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

March 4, 2020

Ms. Jennifer Anderson
NOAA's National Marine Fisheries Service
Protected Resources Division
55 Great Republic Drive
Gloucester, Massachusetts 01930

Dear Ms. Anderson,

The U.S. Army Corps of Engineers (Corps), New England District, has initiated informal consultation under Section 7 of the Endangered Species Act of 1973 (ESA) as amended with National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), Protected Resource Division (PRD) for the continued use of these 13 open-water disposal sites, which are located in waters off the coasts of Maine, Massachusetts, and Rhode Island, for dredged material disposal:

Mark Island Disposal Site (MIDS)
Tupper Ledge Disposal Site (TLDS)
Eastern Passage Disposal Site (EPDS)
Rockland Disposal Site (RDS)
Muscongus Bay Disposal Site (MuBDS)
Portland Disposal Site (PDS)
Saco Bay Disposal Site (SBDS)
Cape Arundel Disposal Site (CADS)
Ipswich Bay Nearshore Disposal Site (IBNDS)
Gloucester Historic Disposal Site (GHDS)
Massachusetts Bay Disposal Site (MBDS)
Cape Cod Bay Disposal Site (CCBDS)
Rhode Island Sound Disposal Site (RISDS)

In addition, we have initiated Section 7 consultation for nearshore or open-water disposal sites off of the coasts of Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island and that may be identified, selected or designated for use in the future.

We have determined that continued use of these disposal sites may affect, but are not likely to adversely affect, any species listed as threatened or endangered by NMFS under the ESA and will not affect North Atlantic right whale (NARW) or Atlantic salmon critical habitat under the ESA. We request that you concur with our determination. This consultation will obviate the need to initiate an individual Section 7 consultation for each project using these disposal sites provided that NMFS verifies that the project is not likely to adversely affect listed species or critical habitat under NMFS jurisdiction. Our supporting analysis is provided on the following pages.

Please contact Mr. Greg Penta, Corps, at (978) 318-8862 if you have any questions.

Tammy Turley

Tammy R. Turley
Chief, Regulatory Division

Enclosure

cc:

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Supporting Analysis for the Informal Section 7 Consultation for the Use of Nearshore or Open-Water Disposal Sites off of the Coasts of Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island

1. Proposed Project

This informal consultation pertains to the transportation of dredged material to; its subsequent disposal at; and the transportation of vessels returning from, the following 13 open-water disposal sites: MIDS, TLDS, EPDS, RDS, MuBDS, PDS, SBDS, CADS, IBNDS, GHDS, MBDS, CCBDS, and RISDS (Figure 1). This consultation will obviate the need to conduct an individual Section 7 consultation for each project that transports dredged material to, disposes of dredged material at, and involves vessels returning from, these sites. The PDS, MBDS and RISDS comprise three of the six open-water disposal sites in New England that were formally-designated by EPA under Section 102 of the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972 and these sites are used frequently for disposal. Disposal at MIDS, TLDS, EPDS, RDS, MuBDS, SBDS, CADS, IBNDS, GHDS, and CCBDS is regulated by the states, EPA and the Corps under Section 404 of the Clean Water Act (CWA) and/or the MPRSA. These sites are infrequently used, but are included in this consultation due to anticipated near-future use by the Corps New England District for dredged material disposal from Corps Federal navigation projects.

Figure 1. 13 dredged material disposal sites considered in this consultation and 3-mile limit

The dredged material to be disposed of at these sites results from private, commercial, and Federal (e.g., U.S. Navy bases) and non-Federal government dredge projects that are authorized by the Corps Regulatory Division. The dredged material also results from Federal projects that are conducted by the Corps to conduct maintenance and improvement dredging of Federal navigation projects. This consultation does not involve effects from the associated dredge activities, as the Corps will coordinate these activities with NMFS PRD though individual consultations, programmatic consultations, and/or established procedures as applicable.

Maintenance and occasional improvement of adequate navigation project dimensions at marine terminals, port facilities, and private marinas in New England is vital to the economics of the region's five coastal states. Both commercial and recreational industries in these states rely on the utility of such areas. To ensure continued use, economic viability and safety of the region's navigational channels and navigation-dependent facilities, periodic dredging must be performed to remove accumulated sediment.

Under Section 103 of MPRSA, the Corps is assigned permitting responsibility for the transportation of dredged material for the purpose of disposal in the ocean seaward of the territorial sea baseline, subject to EPA review and concurrence that the material meets applicable ocean disposal criteria. The Corps is required to use EPA designated open-water disposal sites for dredged material disposal to the maximum extent feasible, but may also use sites identified or selected by the Corps under Section 103. Disposal at the EPA designated sites (PDS, MBDS, and RISDS) is regulated under the MPRSA. The limit of jurisdiction under MPRSA extends seaward from the baseline from which the territorial sea is measured. Disposal at MIDS, CADS, IBNDS, and the eastern half of the GHDS is also regulated under MPRSA. Monitoring and management of these sites is the joint responsibility of the EPA and the Corps.

Under Section 404 of the CWA, the Corps is assigned permitting responsibility for dredged material disposal, subject to EPA review, and subject to demonstration that the material meets applicable ocean disposal criteria. Disposal at the MIDS, TLDS, EPDS, RDS, MuBDS, SBDS, CADS, IBNDS, the eastern and western half of the GHDS, and CCBDS is regulated under Section 404 of the CWA. The limit of jurisdiction under Section 404 is measured from the high tide line in a seaward direction to the three mile limit. Monitoring and management of these sites is the responsibility of the New England District Corps Disposal Area Monitoring System (DAMOS) Program.

This consultation addresses the use of 13 sites. However, it also addresses the use of other existing sites or future proposed sites. These include nearshore disposal sites that may be identified or selected by the Corps, or open-water disposal sites that may be identified or selected by the Corps or designated by the EPA. Nearshore disposal sites consist of submerged bars and berms generally built parallel to the shoreline, nourish (or feed) the beach and increase the volume of sand in the system, and are regulated under the CWA, or the CWA and MPRSA. Open-water disposal sites are generally large (one or more square nautical miles) sites in deep water of sufficient capacity to accommodate placement, and are regulated under the CWA and/or MPRSA. Material at nearshore or open-water disposal sites is typically disposed of from hopper dredges or scows.

Provided that the 13 disposal sites or the other unlisted historic sites or future sites abide by the appropriate group of conditions (depending on the disposal site location and timing of disposal) and the total number of annual vessel trips for a project does not exceed 2000 trips per year, which is the predicted number of round trips that will be made to MBDS in one year from the current Boston Harbor Deep Draft Navigation Project, they will be covered by this consultation.

2. Consultation History

The Corps conducts Section 7 consultation for open-water disposal sites selected under MPRSA (CADS, IBNDS and eastern half of GHDS), and for those identified and regulated under Section 404 of the CWA (MIDS, TLDS, EPDS, RDS, MuBDS, SBDS, the western half of GHDS, and CCBDS). Historically, the Section 7 consultations conducted by EPA for PDS, MBDS, and RISDS were completed as part of the Site Management and Monitoring Plans (SMMPs) that are prepared when the disposal sites are initially designated and then every ten years pursuant to the MPRSA.

Provided below is information on recent Section 7 consultations for the 13 disposal sites considered in this document, and for reference we are providing the consultation history for the other New England disposal sites.

Other Disposal Sites:

The EPA recently reinitiated and completed Section 7 consultation for the three Long Island Sound disposal sites (Eastern, Central, and Western) when the SMMPs for these areas were completed in 2016. The consultations for the three Long Island Sound disposal sites are up to date and obviate the need to conduct an individual Section 7 consultation for each disposal project. Consultations for the remaining New England disposal sites have been done on a project-by-project basis.

Disposal Sites Considered in this Consultation:

Mark Island Disposal Site

In July 2015, the Corps finalized the document titled, “Final Environmental Assessment, Finding of No Significant Impact, and Clean Water Act Section 404(b)(1) Evaluation, Beals Harbor and Pig Island Gut Federal Navigation Project Maintenance Dredging Beals, Maine”, for disposal at the MIDS. The Corps concluded, “Humpback whales, fin whales, right whales, leatherback turtles, and harbor seals are not likely to be adversely impacted by disposal activities as they prefer deeper water than those at the MIDS. Therefore, no significant impacts will occur to threatened or endangered species in the area”. In a letter dated May 29, 2015, NMFS-PRD wrote:

> “We have completed an Endangered Species Act (ESA) section 7 consultation in response to your letter received April 29, 2015, and concur with your determination that the proposed project is not likely to adversely affect listed Atlantic sturgeon. In a letter dated August 10, 2010, we previously concluded that the proposed project was not likely adversely affect

listed Atlantic salmon, designated critical habitat for Atlantic salmon, or shortnose sturgeon. Due to delays in securing funding, the activity considered in our August 10, 2010 letter of concurrence (LOC) has not begun. It is now scheduled to occur in 2015."

The letter also stated, "As the status of Atlantic salmon and shortnose sturgeon have not changed, and the proposed project has not changed, our determination in the August 10, 2010 letter remains valid for Atlantic salmon, shortnose sturgeon, and critical habitat designated for Atlantic salmon."

Tupper Ledge Disposal Site

No disposal activity has occurred at TLDS since April 2003. There are no records of Section 7 consultations for this site.

Eastern Passage Disposal Site

The report titled, "Section 107 Navigation Improvement Study Feasibility Report and Environmental Assessment Finding of No Significant Impact and Section 404(b)(1) Evaluation for Improvement and Maintenance Dredging", dated July 2006 and revised September 2006, stated:

"Coordination with NMFS and USFWS has determined that humpback whales, fin whales, right whales, and harbor seals are not likely to be adversely impacted by disposal activities. Although these species may occur in the area, marine mammal observers will be required to be present during disposal events to avoid impacts. Therefore, no significant impacts will occur to threatened or endangered species in the area."

Rockland Disposal Site

In the past, Atlantic salmon was considered at the RDS as it was identified by NMFS and the U.S. Fish and Wildlife Service (USFWS) as an endangered species which required adequate protection during project operations. An environmental assessment (EA) for Rockland Harbor Dredging prepared by the Corps in 2001 stated, "A distinct population segment (DPS) of Atlantic salmon is known to be hosted by two Penobscot Bay tributaries, Cove Brook and the Ducktrap River." While dredging operations in Rockland Harbor was not an issue in this regard there was concern by NMFS and USFWS about potential impacts to Atlantic salmon due to disposal operations at RDS. Both NMFS and USFWS recommended a dredging window of 16 Oct - 15 April for this project to ensure minimal impact from dredging and disposal operations on the Atlantic salmon.

Muscongus Bay Disposal Site

No disposal activity has occurred at MuBDS since March 1966. There are no records of Section 7 consultations for this site.

Portland Disposal Site

A consultation for the PDS was completed in October 2007 when the EPA updated its SMMP in which the effects on endangered species were analyzed and it was concluded that the use of the PDS is not likely to adversely impact threatened or endangered species listed under either the state or federal programs.

The latest consultation for PDS was for the maintenance dredging of the Cape Porpoise Harbor Federal Navigation Project in Kennebunkport, Maine. The Corps submitted a biological assessment on October 3, 2018, that concluded that the disposal at PDS was not likely to adversely affect sea turtles, sturgeon, whales, and North Atlantic right whale critical habitat. NMFS submitted a letter concurring with this determination on October 23, 2018.

Saco Bay Disposal Site

It appears that no Section 7 consultations were done for disposal at SBDS as disposal has not occurred here since January-May 1989. At this time, there is a draft "Environmental Assessment, Finding of No Significant Impact and Section 404(b)(1) Evaluation for Maintenance Dredging; Wood Island Harbor and the Pool at Biddeford; Biddeford, Maine", and this includes a Section 7 consultation for endangered and threatened species and critical habitat.

Cape Arundel Disposal Site

A Section 7 consultation was conducted for Corps Regulatory projects NAE-2015-00028, NAE-2008-01060, and NAE-2006-03349 for maintenance dredging in the Kennebunk River and York Harbor with disposal at CADS. The Corps concluded (letter dated February 6, 2018) and NMFS concurred (letter dated February 12, 2018) with clarifications that, "Based on these proposed special conditions, the Corps has determined that the above referenced project is not likely to adversely affect ESA-listed species and will not affect any ESA-designated critical habitat." An EA for dredging the Kennebunk River Federal Navigation Project, dated January 2014, stated, "This project will not adversely affect any State or Federally-listed threatened or endangered species. Although Atlantic sturgeons may be present in the project area, impacts to the species are not likely to occur due to the fact that the species is mobile and will be able to avoid the dredge. Coordination with the appropriate State and Federal agencies was conducted to ensure that the requirements of the Endangered Species Act were met. In letters dated November 20, 2013 and December 18, 2013, NMFS and the USFWS agreed with our conclusion that the project will not adversely affect any threatened or endangered species."

The latest consultation for CADS was for the maintenance dredging of the Cape Porpoise Harbor Federal Navigation Project in Kennebunkport, Maine. The Corps submitted a biological assessment on October 3, 2018 that concluded that the disposal at CADS was not likely to adversely affect sea turtles, sturgeon, and whales. The NMFS submitted a letter concurring with this determination on October 23, 2018.

Ipswich Bay Nearshore Disposal Site

A consultation for IBNDS was conducted for the maintenance dredging of the Annisquam River Federal Navigation Project in Gloucester, Massachusetts. The Corps submitted a biological assessment on January 18, 2019, which concluded that the disposal at IBNDS was not likely to adversely affect sea turtles, sturgeon, and whales and will have no effect on north Atlantic right whale critical habitat. The NMFS submitted a letter concurring with this determination on February 25, 2019.

Gloucester Historic Disposal Site

A consultation for GHDS was for the maintenance dredging of the Annisquam River Federal Navigation Project in Gloucester, Massachusetts. The Corps submitted a biological assessment on January 18, 2019, which concluded that the disposal at GHDS was not likely to adversely affect sea turtles, sturgeon, and whales, and will have no effect on designated north Atlantic right whale critical habitat. The NMFS submitted a letter concurring with this determination on February 25, 2019.

Massachusetts Bay Disposal Site

Consultation pursuant to Section 7 of the ESA of 1973, as amended, regarding the designation of the MBDS was concluded between EPA and NMFS PRD with the issuance of a Biological Opinion (Opinion) by NMFS PRD on November 7, 1991. In this Opinion, NMFS concluded that the designation of MBDS was not likely to adversely affect the following species: blue whales, Kemp's ridley sea turtles, loggerhead sea turtles, and shortnose sturgeon. In the Opinion, NMFS concluded that the designation of MBDS was likely to adversely affect but not likely to jeopardize the continued existence of humpback whales, northern right whales, fin whales, sei whales, and leatherback sea turtles. This Opinion was amended on July 12, 1999, to incorporate new special conditions. A Section 7 consultation on the previous SMMP was completed on January 16, 1997, with NMFS concurring with EPA's determination that the SMMP was not likely to adversely affect any species listed by NMFS as threatened or endangered.

In response to a November 9, 2009 letter regarding the EPA's proposed approval of the October 2009 MBDS SMMP, in a March 7, 2011 letter NMFS PRD wrote, "Based on the analysis that any effects to listed sea turtle or whales species will be insignificant or discountable, NMFS is able to concur with the determination that the SMMP proposed by the EPA is not likely to adversely affect any listed species under NMFS jurisdiction. Therefore, no further consultation pursuant to section 7 of the ESA is required." Regarding Atlantic sturgeon, NMFS PRD wrote, "effects to Atlantic sturgeon from the proposed action are unlikely to occur." On June 14, 2018, the Corps coordinated the Plymouth Harbor FNP maintenance dredging project with NMFS PRD. On July 3, 2018, NMFS PRD concurred with the Corps determination that the project was not likely to adversely affect any NMFS ESA-listed species or designated critical habitat. Special conditions for the use of MBDS included those noted for the Massachusetts Bay Disposal Site in Section 3 of this letter. On July 11, 2018, the Corps coordinated the Brewer Plymouth Marine maintenance dredging project with NMFS PRD. On

July 19, 2018, NMFS PRD concurred with the Corps determination that the project was not likely to adversely affect any NMFS ESA-listed species or designated critical habitat.

Cape Cod Bay Disposal Site

The NMFS received a request for consultation from the Corps on December 27, 2013, regarding ongoing dredging for the North River Marina with disposal at the CCBDS. The NMFS responded on January 15, 2014, concurring with the Corps that the effects of the associated disposal of dredged material were not likely to adversely affect any listed species under NMFS jurisdiction.

The Corps and NMFS reinitiated and completed Section 7 consultation for the CCBDS on September 22, 2016 to consider the effects of the project for ESA-listed Atlantic sturgeon and the revised critical habitat for the NARW. The NMFS concurred with the Corps conclusion that the proposed action was not likely to adversely affect NMFS ESA-listed species. That consultation is up to date, but NMFS has expressed concern that the conservation measures specified therein require updates to ensure adequate protection for the NARW. Therefore, we are reinitiating consultation for the CCBDS herein.

Rhode Island Sound Disposal Site

Consultation pursuant to Section 7 of the ESA of 1973, as amended, regarding the designation of the RISDS was conducted when the RISDS was designated in 2004. The SMMP stated, "EPA obtained concurrence for the RIS Disposal Site from the National Marine Fisheries Service (NMFS) and the USFWS regarding an Endangered Species Act Section 7. The NMFS and USFWS concurrence confirmed that the selection of RISDS will not adversely affect threatened or endangered species or adversely modify critical habitat." The EPA and Corps are currently working on updating the SMMP.

3. Conservation Measures and Procedures

Based on the designated critical habitat and the expected species presence in each of the 13 disposal sites (see Table 1), we have identified three different groups of special conditions as specified below. The Group A special conditions address disposal sites in NARW CH and also include RISDS as right whales may be present. For projects proposing to use nearshore or other open-water disposal sites off of the coast of Maine, New Hampshire, Massachusetts, Rhode Island and Connecticut, on a case-by-case basis the Corps will email or call NMFS, NMFS will recommend the appropriate special conditions below, and the Corps will submit a verification form with the special conditions included. We will use the verification form specified in the April 2017 "GARFO-PRD USACE-NAD 2017 NLAA Program: Programmatic Consultation," but this form may change as directed by NMFS. Section 4 of the verification form, "Justification for Review under the 2017 NLAA Program," allows the Corps to propose changes to the special conditions listed below provided that we can "provide justification and/or special conditions to demonstrate why the project still meets the NLAA determination and is consistent with the aggregate effects considered in the programmatic consultation."

	MIDS	TLDS	EPDS	RDS	MuBDS	PDS	SBDS	CADS	IBNDS	GHDS	MBDS	CCBDS	RISDS
NARW/ Fin whale						✓			✓	✓	✓	✓	✓
NARW CH						✓			✓	✓	✓	✓	
Sea turtles (4 species)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Atlantic sturgeon	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shortnose sturgeon	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Atlantic salmon	✓	✓	✓	✓	✓								
Atlantic salmon CH		✓											

Table 1. Species and critical habitat presence in each of the disposal sites.

Group A Special Conditions: Disposal sites and/or vessel routes overlapping with whales, sea turtles, and fish (PDS, IBNDS, GHDS, MBDS, CCBDS, and RISDS):

For PDS, IBNDS, GHDS, MBDS and RISDS use this as #1:

1. Year-round, disposal vessels including tugs, barges, and scows transiting between the dredge site and the disposal site shall operate at speeds not to exceed 10 knots. For unanticipated conditions, a vessel may operate at a speed necessary to maintain safe maneuvering speed instead of the required 10 knots. The intent of this condition is to reduce the potential for vessel collisions with endangered turtles, fish, and whales.

For CCBDS use this as #1:

1. Disposal of dredged material at the Cape Cod Bay Disposal Site (CCBDS) shall not occur between January 1 and May 15, of any year, in order to protect right whales. Disposal vessels including tugs, barges, and scows transiting between the dredge site and the disposal site shall operate at speeds not to exceed 10 knots. For unanticipated conditions, a vessel may operate at a speed necessary to maintain safe maneuvering speed instead of the required 10 knots. The intent of this condition is to reduce the potential for vessel collisions with endangered turtles, fish, and whales.

For PDS, IBNDS, GHDS, MBDS, CCBDS and RISDS, follow #1 with these:

2. A marine mammal/turtle observer with written approval from the National Marine Fisheries Service (NMFS) (https://www.fisheries.noaa.gov/new-england-mid-atlantic/careers-and-opportunities/protected-species-observers), hereafter referred to as the "endangered species observer", and contracted and paid for by the [**CORPS PM, CHOOSE ONE**: permittee or

contractor], must be present aboard disposal vessels for transportation and disposal activities to and from the disposal site. The name of the endangered species observer must be recorded in the logbook and is required to be on lookout for marine mammals and sea turtles for the duration of the trip.

3. The captain or endangered species observer shall:

a. Check communication media for the latest information regarding North Atlantic right whale sighting locations. These media may include, but are not limited to, the Whale Alert app (https://www.fisheries.noaa.gov/resource/tool-app/whale-alert-smartphone-app), https://portal.nrwbuoys.org/ab/dash/ or https://www.nefsc.noaa.gov/psb/surveys. Check communication media before the initial disposal operation to determine the potential presence of whales in the area; and

b. Lookout for turtles and whales and advise the captain of turtle or whale sightings.

c. Report any interactions (i.e., vessel strikes, captures, etc.) with any ESA-listed species as soon as possible (within 24-hours) to the NMFS Marine Animal Response Hotline at (866) 755-NOAA or USCG via CH-16 and immediately report any injured or dead marine mammals or sea turtles to NMFS at (866) 755-NOAA.

d. Every three months after the initial dredge action for as long as the dredging and disposal continues and at the end of a disposal operation, submit a report by email to [**CORPS PM, CHOOSE ONE**: cenae-r@usace.army.mil or cenae-nav@usace.army.mil], [**INSERT CORPS PLANNING PROJECT BIOLOGIST EMAIL**], and incidental.take@noaa.gov, summarizing the vessel route taken, number of trips, sightings of ESA-listed species, and any action taken to avoid interactions with ESA-listed species.

4. The vessel captain shall:

a. Lookout for turtles and whales; and

b. Avoid transit and disposal when visibility is lessened (e.g., at night, fog) to an extent that would preclude an endangered species observer from spotting a whale within 1,500 feet or a sea turtle within 600 feet. Disposal shall not be permitted if these requirements cannot be met due to weather or sea conditions. In that regard, the permittee and contractor should be aware of predicted conditions before departing for the disposal site. The intent of this condition is to reduce the potential for vessel collisions with endangered species, including right whales.

c. Avoid harassment of or direct impact to turtles and whales except when precluded by safety considerations; and

d. Ensure that the disposal vessel adheres to the enclosed NMFS regulations for approaching right whales, 50 CFR 224.103(c), which restrict approaches within 1,500 feet (500 yards) of a right whale and specify avoidance measures for vessels that encounter right whales; and

e. Ensure that dredged material is not released if whales are within 1,500 feet or turtles are within 600 feet of the specified disposal point. The captain must check in with the endangered species observer prior to releasing the dredged material. If whales or turtles are within these distances and appear to be moving away from the specified disposal point, within these distances and appear to be remaining stationary, or outside these distances but appear to be moving towards the specified disposal point, the vessel captain shall wait until they have cleared

the specified disposal point by these distances and are not moving towards it, and then proceed with disposal at the specified disposal point.

Group B Special Conditions: Disposal sites and or vessel routes overlapping with sea turtles and fish where disposal will occur from November 8 – April 9 (MIDS, TLDS, EPDS, RDS, MuBDS, SBDS, and CADS):

1. Disposal vessels including tugs, barges, and scows transiting between the dredge site and the disposal site shall operate at speeds not to exceed 10 knots. For unanticipated conditions, a vessel may operate at a speed necessary to maintain safe maneuvering speed instead of the required 10 knots. The intent of this condition is to reduce the potential for vessel collisions with endangered turtles and fish.

2. At the end of a disposal operation, submit a report by email to [**CORPS PM, CHOOSE ONE**: cenae-r@usace.army.mil or cenae-nav@usace.army.mil] and incidental.take@noaa.gov summarizing the vessel route taken, number of trips, sightings of ESA-listed species, and any action taken to avoid interactions with ESA-listed species.

Group C Special Conditions: Disposal sites and or vessel routes overlapping with sea turtles and fish where disposal will occur from April 10 – November 7 (MIDS, TLDS, EPDS, RDS, MuBDS, SBDS, and CADS):

1. Disposal vessels including tugs, barges, and scows transiting between the dredge site and the disposal site shall operate at speeds not to exceed 10 knots. For unanticipated conditions, a vessel may operate at a speed necessary to maintain safe maneuvering speed instead of the required 10 knots. The intent of this condition is to reduce the potential for vessel collisions with endangered turtles and fish.

2. A marine mammal/turtle observer with written approval from the National Marine Fisheries Service (NMFS) (https://www.fisheries.noaa.gov/new-england-mid-atlantic/careers-and-opportunities/protected-species-observers), hereafter referred to as the "endangered species observer", and contracted and paid for by the [**CORPS PM, CHOOSE ONE:** permittee or contractor], must be present aboard disposal vessels for transportation and disposal activities to and from the disposal site. Or, in lieu of a NMFS-approved endangered species observer, the disposal vessel operator can assign a crewmember to be the designated lookout for that trip. The name of the endangered species observer or designated lookout must be recorded in the logbook and is required to be on lookout for sea turtles for the duration of the trip.

3. The captain, endangered species observer or designated lookout shall:

a. Report any interactions with listed species as soon as possible (within 24-hours) to the NMFS Marine Animal Response Hotline at (866) 755-NOAA or USCG via CH-16 and immediately report any injured or dead marine mammals or sea turtles to NMFS at (866) 755-NOAA.

b. At the end of a disposal operation, submit a report by email to [CORPS PM, CHOOSE ONE: cenae-r@usace.army.mil or cenae-nav@usace.army.mil] and incidental.take@noaa.gov summarizing the vessel route taken, number of trips, sightings of ESA-listed species, and any action taken to avoid interactions with ESA-listed species.

4. The vessel captain shall:
    a. Lookout for turtles at all times; and
    b. Avoid transit and disposal when visibility is lessened (e.g., at night, fog) to an extent that would preclude an endangered species observer from spotting a sea turtle within 600 feet. Disposal shall not be permitted if these requirements cannot be met due to weather or sea conditions. In that regard, the permittee and contractor should be aware of predicted conditions before departing for the disposal site. The intent of this condition is to reduce the potential for vessel collisions with endangered species; and
    c. Avoid harassment of or direct impact to turtles except when precluded by safety considerations; and
    d. Ensure that dredged material is not released if turtles are within 600 feet of the specified disposal point. The captain must check in with observer or designated lookout prior to releasing the dredged material. If turtles are within these distances and appear to be moving away from the specified disposal point, within these distances and appear to be remaining stationary, or outside these distances but appear to be moving towards the specified disposal point, the vessel captain shall wait until they have cleared the specified disposal point by these distances and are not moving towards it, and then proceed with disposal at the specified disposal point.

4. Description of the Action Area

The action area includes the footprint of the 13 disposal sites, the extent of turbidity plumes created from open water disposal (1,981 meters), and the routes travelled by the barges between the dredge sites to the disposal site and back. These areas are expected to encompass all of the direct and indirect effects of the proposed action. All disposal operations (opening of scow, release of material, closing of scow) takes place within the boundaries of the disposal site. In a given dredging season, placement of material is generally targeted to a specific area of the overall site to minimize benthic impacts and better manage the site. Water column monitoring has shown that measureable elevations of suspended solids are limited in extent and duration and do not extend significantly beyond the boundaries of the disposal site.

Mark Island Disposal Site

The MIDS is a small (500 × 500 meter) (1,640 x 1,640 feet) site that is situated in the mouth of Chandler Bay, east of Mark Island and 6.2 km (3.3 nautical miles [nmi]) from Jonesport in eastern Maine. The existing MIDS boundary is centered at 44.5283 N, -67.5178 W (NAD 83).

The MIDS is an infrequently used dredged material disposal site. In the winter of 2016-2017, a dredge event in Beals Harbor and Pig Island Gut disposed of 119,000 yd^3 of dredged material at MIDS. 7,000 yd^3 of dredged material from the U.S. Coast Guard (USCG) Base in Jonesport, Maine was placed at MIDS during the 2011/2012 dredging season. This site was investigated in the winter of 2000 for the potential intermittent use for disposal of small volumes of sediment to be dredged from various marine facilities in Moosabec Reach and other nearby harbors.

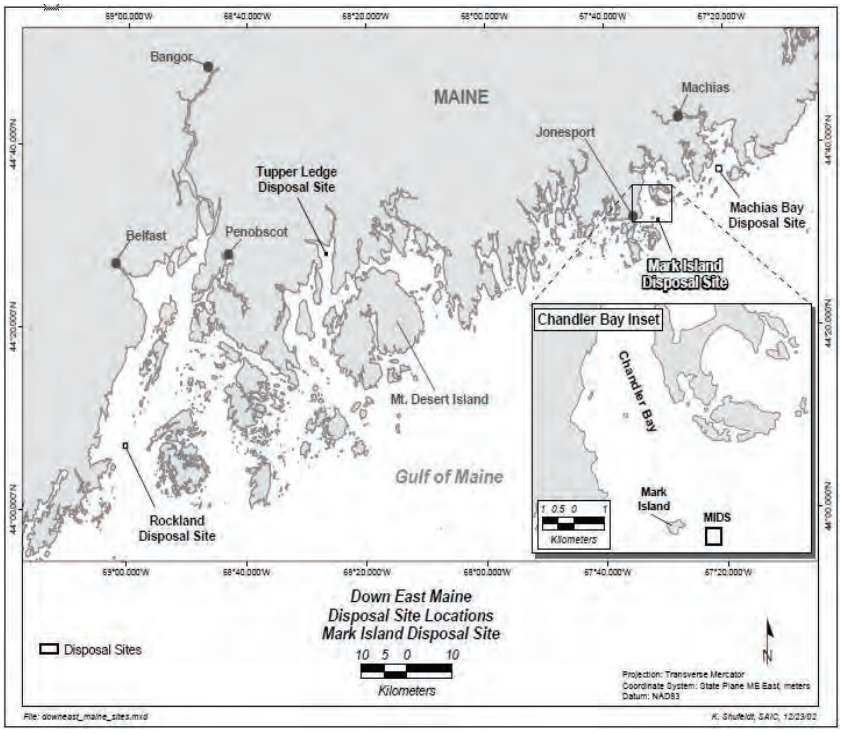

Figure 2. Map of the Mark Island Disposal Site

Approximately 5,620 yd^3 of dredged material were disposed of at MIDS from the USCG Base in Jonesport, Maine in the winter of 2001-2002. Prior to this dredge event, the site was last used for disposal of material dredged from Pig Island Gut in 1966.

Tupper Ledge Disposal Site

The TLDS is a 500 x 500 meter (1,640 x 1,640 feet) area in the waters of mid-coastal Maine. It's located in Union River Bay, approximately 5 km south of Ellsworth, Maine. According to the June 2007 "Monitoring Survey at the Tupper Ledge Disposal Site Union River Bay, Maine, July/September 2005", the coordinates for TLDS (NAD83) are: Center: 44.4692 N, -68.4469 W; NW: 44.4714 N, -68.4501 W; SW: 44.4669 N, -68.4501 W; SE: 44.4669 N, -68.4438 W; NE: 44.4714 N, -68.4438 W.

The TLDS is an infrequently used dredged material disposal site. It was selected as a disposal site in 2000 to accommodate small to moderate volumes of sediment removed from the Union River. From January to April 2001, approximately 65,398 yd^3 of dredged material from the Union River Federal Navigation Channel project was placed at TLDS, forming Mound A (SAIC 2002). Disposal activity between December 2001 and April 2003 from the Federal Navigation Project and the city of Ellsworth, resulted in the placement of approximately 61,474 yd^3 of material from the Union River, to form Mound B. Prior to these dredge events, it's believed that the previous disposal event occurred in 1911.

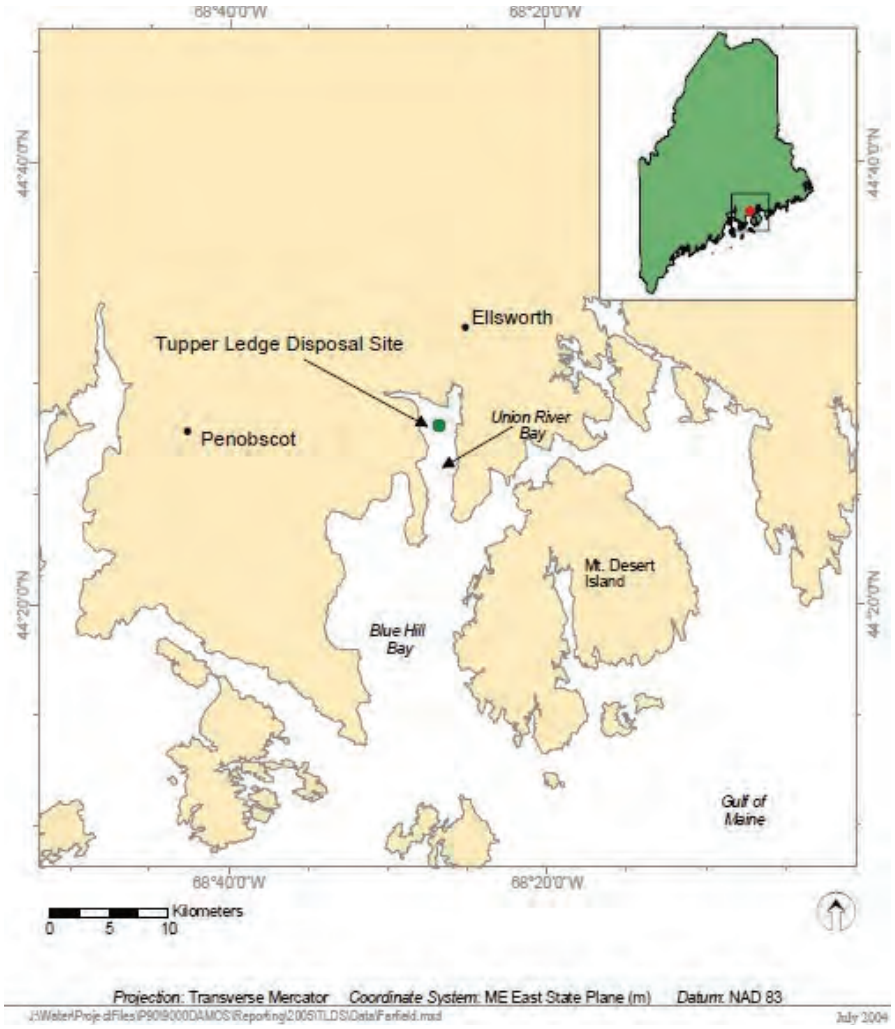

Figure 3. Map of the Tupper Ledge Disposal Site.

Eastern Passage Disposal Site

The EPDS is a 610-m (2001-ft) diameter circle located just west of Tremont, Maine in the waters of mid-coastal Maine with its center 1.3 km (0.81 mi) from Dodge Point and centered at 44.2673667 N and -68.4332667 W (NAD 83). These coordinates are based upon the map following "Section 00 80 00" of the Corps document titled, "W912WJ-10-B-0004; Maintenance Dredging, 6-Foot and 10-Foot Anchorages and Improvement Dredging, 6-Foot and 8-Foot Anchorages; Bass Harbor, Tremont, Maine; Construction Solicitation and Specifications" (dated January 2010). The EPDS is an infrequently used, newer dredged material disposal site. The only known disposal from Corps projects occurred from October 2010 to April 2011 when a Corps Civil Works project disposed of approximately 68,223 yd^3 of dredged material from Bass Harbor maintenance and improvement projects was placed at EPDS.

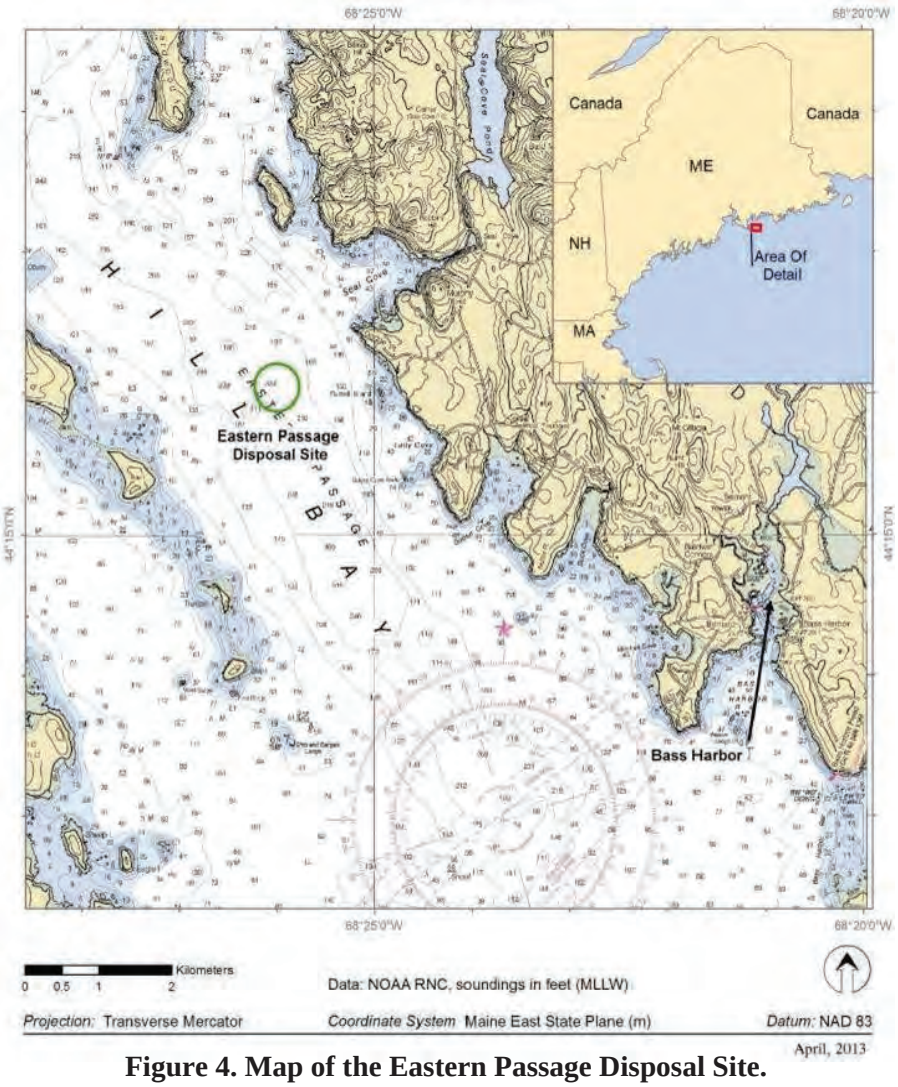

Figure 4. Map of the Eastern Passage Disposal Site.

Rockland Disposal Site

The RDS covers a 0.25 nmi^2 (0.87 km^2) area of seafloor within West Penobscot Bay and is centered at 44.1184167 N, -69.0044833 W (NAD 83). It is located approximately 3.1 nmi (5.7 km) east-southeast of Brewster Point, Glen Cove, Maine.

This site was first used during October 1973 - February 1974 for disposal of approximately 69,000 m^3 of material from Rockland Harbor. Sediments deposited at RDS have originated from Federal dredging projects in Rockland, Camden, Belfast, and Searsport as well as from other harbors/projects within Penobscot Bay.

The material previously placed at RDS has been monitored under the Corps DAMOS program since 1977. The RDS had an average annual disposal volume of 110,000 m^3 during the 1980s, from April 1990 to May 2000 about 26,780 m^3 was disposed of at the site (SAIC, 2001), and from September 2000 and the September 2003, approximately 263,000 m^3 of dredged material was placed at RDS. The Regulatory Division has not authorized, nor has the Navigation

Branch conducted, any projects with dredged material disposal at RDS since October 2011. We expect a similar rate of trips and volumes in the future.

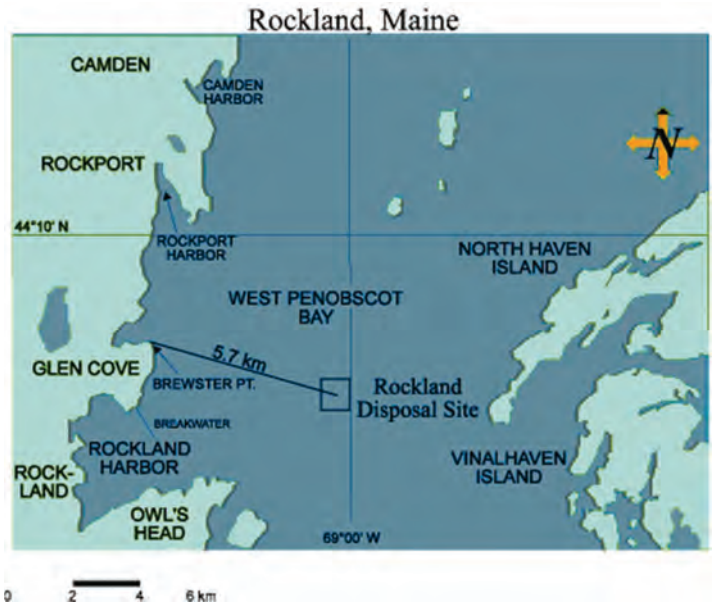

Figure 5. Map of Rockland Disposal Site

Muscongus Bay Disposal Site:

The MuBDS is a 930 x 930 meter (3,051 x 3,051 feet) area located approximately 300 meters (984 feet) east of the New Harbor Flashing Buoy and off the eastern shore of the Pemaquid Peninsula in Muscongus Bay, just outside of New Harbor, Bristol, Maine. According to the June 2007 "Monitoring Survey at the Muscongus Bay Disposal Site Lincoln County, Maine, July/September 2005", the coordinates for MuBDS (NAD 83) are: Center: 43.8739 N, -69.4749 W; NW: 43.8780 N, -69.4807 W; SW: 43.8696 N, -69.4806 W; SE: 43.8697 N, -69.4690 W; NE:, 43.8781 N, -69.4691 W.

The MuBDS is an infrequently used dredged material disposal site located in the waters of mid-coastal Maine. The MuBDS was last used during the period of November 1965 to March 1966 for disposal of about 22,142 m^3 of material removed from the New Harbor Federal Navigation Project during improvement dredging of the upper harbor channel extension and the new Back Cove anchorage. Maintenance dredging of New Harbor in 1936 and the original improvement dredging in 1905 may also have used the site, but no records are available to confirm the disposal site used for those operations. As of 2005, there was interest in using the site again for the next maintenance operation at New Harbor, proposed improvement dredging of Round Pond Harbor, and for future work at these and other harbors on the Pemaquid Peninsula and western Muscongus Bay area.

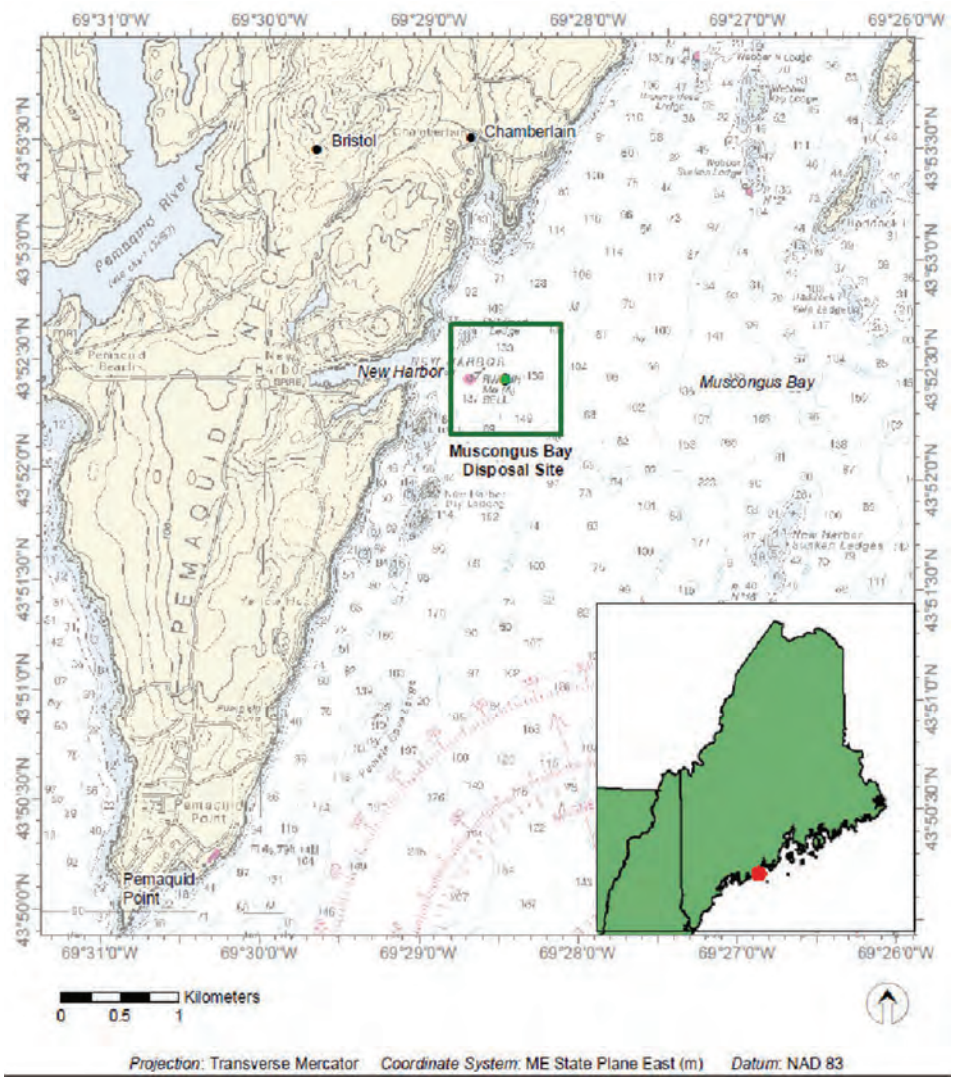

Figure 6. Map of Muscongus Bay Disposal Site.

Portland Disposal Site

The PDS is one of three regional dredged material disposal sites located in the waters of Maine. It covers a 1 nmi^2 (3.4 km^2) area of seafloor centered at 43.5685 N, -70.0323 W (NAD 83), approximately 7.1 nmi (13.2 km) east of Dyer Point, Cape Elizabeth, Maine. The range of water depth at the site is 42 to 62 meters. The site is characterized by rough, irregular bottom topography, with areas of soft sediment accumulation in the basins among bedrock out crops. The sea floor at the existing site is predominantly rocky with several small sediment-covered basins, such as the basin located at the center of the site. The site is in an area of natural sediment deposition, with naturally occurring bottom sediments consisting of sand and silt/clay contents that ranged from 11.7 percent to 75 percent and 18.2 percent and 88.3 percent, respectively. Sediments from the existing site center generally contain less than 30 percent sand and up to 75 percent silt/clay. Samples taken 1.8 nm southeast of the center of the existing site contained sediments of varying textures. A sediment sample collected 0.5 nm northwest of the center, however, was very coarse and contained almost no clay or silt. These variations

suggest that the sediment distribution is extremely patchy in this part of the Gulf of Maine (Wiley, 1996).

As of 2007, there had been significant DAMOS monitoring activity at this site as part of a comprehensive subaqueous capping feasibility study. The depositional environment of PDS, especially within the deeper fine-grained basins, indicates that volumes of dredged material can be placed without significant subsequent movement beyond the disposal site boundaries. Dredged material disposal operations specifically target these natural basins to form mounds of sediment on the seafloor. The various bedrock ridges surrounding the depositional areas provide a measure of protection from wave energy and thus act to contain the deposited dredged material. The steep sides of the depressions or hollows disrupt any near bottom orbital currents generated by passing storm waves, minimizing resuspension over the surface of the sediment deposit. In addition, the rock walls of the natural seafloor features prevent the lateral spread of non-cohesive sediment on the seafloor as a dredged material mound is developed over time.

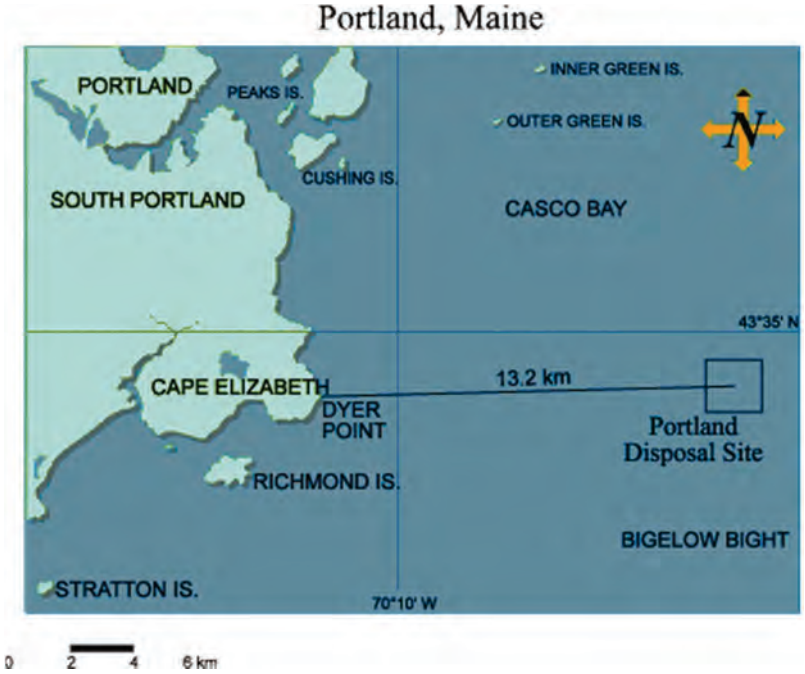

Figure 7. Map of the Portland Disposal Site.

In September 1987, the EPA designated the PDS for long-term use for the disposal of dredged material from Maine and New Hampshire. The dredged material disposed at PDS has come from a number of industrialized and recreational harbors and rivers from Maine, primarily Portland Harbor, and New Hampshire. The site serves much of Cumberland County and the northern reach of York County ranging from Harpswell to the Wood Island/Biddeford Pool area.

The material previously placed at PDS has been monitored under the Corps DAMOS program since it was designated in 1987. Table 2 summarizes the volumes of dredged material disposed of or permitted for disposal at the PDS from 1942 to 2005.

Table 2. Disposal of Dredged Material at Portland Disposal Site (USACE, NAE unpublished files).

Year(s) of Use	Volume
1942 - 1980	2,472,000 yd^3
1980 - 1990	1,250,000 yd^3
1990 - 2000	1,000,000 yd^3
2000 - 2005	750,000 yd^3

Appendix A provides data on the projects that have disposed of dredged material at the PDS from October 2011 to July 2019. We expect a similar rate of trips and volumes in the future.

Saco Bay Disposal Site

The SBDS is located approximately one mile east of Biddeford, Maine. The site consists of a 500 yard diameter circle centered at 43.4750 N, -70.3217 W. Depths are approximately 100 feet as obtained from nautical charts of the area. The SBDS is the preferred alternative for the dredged material that is not compatible with nearshore placement or beach nourishment because of higher percentages of fine-grained (silty) material. The SBDS was last used for maintenance dredging of Biddeford Pool was completed in January-May 1989 when approximately 38,000 yd^3 of material were removed and placed at the SBDS.

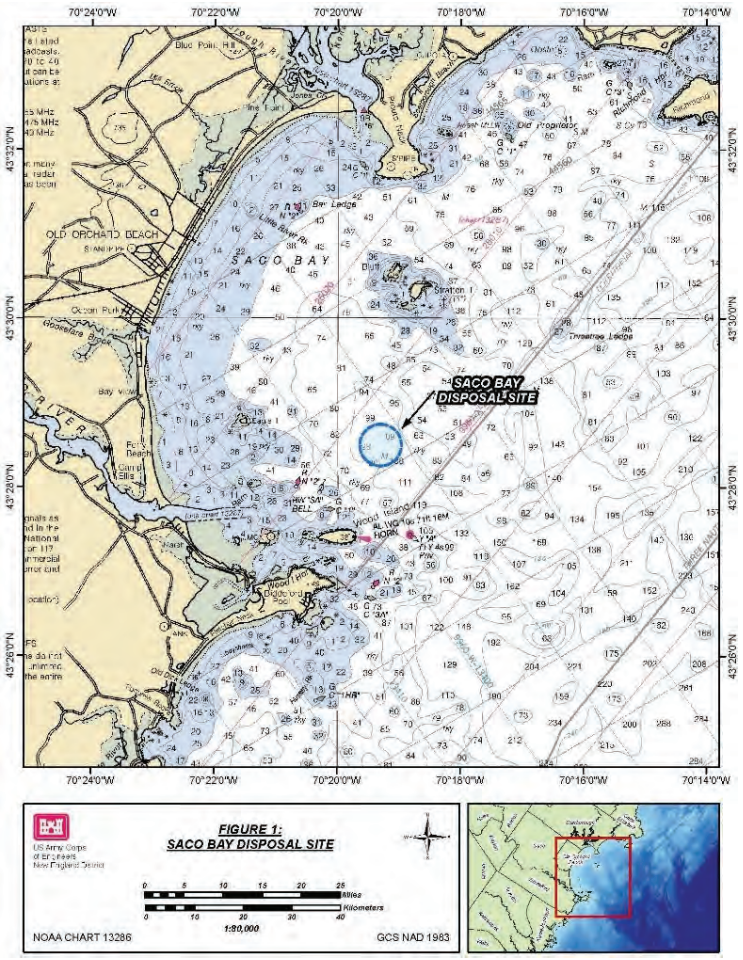

Figure 2. Map of the Saco Bay Disposal Site.

Cape Arundel Disposal Site

The CADS is located approximately 2.8 nmi (5.1 km) southeast of Cape Arundel, Maine. The site consists of a 500 yd diameter circle centered at 43.2968 N, -70.4528 W (NAD 83). Its bottom topography is characterized by a north-south trending trough running 1 km in length and

50 to 250 m wide. This trough has a maximum depth of 43 m and a silt/clay bottom admixed with fine sand. It is flanked by hard rock ridges shoaling up to 30 to 32 m in depth. Near-bottom currents at CADS are generally less than 10 cm/sec and northerly in direction, while near-surface currents are dominated by a southerly net drift moving at rates less than 15 cm/sec (SAIC, 1987). Although there is unlimited fetch to the northeast, near-surface currents have little effect on bottom currents due to the highly variable topography of the area which disrupts the coherence of near-bottom currents.

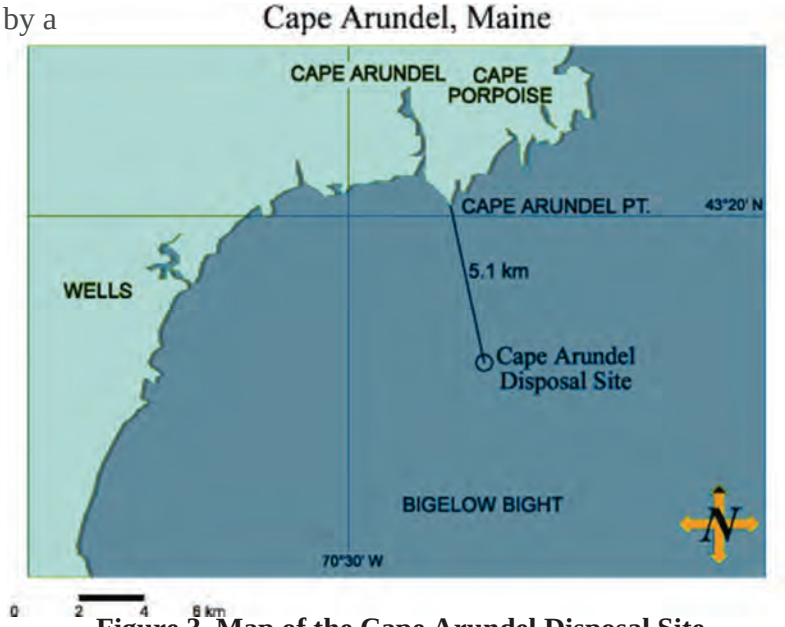

Figure 3. Map of the Cape Arundel Disposal Site.

As an alternative dredged material disposal site selected by the Corps in 1985, and not a formally designated site by the EPA, CADS was closed in 2010 when its temporary status ended. Congressional legislation reopened the site in 2014 for five years or until the completion of an environmental impact statement designating an alternative dredged material disposal site for southern Maine. This legislation also prohibits CADS from being used for the disposal of more than 80,000 yd^3 from any single dredging project.

The material previously placed at CADS has been monitored under the Corps DAMOS program since 1985. Corps DAMOS last surveyed the site in 2013. Appendix A provides data on the projects that have disposed of dredged material at the CADS from October 2011 to July 2019. We expect a similar rate of trips and volumes in the future.

<u>Ipswich Bay Nearshore Disposal Site</u>

The IBNDS is a proposed rectangular disposal site centered at 42.679382 N, -70.690155 W (NAD 83) and located in Ipswich Bay approximately 1.5 miles north of the north entrance to the Annisquam River. It will receive dredged material from a future dredging project in the Annisquam River, Gloucester, MA.

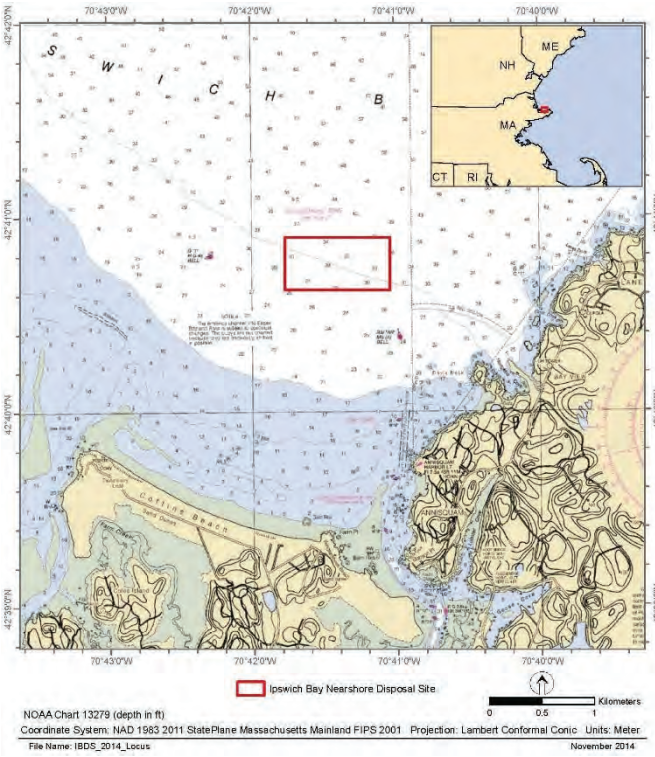

Figure 4. Map of the Ipswich Bay Nearshore Disposal

Gloucester Historic Disposal Site

The GHDS is a circular site centered at 42.5694 N, -70.6643 W (NAD 83), and located outside Gloucester Harbor, 1.1 km (0.7 miles) south of Eastern Point. The GHDS is depicted as a circular area approximately 0.9 km (0.6 miles) in diameter on NOAA charts in approximately 80 to 120 foot (24 to 38 meter) waters. Placement of dredged material has not occurred at this site since the start of the DAMOS Program in 1977 and there are no specific site disposal records available prior to this date. The site may receive dredged material from a future dredging project in the Annisquam River, Gloucester, MA.

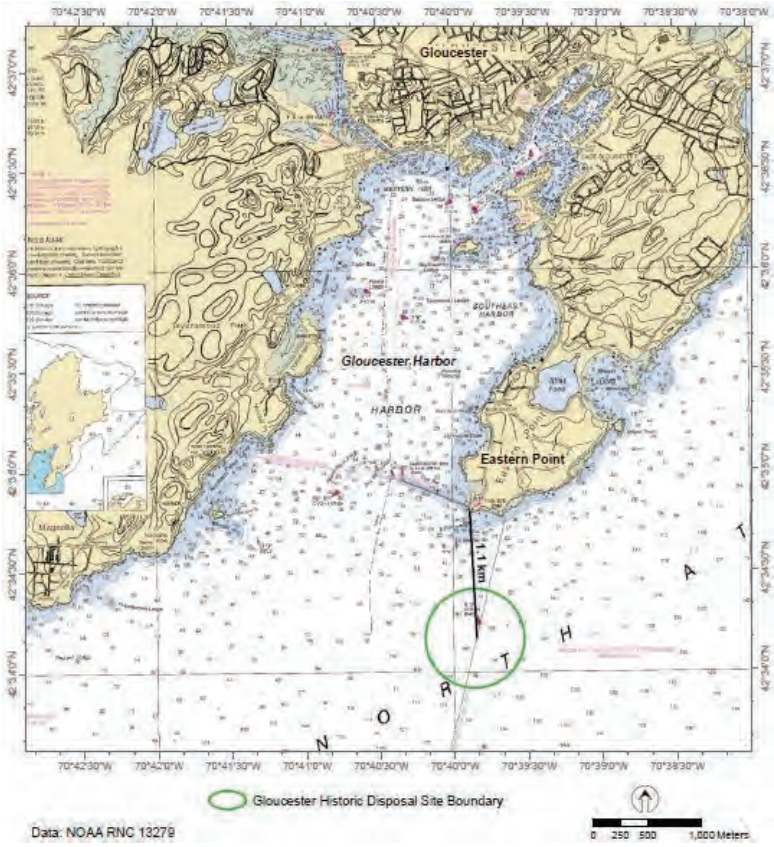

Figure 5. Map of the Gloucester Historic Disposal Site.

Massachusetts Bay Disposal Site

The MBDS, a 2.0 nmi (3.7 km) diameter circular area centered at 42.4184 N, -70.5828 W (NAD 83), is located 12 nmi (22 km) southeast of Gales Point, Manchester-by-the-Sea, MA. Water depths range from 269 to 302 ft (82 to 92 m). The EPA officially designated the MBDS as a dredged material disposal site in 1993 to meet the long-term needs of dredged material disposal from Federal and private dredge projects in the Massachusetts Bay area. It was relocated from a partially overlapping interim disposal site, used for disposal from 1977 to 1993, known as the Foul Area Disposal Site or Boston Foul Ground. The MBDS is active as it receives material from such ports as Boston, Hingham, Salem, and Gloucester.

In June 2018, a temporary expansion of the MBDS was opened. The expansion consists of an overlapping circle to the north of the existing MBDS with a diameter of 1.5 nmi. This expansion includes the barrel field of the historic Industrial Waste Site. The dredged material deemed suitable for ocean disposal generated during the Boston Harbor Deep Draft Navigation Project will be disposed in the temporary expansion area in order to cover the barrel field using a berm building method developed by the Corps. This action is intended to protect the surrounding ecosystem from the pollutants present in the Industrial Waste Site and those that may utilize the area, such as fishermen. The temporary expansion will close upon the completion of the project.

Disposal of dredged material in the vicinity of MBDS dates back more than 60 years. Since designation in 1993, the site has received over 15.7 million yd^3 of dredged material from Boston Harbor and other surrounding harbors (through January 2015). As of 2009, the MBDS had been the most active disposal site in New England averaging over 600,000 yd^3 per year in the prior 15 years. Appendix A provides data on the projects that have disposed of dredged material at MBDS from October 2011 to July 2019, and this shows that approximately 9,298,782 yd^3 were disposed of at MBDS in 2632 trips. The Boston Harbor Deep Draft Navigation Project has disposed of 7.5 million yd^3 of material at MBDS to date and is expected to dispose of another 4.1 million yd^3 of material there. This is beyond the typical rate for the site.

Figure 6. Map of the Massachusetts Bay Disposal Site.

The material previously placed at MBDS has been monitored under the Corps DAMOS program since its designation in 1993. Corps DAMOS last surveyed the site in 2015.

Cape Cod Bay Disposal Site

The CCBDS is centered at coordinates 41.9068 N, -70.2211 W (NAD 83) and is located 8.0 nmi (14.9 km) southwest of Long Point, Provincetown, Massachusetts. The site has a relatively flat, featureless seafloor with an average water depth of 102 ft (31 m). The bottom gently slopes from a depth of 30.8 m in the southeast corner of the site to a depth of 31.4 m in the northwest. This site encompasses a 1 nmi^2 (3.42 km^2) area of seafloor within the east-central region of Cape Cod Bay. The CCBDS receives sediments dredged primarily from Wellfleet, Barnstable, Plymouth and Duxbury Harbors. As of 2019, approximately 1.8 million yd^3 of dredged material had been placed at CCBDS since the site was formally selected for use in 1990.

Cape Cod Bay covers an area in excess of 1600 km^2. Its depths are generally less than 45 m. The central part of the bay, where the CCBDS is located, ranges from 20 to 45 m deep. The seafloor in the center of Cape Cod Bay is generally flat and featureless. This area of Cape Cod Bay is characterized by relatively low currents, which contributed to its selection as a depositional disposal site.

The October 1990 Final Environmental Impact Report for the Identification of Dredged-Material Disposal Site(s) in Cape Cod Bay, Massachusetts" stated that the benthic fauna was characterized by mud-inhabiting infauna. Polychaete worms were the most dominant in terms of both species and numbers of individuals. Fish studies showed that the near-bottom fish population was dominated by ocean pout in the winter and spiny dogfish in the warmer months.

Chemical composition of the sediments showed little anthropogenic influence. More than 160 species of benthic organisms were identified at four sites in Cape Cod Bay, the great majority being polychaete annelids. Suspended matter was considerably less at the current CCBDS than another site, which may reflect greater resuspension and transport of sediment by tidal currents

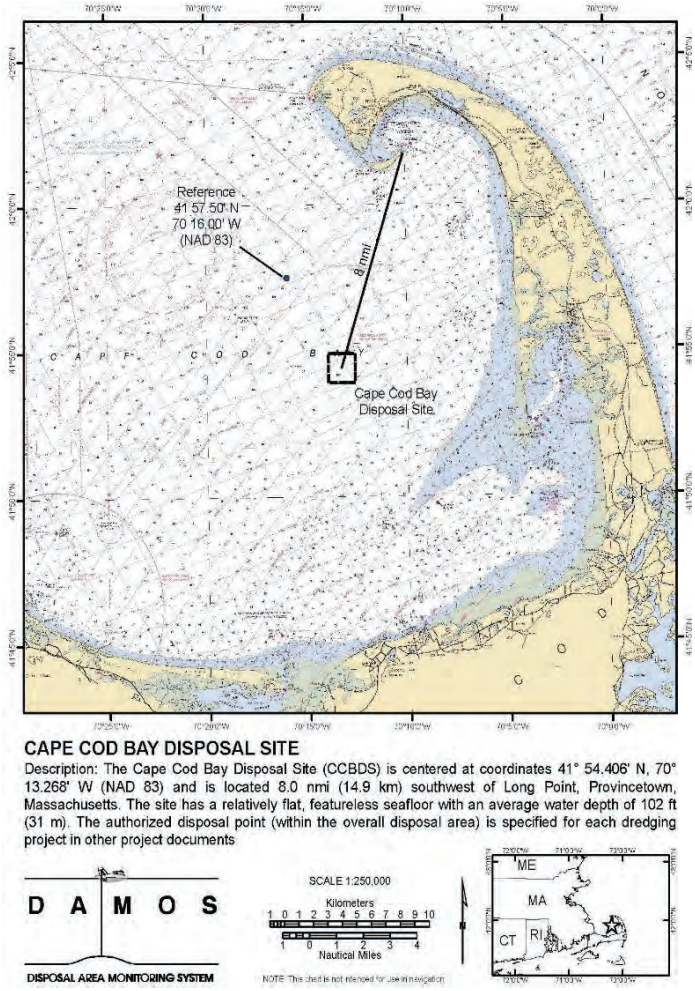

Figure 13. Map of the Cape Cod Bay Disposal Site.

Monitoring and management of CCBDS is the joint responsibility of the Commonwealth of Massachusetts Department of Conservation and Recreation and the New England District Corps DAMOS Program. With the advances in GPS-based positioning and the required tracking record for each scow placing material at CCBDS, maintenance of a disposal marker buoy is no longer need at the site. DAMOS last surveyed the CCBDS in October 2016 (Contribution #205 at the following link), and the site is scheduled for another survey in spring 2020: www.nae.usace.army.mil/Missions/Disposal-Area-Monitoring-System-DAMOS/Reports. Appendix A provides data on the projects that have disposed of dredged material at the CCBDS from October 2011 to July 2019. We expect a similar rate of trips and volumes in the future.

Rhode Island Sound Disposal Site

This 1 nautical mi^2 site is centered at 41.2308 N, -71.3803 W (NAD 83) and lies approximately 21 km south of the entrance to Narragansett Bay, Rhode Island. It's situated within the Separation Zone for the Narragansett Bay Inbound and Outbound Traffic Lanes and lies within a topographic depression, with water depths from 36 to 39 m. Prior to its site designation, it was selected for temporary use and was employed during 2003-2004 for placement of over 4.5 million yd^3 of sediment from the Providence River (primarily from the Federal Navigation Project). The management strategy during the Providence project was to dispose at a carefully selected series of north-south-trending points in order to create a continuous ridge of sediment along the western edge of the site. This ridge created an artificial containment structure along the western boundary of the disposal site in order to minimize lateral spread of unconsolidated sediments deposited in the future.

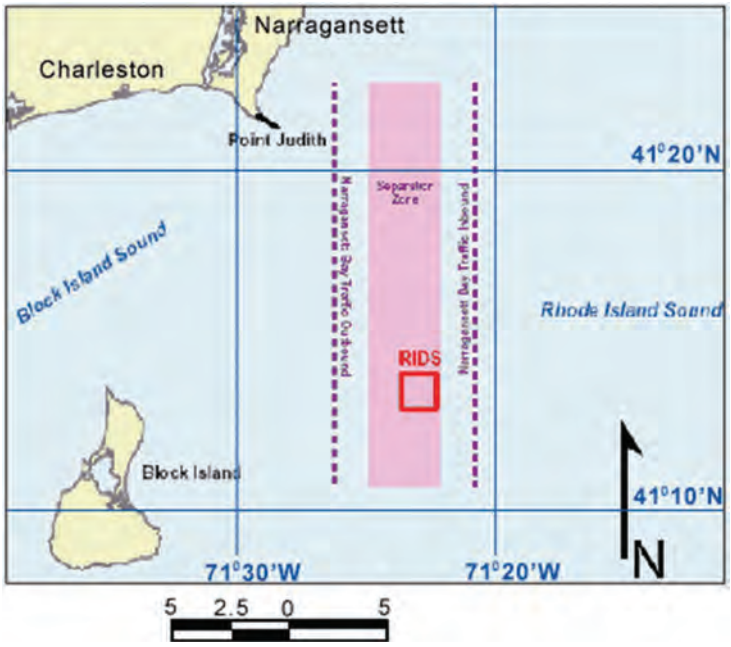

Figure 14. Map of the Rhode Island Sound Disposal Site.

The Governor of Rhode Island requested that the EPA consider the designation of a long-term dredged material disposal site in Rhode Island Sound. The EPA designated the RISDS on January 18, 2005 for dredged material from Rhode Island and other surrounding harbors in Massachusetts and Connecticut. Both commercial and recreational industries in Rhode Island and southeast Massachusetts rely on the RISDS for dredged material disposal.

The material previously placed at the RISDS has been monitored under the Corps DAMOS program since its designation in 2003. Corps DAMOS last surveyed the site in 2015. Appendix A provides data on the projects that have disposed of dredged material at the RISDS from October 2011 to July 2019. We expect a similar rate of trips and volumes in the future.

5. Species and Critical Habitat under NMFS PRD jurisdiction in the Action Area

Table 3. Species and critical habitat presence in each of the disposal sites.

	MIDS	TLDS	EPDS	RDS	MuBDS	PDS	SBDS	CADS	IBNDS	GHDS	MBDS	CCBDS	RISDS
NARW/Fin whale						✓			✓	✓	✓	✓	✓
NARW CH						✓			✓	✓	✓	✓	
Sea turtles (4 species)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Atlantic sturgeon	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shortnose sturgeon	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Atlantic salmon	✓	✓	✓	✓	✓								
Atlantic salmon CH		✓											

NMFS has provided the following listed species and designated critical habitat under the jurisdiction of NOAA PRD that may occur within vicinity of the 13 disposal sites (see Table 3) and the other sites considered in this consultation:

- Atlantic salmon (*Salmo salar*) – Gulf of Maine Distinct Population Segment (DPS) - Endangered (74 FR 29344; Recovery plan: NMFS & USFWS 2019)
- Atlantic salmon critical habitat – (74 FR 29300)
- 5 DPSs of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) (77 FR 5880 and 77 FR 5914)
  - Gulf of Maine DPS - Threatened
  - New York Bight DPS - Endangered
  - Chesapeake Bay DPS - Endangered
  - Carolina DPS - Endangered
  - South Atlantic DPS - Endangered
- Shortnose sturgeon (*Acipenser brevirostrum*) - Endangered (32 FR 4001; Recovery plan: NMFS 1998)
- Green sea turtle (*Chelonia mydas*) - North Atlantic DPS - Threatened (81 FR 20057; Recovery plan: NMFS & USFWS 1991)
- Kemp's ridley sea turtle (*Lepidochelys kempii*) - Endangered (35 FR 18319; Recovery plan: NMFS *et al*. 2011)
- Leatherback sea turtle (*Dermochelys coriacea*) - Endangered (35 FR 8491; Recovery plan: NMFS & USFWS 1992)
- Loggerhead sea turtle (*Caretta caretta*) – Northwest Atlantic Ocean DPS - Threatened (76 FR 58868; Recovery plan: NMFS & USFWS 2008)

- Fin whale (*Balaenoptera physalus*) - Endangered (35 FR 18319; Recovery plan: NMFS 2010)
- North Atlantic right whale (*Eubalaena glacialis*) - Endangered (73 FR 12024;Recovery plan: NMFS 2005)
- North Atlantic right whale critical habitat – (81 FR 4837)

Atlantic Salmon

According to the GARFO Master ESA Species Table for Atlantic salmon (Appendix B), the Gulf of Maine (GOM) DPS of Atlantic salmon includes all anadromous Atlantic salmon whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River, and wherever these fish occur in the estuarine and marine environment. The marine range of the GOM DPS extends from the Gulf of Maine, throughout the Northwest Atlantic Ocean, to the coast of Greenland. Included in the GOM DPS are all associated conservation hatchery populations used to supplement these natural populations. Currently, such conservation hatchery populations are maintained at Green Lake National Fish Hatchery and Craig Brook National Fish Hatchery, both operated by the USFWS. Excluded from the GOM DPS are landlocked Atlantic salmon and those salmon raised in commercial hatcheries for the aquaculture industry.

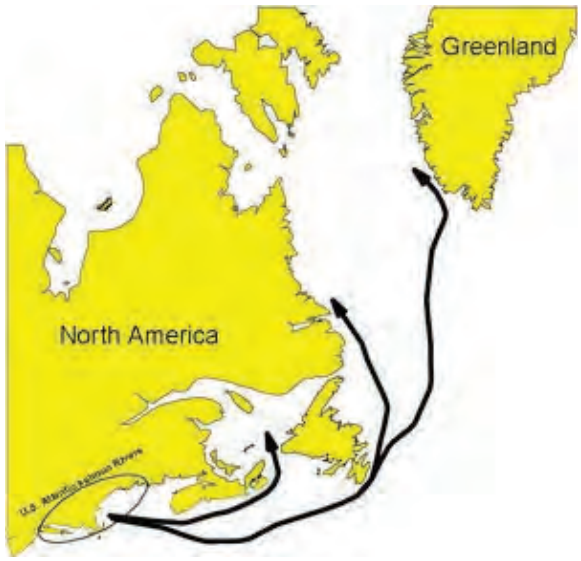

Figure 15. Migration of Atlantic salmon

Species Description

According to NOAA Fisheries (https://www.fisheries.noaa.gov/species/atlantic-salmon-protected), the average size of Atlantic salmon is 28-30 inches (71-76 cm) long and 8-12 pounds (3.6-5.4 kg) after two years at sea. Although uncommon, adults can grow to be as large as 30 pounds (13.6 kg). Atlantic salmon have a relatively complex life history that includes spawning, juvenile rearing in rivers, and extensive feeding migrations on the high seas. As a result, Atlantic salmon go through several distinct phases that can be identified by specific changes in behavior, physiology, and habitat requirements.

Juvenile salmon feed and grow in rivers for one to three years before undergoing "smoltification" and migrating to the ocean. Atlantic salmon of U.S. origin are highly migratory, undertaking long marine migrations between the mouths of U.S. rivers and the northwest Atlantic Ocean where they are widely distributed seasonally over much of the region. Most Atlantic salmon of U.S. origin spend two winters in the ocean before returning to freshwater to spawn. Those that return after only one year are called grilse. In the United States, most adult Atlantic salmon ascend the rivers of New England beginning in spring and continuing through the fall, with migration peaking in June.

Habitat

The Atlantic salmon is an anadromous fish, typically spending 2-3 years in freshwater, migrating to the ocean where it also spends 2-3 years, and then returning to its natal river to spawn. Suitable spawning habitat consists of gravel or rubble in areas of moving water. Eggs hatch in March or April and become fry. Fry remain buried in the gravel for about six weeks. The fry emerge from the gravel about mid-May and start feeding on plankton and small invertebrates. Emergent fry quickly disperse from nests (called redds) within the gravel. They develop camouflaging stripes along their sides, and enter what is termed the parr stage. Parr habitat, often called "nursery habitat," is typically riffle areas characterized by adequate cover, shallow water depth, and moderate to fast water flow. Salmon parr spend 2-3 years in freshwater and then undergo a physiological transformation called smoltification that prepares them for life in a marine habitat.

Atlantic salmon spend their first winter at sea south of Greenland. After the first winter at sea, a small percentage return to Maine while the majority spend a second year at sea, feeding off the southwest or, to a much lesser extent, the southeast coast of Greenland. Some Maine salmon are also found in waters along the Labrador coast. After a second winter in the Labrador Sea, most Maine salmon return to rivers in Maine, with a small number returning the following year as what is referred to as three sea winter fish.

Distribution

There are three generally recognized groups of Atlantic salmon:

- North American
- European
- Baltic

Atlantic salmon reproduce in coastal rivers of northeastern North America, Iceland, Europe, and northwestern Russia and migrate through various portions of the North Atlantic Ocean. European and North American populations of Atlantic salmon intermix during their at-sea stage, where they share similar summer feeding grounds off Greenland. The North American group historically ranged from northern Quebec southeast to Newfoundland and southwest to Long Island Sound. It includes Canadian populations and U.S. populations, including the listed Gulf of Maine DPS. In Canada, significant reproducing populations remain throughout the historic range, though many populations are severely depleted.

Due to their northern location, it is likely that Atlantic salmon would occur at MISD, TLDS, EPDS, RDS, and MuBDS. However, it is unlikely that Atlantic salmon would occur at PDS, SBDS, CADS, IBNDS, GHDS, MBDS, CCBDS, or RISDS. While the remaining disposal sites located in Maine are outside of the Gulf of Maine DPS, due to the counter currents in the Gulf of Maine, salmon smolts may be present at those disposal sites in late spring through early summer. By the fall, adults return from areas off the coast of Greenland to their natal rivers, but the currents don't typically carry them off course. Between November 8 and April 9, Atlantic salmon are generally not present in estuarine or marine waters off the coast of Maine. It is unlikely that Atlantic salmon will be found at the Maine disposal sites and transit routes during the November 8th – April 9th TOY work window (Group B special conditions) typically required

for Atlantic salmon at the dredge site. There are very few salmon migrating in and out of Maine river systems, and even from April 10 - Nov. 7 (actions under Group C special conditions). They are likely to be widely dispersed and only present in the action area for a matter of days.

Designated Atlantic Salmon Critical Habitat

Coincident with the June 19, 2009 endangered listing, NOAA Fisheries designated critical habitat for the GOM DPS of Atlantic salmon, with the final rule revised on August 10, 2009 (74 FR 29300). Within the GOM DPS, 45 specific areas of Maine (HUC 10 watersheds) occupied by Atlantic salmon (at the time of listing) that comprise approximately 19,751 km of perennial river, stream, and estuary habitat and 799 square km of lake habitat are designated as critical habitat.

The designation of Atlantic salmon critical habitat in the GOM DPS is important for two reasons: a) because it affects the viability of the listed species within the action area at the time of the consultation; and b) because those habitat areas designated "critical" provide Primary Constituent Elements (PCEs) essential for the conservation (i.e., recovery) of the species.

The physical and biological features of the two PBFs for Atlantic salmon critical habitat are as follows:

Physical and biological features of the **spawning and rearing** PBF:

- SR 1. Deep, oxygenated pools and cover (e.g., boulders, woody debris, vegetation, etc.), near freshwater spawning sites, necessary to support adult migrants during the summer while they await spawning in the fall.
- SR 2. Freshwater spawning sites that contain clean, permeable gravel and cobble substrate with oxygenated water and cool water temperatures to support spawning activity, egg incubation, and larval development.
- SR 3. Freshwater spawning and rearing sites with clean, permeable gravel and cobble substrate with oxygenated water and cool water temperatures to support emergence, territorial development and feeding activities of Atlantic salmon fry.
- SR 4. Freshwater rearing sites with space to accommodate growth and survival of Atlantic salmon parr.
- SR 5. Freshwater rearing sites with a combination of river, stream, and lake habitats that accommodate parr's ability to occupy many niches and maximize parr production.
- SR 6. Freshwater rearing sites with cool, oxygenated water to support growth and survival of Atlantic salmon parr.
- SR 7. Freshwater rearing sites with diverse food resources to support growth and survival of Atlantic salmon parr.

Physical and biological features of the **migration** PBF:

- M 1. Freshwater and estuary migratory sites free from physical and biological barriers that delay or prevent access of adult salmon seeking spawning grounds needed to support recovered populations.

- M 2. Freshwater and estuary migration sites with pool, lake, and in-stream habitat that provide cool, oxygenated water and cover items (e.g., boulders, woody debris, and vegetation) to serve as temporary holding and resting areas during upstream migration of adult salmon.
- M 3. Freshwater and estuary migration sites with abundant, diverse native fish communities to serve as a protective buffer against predation.
- M 4. Freshwater and estuary migration sites free from physical and biological barriers that delay or prevent emigration of smolts to the marine environment.
- M 5. Freshwater and estuary migration sites with sufficiently cool water temperatures and water flows that coincide with diurnal cues to stimulate smolt migration.
- M 6. Freshwater migration sites with water chemistry needed to support sea water adaptation of smolts.

The complex life cycle exhibited by Atlantic salmon gives rise to complex habitat needs, particularly during the freshwater phase (Fay et al. 2006). Spawning gravels must be a certain size and free of sediment to allow successful incubation of the eggs. Eggs also require cool, clean, and well oxygenated waters for proper development. Juveniles need abundant food sources, including insects, crustaceans, and other small fish, and need places to hide from predators (mostly birds and bigger fish), such as under logs, root wads, and boulders in the stream, as well as beneath overhanging vegetation. They also need places to seek refuge from periodic high flows (e.g., side channels and off-channel areas) and from warm summer water temperatures (e.g., coldwater springs and deep pools). Returning adults generally do not feed in freshwater but instead rely on limited energy stores to migrate, mature, and spawn. Like juveniles, they also require cool water and places to rest and hide from predators. During all life stages, Atlantic salmon require cool water that is free of contaminants. They also need migratory corridors with adequate passage conditions (e.g., timing, water quality, and water quantity) to allow access to the various habitats required to complete their life cycle.

Of the 13 disposal sites, only TLDS is located within Atlantic salmon CH. See figures below.

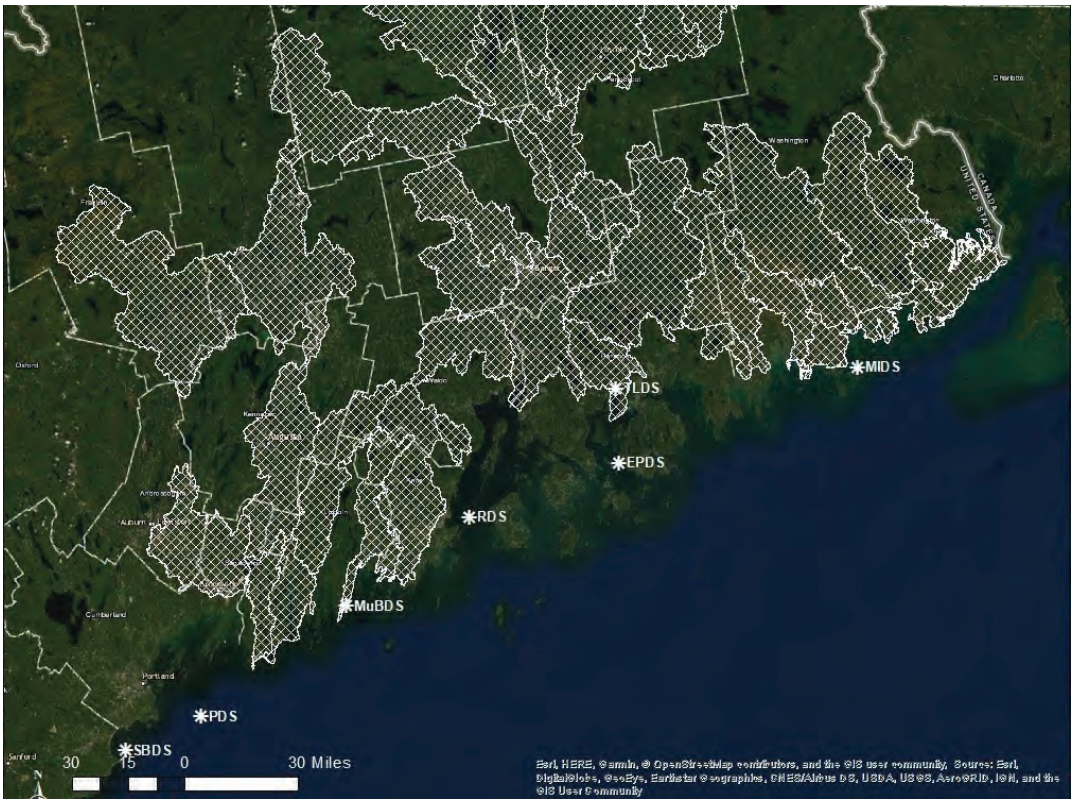

Figure 16. Map of designated Atlantic salmon critical habitat and the disposal sites.

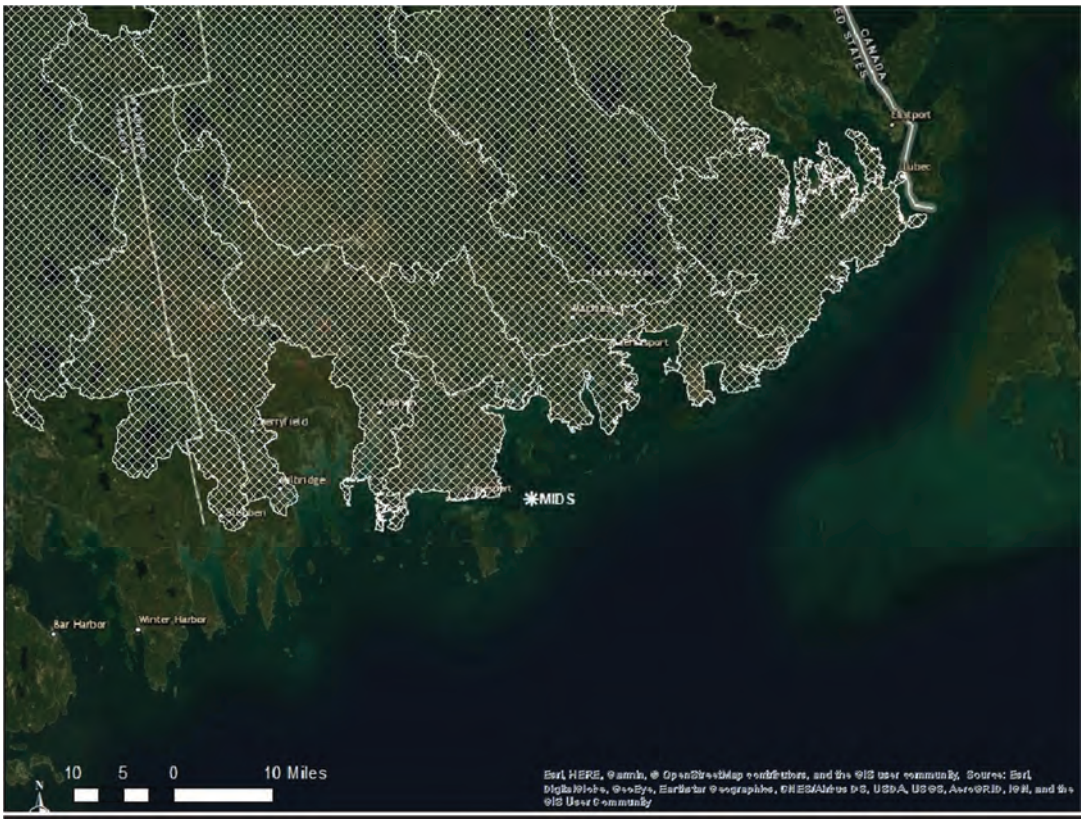

Figure 17. Designated Atlantic salmon critical habitat relative to MIDS.

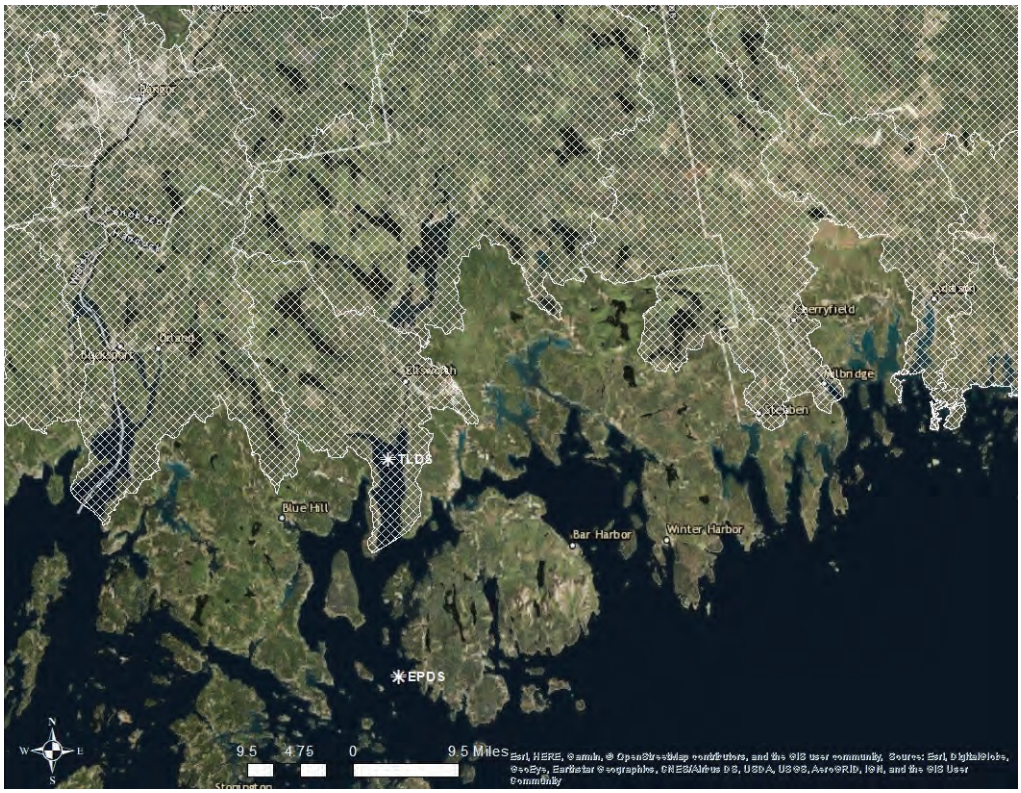

Figure 18. Designated Atlantic salmon critical habitat relative to TLDS.

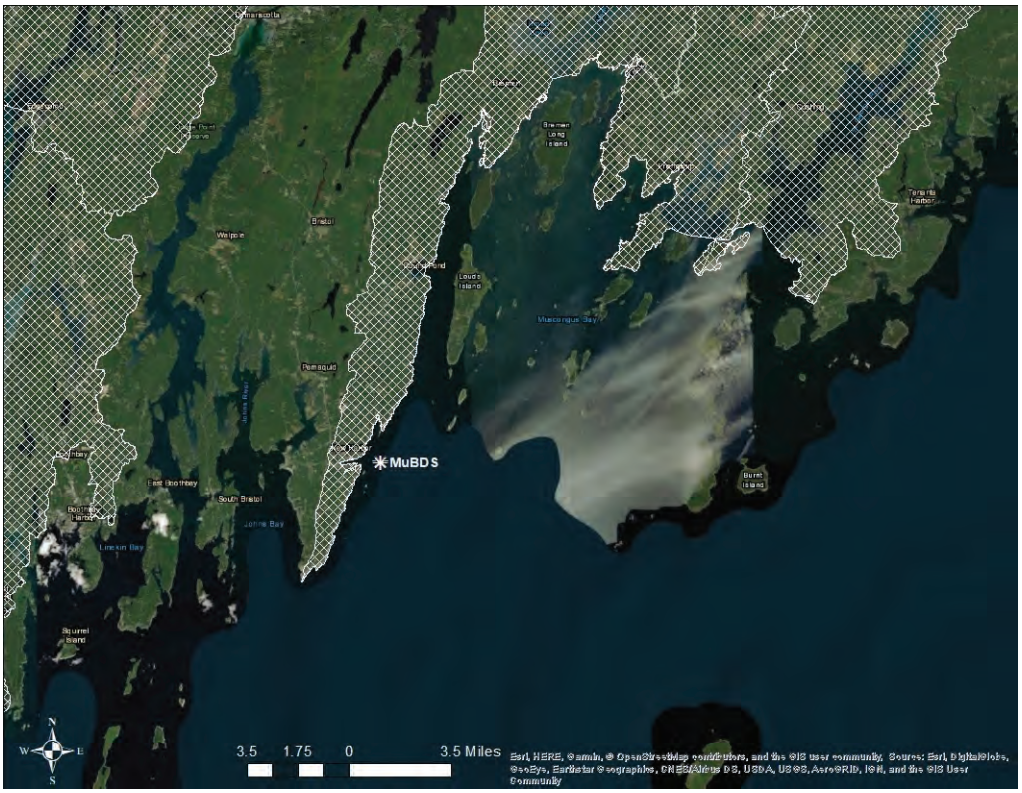

Figure 19. Designated Atlantic salmon critical habitat relative to MuBDS.

The critical habitat in the action area is subject to tidal flow and saline water. Therefore, none of the spawning and rearing PBFs are present in the action area.

We expect PBFs M1, M3, and M4 to be present at TLDS. The TLDS does not have any pools, lakes, or in-stream habitat that provide cover items. Therefore, Migration PBF 2 does not occur in the action area. Any smolts entering the action area have already experienced the water temperature, flows, and diurnal cues to stimulate their migration, because once in the action area (an open water, saline environment), their downstream migration to the lower estuary is complete. Therefore, we do not expect any further smolt migration stimulation to occur or be needed, and Migration PBF 5 does not occur in the action area (i.e., freshwater and estuary migration sites with sufficiently cool water temperatures and water flows that coincide with diurnal cues to stimulate smolt migration). Similarly, we expect freshwater migration sites with the water chemistry to support sea water adaption of smolts to occur further upstream. Therefore, we do not expect Migration PBF 6 to occur in the action area (i.e., freshwater migration sites with water chemistry needed to support sea water adaptation of smolts).

Atlantic Sturgeon

Species Description

There are five DPSs of Atlantic sturgeon listed as threatened or endangered. Atlantic sturgeon originating from the New York Bight, Chesapeake Bay, South Atlantic, and Carolina DPSs are listed as endangered; the Gulf of Maine DPS is listed as threatened. The marine range of all five DPSs extends along the Atlantic coast from Canada to Cape Canaveral, Florida and includes the 13 disposal sites considered herein.

According to NOAA Fisheries (https://www.fisheries.noaa.gov/species/atlantic-sturgeon), the Atlantic sturgeon is a long-lived, estuarine dependent, anadromous fish. Atlantic sturgeon can grow to approximately 14 feet (4.3 m) long and can weigh up to 800 pounds (370 kg). They are bluish-black or olive brown dorsally (on their back) with paler sides and a white belly. They have five major rows of dermal "scutes." Atlantic sturgeon are similar in appearance to shortnose sturgeon (*Acipenser brevirostrum*), but can be distinguished by their larger size, smaller mouth, different snout shape, and scutes. Atlantic sturgeon have been aged to 60 years. There is generally faster growth and earlier age at maturation in more southern populations. For example, Atlantic sturgeon mature in South Carolina rivers at 5-19 years of age, in the Hudson River at 11-21 years, and in the Saint Lawrence River at 22-34 years.

Spawning adults migrate upriver in spring, beginning in February-March in the south, April-May in the mid-Atlantic, and May-June in Canadian waters. In some areas, a small spawning migration may also occur in the fall. Spawning occurs in flowing water between the salt front and fall line of large rivers. Atlantic sturgeon spawning intervals range from 1 to 5 years for males and 2 to 5 years for females. "Fecundity" of female Atlantic sturgeon is correlated with age and body size and ranges from 400,000 to 8 million eggs. The average age at which 50% of maximum lifetime egg production is achieved is estimated to be 29 years, which is approximately 3-10 times older than for other bony fish species.

Following spawning, males may remain in the river or lower estuary until the fall; females typically exit the rivers within four to six weeks. Juveniles move downstream and inhabit brackish waters for a few months and when they reach a size of about 30-36 inches (76-92 cm) they move into nearshore coastal waters. Tagging data indicate that these immature Atlantic sturgeon travel widely once they emigrate from their natal (birth) rivers.

Atlantic sturgeon are benthic feeders and typically forage on "benthic" invertebrates (e.g. crustaceans, worms, mollusks).

Habitat

Atlantic sturgeon are "anadromous"; adults spawn in freshwater portions of large rivers in the spring and early summer and migrate into "estuarine" and marine waters where they spend most of their lives. In some southern rivers a fall spawning migration may also occur. They spawn in moderately flowing water (46-76 cm/s) in deep parts of large rivers. Sturgeon eggs are highly adhesive and are deposited on bottom substrate, usually on hard surfaces (e.g., cobble). It is likely that cold, clean water is important for proper larval development. Once larvae begin migrating downstream they use benthic structure (especially gravel matrices) as refuges. Juveniles usually reside in estuarine waters for months to years.

Subadults and adults live in coastal waters and estuaries when not spawning, generally in shallow (10-50 m depth) nearshore areas dominated by gravel and sand substrates. Long distance migrations away from spawning rivers are common.

Since early life stages are not tolerant of salinity; therefore their eggs and larvae will not occur at the 13 disposal sites. Because the disposal sites are not located in a river where sturgeon spawn, no young-of-the-year or juveniles will be present as this life stage remains in the natal river. Adult and subadult Atlantic sturgeon from any of the five DPSs may occur at the disposal sites. Because the sites are not known overwintering areas, Atlantic sturgeon are most likely to be present in the action area from April through November, but could be present at any time of the year. We do not have any estimates of the number of Atlantic sturgeon present at the disposal sites generally; however Atlantic sturgeon have been reported as bycatch in commercial fisheries operating in Cape Cod Bay (Stein *et al.* 2004b). Due to the limited presence of suitable forage, we expect little, if any, foraging to occur at the 13 disposal sites. We expect the presence of Atlantic sturgeon in the vicinity of the sites and transit routes to be limited to occasional transient and opportunistically foraging subadults or adults originating from any of the five DPSs.

Designated Atlantic Sturgeon Critical Habitat

A final rule to designate Atlantic sturgeon critical habitat for the threatened Gulf of Maine distinct population segment (DPS) and New York Bight DPS of Atlantic sturgeon was issued on August 8, 2017. Specific occupied areas designated as critical habitat for the Gulf of Maine DPS are shown below and contain approximately 244 kilometers (km; 152 miles) of aquatic habitat in the following rivers of Maine, New Hampshire, and Massachusetts: Penobscot, Kennebec, Androscoggin, Piscataqua, Cocheco, Salmon Falls, and Merrimack.

Since the Atlantic sturgeon CH is located in rivers, the action area will only overlap with designated CH when dredging occurs in these rivers and dredged material is being transported to the disposal site. There is no designated critical habitat in any of the 13 disposal sites, and the effects of the individual dredge events will be analyzed through individual consultations or verification forms. Therefore, Atlantic sturgeon critical habitat will not be considered further.

Shortnose Sturgeon

Species Description

Shortnose sturgeon (*Acipenser brevirostrum*) occur in rivers and estuaries along the East Coast of the U.S. and Canada (SSSRT 2010). There are 19 documented populations of shortnose sturgeon ranging from the St. Johns River, Florida (possibly extirpated from this system) to the Saint John River in New Brunswick, Canada. While movements between river systems have been documented in the Gulf of Maine, between the Connecticut and Hudson, and in the Southeast, interbreeding between river populations is limited to very few individuals per generation; this results in morphological and genetic variation between most river populations (see Walsh *et al.* 2001; Grunwald *et al.* 2002; Waldman *et al.* 2002; Wirgin *et al.* 2005). Indirect gene flow estimates from mitochondrial DNA indicate an effective migration rate of less than two individuals per generation (SSSRT 2010). This means that while individual shortnose sturgeon may move between rivers, very few sturgeon are spawning outside their natal river; it is important to remember that the result of physical movement of individuals is rarely genetic exchange.

According to NOAA Fisheries (https://www.fisheries.noaa.gov/species/shortnose-sturgeon), shortnose sturgeon are among the most primitive of the bony fishes. Their body surface contains five rows of bony plates, or "scutes". Sturgeon are typically large, long-lived fish that inhabit a great diversity of riverine habitat, from the fast-moving freshwater riverine environment downstream to the offshore marine environment of the continental shelf.

The shortnose sturgeon is the smallest of the three sturgeon species that occur in eastern North America; they grow up to 4.7 feet (1.4 m) and weigh up to 50.7 pounds (23 kg). Their growth rate and maximum size vary, with the fastest growth occurring among southern populations. Female sturgeon can live up to 67 years, but males seldom exceed 30 years of age. Thus, the ratio of females to males among young adults is 1:1, but changes to 4:1 for fish larger than 3 feet (90 cm).

Males and females mature at the same length, around 1.5-1.8 feet (45-55 cm), throughout their range. However, the age at which they reach that length varies from north to south due to a slower growth rate in the north. Males may mature at age two in Georgia, at age four from South Carolina to New York, and at age ten in the St. John River in Canada. Females exhibit a similar trend and mature at age six or younger in Georgia, at age seven from South Carolina to New York, and at age 13 in the St. John River. Age of first spawning in males occurs one to two years after maturity, but among females is delayed for up to five years. Approximate age of a female at first spawning is 15 years in the St. John River, 11 years in the Hudson and Delaware Rivers, ranges from 7 to 14 years in the South Carolina rivers, and six years or less in the Altahama

River in Georgia. Generally, females spawn every three years, although males may spawn every year.

Habitat

Shortnose sturgeon inhabit rivers and estuaries. They are "anadromous" fish; they spawn in the coastal rivers along the east coast of North America from the St. John River in Canada to the St. Johns River in Florida. They prefer the nearshore marine, estuarine, and riverine habitat of large river systems. They are "benthic" feeders, eating crustaceans, mollusks, and insects.

Distribution

The shortnose sturgeon is anadromous, living mainly in the slower moving riverine waters or nearshore marine waters, and migrating periodically into faster moving fresh water areas to spawn. One partially landlocked population is known in the Holyoke Pool, Connecticut River, and another landlocked group may exist in Lake Marion on the Santee River in South Carolina. Shortnose sturgeon occur in most major river systems along the U.S. eastern seaboard. In the northern portion of the range, shortnose sturgeon are found in:

- Chesapeake Bay system
- Delaware River
- Hudson River in New York
- Connecticut River
- lower Merrimack River in Massachusetts
- Piscataqua River in New Hampshire
- Kennebec River system, which includes the Androscoggin & Sheepscot Rivers, in Maine
- Penobscot River in Maine
- St. John River in New Brunswick, Canada

They have also been documented occasionally in some of the other rivers along the Maine coastline, which may be a result of increased coastal movements between the larger rivers in Maine and Massachusetts, including:

- Saco River
- St. George River
- Damariscotta River
- Medomak River
- Passasagasawakeag River

Given the coastal movement of shortnose sturgeon between the Connecticut River, Merrimack River, and the rivers in Maine, and because there is nothing preventing shortnose sturgeon from entering the action area of the 13 disposal sites, we assume that at least occasional transient adult shortnose sturgeon occur in the vicinity of the 13 sites and transit routes. Therefore, occasional transient and opportunistically foraging adult shortnose sturgeon moving between the rivers could pass through the action area from April through November. It is expected that shortnose sturgeon will overwinter in their natal rivers. As with the Atlantic sturgeon, spawning and early life stages of the shortnose sturgeon only occur in freshwater habitats. Therefore, no life stages besides salinity tolerant adults will occur at the disposal sites and along transit routes, but other life stages may occur at dredge sites in freshwater rivers.

Endangered Whales

In general, the two federally listed whales (fin and North Atlantic right whales) are frequently observed in the waters from Maine to Rhode Island. Both of these species may be present year round at the 13 disposal sites and along the transit routes, though they are more abundant in the spring, summer, and fall. Sperm, sei, and blue whales are found further offshore away from the disposal sites, and thus, will not be considered further.

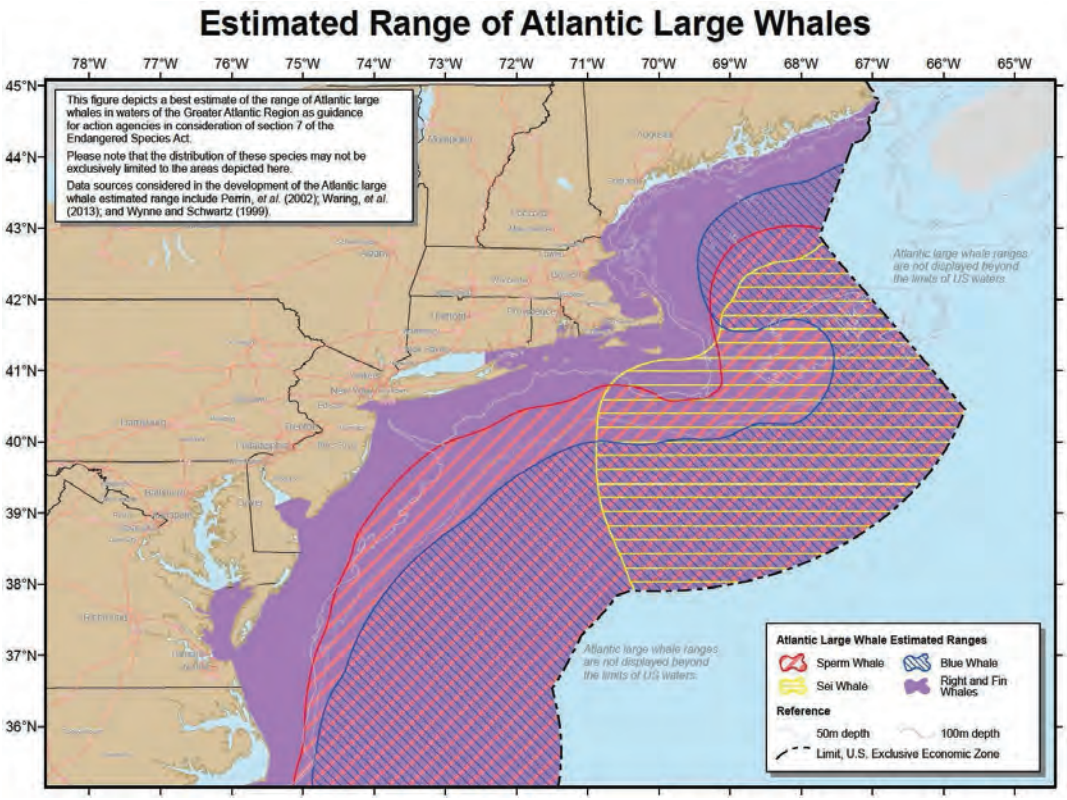

Figure 20. Map of whale presence in the New England and mid-Atlantic regions.

Fin Whales

Species Description

According to NOAA Fisheries (https://www.fisheries.noaa.gov/species/fin-whale), fin whales are the second-largest species of whale, with a maximum length of about 75 feet (22 m) in the Northern Hemisphere, and 85 feet (26 m) in the Southern Hemisphere. Fin whales show mild sexual "dimorphism", with females measuring longer than males by 5-10%. Adults can weigh between 80,000-160,000 pounds (40-80 tons).

Fin whales have a sleek, streamlined body with a V-shaped head. They have a tall, "falcate" dorsal fin, located about two-thirds of the way back on the body, that rises at a shallow angle from the animal's back. The species has a distinctive coloration pattern: the back and sides of the body are black or dark brownish-gray, and the ventral surface is white. The unique, asymmetrical head color is dark on the left side of the lower jaw, and white on the right side. Many individuals

have several light-gray, V-shaped “chevrons” behind their head, and the underside of the tail flukes is white with a gray border.

Fin whales can be found in social groups of 2-7 whales and in the North Atlantic are often seen feeding in large groups that include humpback whales, minke whales, and Atlantic white-sided dolphins (Jefferson et al. 2008). Fin whales are large, fast swimmers and the killer whale (*Orcinus orca*) is their only non-human predator.

During the summer, fin whales feed on krill, small schooling fish (e.g., herring, capelin, and sand lance), and squid by lunging into schools of prey with their mouth open, using their 50-100 accordion-like throat pleats to gulp large amounts of food and water. They then filter the food particles from the water using the 260-480 “baleen” plates on each side of the mouth. Fin whales fast in the winter while they migrate to warmer waters.

Little is known about the social and mating systems of fin whales. Similar to other baleen whales, long-term bonds between individuals are rare. Males become sexually mature at 6-10 years of age; females at 7-12 years of age. Physical maturity is attained at approximately 25 years for both sexes. After 11-12 months of gestation, females give birth to a single calf in tropical and subtropical areas during midwinter. Newborn calves are approximately 18 feet (6 m) long, and weigh 4,000-6,000 pounds (2 tons).

Fin whales can live 80-90 years. The age of large whales in family Balaenopteridae can be estimated by counting the layers present in waxy ear plugs, which are formed in the auditory canal (Hohn 2002).

According to the GARFO Master ESA Species Table for marine mammals (Appendix B), adults and juveniles are likely present in from Maine to Virginia year round throughout continental shelf and slope waters. The nearshore areas of importance are Massachusetts Bay, Stellwagen Bank, Great South Channel, east of Cape Cod, western Gulf of Maine, eastern perimeter of Georges Bank and the east end of Long Island. Regarding behaviors anticipated to occur, they forage in the greatest densities from March-August and lower densities from September-November. Important foraging grounds include Massachusetts Bay (especially Stellwagen Bank), Great South Channel, waters off Cape Cod (~40-50 meter contour), the western Gulf of Maine (especially Jeffreys Ledge), and the eastern perimeter of Georges Bank. Evidence of wintering areas are in Stellwagen Bank and the eastern perimeter of Georges Bank.

Habitat

Fin whales are found in deep, offshore waters of all major oceans, primarily in temperate to polar latitudes, and less commonly in the tropics. They occur year-round in a wide range of latitudes and longitudes, but the density of individuals in any one area changes seasonally. These are found off the eastern United States and centered along the 100 meter (328 foot) isobaths. However, sightings are spread out over shallower and deeper water, with their summer feeding range occurring mainly between 41°N and 51°N, from shore seaward to the 1,000-fathom (6,000 feet) contour (NMFS 2010; Kenney and Winn 1987; Hain et al. 1992).

Distribution

There are two named subspecies of fin whale:
1. *B. physalus physalus* in the North Atlantic
2. *B. physalus quoyi* in the Southern Ocean

There is also a population of fin whales in the North Pacific, which most experts consider a separate, unnamed subspecies. These populations rarely mix, if at all, and there are geographical stocks within these ocean basins. Fin whales are migratory, moving seasonally into and out of high-latitude feeding areas, but the overall migration pattern is complex, and specific routes have not been documented. However, acoustic recordings from passive-listening hydrophone arrays indicate that a southward "flow pattern" occurs in the fall from the Labrador-Newfoundland region, past Bermuda, and into the West Indies (Clark 1995). There may be resident groups of fin whales in some areas, such as the Gulf of California, the East China Sea, and the Mediterranean Sea. Fin whales have the greatest likelihood of occurrence in the waters of Maine. These whales feed in coastal areas along the 130 to 165 ft depth contour, and therefore, can occur in the vicinity of the PDS, IBNDS, GHDS, MBDS, CCBDS, and RISDS.

North Atlantic Right whales

According to NOAA Fisheries (https://www.fisheries.noaa.gov/species/north-atlantic-right-whale), it is believed that there are 450 right whales comprising the western North Atlantic population. NARWs remain critically endangered, the rarest of all large whale species and among the rarest of all marine mammal species. The NARWs have been documented in Cape Cod Bay from December through June, with relatively high numbers in January through May (see http://www.nefsc.noaa.gov/psb/surveys/). The seasonal presence of right whales in Massachusetts waters is thought to be closely associated to the seasonal presence of dense patches of their preferred copepod prey (primarily *Calanus finmarchus* but also *Pseudocalanus* spp. and *Centropages* spp.; Pace and Merrick 2008). There are heave congregations of the NARW in Cape Cod Bay, but less so at the 13 disposal sites considered herein.

According to the GARFO Master ESA Species Table for marine mammals (Appendix B), November 2017, adults and juvenile right whales are likely present from Maine to Rhode Island year round throughout continental shelf and slope waters. The nearshore areas of importance are Cape Cod Bay, Massachusetts Bay, Great South Channel, western Gulf of Maine, Georges Bank, Jordan Basin, Wilkinson Basin, Jeffreys Ledge, and Cashes Ledge. Regarding behaviors anticipated to occur, the forage in Cape Cod Bay (January -April), Massachusetts Bay (January - April), Great South Channel (April - June), the western Gulf of Maine (April - May and July - October), the northern edge of Georges Bank (May - July), Jordan Basin (August - October), and Wilkinson Basin (April - July). Increasing evidence of wintering areas (approximately November - January) are in Cape Cod Bay, Jeffreys and Cashes Ledge, Jordan Basin, and Massachusetts Bay (e.g., Stellwagen Bank). Based on this information north Atlantic right whales can be present in PDS, IBNDS, GHDS, MBDS, CCBDS, and RISDS year round.

Designated North Atlantic Right Whale Critical Habitat

The PDS, IBNDS, GHDS, CCBDS, and MBDS are located within designated NARW CH. The CADS is located approximately 0.6 miles to the west of NARW CH while MIDS is located approximately five miles to the north. See figures below.

Figure 21. North Atlantic Right Whale Critical Habitat and Locations of 13 Disposal Sites.

Figure 22. North Atlantic Right Whale Critical Habitat relative to MIDS.

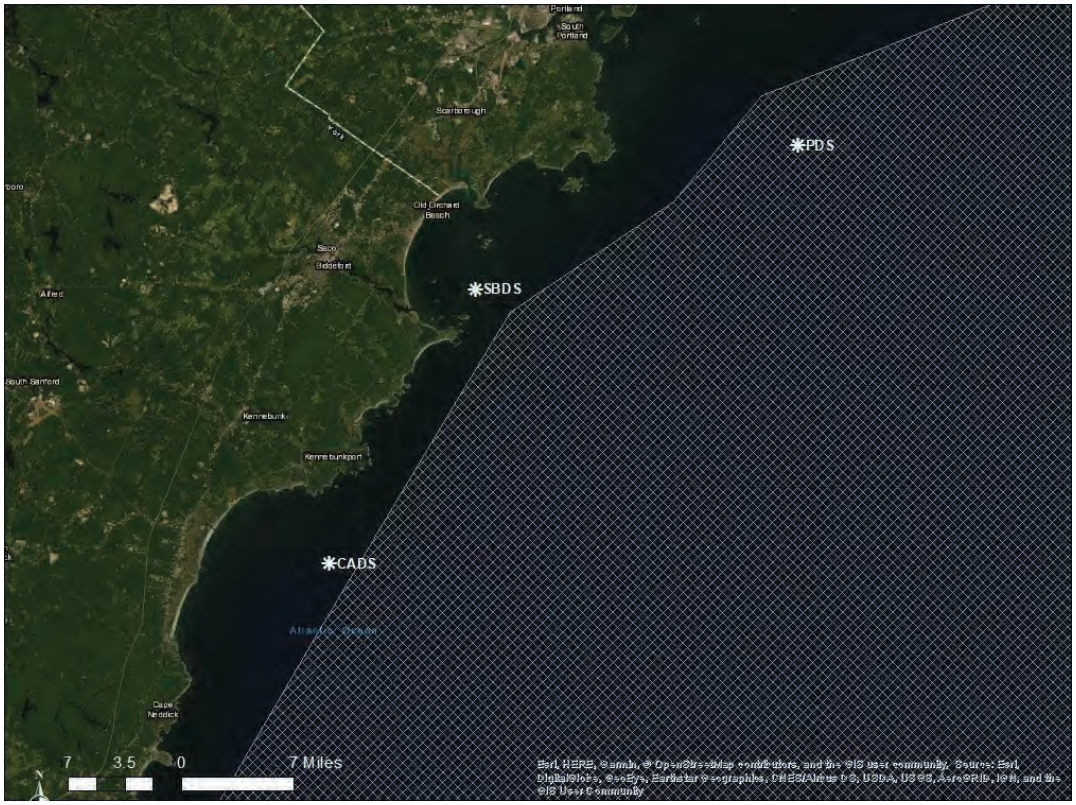

Figure 23. North Atlantic Right Whale Critical Habitat relative to CADS.

Critical habitat is defined by section 3 of the ESA as "(1) the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (a) essential to the conservation of the species and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species (NOAA 2016)."

The final rule (81 FR 4837) identifies the following four physical and biological features of foraging habitat that are essential to the conservation of the species: (1) The physical oceanographic conditions and structures of the Gulf of Maine and Georges Bank region that combine to distribute and aggregate *Calanus finmarchicus* for right whale foraging, namely prevailing currents and circulation patterns, bathymetric features (basins, banks, and channels), oceanic fronts, density gradients, and temperature regimes; (2) Low flow velocities in Jordan, Wilkinson, and Georges Basins that allow diapausing *C. finmarchicus* to aggregate passively below the convective layer so that the copepods are retained in the basins; (3) Late stage *C. finmarchicus* in dense aggregations in the Gulf of Maine and Georges Bank region; and (4) Diapausing *C. finmarchicus* in aggregations in the Gulf of Maine and Georges Bank region.

While the action area overlaps with designated critical habitat, only one of the four physical and biological features essential to right whale foraging, as described above, may occur (i.e., feature 3, an aggregation of the copepod *Calanus finmarchicus*).

Endangered and Threatened Sea Turtles

According to the GARFO Master ESA Species Table for sea turtles (Appendix B), November, 2017, four species of sea turtles (loggerhead, green, Kemp's ridley, and leatherback) are found throughout continental shelf and slope waters of the Northwest Atlantic Ocean; tropical to boreal waters, preferred temperatures greater than 10°C; northward and inshore movement into waters of the Greater Atlantic Region begins in the spring, with turtles arriving into Mid-Atlantic waters in mid-April/May and into Gulf of Maine waters in June. This trend is reversed in the fall with most turtles leaving the region's waters by the end of November. Outside of these times, sea turtle presence in the region's waters is considered unlikely aside from cold-stunned individuals that fail to migrate south (see below). A fifth species (hawksbill) is considered extremely rare in the region based on only a few documented occurrences and its affinity for tropical waters and coral reef type habitats, therefore, hawksbill sea turtles will not be considered further.

In general, listed sea turtles are seasonally distributed in coastal U.S. Atlantic waters, migrating to and from habitats extending from Florida to New England, with overwintering concentrations in southern waters. As water temperatures rise in the spring, these turtles begin to migrate northward. As temperatures decline rapidly in the fall, turtles in northern waters begin their southward migration. Sea turtles are expected to be in the vicinity of the 13 disposal sites in warmer months, typically when water temperatures are at least 15°C. This generally coincides with the months of May through November, with the highest concentration of sea turtles present from June through October (Shoop and Kenney 1992; Morreale and Standora 2005).

We do not know of any sea turtle studies that focus on the action area (13 disposal sites and transit routes) and provide an estimate the depth at which they typically occur. However, studies of sea turtles near Long Island, New York have shown that the species typically occur in waters with depths between 16 and 49 feet deep and in areas where the waters are slow-moving or still (i.e., less than 2 knots) (Ruben and Morreale 1999). Thus, based on the best available information, we assume their preferred foraging depth is between 16 and 49 feet deep.

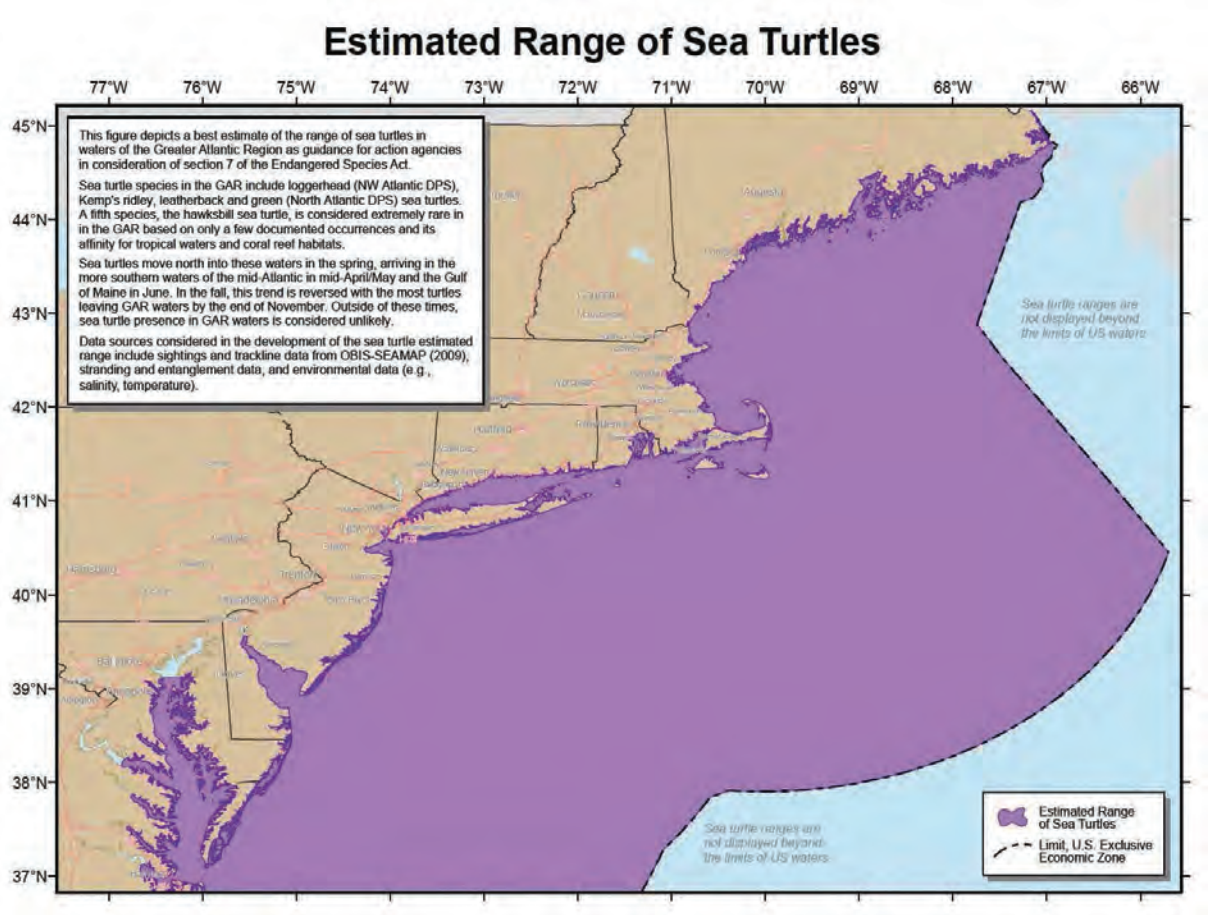

Figure 24. Estimated Range of Sea Turtles.

The months of November and December are cold stun season in the northeast region. The term "cold stunning" refers to the hypothermic reaction that occurs when sea turtles are exposed to prolonged cold water temperatures. Initial symptoms include a decreased heart rate, decreased circulation, and lethargy, followed by shock, pneumonia, and possibly death. Sea turtles typically begin to migrate south by late October; it is largely unknown why some sea turtles do not migrate south prior to the drop in water temperatures. Some animals foraging in shallow bays and inlets may become susceptible to cold stunning because the temperatures in these areas can drop quite rapidly and unexpectedly. Kemp's ridley sea turtles are the most common cold stunned species. Loggerhead and green sea turtles are also often affected by cold stunning.

It is less likely that turtles will be in the vicinity of disposal sites due to the greater than 50-foot depths. It is further less likely that turtles will be in the vicinity of disposal sites and along the transit routes due to the Nov 8th - April 9th TOY work window typically imposed for

dredging in Maine waters due to Atlantic salmon; and the following typically imposed work windows for dredging to avoid effects to Essential Fish Habitat: November to March for Maine and New Hampshire, November 1 to January 14 in Massachusetts, and October 15 to January 31 in Rhode Island. When circumstances necessitate extending dredging into warmer months on a project-by-project basis, the speed restrictions and lookout requirements will help protect turtles. Based on these species' preferred coastal foraging habitat and the time of year they are expected to be in the action area, opportunistically foraging and transient sea turtles could be present in the disposal sites and transit routes from May through November.

6. Effects of the Action

Turbidity

Transportation activities should not increase turbidity due to the depth of the disposal sites. During the discharge of dredged sediment from a barge, suspended sediment levels have been reported to be as high as 500.0 mg/L within 250 feet of the disposal vessel, decreasing to background levels (i.e., 15.0-100.0 mg/L depending on location and sea conditions) within 1,000 - 6,500 feet (ACOE 1983). Multiple characterizations of disposal plume spatial and temporal dynamics have been conducted by the Corps New England District, providing an extensive body of knowledge on all aspects of off-shore disposal (e.g., Fredette and French 2004, SAIC 2005). Total suspended solids near the center of the sediment plume body have been observed to return to near background levels in 35 to 45 minutes (EPA and ACOE 2010). We would expect conditions to be the same at the 13 disposal sites analyzed herein.

Studies of the effects of turbid waters on fish suggest that concentrations of suspended solids can reach thousands of milligrams per liter before an acute toxic reaction is expected (Burton 1993). The total suspended solids (TSS) levels expected for debris disposal (up to 500.0 mg/L) are below those shown to have an adverse effect on fish (580.0 mg/L for the most sensitive species, with 1,000.0 mg/L more typical; see summary of scientific literature in Burton 1993). Based on this information, we do not expect increased TSS levels from offshore disposal to adversely affect sturgeon.

No information is available on the effects of TSS on juvenile and adult sea turtles or whales. While the increase in suspended sediments may cause Atlantic and shortnose sturgeon, sea turtles, and whales to alter their normal movements, these minor movements will be too small to be meaningfully measured or detected. As these disposal sites are mainly in the open Atlantic Ocean, these species will have plenty of room to swim around any turbidity plumes that may develop. Based on this information, any increase in suspended sediment will not hinder the movement of listed sturgeon, turtles, or whales between foraging areas or while migrating or otherwise negatively affect listed species in the action area. Based on this information, we believe that the effects of suspended sediment on listed sturgeon, turtles, and whales resulting from the disposal of dredged material will be insignificant. There are very few Atlantic salmon migrating in and out of Maine river systems, and even from April 10 - Nov. 7 (actions under Group C special conditions) they are likely to be widely dispersed and only present in the action area for a matter of days. Therefore, the co-occurrence of salmon and disposal vessels/disposal activity is extremely unlikely to occur, and effects to Atlantic salmon are discountable.

Habitat Modification

Any prey targeted by whales and Atlantic salmon in the action area would be pelagic and highly mobile, and therefore would not be impacted by turbidity or TSS associated with disposal interactions. The same is true of jellyfish, the preferred prey species of leatherback sea turtles. Adult green sea turtles forage on sea grasses; because no sea grasses inhabit the 13 disposal sites, no sea grasses will suffer adverse effects from placement. However, juvenile green sea turtles, juvenile Kemp's ridley sea turtles, and both sturgeon species forage on benthic invertebrates.

TSS levels above 390.0 mg/L may have an adverse effect on benthic communities (EPA 1986). Some benthic invertebrates that sturgeon and turtles feed on have limited mobility and could be temporarily buried during disposal options. Some buried animals will be able to migrate upward through the sediment and reestablish themselves. In areas where benthic invertebrates experience adverse effects, we expect unaffected individuals from similar nearby habitats to recolonize impacted areas within a period of 1-11 months (Wilbur and Clarke 2007). Therefore, while there may be some temporary loss of foraging opportunities, the unaffected areas within the action area provide alternative foraging sites for listed species. Given the minor and temporary nature of the turbidity and TSS impacts, any effects on listed species' fitness from loss of foraging opportunities are too small to be meaningfully evaluated, measured, or detected, and are insignificant.

We do expect some temporary impacts to potential sturgeon and sea turtle foraging habitat. Immobile benthic organisms would be covered at the disposal site, but the area would quickly recolonize from nearby similar habitats and seasonal recruitment. This is shown in DAMOS reports. While there is likely to be some temporary reduction in the amount of prey at the disposal sites, the action will result in the loss of only a small portion of the available forage in the action area. Furthermore, given the expansive foraging opportunities within the action areas, any minor loss of foraging habitat would be too small to be meaningfully measured or detected. Therefore, any reduction in benthic prey from disposal events will be insignificant.

Water Quality (Dissolved Oxygen, Temperature, Pollutants etc.)

Minor and temporary effects on water quality parameters resulting from disposal activities may include lowered dissolved oxygen, changes in temperature, addition of pollutants, etc. Any discharges associated with authorized activities will meet all applicable water quality standards pursuant to the CWA and its implementing regulations, the Section 404(b)(1) Guidelines, and Section 103 of the MPRSA. These are in place to prevent acute or chronic toxic impacts to aquatic life. The probability of whales, sea turtles, Atlantic salmon, and sturgeon being impacted by any temporary shifts in water quality is extremely unlikely because of the short time of the disturbance and the large water body that the disposal will be occurring in, as well as the protective conditions that avoid disposal when protected species are visible (see above). Therefore, impacts on water quality are extremely unlikely to negatively affect listed species and are discountable.

Vessel Traffic and Interaction

Transportation and disposal of dredged material will lead to a small temporary increase in vessel traffic due to dredge vessels traveling to and from the dredge site; and barges, scows, and tugs traveling to and from the 13 disposal sites. See Appendix A for round trips based on recent history. According to one dredge contractor, their dredge vessels always travel at less than 10 knots to conserve fuel, which should minimize the interactions between vessels and protected species.

In our analysis we considered three elements: (1) the existing baseline conditions, (2) the action and what it adds to existing baseline conditions, and (3) new baseline conditions (the existing baseline conditions and the action together). We have determined that vessel traffic added to baseline conditions as a result of the proposed project is not likely to adversely affect ESA-listed species for the following reasons.

The Atlantic Ocean is subject to frequent vessel traffic. Adding one to three project vessels to the existing baseline will not increase the risk that any vessel in the area will strike an individual, or will increase it to such a small extent that the effect of the action (i.e., any increase in risk of a strike caused by the project) cannot be meaningfully measured or detected. The baseline risk of a vessel strike along dredge vessel routes is extremely small given water depths preclude whale presence, sea turtle and sturgeon presence is expected to be limited to infrequent transient individuals, and the action area is part of the larger Atlantic Ocean where species can be more widely distributed and not concentrated just in the deeper waters of the navigation channel. The increase in traffic associated the proposed project is extremely small. The addition of project vessels will also be intermittent, temporary, and restricted to a small portion of the overall action area on any day dredging occurs. Once the disposal is completed, it will maintain the status quo and not cause an increase in the baseline number of vessels or changes in vessel traffic patterns and thus not change the risk of a vessel strike. The condition groupings A, B, and C add further protections for ESA-listed species that make an interaction extremely unlikely to occur. Given the nature of the action area, the low baseline risk of vessel strikes in the area, and the extremely small, intermittent and temporary increase in vessel traffic that would be added to existing traffic in the action area as a result of the project, it is extremely unlikely for a vessel strike in the action area. Given that the action area is in a coastal environment where listed species are able to disperse widely, the risk of vessel strike is extremely unlikely. As a result, the effect of the risk of a vessel strike in the action area is discountable.

North Atlantic Right Whale Critical Habitat

Only the PDS, IBNDS, GHDS, CCBDS, and MBDS are located within NARW CH, while CADS is located approximately 0.6 miles to the west. As stated above, physical and biological feature (3) of NARW CH (i.e., late stage *C. finmarchicus* in dense aggregations) may occur in the action area. Dredge material disposal can result in a number of potential environmental effects including increased turbidity, disturbance of benthic communities, and resuspension of contaminants and toxins. However, total suspended solids near the center of the sediment plume body have been observed to return to near background levels in 35 to 45 minutes, and the proposed action will have ephemeral effects on existing site conditions that will rapidly disperse at depths where the essential foraging feature may be present. Based on the best available

information, we conclude that the proposed action will not have any effect on the conservation value of physical and biological feature (3), or any of the other physical and biological features for NARW CH.

Atlantic Salmon Critical Habitat

Only TLDS is located in designated Atlantic salmon critical habitat. The area functions as a migratory corridor for Atlantic salmon. The project will temporarily affect migratory PBFs 1, 3, and 4.

Migration PBF M1. Freshwater and estuary migratory sites free from physical and biological barriers that delay or prevent access of adult salmon seeking spawning grounds needed to support recovered populations.

TLDS consists of a 500 x 500 meter disposal site in Union River Bay which measures approximately 3,334 meters wide where the disposal site is located. Within the action area, disposal at the TLDS would partially obstruct the migration route of Atlantic salmon. Temporary impacts include those resulting from sedimentation, turbidity, and habitat modification from the disposal. The impact of the disposal could create TSS levels as high as 500.0 mg/L within 76 meters of the disposal vessel and decreasing to background levels within 305-1,981 meters (USACE 1983), leaving roughly more than half the width of the bay open for salmon migration. The in-water work window from November 8-April 9 minimizes adult salmon's exposure to these construction related stressors. In the effects analysis sections above, we conclude that we expect the TSS levels from disposal to settle long before any adult Atlantic salmon will be present in the action area.

The proposed action may have temporary negative effects on PBF M1 by creating in water stressors from disposal activities; however, none of the proposed activities will be barriers to the movement of adult Atlantic salmon. Based on our assessment, these impediments to movement are extremely unlikely to affect the function of PBF M1 to the conservation of the species in the action area; that is, it is extremely unlikely that the habitat alterations in the action area will impede the movement of adults to and from spawning sites; therefore, the effects are discountable.

Migration PBF M3. Freshwater and estuary migration sites with abundant, diverse native fish communities to serve as a protective buffer against predation.

The TLDS is located in Union River Bay which is connected to the Atlantic Ocean. A diverse variety of native fish including alewives, blueback herring, and American shad are expect to be present in the action area during their migrations. The proposed in-water work window (November 8-April 9) avoids the spawning migration of the most important native fish communities that serve as a protective buffer against Atlantic salmon predation (i.e., alewife, blueback herring, and American shad). We do not expect the temporary barriers to impede or delay the upstream or downstream passage of these species. Therefore, we do not expect the proposed project to affect diverse native fish communities' ability to serve as a protective buffer against salmon predation.

Migration PBF M4. Freshwater and estuary migration sites free from physical and biological barriers that delay or prevent emigration of smolts to the marine environment.

As mentioned before, disposal at the TLDS would partially obstruct the migration route of Atlantic salmon. The in-water work window (November 8-April 9) for the proposed action avoids disposal impacts on migrating smolts. In the effects analysis sections above, we conclude that we expect the TSS levels from disposal to settle long before any Atlantic salmon smolts will be present in the action area. Even if smolts were present at the time of the disposal, the turbidity from the disposal would not impede the migration of smolts, as they could make minor movements around them in a sufficiently wide reach of the river (3,334 meters wide). Therefore, any effects of the proposed action on the function of the habitat to support smolt emigration to the marine environment are too small to be meaningfully measured or detected, and are therefore, insignificant.

7. Conclusions

Based on the analysis that all effects of the proposed action when added to the baseline will be insignificant and/or discountable, we have determined that continued use of the MIDS, TLDS, EPDS, RDS, MuBDS, PDS, SBDS, CADS, IBNDS, GHDS, MBDS, CCBDS, RISDS, and nearshore or open-water disposal sites off of the coasts of Maine, New Hampshire, Massachusetts, Rhode Island and Connecticut for dredged material disposal is not likely to adversely affect any listed species under NMFS jurisdiction. We have made the determination that the proposed activity will have no effect on critical habitat for north Atlantic right whales and it is not likely to adversely affect designated Atlantic salmon critical habitat. We request your concurrence with this determination. We certify that we have used the best scientific and commercial data available to complete this analysis.

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Appendix A: Disposal information (October 2011 to July 2019)

Disposal Site	Contract # (Navigation) File # (Regulatory)	Contract or Permittee Name	Office	Dredge Plant	Start Date	End Date	Round Trips	Estimated Quantity cubic yards
Mark Island Disposal Site	W912WJ-16-C-0004	2016 Pig Island Gut and Beals Harbor Maintenance Dredging	Civ	Eddie Carroll	05-Dec-16	20-Jan-17	44	91622
				TMC 140	07-Dec-16	07-Apr-17	57	27942
							101	
Tupper Ledge Disposal Site		No projects have disposed of dredged material at this site since October 2011.						
Eastern Passage Blue Hill Bay Disposal Site	NAE-2007-908	Great Harbor Marina, Southwest Harbor, ME	Reg	Jeanne	19-Dec-16	06-Jan-17	5	1332
Rockland Disposal Site		No projects have disposed of dredged material at this site since October 2011.						
Muscongus Bay Disposal Site		No projects have disposed of dredged material at this site since October 2011.						
Portland Disposal Site	NAE-2013-779	Sprague Operating Resources, Portland, ME	Reg	Mary P.	19-Dec-13	12-Mar-14	24	8,179
	W912WJ-13-C-0012	Portland Harbor FNP	Civ	Joe Verrochi	8-Feb-14	22-Mar-14	60	148,249
				MERC Shevlin	8-Feb-14	22-Mar-14	60	178,979
				W 4002	15-Feb-14	26-Feb-14	14	32,153
				Mighty Quinn	23-Feb-14	24-Mar-14	43	110,151
				W 4001	2-Mar-14	17-Mar-14	30	63,398
	NAE-2006-02255	Global Petroleum, South Portland, ME	Reg	Mary P.	15-Jan-15	15-Apr-15	32	9,879
					18-Feb-16	3-Mar-16	3	1,368
	NAE-2014-1473	Lower Falls Landing Associates, Yarmouth, ME	Reg	Jeanne	3-Nov-15	9-Nov-15	5	1,429
	NAE-2008-02244	Yarmouth Boat Yard, Yarmouth, ME	Reg	Jeanne	13-Apr-15	15-Apr-15	4	1200(1)
					9-Nov-15	11-Dec-15	20	7,393
	W912WJ-14-C-0022	Royal River, Yarmouth, ME	Civ	SE 103	20-Oct-14	1-Feb-15	49	54,778
				SE 104	24-Nov-14	23-Jan-15	28	18,986

	NAE-2004-2397	Yankee Marina, Yarmouth, ME	Reg	Jeanne	4-Nov-14	20-Dec-14	28	9,086
					6-Apr-15	8-Apr-15	3	994(1)
	NAE-2006-927	Royal River Boat Yard - West Branch	Reg	Jeanne	20-Dec-14	6-Jan-15	14	4220.6(1)
					25-Mar-15	6-Apr-15	9	3176.8(1)
	NAE-2004-02856	Brewers South Freeport, South Freeport, ME	Reg	Barge 15	12-Mar-18	10-Apr-18	11	5,208
	NAE-2006-03992	Citgo Petroleum, South Portland, ME	Reg	Mary P.	06-Feb-18	12-Apr-18	12	4,524
							449	
Saco Bay Disposal Site		No projects have disposed of dredged material at this site since October 2011.						
Cape Arundel Disposal Site	NAE-2005-26	Arundel Yacht Club, Kennebunkport, ME	Reg	Jeanne	6-Jan-16	21-Jan-16	11	3,557
	NAE-2005-280	Kennebunkport Marina	Reg	Jeanne	21-Jan-16	27-Jan-16	3	759
	NAE-2009-793	Town of Kennebunkport	Reg	Jeanne	27-Jan-16	28-Jan-16	1	416
	NAE-2004-319	Yachtsman Lodge and Marina	Reg	Jeanne	11-Feb-16	8-Mar-16	10	3,090
	NAE-2015-01294	DiMillo's Kennebunk Marina, Kennebunk, ME	Reg	Jeanne	15-Mar-16	23-Mar-16	6	1,715
	W912WJ-17-C-0017	York Harbor, ME	Civ	Jeanne	29-Nov-17	08-Feb-18	18	5,889
				Scow 1501	30-Nov-17	01-Feb-18	24	22,438
				Barge 15	05-Feb-18	12-Mar-18	12	8,157
							85	
Ipswich Bay Disposal Site		No projects have disposed of dredged material at this site since October 2011.						
Gloucester Harbor Disposal Site		No projects have disposed of dredged material at this site since October 2011.						
Mass Bay Disposal Site	NAE-2008-3461	Kent Street Corporation, Mill Wharf Marina	Reg	Scow 1501	9-Nov-11	1-Dec-11	4	2,226
	NAE-2009-2570	Pilgrim Station	Reg	N 3002	26-Nov-11	31-Dec-11	25	43,025
	W912WJ-12-C-0001	Chelsea River & Boston Inner	Civ	GL 66	27-Mar-12	17-Apr-12	8	50,710

				GL 65	29-Mar-12	19-Apr-12	7	42,864
	NAE-2005-01095	City of Salem, MA	Reg	TMC 140	20-Aug-12	13-Sep-12	5	3,919
					27-Nov-12	18-Jan-13	30	25,020
					26-Jan-16	3-Mar-16	21	12,659
	NAE-2009-00209	Allen Harbor	Reg	Scow 743	25-Oct-12	4-Mar-13	32	14,352
				Scow 742	27-Oct-12	5-Feb-13	30	10,094
	NAE-2007-2344	Town of Hull Nantasket Pier, Hull Harbor	Reg	Scow 742	12-Nov-13	20-Dec-13	11	5,648
	NAE-2008-2721							2,324
	NAE-2010-2322							10,730
	NAE-2016-1163							627
	NAE-2011-00212	Quincy Shipyard, Quincy, MA	Reg	Joe Verrochi	20-Oct-16	18-Feb-17	8	17,367
				Eddie Carroll	11-Feb-17	11-Feb-17	7	15,822
	W912WJ-16-C-0036	Boston Harbor	Civ	GL 64	27-Jul-17	24-Nov-17	153	830,163
				GL 66	30-Jul-17	31-Oct-17	112	612,522
				GL 701	7-Sep-17	16-Nov-17	86	359,454
				GL 702	11-Sep-17	16-Oct-17	35	175,061
	NAE-2012-00558	Manchester Marine Corporation, Manchester, MA	Reg	Barge 15	20-Dec-17	02-Feb-18	14	6,339
	NAE-2012-322							23,541
	NAE-2012-557							1,638
	NAE-2017-03047							14,677
	W912WJ-18-C-0020							3777
	W912WJ-18-C-0010	2018 Boston Harbor Improvement Dredging	Civ	Joe Verrochi	10-Jul-18	15-Jul-19	304	1,037,235

							2632	
	NAE-2012-00990	Town of Barnstable, MA	Reg	Pequot	12/17/2012	1/9/2013	6	2142.3
	NAE-2013-1792	Eastham - Rock Harbor	Reg	Scow 562	10/7/2014	11/26/2014	56	
				Scow 117	10/7/2014	11/30/2014	59	38600(2)
	W912WJ-15-C-0022	Duxbury Harbor, Duxbury, MA	Civ	SE 103	10/13/2015	1/29/2016	46	
				SE 104	10/26/2015	1/28/2019	45	
				Eddie Carroll	11/17/2015	1/4/2016	36	
				Mighty Quinn	11/25/2015	12/5/2015	9	
				Joe Verrochi	12/5/2015	1/3/2016	18	199843(3)
	NAE-2009-2185	North River Marina, Scituate, MA	Reg	Scow 117	10/29/2015	11/17/2015	7	3029.4
	NAE-1997-453	Gateway Marina, Hyannis, MA	Reg	Scow 742	12/2/2016	12/26/2016	6	1749.2
	NAE-2004-4187	Town of Barnstable, Barnstable Harbor, MA	Reg	Scow 562	11/2/2017	12/12/2017	22	7719.9
	NAE-2015-02882	Sesuit Harbor, Dennis, MA	Reg	Scow 562	10/31/2018	12/20/2018	31	10898.4
				Scow 1501	10/31/2018	12/30/2018	30	25139.3
				Scow 117	10/31/2018	1/1/2019	40	14293.8
							411	
	NAE-2007-2709	New Bedford Marine Commerce Terminal	Reg	Eddie Carroll	19-May-13	5-Sep-13	31	65838.68(4)
					25-Feb-14	8-Jul-14	49	73,670
					17-Jul-14	28-Nov-14	41	100,230
					26-Jun-15	19-Jul-15	18	43,323
				Joe Verrochi	20-May-13	4-Sep-13	20	32922(5)
					10-Jun-14	10-Jul-14	14	26,275

					17-Jul-14	2-Dec-14	36	104,826
					21-Mar-15	12-Jul-15	63	151,457
				Mighty Quinn	20-May-13	3-Sep-13	25	51052(6)
					7-May-14	7-Jun-14	14	22,891
					15-Sep-14	4-Feb-15	3	9,225
					20-Mar-15	25-Nov-15	41	94,557
				MERC Shevlin	26-Jun-13	3-Sep-13	10	21060(7)
					10-May-14	8-Jun-14	15	21,774
					5-Aug-14	4-Feb-15	22	74,766
					23-Mar-15	6-Apr-15	3	7,100
				TMC 140	24-Jan-14	10-Feb-14	5	4,599
	NAE-2016-00019	Town of Harwich, MA	Reg	Scow 117	08-Nov-17	22-Jan-18	27	10,207
				Scow 562	15-Dec-17	05-Jan-18	5	1,306
	NAE-2007-00457	Norwalk Cove Marina, Norwalk, CT	Reg	GW 3	15-Dec-17	26-Jan-18	20	4,379
	NAE-2007-01916	Gateway Terminal, New Haven, CT	Reg	W 4004	28-Feb-18	01-Mar-18	2	3,106
				W 4003	28-Feb-18	01-Mar-18	1	2,148
							465	

Key
(1) Estimated, displacement table truncated
(2) Taken from applicant's plans
(3) Provided by Corps Planning Division
(4) 27,069 cyds to Cape Cod Disposal Site
(5) 20,870 cyds to Cape Cod Disposal Site
(6) 25,008 cyds to Cape Cod Disposal Site
(7) 16,521 cyds to Cape Cod Disposal Site

Appendix B

GARFO Master ESA Species Tables

GARFO Master ESA Species Table - Gulf of Maine DPS of Atlantic Salmon

General distribution: the Gulf of Maine (GOM) DPS of Atlantic salmon includes all anadromous Atlantic salmon whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River, and wherever these fish occur in the estuarine and marine environment; the marine range of the GOM DPS extends from the Gulf of Maine, throughout the Northwest Atlantic Ocean, to the coast of Greenland; included in the GOM DPS are all associated conservation hatchery populations used to supplement these natural populations; currently, such conservation hatchery populations are maintained at Green Lake National Fish Hatchery and Craig Brook National Fish Hatchery, both operated by the U.S. Fish and Wildlife Service; excluded from the GOM DPS are landlocked Atlantic salmon and those salmon raised in commercial hatcheries for the aquaculture industry.

Disclaimer: the best available information on GOM DPS Atlantic salmon presence within the Greater Atlantic Region is presented below; waterbodies included are ones where we have information specific to GOM DPS Atlantic salmon use of the area that would be helpful for action agencies reviewing proposed actions and their potential effects on Atlantic salmon; for waterbodies in the Gulf of Maine not listed below, we have no data on usage by GOM DPS Atlantic salmon; a description of Atlantic salmon life history stages are included at the end of the table below

Body of Water	**Distribution/Range in Watershed**			**Life Stages Present**	**Use of the Watershed**
Narraguagus River	Marine/Estuarine	Throughout	Apr-Nov	Smolts (Juveniles) and Adults	Foraging, Migration
	Freshwater	Throughout	Year round	Eggs, Hatchlings (Alevin), Fry, Parr, Smolts (Juveniles), Adults	**Spawning** - Oct-Dec **Rearing** - Year round **Foraging** - Year round **Overwintering** - Dec-Mar
Ducktrap River	Marine/Estuarine	Throughout	Apr-Nov	Smolts (Juveniles) and Adults	Foraging, Migration
	Freshwater	Up to Dickey Mill Dam (RKM 18)	Year round	Eggs, Hatchlings (Alevin), Fry, Parr, Smolts (Juveniles), Adults	**Spawning** - Oct-Dec **Rearing** - Year round **Foraging** - Year round **Overwintering** - Dec-Mar
Dennys River	Marine/Estuarine	Throughout	Apr-Nov	Smolts (Juveniles) and Adults	Foraging, Migration
	Freshwater	Throughout	Year round	Eggs, Hatchlings (Alevin), Fry, Parr, Smolts (Juveniles), Adults	**Spawning** - Oct-Dec **Rearing** - Year round **Foraging** - Year round **Overwintering** - Dec-Mar
Machias River	Marine/Estuarine	Throughout	Apr-Nov	Smolts (Juveniles) and Adults	Foraging, Migration
	Freshwater	Throughout	Year round	Eggs, Hatchlings (Alevin), Fry, Parr, Smolts (Juveniles), Adults	**Spawning** - Oct-Dec **Rearing** - Year round **Foraging** - Year round **Overwintering** - Dec-Mar

GARFO Master ESA Species Table - Gulf of Maine DPS of Atlantic Salmon

East Machias River	Marine/Estuarine	Throughout	Apr-Nov	Smolts (Juveniles) and Adults	Foraging, Migration
	Freshwater	Throughout	Year round	Eggs, Hatchlings (Alevin), Fry, Parr, Smolts (Juveniles), Adults	**Spawning** - Oct-Dec **Rearing** - Year round **Foraging** - Year round **Overwintering** - Dec-Mar
Penobscot River	Marine/Estuarine	Throughout	Apr-Nov	Smolts (Juveniles) and Adults	Foraging, Migration
	Freshwater	Up to Medway Dam on western branch; Up to Grand Lake Dam on eastern branch	Year round	Eggs, Hatchlings (Alevin), Fry, Parr, Smolts (Juveniles), Adults	**Spawning** - Oct-Dec **Rearing** - Year round **Foraging** - Year round **Overwintering** - Dec-Mar
St. George River	Marine/Estuarine	Throughout	Apr-Nov	Smolts (Juveniles) and Adults	Foraging, Migration
	Freshwater	Up to Trues Pond Dam	Year round	Eggs, Hatchlings (Alevin), Fry, Parr, Smolts (Juveniles), Adults	**Spawning** - Oct-Dec **Rearing** - Year round **Foraging** - Year round **Overwintering** - Dec-Mar
Medomak River	Marine/Estuarine	Throughout	Apr-Nov	Smolts (Juveniles) and Adults	Foraging, Migration
	Freshwater	Throughout	Year round	Eggs, Hatchlings (Alevin), Fry, Parr, Smolts (Juveniles), Adults	**Spawning** - Oct-Dec **Rearing** - Year round **Foraging** - Year round **Overwintering** - Dec-Mar
Kennebec River	Marine/Estuarine	Throughout	Apr-Nov	Smolts (Juveniles) and Adults	Foraging, Migration
	Freshwater	Up to Anson Dam	Year round	Eggs, Hatchlings (Alevin), Fry, Parr, Smolts (Juveniles), Adults	**Spawning** - Oct-Dec **Rearing** - Year round **Foraging** - Year round **Overwintering** - Dec-Mar
Androscoggin River	Marine/Estuarine	Throughout	Apr-Nov	Smolts (Juveniles) and Adults	Foraging, Migration
	Freshwater	Up to Lewiston Falls Dam (32 RKM upstream of Merrymeeting Bay)	Year round	Eggs, Hatchlings (Alevin), Fry, Parr, Smolts (Juveniles), Adults	**Spawning** - Oct-Dec **Rearing** - Year round **Foraging** - Year round **Overwintering** - Dec-Mar

Listing rule: 74 FR 29344, June 19, 2009; **Recovery plan**: NMFS and USFWS 2005; **Additional references**: Fay et al. 2006; 74 FR 29300, June 19, 2009

Atlantic Salmon Life History Stages Occurring in Freshwater

LIFE STAGE	SIZE/WEIGHT	DESCRIPTION
Egg	5-6 mm	Deposited in gravel depression (redd) in fall; hatch in early spring (March-April).
Larvae (Alevin)	2-3 cm	Alevin or sac-fry remain in the gravel for three to six weeks after hatching before emerging from the gravel to seek food as fry (mid-May).
Juvenile (Fry)	5-8 cm	Within days, the fry enter the parr stage, indicated by vertical bars visible on their sides. Capable of capturing and consuming live food.
Juvenile (Parr)	10-12 cm	Feed and grow for one to three years in their native stream before becoming smolts.
Sexually Mature Juvenile (Precocious Parr)	10-12 cm	Some male parr become sexually mature prior to smoltification and can successfully participate in spawning with sea-run adult females.
Juvenile (Smolt)	13-17 cm/ 60 grams	In the spring, their body chemistry changes (smoltification). Smolts exit freshwater system and enter marine environment (Late April–early June).
Adults (1Sea Winter)	1-3 kg.	Return to natal stream in spring-summer after only 1 winter at sea and spawn in the fall at a smaller size; 95 to 98% of the grilse that return to Maine rivers are male.
Adults (2-3 Sea Winter)	~75 cm/4.5 kg;	Return to natal stream in spring-summer after 2 or more winters at sea and spawn in fall; 55 to 75% of the 2SW and 3SW returns are female.
Adults (Kelt)	Weight loss due to spawning in females ranges from 12% to 47%.	Post-spawn salmon can return to the ocean in the fall, or can overwinter in the river and estuary often feeding on rainbow smelt.
Adults (Repeat Spawner)		If a rejuvenated kelt survives another one to two years at sea, it will return to its home river as a “repeat spawner

Atlantic Salmon Marine Life History

The marine life history of Atlantic salmon of U.S. origin is not as well understood as the freshwater phase. Atlantic salmon of U.S. origin are highly migratory, undertaking long marine migrations from their natal rivers to the Northwest Atlantic Ocean, where they are distributed seasonally over much of the region. The marine phase starts with the completion of smoltification and migration through the estuary of the natal river.

GARFO Master ESA Species Table - Marine Mammals

Species	Region	Offshore distribution	Nearshore areas of importance	Likely Presence	Life Stages Present	Behaviors Anticipated to Occur
North Atlantic right whale	Northeast (ME to Cape Cod, MA)	throughout continental shelf and slope waters	Cape Cod Bay, Massachusetts Bay, Great South Channel, western Gulf of Maine, Georges Bank, Jordan Basin, Wilkinson Basin, Jeffreys Ledge, Cashes Ledge	Year round	Adults and juveniles	**Foraging -** Cape Cod Bay (January-April), Massachusetts Bay (January-April), Great South Channel (April-June), the western Gulf of Maine (April-May and July-October), the northern edge of Georges Bank (May-July), Jordan Basin (August-October), and Wilkinson Basin (April-July) **Wintering -** Increasing evidence of wintering areas (approximately November-January) in Cape Cod Bay, Jeffreys and Cashes Ledge, Jordan Basin, and Massachusetts Bay (e.g., Stellwagen Bank)
	Mid-Atlantic (Cape Cod, MA to VA)	throughout continental shelf and slope waters	possibly waters off New Jersey and Virginia	Year round	Adults and juveniles	**Migration** - Migratory pathway to/from northern (high latitude) foraging and southern calving grounds (primarily November-April)
Fin whale	Northeast (ME to Cape Cod, MA)	throughout continental shelf and slope waters	Massachusetts Bay, Stellwagen Bank, Great South Channel, east of Cape Cod, western Gulf of Maine, eastern perimeter of Georges Bank	Year round	Adults and juveniles	**Foraging** - Greatest densities from March-August; lower densities from September-November; important foraging grounds include Massachusetts Bay (especially Stellwagen Bank), Great South Channel, waters off Cape Cod (~40-50 meter contour), the western Gulf of Maine (especially Jeffreys Ledge), and the eastern perimenter of Georges Bank **Wintering** - Evidence of wintering areas in Stellwagen Bank and eastern perimeter of Georges Bank
	Mid-Atlantic (Cape Cod, MA to VA)	throughout continental shelf and slope waters	east end of Long Island, mid-shelf east of New Jersey	Year round	Adults and juveniles	**Foraging** - Year round in the mid-shelf area off the east end of Long Island **Migration** - Migratory pathway to/from northern (high latitude) foraging and southern (low latitude) calving grounds **Wintering** - Evidence of wintering areas in mid-shelf areas east of New Jersey **Calving** - Possible offshore calving area (October-January)

Sei whale	Northeast (ME to Cape Cod, MA)	continental shelf edge/slope waters with depths greater than 200 meters	none	Year round	Adults and juveniles	**Foraging** - Spring through summer, found in greatest densities in offshore waters of the Gulf of Maine and Georges Bank (eastern margin into the Northeast Channel area; along the southwestern edge in the area of Hydrographer Canyon); prefer continental shelf edge/slope waters (i.e., >200 meters), although incursions into continental shelf waters do occur seasonally or sporadically during periods of high prey abundance; generally feed on copepods and can often be found in areas where right whales are also found foraging, typically a bit further offshore than Cape Cod Bay **Migration** - The population is believed to migrate from south of Cape Cod and along the coast of eastern Canada in June-July, and return on a southward migration again in September-October
Sperm whale	Northeast and Mid-Atlantic (ME to VA)	areas with depths greater than 600 meters, and are relatively uncommon in waters less than 300 meters deep	none	Year round	Adults and juveniles	**Foraging** - In winter, concentrated east and northeast of Cape Hatteras; in spring, the center of distribution shifts northward to east of Delaware and Virginia, and is widespread throughout the central portion of the Mid-Atlantic Bight and the southern portion of Georges Bank; in summer, the distribution is similar but also includes the area east and north of Georges Bank and into the Northeast Channel region, as well as the continental shelf (inshore of the 100 meter isobath) south of New England; in fall, occurrence south of New England on the continental shelf is at its highest level, and there remains a continental shelf edge occurrence in the Mid-Atlantic Bight **Migration** - In some mid-latitudes, there seems to be a general trend to migrate north and south depending on the seasons (they move poleward in the summer); in temperate areas, there appears to be no obvious seasonal migration

GARFO Master ESA Species Table - Marine Mammals

Blue whale	Northeast and Mid-Atlantic (ME to VA)	continental shelf edge/slope waters with depths greater than 200 meters	none	Year round	Adults and juveniles	**Foraging** - Off the U.S. Northeast and Mid-Atlantic coasts, they are most common during the summer and fall feeding seasons and typically leave by early winter; although they are rare in continental shelf waters, blue whales are occasionally seen off Cape Cod; best considered an occasional visitor in U.S. Atlantic waters, which may represent the southern limit of its feeding range **Migration** - Migrate seasonally between summer and winter, but some evidence suggests that individuals remain in certain areas year round; information about movements varies with location, and migratory routes are not well known

Species	Listing Rule	Recovery Plan
North Atlantic right whale	73 FR 12024; March 6, 2008	NMFS 2005
Fin whale	35 FR 18319; December 2, 1970	NMFS 2010a
Sei whale	35 FR 18319; December 2, 1970	NMFS 2011
Sperm whale	35 FR 18319; December 2, 1970	NMFS 2010b
Blue whale	35 FR 18319; December 2, 1970	NMFS 1998

References: CETAP 1982; Watkins and Schevill 1982; Payne 1984; Kenney et al. 1986, 1995; Schevill et al. 1986; Winn et al. 1986; Wenzel et al. 1988; Hamilton and Mayo 1990; Payne et al.1990; Hain et al. 1992; Brown et al. 2002; McClellan et al. 2004; Good 2008; NOAA 2008; Baumgartner et al. 2011; Cole et al. 2013; Khan et al. 2013, 2014, 2016; Waring et al. 2016; 81 FR 4837, January 27, 2016; 50 CFR 224.105.

GARFO Master ESA Species Table - Sea Turtles

General distribution: Four species (loggerhead, green, Kemp's ridley, and leatherback) found throughout continental shelf and slope waters of the Northwest Atlantic Ocean; tropical to boreal waters, preferred temperatures greater than 10°C; northward and inshore movement into waters of the Greater Atlantic Region begins in the spring, with turtles arriving into Mid-Atlantic waters in mid-April/May and into Gulf of Maine waters in June; in the fall, this trend is reversed with most turtles leaving the region's waters by the end of November; outside of these times, sea turtle presence in the region's waters is considered unlikely aside from cold-stunned individuals that fail to migrate south (see below); a fifth species (hawksbill) is considered extremely rare in the region based on only a few documented occurrences and its affinity for tropical waters and coral reef type habitats

Disclaimer: the best available information on the presence of sea turtles in the Greater Atlantic Region is presented below; coastal/inshore areas of regular occurrence highlighted below are ones where we have information specific to sea turtle use of the area that would be helpful for action agencies reviewing proposed actions and their potential effects on turtles; however, they may occur in other coastal/inshore areas within this region for which we do not currently have specific information; for nesting individuals, the U.S. Fish and Wildlife Service has jurisdiction over sea turtles when they are on land

State	Coastal / Inshore Areas of Regular Occurrence	Likely Presence	Life Stages Present	Behaviors Anticipated to Occur
ME/NH and MA (north of Cape Cod)	Cape Cod Bay	June to October/November (note: cold stunning of hard-shelled sea turtles occurs annually from October to January)	Loggerhead (Northwest Atlantic DPS) - Pelagic and benthic juveniles, subadults, and adults Green (North Atlantic DPS) - Juveniles and adults Kemp's ridley - Juveniles only Leatherback - Juveniles and adults	**Foraging** Loggerhead (Northwest Atlantic DPS) - Pelagic and benthic juveniles - omnivorous on bottom and surface - Sub-adults and adults - benthic invertebrates along the coast Green (North Atlantic DPS) - Juveniles - Omnivorous along coasts and in protected bays and lagoons - Adults - Herbivorous in nearshore areas Kemp's ridley - Juveniles - Benthic invertebrates in protected coastal areas Leatherback - Juveniles and adults - Primarily prey on jellyfish in offshore oceanic or coastal neritic areas **Nesting** North of North Carolina, sea turtle nesting is rare (there is occasional loggerhead nesting in Virginia, but no established nesting beaches further north)
MA (south of Cape Cod)	Buzzards Bay, Nantucket and Vineyard Sounds	May to November (note: cold stunning of hard-shelled sea turtles occurs annually from October to January)		
RI	Narragansett Bay and Block Island Sound			
CT/NY	Long Island Sound and associated bays/estuaries (e.g., Peconic Bay)			
NY/NJ	Coastal waters off the New York Harbor Complex (e.g., Raritan and Sandy Hook Bays)			
NJ/DE	Delaware Bay and other back bays (e.g., Barnegat Bay)			
DE/MD/VA	Coastal waters off Virginia Beach, coastal waters and back bays of the DelMarVa Peninsula, Chesapeake Bay, Tangier Sound, and lower portions of southern Chesapeake Bay tributaries (e.g., James, York, Rappahannock, and Potomac Rivers)			

GARFO Master ESA Species Table - Sea Turtles

Loggerhead (Northwest Atlantic DPS)	**Listing rule**: 76 FR 58868, September 22, 2011;**Recovery plan**: NMFS and USFWS 2008; **Additional references**: Shoop and Kenney 1992; Epperly et al. 1995a, 1995b, 1995c; Braun-McNeill and Epperly 2004; Morreale and Standora 2005; Braun-McNeill et al. 2008; Conant et al. 2009; Mansfield et al. 2009; NMFS NEFSC 2011; Griffin et al. 2013
Green (North Atlantic DPS)	**Listing rule**: 81 FR 20057, April 6, 2016;**Recovery plan**: NMFS and USFWS 1991; **Additional references**: Lahanas et al. 1994; Wynne and Schwartz 1999; Ruiz-Urquiola et al. 2010; Seminoff et al. 2015
Kemp's ridley	**Listing rule**: 35 FR 18319, December 2, 1970;**Recovery plan**: NMFS et al. 2011; **Additional references**: TEWG 2000; Morreale et al. 2007; NMFS and USFWS 2015
Leatherback	**Listing rule**: 35 FR 8491, June 2, 1970;**Recovery plan**: NMFS and USFWS 1992; **Additional references**: Bjorndal 1997; TEWG 2007; Fossette et al. 2008; Dodge et al. 2011; NMFS and USFWS 2013
Hawksbill	**Listing rule**: 35 FR 18319, December 2, 1970;**Recovery plan**: NMFS and USFWS 1992; **Additional references**: NMFS and USFWS 2013