquaculture in a dredged sediment containment area was first explored by the USACE during the Dredged Material Research Program at the Environmental Research and Development Center. Dredged material containment sites commonly possess structural features such as dikes and water control devices that may enhance their suitability as aquaculture areas.

5. **Strip Mine Reclamation, Solid Waste Landfill, and Alternative Uses:** There are four beneficial uses of dredged material in this category: 1) the reclamation of abandoned strip mine sites that are too acidic for standard reclamation practices; 2) the capping of solid waste landfills; 3) the use of sediment to protect landfills; and 4) alternative uses, including the use of sediment to manufacture bricks and hardened materials such as road surfaces.

6. **Multipurpose Uses and Other Land Use Concepts:** Dredged material placement that supports a combination of uses, aquatic and/or land based. Multipurpose use is encouraged. A park and recreational development built over an existing solid waste landfill using dredged sediment as a cap is an example of how several of the beneficial uses can be combined into a single multipurpose project.

7. **Construction and Industrial/Commercial Uses:** Dredged material placed to improve or construct harbor and port facilities, residential and urban areas, airports, dikes, levees and containment facilities, roads, and island and historic preservation areas. The economic potential and social productivity of industrial/commercial activities provide a strong incentive for urban growth and development.

1.7 Current Dredged Material Placement and Relevant Projects

During the 16-year period from 2008 to 2023, approximately 41 million cubic yards (MCY) of HARS-suitable material was dredged within the Harbor and placed at the HARS. Of this 41 MCY, 19 MCY was generated from USACE Harbor deepening projects; approximately 10 MCY was generated from operation and maintenance dredging (O&M) of Federal navigation channels; and 12 MCY was generated via non-Federal dredging projects. In addition to this volume of HARS-suitable material generated during this period, approximately 3.7 MCY of non-HARS suitable material (i.e., dredged material that exceeds maximum contaminant concentrations specified for acceptance at the HARS) was dredged as part of O&M projects and placed upland; a much smaller quantity of this material, 118,000 cubic yards (CY), was placed at CDFs within the Harbor. A significant volume of beach quality sand was also dredged as part of O&M projects during this period, the majority of which (8.8 MCY) was placed directly on beaches, though a smaller quantity (677,00 CY) was placed at the SBOBA. Table 1-2 summarizes these volumes of dredged material generated from O&M projects in the Port over this period.

Table 1-2. Summary of dredged material generated from operations and maintenance (O&M) dredging in the Port from 2008 – 2023.

Placement Site	Cubic Yards (CY)
HARS suitable	9,835,000
Upland (non-HARS suitable)	3,702,000
Newark Bay CDF	118,000
Sea Bright Offshore Borrow Area	677,000
Beaches	8,789,000
TOTAL	**23,121,000**

1.7.1 Historic Area Remediation Site

In September 1997, the USEPA de-designated and terminated the use of the Mud Dump Site (MDS) in the New York Bight Apex that had historically been used for dredged material placement and simultaneously designated the site and surrounding areas as the HARS (Figure 1-3) [40 C.F.R. 228.15(d)(6); see 62 Fed. Reg. 46142 (29 August 1997); 62 Fed. Reg. 26267 (13 May 1997)]. Remediation of the HARS is deemed complete when over 95% of a Priority Remediation Area (PRA) is capped with a minimum one-meter-thick cap layer of dredged material that meets Category I standards (USEPA and USACE, 2020). As of December 2024, dredged material from 157 different completed and ongoing Department of the Army permitted and Federal dredging projects in the Port have been placed at the HARS since the closure of the MDS and designation of the HARS in September 1997. As of December 2024, this represents approximately 87,899,000 CY of remediation material (by scow volume). Based on bathymetric surveys conducted in 2022, the HARS had a remaining capacity of approximately 7 MCY of material (by in-place volume) until remediation is deemed complete. Given the recent rate of placement through calendar year 2024, it is estimated that the HARS will complete remediation upon placement of an additional 1.7 MCY (±0.8 MCY) during the period of analysis.

On 01 June 2023, the NY District formally requested USEPA Region 2 to begin the Ocean Dredged Material Disposal Site (ODMDS) designation process under Section 102 of the MRSPA (33 USC 1201 *et seq.*), to provide for future management of dredged material necessary to maintain safe navigation, promote marine commerce, and safeguard the economic well-being of the region (see Section 3.2 for more information). The USEPA's ODMDS designation process is a separate Federal action from the 2025 DMMP Update. For planning purposes, the NY District estimates that the ODMDS designation process will allow for an additional 20 to 50 MCY of placement capacity for HARS-suitable material within the Study Area after 2027.

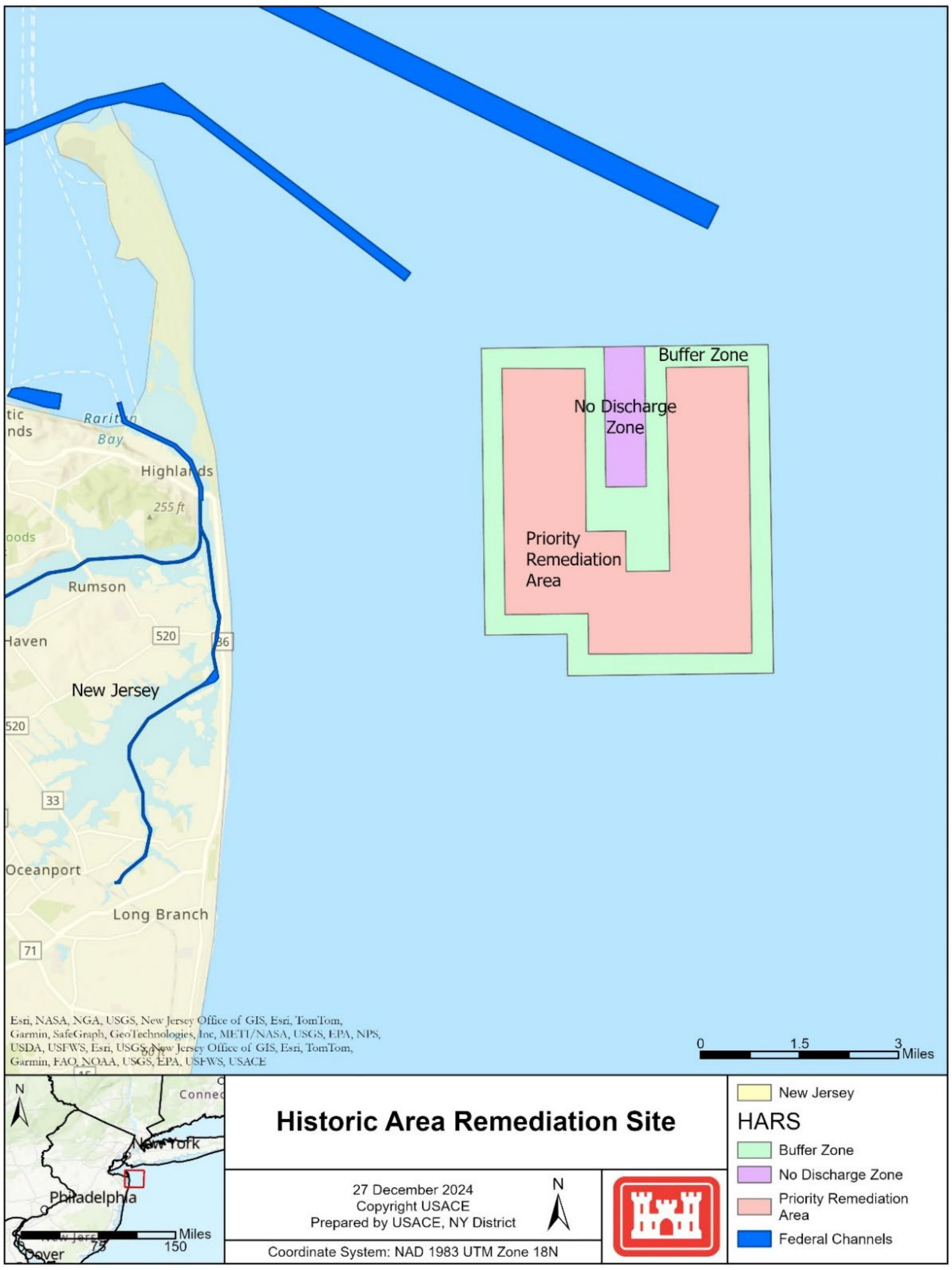

Figure 1-3. Historic Area Remediation Site

1.7.2 Harbor Deepening and Channel Improvements

The USACE New York and New Jersey Navigation Study of December 1999 resulted in the New York and New Jersey Harbor Deepening Project to deepen the main Federal navigation channels in the Port to allow for the efficient passage of container ships. Construction of the New York and New Jersey Harbor Deepening Project was authorized in 2000 and completed in 2016. The completed Harbor Deepening Project's channels were maintained at -50 feet mean lower low water (MLLW) and -53 feet MLLW in Ambrose Channel, the main shipping channel in an out of the Port. Due to trade growth and new engineering capabilities, vessels entering the Port became larger and the project's channels were too small to support efficient navigation. As a result, USACE completed the New York and New Jersey HDCI Feasibility Study in 2022.

A Chief of Engineers Report for HDCI was signed on 03 June 2022. The Chief's Report recommended deepening the pathways to Elizabeth – Port Authority Marine Terminal and Port Jersey – Port Authority Marine Terminal by five feet to a maintained depth of -55 feet MLLW. Channels recommended for deepening included Ambrose Channel, Anchorage Channel, the Kill Van Kull, Newark Bay Channel, South Elizabeth Channel, and Elizabeth Channel, and Port Jersey Channel. This includes the additional width required for structural stability and for the navigation of the new design vessel to transit from sea to Elizabeth Port Authority Marine Terminal and Port

Jersey Port Authority Marine Terminal. The project is presently in the Preconstruction, Engineering and Design phase, resulting in a detailed set of plans and specs for the first construction contract.

As described in the HDCI Feasibility Report, the Port Jersey Channel was estimated to be maintained by dredging every 10 years (about 7,400 cubic yards), the Anchorage Channel every seven years (about 5,300 cubic yards), and all other channels together in a single contract every three years (about 91,000 cubic yards). USACE will identify the full array of placement opportunities that coincide with the production of the dredged material for HDCI during the project's Pre-construction Engineering and Design phase.

1.7.3 Hudson Raritan Estuary Ecosystem Restoration Program

A Chief of Engineers Report for the Hudson Raritan Estuary (HRE) was signed on 26 May 2020. The Chief's Report recommended 20 ecosystem restoration projects throughout the HRE that will restore a mosaic of 621 acres of habitat to reduce long-term and large-scale degradation. The HRE aims to beneficially use dredged material to support the construction phase across a variety of restoration projects. Pre-construction Engineering and Design for the first six restoration sites is currently underway through five projects led by the NY District. The projects include Oyster Restoration at Naval Weapons Station Earle, New Jersey; Jamaica Bay marsh island restoration at Stony Creek Marsh and Duck Point Marsh, New York; Flushing Creek Restoration Project, New York; Fresh Creek Restoration Project, New York; and Bronx Zoo and Dam and Stone Mill Dam Restoration Project, New York. Please see USACE (2020) for more information.

1.7.4 New York and New Jersey Harbor Anchorages

The New York and New Jersey Harbor Anchorages Project was originally authorized under Section 301 of the Rivers and Harbor Act of 1965 (Public Law 89-298). This authorization included deepening of the Gravesend Anchorage to -47 feet MLLW. Subsequently this area has been constructed and maintained to its authorized depth. However, the commercial marine vessel fleet is trending to larger, deeper-draft vessels that require deeper and wider channels for safe and efficient navigation. The 1965 authorized depth (-47 feet MLLW) is insufficient for larger ships, resulting in reduced efficiency and increased costs. In 2020, USACE completed an Integrated General Revaluation Report and Environmental Assessment (EA), which considered the feasibility of improving the anchorage areas to make them more suitable for the increasing size and number of deep draft vessels including widening of the existing areas, deepening greater portions of the anchorages, and possible new configurations within existing anchorages.

A Chief's Report for the Integrated General Revaluation Report and EA was signed on 23 April 2020, recommending: 1) deepening the Gravesend Anchorage from -47 feet to a required depth of -50 feet (MLLW); 2) widening the Gravesend Anchorage from approximately 2,250 feet to 3,000 feet and associated modification of the approach area; and 3) a maximum designed swing area up to 3,600 feet from approximately 3,200 feet reducing swing into the channel by 400 feet. According to the Chief's Report, the estimated volume of dredged material from the project is 950,000 CY. Pending the results of HARS suitability testing, the dredged material is proposed to be placed at the HARS. The Preconstruction Engineering and Design phase for the project was initiated on 22 May 2022. Project construction is expected to begin after the Preconstruction Engineering and Design Phase is completed. Following construction, anchorage depth and width would be maintained over the 50-year lifecycle of the project.

1.7.5 Port Master Plan 2050

PANYNJ manages a variety of transportation assets, including airports, tunnels, bridges, transit facilities, and marine terminal properties across New York and New Jersey. In 2019, PANYNJ published the Port Master Plan 2050, a 30-year roadmap for investments in planning studies, land use, and infrastructure development projects to secure the Port facilities' future in the industry. The Port Master Plan 2050 outlines short- and long-term actions proposed for each of PANYNJ's five facilities – Port Newark, Elizabeth Port Authority Marine Terminal, Port Jersey Port Authority Marine Terminal, Howland Hook Marine Terminal, and Brooklyn Port Authority Marine Terminal. Proposed actions were developed based on projected growth in cargo volumes, vessel size, and technology.

1.8 Changes Since the 2008 DMMP Update

Several changes have occurred since the completion of the 2008 DMMP Update. Aside from general improvements in near-term forecasts of dredged material placement demand, there is additional clarity in the capacity of dredged material placement locations within the region, including at the HARS. There has also been a significant policy change since the prior update. Additionally, new information and modeling of contaminant levels in the Harbor has recently become available. This section briefly outlines these changes and their significance for the management of dredged material within the Harbor.

1.8.1 Changes to the Federal Standard

As defined in 33 CFR 335.7, the Federal Standard is the least costly dredged material placement location that is consistent with sound engineering practices and established environmental standards (inclusive of Section 404 of the Clean Water Act and Section 103 of the Marine Protection, Research and Sanctuaries Act). As specified in ER 1105-2-103, the Federal Standard defines the placement costs that are assigned to the navigational purpose of the project. Consequently, any placement costs above the Federal Standard require cost-sharing with a non-Federal partner.

Section 125a(2)(B) of WRDA 2020 modified the determination of the Federal Standard, as outlined in 33 USC 2326g. These changes specify that when evaluating the placement of dredged material, it is policy that USACE consider the suitability of dredged material for a full range of beneficial uses, inclusive of consideration of the economic and environmental benefits, efficiencies, and impacts of dredged material placement. Further, these economic benefits and efficiencies shall be included in any determination relating to the Federal Standard. Implementation guidance for these changes brought about by Section 125a(2)(B) is anticipated from USACE Headquarters in 2025. For the purposes of this 2025 DMMP Update, these economic and environmental benefits, efficiencies, and impacts are qualitatively assessed and considered jointly with unit placement costs when evaluating dredged material management measures; the lowest cost placement location remains the Federal Standard.

1.8.2 Contaminant Levels in the Harbor

Since the 2008 DMMP Update, there has not been an appreciable change in contaminant levels in the Harbor. Prior modeling work completed as part of the Contaminant Assessment and Reduction Project (CARP) Phase I (1998-2006) demonstrated that historical contaminant sources were much larger than ongoing external sources of Harbor sediment contaminants (Lodge et al., 2024). These legacy sources of contamination continue to play a dominant role in ongoing contaminant loadings and controlling contaminant levels in the water, sediment, and aquatic organisms in the Harbor. Additional follow-on modeling has been performed as part of Phase 2 of CARP (CARP II) to refine, improve, and update the initial CARP assessment findings (Lodge et al., 2024). CARP II demonstrated that legacy sources of contamination remain the dominant source of sediment contamination. The results showed that the sediment bed of most Federal navigation channels within New Jersey, inclusive of Newark Bay, along with the East River will likely remain contaminated at levels above the HARS suitability threshold through 2030. Please see Section 6.4.2 for more information on sediment characteristics and Section 6.15.4 for a discussion on hazardous, toxic, radioactive wastes (HTRW) sites in the Study Area.

1.8.3 Sediment Reduction

Sediment reduction is a large scale dredged material management practice focusing on the reduction of the total sediment within a navigation channel, ultimately resulting in less frequent dredging. Sediment reduction strategies are implemented to reduce the frequency of dredging in a given location. Sediment reduction strategies include: watershed sediment management controls, channel design optimization, advanced maintenance dredging, and structural modification.

Regional sediment management is a systems-based approach leveraging best management practices for more efficient and effective use of sediments. Continued coordination with our federal, state, and local stakeholders is necessary to identify potential sediment management strategies in order to support the future management of dredged material within the Port.

1.9 Scope of the Environmental Assessment*

NEPA is a Federal law that requires Federal agencies, including USACE, to assess the environmental effects of their proposed actions and any reasonable alternatives before undertaking a major Federal action. To evaluate environmental effects, USACE has prepared this supplemental environmental assessment (SEA) in accordance with NEPA, as amended, and the USACE Procedures for Implementing NEPA (ER 200-2-2). An environmental assessment (EA) is a concise public document that is prepared for a proposed action that is not likely to have a significant effect or for which the significance of the effects is unknown. An EA is used to support an agency's determination of whether to prepare an environmental impact statement (EIS), when environmental effects are found to be significant, or a finding of no significant impact (FONSI), when environmental effects are not significant.

In accordance with NEPA and USACE Procedures for Implementing NEPA (ER 200-2-2), this SEA discusses the purpose and need for the proposed action, alternatives considered, and environmental effects. A list of Federal agencies; State, Tribal, and local governments and agencies; and persons consulted is provided in Appendix A. This SEA is integrated into 2025 DMMP Update report (Integrated Report and SEA) consistent with NEPA statutory requirements. Sections of the Integrated Report and SEA that satisfy NEPA requirements are marked with an asterisk (*) in the headings.

The 2025 DMMP Update is a management plan that does not result in a construction authorization. The 2025 DMMP Update provides an array of dredged material management options that could be implemented by various Federal, State, local, and private dredging projects. The Federal action is a plan update developed to meet the administrative purpose and need, as described in Section 1.1; neither dredging nor dredged material placement is recommended. Project proponents will be responsible for ensuring that their dredging projects, including placement and disposal of dredged material, comply with the applicable Federal, State, and local environmental requirements, such as NEPA. When analyzing potential placement locations, project proponents should consider competing uses of the areas being considered, such as fishing areas, submarine cables, and navigation channels. This Draft Integrated Report and SEA provides a general overview of the environmental resources relevant to dredged material management and how projects might comply with the applicable environmental requirements.

1.10 Proposed Action and Alternatives*

This section describes the Proposed Action and reasonable alternatives to the Proposed Action in accordance with NEPA, as amended, and the USACE Procedures for Implementing NEPA (ER 200-2-2). Alternatives were considered that would address the administrative purpose and need, as described in Section 1.1. The 2025 DMMP Update is an administrative planning activity that will guide future dredged material management activities that are implemented by Federal, State, local, and private projects. The 2025 DMMP Update does not recommend construction, dredging, or dredged material placement activities at this time; the Federal action is the plan update. Therefore, placement options are not considered alternatives to be analyzed in this Integrated Report and SEA. The 2025 DMMP Update does not commit the NY District to a decision regarding the uses of resources or the location of a project. Future actions that will result in dredged material placement would likely require a detailed alternatives analysis that considers various placement options, in accordance with the applicable NEPA requirements. There will opportunities for environmental coordination on placement options defined in this plan, but at the project specific level.

1.10.1 Proposed Action

The NY District is undertaking a 2025 Interim DMMP Update for the Port to develop a comprehensive, regionally supported plan to meet dredged material management needs in the Port from calendar year 2025 through 2029 (Proposed Action). The Proposed Action is needed to 1) ensure sufficient dredged material placement capacity to meet placement demand; 2) identify the Federal Standard for dredged material placement in compliance with 33 USC 2326g; and 3) identify placement opportunities that maximize beneficial use of dredged material in compliance with 33 USC 2326g and the USACE Beneficial Use of Dredged Material Command Philosophy Notice (25 January 2023).

1.10.2 No Action Alternative

Under the No Action Alternative, the NY District would not update the DMMP for the Port. Dredged material placement capacity and demand would remain outdated, the Federal Standard would not be determined in accordance with 33 USC 2326g, and new beneficial use policies would not be incorporated into the DMMP. The No Action Alternative would not satisfy the purpose of and need for the Proposed Action as described in Section 1.1; however, the USACE review process requires consideration of the No Action Alternative. The No Action Alternative is included in to assess environmental consequences that may occur if the Proposed Action is not implemented. Therefore, the No Action Alternative was carried forward for detailed analysis and serves as a baseline against which the Proposed Action is compared.

1.10.3 Alternatives Screening

As part of the alternative development process, a 2025 Interim DMMP Update Alternative (Proposed Action) and a 20-year 2025 DMMP Update Alternative were evaluated based on whether they met the administrative purpose and need for the action and their compatibility with the current status of the HARS and the USEPA's ODMDS designation process, as described in Section 1.7.1. The NY District determined that the 20-year 2025 DMMP Update Alternative would not be compatible with the current status of the HARS and the ODMDS designation process, as the long-term placement capacity for HARS suitable material is too uncertain. Consequently, the 20-year 2025 DMMP Update Alternative was screened out of consideration and not carried forward for detailed analysis. While the 20-year Update alternative was screened out of consideration for the 2025 DMMP Update, the screening process has no effect on the purpose and need of any future 20-year DMMP Update efforts. The five-year, 2025 Interim DMMP Update was selected as the preferred alternative, as the NY District was more confident in assessing the expected near-term capacity resulting from the ODMDS designation process.

1.11 Summary of Coordination

Multiple governmental and non-governmental stakeholders were involved in the preparation of the Integrated Report and SEA. Primary government stakeholders were identified based on their expertise in dredged material management in the Port. Primary stakeholders include the USEPA, NYSDEC, NJDEP, NJDOT, PADEP, PANYNJ, and NYCEDC. Primary stakeholder meetings were held on 06 March 2024 and 18 November 2024. These meetings were held in addition to regularly scheduled New York and New Jersey Regional Dredge Team (RDT) meetings, which were held on a quarterly basis for the duration of the preparation of the Draft Integrated Report and SEA.

A NEPA interagency meeting was held on 03 June 2024. The interagency meeting was attended by representatives from USACE, USEPA, United States Geological Survey (USGS), National Park Service (NPS), National Atmospheric and Oceanic Administration (NOAA) Fisheries, United States Fish and Wildlife Service (USFWS), NYSDEC, New York State Historic Preservation Office (NYSHPO), New York State Department of State (NYSDOS), NJDEP, NJDOT, Federal Transportation Administration (FTA), Stockbridge-Munsee Band of Mohican Indians, United States Coast Guard, PADEP, Bureau of Ocean Energy Management (BOEM), and United States Department of Housing and Urban Development (HUD). NJDEP, NOAA Fisheries, PANYNJ, and USEPA are NEPA cooperating agencies and the NJDOT, NYSDEC, and USFWS are NEPA participating agencies (Appendix B).

An industry outreach event was held on 16 May 2024. An advertisement announcing the industry outreach event was posted online on the System for Award Management (SAM.gov), an official website of the United States Government. In addition to a feedback form posted to the NY District's public website, the NY District hosted four public information sessions to provide information on the scope of the 2025 DMMP Update and to capture input and comments from the public to support the qualitative and quantitative analyses. Morning and evening public information sessions were held on both 20 May 2024 and 20 June 2024. To maximize attendance across the large, regional Study Area, all public information sessions were held virtually, and evening sessions were offered after standard business hours. Advertisements for the industry outreach event and public information sessions were posted on the NY District's website and social media pages. Emails announcing the public information sessions were sent in advance to stakeholders on the distribution list provided in Appendix A. Additional stakeholders were identified and added to the distribution list since the email announcements were made.

In accordance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (54 USC Section 306108), its implementing regulations at 36 CFR Part 800 (Protection of Historic Properties), and the NEPA process as described in 36 CFR 800.1(c), consultation under Section 106 of NHPA of 1966 describing the proposed action and inviting consultation was initiated by letter on 22 April 2024, to five federally recognized tribes (the Delaware Nation, The Delaware Tribe of Indians, the Shawnee, Shinnecock Indian Nation, and the Stockbridge-Munsee Community Band of Mohican Indians, NYSHPO, New Jersey State Historic Preservation Office (NJHPO), New York City Landmarks Commission (NYC LPC), NPS, South Street Seaport Museum, and the Intrepid Museum. No responses were received by the NY District.

The Draft Integrated Report and SEA and Draft Finding of No Significant Impact (Appendix C) were made available on the NY District's website for a 30-day public comment period. The public comment period may be extended upon request. The NY District will host virtual public information sessions during the 30-day public comment period. The public comment period and scheduling details for the public information sessions were announced on the NY District's website and social media pages, and via email to the 2025 DMMP Update distribution list (Appendix A). Comments received during the public comment period will be incorporated into the Final Integrated Report and SEA.

2 PROJECTIONS OF DREDGED MATERIAL PLACEMENT DEMAND

Dredging projects expected to occur during the period of analysis (2025-2029) were identified via NY District internal data and outreach to member agencies of the RDT. Dredge project data presented within this report is current as of January 23rd, 2025. USACE projects include routine and non-routine maintenance dredging of existing Federal navigation channels, new work deepening efforts anticipated to occur during the period of analysis (i.e., the first contract(s) of the HDCI), planned dredging in support of beach nourishment for active CSRM projects, and anticipated dredging required for AER projects within the Harbor. External dredging projects include regularly scheduled maintenance dredging performed by the PANYNJ and private sector firms within the Port. Dredging projects were categorized based on their anticipated material type: HARS-suitable material; rock; non-HARS suitable material; and beach quality sand. Each dredge project was further characterized by its status (planned, tentative), funding (funded, non-funded, N/A), frequency (routine, non-routine), and classification (likelihood of advancement), as shown in Table 2-2. Project classification was used to inform a probabilistic estimate of dredged material volume; see Appendix D for further details. These project-specific dredged material volume estimates were aggregated by material type. Table 2-1 summarizes the estimated dredged material volume by material type for the period of analysis (2025-2029). Figure 2-1 provides a visual summary of the full range of anticipated dredged material placement demand by material type.

Table 2-1: Summary of estimated dredged material placement demand (i.e., material to be generated) from navigation projects within NY & NJ Harbor, 2025 – 2029

Material Type	Cubic Yards (cy)
HARS suitable (silt, sand)	9,523,000
Rock	3,938,000
Non-HARS suitable (Upland)	3,413,000
Beach Quality Sand	4,367,000
TOTAL	**21,241,000**

As shown in Table 2-1, approximately 45% of the forecasted dredged material (9.5 MCY) is expected to be HARS-suitable material; approximately 20% (3.9 MCY) of the overall dredged material volume is expected to be rock generated by new work (e.g., HDCI). When combined, HARS-suitable material and rock are anticipated to be the majority of the material dredged from the Harbor. Non-HARS suitable (i.e., upland) material is anticipated to be approximately 15% (3.4 MCY) of the dredged material volume. The remainder of the material, approximately 20% (4.4 MCY) is anticipated to be beach quality sand.

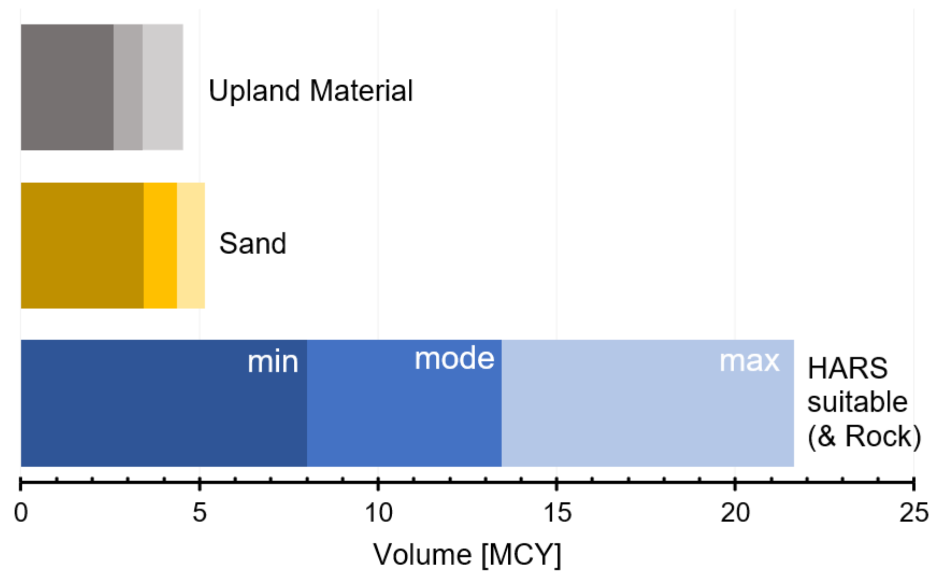

Figure 2-1. Anticipated dredged material placement demand within NY&NJ Harbor, 2025-2029

As shown in Figure 2-1, based on the information available, there is considerable uncertainty in the volume of HARS-suitable material anticipated to be dredged from the Harbor; this captures uncertainty in the likelihood of project completion and anticipated uncertainty in dredged material volumes (see Appendix D for additional information). Given the set of dredging projects identified, up to 21 MCY of HARS suitable material (inclusive of rock) could be generated over the period of analysis. There is less uncertainty in the forecasted volume of dredged material placement demand for upland material and beach quality sand; up to 4.5 MCY of upland material and 5.2 MCY of beach quality sand could be generated over the period of analysis.

The project-specific data summarized in Table 2-1 and visualized in Figure 2-1 are provided in Table 2-2. This comprehensive list of forecasted dredging projects within the Harbor for the period of analysis provides additional detail on each project considered in the dredged material placement demand analysis. In addition to the projected material type and forecasted dredge volumes (min, mode, max), additional project characteristics, including the project type, responsible agency, expected year of completion, project status, funding, frequency, and classification of project likelihood are also provided.

Table 2-2: Summary of forecasted dredge projects within NY&NJ Harbor, 2025-2029

Dredge Project	Project Type	Agency	Year	Material Type	Status	Funding	Frequency	Classification	Dredge Volume [CY]		
									min	mode	Max
New York Harbor - Sandy Hook Channel 35' (SBOBA)	NAV	USACE	2025	Beach Sand	Planned	Funded	Routine	Likely	100,000	125,000	150,000
Bronx River, NY	NAV	USACE	2025	HARS	Planned	Funded	Non-routine	Very Likely	144,000	170,000	220,000
Manhattan Cruise Terminal - Spring	NAV	-	2025	HARS	Tentative	N/A	Routine	Very Likely	112,500	175,000	275,000
American Sugar Refining Co.	NAV	USACE	2025	HARS	Tentative	N/A	Routine	Very Likely	36,000	42,500	55,000
Manhattan Cruise Terminal - Fall	NAV	-	2025	HARS	Tentative	N/A	Routine	Likely	112,500	175,000	275,000
Maintenance Dredging of East Rockaway Inlet, NY	NAV	USACE	2025	Beach Sand	Planned	Funded	Routine	Near-Certain	364,500	441,000	495,000
Newark Bay, NJ [50' & 40' Reaches] Maintenance Dredging	NAV	USACE	2025	Upland	Planned	Funded	Routine	Near-Certain	303,750	367,500	412,500
Maintenance Dredging of NY & NJ Harbor (Arthur Kill "50-FT" Channel)	NAV	USACE	2025	Upland	Planned	Funded	Routine	Near-Certain	81,000	98,000	110,000
Long Island Intracoastal Waterway, NY	NAV	USACE	2025	Beach Sand	Planned	Funded	Routine	Near-Certain	40,500	49,000	55,000
Port Jersey Berths	NAV	PANYNJ	2025	Upland	Planned	Funded	Routine	Near-Certain	24,300	29,400	33,000
Staten Island Homeport Pier (US Navy) (HARS/Upland)	NAV	USACE	2026	Upland	Tentative	Non-Funded	Non-Routine	Near-certain	320,000	375,350	430,700
Port Imperial- New York Water Way	NAV	-	2026	HARS	Tentative	-	-	Likely	31,635	49,210	77,330
Anchorages, Gravesend Bay Deepening	NAV	USACE	2026	HARS	Tentative	Funded	Non-Routine	Near-Certain	427,500	931,000	1,425,000

Dredge Project	Project Type	Agency	Year	Material Type	Status	Funding	Frequency	Classification	Dredge Volume [CY]		
									min	mode	Max
NY Harbor - Sandy Hook Channel Maintenance Dredging	NAV	USACE	2026	Beach Sand	Planned	Funded	Routine	Near-Certain	162,000	196,000	220,000
APM Terminals Elizabeth Berths	NAV	PANYNJ	2026	Upland	Planned	Funded	Routine	Near-Certain	121,500	147,000	165,000
Howland Hook Berths	NAV	PANYNJ	2026	Upland	Planned	Funded	Routine	Near-Certain	24,300	29,400	33,000
Port Newark Berths	NAV	PANYNJ	2026	Upland	Planned	Funded	Routine	Near-Certain	121,500	147,000	165,000
American Sugar Refining Co.	NAV	-	2026	HARS	Tentative	N/A	Routine	Very Likely	36,000	42,500	55,000
Manhattan Cruise Terminal - Spring	NAV	-	2026	HARS	Tentative	N/A	Routine	Very Likely	112,500	175,000	275,000
Manhattan Cruise Terminal - Fall	NAV	-	2026	HARS	Tentative	N/A	Routine	Very Likely	112,500	175,000	275,000
Haverstraw Bay, NY	NAV	USACE	2026	HARS	Tentative	Non-Funded	Non-Routine	Unlikely	0	212,000	795,000
NY & NJ Channels - Vicinity of Ward Point Bend	NAV	USACE	2026	HARS	Planned	Non-Funded	Routine	Very Likely	180,000	212,500	275,000
Hudson River, NY Nav. Channel Maintenance Dredging	NAV	USACE	2026	Upland	Planned	Non-Funded	Routine	Very Likely	144,000	170,000	220,000
Maintenance Dredging of NY & NJ Channels (Arthur Kill "35-FT" Channel)	NAV	USACE	2026	Upland	Planned	Non-Funded	Routine	Very Likely	72,000	85,000	110,000
Maintenance Dredging of Jones Inlet, NY	NAV	USACE	2026	Beach Sand	Planned	Non-Funded	Routine	Very Likely	216,000	255,000	330,000
Fire Island Inlet and Shores Westerly to Jones Inlet, NY	NAV	USACE	2026	Beach Sand	Tentative	Non-Funded	Non-Routine	Unlikely	1,000,000	1,250,000	1,500,000
NY/NJ Harbor - NJ Pierhead Channel	NAV	USACE	2026	HARS	Tentative	Non-Funded	Routine	Very Likely	360,000	425,000	467,500

Dredge Project	Project Type	Agency	Year	Material Type	Status	Funding	Frequency	Classification	Dredge Volume [CY]		
									min	mode	Max
Newark Bay, NJ [50' & 40' Reaches] Maintenance Dredging	NAV	USACE	2026	Upland	Tentative	Non-Funded	Routine	Likely	168,750	262,500	412,500
APM Terminals Elizabeth Berths	NAV	PANYNJ	2027	Upland	Planned	Funded	Routine	Near-Certain	80,000	100,000	150,000
Port Newark Berths	NAV	PANYNJ	2027	Upland	Planned	Funded	Routine	Near-Certain	40,000	75,000	100,000
Port Jersey Berths	NAV	PANYNJ	2027	Upland	Planned	Funded	Routine	Near-Certain	20,000	30,000	40,000
American Sugar Refining Co.	NAV	-	2027	HARS	Tentative	N/A	Routine	Very Likely	57,600	68,000	74,800
Manhattan Cruise Terminal - Spring	NAV	-	2027	HARS	Tentative	N/A	Routine	Very Likely	112,500	175,000	275,000
Buttermilk Channel, NY	NAV	USACE	2027	HARS	Tentative	Non-Funded	Routine	Very Likely	144,000	170,000	187,000
East River, NY - South Brother Island Channel	NAV	-	2027	HARS	Tentative	Non-Funded	Routine	Very Likely	180,000	212,500	233,750
Manhattan Cruise Terminal - Fall	NAV	-	2027	HARS	Tentative	Non-Funded	Routine	Very Likely	112,500	175,000	275,000
Maintenance Dredging of NY & NJ Harbor (Arthur Kill "50-FT" Channel)	NAV	USACE	2027	Upland	Planned	Non-Funded	Routine	Very Likely	72,000	85,000	110,000
NY & NJ Channels - Perth Amboy Anchorage	NAV	USACE	2027	HARS	Tentative	Non-Funded	Routine	Very Likely	180,000	212,500	233,750
Newark Bay (HDCI 1st Contract)	NAV	USACE	2027	HARS	Tentative	Non-Funded	Non-Routine	Likely	479,250	745,500	820,050
Newark Bay (HDCI 1st Contract)	NAV	USACE	2027	Rock	Tentative	Non-Funded	Non-Routine	Likely	1,403,500	3,929,800	8,421,000
Newark Bay (HDCI 1st Contract)	NAV	USACE	2027	Rock	Tentative	Non-Funded	Non-Routine	Likely	2,750	7,700	16,500

Dredge Project	Project Type	Agency	Year	Material Type	Status	Funding	Frequency	Classification	Dredge Volume [CY]		
									min	mode	Max
Raritan River, NJ	NAV	USACE	2027	HARS	Tentative	Non-Funded	Routine	Very Likely	216,000	255,000	280,500
NY/NJ Harbor - Port Jersey Channel	NAV	USACE	2027	HARS	Tentative	Non-Funded	Routine	Likely	400,000	500,000	600,000
Hudson River Channel, NY	NAV	USACE	2027	HARS	Tentative	Non-Funded	Non-Routine	Unlikely	800,000	825,000	850,000
Maintenance Dredging of Raritan River, NJ	NAV	USACE	2027	Upland	Tentative	Non-Funded	Routine	Likely	135,000	210,000	330,000
APM Terminals Elizabeth Berths	NAV	PANYNJ	2028	Upland	Planned	Funded	Routine	Near-Certain	80,000	100,000	150,000
Howland Hook Berths	NAV	PANYNJ	2028	Upland	Planned	Funded	Routine	Near-Certain	10,000	20,000	25,000
Port Newark Berths	NAV	PANYNJ	2028	Upland	Planned	Funded	Routine	Near-Certain	40,000	75,000	100,000
American Sugar Refining Co.	NAV	-	2028	HARS	Tentative	N/A	Routine	Likely	36,000	56,000	88,000
Manhattan Cruise Terminal - Spring	NAV	-	2028	HARS	Tentative	N/A	Routine	Likely	67,500	105,000	165,000
Manhattan Cruise Terminal - Fall	NAV	-	2028	HARS	Tentative	N/A	Routine	Likely	112,500	175,000	275,000
NY & NJ Harbor - Kill Van Kull	NAV	USACE	2028	HARS	Tentative	N/A	Non-routine	Likely	112,500	175,000	275,000
Maintenance Dredging of NY & NJ Harbor (Arthur Kill "40-FT" Channel)	NAV	USACE	2028	Upland	Tentative	N/A	Non-routine	Likely	22,500	35,000	55,000
Naval Weapons Station Earle	NAV	-	2028	HARS	Tentative	N/A	Non-routine	Likely	900,000	1,400,000	2,200,000
Maintenance Dredging of Shrewsbury River, NJ (Entrance Channel)	NAV	USACE	2028	Beach Sand	Planned	Non-Funded	Routine	Very Likely	49,827	58,824	76,125

Dredge Project	Project Type	Agency	Year	Material Type	Status	Funding	Frequency	Classification	Dredge Volume [CY]		
									min	mode	Max
Maintenance Dredging of Shrewsbury River, NJ (North Branch in Navesink)	NAV	USACE	2028	Beach Sand	Planned	Non-Funded	Routine	Very Likely	36,000	42,500	55,000
Newark Bay, NJ [50' & 40' Reaches] Maintenance Dredging	NAV	USACE	2028	Upland	Tentative	Non-Funded	Routine	Very Likely	270,000	318,750	412,500
Fire Island Inlet and Shores Westerly to Jones Inlet, NY	NAV	USACE	2028	Beach Sand	Tentative	Non-Funded	Non-Routine	Unlikely	1,000,000	1,250,000	1,500,000
Port Newark Container Terminal	NAV	-	2028	HARS	Tentative	N/A	Routine	Very Likely	75,000	87,500	100,000
APM Terminals Elizabeth Berths	NAV	PANYNJ	2029	Upland	Planned	Funded	Routine	Near-Certain	80,000	100,000	150,000
Port Newark Berths	NAV	PANYNJ	2029	Upland	Planned	Funded	Routine	Near-Certain	40,000	75,000	100,000
Port Jersey Berths	NAV	PANYNJ	2029	Upland	Planned	Funded	Routine	Near-Certain	20,000	30,000	40,000
American Sugar Refining Co.	NAV	-	2029	HARS	Tentative	N/A	Routine	Likely	36,000	56,000	61,600
Maintenance Dredging of NY & NJ Harbor (Arthur Kill "50-FT" Channel)	NAV	USACE	2029	Upland	Planned	Non-Funded	Routine	Very Likely	72,000	85,000	110,000
Maintenance Dredging of NY & NJ Channels (Arthur Kill "35-FT" Channel)	NAV	USACE	2029	Upland	Planned	Non-Funded	Routine	Very Likely	72,000	85,000	110,000
Maintenance Dredging of Sandy Hook Bay at Leonardo, NJ	NAV	USACE	2029	Upland	Tentative	Non-Funded	Non-routine	Unlikely	0	16,000	44,000
Manhattan Cruise Terminal - Spring	NAV	-	2029	HARS	Tentative	N/A	Routine	Very Likely	112,500	175,000	275,000
Manhattan Cruise Terminal - Fall	NAV	-	2029	HARS	Tentative	N/A	Routine	Very Likely	112,500	175,000	192,500
Ambrose Channel Deepening	NAV	USACE	2029	Beach Sand	Planned	Non-Funded	Non-routine	Likely	450,000	700,000	770,000

Dredge Project	Project Type	Agency	Year	Material Type	Status	Funding	Frequency	Classification	Dredge Volume [CY]		
									min	mode	Max
NY & NJ Channels - Ward Pt. Secondary Channel	NAV	USACE	2029	HARS	Planned	Non-Funded	Non-routine	Likely	337,500	525,000	577,500
NY/NJ Harbor - Port Jersey Channel	NAV	USACE	2029	HARS	Tentative	Non-Funded	Routine	Likely	300,000	400,000	500,000
Newark Bay, NJ [50' & 40' Reaches] Maintenance Dredging	NAV	USACE	2029	Upland	Tentative	Non-Funded	Routine	Likely	168,750	262,500	412,500

3 MANAGEMENT OPTIONS AND CAPACITIES

Like dredged material placement demand, the forecasted number and overall volume of dredged material placement locations has substantively changed since the 2008 DMMP Update. Most notably, as outlined in Section 1.7.1, the HARS is nearing full remediation, though the USEPA's ongoing ODMDS designation efforts are anticipated to add additional placement capacity for HARS-suitable material after 2027. Information on additional placement locations and their characteristics were provided by the RDT, which regularly maintains a list of active placement locations that is updated on a quarterly basis. Placement capacity data presented within this report is current as of January 23rd, 2025. Table 3-1 summarizes the USACE estimated placement capacity within the Harbor by material type. Uncertainty in location-specific placement capacity was also characterized based on available information, as shown in Figure 3-1; see Appendix D for additional details on the uncertainty characterization.

Table 3-1. Summary of USACE estimated dredged material placement capacity within NY & NJ Harbor, 2025 – 2029

Material Type	Estimated Capacity, Cubic Yards (CY)
HARS-suitable (silt, sand, rock)	27,216,000
Non-HARS suitable (Upland)	17,618,000
Beach Quality Sand	25,071,000
TOTAL	**69,905,000**

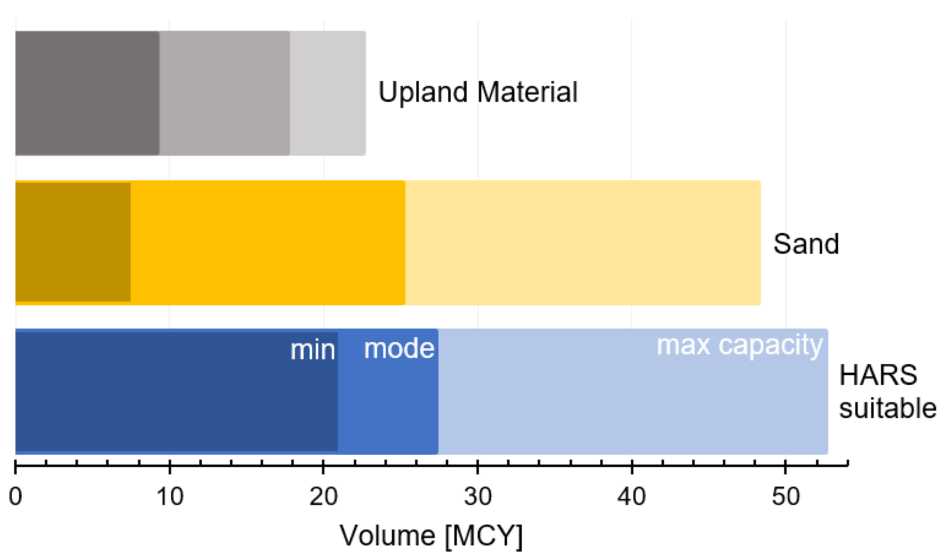

Figure 3-1. Anticipated dredged material placement capacity within NY&NJ Harbor, 2025-2029

As shown in Figure 3-1, there is most likely 27 MCY of placement capacity available for HARS suitable material, though there is significant variability in this estimate (21-52 MCY), attributable to the uncertainty in additional capacity provided by the ODMDS designation efforts. There is a similar degree of uncertainty in available placement capacity for beach quality sand; there is most likely

25.1 MCY of placement capacity available during the period of analysis, with a minimum of 7.5 MCY of placement capacity. Last, there is most likely 17.6 MCY of placement capacity available for non-HARS suitable (upland) material, though at minimum, there is 9.2 MCY of placement capacity available for upland material.

3.1 Placement Capacity Analysis

One of the primary purposes of this 2025 DMMP Update is to ensure that there is enough placement capacity available for the volume of dredged material (i.e., placement demand) generated during the period of analysis (2025-2029). As mentioned in the prior sections of the report, there is uncertainty in the volume of dredged material generated from forecasted projects. Similarly, there is also uncertainty in available placement capacity at the identified placement locations. Ensuring satisfactory placement capacity requires that, for each material type, the minimum estimated placement capacity exceeds the maximum forecasted placement demand. Conceptualizing the material types as three separate bins, for any given material type, the volume of dredged material should fit within (and not overfill) the bin. Applying this analogy given the data presented in prior sections, Figure 3-2a presents the maximum placement demand by material type (as presented previously in Figure 2-1). This dredged material volume should fit within the USACE estimated placement capacity shown in Figure 3-2b (as previously presented in Figure 3-1).

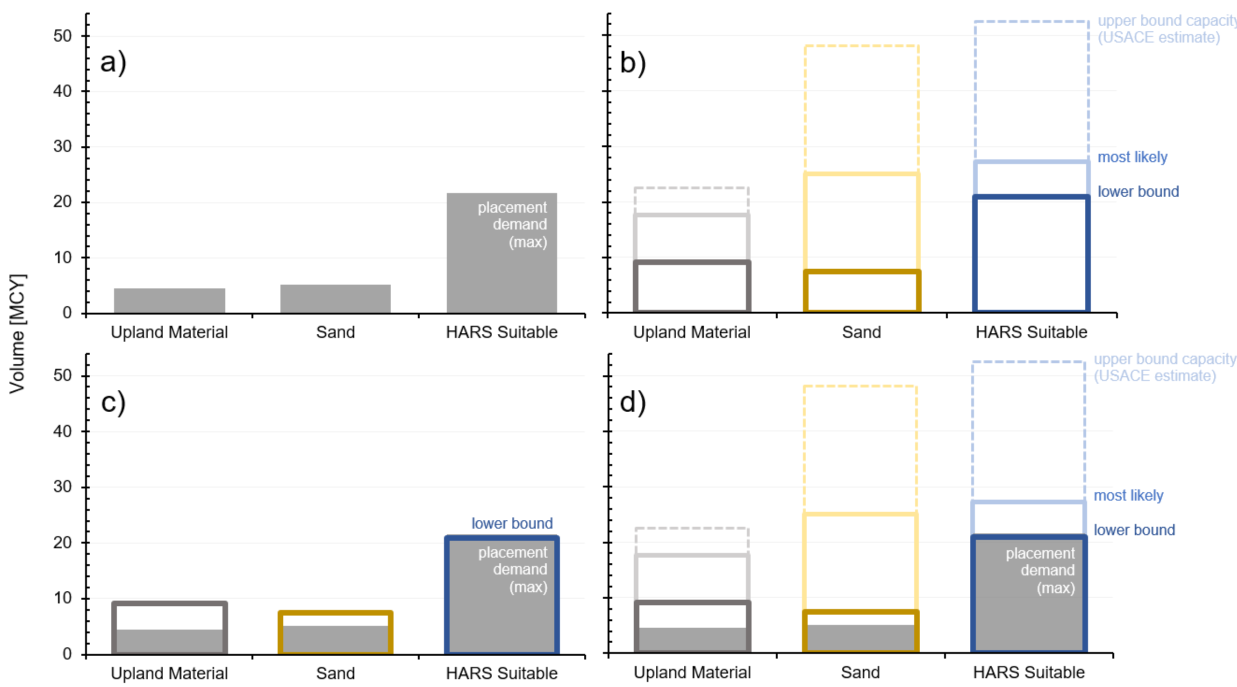

Figure 3-2. USACE estimates of a) maximum placement demand; b) placement capacity (lower bound, most likely, and upper bound); c) comparison of maximum demand and lower bound placement capacity estimate; d) comparison of maximum placement demand and estimated

available placement capacity (lower bound, most likely, and upper bound) for the NY&NJ Harbor for the period of analysis (2025-2029).

Comparing the lower bound of these capacity estimates to the maximum placement demand in Figure 3-2c, it is clear that there is sufficient placement capacity for upland material and sand for the period of analysis. However, there is a negligible overlap in the estimated maximum placement demand and estimated lower bound capacity for HARS suitable material (see Appendix D for further details). Lastly, comparing the maximum placement demand to the USACE estimated placement capacity in Figure 3-2d, it is clear that the maximum placement demand is less than the most likely USACE estimated placement capacity for all three material types. Therefore, the NY District expects there will be sufficient dredged material placement capacity for the Harbor through the end of 2029. For further details and commentary on the placement capacity analysis, see Appendix D.

3.2 Management Measures

The project delivery team (PDT) formulated a set of management measures that best captures existing and anticipated dredged material placement opportunities within the Harbor. Table 3-2 summarizes these management measures under consideration.

Table 3-2: Summary of dredged material management measures under consideration

Management Measures	Management Measure Description	NY District Example Placement Sites*
HARS Suitable (sand, silt, rock)		
Benthic Remediation	Use of dredged material with the intent to remediate a designated ocean placement location. Dredged material must meet Category 1 specifications.	HARS
Ocean Placement	Ocean placement of dredged material; can be dispersive or non-dispersive. Dredged material must meet Category 1 specifications.	Long Island Sound Disposal Sites*
Beach Quality Sand		
Borrow Areas	Placement of dredged material within an offshore area designated as a source of material for beach renourishment.	Sea Bright Offshore Borrow Area (SBOBA); Rockaway Offshore Borrow Area (ROSBA)
Beach Nourishment	Use of dredged material to replenish material eroded from a section of beach.	Fire Island to Montauk Point; East Rockaway Inlet to Rockaway Inlet; Sea Bright to Manasquan Section I

Management Measures	Management Measure Description	NY District Example Placement Sites*
Wetland Restoration	Use of dredged material to construct or nourish wetland habitats including freshwater and saltwater marshes.	Jamaica Bay Marsh Island Restoration (HRE)
Non-HARS Suitable (Upland)		
Non-Structural Fill	Use of dredged material to fill a given placement location. Non-structural fill can be used prior to the development of certain commercial or recreational opportunities.	Liberty State Park Restoration; Togus Redevelopment Site – Bayonne, NJ
Landfill Top Cover	Use of dredged material as daily top cover or otherwise used to support or protect landfills.	Lyndhurst Landfill; Kingsley Landfill
Mine Reclamation	Use of dredged material to cap or reclaim former mine sites.	Hazelton Mines
Processing Facility Recycling	Dredged material designated to a processing facility. Disposal or beneficial uses of processed dredged material is dependent on the physical, chemical, and biological composition of the material.	Clean Earth Processing Facility; Donjon Marine Processing Facility; Posillico Wash Plant

*Examples only; not a comprehensive list.

Benthic Remediation

Benthic remediation is the placement of dredged material in an ocean environment with the intent to remediate a designated placement site. For the NY District, dredged material placement at the HARS has been a primary benthic remediation and beneficial use opportunity for over 25 years. In 1997, the USEPA de-designated the New York Bight Dredged Material Disposal Site, also known as the MDS, and simultaneously designated the HARS for placement of dredged material. The HARS is managed to reduce the impacts of historical disposal activities by means of placing dredged material that meets Category I standards and will not cause significant undesirable ecological effects.

Ocean Dredged Material Disposal Site

On 01 June 2023, the NY District formally requested EPA Region 2 to begin the ODMDS designation process, to provide for future management of dredged material necessary to maintain safe navigation, promote marine commerce, and safeguard the economic well-being of the region.

The ODMDS request included an evaluation of remaining placement capacity of the HARS and a Zone of Siting Feasibility (ZSF) analysis to identify the economic and operationally feasible radius of ocean placement sites. The ZSF was developed to support the ODMDS request. Information provided in the ZSF analysis will be further reviewed and updated during the ODMDS NEPA evaluation. Initially, the ZSF established an economically feasible radius for disposal site locations extending 40 miles from a central point within the Port. Within that radius, environmentally sensitive and restricted areas were removed. These areas include, but are not limited to, marine protected areas, artificial reef sites, shallow areas, navigational channels and shipping approaches, and submarine cable crossings. The remaining area within the economically feasible radius that avoids these excluded areas is shown in yellow in Figure 3-3. T

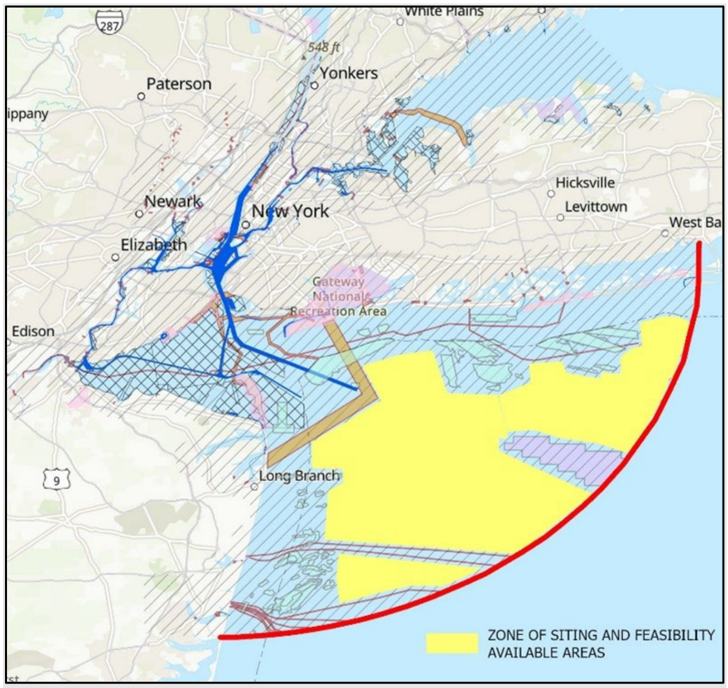

Figure 3-3. Zone of Siting Feasibility

Ocean Placement

Ocean placement, a sub-category of open-water placement, can be categorized by dispersive or nondispersive placement locations. For dispersive sites, placed dredged material is dispersed throughout the bottom surface area during placement or over time by currents and/or wave action. At nondispersive sites, dredged material is placed with the intent to remain at the placement sites. Open-water sites, including ocean placement locations, are formally designated, selected and managed to facilitate necessary dredging and subsequent placement of dredged materials. Dredged material placed in the ocean must meet many of the same requirements as benthic remediation material. All dredged material to be placed in an ocean environment is subject to Category I criteria including all subsequent material testing and site monitoring standards.

Borrow Areas

In order to support periodic and regular beach nourishment efforts, beach quality sand can be placed and stored at offshore borrow areas. The NY District leverages two existing borrow areas: SBOBA and the ROSBA. Dredged material placed at offshore borrow areas are thoroughly monitored, tracked, and documented by a Dredged Material Inspector.

Beach Nourishment

Beach nourishment is the (repeated) placement of dredged material (i.e., beach quality sand) to replenish an eroded section of beach, with the intent to match a desired design profile. . In accordance with USACE engineering practices, for dredged material to qualify as beach quality sand, both its physical and chemical characteristics must closely match the existing sand at a given placement site.

Wetland Restoration

Historically, wetlands were drained and filled for development, agriculture, and mosquito control. This resulted in a substantial reduction in quantity and quality of wetlands and the benefits they provide. The remaining wetlands face new and ongoing risks such as sea-level change, sediment starvation, erosion, pollution, and invasive species. Dredged material can be placed on wetlands to improve degraded habitat using techniques like thin layer placement.

Non-structural Fill

Placement activities to improve or construct harbor and port facilities, residential and urban areas, airports, dikes, levees and containment facilities, roads, and island and historic preservation areas. Dredged material placed in a CDF and rehandled for construction activities would be classified in this category.

Landfill Top Cover

Dredged material can be used for the purpose of capping and closure of a former landfill. Dredged material may be placed as part of a top cover complex and may be further capped with a stabilizing growth media. As shown in Table 3-3 the PDT has identified two landfill locations in New Jersey as likely placement locations for the use of dredged material as daily top cover.

Mine Reclamation

Dredged material can be placed at former mine sites that are too acidic for standard reclamation practices. Generally, the primary goal of dredged material placement at former mine sites is to mitigate acid mine drainage from surface mine tailings.

Processing Facility Recycling

Dredged material that is unsuitable for re-use without amendment may be further processed by segregating grain sizes or dewatering to generate base material for building material manufacturing.

3.3 Placement Options

Dredged material placement locations were identified primarily via the RDT, which actively maintains a list of dredged material placement locations. Additional placement locations were also identified through various stakeholder, industry, and public outreach efforts. The analysis includes active USACE CSRM projects that require periodic beach nourishment, as they are viable placement locations for beach quality sand, provided that the dredged material meets project-specific grain size and color requirements. Active material processing facilities were also included in the analysis as viable upland placement locations. Capacity of these facilities was estimated based on their daily processing rates; see Appendix D for further details.

As summarized in Section 3, there is sufficient placement capacity available for dredged material across the three identified material types. The estimated placement capacity presented in Table 3-1 and Figure 3-1 summarize the location-specific placement capacity estimates presented in Table 3-3. These locations can likely accept dredged material during the period of analysis and represent a subset of the placement locations identified as part of this 2025 DMMP Update.

The remaining placement locations identified, those which were considered as unlikely to accept dredged material during the period of analysis, are summarized in Table 3-4. These locations include USACE beach nourishment projects for which the next nourishment period lies outside the period of analysis, privately owned placement locations for which information could not be verified, as well as locations for which available information was insufficient to fully characterize their current capacity. The potential capacity of these locations (i.e., the capacity of those locations presented in Table 3-4), though nontrivial, was not considered in the placement capacity analysis.

Table 3-3: Identified likely dredged material placement locations for NY & NJ Harbor

Placement Location	Latitude	Longitude	Material Type	Management Measure	Min. Capacity [CY]	Most Likely Capacity [CY]	Max. Capacity [CY]
HARS Suitable (sand, silt, rock)							
Historic Area Remediation Site (HARS)	40.384552	-73.8551	HARS (silt, sand, rock)	Benthic Remediation	936,500	1,716,400	2,522,800
ODMDS designation effort	TBD	TBD	HARS (silt, sand, rock)	Benthic Remediation/ Ocean Placement	20,000,000	25,500,000	50,000,000
Beach Quality Sand							
Fire Island to Montauk Point, NY	40.645746	-73.14519	Beach Sand	Beach Nourishment	1,600,000	5,057,000	8,514,000
East Rockaway Inlet to Rockaway Inlet and Jamaica Bay (Rockaway), NY	40.57708	-73.83605	Beach Sand	Beach Nourishment	1,548,734	2,569,734	3,590,734
East Rockaway Inlet to Jones Inlet (Long Beach), NY	40.583056	-73.6599	Beach Sand	Beach Nourishment	0	1,800,000	3,600,000
SB-M Section I (Atlantic Coast of New Jersey, Sandy Hook to Barnegat Inlet, Sea Bright to Loch Arbor)	40.303331	-73.97762	Beach Sand	Beach Nourishment	0	3,100,000	6,200,000
Raritan Bay and Sandy Hook Bays - Port Monmouth, NJ	40.441015	-74.09688	Beach Sand	Beach Nourishment	0	95,200	190,400
SB-M Section II (Atlantic Coast of New Jersey, Sandy Hook to Barnegat Inlet, Asbury Park to Manasquan Inlet)	40.183645	-74.01025	Beach Sand	Beach Nourishment	0	2,640,000	5,280,000
Hudson-Raritan Estuary (Jamaica Bay Marsh Islands Restoration), NY and NJ	40.621663	-73.85112	Beach Sand	Wetland Restoration	400,000	805,000	1,329,690
Sea Bright Offshore Borrow Area (SBOBA)	40.391464	-73.95124	Beach Sand	Borrow Area	5,090,750	10,181,500	20,363,000

Placement Location	Latitude	Longitude	Material Type	Management Measure	Min. Capacity [CY]	Most Likely Capacity [CY]	Max. Capacity [CY]
Rockaway Offshore Borrow Area (ROSBA)	40.557824	-73.812	Beach Sand	Borrow Area	220,000	440,000	880,000
Liberty State Park Restoration	40.704435	-74.04941	Beach Sand	Non-structural Fill	330,750	441,000	551,250
Non-HARS Suitable (Upland)							
Posillico Wash Plant	40.742936	-73.41498	Upland	Processing Facility Recycling	88,500	250,410	581,905
Clean Earth - Bethlehem	40.60933	-75.30953	HARS (silt, sand, rock)	Processing Facility Recycling	1,500,000	3,000,000	3,750,000
Togus Redevelopment Site - Bayonne	40.646645	-74.14337	Upland	Non-structural Fill	150,000	200,000	250,000
Hazelton Mines (Hazleton Creek Associates)	40.948766	-75.98329	Upland	Mine Reclamation	1,104,781	1,473,041	1,841,301
Donjon Marine Processing Facility (Jersey City)	40.694886	-74.22524	Upland	Processing Facility Recycling	1,875,000	5,625,000	7,500,000
Clean Earth Processing Facility (Jersey City)	40.68739	-74.08006	Upland	Processing Facility Recycling	975,000	2,925,000	3,900,000
Phase 3 Environmental	40.794309	-75.63767	Upland	Processing Facility Recycling	1,663,871	1,663,871	2,079,839
Lyndhurst Landfill	40.770171	-74.11798	Upland	Landfill Top Cover	375,000	500,000	625,000
Kingsley Landfill	39.796322	-75.10587	Upland	Landfill Top Cover	1,485,326	1,980,435	2,000,000

Table 3-4: Additional unlikely dredged material placement locations for NY & NJ Harbor

Placement Location	Latitude	Longitude	Material Type	Management Measure	Min. Capacity [CY]	Most Likely Capacity [CY]	Max. Capacity [CY]
HARS Suitable (sand, silt, rock)							
Tilcon (Flushing)	40.763849	-73.83678	HARS (silt, sand, rock)	Processing Facility Recycling	-	Unknown	-
Western Long Island Sound Disposal Site	40.991667	-73.48252	HARS (silt, sand, rock)	Ocean Placement	-	19,840,000	20,000,000
Beach Quality Sand							
Orchard Beach, NY	40.866821	-73.79301	Beach Sand	Beach Nourishment	-	33,750	67,500
Coney Island (Sea Gate), NY	40.572625	-73.9784	Beach Sand	Beach Nourishment	-	-	30,000
Raritan Bay and Sandy Hook, Union Beach, NJ	40.453551	-74.17297	Beach Sand	Beach Nourishment	-	-	21,000
Spring Creek North, NY	40.660636	-73.86129	Beach Sand	Wetland Restoration	-	-	110,000
Hudson-Raritan Estuary (Tidal Wetland Restoration), NY and NJ	40.757531	-73.83934	Beach Sand	Wetland Restoration	-	154,678	386,696
Liberty Stone Hardscaping Systems (Archbald, PA)	41.491101	-75.52434	Beach Sand	Aggregate	-	Unknown	-
Great Kills Park - Beach Restoration/Flood Protection (Brooklyn)	40.548084	-74.11838	Beach Sand	Wetland Restoration	-	Unknown	-
Wolfe's Pond (Staten Island)	40.515694	-74.19265	Beach Sand	Wetland Restoration	-	100,000	200,000
Sunset Cove, American Ballfields Park (Queens)	40.598179	73.822782	Beach Sand	Wetland Restoration	-	8,500	17,000

Placement Location	Latitude	Longitude	Material Type	Management Measure	Min. Capacity [CY]	Most Likely Capacity [CY]	Max. Capacity [CY]
Four Sparrow Marsh (Brooklyn)	40.60145	-73.90512	Beach Sand	Wetland Restoration	-	7,336	14,672
MARSHES - EDC Mitigation Bank (Staten Island)	40.60699	-74.18711	Beach Sand	Wetland Restoration	-	Unknown	-
Rockaway Community Park (Queens)	40.59916	-73.78507	Beach Sand	Wetland Restoration	-	20,250	40,500
Spring Creek Marsh (South)	40.65076	-73.84926	Beach Sand	Wetland Restoration	-	680,000	1,360,000
Non-HARS Suitable (Upland)							
Willets Point	40.757431	-73.83993	Upland	Processing Facility Recycling	-	250,000	500,000
Former General Motors North Tarrytown West Parcel	41.084037	-73.87212	Upland	Non-structural Fill	-	50,000	100,000
Keystone Trade Center Site (North Point Redevelopment of U.S. Steel KIPC)	40.162776	-74.73757	Upland	Non-structural Fill	-	500,000	1,000,000
K - Williamsburg Works	40.724133	-73.95912	Upland	Non-structural Fill	-	Unknown	-
K - Citizens MGP - Carroll Gardens	40.67699	-73.99612	Upland	Non-structural Fill	-	100,000	200,000
460 Kingsland Avenue	40.73156	-73.94159	Upland	Non-structural Fill	2,000	30,000	58,000
Waterpointe-Whitestone, New York	40.796554	-73.81101	Upland	Non-structural Fill	-	100,000	200,000
Harbor at Hastings	40.992855	-73.88549	Upland	Non-structural Fill	-	100,000	200,000
Brooklyn Navy Yard 13 Acre Parcel	40.705271	-73.98176	Upland	Non-structural Fill	-	Unknown	-

Placement Location	Latitude	Longitude	Material Type	Management Measure	Min. Capacity [CY]	Most Likely Capacity [CY]	Max. Capacity [CY]
Brooklyn Navy Yard Industrial Park	40.705271	-73.9802	Upland	Non-structural Fill	-	Unknown	-
Rossville LNG Tank - Staten Island	40.553747	-74.2268	Upland	Non-structural Fill	-	Unknown	-
Former General Motors North Tarrytown East Parcel	41.087855	-73.86727	Upland	Non-structural Fill	-	-	100,000
Governors Island	40.685388	-74.02216	Upland	Non-structural Fill	-	75,000	150,000
Former Glenwood Power Plant	40.951563	-73.8994	Upland	Non-structural Fill	-	Unknown	-
Tilcon Site - Haverstraw NY (NYDEC Region 3)	41.184204	-73.95239	Upland	Processing Facility Recycling	-	-	10,000,000
Duraport Realty Processing Facility (Bayonne)	40.645895	-74.12305	Upland	Processing Facility Recycling	-	Unknown	-
Capital Development Quarry (Valley Industrial Properties LLC)	40.88172	-75.1924	Upland	Mine Reclamation	-	Unknown	-
Coplay Quarry (Coplay Aggregates Inc)	40.675419	-75.51187	Upland	Mine Reclamation	-	Unknown	-
Clean Earth of Philadelphia South	39.92119	-75.21394	Upland	Processing Facility Recycling	-	Unknown	-
Flag Container Services (Port Richmond, SI)	40.647247	-74.13231	Upland	Processing Facility Recycling	-	Unknown	-

3.4 Potential Future Management Measures and Placement Options

In addition to the management measures and placement locations identified and presented in Sections 3.2 and 3.3, other management measures or future placement options may become available (i.e., identified and permitted) during or after the period of analysis (2025-2029). This section highlights several of these potential future management measures and placement options. The inclusion of management measures and placement options within this section does not constitute a recommendation or official agency determination. Further analysis would be needed to evaluate whether any of the identified placement options are viable, appropriate, or environmentally acceptable. Should any of these potential future placement locations be deemed viable, placement would not occur prior to successful completion of the permitting and environmental compliance process.

USACE and EPA Ocean Fishery Enhancement Berm

In response to the June 2023 USACE request for the designation of an ODMDS, USEPA Region 2 presented several preliminary alternatives. One preliminary alternative is to develop an ocean fisheries enhancement berm. This berm would be designed to mimic the naturally occurring ridge and swale landforms in the New York Bight. At the time of writing this Integrated Report and SEA, EPA Region 2 is in the process of collecting data and feedback on this alternative. EPA Region 2 anticipates that this alternative, if implemented, would be constructed with sand and rock generated from HDCI and other O&M projects. The designation of the fisheries enhancement berm, if selected, could take approximately five years and would be subject to a NEPA analysis and produce a NEPA document Based on models of existing berms in the New York Bight, EPA Region 2 anticipates this alternative could be an appropriate use for up to 30 MCY.

Concrete Aggregate

Aggregate facilities can process dredged material, primarily sand, such that it meets the relevant standards for use as aggregate in concrete. A subset of dredged material that is recycled through a material processing facility may be used as concrete aggregate, though the ultimate use of such recycled material is not tracked as part of this 2025 DMMP Update. Additional engagement and coordination with state and local partners or industry experts may lead to the identification of specific opportunities to beneficially use dredged material as concrete aggregate.

Confined Aquatic Disposal

A contained aquatic disposal (CAD) facility necessitates the filling of a depression located on the bottom of a body of water for the purposes of disposing and confining dredged material. CAD facilities can be constructed from (1) naturally occurring bottom depressions; (2) sites from previous mining operations, such as beach nourishment borrow sites; or (3) new dredging operations created expressly for the containment structure (Fredette 2005).Depending upon the character and nature of the material excavated from the channel bottom, the material excavated to create the CAD facility would either be used beneficially (including remediation of the HARS) or disposed of in an appropriate manner if other beneficial use options were not available or feasible. The subject dredged material selected would be placed into the CAD facility and then covered by natural sedimentation, or if necessary, capped with an appropriate layer of sediment to isolate the contaminants from both the surrounding water column and the marine/estuarine organisms that inhabit the area.

Land Remediation

Land remediation combines the beneficial use of processed (solidification/stabilization) non-HARS material with the environmental and economic restoration of degraded lands. Land remediation would use processed dredged material for landfill and brownfield cover, and for reclamation of quarries and abandoned mines such as coal mines in Pennsylvania. Brownfields are former industrial/commercial facilities where expansion or redevelopment is complicated by environmental contamination. The use of processed dredged material could render these properties developable and/or eligible for ecological restoration. Successful examples include the NJ Garden Mall site in Elizabeth, NJ, and the Seaboard site in Kearny, NJ. The reclamation of mined lands in Pennsylvania is a potential option that could use a large volume of dredged material, as are landfills in Bayonne, Hackensack Meadowlands, and Jamaica Bay.

Land remediation is a desirable option for several reasons: (1) it would target sites that in their present condition pose a risk to the environment and human health (e.g., sites that are a source of contaminants to Harbor sediments); (2) it would lead to a reduction in material that would otherwise be disposed of without beneficial use; and (3) the dredged material would be confined to a site that is already impacted and that is monitored for water quality and other environmental parameters. In addition, these sites generally incorporate other environmental controls, such as leachate collection systems, slurry walls and pump and treat systems, as part of an overall remediation plan.

Due to the inherent high-water content of some dredged material, it may require processing to lower the amount of water in the material. Methods to accomplish this include natural drying, mechanical drying, and amending with binding agents (e.g., fly ash, kiln dust, concrete, etc.). The use of binding agents also minimizes the loss of contaminants. Other additives may improve the ability of the material to meet design criteria if the site is to be developed after remediation is complete. Remediation with processed dredged material requires a finishing layer over the dredged material, such as topsoil for vegetation or construction fill appropriate for parking lots and building foundations.

The use of quarries has been investigated as part of the land remediation aspect of beneficial use. These types of sites have substantial capacities because of large, excavated areas at most locations. Six potential quarry sites were located along the Hudson River between New York City and Albany, but these sites had permitting and environmental limitations that relegated them to non-preferred status.

Future Mine Reclamation Sites in Pennsylvania

Abandoned mine reclamation refers to the process of cleaning up environmental pollutants and safety hazards associated with a site and returning the land to a productive condition. Former mines located in eastern Pennsylvania have previously been reclaimed through site reclamation and remediation activities using PADEP approved residual materials, regulated fill, clean fill, and dredged materials. Dredged material from some New York Harbor projects that has been identified as unsuitable for open-water placement has been placed at upland mine reclamation sites. There are a significant number abandoned mine sites within Pennsylvania that could be used for future dredged material placement. PADEP (2013b) has identified abandoned mine sites statewide; multiple counties in eastern Pennsylvania have more 100 abandoned mine sites. Figure 3-4 provides a statewide overview of abandoned mine land sites.

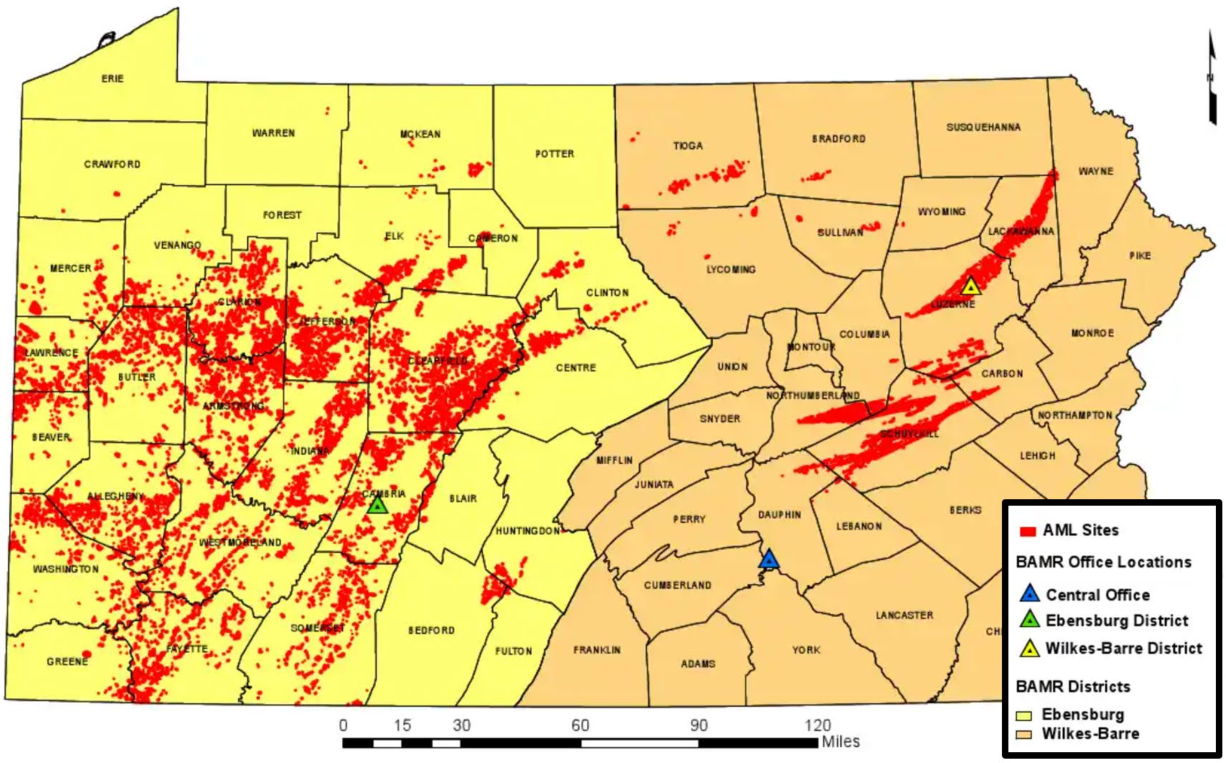

Figure 3-1. Abandoned mine land sites in Pennsylvania (PADEP, 2013a)

Berth Expansion Port Newark Container Terminal

During outreach efforts for the 2025 DMMP Update, the Port Newark Container Terminal informed USACE of their proposed Port Newark Container Terminal Expansion Masterplan. As a part of their plan, the Port Newark Container Terminal anticipates improvements to existing port facilities, construction of a new intermodal rail line, construction of a new container terminal, and a construction of a future offshore wind support facility. This proposed expansion is in early design and stages.

Land Reclamation (Made Land)

Dredged material can also be placed to support the creation of new land for commercial or industrial uses. Much like other heavily developed coastal regions, the New York City metropolitan area has a long history of such land reclamation efforts. However, current conditions, jurisdictional boundaries, and regulations generally constrain the feasibility and acceptability of similar efforts in the modern day. As such, land reclamation was not considered as part of the 2025 DMMP Update.

Bayonne Golf Club Links Island

During outreach efforts for the 2025 DMMP Update, the Bayonne Golf Club proposed the development of a dredged material island in the Upper Bay adjacent to their existing golf course in Bayonne, New Jersey. Preliminary plans suggest that the island would require approximately 7-10 MCY of dredged material to construct, though this estimate did not account for side slopes of the island below the water surface or additional volume required to offset consolidation and settlement that would result from placement of material. Considering these additional factors, the consultant hired by the Bayonne Golf Club estimates that the Links Island project could accept up to 20 MCY of dredged material. The plan also specifies use of rock dredged from the HDCI project to construct a living breakwater along the southern shore of the island. The proposed Links Island is intended to serve as a habitat feature within the Harbor, though its impact to existing aquatic habitats or adjacent berths is unclear given information currently available. At the time of writing this Integrated Report and SEA, the project has not undergone the permitting process, though it has been presented to the NJDEP and USACE.

Migratory Bird Sanctuary

Hoffman and Swinburne Islands, just south of Staten Island, New York, were created by placement of fill and dredged material. Today both islands are a migratory bird sanctuary within the Gateway National Recreation Area, though they were not originally constructed for this purpose. Dredged material could be used to develop additional migratory bird sanctuaries in the Harbor.

USACE Baltimore District has also beneficially used dredged material for the explicit purpose of developing island habitat (Poplar Island). Since 2002, Baltimore District has placed over 44 MCY of clean dredged material, with the ultimate goal of creating 776 acres of tidal wetlands and 829 acres of upland habitat through the beneficial use of 68 MCY of dredged material (USACE, 2024). Similarly, though at a smaller scale, USACE Savannah District is beneficially using dredged material from the Atlantic Intracoastal Waterway to create bird sanctuary along the eastern coast of Georgia. Though these ongoing efforts at other districts are providing significant environmental benefits, further research and study would be needed to evaluate the feasibility and environmental acceptability of similar efforts to create additional bird sanctuary within the Harbor.

Shoreline Infrastructure Resilience Measures

The New York City Metropolitan region relies on a variety of infrastructure assets that sit immediately on or adjacent to tidally influenced waterbodies. Depending on the engineering properties of available (processed) dredged material, there may exist opportunities to beneficially use dredged material to elevate these assets. For example, Metro-North, a subsidiary of the Metropolitan Transit Authority (MTA), owns and operates commuter rail service on the Hudson Line, which as the name implies, generally runs immediately along the shoreline of the Hudson River. The MTA has identified sea level change as a long-term existential threat to the Hudson Line and has begun elevating critical assets within the right-of-way, though has not yet identified any long-term plans to elevate the right-of-way (MTA, 2023). Provided dredged material is deemed suitable, it could be beneficially used as structural fill to elevate portions of the Hudson Line immediately adjacent to the Hudson River. Further study would be needed to determine if such an approach to elevating the Hudson Line would be feasible, appropriate, and environmentally acceptable and would ultimately be driven by the needs and capital planning priorities of the MTA.

Artificial Reefs

Historically, dredged rock has been used to create or supplement existing designated artificial reefs in New York and New Jersey. The beneficial use of artificial reefs is directly related to the creation and long-term sustainability of marine habitats (Billion Oyster Project, 2024). Artificial reefs, such as those developed as part of the Living Breakwaters project along the southern shores of Staten Island, can attenuate waves during coastal storms and serve as benthic habitat. Previously, rock material dredged during the NY/NJ Harbor Deepening Project was supplied to the Atlantic Beach (NY), Sandy Hook (NJ) and Shark River (NJ) artificial reefs to supplement marine habitat creation programs for lobsters and other marine fauna. Similar efforts could be conducted in future. For instance, rock dredged as part of the HDCI project could potentially be used to create artificial reefs within the Harbor. No new artificial reef placement options were identified as part of the 2025 DMMP Update. Further study would be needed to identify locations within the Harbor that could benefit from such reefs and environmental acceptability.

Jamaica Bay Borrow Pits and Shallowing

Sand mining for commercial construction aggregate and land reclamation projects during the 20th century has left depressions, called borrow pits, in several locations within the Lower Bay section of New York Harbor and in Jamaica Bay. These borrow pits differ in their configuration, but all are steep sided and considerably deeper than the ambient bay bottom (see Section 6.2 for more information). The 1999 DMMP identified the remediation of these borrow pits as a potential beneficial use of dredged material (USACE, 1999). Between 2000 and 2003, the NYSDEC and the NY District conducted a study to assess the potential for environmental restoration of the borrow pits in Jamaica Bay, though no further action was taken. At the time of writing this Integrated Report and SEA, the State of New York is considering legislation that would prohibit placement of material within Jamaica Bay (Assembly Bill A2808) or enact a moratorium on placement of material within Jamaica Bay for five years, or until the NYSDEC completes a study on the ecological restoration needs of the bay (Assembly Bill A9036). It is unclear if or when these bills could be passed into law. Assembly Bill A9036, was delivered to the Governor for signature on 15 November 2024, though it was ultimately vetoed and tabled on 22 November 2024. Regardless of whether these bills are passed into law, USACE currently has no plans to consider placement of any material within Jamaica Bay. Further study and coordination with stakeholders would be needed should such plans materialize.

Due in part to these borrow pits and the dredging of navigation channels within the bay, the bathymetry of Jamaica Bay has changed considerably over time due to several decades of dredging; the average depth of the bay has increased from about 3.3 feet to 13 feet since late 19th century (Swanson et al., 1992). Recent studies suggest that this substantial increase in depth within the bay has exacerbated flood risk for communities adjacent to the bay (Orton et al., 2015). A more systematic approach to shallowing the bay, or further enhancing existing tidal wetlands through a thin layer placement program, could restore the bay closer to its pre-industrial condition. USACE currently has no plans to consider or evaluate the shallowing of Jamaica Bay.

4 ANALYSIS OF MANAGEMENT MEASURES

The management measures presented in Section 3.2 were analyzed via a two-part approach. First, for the purposes of determining the Federal Standard, placement costs were estimated for each management measure. Second, the beneficial use potential of the identified management measures was assessed qualitatively across several different attributes capturing relevant aspects of the NED, RED, OSE, and EQ accounts. The following sections detail the analysis approach and performance of the management measures under consideration.

4.1 Estimated Placement Costs

USACE routinely develops and evaluates cost estimates for dredging projects. Pursuant to ER 1110-2-1302, dredge project estimates must be developed using the Cost Engineering Dredge Estimating Program. The Cost Engineering Dredge Estimating Program is useful for project-specific cost analyses because it requires that sufficient information be available to characterize both the location where the dredging work is to occur and the placement location (Emery, 2024). Given that this 2025 DMMP Update evaluates Harbor-wide placement at a management measure level (i.e., not considering specific dredging projects or placement locations), it was not possible to utilize the Cost Engineering Dredge Estimating Program to develop placement costs by management measure. Instead, historic cost data from recent dredging work in the Harbor was utilized to develop a range of placement cost estimates for each material type and management measure. As such, it is assumed that this approach captures the full range of probable dredge project characteristics and resultant Harbor-specific placement costs for each management measure.

A total of 136 recent dredging projects in the Harbor from 2008 to 2024 were identified via several data sources, including NY District project archives, and Dredging Information System data. Each dredging project was assigned an appropriate dredged material management measure, based on available project information. Low bid dredging project costs (inclusive of mobilization and demobilization costs) were divided by actual dredged material volumes to develop a unit placement cost. All project costs were inflated to a 2025 Q1 price level using the Civil Works Construction Cost Index System.

Lifecycle monitoring costs for the HARS were also factored into the unit placement cost estimate for benthic remediation and ocean placement. Monitoring at the HARS, or any designated ocean placement site, is required until the site is de-designated and no longer accepting new material. As such, the lifecycle monitoring cost depends on the duration over which a site is accepting material. For the purposes of estimating lifecycle monitoring costs, it is assumed that the HARS will have a 40 (± 10) year lifespan from its initial designation in 1997. Over this lifespan, an estimated total volume of (118 MCY ± 20 MCY) is likely to be placed at the HARS. Given the average annual monitoring cost over the past five years ($448,000/year) and a 3% discount rate, an estimated lifecycle monitoring cost per cubic yard of material was developed (min = $0.14/CY; expected = $0.20/CY; max = $0.29/CY). These costs are included in the unit placement cost provided in Table 4-1.

For the purposes of determining the Federal Standard, it is assumed that any offsetting economic benefits or efficiencies (e.g., commodity value of the dredged material) are captured in the low bid dredging project costs. Though potentially monetizable via a revealed preference approach, environmental benefits were not monetized[1] or considered as an offsetting benefit, as current law (33 USC 2326g) does not require their monetization or inclusion in the calculation of the Federal Standard.

Additionally, CSRM benefits are not directly subtracted from dredged material placement costs, as doing so would in effect double count those benefits which are already used to justify existing authorized projects. Depending on the timing of a future dredge project and material suitability, beach placement at authorized CSRM projects may yield additional project-specific economic efficiencies (e.g., by reducing the volume of material that must be dredged for a planned nourishment). Such economic efficiencies can only be determined on a project-specific basis when selecting a specific placement location and are therefore not possible to account for or consider when evaluating management measures.

An estimated range of dredging project unit costs were developed for each of the management measures identified in Section 3.2. Table 4-1 summarizes these dredging project cost ranges for management measures, grouped by material type.

Table 4-1. Estimated dredging project unit cost by management measure [2025 Q1 USD]

Material Type	Management Measure	Cost [$/CY]		
		Minimum	Expected	Maximum
HARS suitable	Benthic Remediation Ocean Placement	$ 9.28	$ 18.16	$ 61.16
Beach Quality Sand	Borrow area	$ 14.82	$ 22.66	$ 36.06
	Beach nourishment	$ 11.83	$ 32.37	$ 113.35
	Wetland restoration	$ 23.26	$ 47.49	$ 89.22
Non-HARS suitable (upland)	Non-structural fill	$ 83.81	$ 91.15	$ 102.38
	Landfill top cover	$ 84.43	$ 132.91	$ 205.38
	Mine Reclamation	$ 98.26	$ 188.90	$ 247.27
	Processing Facility Recycling	$ 108.44	$ 204.30	$ 269.12

As shown in Table 4-1, there is a considerable range in unit placement costs for each management measure. This range can be attributed to multiple factors, including but not limited to one-way haul distance to the placement location, dredge type, vessel traffic, production rate, and environmental

[1] Monetization of environmental benefits via a revealed preference approach would only establish the willingness to pay of those market participants that have paid to develop, preserve, or otherwise augment ecosystem services. This approach would not capture the willingness to pay of nonparticipants, whose perception of value is likely to be lower (or zero, for those paradigmatically opposed to such markets). Current law circumvents the issue of monetization by specifying benefits to environmental quality shall be at least equal to project costs (33 USC 2284).

windows. For HARS suitable material, based on a sample of 26 dredging projects, the expected unit cost of benthic remediation (via placement at the HARS) was estimated to be $18.16/CY. Though no ocean placement has occurred apart from placement at the HARS, it was assumed that ocean placement elsewhere would carry similar costs, as the project characteristics (e.g., mobilization, demobilization) would be similar and would also incur similar long-term monitoring costs. Placement costs for beach quality sand at a borrow area was estimated to be $22.66/CY, based on a sample of four dredge projects. A more robust sample of 83 beach nourishment projects yielded an expected cost of $32.37/CY for beach nourishment within the Harbor. A sample of eight wetland restoration projects yielded an expected placement cost of $49.04/CY. Smaller sample sizes were used to develop unit placement costs for non-structural fill ($91.15/CY; n = 3 samples), landfill top cover ($132.91/CY; n = 4 samples), mine reclamation ($188.90/CY; n = 4 samples), and process facility recycling ($204.30/CY; n = 4 samples). These unit placement costs were significantly higher than for HARS-suitable material and beach quality sand, as these placement locations were considerably further and required overland transportation via truck to reach placement locations.

4.2 Qualitative Benefit Assessment

It is USACE policy to maximize the beneficial use, in an environmentally acceptable manner, of suitable dredged material obtained from the construction or operation and maintenance of water resources development projects (33 USC 2326g). In accordance with 33 USC 2326g, the beneficial use potential of each management measure under consideration was qualitatively assessed via a simple binary scoring approach. Under this approach, the beneficial use potential of each management measure was evaluated across several attributes. If a given management measure was expected to protect, enhance, or improve resources associated with an attribute, a score of +1 was assigned. A score of 0 was assigned if the management measure was not expected to benefit any resources associated with an attribute. If information available was insufficient to make such a determination, a score of 0 was also assigned. Given the broader management measure approach of the 2025 DMMP Update, adverse effects, which would best be evaluated on a placement location-specific basis, were not considered within this qualitative assessment. The PDT selected six attributes to qualitatively assess the benefits of dredged material management measures. The six attributes include:

Flood Risk Management and Coastal Storm Risk Management

FRM/CSRM is one of USACE Civil Work's core missions. USACE's FRM/CSRM activities seek to reduce the threat to life and property from riverine and coastal storm flooding through the development and communication of advanced knowledge, technology, and solutions. The NY District manages a large portfolio of FRM/CSRM activities in Study Area in cooperation with State and local partners. In addition to USACE led activities, other government agencies (Federal, State, local) and non-governmental organizations (nonprofit, private) have their own plans and projects to reduce flood risk. Examples of FRM/CSRM strategies commonly employed that could use dredged material include structural measures (e.g., levees, berms, walls), nature-based features (e.g., wetlands, beaches, dunes), and raising ground surface elevations. Management measures that would utilize dredged material to reduce the risk of riverine flooding and coastal storms were scored +1. This includes the temporary stockpiling of material for later use in an FRM/CSRM project (e.g., borrow area placement). Dredged material management measures that are not expected to reduce the risk of riverine flooding and coastal storms, or there was not enough information to decide, were scored 0.

Recreational Opportunities

Some dredged material management measures have the potential to protect or enhance existing public and private recreational facilities, whereas others have the potential to create new recreational facilities. Examples of recreational facilities include public and private open spaces such as parks, beaches, and wetlands. These recreational facilities provide opportunities for various active and passive uses such as walking, jogging, fishing, kayaking, birdwatching, and playing sports. Dredged material management measures that have the potential to protect, enhance, or create recreational facilities were scored +1. Dredged material management measures that are not expected to benefit recreational facilities, or there was not enough information to decide, were scored 0.

Wetland Habitat

Wetlands are transitional areas between open water and dry land and are often found along bays, lakes, rivers, and streams. Examples include tidal salt marshes and freshwater bottomland forests, swamps, and scrub shrub wetlands. Dredged material management measures that have the potential to create, restore, and enhance wetlands were scored +1. Dredged material management measures that are not expected to benefit wetlands, or there was not enough information to decide, were scored 0.

Upland Habitat

Upland habitats are natural areas which typically occur above the tide line or ordinary high-water mark of waterbodies and are characterized by mostly dry conditions. Examples include woodlands, maritime forests, scrub shrub, and grasslands. For the purposes of the qualitative assessment, beaches are considered uplands because they do not support wetland vegetation and soils. Dredged material management measures that have the potential to protect, enhance, or create uplands were scored +1. Dredged material management measures that are not expected to benefit uplands, or there was not enough information to decide, were scored 0.

Aquatic Habitat

Aquatic habitat encompasses all habitats submerged under water where aquatic organisms spawn, breed, feed, or grow to maturity. Examples of aquatic habitat include submerged aquatic vegetation, reefs, and pebbly or gravelly bottom habitats. Intertidal wetland habitat is included in the wetland habitat attribute and is not considered aquatic habitat for the purposes of this qualitative assessment. Dredged material management measures that have the potential to protect, enhance, or create aquatic habitat were scored +1. Dredged material management measures that are not expected to benefit aquatic habitat, or there was not enough information to decide, were scored 0.

Upland Site Development

A subset of placement locations utilize dredged material as a fill for a variety of uses. Depending on location-specific requirements, these placement locations can accept non-HARS suitable material that would not otherwise be beneficially used. This includes amended, or otherwise processed dredged material. Relevant use cases include utilization as daily top cover at landfills, fill for mine reclamation projects, and nonstructural fill for landscaping and grading at residential and commercial developments. Management measures that have the potential to utilize dredged material as fill for upland site development were scored +1. Measures that would not utilize dredged material as fill, or there was not enough information to decided, were scored 0.

Informed by prior knowledge and experience with the identified management measures, beneficial use scores for each of the identified metrics were qualitatively assessed by the PDT through several rounds of deliberation. Overall beneficial use scores for management measures were assessed on a simplified scale, as outlined in Table 4-2. Management measures which scored +1 on two or more attributes were considered to have significant beneficial use potential and assigned a maximum score of 2. Management measures which only scored +1 on a single attribute, were considered to have moderate beneficial use potential and scored as 1. Those management measures which received a beneficial use potential score of 0 across all attributes were considered to have negligible or unknown beneficial use potential and also assigned an overall score of 0. Under this approach, no preference is made between the different types of beneficial use; positive BU scores for all metrics are equally weighted. Table 4-3 summarizes the attribute-specific and overall beneficial use potential for each management measure considered in the 2025 DMMP Update.

Table 4-2. Beneficial use potential scoring metric

BU Score	Beneficial Use Potential
2	Significant (2 or more attributes)
1	Moderate (1 attribute)
0	Negligible/Unknown (0 attributes)

Table 4-3. Assessed beneficial use potential of dredged material management measures

Management Measure	FRM/CSRM	Recreational Opportunities	Wetland Habitat	Upland Habitat	Aquatic Habitat	Upland Site Development	BU Score
HARS Suitable Material (silt, sand, rock)							
Benthic Remediation	0	0	0	0	+1	0	1
Ocean Placement	0	0	0	0	0	0	0
Beach Quality Sand							
Borrow area	+1	+1	0	0	0	0	2

Management Measure	FRM/CSRM	Recreational Opportunities	Wetland Habitat	Upland Habitat	Aquatic Habitat	Upland Site Development	BU Score
Beach nourishment	+1	+1	0	+1	0	0	2
Wetland restoration	+1	+1	+1	0	0	0	2
Non-HARS Suitable (upland)							
Non-structural fill	0	0	0	0	0	+1	1
Landfill top cover	0	0	0	0	0	+1	1
Mine Reclamation	0	0	0	0	0	+1	1
Processing Facility Recycling	0	0	0	0	0	+1	1

As shown in Table 4-3, apart from ocean placement (BU score = 0), all management measures under consideration were expected to have at least moderate beneficial use potential. For HARS suitable material, benthic remediation was assessed as potentially beneficial for aquatic habitat, as placement under this management measure would reduce contaminant concentrations on the seafloor, thereby supporting benthic organisms that rely on this habitat.

Beach quality sand has the highest overall beneficial use potential; borrow areas, beach nourishment, and wetland restoration are assessed as having significant overall beneficial use potential (BU score = 2). Placement at borrow areas was assessed as potentially beneficial for FRM/CSRM and recreational opportunities. Similarly, beach nourishment was assessed as potentially beneficial for FRM/CSRM, recreational opportunities, though there is additional beneficial use potential for upland habitat, as nourished beaches can provide additional habitat for plants and wildlife, including threatened and endangered species. Wetland restoration was assessed as potentially beneficial for FRM/CSRM, recreational opportunities, and wetland habitat. Wetland restoration has the potential to increase water storage during flood events and attenuate wave energy during storm events. Wetland restoration can also enhance recreational opportunities for activities such as birding, fishing, and environmental education, as it has the potential to create, restore, or otherwise enhance wetland habitat quality.

For non-HARS suitable material, all management measures, nonstructural fill, landfill top cover, mine reclamation, and processing facility recycling, were assessed as having moderate beneficial use potential. All these management measures were found to be potentially beneficial for upland site development, where the material can be recycled to meet the needs of various public and private sector organizations. For those management measures which were considered as having negligible overall beneficial use potential (i.e., ocean placement, and others not considered here) individual placement locations may still be classified as beneficial use in the future, depending on site-specific conditions and impacts.

5 FEDERAL STANDARD MANAGEMENT MEASURES

Given the estimated placement costs and qualitative assessment of management measures outlined in Section 4, this section identifies a set of management measures as the Federal Standard. In addition, this section presents a rank preference of management measures by material type, given the findings of the quantitative and qualitative assessments.

5.1 Federal Standard and Base Plan

The Harbor-wide Federal Standard management measure was determined for HARS-suitable material (clay, silt, sand, rock), beach quality sand, and upland material (i.e., non-HARS suitable clay, silt, sand, or rock) given the expected placement costs presented in Table 4-1. The management measure with the lowest expected placement cost is taken to be the FS; in instances where two or more management measures share the same expected placement cost, preference is given to the management measure with the greater BU potential. Table 5-1 identifies the harbor-wide Federal Standard for each material type.

Table 5-1. Harbor-wide Federal Standard for HARS suitable material, beach quality sand, and non-HARS suitable material

Material Type	Management Measure	Expected Placement Cost [$/CY]	Sample Placement Locations
HARS suitable	Benthic remediation	$18.16	HARS*
Beach Sand	Borrow area	$22.66	Sea Bright Offshore Borrow Area
Non-HARS suitable	Non-structural fill	$91.15	Togus Redevelopment Site - Bayonne

* HARS is the only benthic remediation site available and is also the Federal Standard placement location.

As shown in Table 5-1, benthic remediation is the Federal Standard management measure for HARS suitable material. Given that it is anticipated to be the only benthic remediation site available during the period of analysis, the HARS is the Federal Standard for all suitable dredged material. For beach quality sand, the expected lowest cost management measure is placement at a borrow area, such as the SBOBA. For non-HARS suitable material, the Federal Standard management measure is use as non-structural fill, such as at the Togus Redevelopment Site in Bayonne, New Jersey. Though these management measures are identified as the Harbor-wide Federal Standard, the Federal Standard should be evaluated on a project-specific basis prior to bid solicitation, given suitable placement options anticipated to be available at the time of dredging. For a given project, the least expense placement location (i.e., the Federal Standard) will be dependent upon several factors, including any potential economic efficiencies gained by placement, as well as the one-way haul distance between the dredging and placement locations. Consequently, the Federal Standard placement location for a specific dredge project could differ from the Harbor-wide Federal Standard management measure outlined in Table 5-1. The results presented reaffirm the existing Federal Standard and do not constitute a decision as to where dredged material will be placed in future. Table 5-2 further synthesizes the results presented in Section 4 by ranking management measures based on expected placement cost and BU potential. Additionally, Table 5-2 provides the expected differential placement cost for each alternative, relative to the identified Federal Standard. This differential placement cost is relevant for project proponent that may wish to beneficially utilize dredged material at a location that is not the identified Federal Standard. In such circumstances, the project proponent would be responsible for covering this differential placement cost. For instance, if material from a USACE maintenance dredging project is requested for use in a wetland restoration project, the wetland restoration project must consider this differential placement cost as part of the overall project cost.

Table 5-2. Harbor-wide ranking of management measures and placement cost differential (relative to the identified Federal Standard) by material type. Note costs are in Q1 2025 USD

Management Measure	Harbor-wide Ranking	Expected Placement Cost (Relative to FS) [$/CY]	Differential Placement Cost (Relative to FS) [$/CY]	BU Potential
HARS Suitable				
Benthic Remediation	1	$18.16	-	1
Ocean Placement	2	$18.16	-	0
Beach Quality Sand				
Borrow Area	1	$22.66	-	2
Beach Placement	2	$32.32	$9.70	2
Wetland Restoration	3	$47.79	$25.12	2
Nonstructural Fill	1	$91.15	-	1
Landfill Top Cover	2	$132.91	$41.76	1
Mine Reclamation	3	$188.90	$97.75	1
Process Facility Recycling	4	$204.30	$113.15	1

6 AFFECTED ENVIRONMENT*

6.1 Introduction

This section describes the environment of the areas that could be affected by dredged material management measures implemented by project proponents, including the reasonably foreseeable environmental trends and planned actions in the areas.

6.2 Bathymetry

Bathymetry is the study of the underwater terrain. Prior to colonial settlement much of the Study Area was shallow and had water depths less than 20 feet at mean low water (USACE, 2020). The Port was naturally deep enough for most vessels in the early 1800's. However, as the demand for goods increased, a series of navigation improvement projects were completed to increase depths to accommodate larger, steel vessels (USACE, 2022). A 30 feet deep channel was dredged through the Lower Bay in 1891, followed by deepening to 40 feet by 1914 (Parkman, 1983). During World War II, the network of channels and supporting berthing areas were deepened to almost 45 feet and expanded into the Upper, Raritan, and Newark Bays (Parkman, 1983). Dredging has continued since then, resulting in over 250 miles of established channels and associated berthing areas. In 2000, the U.S. Congress authorized the deepening of the main shipping channels within the region to 50 feet, and again in 2022 to 55 feet, to meet shipping needs and ensure the Port's long-term economic viability (USACE, 2020 and USACE, 2022a). Channel deepening to 55-feet is anticipated to be completed through HDCI project efforts.

Dredging and filling over the past century has significantly altered the bathymetry of Jamaica Bay in New York (USACE, 2019). The average depth of Jamaica Bay is approximately 13 feet deep with dredged navigation channels reaching up to 50 feet deep (NYCDEP, 2017). Jamaica Bay also has numerous deep borrow pits, exceeding 40 feet in depth in some locations, which are located at the bayside margins of both Floyd Bennett Field and John F. Kennedy Airport. Other borrow pits include the Norton Basin and Little Basin Borrow Pits and offshore borrow areas including the East Rockaway Inlet Rockaway Emergency Contract 1C Borrow Area, and the USACE Borrow Areas A-West and A-East (USACE, 2019).

In addition to Jamaica Bay, there are numerous other borrow pits throughout the Study Area, including several pits in Lower Bay to the east and west of Ambrose Channel. Two borrow areas, the SBOBA and ROSBA, were identified as placement options. The SBOBA is located off the Atlantic Coast of New Jersey ranges in depth from -20 to -80 feet MLLW. The ROSBA is located off Rockaway Peninsula, with existing depths ranging from approximately -25 to -45 feet MLLW.

Water depths at the HARS range from approximately -34 to -120 feet MLLW (McKim & Creed, 2023). High-resolution bathymetry data are collected annually to determine the physical distribution and thickness of remediation material after its placement at the HARS. These data help to assess progress in attaining the remediation goal of placing at least one meter of remediation material over the nine PRAs of the HARS. Bathymetry is also used to verify that a location may receive remediation material without becoming a hazard to navigation.

There is a network of existing and proposed submarine cables, pipelines, and other infrastructure within the Study Area that may affect the underlying bathymetric conditions at placement sites. Submarine infrastructure must be buried in accordance with the applicable guidance, regulations, and industry practices to ensure safe operation and allow for future maintenance. Burial depth and ownership of submarine infrastructure varies widely across the Study Area.More information on water depths and submarine infrastructure in the Study Area is available through NOAA and USACE. The NOAA National Centers for Environmental Information maintains an online bathymetric data viewer which pulls bathymetric information from various data sources (https://www.ncei.noaa.gov/maps/bathymetry/). NOAA also hosts an interactive map, the Marine Cadastre National Viewer, which can be used to screen for submarine infrastructure. The NY District conducts routine surveys of Federally maintained navigation channels in the Study Area and reports condition information to the USCG, NOAA, and other government offices. Surveys show minimum controlling depths along with notes on the location of shoals. USACE controlling depth reports and surveys are available online (https://www.nan.usace.army.mil/Missions/Navigation/Controlling-Depth-Reports/).

6.3 Socioeconomics

Socioeconomics is the study of how economic activity affects and is shaped by social processes. Socioeconomic conditions are dependent on multiple factors such as age, race, education, income, health, employment, and access to resources like public transportation. There is a range of socioeconomic conditions in the Study Area due to the large geographic scope of the 2025 DMMP Update. For this reason, it is not feasible to describe the existing socioeconomic conditions of each location where dredged material management activities could occur, as this would be performed on a project-by-project basis, where appropriate. Instead, socioeconomic conditions were considered at the regional scale for the New York-Newark-Jersey City New Jersey Metropolitan Statistical Area (MSA) using 2023 American Community Survey data provided by the U.S. Census.

In 2023, the MSA had an estimated population of 19,494,249. Median age was 39.9 years. Total employment of the population 16 years and over was 10,379,303 and median income was $52,459. The largest employment sector by number of employees was educational services and health care and social assistance. The next largest sector was professional, scientific, and management, and administrative and waste management services. Approximately 13% of the MSA population met the poverty status. Approximately 11% of the population had a disability. The largest minority population were Black or African American, comprising approximately 16% of the MSA. Additionally, 26% of the MSA identified as Hispanic or Latino.

Other important socioeconomic information for the Study Area relates to shipping, commercial and recreational fishing, and tourism. The Port is the largest container port on the East Coast and the second largest in the Nation. In 2023, the Port moved $238 billion worth of goods and had 2,856 vessel calls (PANYNJ, 2023). According to the USACE Waterborne Commerce Statistics Center, 150,006 vessel trips were made through the Port in 2022 (USACE, 2024a).

Fishing is a multi-billion-dollar industry in New York and New Jersey (NOAA, 2024). In New Jersey, the commercial fishing and seafood industry supported 72,349 full- and part-time jobs and generated $12.9 billion in sales, $2.6 billion in income, and $4.5 billion in value added impacts in 2022. New Jersey's recreational fishing industry supported 3,546 jobs and generated $673 million in sales, $220 million in income, and $398 million in value added impact in 2022. In New York, the commercial fishing and seafood industry supported 69,836 full- and part-time jobs and generated

$9.2 billion in sales, $1.9 billion in income, and $3.2 billion in value added impacts in 2022. New York's recreational fishing industry supported 2,425 jobs and generated $378 million in sales, $138 million in income, and $249 million in value added impact in 2022.

Tourism and recreation support a range of businesses along the coast such as restaurants, hotels, aquariums, sporting goods stores, marinas, and boat manufacturers. According to lawmakers, beach tourism in New Jersey generates an estimated $40 billion each year and supports over 330,000 jobs (Pallone, 2023). New York boasts similar statistics, with approximately 8 million yearly visitors at Jones Beach State Park (NYSPRHP, 2024) and 2.2 million yearly visitors to Fire Island alone (NPS, 2024).

6.4 Water Resources

6.4.1 Surface Waters

The bays, navigation channels, harbor areas, and rivers surrounding the Harbor comprise a complicated hydrologic and hydraulic system (USACE, 2022a). Variations in topography, freshwater input, tidal energy, and meteorological forces produce regions of different hydraulic and water quality characteristics. The Harbor tidal cycle generally responds to the tide propagating in from the New York Bight, with some amplification and small phase lags between Upper New York Bay and Newark Bay. At subtidal timescales, the wind force, density currents, and variations in freshwater flows become important factors in the harbor circulation, particularly in areas where tidal currents are weak (Oey et al., 1985).

Dominant surface water systems within the Study Area include the Passaic and Hackensack Rivers, Newark Bay, Kill Van Kull, Raritan River, Hudson River, the Upper and Lower Bay, and Atlantic Ocean. The Passaic and Hackensack Rivers flow south and converge in Newark Bay, where surface waters continue to drain south, eventually into the Raritan Bay. The Hudson River generally flows south, where it converges with the East River in the Upper Bay but is tidally influenced with dual flow directions, extending north as far as Troy, New York (USACE, 2022). The Kill Van Kull is a tidal strait that connects the Upper Bay with Newark Bay flowing from east to west. All surface waters in the Study Area ultimately drain into the Atlantic Ocean to the east.

The Study Area has a dynamic hydrology due to the variation in tidal velocity, amount of freshwater flow, and bathymetry among the connecting bays. These waterways exist within a heavily industrialized and developed corridor and contain deepwater navigation channels that allow transport of cargo into and out of the Port (USACE, 2022). Creeks, tributaries, storm drainage and runoff, wetlands, and floodplains are part of the interconnected web of these dominant surface water features in the Study Area. Topographic gradients typically dictate the surficial and shallow groundwater flow, where hydrogeologic gradient usually follow, under normal circumstances, towards the nearest major water body (e.g., Atlantic Ocean). Therefore, groundwater in the vicinity of the Study Area is anticipated to flow from higher elevations in the west and north to lower elevations in the east and south; however, groundwater flow patterns can vary depending on site specific topographic, geologic, and hydrogeologic conditions.

The surface water systems located throughout the Study Area are subject to water quality concerns including salinity variances, low dissolved oxygen, presence of pathogens, contaminants, and nutrient depletion. Potential water quality degradation sources vary between waterway, but generally are associated with known contaminated sites, Superfund Sites, wastewater treatment effluents, combined sewer outfalls, storms, and stormwater runoff from the highly urban surrounding environment (USACE, 2022). The NJDEP and NYSDEC have established classification systems for the best intended uses of surface water quality within the Study Area (e.g. Surface Water Quality Standards, *New Jersey Administrative Code* (N.J.A.C.) 7:9B and Water Quality Regulations, 6 NYCRR Parts 700-705). These classifications are based on the extent to which these surface waters will attain the Clean Water Act goals of aquatic life support and swim-ability, and the designated uses outlined by each State.

The following briefly discusses the quantitative and qualitative water quality data taken from various sources, including a high-level overview inclusive of salinity, dissolved oxygen, nitrogen, fecal coliform, and chlorophyll-a trends in these dominant surface water bodies. Reference is specifically made to the Harbor-Wide Water Quality Monitoring Report (HWQMR) 2021 completed by the Hudson River Foundation as a part of the NY/NJ Harbor and Estuary Program. The report contains data on dissolved oxygen, pathogenic bacteria (fecal coliform and Enterococcus), nitrogen, and chlorophyll-a that was collected from 2010-2017 in many of the waterbodies in the Study Area. Those data are discussed frequently throughout this section. Much of this information is also presented in the New York New Jersey Harbor and Tributaries Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement, which encompasses much of the same Study Area as this, supplemented by the New York City Department of Environmental Protection 2022-2023 Harbor Survey Report (NYC DEP, 2024).

The USEPA defines salinity as "...the dissolved salt content of a body of water...[that] can be a chemical stressor in the aquatic environment as fluctuating levels of salinity can affect aquatic biological organisms which are adapted to prevailing salinity concentrations." Salinity concentrations can vary depending on a variety on conditions including location, tidal influence, weather, storms, and floods, etc. Salinity conditions are generally categorized as follows: tidal fresh (<0.5 parts per thousand [ppt]); oligohaline (0.5-5.0 ppt), mesohaline (5.0-18.0 ppt); polyhaline (18.0-30.0 ppt); and euhaline (>30.0 ppt).

The HWQMR utilized the USEPA's nationally recognized standards for dissolved oxygen, nitrogen, fecal coliform, and chlorophyll-a to compare the recorded values, as follows:

- **Dissolved Oxygen:** there are two threshold values for hypoxia: acute hypoxia, the dissolved oxygen level at which marine life has a greater potential to die, is indicated when water has less than 2.3 milligrams of dissolved oxygen per liter (mg/L); and chronic hypoxia, the continuous level at which dissolved oxygen hinders growth of marine life and is indicated by dissolved oxygen levels less than 4.8 mg/L.

- **Nitrogen:** levels of total nitrogen exceeding 1.2 milligrams per liter (mg/L) is considered poor, and levels found equal to, or less than 0.4 mg/L is considered good.

- **Chlorophyll-a:** a threshold of greater than 20 micrograms per liter (µg/L) to indicate poor quality while considering values of less than 5 µg/L as supportive of healthier habitats for fish survival and propagation. High Chlorophyll-a concentrations can be indicative of an algal bloom.

- **Fecal Coliform:** fecal coliform levels should not exceed a geometric mean of 200 cfu/100mL. No more than 10% of all samples taken in a 30-day period should exceed 400 cfu/100 mL (Da Silva et al. 2021).

Details regarding contaminants are discussed in other sections of this report (see Sections 6.4.2 and 6.15.4).

The Hudson River experiences a dynamic interaction between salt and freshwater that contributes to the high levels of biological productivity of the estuary. Dense saltwater from the ocean flows upstream where it meets less dense freshwater that is flowing downstream, creating a saltwater diffusion wedge. This interaction creates a salinity gradient measured in ppt that is generally grouped into three district salinity zones: polyhaline (18-30 ppt), brackish (0.5-18 ppt), and tidal fresh (<0.5 ppt) (Limburg et al., 1986, USACE, 2022). The zone boundaries vary depending on daily and seasonal conditions and changes in the tide. Dissolved oxygen levels in the river are typically highest during the end of winter and early spring months due to the river's decreased water temperature and salinity levels. Dissolved oxygen levels in the New York metropolitan area are observed low, attributed to the biological oxygen demand associated with effluent flows from wastewater treatment plants, ranging between 5 and 14 mg/L (Da Silva et al., 2021). Phosphorus loading effects nutrient conditions in the river, originating from stormwater runoff, fertilizers, wastewater treatment effluent, and organic detritus, and contributing to algae and microscopic plant growth that form the base of the estuarian food chain (USACE, 2022). Phosphorus in excess, however, can contribute to algal blooms and an imbalance in the aquatic ecosystem. Nitrogen sources entering the river originate from precipitation, decomposition of organic matter, surface and groundwater discharge, and nitration fixation (Da Silva et al., 2021). Wastewater treatment plants located along the Hudson River discharge treated effluent into the river and its tributaries. Discreet fecal coliform measurements in summer within the Lower Hudson River ranged from 1 to 22,000 cfu/100mL between 2010 and 2017. The average of 112 samples collected during peak recreation season (June-September) averaged at 55 cfu/100mL. NYC DEP (2024) measured, among other parameters, chlorophyll-a throughout the Harbor, out into the Atlantic Ocean. These measurements typically revealed chlorophyll-a concentrations in the Hudson River vary depending on year and season, with highs recorded in 2022 and 2023 at 18.86 ug/L and 18.72 ug/L respectively. The lower portions of the Hudson River, inclusive of the Upper Bay and portions of the Kill Van Kull and East River generally trend below or equal to 20 ug/L of chlorophyll-a concentrations (NYC DEP, 2024).

Hackensack River salinity ranges from 0 to 24 ppt, which is generally observed at the upper limits of this range in late summer and fall, and lowest in spring (USACE, 2022). Tidal circulation was modified by the Oradell Dam at the upper end of the estuary and by a series of dikes, ditches, tide gates, dams, roadbeds, fill, and breaches of water-control structures that drained freshwater from some areas and impounded water in other areas or prevented brackish water intrusion. Wastewater discharges, particularly from pre-1960 when most sewage effluents were untreated prior to discharge, contribute to the water quality conditions of the Hackensack River to this day. Dissolved oxygen in the river typically ranges from 1.0 to 15.5 mg/L (Day et al., 1999). Summer averages for total nitrogen generally ranged from 1.41 and 2.51 mg/L between 2010 and 2017, which exceed fair conditions, as water quality of the river would improve with nitrogen levels less than or equal to 0.4 mg/L (Da Silva et al., 2021). Chlorophyll-a levels in this region showed an upward increase beginning in 2015, potentially increasing the rate of algal growth (Da Silva et al., 2021). The State reported impairments to aquatic life and restrictions on fish consumption related to the historical and industrial environment and HTRW sites impacting this water system. The average fecal coliform measurements in the river have been recorded at 80 cfu/100mL, below the geometric mean threshold of 200 cfu/100mL.

The Lower Passaic River and Newark Bay salinity conditions are relative to the freshwater loading into the Passaic River at Dundee Dam and vary based on freshwater flow and wind (Chant and Wilson, 2004). During low freshwater flow periods, salinities in the Lower Passaic River are observed at 5 ppt while Newark Bay exceeds 20 ppt, likely associated with tidal mixing. The relationship between salinity and tidal velocity is observed correlated with freshwater loading upriver and tidal influences (USACE, 2022). Dissolved oxygen results from samples collected between 2010 and 2017 indicated healthy levels, within State thresholds, with some variances recorded below 4 mg/L in a subset of those samples collected. Results below 4 mg/L were observed 2-14% of the time for surface levels and between 0-15% of the time for bottom levels (Da Silva et al., 2021). The summer averages between 2010 and 2017 for total nitrogen ranged from 2.35 and 3.27 mg/L, in excess of both fair conditions (0.4-1.2 mg/L) and ideal conditions (less than or equal to 0.4 mg/L) (Da Silva et al., 2021). Chlorophyll-a concentrations in Newark Bay generally trend below or equal to 20 ug/L in 2022 and 2023 except for the southernmost portion of the Bay which had an increase in concentration in 2022 to below or equal to 30 ug/L (NYC DEP, 2024). Fecal coliform data collected in 2022 revealed concentrations of less than or equal to 1,000 cells/100mL in most of the bay, which reduced to less than or equal to 100 cells/100mL in 2023 for more than 50% of the bay. The lower portion of the bay that converges with the Arthur Kill consistently showed the higher results of 1,000 cells per 100 mL in both years (NYC DEP, 2024).

The Upper Bay serves as a confluence of oceanic waters, the East River tidal straight, Kill Van Kull, and mouth of the Hudson River, with salinity concentrations that vary relative to tidal exchange between influencing water bodies (USACE, 2022). Fish in the Upper New York Bay region are not stressed as suggested from the dissolved oxygen data collected from for the HWQMR. The percent of time dissolved oxygen measurements were less than 4 mg/L threshold was between 0-3.6% for surface dissolved oxygen, and between 0-9.1% for bottom dissolved oxygen (Da Silva et al., 2021). Between 2010 and 2017, the summer means for total nitrogen ranged between 0.56 and 1.15 mg/L within the USEPA's outlined healthy concentrations, according to the HWQMR. Chlorophyll-a in this region has shown decreasing values since 2010 (Da Silva et al., 2021). Concentrations of chlorophyll-a are shown to trend like the lower Hudson River and Newark Bay at or below 20 ug/L for much of the Upper Bay. Higher concentrations below or equal to 30 ug/L are observed as the surface water system transitions in the Arthur Kill and westernmost portion of the Kill Van Kull (NYC DEP, 2024). Major factors influencing water quality in this region include CSO, municipal discharges/sewage, industrial point source discharge, stormwater runoff, legacies of contaminated sediments, and tidal exchange with connecting waterbodies. There is also active CSO in this region, from both States. According to the HWQMR, the average single sample value for fecal coliform in this region is 336 cfu/100mL, well above the swim ability threshold (Da Silva et al., 2021).

The Lower Bay salinity is characterized by freshwater sources meeting tidally influenced, salty waters, therefore the salinity in this area varies greatly. Fish in this region are not consistently stressed by dissolved oxygen concentrations which have been recorded less than 4 mg/L between 0-8.2% for surface concentrations and between 0-10% for bottom concentrations in the HQWMR. The NYC DEP data collected between 2022-2023 show concentrations through the bay are generally greater than 5 mg/L. Between 2010 and 2017, the summer means for total nitrogen ranged between 0.56 and 1.03 mg/L, within the USEPA's threshold for healthy concentrations. Chlorophyll-a concentrations in the Lower Bay generally were observed ranging at or below 30 ug/L at the confluence with the Upper Bay and incrementally increasing in concentration further south towards New Jersey shoreline to less than or equal to 60 ug/L in 2022 and less than or equal to 70 ug/L in 2023 (NYC DEP, 2024). Fecal coliform summer discreet measurements ranged from 1 cfu/100mL to 2,000 cfu/100mL over the eight-year period as reported in the HWQMR. The average geomean for fecal coliform in this region is 8 cfu/100mL (Da Silva et al., 2021).

Jamaica Bay is an area of approximately 132 square miles within the larger southern Long Island watershed. The bay is a saline to brackish, nutrient-rich estuary covering almost 40 square miles (USACE, 2020). Dissolved oxygen levels in Jamaica Bay varied daily throughout the eight-years evaluated in the HWQMR, but summer means are found to be above the 4-5 mg/L recommended threshold. This causes fish in this are to be consistently stressed (Da Silva et al., 2021). While nitrogen and phosphorus are characteristically limiting nutrients in estuarine ecosystems, their quantities within Jamaica Bay are exaggerated by wastewater treatment plant inputs. As such, nutrient loading can lead to eutrophication. High nitrogen levels can also decrease root production in salt marsh plants, and in turn decrease their ability to accumulate organic material and hold sediments within tidal marshes. High nitrogen levels also increase microbial decomposition, reducing the accumulation of organic matter and limiting the ability of saltmarshes to maintain an elevation that keeps pace with sea level change (USACE, 2020). Chlorophyll-a concentrations in Jamaica Bay vary significantly between 2022 and 2023. In 2022, measurements were observed below or equal to 50 ug/L while in 2023, conditions were much higher observed below or equal to 80 ug/L and exceeding 90 ug/L or greater in the northeastern-most portion of the Bay (NYC DEP, 2024). Almost the entire Jamaica Bay watershed is urbanized such that Jamaica Bay receives pollution from point and non-point sources around the bay including CSO effluent, surface run-off, leachate from landfills, and other sources. Specifically, 240–340 million gallons per day of treated sewage effluent flow into Jamaica Bay from four wastewater treatment plants (GNRA, 2013 and USACE, 2019). In addition, large rain events can overwhelm the sewer system capacity, resulting in discharges of untreated wastewater and raw sewage (USACE, 2020).

The New York Bight Apex water quality, according to the Biological Assessment for the MDS Closure and HARS Designation Report (1997), has generally been good since the cessation of sewage disposal circa 1987 and limitations to effluent discharges into the estuary. Salinity concentrations in this area are expected to be influenced by the freshwater discharges of the Hudson River Estuary, and the saltwater tidal exchange with the Atlantic Ocean, as well as currents and thermohaline. According to the New York Bight Indicator Report (2021), surface and bottom water salinity in this area have been highly variable over time and fluctuate due to variances in existing conditions (e.g. thermohaline, circulation, storms, etc.) (Nye et al., 2021). Dissolved oxygen has also improved since the cessation of sewage disposal post 1987, particularly noted nearby data collected in 2022 and 2023, which indicate dissolved oxygen concentrations of greater than 5 mg/L in the surrounding Study Area (NYC DEP, 2024). According to the 2022-2023 Harbor Survey Report, nitrogen concentrations have been overall steadily decreasing over the last 30 years, attributed to improvements to effluent discharges; however, throughout the lower harbor and nearby data collected over the duration of 1983 to 2023, nitrogen levels have been relatively stable between 2022 and 2023, at 0.19 mg/L and 0.18 mg/L, respectively. Chlorophyll-a concentrations have been generally observed in this area between 2022-2023 to be consistently trending below or equal to 20 ug/L (NYC DEP, 2024). Fecal coliform data collected from the surrounding area indicate little bacteria presence, less than or equal to 100 cells/100mL. For more information on water quality conditions in the New York Bight Apex, please refer to the Final PEIS for the 2008 DMMP Update (USACE, 2008).

6.4.2 Sediment Characteristics

Sediment characteristics vary widely over the Study Area because of complex flow patterns, anthropogenic inputs, and the region's geologic history. Within the Hudson River, sediments from Haverstraw Bay to the New Jersey - New York State boundary are clayey silts or sandy clayey silts (USACE, 2022). Sediments coarsen south of this point. These coarser sediments are probably locally derived or may be supplied by the flood tide from New York Bay (USACE, 2020). Sediments in Upper New York Bay vary from coarse sands and gravels to fine-grains silts and clays. Finer materials tend to be located in low-energy areas of the bay.

Lower Passaic River sediments are composed of silt material with pockets of silty sand and some gravels. Sediments in the lower Hackensack River are composed of silt, clay, sand, mud, and gravel (Konsevick et al, 2010). Sediments and organic material enter Newark Bay from the Passaic and Hackensack Rivers (upstream) and downstream channels connected to Upper Bay and the Arthur Kill. As a result, sediments in Newark Bay are composed of fine-grained silts, clays, and sands, with some coarser material introduced by tidal action in the southern portion of the bay. Fine-grained bottom sediments in Newark Bay and the Passaic and Hackensack Rivers are easily resuspended, highly mobile, and tend to settle in navigation channels. High contaminant levels generally make dredged material from Newark Bay unsuitable for ocean placement. Overtime, dredging in Newark Bay and subsequent upland placement have removed a substantial amount of contamination from the marine environment (Wakeman et al., 2007).

Most of the sediments in Lower New York Bay are marine deposited sedimentary sands, gravels, and clays. The northern part of Lower New York Bay has extensive sand deposits (USACE, 1999). Sediments south of the Narrows tend to be gravelly sands underlying the main navigation channel, with finer grained clays, silts, and sands east and west of the channel. Sediments in the Raritan River are characterized as mostly sand and gravel from Bound Brook extending east, where sediments eventually transition to higher mud and organic material composition as they approach Raritan Bay (Rodenburg & Du, 2012). Raritan Bay and Sandy Hook Bay are predominantly sand, with some areas of gravelly sand. This gravelly sand is overlaid with coarse to fine silt in Raritan Bay and fine to very fine sand in Sandy Hook Bay (USFWS, 1997).

Sediments in Jamaica Bay are an approximately equal ratio of mud and sand (USACE, 2020). There is little inorganic mineral sediment (sand, silt, and clay) in Jamaica Bay, which salt marshes depend on for structure (Reynolds, 2018). Historically, Jamaica Bay has been impacted by poor sediment quality resulting from a combination of sewage inputs, landfill leaching, industrial activity, and runoff from roads and urban development (USFWS, 1997).

Sediments within the Harbor have varying levels of contamination. Waterbodies adjacent to or downstream from areas that have a history of industrial use have the greatest potential for contaminated sediments. Common contaminants include polycyclic aromatic hydrocarbons, pesticides, polychlorinated biphenyl (PCB) congeners, metals, and dioxin/furans. Discharges from untreated stormwater and combined sewer overflows also contain contaminants such as oils, pathogens, and nutrients which can affect sediments. For a more comprehensive overview of sediment contamination in the region, see Adams et al. (1998), Adams and Benyi (2003), Litten (2003), Warner et al. (2022), and Lodge et al. (2024).

Historically, the New York Bight Apex had been utilized for ocean disposal of dredged material and a variety of waste products including construction debris, sewage sludge, and acid waste since the 1800s. The HARS within the New York Bight Apex is managed to reduce the impacts of historical disposal activities at the MDS and surrounding area to acceptable levels (in accordance with 40 CFR 228.11(c)) and is remediated with dredged material (i.e. “Remediation Material”) that meets current Category I standards, and will not cause significant undesirable ecological effects, including through bioaccumulation (62 FR 46142). The remediation consists of placing at least a one meter “cap” layer (i.e. minimum required cap thickness) of acceptable dredged material on top of the existing surface sediments within the nine PRAs of the HARS. Sediment at the HARS include silts, clays, and sands of various grain size along with coarser material such as cobble, gravel, and rock.

Material from past deepening projects, including rock, cobble, and glacial till, was placed in various locations within the HARS (Figure 1-3). These rocky and high clay content materials were placed along the western boundary of the HARS in PRAS 1, 2, and 3, along the eastern boundary in PRAs 5 and 6, in the southern half of PRA 8 and PRA 3 as well as in the center of PRA 3, and the southwest corner of PRA 4. Rocky and more cohesive clay and till materials were also placed in the former MDS footprint before designation of the HARS within the current buffer zone and PRAs 4, 5, and 6. These materials form the elevated areas in the MDS footprint as seen on bathymetric surveys. For additional detail on HRTW sites associated with sediment characteristics and quality present in the Study Area, refer to Section 6.15.4.

6.5 Wetlands

Wetlands are areas where water covers the soil or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season. The prolonged presence of water creates conditions that favor the growth of plants specially adapted to wet environments (hydrophytes) and promotes the development of characteristic wetland (hydric) soils. Wetlands are often found between open water (lakes, rivers, bays, streams) and dry land and can be generally categorized as tidal (coastal) or non-tidal (inland). Examples include swamps, marshes, bogs, and similar areas. Wetlands are among the most productive ecosystems in the world and are widely recognized for the benefits they provide such as fish and wildlife habitat, flood protection, clean water, temperature regulation, carbon sequestration, and recreation.

EO 11990, *Protection of Wetlands*, 24 May 1977, states that Federal agencies must avoid undertaking or providing assistance for new construction in wetlands unless there is no practical alternative to such construction and the proposed action includes all practicable measures to minimize harm to the wetland. In addition to EO 11990, wetlands are protected under Section 404 of the CWA (33 USC 1344) and its implementing regulations (33 CFR Part 323), which regulates the discharge of dredged or fill materials in waters of the United States, including wetlands. Dredge and fill activities are controlled by a permit process administered by USACE and overseen by USEPA. In New Jersey, the State has assumed the Section 404 permit program, but the USACE retains authority for certain non-delegable waters, including tidal waters and adjacent wetlands and other waters affected by interstate and foreign commerce. Section 401 of the CWA gives states and authorized tribes the authority to grant, deny, or waive certification of proposed Federal licenses or permits (e.g., Section 404 permits) that may discharge into regulated wetlands.

Wetlands are also protected under State law. In New York, non-tidal wetlands are protected under the Freshwater Wetlands Act (ECL Article 24) and implementing regulations (6 NYCRR Part 663) and tidal wetlands are protected under the Tidal Wetlands Act (ECL Article 25) and implementing regulations (6 NYCRR Part 661). In New Jersey, non-tidal wetlands are protected under the New Jersey Freshwater Wetlands Protection Act of 1987 (N.J.S.A. 13:9B-1) and implementing regulations (N.J.A.C 7:7A) and tidal wetlands are regulated under the Wetlands Act of 1970 (N.J.S.A. 13:9A-1 *et seq*) and implementing regulations (N.J.A.C. 7:7-2.3). The New York and New Jersey wetland regulatory programs are administered by NYSDEC and NJDEP, respectively.

Historically, wetlands in the Study Area were drained and filled for development, agriculture, and mosquito control. This resulted in a substantial reduction in quantity and quality of wetlands in the region and the benefits they provide. The remaining wetlands face new and ongoing risks such as sea-level change, sediment starvation, erosion, pollution, and invasive species. According to the USFWS 2019 Wetlands Status and Trends Report, the nationwide rate of wetland loss continues to increase, and the Nation's remaining wetlands are being transformed from vegetated wetlands, like salt marsh and swamp, to non-vegetated wetlands, like ponds, mudflats, and sand bars. These trends have been well documented throughout the Study Area, particularly in tidal environments (Hartig et al., 2001; Cameron Engineering & Associates, LLC., 2015; Weis et al., 2020; Hartig et al., 2024).

There are various efforts to restore and manage wetlands in the Study Area. A Chief of Engineers Report for the USACE HRE Ecosystem Restoration was signed on 26 May 2020 (USACE, 2020). The Chief's Report recommended 20 ecosystem restoration projects throughout the region. Several of these HRE projects are currently underway. The New York - New Jersey Harbor & Estuary Program is an ongoing effort created by the USEPA to develop and implement a consensus-driven plan to protect, conserve, and restore the estuary in the New York/New Jersey area. The New York City Wetlands Management Plan is 30-year roadmap for the continued protection, restoration, and care of the city's last remaining wetlands (Swadek et al., 2021). The Meadowlands Research and Restoration Institute, the scientific arm of the New Jersey Sports and Exposition Authority, has several wetland research and management initiatives in the Meadowlands District in New Jersey (MMRI, 2025). NOAA Fisheries and USFWS coauthored a report that outlines an approach for comprehensive, ecosystem-based coastal restoration in the

Mid-Atlantic (Correll et al., 2024). Wetland restoration and management is a collaborative effort in the Study Area, involving many governmental and nongovernmental stakeholders.

6.6 Vegetation

Vegetation in the Study Area varies by habitat type (wetland, beach, etc.). Common coastal species in the Study Area and their associated habitat types are provided in Table 6-1. This list is not exhaustive. Federally threatened and endangered plants are described in Section 6.9. Common problematic vegetation includes but is not limited to invasive common reed (*Phragmites australis*), knotweed (*Reynoutria japonica*), porcelainberry vine (*Ampelopsis brevipedunculata*), mugwort (*Artemisia vulgaris*), bittersweet (*Celastrus orbiculatus*), multiflora rose (*Rosa multiflora*), and tree of heaven (*Ailanthus altissima*).

Aquatic plants provide valuable habitat for fish and wildlife and are a food source for a variety of taxa including species listed under the Endangered Species Act (ESA) of 1973, such as green sea turtles (*Chelonia mydas*). Aquatic plants are especially vulnerable to degradation from poor water quality, development, benthic disturbance, and invasive species. The most common native aquatic plant species in the Hudson River watershed is water celery (*Vallisneria americana*). Other species include clasping leaved pondweed (*Potamogeton perfoliatus*) and invasive plants such as curly pondweed (*Potamogeton crispus*), Eurasian water milfoil (*Myriophyllum spicatum*), and water chestnut (*Trapa natans*) (Findlay et al., 1997). Water chestnut is of particular concern the Hudson River watershed, as it forms dense monocultures that reduce habitat quality. Water chestnut seeds can remain viable for up to 12 years, making management extremely difficult (NYSDEC, 2024).

Submerged aquatic vegetation (SAV) includes aquatic plants that are submerged underwater. There are two tidal seagrasses in the Study Area: *Zostera marina* (“eelgrass”) and *Ruppia maritima* (“widgeon grass”). Seagrasses provide several important ecosystem functions, including serving as nurseries for young fish and invertebrates, food for sea turtles and waterfowl, energy and nutrient cycling, contaminant removal, sediment stabilization, and wave attenuation. According to the New York Seagrass Task Force (2009), sea turtles use seagrass for refuge, nursery, foraging, and corridor, and seagrasses support the two largest shell fisheries in the state, the bay scallop (*Argopectin irradians*) and hard clam (*Mercenaria mercenaria*). Fish such as tautog (*Tautoga onitis*) lay eggs on eelgrass leaves, starfish, snails and mussels attach themselves to eelgrass leaves, and blue crabs rely on seagrass habitat for food, refuge, forage, and reproduction. In New York waters, seagrass acreage declined from approximately 200,000 acres in 1930 to 21,803 acres in 2009 (New York Seagrass Taskforce, 2009). Similar trends have been observed in New Jersey and there are ongoing research efforts to better understand the existing extents of SAV beds and how they are changing overtime (Lathrop & Haag, 2011; NJDEP, 2024). Local mapping of seagrass beds is available through NYSDEC, NJDEP, and academic institutions such as Rutgers University, Stonybrook University, Cornell University, and Stockton University.

Table 6-1. Coastal plant species and associated habitat types in the Study Area.

Common Name	Scientific Name	Habitat Types
Graminoids		

Common Name	Scientific Name	Habitat Types
Beach grass	*Ammophila breviligulata*	Maritime Beach/Dune; Maritime Grassland; Maritime Shrubland
Broom-sedge	*Andropogon virginicus*	Maritime Grassland; Maritime Shrubland
Common sandspur	*Cenchrus longispinus*	Maritime Beach/Dune
Dune sandspur	*Cenchrus tribuloides*	Maritime Beach/Dune
Gray's flatsedge	*Cyperus grayi*	Maritime Beach/Dune
Purple lovegrass	*Eragrostis spectabilis*	Maritime Beach/Dune; Maritime Grassland; Maritime Shrubland
Switchgrass	*Panicum virgatum*	Maritime Beach/Dune; Maritime Grassland; Maritime Shrubland; High Salt Marsh
Salt marsh bulrush	*Bolboschoenus robustus*	High Salt Marsh
Salt grass	*Distichlis spicata*	High Salt Marsh
Black grass	*Juncus gerardii*	High Salt Marsh
Little bluestem	*Schizachyrium scoparium*	Maritime Grassland
Idianagrass	*Sorghastrum nutans*	Maritime Grassland; Maritime Shrubland
Smooth cordgrass	*Spartina alterniflora*	Low Marsh
Common threesquare	*Scirpus pungens*	Maritime Shrubland; High Salt Marsh
Salt-meadow cordgrass	*Spartina patens*	High Marsh
Big cordgrass	*Spartina cynorsuroides*	High Marsh
Forbs		
Sea-beach orach	*Artiplex mucronata*	Maritime Beach/Dune
American searocket	*Cakile edentula*	Maritime Beach/Dune
Seaside sandmat	*Chamaesyce polygonifolia*	Maritime Beach/Dune
Seaside goldenrod	*Solidago sempervirens*	Maritime Beach/Dune; Maritime Grassland; Maritime Shrubland; High Marsh
Beach pinweed	Leachea maritima	Maritime Beach/Dune
Common milkweed	Asclepias syriaca	Maritime Grassland; Maritime Shrubland
Butterfly weed	Asclepias tuberosa	Maritime Grassland; Maritime Shrubland
Tall boneset	Eupatorium altissimum	Maritime Grassland
Canada goldenrod	Solidago canadensis	Maritime Grassland
New England aster	Symphyotrichum novae-angilae	Maritime Grassland
Common evening primrose	Oenothera biennis	Maritime Grassland; Maritime Shrubland
Rose mallow	Hibiscus moscheutos	High Marsh
Virginia glasswort	Salicornia depressa	High Marsh
Vines		

Common Name	Scientific Name	Habitat Types
Virginia creeper	*Parthenocissus quinquefolia*	Maritime Beach/Dune; Maritime Shrubland
Trailing wild bean	*Tailing wild bean*	Maritime Beach/Dune; Maritime Shrubland
American bittersweet	*Celastrus scandens*	Maritime Shrubland
Shrubs		
False heather	*Hudsonia tomentosa*	Maritime Beach/Dune
Northern bayberry	*Morella pensylvanica*	Maritime Beach/Dune; Maritime Grassland; Maritime Shrubland
Beach plum	*Prunus maritima*	Maritime Beach/Dune; Maritime Grassland
Pasture rose	*Rosa carolina*	Maritime Beach/Dune; Maritime Shrubland
Winged sumac	*Rhus copallinum*	Maritime Grassland; Maritime Shrubland
Dewberry	*Rubus flagellaris*	Maritime Grassland
Staghorn sumac	*Rhus typhina*	Maritime Shrubland
Black chokeberry	*Photinia melanocarpa*	Maritime Shrubland
Groundsel bush	*Baccharis halmifolia*	High Marsh
Marsh elder	*Iva fructescens*	High Marsh
Trees		
Boxelder	*Acer negundo*	Maritime Beach/Dune
Canadian serviceberry	*Amelanchier canadensis*	Maritime Beach/Dune; Maritime Shrubland
Gray birch	*Betula populifolia*	Maritime Beach/Dune
American holly	*Ilex opaca*	Maritime Beach/Dune; Maritime Shrubland
Eastern red cedar	*Juniperus virginiana*	Maritime Beach/Dune; Maritime Shrubland
Black oak	*Quercus velutina*	Maritime Beach/Dune
Quacking aspen	*Populus tremuloides*	Maritime Beach/Dune
Black cherry	*Prunus serotina*	Maritime Beach/Dune
Pitch pine	*Pinus rigida*	Maritime Shrubland

6.7 Benthic Fauna

Benthic fauna are animals that live on, in, or near the bottom substrate of water bodies. Benthic fauna have varied roles in estuarine and marine ecosystems. Benthic macroinvertebrates play an important role in food webs and consist of a wide variety of organisms such as worms and snails. Benthic macroinvertebrates cycle nutrients from the sediment and water column to higher trophic levels. Additionally, sediments are modified by the benthos through bioturbation and the formation of fecal pellets (Wildish and Kristmanson, 1997 and Wolff, 1983). Benthic communities are tightly linked with sediment characteristics. Distribution and abundance of benthic organisms is influenced by substrate type, water temperature, dissolved oxygen, pH, salinity, and hydrodynamics (Cristini, 1991 and Watson and Barnes, 2004).

Benthic fauna remove contaminants in water and sediment and are used as indicators of habitat quality because of their close association with sediments and sedentary lifestyles (Dauer, 1993). For example, an adult oyster can filter up to 50 gallons of water per day (Billon Oyster Project, 2024). Benthic communities generally respond in stages to changes in habitat disturbance. Response stages include changes in abundance and diversity and shifts between pollution-tolerant and pollution-intolerant assemblages (USEPA, 2009). Many benthic species are prey for economically important species such as the blue crab (*Callinectes sapidus*), striped bass (*Morone saxatilis*), winter flounder (*Pseudopleuronectes americanus*), bluefish (*Pomatomus saltatrix*), and summer flounder (*Paralichthys dentatus*) (Limburg et al., 2006), as well as ESA listed species such as Kemp's ridley sea turtle (*Lepidochelys kempii*), loggerhead sea turtle (*Caretta caretta*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), and shortnose sturgeon (*Acipenser brevirostrum*) .

Major benthic taxa in the Study Area include nematodes, annelids (oligochaetes and polychaetes), arthropods (amphipods and cumaceans), and mollusks (bivalves and gastropods). Benthic fauna can be grouped into two categories: epifauna and infauna. Epifauna live attached to hard surfaces such as rocks, shells, and pilings or directly on bottom sediments. Examples of epifauna in the Study Area include oysters (*Crassistrea virginica*), sponges (phylum *Porifera*), sea squirts (class *Ascidiacea*), sea stars (class *Asteroidea*), barnacles (sublcass *Cirripedia*), blue mussels (*Mytilus edulis*), eastern mud snail *(Nassarius obsoletus*), daggerblade grass shrimp (*Palaemonetes pugio*), hermit crab (*Pagurus longicarpus*), blue crab (*Callinectes sapidus*), Atlantic horseshoe crab (*Limulus polyphemus*), and common Atlantic slippershell (*Crepidula crepidula*). Infauna are organisms that live burrowed into bottom sediments. Examples of infauna in the Study Area include northern quahog (*Mercenaria mercenaria*), Atlantic surf clam (*Spisula solidissima*), sea scallop (Placopecten magellanicus), softshell clam (*Mya arenaria*), razor clam (*Ensis directus*), variable coquina (*Donax variabili*), marine worms (*Polychaeta*), and hairy sea cucumber (*Sclerodactyla briareus*).

Benthic communities vary widely across the different habitat types in the Study Area. For example, fiddler crabs (*Minuca pugnax*) and ribbed mussels (*Geukensia demissa*) are common in tidal salt marsh ecosystems. Sediment composition is an important factor in benthic community biomass and diversity. In general, areas with higher percentages of sand have greater biomass and diversity compared to areas with less sand (more clay and silt) and less reef or hard bottom habitat (USACE, 2006). Benthic communities in the Study Area have been affected by various environmental stressors related to development, heavy industry, and overfishing. A USACE 1989-1999 biological monitoring program survey indicated few organisms in the Harbor besides polychates (USACE, 1999a), but more recent surveys (USACE, 2006, 2011, 2013, 2017) showed significant ecological recovery has taken place since the 1980s, with greater species diversity found today compared to earlier decades.

6.8 Fish and Wildlife

Fish and wildlife vary widely across the different habitat types in the Study Area. Fish and wildlife species in the Study Area are provided below, with a focus on coastal and marine species most likely to occur at dredged material placement locations. This section may mention special status species. Please refer to Section 6.9 for information on special status species in the Study Area. Coordination with the USFWS and NOAA Fisheries is required under the Fish and Wildlife Coordination Act (16 USC 661-666e) for Federal actions that affect waterbodies. Under the Fish and Wildlife Coordination Act, Federal agencies are required to consider the effects of their actions on fish and wildlife resources, as well as provide for the improvement of those resources.

There are a variety of reptiles and amphibians in the Study Area. Turtles include northern diamondback terrapin (*Malaclemys terrapin terrapin*), loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), Kemp's ridley sea turtle (*Lepidochelys kempii*), eastern mud turtle (*Kinosternon subrubrum subrubrum*), common snapping turtle (*Chelydra serpentina*), bog turtle (*Clemmys muhlenbergii*), painted turtle (*Chrysemys picta picta*), and eastern box turtle (*Terrapene carolina carolina*). Snakes and lizards include eastern garter snake (*Thamnophis sirtalis*), northern black racer (*Coluber constrictor constrictor),* Italian wall lizard (*Podarcis sicula*), northern water snake (*Nerodia s. sipedon*), northern brown snake (*Storeria d. dekayi*), eastern hognose snake (*Heterodon platirhinos*), northern ringneck snake (*Diadophis punctatus edwardsii*), and eastern milksnake (*Lampropeltis triangulum*). Amphibians include eastern spadefoot (*Scaphiopus holbrookii*), Fowler's toad (*Anaxyrus fowleri*), spotted salamander (*Ambystoma maculatum*), northern redback salamander (*Plethodon c. cinereus*), northern spring peeper (*Pseudacris c. crucifer*), bullfrog (*Rana catesbeiana*), green frog (*Rana clamitans melanota*), and southern leopard frog (*Rana sphenocephala utricularius*).

Major benthic taxa in the Study Area include nematodes, annelids (oligochaetes and polychaetes), arthropods (amphipods and cumaceans), and mollusks (bivalves and gastropods). Common benthic macroinvertabrates include blue crab (*Callinectes sapidus*), eastern oyster (*Crassistrea virginica*), Atlantic horseshoe crab (*Limulus polyphemus*), fiddler crabs (*Uca pugilator and U. pugnax*), ribbed mussel (*Geukensia dimissa*), and northern quahog (*Mercenaria mercenaria*). Please refer to Section 6.8 for more information on benthic fauna. Other important invertebrates that are found in coastal environments include dragonflies and damselflies (*Odanata*), monarch butterfly (*Danaus plexippus*), and bees (*Bombus spp.*).

The Study Area is home to a variety of diadromous, estuarine, freshwater, and marine fishes (USFWS, 1997). Diadromous is a general category describing fish that spend portions of their life cycles partially in fresh water and partially in salt water. Examples of diadromous species in the Study Area include alewife (*Alosa pseudoharengus*), American eel (*Anguilla rostrata*), American shad (*Alosa sapidissima*), Atlantic menhaden (*Brevoortia tyrannus*), blueback herring (*Alosa aestivali*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), shortnose sturgeon (*Acipenser brevirostrum*), brook trout (*Salvelinus fontinalis*), sea lamprey (*Petromyzon marinus*), and striped bass (*Morone saxatilis*). Overfishing, bycatch, and barriers to upstream and downstream movement, such as dams and weirs, are a major threat to diadromous fishes in the region. Striped bass are one of the most economically and culturally important fishery resources in the Study Area, and the stock has been assessed as overfished and experiencing overfishing. River herring have significant ecological importance to coastal marine ecosystems coastwide, and populations are currently depleted.

Estuarine fishes are resident species of tidal waters where salinities range from tidal fresh to marine, or from 0.5 to 30 ppt (USFWS, 1997). Estuarine species include Atlantic tomcod (*Microgadus tomcod*), silverside (*Menidia menidia*), mummichog (*Fundulus heteroclitus*), striped killifish (*Fundulus majalis*), sheepshead minnow (*Cyprinodon variegatus*), bay anchovy (*Anchoa mitchilli*), sandlance (Ammodytes americanus), three-spined stickleback (*Gasterosteus aculeatus*), four-spined stickleback (*Apeltes quadracus*), naked goby (*Gobiosoma bosci*), northern pipefish (*Syngnathus fuscus*), and lined seahorse (*Hippocampus erectus*). Many of these estuarine species are important forage fish. Freshwater fish are rarely found in salinities above 8 to 10 ppt. Examples of freshwater species in the Study Area include black crappie (*Pomoxis nigromaculatus*), sunfish (*Lepomis spp.*), white sucker (Catostomus commersoni), brown bullhead (Ameiurus nebulosus), largemouth bass (Micropterus nigricans), and invasive goldfish (Carassius auratus) and common carp (*Cyprinus carpio*).

Marine fishes include demersal (groundfish) and pelagic species. Demersal species spend at least their adult phase near the ocean bottom and pelagic species occupy the mid-to upper water column as juveniles and adults. Examples of demersal species include winter flounder (*Pleuronectes americanus*), summer flounder (*Paralichthys dentatus*), witch flounder (*Glyptocephalus cynoglossus*), windowpane flounder (*Scophthalmus aquosus*), silver hake (*Merluccius bilinearis*), red hake (*Urophycis chuss*), and yellowtail flounder (*Pleuronectes ferrugineus*). Examples of pelagic species include Atlantic herring (*Clupea harengus*), Atlantic mackerel (*Scomber scombrus*), butterfish (*Peprilus triacanthus*), and bluefish (*Pomatomus saltatrix*). Many of these marine fishes are commercially important and have Federal fishery management plans. Please see Section 6.10.1 for more information on species that have a Federal fishery management plan. The benthic organisms described in Section 6.7 are an important food source for many marine fishes.

There are abundant mammals in the Study Area. Examples of terrestrial mammals include white-tailed deer (*Odocoileus virginianus*), racoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), chipmunk (*Tamias striatus*), rat (*Rattus norvegicus*), muskrat (*Ondatra zibethicus*), groundhog (*Marmota monax*), eastern cottontail rabbit (*Sylvilagus floridanus*), red fox (*Vulpes vulpes*), eastern cayote (*Canis latrans*), northern long eared bat (*Myotis septentrionalis*), tri-colored bat (*Perimyotis subflavus*), little brown bat (*Myotis lucifugus*), eastern red bat (*Lasiurus borealis*), big brown bat (*Eptesicus fuscus*), Virginia opossum (*Didelphis virginiana*), and grey squirrel (*Sciurus carolinensis*). Common marine mammals include harbor seal (*Phoca vitulina*), grey seal (*Halichoerus grypus*), bottlenose dolphin (*Tursiops truncates*), harbor porpoise (*Phocoena phocoena*), and humpback whale (*Megaptera novaeangliae*). Please refer to Section 6.9.2 for information on marine mammals in the Study Area.

The Study Area is within the Atlantic Flyway, one of four major migratory bird routes in North American that runs north-to-south along the eastern seaboard of the United States. The Study Area supports hundreds of year-round and seasonal residents. Examples include ducks (*Anas spp*.) Canada goose (*Branta canadensis*), double-crested cormorant, egrets (*Egretta spp.*), glossy ibis (*Plegadis falcinellus*), herons (*Nycticorax spp.*), plovers (*Charadrius spp.*), gulls (*Larus spp*.), black skimmer (*Rynchops niger*), terns (*Sterna spp*.), sandpipers (*Calidris spp*.), yellowlegs (*Tringa spp.*), and American oystercatcher (*Haematopus palliates*). Salt marsh nesting birds include marsh wren (*Cistothorus palustris*), saltmarsh sharp-tailed sparrow (*Ammodramus caudacutus*), red-winged blackbird (*Agelaius phoeniceus),* black-crowned night heron (*Nycticorax nycticorax*), Canada goose (*Branta canadensis*), American black duck (*Anas rubripes*), and seaside sparrow (*Ammodramus maritimus*). Salt marsh nesting birds are vulnerable to marsh degradation and sea level change. Example birds of prey in the Study Area include bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), red tailed hawk (*Buteo jamaicensis*), osprey (*Pandion haliaetus*), American kestrel (*Falco sparverius*), and owls (*Bubo spp*.). More information on eagles, migratory birds, and threatened and endangered species is available in Section 6.9.

6.9 Special Status Species

6.9.1 Federally Threatened and Endangered Species and Designated Critical Habitat

The ESA of 1973 (16 USC 1531-1543, P.L. 93-205) establishes legal protection for fish, wildlife, plants, and invertebrates that are Federally listed as endangered or threatened. Two Federal agencies, the USFWS in the Department of the Interior, and the NOAA Fisheries in the Department of Commerce, share responsibility for administration of the ESA. The USFWS is responsible for terrestrial and avian listed species, as well as freshwater aquatic species. NOAA Fisheries, through the Protected Resources Division, is responsible for marine aquatic species. In addition to species protected under the Federal ESA, the States of New York, New Jersey, and Pennsylvania protect State designated rare species. New York protections include New York Endangered Species Act (Environmental Conservation Law [ECL] Section 11-0535) and implementing regulations (6 New York Code of Rules and Regulations [NYCRR] Part 182); New York State ECL Section 9-1503 (Protected Plants) and implementing regulations (6 NYCRR Part 193); and New York State Freshwater Wetland Protection Act (ECL Article 24) and implementing regulations (6 NYCRR Part 663). New Jersey protections include the New Jersey Endangered and Nongame Species Act (New Jersey Statues Annotated [NJSA] 23:2A-1 to 23:2A-1:16) and implementing regulations (*New Jersey Administrative Code* [N.J.A.C.] 7:25-4). Pennsylvania protections include Title 34 of the Pennsylvania Consolidated Statutes and implementing regulations. Table 6-2 provides the Federally listed species that occur within the Study Area, and their Federal and/or State status. Please refer to each State's rare, threatened, and endangered species listings for more information on State-listed species that are not listed Federally under ESA.

Table 6-2: Federally listed species in the Study Area and their status.

Common Name	Scientific Name	Federal Status	New York Status	New Jersey Status	Pennsylvania Status
Mammals					
Fin whale	*Balaenoptera physalus*	Endangered	Endangered	Endangered	N/A
North Atlantic right whale	*Eubalaena glacialis*	Endangered	Endangered	Endangered	N/A
Sei whale	*Balaenoptera borealis*	Endangered	Endangered	Endangered	N/A
Northern long-eared bat	*Myotis septentrionalis*	Endangered	Endangered	Endangered	Endangered
Indiana bat	*Myotis sodalis*	Endangered	Endangered	Endangered	Endangered

Common Name	Scientific Name	Federal Status	New York Status	New Jersey Status	Pennsylvania Status
Tricolored bat	*Perimyotis subflavus*	Proposed Endangered	Not Listed	Endangered	Endangered
Fish					
Atlantic sturgeon	*Acipenser oxyrinchus oxyrinchus*	Endangered	Endangered	Endangered	Endangered
Shortnose sturgeon	*Acipenser brevirostrum*	Endangered	Endangered	Endangered	Endangered
Reptiles					
Loggerhead sea turtle	*Caretta caretta*	Threatened	Threatened	Endangered	N/A
Green sea turtle	*Chelonia mydas*	Threatened	Threatened	Endangered	N/A
Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered	Endangered	Endangered	N/A
Leatherback sea turtle	*Dermochelys coriacea*	Endangered	Endangered	Endangered	N/A
Bog turtle	*Glyptemys muhlenbergii*	Threatened	Endangered	Endangered	Endangered
Birds					
Rufa red knot	*Calidris canutus rufa*	Threatened	Threatened	Endangered	Threatened
Roseate tern	*Sterna dougallii dougallii*	Endangered	Endangered	Endangered	N/A
Piping plover	*Charadrius melodus*	Threatened	Endangered	Endangered	Endangered
Black-capped petrel	*Pterodroma hasitata*	Endangered	Endangered	Endangered	N/A
Eastern black rail	*Laterallus jamaicensis jamaicensis*	Threatened	Endangered	Endangered	Threatened
Insects					
Monarch butterfly	*Danaus plexippus*	Proposed Threatened	Not Listed	Special Concern	N/A
Northeastern beach	*Habroscelimorpha dorsalis dorsalis*	Threatened	Extirpated	Endangered	N/A

Common Name	Scientific Name	Federal Status	New York Status	New Jersey Status	Pennsylvania Status
tiger beetle					
Plants					
Sandplain gerardia	*Agalinis acuta*	Endangered	Endangered	Endangered	N/A
Seabeach amaranth	*Amaranthus pumilus*	Threatened	Threatened	Endangered	N/A

The USFWS and NOAA Fisheries are responsible for designating critical habitat for Federal ESA-listed species. Critical habitat is the specific areas within the geographic area, occupied by the species at the time it was listed, that contain the physical or biological features that are essential to the conservation of endangered and threatened species that may need special management or protection. Critical habitat may also include areas that were not occupied by the species at the time of listing but are essential to its conservation. The Study Area contains USFWS proposed critical habitat for rufa red knot, located at Jamaica Bay and Jones Beach State Park, New York (USFWS, 2023). The Study Area contains NOAA Fisheries designated critical habitat for the New York Bight Distinct Population Segment of Atlantic sturgeon, located within the entire extent of Hudson River that falls within the Study Area (NOAA, 2017).

6.9.2 Marine Mammals

Marine mammals are mammals that rely on the ocean to survive. All marine mammals are protected under the Marine Mammal Protection Act of 1972 (MMPA; 16 USC 1361), as amended, and some are also protected under the ESA. NOAA Fisheries is responsible for the protection of whales, dolphins, porpoises, seals, and sea lions and the USFWS is responsible for polar bears, walruses, sea otters, manatees, and dugongs. No USFWS protected marine mammals occur in the Study Area. The MMPA prohibits the taking of any marine mammal species, which is defined as “harass, hunt, capture, kill or attempt to harass, hunt, capture, or kill,” with certain exceptions. Table 6-3 provides a list of marine mammals that occur within the Study Area (Hayes et al., 2020; Hayes et al., 2021; Hayes et al., 2022; Hayes et al., 2023). The list of species provided in Table 6-3 is not exhaustive due to the large geographic range of some marine mammals.

Table 6-3. Marine mammals in the Study Area

Common Name	Scientific Name	MMPA Status*
Whales		
Fin whale (Western North Atlantic Stock)	*Balaenoptera physalus*	Strategic, Depleted

Common Name	Scientific Name	MMPA Status*
Humpback whale (Gulf of Maine stock)	*Megaptera novaeangliae*	Non-strategic, Non-depleted
Minke whale (Canadian East Coast Stock)	*Balaenoptera acutorostrata acutorostrata*	Non-strategic, Non-depleted
North Atlantic Right Whale (Canadian East Coast Stock)	*Eubalaena glacialis*	Strategic, Depleted
Sei whale (Western North Atlantic Stock)	*Balaenoptera borealis*	Strategic, Depleted
Pinnipeds		
Harbor seal (Western North Atlantic Stock)	*Phoca vitulina vitulina*	Non-strategic
Grey seal (Western North Atlantic Stock)	*Halichoerus grypus atlantica*	Non-strategic
Harp seal (Western North Atlantic Stock)	*Pagophilus groenlandicus*	Non-strategic
Dolphins and Porpoises		
Harbor porpoise (Gulf of Maine/Bay of Fundy Stock)	*Phocoena phocoena*	Non-strategic
Common dolphin (Western North Atlantic Stock)	*Delphinus delphis delphis*	Non-strategic
Common dolphin, short beaked (Western North Atlantic Stock)	*Delphinus delphis delphis*	Non-strategic
Common Bottlenose dolphin (Western North Atlantic Migratory Coastal Stock)	*Tursiops truncatus truncatus*	Strategic, Depleted
Common bottlenose dolphin (Western North Atlantic Offshore Stock)	*Tursiops truncatus truncatus*	Non-strategic
Atlantic white-sided dolphin (Western North Atlantic Stock)	*Lagenorhynchus acutus*	Non-strategic
Atlantic spotted dolphin	*Stenella frontalis*	Non-strategic
Risso’s Dolphin	*Grampus griseus*	Non-strategic

Common Name	Scientific Name	MMPA Status*
*Strategic stocks are stocks for which direct human-caused mortality exceeds potential biological removal level; stocks that are declining and likely to be listed under the ESA; or stocks that currently listed under the ESA. Depleted stocks are stocks determined to be below their optimum sustainable population by the Secretary of Commerce or a State, or stocks listed under the ESA.		

6.9.3 Bald Eagles Protected under the American Bald and Golden Eagle Protection Act

The bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are protected under the American Bald Eagle and Golden Eagle Act of 1940 (16 USC 668-668d), as amended, and the Migratory Bird Treaty Act of 1918 (16 USC 703-712), as amended. The bald eagle (*Haliaeetus leucocephalus*) was previously listed as Federally endangered but was delisted because of successful recovery efforts. In accordance with the American Bald Eagle and Golden Eagle Act, Federal agencies are prohibited from "taking" bald and golden eagles, unless authorized by USFWS. As defined in 16 USC 668c, a "take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." In addition to Federal protections, the bald eagle is listed as threatened by the State of New York, endangered by the State of New Jersey, and is not listed in Pennsylvania. The golden eagle is listed as endangered by the State of New York and is not listed by the States of New Jersey and Pennsylvania.

Nesting golden eagles prefer remote, mountainous areas are not expected to occur in Study Area and are not further considered. Bald eagles are distributed throughout the Study Area. Bald eagles migrate south in the winter and return to northerly breeding grounds in late winter and early spring (January – March) as soon as weather and food availability permit. Breeding pairs typically establish nests on the tops of large trees, but occasionally nest on cliffs and human-made structures like communication towers. Nest sites and perches are often near water bodies used for foraging.

6.9.4 Species Protected under the Migratory Bird Treaty Act and Executive Order 13186

The Migratory Bird Treaty Act and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, 10 January 2010, require Federal agencies to protect and conserve migratory birds and their habitats. Federal activities that result in the "take" of migratory birds are prohibited unless authorized by USFWS. The list of migratory birds protected under the Migratory Bird Treaty Act and EO 13186 is provided at 50 CFR 10.13. Most birds that are naturally occurring in the United States are protected by the Migratory Bird Treaty Act. A bird species is included on the list if it meets one or more of the following criteria:

- It occurs in the United States or U.S. territories as the result of natural biological or ecological processes and is currently, or was previously listed as, a species or part of a family protected by one of the four international treaties or their amendments.

- Revised taxonomy results in it being newly split from a species that was previously on the list, and the new species occurs in the United States or U.S. territories as the result of natural biological or ecological processes.
- New evidence exists for its natural occurrence in the United States or U.S. territories resulting from natural distributional changes and the species occurs in a protected family.

The Study Area is in the Atlantic Flyway. Hundreds of migratory bird species use diverse habitat types (e.g., wetlands, beaches, forests, grasslands) within the Study Area for breeding, foraging, and stopover. A list of protected migratory birds that that occur in the Study Area is provided in Table 6-4. This list is not exhaustive.

Table 6-4. Migratory birds within the Study Area.

Common Name	Scientific Name	Common Name	Scientific Name
American Oystercatcher	*Haematopus palliatus*	Long-tailed Duck	*Clangula hyemalis*
Atlantic Puffin	*Fratercula arctica*	Magnificent Frigatebird	*Fregata magnificens*
Bald Eagle	*Haliaeetus leucocephalus*	Manx Shearwater	*Puffinus puffinus*
Band-rumped Storm-petrel	*Hydrobates castro*	Pectoral Sandpiper	*Calidris melanotos*
Black Guillemot	*Cepphus grylle*	Pomarine Jaeger	*Stercorarius pomarinus*
Black Scoter	*Melanitta nigra*	Prairie Warbler	*Setophaga discolor*
Black Skimmer	*Rynchops niger*	Prothonotary Warbler	*Protonotaria citrea*
Black-billed Cuckoo	*Coccyzus erythropthalmus*	Purple Sandpiper	*Calidris maritima*
Black-capped Petrel	*Pterodroma hasitata*	Razorbill	*Alca torda*
Black-legged Kittiwake	*Rissa tridactyla*	Red Phalarope	*Phalaropus fulicarius*
Blue-winged Warbler	*Vermivora cyanoptera*	Red-breasted Merganser	*Mergus serrator*
Bobolink	*Dolichonyx oryzivorus*	Red-headed Woodpecker	*Melanerpes erythrocephalus*
Brown Pelican	*Pelecanus occidentalis*	Red-necked Phalarope	*Phalaropus lobatus*
Canada Warbler	*Cardellina canadensis*	Red-throated Loon	*Gavia stellata*
Cerulean Warbler	*Setophaga cerulea*	Ring-billed Gull	*Larus delawarensis*
Chimney Swift	*Chaetura pelagica*	Roseate Tern	*Sterna dougallii*
Chuck-will's-widow	*Antrostomus carolinensis*	Royal Tern	*Sterna dougallii*
Common Eider	*Somateria mollissima*	Ruddy Turnstone	*Arenaria interpres morinella*

Common Name	Scientific Name	Common Name	Scientific Name
Common Loon	*Gavia immer*	Rusty Blackbird	*Euphagus carolinus*
Common Murre	*Uria aalge*	Saltmarsh Sparrow	*Ammospiza caudacuta*
Cory's Shearwater	*Calonectris diomedea*	Scarlet Tanager	*Piranga olivacea*
Double-crested Cormorant	*phalacrocorax auritus*	Semipalmated Sandpiper	*Calidris pusilla*
Dovekie	*Alle alle*	Short-billed Dowitcher	*Limnodromus griseus*
Eastern Whip-poor-will	*Antrostomus vociferus*	Sooty Shearwater	*Ardenna grisea*
Golden Eagle	*Aquila chrysaetos*	Sooty Tern	*Onychoprion fuscatus*
Grasshopper Sparrow	*Ammodramus savannarum perpallidus*	South Polar Skua	*Stercorarius maccormicki*
Great Shearwater	*Puffinus gravis*	Surf Scoter	*Melanitta perspicillata*
Gull-billed Tern	*Gelochelidon nilotica*	Thick-billed Murre	*Uria lomvia*
Hudsonian Godwit	*Limosa haemastica*	Whimbrel	*Numenius phaeopus hudsonicus*
Kentucky Warbler	*Geothlypis formosa*	White-winged Scoter	*Melanitta fusca*
King Rail	*Rallus elegans*	Willet	*Tringa semipalmata*
Least Tern	*Sternula antillarum antillarum*	Wilson's Storm-petrel	*Oceanites oceanicus*
Lesser Yellowlegs	*Tringa flavipes*	Wood Thrush	*Hylocichla mustelina*
Long-eared Owl	*Asio otus*		

6.10 Special Status Habitats

6.10.1 Essential Fish Habitat

NOAA Fisheries is responsible for enforcing the Magnuson-Stevens Fishery Conservation and Management Act (PL 95-265), 16 USC 1801 *et seq.* as amended through 2007 by the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (PL 109-479), which is intended to promote sustainable fisheries through ecosystem approach management and conservation. To implement the Magnuson-Stevens Fishery Conservation and Management Act, NOAA Fisheries and the eight regional Fishery Management Councils have identified and described Essential Fish Habitat (EFH) for each managed fish species. Areas designated as EFH contain habitat essential to the long-term survival and health of the Nation's fisheries and include waters and substrate that are required for breeding, spawning and foraging.

The NOAA Fisheries EFH Mapper is a tool that allows users to discover where managed fish species spawn, grow, or live in a chosen location on the map (https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper). The EFH mapper displays EFH, EFH areas protected from fishing, habitat areas of particular concern (HAPC), fishery management plans, and NOAA nautical charts. Based on a review of the EFH Mapper for the New England / Mid-Atlantic and Atlantic Highly Migratory Species Councils, the Study Area contains EFH for various life stages of approximately 38 managed fish and invertebrate species (Table 6-5). Table 6-5 is not exhaustive and there may be additional species present at individual dredged material management sites.

EFH within the Study Area is both spatially and temporally highly variable. Some species are restricted to offshore waters, while others may occupy both nearshore and offshore waters, and migrate within and around the bays. Some species are well adapted for life within open ocean or pelagic waters, while others are primarily associated with the benthos or demersal waters. These habitat preferences can also vary among the different life stages of the species, and finfish studies conducted within the region confirm that seasonal abundances are highly variable, as many species are highly migratory (USACE, 2020a). The Study Area does not contain EFH areas protected from fishing. One HAPC, summer flounder SAV, is mapped across most of Study Area. Due to the dynamic nature of SAV and the differences in local mapping, detailed region-wide mapping of this HAPC is not available. Therefore, local mapping and site investigations, where appropriate, must be used to determine SAV presence at a specific area. See Section 6.6 for more information on SAV.

Consultation with NOAA Fisheries is required for any Federal action that may adversely affect EFH. An adverse effect includes direct or indirect physical, chemical, or biological alternations to waters or substrate, species and their habitat, other ecosystem components, and quality and quantity of EFH. Consultation requires the preparation of an EFH Assessment (50 CFR Part 600.905).

Table 6-5. Species with designated EFH in the Study Area.

Common Name	Scientific Name	Fishery Management Plan
Sand Tiger Shark	*Carcharias taurus*	Amendment 10 to the 2006 Consolidated HMS FMP: EFH
Bluefin Tuna	*Thunnus thynnus*	Amendment 10 to the 2006 Consolidated HMS FMP: EFH
Common Thresher Shark	*Alopias vulpinus*	Amendment 10 to the 2006 Consolidated HMS FMP: EFH
Dusky Shark	*Carcharhinus obscurus*	Amendment 10 to the 2006 Consolidated HMS FMP: EFH
Sandbar Shark	*Carcharhinus plumbeus*	Amendment 10 to the 2006 Consolidated HMS FMP: EFH
Skipjack Tuna	*Katsuwonus pelamis*	Amendment 10 to the 2006 Consolidated HMS FMP: EFH

Common Name	Scientific Name	Fishery Management Plan
White Shark	*Carcharodon carcharias*	Amendment 10 to the 2006 Consolidated HMS FMP: EFH
Smoothhound Shark Complex (Atlantic Stock)	*Mustelus spp.*	Amendment 10 to the 2006 Consolidated HMS FMP: EFH
Black Sea Bass	*Centropristis striata*	Summer Flounder, Scup, Black Sea Bass
Atlantic Sea Scallop	*Placopecten magellanicus*	Amendment 14 to the Atlantic Sea Scallop FMP
Winter Flounder	*Pseudopleuronectes americanus*	Amendment 14 to the Northeast Multispecies FMP
Little Skate	*Leucoraja erinacea*	Amendment 2 to the Northeast Skate Complex FMP
Ocean Pout	*Macrozoarces amercanus*	Amendment 14 to the Northeast Multispecies FMP
Atlantic Herring	*Clupea harengus*	Amendment 3 to the Atlantic Herring FMP
Atlantic Cod	*Gadus morhua*	Amendment 14 to the Northeast Multispecies FMP
Red Hake	*Urophycis chuss*	Amendment 14 to the Northeast Multispecies FMP
Silver Hake	*Merluccius bilnearis*	Amendment 14 to the Northeast Multispecies FMP
Yellowtail Flounder	*Limanda ferruginea*	Amendment 14 to the Northeast Multispecies FMP
Monkfish	*Lophius americanus*	Amendment 4 to the Monkfish FMP
Windowpane Flounder	*Scophthalmus aquosus*	Amendment 14 to the Northeast Multispecies FMP
Winter Skate	*Leucoraja ocellata*	Amendment 2 to the Northeast Skate Complex FMP
Clearnose Skate	*Raja eglanteria*	Amendment 2 to the Northeast Skate Complex FMP
Witch Flounder	*Glyptocephalus cynoglossus*	Amendment 14 to the Northeast Multispecies FMP
Bluefish	*Pomatomus saltatrix*	Bluefish
Longfin Inshore Squid	*Loligo pealeii*	Atlantic Mackerel, Squid,& Butterfish Amendment 11
Atlantic Mackerel	*Placopecten magellanicus*	Atlantic Mackerel, Squid,& Butterfish Amendment 11
Atlantic Butterfish	*Peprilus triacanthus*	Atlantic Mackerel, Squid,& Butterfish Amendment 11
Spiny Dogfish	*Squalus acanthias*	Amendment 3 to the Spiny Dogfish FMP
Ocean Quahog	*Artica islandica*	Surfclam and Ocean Quahog

Common Name	Scientific Name	Fishery Management Plan
Scup	*Stenotomus chrysops*	Summer Flounder, Scup, Black Sea Bass
Tiger Shark	*Galeocerdo cuvier*	Amendment 10 to the 2006 Consolidated HMS FMP: EFH
Shortfin Mako Shark	*Isurus oxyrinchus*	Amendment 10 to the 2006 Consolidated HMS FMP: EFH
Atlantic Surfclam	*Spisula solidissima*	Surfclam and Ocean Quahog
Northern Shortfin Squid	*Illex illecebrosus*	Atlantic Mackerel, Squid,& Butterfish Amendment 11
Albacore Tuna	*Thunnus alalunga*	Amendment 10 to the 2006 Consolidated HMS FMP: EFH
Pollock	*Pollachius virens*	Amendment 14 to the Northeast Multispecies FMP
Haddock	*Melanogrammus aeglefinus*	Amendment 14 to the Northeast Multispecies FMP
Summer Flounder	*Paralichthys dentatus*	Summer Flounder, Scup, Black Sea Bass

6.10.2 Other Habitats

A State designated Critical Environmental Area (CEA) is defined by NJDEP (known as Critical Environmental Sites in New Jersey) as a habitat critical to threatened, endangered or other rare wildlife, and by NYSDEC under 6 NYCRR 617.14(g) as: "a geographic location within exceptional or unique character with respect to one or more of the following: a benefit or threat to human life; a natural setting such as fish and wildlife habitat, forest and vegetation, open space, and areas of important aesthetic or scenic quality; agricultural, social, cultural, historic, archaeological, recreational, or educational values; or, an inherent ecological, geological, or hydrological sensitivity that may be adversely affected by any change." There are dozens of CEAs in the Study Area, including Jamaica Bay. See NYSDEC and NJDEP lists of CEAs for more information. In addition to CEAs, the States maintain databases of significant ecological communities and natural heritage priority sites, which represent high quality habitats. Sandy Hook, New Jersey, the Hudson River, and the barrier islands and back bays of New York City and the south shore of Long Island are all designated as high quality habitats.

Marine Protected Areas (MPA) are defined as a park or other "clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" (NOAA, 2024b). The level of MPA protection varies. For example, a marine reserve is the most protective type of MPA in which removing or destroying natural or cultural resources is prohibited (NOAA, 2024a). NOAA maintains an online publicly available mapper of U.S. MPA boundaries, on the NOAA MPA Center website (NOAA, 2023). MPAs in the Study Area are provided in Table 6-6 below.

Table 6-6. MPAs in the Study Area (NOAA, 2023).

Site Name	Management Agency	Level of Protection	Primary Conservation Focus
Gateway National Recreation Area	NPS	Zoned Multiple Use	Natural Heritage
Liberty State Park	NJDEP	Zoned Multiple Use	Natural Heritage
Hudson River National Estuarine Research Reserve	NYSDEC; NOAA	Uniform Multiple Use	Natural Heritage
Cheesequake State Park	NJDEP	Zoned Multiple Use	Natural Heritage
Jones Beach State Park	NYSOPRHP	Uniform Multiple Use	Natural Heritage
Gilgo State Park	NYSOPRHP	Uniform Multiple Use	Natural Heritage
Robert Moses State Park – Long Island	NYSOPRHP	Uniform Multiple Use	Natural Heritage
Captree State Park	NYSOPRHP	Uniform Multiple Use	Natural Heritage
Fire Island National Seashore	NPS	Zoned Multiple Use	Natural Heritage
Seatuck National Wildlife Refuge	USFWS	No Access	Natural Heritage
Heckscher State Park	NYSOPRHP	Uniform Multiple Use	Natural Heritage
Wertheim National Wildlife Refuge	USFWS	Uniform Multiple Use	Natural Heritage
Amagansett National Wildlife Refuge	USFWS	Zoned with No Take Areas	Natural Heritage
Napeague State Park	NYSOPRHP	Uniform Multiple Use	Natural Heritage
Shadmoor State Park	NYSOPRHP	Uniform Multiple Use	Natural Heritage
Camp Hero State Park	NYSOPRHP	Uniform Multiple Use	Natural Heritage
Montauk State Park	NYSOPRHP	Uniform Multiple Use	Natural Heritage
Oyster Bay National Wildlife Refuge	USFWS	Uniform Multiple Use	Natural Heritage

6.11 Floodplains

A floodplain is the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands; and including, at a minimum, that area subject to a one percent chance of flooding in any given year, known as the one percent annual exceedance (100-year) floodplain. Through EO 11988, *Floodplain Management*, 24 May 1977, Federal agencies are required to evaluate the potential effects of any actions it may take in a 100-year floodplain. In addition, the 0.2 percent annual exceedance (500-year) floodplain should be evaluated for critical actions or facilities, such as storage of hazardous materials or construction of a hospital. Actions subject to EO 11988 include acquiring, managing and disposing of Federal land and facilities; providing Federally undertaken, financed, or assisted construction and improvements; and conducting Federal activities and programs affecting land use, including but not limited to water and related land uses planning, regulating, and licensing activities. USACE guidance for implementing the requirements of EO 11988 is provided in ER 1165-2-26.

The Federal Emergency Management Agency (FEMA) provides an online public source for flood hazard information. The FEMA maintains and updates data through the Flood Insurance Rate Map and risk assessments, utilizing data statistics for river flow, storm tides, hydrologic/hydraulic analyses, rainfall, and topographic surveys. The FEMA online Flood Mapper is found at https://msc.fema.gov/portal/home (FEMA, 2024). The Study Area contains a complex network of floodplains associated with coastal and riverine systems. Generally, floodplains within the Study Area have been altered over time by extensive development and the construction of impervious surfaces, leading to increased flood risk in some areas. Flood risk continues to increase due to changing environmental conditions.

6.12 Cultural Resources

The NY District has not conducted additional cultural resource studies as part of the 2025 DMMP Update for any of the placement options. As a potential Study Area it is far too large, and specific sites have not been proposed yet to narrow the investigation to a manageable size. The Study Area has been occupied for approximately 10,000 years and has been subject to significant development for centuries. The remains of this occupation may be encountered in many forms throughout the region and may include standing historic structures, prehistoric and historic archaeological sites and historic landscapes. In general, placement areas may contain a variety of potentially significant resources depending upon the historic land use of the properties and current site conditions. The need for a cultural resource investigation in connection with each option, and the scope of that survey, will have to be assessed in more detail as 2025 DMMP Update options are utilized by project proponents.

A preliminary cultural resource assessment was prepared for the 1999 DMMP in 1996 (Rakos, 1996). At that time, the defined DMMP Study Area was much smaller and did not include counties in Pennsylvania but did include most of the New York Bight Apex, offshore and nearshore, as well as uplands within two miles of the shoreline in the counties surrounding the Port in New Jersey. The 1996-1999 assessment summarized existing cultural resource data for offshore and nearshore resources and summarized the types of resources that might be encountered in upland areas. The assessment also provided general descriptions of the cultural resource work that might be anticipated for each placement option under consideration. The SHPO of both New York and New Jersey and the NYC LPC concurred with the approach the NY District proposed to take with regard to developing agreement documents for identifying and evaluating cultural resources for the various DMMP options as they were selected.

The NY District has conducted a reconnaissance-level cultural resources survey for the current 2025 DMMP Update. The purpose of the survey was to identify known cultural resources within proposed and existing dredged material placement sites. Cultural resources include archaeological sites, buildings, structures, objects, or districts. Based on the prehistory, history, and topography of each site, a determination of the potential for additional cultural resources was considered. The reconnaissance-level cultural resource survey identified known cultural resources within the proposed and existing dredged material placement areas within and near the placement sites. Further site-specific testing and assessment of project effects will need to be addressed on a site-by-site basis. The full table of cultural resources is included in Appendix E of this document.

6.13 Recreation

Recreation is something done for enjoyment or relaxation. Recreation can be passive or active. Examples of passive recreation include sitting, walking, birding, and sunbathing. Active recreation includes boating, kayaking, fishing, swimming, running, and playing sports. Recreational spaces, such as parks, beaches, and natural areas, support both active and passive recreation and provide myriad benefits to communities ranging from improved health and mental wellbeing to economic development (TPL, 2022). Existing recreational facilities in the Study Area that are likely options for dredged material placement (Table 3-3) include the following: the marsh islands of Jamaica Bay in Gateway National Recreation Area, New York (NPS land); the Atlantic Coast beaches of New York and New Jersey (various landowners); and Liberty State Park (NJDEP).

Waterways in the Study Area also provide opportunities for recreational activities such as boating and fishing. Fishing opportunities in New York and New Jersey are abundant for a wide variety of species such as blue fish, hard clam, blue crab, mackerel, haddock, black sea bass, menhaden, and flounder. Each year there are over 1.2 million recreational anglers in New Jersey's marine waters. There are approximately 175,000 registered marine vessels in New Jersey and recreational angler expenditures, revenue generated, and angler participation rank among the highest in the Nation (NJ Sea Grant, 2024). In New York, there are approximately 116,000 registered recreational vessels across New York, Kings, Queens, Westchester, Nassau, Bronx, and Suffolk counties (NYSPRHP, 2022). Please see Section 6.3 for more information on recreational fishing.

6.14 Visual Resources

Visual resources contribute to the scenic and aesthetic quality of a place and are a major component of community character. Visual resources are composed of natural and human-made features that form a unified landscape and sense of place. Visual resources often have cultural significance because landscape features offer evidence about how a place has been shaped over time by the environment and communities that have lived there.

The Study Area has many visual resources associated with the coastal waterfront and open water. The coastal waterfront is characterized by low elevation areas with residential and commercial developments, historic structures, and open space. Beaches, waterfront parks, and natural areas (e.g., wetlands, forests, dunes) offer opportunities for recreation and provide scenic backdrops that are naturally beautiful. Open water, such as ocean, bays, and rivers, offer expansive viewsheds that are naturally beautiful while providing unique visual perspectives of land-based features. Developed areas along the waterfront may offer less natural beauty than open space but have varying architectures, infrastructure, and land uses that are important to the viewshed's cultural and historic context.

In recognition of the scenic value of the coast, New York's Coastal Management Program includes two policies which provide for the protection and enhancement of visual resources (NYSDOS 2023). Policy 24 provides for the designation and protection of scenic areas of statewide significance and Policy 25 requires that proposed actions located outside a designated scenic area of statewide significant must protect, restore or enhance the overall scenic quality of the coastal area. NYSDOS designated scenic areas of statewide significance within the Study Area include Hudson Highlands, East Hampton Village, Napeague, Hither Hills, Montauk Point, and Lake Montauk. The New Jersey Coastal Management Rules (N.J.A.C. 7:7) also recognize the importance of visual resources by encouraging development activities that preserve viewsheds and promote public access. Local programs, like the New York City Waterfront Revitalization Program, also have policies related to the protection and enhancement of visual resources.

The Wild and Scenic Rivers Act of 1968 (Public Law 90-542) established the National Wild and Scenic Rivers System, protecting for future generations free-flowing waterways with extraordinary natural, cultural and recreational qualities. The system includes more than 220 rivers and covers more than 13,400 miles of rivers and streams. There are no designated wild and scenic rivers within the Study Area.

The National Historic Preservation Act requires the NY District to assess the impact on cultural resources from how specific projects might visually alter or disrupt the setting of a historic site or landscape. Although a site-specific project may not directly disturb a cultural resource, it may alter its visual integrity by changing the surrounding viewshed. Further site-specific visual assessments will need to be addressed on a site-by-site basis. The full table of cultural resources is included in Appendix E of this document.

6.15 Coastal Resources

6.15.1 Coastal Zone Management Act

The Coastal Zone Management Act of 1972 (CZMA; 16 USC 1451 *et seq.*) provides the basis for protecting, restoring, and responsibly developing the Nation's diverse coastal communities and resources. Section 307 of CZMA, called the "Federal consistency" provision, is major component of the National Coastal Management Program and requires that Federal actions which have reasonably foreseeable effects on the coastal zone be consistent with the enforceable policies of a State's Federally approved coastal management program. Federal actions subject to consistency review include Federal agency activities, Federal license or permit activities, and Federal financial assistance activities.

The States of New York and New Jersey have Federally approved coastal management programs. The New York State Coastal Zone Management Program is administered by the New York State Department of State (NYSDOS) Division of Coastal Resources. There are 44 enforceable policies that were established in the State of New York Coastal Management Program and Final Environmental Impact Statement, Section 6, August 1982; with revisions made to incorporate routine program changes approved in from 1982 to 2023 (NYSDOS, 2023). Local governments in New York State are encouraged to participate in consistency review through the adoption of Local Waterfront Revitalization Programs (LWRP). Municipalities with LWRPs adapt the State's enforceable policies to local conditions and coordinate with NYSDOS to conduct Federal consistency reviews. New Jersey's Coastal Zone Management Program is administered by NJDEP. New Jersey's enforceable policies are established in the New Jersey Coastal Zone Management Rules (N.J.A.C. 7:7). Three major state laws are implemented through the New Jersey Coastal Zone Management Rules: the Waterfront Development Law, N.J.S.A. 12:5-3, the Wetlands Act of 1970, N.J.A.C. 13:9A, and the Coastal Area Facility Review Act (CAFRA), N.J.S.A. 13:19. Much of the Study Area falls within the boundaries of the coastal zone according to NYSDOS and NJDEP coastal boundary maps. Dredged material management activities within the coastal zone would require CZMA consistency review and coastal permits, as required.

6.15.2 Coastal Barrier Resource Act

The Coastal Barrier Resources Act of 1982 (CBRA; 16 USC 3501 *et seq.*) established the Coastal Barrier Resources System (CBRS), which consists of specifically identified undeveloped coastal barriers along the United States coastline. The Coastal Barrier Improvement Act of 1990 reauthorized the CBRA and expanded the protected areas. Still commonly referred to as CBRA, the 1990 Act and future amendments added protections to portions of the Study Area. The USFWS is responsible for administering CBRA. Coastal barriers include barrier islands, bay barriers, and other geological features that protect landward aquatic habitats from direct wind and waves. Associated aquatic habitats, including wetlands, marshes, and estuaries adjacent to barrier islands and nearshore waters and inlets are also covered by CBRA.

There are two types of units within the CBRS – System Units and Otherwise Protected Areas (OPAs). Most new Federal expenditures and financial assistance, including Federal flood insurance, are prohibited within System Units. The CBRA, however, identifies exceptions to this restriction, including the following: nonstructural shoreline stabilization like natural stabilization systems; the maintenance of channel improvements, jetties, and roads; necessary oil and gas exploration and development; essential military activities; and scientific studies. The only Federal spending prohibition within OPAs is on Federal flood insurance; other Federal expenditures are permitted. Consultation with the USFWS is required for activities located within a System Unit but is not required in OPAs. CBRS units in the Study Area are provided in Table 6-7. CBRS units in the Study Area.

Table 6-7. CBRS units in the Study Area.

Unit No. (Name)	Location
Otherwise Protected Area	
NY-60P (Jamaica Bay)	Jamaica Bay, NY
NY-59P (Fire Island)	Fire Island National Seashore, NY
NY-F13P (Tiana Beach)	Shinnecock County Park, NY
NJ-03P (Cliffwood Beach)	Cliffwood Beach, NJ
NJ-02P (Seidler Beach)	Laurence Harbor, NJ
NJ-15P (Sayreville)	Raritan Bay Waterfront Park, NJ
NJ-16P (Matawan Point)	Matawan Creek, NJ
NJ-01P (Sandy Hook)	Sandy Hook Peninsula, NJ

Unit No. (Name)	Location
System Units	
NY-59 (Fire Island)	Lido Beach to Robert Moses State Park, NY
F13 (Tiana Beach)	Tiana Bay, NY
F12 (Southampton Beach)	Shinnecock Bay, NY
F11 (Mecox)	Mecox Bay, NY
NY-58 (Sagaponack Pond)	Sagaponack Pond, NY
NY-57 (Georgica/Wainscott Ponds)	Geogica and Wainscott Ponds, NY
NY-56 (Amagansett)	Amagansett Beach, NY
F10 (Napeague)	Napeague Beach, NY
NY-55 (Montauk Point)	Montauk Point, NY
NJ-02 (Seidler Beach)	Laurance Harbor, NJ
NJ-04 (Conaskonk Point)	Union Beach, NJ
NJ-04A (Navesink/Shrewsbury)	Seabright and Rumson, NJ

6.15.3 Other Coastal Protections

The New York State Coastal Erosion Hazard Areas Law (ECL Article 34) empowers NYSDEC to identify and map coastal erosion hazard areas (CEHA) and to adopt regulations (6 NYCRR Part 505) to control certain activities and development in those areas. The construction or placement of a structure, or any action or use of land which materially alters the condition of land, including grading, excavating, dumping, mining, dredging, filling or any disturbance of soil is a regulated activity requiring a Coastal Erosion Management Permit (NYSDEC, 2024c). CEHAs in the Study Area currently include the entire coastline of Long Island, and the Atlantic Ocean coastline of New York City.

The New Jersey Coastal Area Facility Review Act (CAFRA) (NJSA 13:19-1 *et seq.*) and implementing regulations (NJAC 7:7) were established to protect the State's coastal area from development activities that result in adverse environmental impacts. CAFRA permits are required for most development activities (residential, commercial, public, or industrial) occurring in New Jersey's coastal area. The New Jersey Waterfront Development Act (NJSA 12:5-1 *et seq.*) and implementing regulations (NJAC 7:7) regulate development activities conducted in tidal waters at or below the mean high-water line. NJDEP is responsible for administering the CAFRA and Waterfront Development permit programs.

Structures and utilities, including fill, located in, on, or above State-owned lands that are now or were formerly underwater are regulated under the New Jersey Tidelands Act (NJSA 12:3-1 *et seq.*) and implementing regulations (NJAC 7:7) and New York State Public Lands Law (Article 6) and implementing regulations (9 NYCRR Part 270). The New Jersey Tidelands Act and implementing regulations are administered by the New Jersey Tidelands Resource Council. A tidelands instrument is a written document conveying, leasing, or licensing lands owned or claimed to be owned as present or formerly flowed tidelands by the State of New Jersey to public entities or private interests pursuant to N.J.S.A. 12:3-1 *et seq* and N.J.S.A. 13:1B-13 *et seq*. Tidelands instruments include licenses, long-term leases, conveyances (often called grants), and management agreements. The New York State Office of General Services administers the Article 6 of the New York State Public Lands law and implementing regulations, including issuance of licenses, easements or permits for certain activities occurring in, on, or above State-owned lands that are now or were formerly underwater.

6.15.4 Hazardous, Toxic, and Radioactive Waste

HTRW is defined by USACE under ER 1165-2-132 as:

> Except for dredged material and sediments beneath navigable waters proposed for dredging... HTRW includes any material listed as a “hazardous substance” under the Comprehensive Environmental Response, Compensation, and Liabilities Act [CERCLA]... Dredged material and sediments beneath navigable waters proposed for dredging qualify as HTRW only if they are within the boundaries of a site designated by the USEPA or a State for a response action (either a removal action or remedial action) under CERCLA, or if they are part of a National Priority List (NPL) site under CERCLA. (p. 1)

CERCLA was established by Congress in 1980 (42 USC 9601 *et seq.*), giving the USEPA the funds and authority to remediate contaminated sites where there is no identifiable responsible party. The purpose of CERCLA, also referred to as Superfund, is to protect human health and the environment, have identified responsible parties pay for remediation or provide funding mechanism in cases where no responsible party is identified, involve communities in the process, and return contaminated sites to productive uses (USACE, 2022a).

The Study Area is located in a highly urban environment with a history of industrial, commercial, and residential uses. Many known contaminated sites and remediation sites are prolific throughout the metropolitan areas of New Jersey, New York, and Pennsylvania, too numerous to list. A few examples of the New Jersey listed sites located in the vicinity of the navigation channels where dredged material would originate, include several chromate contaminated sites adjacent to the Kill Van Kull Channel (e.g. Dennis P. Collins Park, Coastal Oil NY Co., Bayonne Sewage Treatment Plant, IMTT (Bayonne Industries), Former Exxon Bayonne Terminal, and Commerce Street Site), and many others. A few examples of the New York listed sites located in the vicinity include the Archer-Daniels Midland Company (also known as Staten Island Warehouse, Richmond Terrace Radiological Site and “cleanup under the Bayonne Bridge”). Most of these sites are located on land, and not collocated within the navigational channels where dredged material maintenance primarily occurs.

Several Federal CERCLA sites are also located throughout the Study Area, including but not limited to Riverside Industrial Park, Diamond Alkali, Diamond Head Oil Refinery, Syncon Resins, Standard Clorine, PJP Landfill, Pierson’s Creek, the Hudson River, and Hackensack River, to name a few. The CERCLA sites most relevant to dredged materials sediment and surface water quality within the New York Bight, which are upgradient and/or collocated within the navigation channels are the Diamond Alkali Superfund Site inclusive of four Operable Units including the upper and lower Passaic River and Newark Bay, as well as the Hackensack River, and Hudson River PCBs. These sites are discussed briefly below.

The Diamond Alkali Superfund Site was added to the National Priorities List in 1984 after the State of New Jersey and USEPA performed environmental sampling at the facility and in the Passaic River, revealing high levels of 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin (2, 3, 7, 8-TCDD), a bi-product of historical manufacturing at the Diamond Alkali plant of agricultural chemicals and herbicides utilized in the production of "Agent Orange". Agent Orange was primarily utilized in the 1950s and 1960s during the Vietnam War. TCDD was found to have polluted the surface and subsurface of the plant grounds, in addition to the Passaic River which drains south into Newark Bay. Although production of Agent Orange ceased in the 1970s, adverse effects of manufacturing processes are still present to this day. Due to the known pollution concerns, the NJDEP prohibits the consumption of fish and shellfish from the Lower Passaic River and Newark Bay. In 1994, a six-mile stretch of the Passaic River was added to the remediation investigation requirements of the site, and in 2003 the remedial investigation was expanded to a 17-mile stretch of the Passaic River. In 2004, Newark Bay, and portions of the Arthur Kill, and Kill Van Kull channels and portions of the Hackensack River were added to the investigation efforts. Remedial action, including an interim remedial action, has been undertaken at the site, but remedial investigation and reporting of the Newark Bay Operable Unit is still in progress. Additional contaminants of concern include metals, 2, 4, 5-trichlorophenol, and pesticides (USACE, 2022a). For more information visit: www.ournewarkbay.org.

The Hackensack River Superfund Site was added to the National Priorities List in September 2022, which includes a 22-mile segment of the lower river extending from Newark Bay to the Oradell Dam for contaminated sediments related to hundreds of years of sewage and industrial discharge within New Jersey's Bergen and Hudson Counties. Contaminants of concern include metals, polycyclic aromatic hydrocarbons (PAHs), PCBs, and 2,3,7,8-TCDD. As of October 2024, the USEPA and associated potentially responsible parties entered into a settlement agreement to investigate contamination and assess risk to human health and the environment. For more information visit:

https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Cleanup&id=0201845#bkground.

The Hudson River PCBs Superfund Site was added to the National Priorities List in 1984 for a 200-mile stretch of the Hudson River between the Battery in New York City, New York extending north to Hudson Falls, New York. It is estimated that 1.3 million pounds of PCBs were historically discharged into the Hudson River, originating from two General Electric manufacturing plants located upriver. To address the vastness of the Superfund Site area, it was split into two investigation areas: Upper Hudson River and Lower Hudson River. General Electric performed a multi-year sediment sampling program for the Upper Hudson River that began in 2002 and generated more than 60,000 sediment samples. Those samples informed priority areas for dredged material removal in the Upper Hudson River. Following, approximately 2.75 million cubic yards of PCB-contaminated sediment was dredged and removed between the Troy Lock and Dam and Hudson Falls, New York. In September 2022, the USEPA and General Electric entered into a legal agreement to investigate the Lower Hudson River, from the Troy Lock and Dam to the mouth of New York Harbor. Sampling will include tissues from multiple fish species, sediment and water from various locations throughout the lower river. Sediment sampling in the Lower Hudson River has been ongoing between 2023 and 2024 (USEPA 2024). On going monitoring and investigations continue in the river to this day. For more information visit: https://www.epa.gov/hudsonriverpcbs/hudson-river-cleanup.

For additional detail regarding HTRW-related sites, refer to the New York/New Jersey Harbor Deepening Channel Improvements Final Integrated Feasibility Study and Environmental Assessment (2020) and the New York/New Jersey Harbor and Tributaries Study Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement, each of which further details the many HTRW sites throughout the Study Area. Additional resources include the New York State "DECInfo Locator" database, the New Jersey "GeoWeb" database, and the Pennsylvania "Environmental Site Assessment Search Tool", as applicable. For additional detail regarding sediment quality and characteristics, refer to Sections 6.4.2 and 7.4.2.

6.16 Air Quality and Clean Air Act

The Clean Air Act (CAA), which was last amended in 1990 (42 USC 7401 *et seq.*), requires the USEPA to set National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) for six principal pollutants ("criteria" air pollutants) which can be harmful to public health and the environment. The criteria air pollutants are carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO2), ozone (O3), particulate matter (PM), and sulfur dioxide (SO_2). $PM_{2.5}$ is fine particulate matter that is 2.5 micrometers or less in diameter. PM_{10} is particulate matter that is 10 micrometers or less in diameter. The CAA identifies two types of NAAQS. Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings (USEPA 2024a).

The CAA requires states to develop state implementation plans (SIPs) to clean up dirty air and protect clean air from pollution (i.e., meet the NAAQS for each criteria air pollutant). An attainment area is defined as a "geographic area in which levels of a given criteria of air pollutant (e.g., O_3, CO, $PM_{2.5}$, etc.) meet the health-based NAAQS" (23 CFR 450). A non-attainment area is a geographic area in which air pollutant(s) do not meet the health-based NAAQS. It is possible for an area to be in an attainment for one or more pollutant and nonattainment for other pollutant(s). A maintenance area is an area that was previously in nonattainment for a criteria air pollutant but is now under a maintenance plan (i.e., has vulnerable air quality).

Portions of the Study Area fall within nonattainment and maintenance areas for various criteria air pollutants including 8-Hour Ozone (2015), 8-Hour Ozone (2008), PM-2.5 (2006), and Carbon Monoxide (1971). The Study Area also falls within the Ozone Transport Region. Federal actions are regulated under 40 CFR 93 Subpart B, General Conformity. General Conformity prohibits a Federal agency from interfering with the ability of a State or Tribe to achieve the NAAQS. General Conformity applies to Federal actions proposed within areas that are designated as either nonattainment or maintenance. Federal actions with emissions below specified threshold levels are not subject to requirements beyond documentation of the *de minimis* level of emissions (https://www.epa.gov/general-conformity/de-minimis-tables). Federal actions with emissions that exceed *de minimis* thresholds for criteria air pollutants in nonattainment or maintenance area must demonstrate compliance with the General Conformity Rule. Compliance can be demonstrated in multiple ways, including using mitigation measures and/or emissions offsets.

6.17 Noise and Vibration

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. Noise is generally defined as unwanted sound that may interfere with communication, damage hearing, and/or diminish the quality of the environment. Human response to noise varies depending on the type and characteristics of the noise, such as distance between the noise source and the receptor, receptor sensitivity, and time of day.

Sound is characterized by intensity and frequency. Intensity is the physical measurement of sound pressure level, described in decibels (dB). The dB is a logarithmic unit that expresses the ratio of sound pressure level to a standard reference level. Frequency, or pitch, is the physical measurement of sound in cycles per second, measured in Hertz. The human ear responds differently to different frequencies. "A-weighting", measured in A-weighted decibels (dBA), approximates how the human ear perceives a sound based on frequency. It is important to note that many animals can hear frequencies that are not perceptible to the human ear. Familiar sounds encountered in life and their dBA levels are provided in Table 6-8.

Table 6-8. Familiar sounds and their dBA levels (NIDCD, 2022).

Common Sources of Noise	Average Sound Level (dBA)
Fireworks show	140-160
Sirens	110-129
Sporting events	94-110
Motorcycles	80-110
Movie theater	74-104
Normal conservation	60-70

The A-weighted day-night average sound level (DNL) is a noise metric that was developed to reflect a person's cumulative exposure to sound over a 24-hour period. DNL is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to the nighttime levels (10:00 p.m. to 7:00 a.m.). DNL is a useful descriptor for noise because it averages ongoing yet intermittent noise and measures total sound energy over a 24-hour period. The Noise Control Act of 1972 (42 USC 4901 *et seq.)* establishes a national policy to promote an environment free from noise.

Vibration is rhythmic repetitive motion that may be experienced from a particular extraneous media such as the ground or equipment. The duration of constant repetitive motion can cause disturbances in the environment both naturally (e.g., an earthquake) and mechanically (e.g., large vehicles, equipment, and machinery), as well as occupational hazards to the human body having the potential to cause injury from prolonged exposure (e.g., jack hammer; USACE 2022). Vibration levels are a function of the source strength, the distance between the source and receptor, characteristics of the transmitting source and medium, and the receiver condition.

Ambient noise and vibration levels in the Study Area vary greatly due to the wide range of environmental conditions present (wind, traffic, construction, etc.). For example, ambient outdoor DNLs can be as low as 30 to 40 dBA in wilderness areas and as high as 90 dBA in urban areas (USEPA, 1978). Sensitive receptors in the Study Area also vary. Sensitive receptors are locations where received noises and vibration can have an adverse impact on an activity or use. Examples of sensitive receptors that occur within the Study Area include but are not limited to residences, recreational areas (e.g., parks), historic buildings, and endangered species habitats

7 ENVIRONMENTAL CONSEQUENCES*

7.1 Introduction

This section addresses the environmental effects of the Proposed Action and provides a high-level description of the existing and projected future conditions for each of the resources that reasonably could be affected by dredged material management activities implemented by project proponents. The 2025 Interim DMMP Update is an administrative planning activity that will not result in construction, dredging, or the placement of dredged material. The 2025 Interim DMMP Update does not commit the NY District to a decision regarding the use of resources or the location of a project, and the NY District has not restricted the availability of future dredged material management alternatives to avoid, minimize, or mitigate adverse effects. Project proponents will be responsible for conducting an environmental analysis of dredged material management activities, where appropriate, in compliance with the applicable environmental requirements, including NEPA and its implementing regulations. When assessing potential placement locations, it is recommended that project proponents consider competing uses of the areas being considered, such as fishing areas, submarine cables, and navigation channels. Best management practices are recommended for the resources discussed in this section to avoid, minimize, and mitigate potential impacts and conflicting uses.

The No Action Alternative is used to assess the environmental consequences that may occur if the Proposed Action is not implemented. The No Action Alternative serves as a baseline against which to compare the effects of the Proposed Action. Under the No Action Alternative, the existing DMMP for the Port would not be updated to meet the administrative purpose and need of the 2025 DMMP Update. Due to the administrative nature of this 2025 DMMP Update, the NY District determined that implementation of the No Action Alternative would not result in impacts to any of the resources evaluated in Section 7 of this Integrated Report and SEA.

7.2 Bathymetry

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact bathymetric conditions. Project proponents are responsible for assessing the impacts of their dredged material management measures on bathymetric conditions (e.g., elevation increase). A desktop review of existing bathymetric data and submarine infrastructure should be conducted when planning dredged material placement activities. Bathymetric surveys and submarine infrastructure surveys should be conducted before and/or after dredged material placement in waterbodies, where appropriate. Placement of dredged material on existing and proposed submarine infrastructure, such as cable routes and crossing, should be avoided so that required burial depths are maintained. Coordination with USACE, U.S. Coast Guard, BOEM, NOAA, NYSDEC, and NJDEP may be required to ensure that submarine infrastructure is avoided, and safe navigation depths are maintained at placement locations. USACE Regulatory Branch works with permit applicants to review proposed activities in relation to submarine easements and utilities.

7.3 Socioeconomics

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement and disposal of dredged material. Therefore, the Proposed Action will not impact socioeconomics. Project proponents are responsible for assessing the impacts of their dredged material management activities on socioeconomics, where appropriate. It is likely that site-specific analysis of socioeconomic conditions would be needed for proposed dredged material management activities. Project proponents may consider how management activities could affect local communities, shipping, recreational and commercial fisheries, and tourism. Early and meaningful stakeholder engagement is an important step in determining an action's effect on socioeconomic conditions.

Management measures that are expected to have the largest socioeconomic impact include beach nourishment and use of dredged material for non-structural fill at public parks and redevelopment sites. It is expected that beach nourishment would have a long-term beneficial impact on socioeconomic conditions related to tourism by improving beach quality and increasing beach area. Beachgoers would in turn support the local beach economies. Use of dredged material for public parks and redevelopment activities would also be expected to have a long-term beneficial impact on socioeconomics by supporting sites that attract tourists and businesses, thereby stimulating the economy. In addition, the need for dredging and dredged material management in the Port will continue support jobs in the region.

To the extent practicable, dredged material should be used to benefit commercial and recreational fisheries. Examples include the creation or enhancement of aquatic habitat structure (rock placement) or tidal wetland restoration (sand placement) to improve fish habitat. Sensitive habitat areas, like SAV, that are critical to early life stages of economically important fish species should be avoided during dredging and placement activities. It is recommended that a Notice to Mariners be published to make pilots aware of potential hazards and upcoming work. Project proponents should consider all publicly available shellfish charts to determine if any future dredging or placement activities may impact shellfish resources, and to avoid potential impacts to the greatest extent practicable. Depuration plants are located within the Study Area (e.g., within Sandy Hook Bay and Raritan Bay). It is recommended that depuration plants be notified via certified mail 30 days prior to any dredging or placement activities taking place within depuration harvest zones.

7.4 Water Resources

7.4.1 Surface Waters

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact surface waters. Project proponents are responsible for assessing impacts, and potential benefits to, surface waters and water quality related to dredged material management activities. Where impacts are identified, best management practices or mitigation may be required, and should be documented in the impact assessment. All dredged material management activities should comply with the applicable water quality standards, as regulated by the States of New York and New Jersey, and the CWA Section 404 requirements. Section 401 Water Quality Certifications may be required for dredged material management activities affecting waterbodies. Early coordination with the issuing authorities (NYSDEC and NJDEP) is recommended.

7.4.2 Sediment Characteristics

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact sediment. Project proponents are responsible for testing sediments to determine whether the quality is compatible with the proposed use.

In accordance with ER 1165-2-132, dredged materials would need to be tested under dredged material placement criteria to assess their suitability for beneficial use following the appropriate guidelines and criteria including, but not limited to Section 404 of the CWA and/or Section 103 of the MPRSA and supplemented by the USACE Management Strategy for Disposal of Dredged Material: Containment Testing and Controls. Additionally, sediment results would need to be compared to State remediation standards, such as the NJDEP Site Remediation Program Remediation Standards, and the NYSDEC Cleanup Objectives, as applicable, to ensure material is suitable for beneficial use related to effects to human health and the environment.

7.5 Wetlands

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact wetlands. Where appropriate, project proponents are responsible for conducting environmental review and obtaining permits for dredged material management activities that affect wetlands. Of the dredged material management measures presented in this document, wetland restoration is most likely to directly affect wetlands. The quality of dredged material placed on wetlands should be compatible with the goals of the restoration project while meeting the applicable regulatory standards. It is often difficult to match dredging schedules with restoration projects given uncertainties in funding, design, and permitting timelines. Further coordination is needed among dredging project proponents, restoration practitioners, regulators, and dredging contractors to expand the use of dredged material for wetland restoration projects while reducing costs.

7.6 Benthic Fauna

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact benthic fauna. Project proponents are responsible for evaluating the effects of their dredged material management activities on benthic fauna. Management measures that involve in-water work (e.g., benthic remediation) are expected to affect benthic communities. Over the long term, placement for benthic remediation and habitat restoration are likely to have a positive impact on benthic fauna by reducing contaminant concentrations and improving habitat conditions, respectively.

Placement at borrow areas could have an adverse impact on benthic communities, although these communities are expected to recover over time. Benthic recovery following physical disturbance varies and is often dependent on extent of the disturbance and environmental conditions, as described in USACE (2017):

When a benthic community is physically altered or disturbed, the community may re-colonize through natural succession to pre-disturbed conditions within approximately one to five years following the cessation of the disturbance (Blake et al., 1996, Van Dolah et al., 1992). However, recovery may take longer if physical characteristics (e.g. sediment, hydrology, etc.) are changed and different species re-colonize (Schaffner et al., 1996, Van Dolah et al., 1994, Wilber and Stern, 1992). Dernie et al. (2003) found that clean sand communities had the most rapid recovery rate following disturbance, whereas communities from muddy sand habitats had the slowest physical and biological recovery rates. (p. 2)

7.7 Vegetation

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact vegetation. Project proponents are responsible for identifying vegetative communities at dredged material placement sites and implementing conservation measures as needed. Project proponents should seek to preserve high value plants to the greatest extent practicable. Local SAV maps should be reviewed to ensure that SAV beds are avoided during placement activities. Field surveys may be necessary in some situations. When impacts to vegetation cannot be avoided, the project proponent should work with the resource agencies and landowners to develop a mitigation plan, which may require transplanting or seed collection and coordination with local nurseries.

7.8 Fish and Wildlife

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact fish and wildlife. Project proponents are responsible for assessing the potential impacts of their dredged material management measures on fish and wildlife species. Coordination with USFWS and NOAA Fisheries would be required under the Fish and Wildlife Coordination Act for Federal actions that affect waterbodies. To the extent possible, project proponents should implement management measures that benefit fish and wildlife species. Use of dredged material for wetland restoration, beach management, and benthic remediation is expected to improve habitat conditions for fish and wildlife over the long term. Conservation measures, such as seasonal timing restrictions, should be implemented where appropriate to avoid and minimize impacts to fish and wildlife during placement activities. Conservation measures should be developed in coordination with the appropriate resource agencies, such as USFWS, NOAA Fisheries, NJDEP, NYSDEC, and PADEP. Conservation measures commonly recommend by resource agencies include anadromous fish time of year restriction (1 March – 30 June) on all in-water project activities to avoid disruption of habitat and fish behavior during the spring spawning migration period, and winter flounder time of year restriction (1 January – 31 May) on all in-water project activities to protect spawning and vulnerable life stages.

7.9 Special Status Species

7.9.1 Federally Threatened and Endangered Species and Designated Critical Habitat

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact Federally or State listed threatened and endangered species and designated critical habitat. Project proponents are responsible for coordinating with the USWFS, NOAA Fisheries, NYSDEC, NJDEP, and PADEP during the environmental review and permitting for proposed management activities, where appropriate. To the extent possible, project proponents should implement management measures that benefit threatened and endangered species and critical habitat. For example, placement of dredged material at the Jamaica Bay marsh islands would be expected to improve proposed critical habitat for red knot. Beach nourishment would be expected to improve habitat for piping plover. Conservation measures, such as seasonal timing restrictions, should be implemented where appropriate to avoid and minimize impacts to threatened and endangered species. Conservation measures should be developed in coordination with the appropriate resource agencies and should based be on the anticipated effects of proposed placement activities. The effects of placement activities could include but are not limited to turbidity, noise, vessel strike, habitat alteration, and prey removal. Additional information on Section 7 effects analysis is available online via NOAA Fisheries (https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-consultation-technical-guidance-greater-atlantic) and USFWS (https://www.fws.gov/service/esa-section-7-consultation).

7.9.2 Marine Mammals

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact marine mammals. Project proponents should refer to NOAA Fisheries Marine Mammal Stock Assessment Reports when determining the likelihood of marine mammal presence near dredged material placement locations while placement activities are occurring. Some marine mammals are more common in the Study Area than others, and the time of year that species are expected to occur in the northeastern United States varies. Impacts to marine mammals should be avoided to the greatest extent practicable. Project proponents should consider using conservation measures to avoid and minimize impacts to marine mammals, such as time of year restrictions and protected species observers aboard vessels, where appropriate. Seal haul outs, if located near a proposed placement site, should be avoided. Depending on the scope of dredged material management activities, project proponents may be required to consult with NOAA Fisheries under the MMPA.

7.9.3 Bald Eagles Protected under the American Bald and Golden Eagle Protection Act

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement and disposal of dredged material. Therefore, the Proposed Action will not impact bald eagles. Project proponents should consider the potential presence of bald eagle nests or concentrations (large gathering of eagles) near dredged material management locations while placement activities are occurring. Project proponents may find it useful to reference the USFWS National Bald Eagle Management Guidelines (2007) if bald eagles are present near dredged material placement locations. The USFWS National Bald Eagle Management Guidelines (2007) may be used to assess potential effects to nesting bald eagles and provide management guidelines to avoid impacts to nesting bald eagles (USFWS, 2007). Under these guidelines, a nest buffer is recommended between the human activity and the nest where applicable to avoid disturbing bald eagles. Human impacts are considered detrimental to nesting success within the primary buffer and within the secondary buffer. Depending on the scope of dredged material placement activities, project proponents may be required to consult with the USFWS, NYSDEC, and NJDEP to protect bald eagles.

7.9.4 Species Protected under the Migratory Bird Treaty Act and Executive Order 13186

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact migratory birds. Project proponents are responsible for protecting migratory birds during dredged material management activities and may be required to coordinate USFWS. During placement activities, disturbance to migratory bird nesting habitat should be avoided to the greatest extent practicable from 15 March to 31 July. Nest surveys and monitoring by a qualified biologist should also be considered on a case-by-case basis prior to dredged material placement. Additional best management practices are available in the USACE document “Migratory Bird Treaty Act Policy and Best Management Practices,” 14 June 2024. Over the long term, placement activities that improve habitat (i.e. placement on wetlands, beaches, dunes) are expected to benefit migratory birds.

7.10 Special Status Habitats

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact special status habitats. Project proponents are responsible for assessing the effects of their dredged material management activities on special status habitats. Where appropriate, project proponents should use dredged material to benefit special status habitats in coordination with the resource agencies.

7.11 Floodplains

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact floodplains. Project proponents are responsible for assessing the effects of their dredged material management activities on floodplains and obtaining floodplain permits, as required. Examples of natural floodplain features that could receive dredged material from project proponents include wetlands, maritime forests, beaches, dunes, banks, sandbars, and tidal flats. Examples of built features and facilities located in floodplains that could receive dredged material include floodwalls, levees, breakwaters, groins, revetments, and parks. Dredged material management activities should be designed to reduce flood risk, where appropriate.

7.12 Cultural Resources

The NY District considers the 2025 Interim DMMP Update a planning activity that does not narrow the range of alternatives to avoid, minimize, or mitigate adverse effects to historic properties. In this context, the NY District has determined that the 2025 Interim DMMP Update does not commit the NY District to a decision regarding the use of resources or the location of a project, and the NY District has not restricted the availability of alternatives to avoid, minimize, or mitigate adverse effects. In other words, the planning activities associated with the development of the 2025 Interim DMMP Update does not constitute an undertaking with the potential to affect historic properties that must be preceded by Section 106 of the National Historic Preservation Act of 1966 compliance.

The NY District has developed this SEA to aid in the documentation of the update, due to the fact that the management measures and locations have not been definitively determined. As alternative(s) and location(s) are selected they will undergo studies to ensure NEPA compliance. At that time, each option and location will also be subject to appropriate culture resource studies to ensure compliance with Section 106 of the NHPA. This work will be coordinated the appropriate SHPO(s). As a result, it is the opinion of the NY District that a Memorandum of Agreement or Programmatic Agreement would not be appropriate for the 2025 DMMP Update as a whole. Individual Memorandums of Agreement, or Programmatic Agreements may be produced as the result of either the initiation of a feasibility study or cultural resource studies at the selected placement locations.

In accordance with the NEPA, Section 106 of the National Historic Preservation Act of 1966, as amended (54 USC Section 306108), and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties), the NY District has determined that the planning activities associated with the 2025 Interim DMMP Update will not have an effect on historic properties eligible, or potentially eligible for listing on the NRHP.

7.13 Recreation

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact recreation. Project proponents are responsible for assessing the impacts of their dredged material management activities on recreation. To the extent possible, dredged material should be used to improve public recreational facilities. Management measures like wetland restoration may provide opportunities for wetland stewardship and community engagement while beach nourishment would improve access to activities like sunbathing and swimming. Over the long term, placement for benthic remediation may support fish population health, benefiting recreational fisheries.

7.14 Visual Resources

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact visual resources. Project proponents are responsible for identifying visual resources that may be affected by their dredged material management activities. Visual resources may be temporarily impacted during dredged material management activities by equipment that may block sight lines. Over the long term, dredged material management activities that create features like levees or berms may adversely affect existing visual resources, while others, like benthic remediation, would not have a noticeable effect on viewsheds. Conversely, dredged material placement on beaches and wetlands would have a positive impact on visual resources by protecting, restoring, and enhancing natural beauty and community access. Project proponents should work with communities to determine how their dredged material management activities may impact visual resources and whether mitigation is needed.

7.15 Coastal Zone

7.15.1 Coastal Zone Management Act

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact on the coastal zone subject to the CZMA. Federal coastal consistency review is not required. Project proponents are responsible for ensuring that dredged material management activities comply with the Federal consistency requirements of CZMA. Concurrence from NYSDOS and NJDEP would be required for dredged material management activities occurring in the coastal zone.

7.15.2 Coastal Barrier Resources Act

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact on coastal barrier resources. Consultation with USFWS under CBRA is not required. Project proponents are responsible for ensuring that dredged material management activities comply with the requirements of CBRA, where appropriate.

Consultation with USFWS is generally not required for dredged material management activities occurring within OPAs. The only Federal restriction within OPAs is on Federal flood insurance. Consultation USFWS is generally required for dredged material management activities occurring in System Units. Most new Federal expenditures and financial assistance, including flood insurance, are prohibited within System Units, with certain exceptions. These exceptions are listed in 16 USC 3505(a) (USFWS 2024). Some relevant exemptions include:

- Maintenance or construction of improvements of existing Federal navigation channels (including the Intracoastal Waterway) and related structures (such as jetties), including the placement of dredged materials related to such maintenance or construction. A federal navigation channel or a related structure is an existing channel or structure, respectively, if it was authorized before the date on which the relevant System Unit or portion of the System Unit was included within the CBRS (16 USC 3505(b)).

- Maintenance, replacement, reconstruction, or repair, but not the expansion, of publicly owned or publicly operated roads, structures, and facilities.
- Nonstructural projects for shoreline stabilization that are designed to mimic, enhance, or restore a natural stabilization system.

7.15.3 Other Coastal Protections

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact coastal resources. Coastal permits are not required. Project proponents are responsible for obtaining NYSDEC CEHA permits, NJDEP CAFRA and Waterfront Development Act permits, a New Jersey tidelands instrument, and a NYSOGS license, lease, or permit, as required.

7.16 Hazardous, Toxic, and Radioactive Wastes

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not impact, nor be impacted by, HTRW sites within the Study Area. Project proponents are responsible for reviewing each dredged material placement action and assessing impacts, as well as potential benefits, to and from prospective HTRW sites in the nearby vicinity. Where HTRW sites are present with the potential to impact or be impacted by an action, the project proponent may need to coordinate with local, State, and/or Federal regulatory authorities with jurisdiction over remedial investigation/actions of those HTRW sites related to dredged material placement actions. Dredged material will be required to be tested in accordance with the appropriate placement criteria (e.g. HARS suitability, upland placement, etc.) to determine placement eligibility and suitability from a contaminant concentration perspective relative to protection of human health and the environment prior to placement activities. The use of mitigation measures and/or best management practices may be required to reduce impacts to/from HTRW sites and should be considered as part of the project proponents impact analyses.

7.17 Air Quality and Clean Air Act

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. No emissions will occur. Therefore, the Proposed Action will not impact air quality. Project proponents may be required to coordinate with the NY-NJ Regional Air Team and/or PADEP depending on the scope of their proposed activities and location relative to designated nonattainment and maintenance areas. Project proponents are responsible for conducting general conformity analysis, where appropriate. The use of mitigation measures and offsets may be required to reduce criteria air pollutant emissions to acceptable levels during project implementation.

7.18 Noise and Vibration

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not have an impact with respect to noise and vibration. Project proponents should consider how dredged material management activities could generate noise and vibration and the effect this may have on sensitive receptors. Factors to consider may include the proximity of sensitive receptors, type of receptor, anticipated noise and vibration levels, activity duration, and existing environmental conditions (e.g., ambient noise levels). For some receptors (e.g., rare species), there may be established thresholds for noise and vibration that, if exceeded, could result in an adverse effect. Where appropriate, project proponents should consider mitigation measures to reduce noise and vibration impacts. Mitigation measures could include acoustic and vibratory monitoring, construction timing restrictions, and attenuation measures (e.g., noise barriers).

7.19 Cumulative Effects

The 2025 Interim DMMP Update is a planning activity that will not result in dredging or the placement of dredged material. Therefore, the Proposed Action will not result in cumulative effects. Project proponents should consider other planned projects and activities where appropriate to assess the cumulative effects of their dredged material management actions.

7.20 Irreversible and Irretrievable Commitment of Resources

The 2025 Interim DMMP Update will not result in an irreversible and irretrievable commitment of resources aside from the planning and engineering costs incurred by the preparation of this Integrated Report and SEA. The 2025 DMMP Update does not commit the NY District or project proponents to implementing the management measures discussed in this report. Project proponents that decide to implement any of the dredged material management measures discussed in this report would commit resources to those efforts. Committed resources could include dredging and construction materials, supplies, and their costs; labor; planning and engineering costs; the land that will be used for dredged material management; and funds used for dredged material management. Other committed resources could include water, natural gas, fossil fuels, and electricity used for the implementation of dredged material management measures.

7.21 Impact Avoidance, Minimization, and Mitigation

The 2025 Interim DMMP Update is a planning activity that will not result in construction, dredging, or the placement of dredged material. Therefore, the Proposed Action will not result in resource impacts. No impact avoidance, minimization, or mitigation is proposed. Project proponents are responsible for identifying project level impacts and coordinating with the applicable resource agencies and stakeholders to develop avoidance, minimization, and mitigation measures, where appropriate. Avoidance, minimization, and mitigation measures will vary depending on the dredged material management methods used, as well as placement location and proximity to sensitive resource areas. In many cases, field investigations, such as natural and cultural resource surveys, will be required to properly describe the resources present at a dredged material management site and develop the appropriate avoidance, minimization, and mitigation strategies.

8 ENVIRONMENTAL COMPLIANCE*

The 2025 DMMP Update is an administrative planning activity that recommends an array of dredged material management options that could be implemented by various Federal, State, local, and private projects. For this reason, project proponents are responsible for ensuring that their dredging projects, including placement of dredged material, comply with the applicable environmental requirements. For example, a project proponent would need to obtain CWA permits for a wetland restoration project that uses dredged material. Some of the major environmental requirements applicable to dredged material management activities are presented in Table 8-1 and Table 8-2. Other environmental compliance requirements beyond those listed in Table 8-1 and Table 8-2 may be identified by project proponents as dredged material management activities occur in the future.

Table 8-1. Environmental compliance

Name	U.S.C	Compliance Status
Abandoned Shipwreck Act of 1987	43 USC 2101	N/A
American Bald and Golden Eagle Protection Act of 1962, as amended	16 USC 668	N/A
American Indian Religious Freedom Act of 1978	Public Law No. 95-341, 42 USC 1996	N/A
Anadromous Fish Conservation Act of 1965	16 USC 757a *et seq*.	N/A
Archaeological and Historic Preservation Act of 1974	Public Law 93-291 and 16 USC 469-469c	N/A
Archaeological Resources Protection Act of 1979	16 USC 470aa–470mm	N/A
Clean Air Act of 1972, as amended	42 USC 7401 *et seq.*	N/A
Clean Water Act of 1972, as amended	33 USC 1251 *et seq.*	N/A
Coastal Barrier Resources Act of 1982	Public Law 114-314	N/A
Coastal Zone Management Act of 1972, as amended	16 USC 1451 *et seq.*	N/A
Comprehensive Environmental Response, Compensation, and Liability Act of 1980	42 USC 9601 *et seq.*	N/A
Deepwater Port Act of 1974, as amended	33 USC 1501	N/A
Emergency Wetlands Resources Act	16 USC 3901-3932	N/A
Endangered Species Act of 1973	16 USC 1531	N/A
Estuary Protection Act of 1968	16 USC 1221 *et seq.*	N/A
Fish and Wildlife Coordination Act of 1958, as amended	16 USC 661	N/A
Flood Control Act of 1970	33 USC 549	N/A
Land and Water Conservation Act	16 USC 460	N/A
Magnuson-Stevens Fishery Conservation and Management Act – Essential Fish Habitat Amendment	16 USC 1801	N/A
Marine Mammal Protection Act of 1972, as amended	16 USC 1361	N/A

Name	U.S.C	Compliance Status
Marine Protection, Research, and Sanctuaries Act of 1972	33 USC 1401	N/A
Migratory Bird Conservation Act of 1928, as amended	16 USC 715	N/A
Migratory Bird Treaty Act of 1918, as amended	16 USC 703	N/A
National Environmental Policy Act of 1969, as amended	42 USC 4321 *et seq.*	In Compliance
National Historic Preservation Act of 1966, as amended	54 USC Section 300101	In Compliance
Native American Graves Protection and Repatriation Act of 1990	25 USC 3001	N/A
Noise Control Act of 1972, as amended	42 USC 4901	N/A
Resource Conservation and Recovery Act of 1976	42 USC 6901 *et seq.*	N/A
Rivers and Harbors Act of 1888, Section 11	33 USC 608	
Rivers and Harbors Act of 1899	33 USC 401 *et seq.*	N/A
Safe Drinking Water Act of 1974, as amended	42 USC 300	N/A
Submerged Lands Act of 1953	43 USC 1301 *et seq.*	N/A
Toxic Substances Control Act of 1976	15 USC 2601	N/A

Table 8-2. EOs and compliance status

Title	Number	Compliance Status
Protection and Enhancement of Environmental Quality	11514/11911	N/A
Protection and Enhancement of the Cultural Environment	11593	N/A
Floodplain Management	11988	N/A
Protection of Wetlands	11990	N/A
Federal Compliance with Pollution Control Standards	12088	N/A
Offshore Oil Spill Pollution	12123	N/A
Federal Compliance with Right-to-Know Laws and Pollution Prevention	12856	N/A
Protection of Children from Environmental Health Risks and Safety Risks	13054	N/A
Invasive Species	13112	N/A
Marine Protected Areas	13158	N/A
Consultation and Coordination with Indian Tribal Governments	13175	In Compliance
Responsibilities of Federal Agencies to Protect Migratory Birds	13186	N/A

Title	Number	Compliance Status
Facilitation of Cooperative Conservation	13352	N/A

8.1 List of Preparers*

The team members listed below provided substantial text and expertise in the preparation of this Integrated Report and SEA (Table 8-3).

Table 8-3. List of Preparers

Name	Contribution	Affiliation
Cheryl Alkemeyer	Hazardous, Toxic, and Radioactive Waste Specialist / Environmental Analysis	USACE
Ryan Constantine	Archaeologist / Environmental Analysis	USACE
Fiona Dunn	Environmental Engineer / Operations	USACE
Arsheen Ehtesham	Geologist / Operations	USACE
Tiffani Lee	Biologist / Operations	USACE
Michael Martello	Plan Formulator / Ph.D. Civil and Environmental Engineering / Professional Engineer (New York)	USACE
Eric Pasay	Biologist / Environmental Analysis	USACE
Andrew Seaman	Hydrologist / Plan Formulation	USACE
Kelly Vega	Chief of Dredged Material Management Section / Operations	USACE

9 Conclusion

The 2025 DMMP Update is a planning activity that provides an array of dredged material management measures that could be implemented by various Federal, State, local, and private projects. No construction, dredging, or dredged material management is recommended. The 2025 DMMP Update does not commit the NY District to a decision regarding the uses of resources or the location of a project. For these reasons, the NY District determined that the Proposed Action will have no effect on the environmental resources present in the Study Area. As a result, no impact avoidance, mitigation, or minimization is required. Project proponents are responsible for complying with the applicable environmental requirements, including but not limited to NEPA, for dredged material management activities occurring in the future. There will be additional opportunities for environmental coordination as dredged material management activities occur in the future.

This 2025 DMMP Update reaffirms that given existing permitted placement locations, there remains sufficient dredged material placement capacity for the forecasted placement demand over the five-year period of analysis (2025-2029). Dredged material placement demand and capacity were analyzed for three main material types: material suitable for placement at the HARS (inclusive of silt, non-beach quality sand, and rock), beach quality sand, and non-HARS suitable material (also referred to as upland material within the report). There is an estimated 27.2 million cubic yards (MCY) of capacity for HARS suitable material (silt, sand, and rock), sufficient for placement of the expected 13.5 MCY of expected dredged material placement demand. Similarly, there is an estimated 25.1 MCY of capacity for beach quality sand, which is more than sufficient for the forecasted 4.4 MCY of placement demand expected over the five-year period of analysis. Across all identified upland placement sites, there is an estimated 17.6 MCY of placement capacity, sufficient for the 3.4 MCY of expected placement demand through 2029.

Pursuant to ER 1105-2-103, the 2025 DMMP Update identified a base plan, consisting of placement at the Federal Standard management measure. The Federal Standard (33 CFR 335.7) is the least costly dredged material placement location that is consistent with sound engineering practices and established environmental standards. A Harbor-wide, non-project specific Federal Standard was identified for the three main material types (HARS-suitable, beach quality sand, and non-HARS suitable material). The following management measures were identified as the Federal Standard: Benthic Remediation (for HARS-suitable material), borrow area placement (for beach quality sand), and structural fill placement (for non-HARS suitable material). Though these management measures are identified as the Harbor-wide Federal Standard, the Federal Standard should be evaluated on a project-specific basis prior to bid solicitation, given suitable placement options anticipated to be available at the time of dredging.

Though sufficient capacity is available for the five-year period of analysis considered during this 2025 DMMP Update, pursuant to ER 1105-2-103, a subsequent DMMP update will be required to ensure the Port retains sufficient placement capacity beyond the next five years. The analysis, conclusions, and recommendations provided in this Integrated Report and SEA will inform the next DMMP update. The NY District is committed to ensuring that the Port continues to operate with sufficient dredged material placement capacity to support all necessary operations, maintenance, and improvement efforts.

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