

PRELIMINARY ASSESSMENT FOR MAINTENANCE
DREDGING SEARSPORT HARBOR FEDERAL
NAVIGATION PROJECT - SEARSPORT, MAINE

APPENDIX B
FONSI & ENVIRONMENTAL ASSESSMENT

DRAFT

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FINDING OF NO SIGNIFICANT IMPACT

MAINTENANCE DREDGING OF SEARSPORT HARBOR FEDERAL NAVIGATION PROJECT SEARSPORT, MAINE

The United States Army Corps of Engineers (USACE), New England District (NAE), has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. § 4321 *et seq.*), as amended. The Draft Environmental Assessment (EA) dated March 2026, for the Maintenance Dredging of the Searsport Harbor Federal Navigation Project (FNP) addresses the need to remove shoaling in the Searsport Harbor FNP in Searsport, Maine. The removal of shoals will provide continued safe and reliable commercial and recreational navigation in the FNP.

The EA, incorporated herein by reference, evaluated three course of action alternatives including the No Action Alternative, dredging the Searsport Harbor FNP to less than authorized dimensions, and dredging of the FNP to authorized dimensions. Under the No Action Alternative, the USACE would not dredge the Searsport Harbor FNP, and there would be no disposal or placement of dredged material. However, this alternative, as well as the less than authorized dimensions alternative, would allow shoal conditions in the FNP to continue and likely worsen over time. Continued shoaling would cause vessels to run aground during low tides, hampering the efficient operations of the port and add increasingly dangerous situations for commercial vessels. The Proposed Action is to dredge the Searsport Harbor FNP to authorized dimensions. Alternative placement sites for the dredged material, such as confined aquatic disposal (CAD) cells, upland placement areas (e.g., landfills and gravel pits), ocean dredged material disposal sites, nearshore placement sites, and beneficial use sites (e.g., beaches) were considered.

The Proposed Action involves dredging approximately 39,100 cubic yards (cy) of unsuitable mixed sand and fine-grained sediments from shoaled areas totaling seven acres within the Searsport Harbor Federal Navigation Project (FNP). Shoaled areas will be mechanically dredged to the authorized project depth of -35 feet at mean lower low water (MLLW) plus two feet of allowable over depth. Two confined aquatic disposal (CAD) cells will be constructed adjacent to the Searsport Harbor FNP to contain the unsuitable dredged material from the Searsport Harbor FNP and the surficial sediments of the CAD cells. Approximately 61,600 cy of suitable dredged material generated from the construction of the CAD cells will be placed at the Rockland Disposal Site (RDS) located approximately 25 miles south of Searsport Harbor.

Dredging and disposal activities may occur during a period between November 8 through April 8 to avoid impacts to spawning shellfish, benthic resources, Essential Fish Habitat (EFH) for federally managed fish species, threatened and endangered species

listed under the Endangered Species Act (ESA), and interactions with mobile fishing gear.

For all alternatives, the reasonably foreseeable effects were evaluated as appropriate. A summary assessment of the reasonably foreseeable effects of the Proposed Action are listed in Table 1:

Table 1: Summary of Reasonably Foreseeable Effects of the Proposed Action

	Insignificant effects	Insignificant effects with mitigation	Resource unaffected
Sediment Quality	X		
Water Quality	X		
Biological Environment	X		
Threatened & Endangered Species	X		
Essential Fish Habitat	X		
Historic & Archaeological Resources			X
Air Quality	X		
Socioeconomic Environment	X		
Noise	X		

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the Proposed Action. Environmental commitments as detailed in Chapter 8 of the EA will be implemented to minimize impacts.

Pursuant to section 7 of the ESA of 1973 (16 U.S.C. § 1531 *et seq.*), as amended, the USACE determined that the Proposed Action may affect, but is not likely to adversely affect the Gulf of Maine Distinct Population Segment (DPS) of Atlantic Sturgeon, Gulf of Maine DPS of Atlantic Salmon, North Atlantic DPS of Green Sea Turtle, Kemp’s Ridley Sea Turtle, Leatherback Sea Turtle, Northwest Atlantic DPS of Loggerhead Sea Turtle, Roseate Tern, and Shortnose Sturgeon. Additionally, USACE has determined that no effects will occur to the threatened northern long eared bat. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service concurred with the USACE’s determinations on DATE, and DATE, respectively (see Appendix A).

Pursuant to the Marine Mammal Protection Act of 1972 (16 U.S.C. § 1361 *et seq.*), as amended, the USACE determined that the Proposed Action would not result in any take of marine mammals.

In accordance with the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, the USACE prepared an Essential Fish Habitat (EFH) assessment for the Proposed Action. The USACE concluded that the Proposed Action would not result in a substantial, adverse impact to EFH. The USACE initiated EFH consultation with the NMFS on DATE. On DATE, NMFS completed its analysis

and did not provide/provide EFH conservation recommendations. Results of consultation with the NMFS can be found in Appendix A.

Pursuant to Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. § 300101), as amended, the USACE determined that no historic properties are present within the Searsport Harbor FNP or the RDS. The CAD cell locations have not been completely dredged. Archaeological surveys conducted in the FNP and portions of the CAD cells in 2007 and 2008 did not document any historic or cultural resources; however, the entirety of the currently proposed CAD cells was not surveyed. USACE will conduct an additional archaeological investigation during Pre-Construction Engineering and Design of the Preferred Alternative (undertaking). Because effects on historic properties cannot be fully determined prior to approval of the undertaking, USACE is developing a Programmatic Agreement (PA) pursuant to 36 CFR 800.14(b)(1)(ii) to comply with Section 106 of the National Historic Preservation Act. The USACE is consulting with the Maine Historic Preservation Commission, Houlton Band of Maliseet Indians, Mi'kmaq Nation, Passamaquoddy Tribe, Penobscot Nation, Wampanoag Tribe of Gay Head (Aquinnah) and the Searsport Historical Society in accordance with the National Historic Preservation Act.

The proposed placements of unsuitable dredged material into CAD cells in Searsport Harbor and suitable material at RDS are discharges. Pursuant to the Clean Water Act of 1972, as amended, the discharge of dredged or fill material associated with the Proposed Action has been found to be compliant with section 404(b)(1) Guidelines (40 CFR 230). The Clean Water Act Section 404(b)(1) Guidelines Evaluation is found in Appendix I of the PA/EA. A water quality certification pursuant to section 401 of the Clean Water Act will be obtained from the Maine Department of Environmental Protection prior to construction. In a letter dated DATE, the Maine Department of Environmental Protection stated that the Proposed Action appears to meet the requirements of Maine's water quality standards, pending confirmation based on information to be developed during the pre-construction engineering and design phase. All conditions of the water quality certification to be obtained during the pre-construction engineering and design phase will be implemented during construction to minimize adverse impacts to water quality.

The USACE has evaluated the Proposed Action and has determined it is consistent to the maximum extent practicable with the enforceable policies of the Maine Coastal Management Program pursuant to section 307(c) of the Coastal Zone Management Act of 1972, as amended (16 U.S.C. § 1451). As such, the USACE prepared a Coastal Zone Management Consistency Determination (CZMCD) and submitted it to the Maine Office of Community Affairs on DATE. The Maine Office of Community Affairs concurred on DATE. A copy of the concurrence can be found in Appendix A.

The general conformity regulations do not apply to maintenance dredging where no new depths are required per 40 CFR 93.153(c)(2)(ix); therefore, a conformity determination is not required for the dredging of the FNP. The creation of the proposed Searsport CAD cells requires dredging to new depths. However, a clean air act

conformity analysis is not required as the project area is within an attainment area for all NAAQS criteria pollutants. The proposed project meets the requirements of Section 176(c) of the Clean Air Act.

All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives and coordination with appropriate agencies and officials has been completed. Based on the analysis contained in the EA, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the Proposed Action would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

I certify that the resulting EA represents the following: USACE's good-faith effort to prioritize documentation of the most important considerations and factors required by NEPA within the congressionally mandated page limits and timeline; that this prioritization reflects the USACE's expert judgment; the document is substantially complete; that any considerations addressed briefly or left unaddressed were, in the USACE's judgment, comparatively not of a substantive nature that meaningfully informed the consideration of environmental effects and the resulting decision on how to proceed; and that in the USACE's judgment the analysis contained therein is adequate to inform and reasonably explain the USACE's final decision regarding the proposed federal action.

Date

Justin R. Pabis, PE
Colonel, U.S. Army Corps of Engineers
District Engineer

Environmental Assessment,
Clean Water Act § 404 (b) (1) Evaluation, **DRAFT**
& Finding of No Significant Impact
for Maintenance Dredging

Searsport Harbor Federal Navigation Maintenance Project

Searsport, Maine



**US ARMY CORPS
OF ENGINEERS**
New England District

April 2026

**SEARSPORT HARBOR
SEARSPORT, MAINE**

FEDERAL NAVIGATION MAINTENANCE PROJECT

**DRAFT
ENVIRONMENTAL ASSESSMENT
CLEAN WATER ACT § 404 (B) (1) EVALUATION
AND
FINDING OF NO SIGNIFICANT IMPACT**

NEW ENGLAND DISTRICT
US ARMY CORPS OF ENGINEERS
696 VIRGINIA ROAD
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April 2026

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Finding of No Significant Impact

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

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1.0 Introduction

The purpose of this Environmental Assessment (EA) is to present information on the environmental features of the project area and to review construction information to determine the potential impacts of the proposed project. This Environmental Assessment describes project compliance with the National Environmental Policy Act of 1969 (NEPA) and all appropriate Federal and State environmental regulations, laws, and Executive Orders. Methods used to evaluate the environmental resources of the area included biological sampling, sediment analysis, review of available information, and coordination with appropriate environmental agencies and knowledgeable persons. This report provides an assessment of the alternatives considered for the proposed project, the environmental impacts of the proposed action, the Clean Water Act (CWA) Section 404 (b)(1) Evaluation requirements and other pertinent data related to the proposed action.

2.0 Federal Navigation Project, Authority, and Maintenance History

Searsport Harbor is located at the mouth of the Penobscot River in the northern portion of Penobscot Bay, Maine. The Federal Navigation Project (FNP) in Searsport Harbor (herein referred to as the FNP) consists of an entrance channel and turning basin that is 500-foot wide, 3,500 feet long, and 35 feet deep at mean lower low water (MLLW) (Figure EA-1). The entrance channel flares out to form a turning basin that is 1,500 feet wide and 35 feet deep (MLLW) in the inner harbor adjacent to Mack Point. Searsport Harbor is the largest deep draft commercial port north of Portland, Maine. The State Pier at Mack Point handles aggregates, forest products, and other bulk cargos. The Sprague Energy terminal is located immediately to the west of the State Pier and handles petroleum and other liquid bulk products. Land use adjacent to the harbor is primarily commercial with the exception of the largely undeveloped 941-acre Sears Island located to the east. The FNP was authorized in October 1962 pursuant to the River and Harbor Act of 1962, as amended, and was constructed between August and October of 1964. The FNP has not been maintained by the U.S. Army Corps of Engineers (USACE) since its construction.

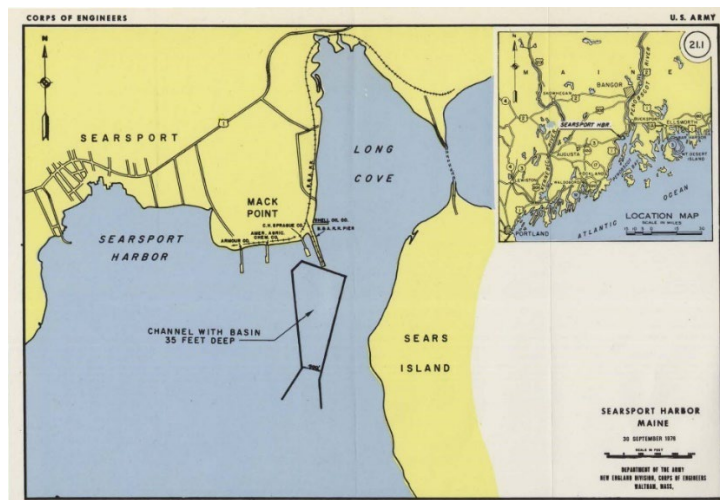


Figure EA-1. Searsport Harbor Federal Navigation Project Location

3.0 Purpose and Need

The purpose of the maintenance dredging effort is to return the FNP to authorized dimensions. The northwest corner of the FNP has shoaled to depths of less than approximately -32 feet MLLW and maintenance dredging is needed to restore the channel to the authorized -35 feet MLLW depth. The shoal depth of -32 MLLW is an inadequate depth for approximately 24% of vessels calling on the port (Waterborne Commerce Statistics of the United States, Trips and Drafts of Vessels, 2016-2019). The tide range of ~10 feet (mean high water to mean low water), combined with berths dredged significantly deeper than the channel, allow larger vessels to use the port than would normally be possible. Larger vessels are able to enter the harbor at mid to high tide, unload their cargo, and lay over at low tide at the deepened berths. Currently larger vessels experience tidal delays, as they wait until mid-tide or higher to enter or exit the harbor. This results in transportation inefficiencies and shippers are less likely to take advantage of the lower per ton transportation cost of the deeper draft vessels.

4.0 Alternatives

The alternatives considered for dredging and placement of material from the FNP include the “No Action Alternative”, dredging the FNP to less than authorized dimensions, dredging to the FNP’s authorized dimensions, alternative dredging methods and alternative disposal sites. The FNP dredged material contains contaminants making it unsuitable for open water disposal, beach placement or nearshore placement. However, the potential for upland disposal or creation of confined aquatic disposal (CAD) cells are being considered as alternatives. If creation of CAD cells is selected, the dredged material from the cells will also require disposal. Based on current testing of the material from the proposed CAD cells, some of the material is suitable for upland, open water disposal or nearshore disposal. The remainder of the dredged material from the CAD cells is considered unsuitable and will be reviewed for alternatives similar to the FNP material.

4.1 No Action Alternative (Searsport Harbor FNP)

The No Action Alternative is required to be evaluated as prescribed by NEPA and the Council on Environmental Quality (CEQ). The No Action Alternative serves as a baseline against which the proposed action and alternatives can be evaluated. Evaluation of the No Action Alternative involves assessing the environmental effects that would result if the proposed action did not take place. Under a No Action Alternative, the FNP would not be dredged. The no action alternative would allow existing navigation conditions in the project to continue to deteriorate resulting in further restricted access of vessels to Searsport Harbor and continued hazardous navigation conditions. This adverse condition may result in an increased frequency of groundings and will necessitate tidal delays for vessels using the port. Such conditions can increase the likelihood of vessel accidents which lead to costly repair bills and potential environmental harm by increasing the potential for oil spills or the release of other hazardous materials into the harbor. Due to the safety concerns, the no action alternative was rejected. Under the No Action Alternative, the FNP would not be dredged and therefore no further analysis is required for the disposal alternatives of the material.

4.2 Maintaining the Searsport Harbor Federal Navigation Project

4.2.1 Maintaining the FNP At Less Than Authorized Dimensions

An action alternative evaluating a depth shallower than the authorized dimensions was considered. However, by not restoring the full dimensions of the FNP, vessels currently using the project would still be required to transit at times of tide causing negative economic effects and potential safety concerns. The alternative for maintaining the FNP at dimensions more shallow than authorized was rejected.

4.2.2 Maintaining the FNP at Authorized Dimensions

This alternative, maintenance dredging to remove approximately 39,100 cy from the areas of shoaling and to restore the authorized depths and dimensions of the FNP, is the selected alternative. This alternative provides the greatest public benefits, results in no significant, long-term adverse impacts on the environment, and satisfies USACE's Congressionally mandated authority for maintenance of the FNP sufficient for project users.

4.3 Alternative Dredging Methods

The various types of dredging plant and dredging methods that were considered for this project include a mechanical dredge and a hydraulic pipeline dredge. In general, the logistics of the project dictate the type of dredge plant selected for the work. These factors include but are not limited to the following: environmental concerns, the size and location of the area to be dredged, time of year restrictions, weather conditions, nature of the material to be dredged and most importantly, the proposed disposal site.

4.3.1 Hydraulic Dredge - Cutterhead and Pipeline (Searsport Harbor FNP)

A hydraulic pipeline dredge consists of a cutterhead on the end of an arm connected to a pump, which loosens the bottom sediments and entrains them in a water slurry that is pumped up from the bottom. The material is then discharged away from the channel (side cast) or is pumped via a pipeline to a dewatering area or disposal site. A hydraulic dredge is generally used for material that will be disposed of in an upland area or on a nearby beach, or for pumping any type of unconsolidated material into a confined (diked) disposal/dewatering area. As one of the potential disposal locations considered is an upland containment site, this alternative dredge method is considered viable.

4.3.2 Mechanical Bucket Dredge (Searsport Harbor FNP)

Mechanical bucket dredging involves the use of a barge-mounted crane, backhoe or cable-arm with a bucket to dig the material from the harbor bottom. Typical dredging buckets come in various sizes from five cubic yards to fifty or more cubic yards. A mechanical dredge is well suited to work in tight quarters such as small harbors and in and around berthing areas and slips. The dredged material is usually placed by bucket into scows for transport to a preferred placement site by tug. A mechanical bucket dredge is a viable alternative dredge method for this project due to the nature of

the material (sediments composed of mainly fine sands and silt) to be removed and the handling efforts that will be performed to either place the material in an upland containment facility or place the material within a confined aquatic disposal (CAD) cell adjacent to the Searsport Harbor FNP. This dredge method is acceptable for use within the FNP.

4.3.3 Recommended Searsport Harbor FNP Dredge Method Plan

A mechanical clamshell dredge is recommended for this project due to the fine sediment (silt/clay and fine sand) composition of the material to be dredged from the FNP, the need for mechanical dredging to construct the preferred placement site (i.e., CAD cells - described below) which is located in sediments never dredged before (i.e., glacial till), and the lack of a suitable upland placement site to pump the material to.

4.4 Placement Site Alternatives (Searsport Harbor FNP)

Placement of dredged material can occur at an upland, beach, nearshore, or ocean site. Factors in selecting a practicable disposal site include: the amount of dredged material for disposal, contamination levels in the sediment, the physical nature of the sediment, cost, logistics, and environmental impacts.

4.4.1 On-site Upland Placement- Mack Point (Beneficial Use)

An upland site on Mack Point (Figure EA-2) was evaluated as a potential beneficial use site to place the dredged material. The site is located within the Sprague Energy facility and is owned by Sprague Energy, a private property owner. In 2015 the New England District prepared a Suitability Determination for Searsport Harbor FNP (Appendix C of the Preliminary Assessment). The testing concluded that the material proposed for dredging in the FNP is unsuitable for open water placement. Placing contaminated material in an upland site, not designed to handle these materials, presented long-term risks. Specifically, the Government's potential liability under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9601 et seq. for future environmental impacts at the site. CERCLA imposes liability on persons responsible for releases of hazardous substances. To determine liability for remedial actions at a site, the EPA will look for evidence of wastes found at a site and match that with parties that may have contributed wastes at the site. CERCLA Section 107, 42 U.S.C. 9607 states that current owners and operators, past owners, and operators at the time the pollution occurred, arrangers and transporters shall be liable for all costs of removal or remedial actions and other necessary costs of response. CERCLA is a strict liability statute and therefore liability may be imposed regardless of the intent.

If the disposal site located at Mack Point requires future remediation, it is possible that the Government would be considered a potentially responsible party and may have liability for costs related to investigation and cleanup of the site. Disposal of dredged material in an upland location also requires compliance with state regulatory requirements. There are no agreements in place nor any proposed between the state of Maine and Sprague Energy, that we are aware of, which address who is responsible for long-term maintenance and monitoring of the Mack Point site. For these

reasons the upland disposal of dredged material at Mack Point was no longer considered a viable alternative.



Figure EA-2. Upland Disposal Site at Mack Point, Searsport Harbor, Maine

4.4.2 Dredged Material Used as Construction Material or Cap at Mack Point

The use of the dredged material as a capping or construction material at Mack Point is a beneficial use alternative that was not carried forward for further consideration. This type of beneficial use was applied in 2002 with dredged material from the State Pier deepening project. Material was first dredged and placed on a barge to allow some settling and dewatering. The material from the barge was then placed into dump trucks at the pier, then transported and dumped at a pad site at the Mack Point facility where it was mixed with cement kiln dust. After mixing with cement kiln dust the material was loaded onto trucks and transported to another Sprague Energy facility located in Bucksport, where it was used to restore an old tank farm. Upland disposal of material using this Mack Point option would involve triple handling of the dredged material, compared to in-water placement. This method for upland placement or disposal option of dredged material was not considered any further due to the lack of identified

locations that could accept the material. The dredge material from the FNP was not identified as suitable material to be used as unprocessed fill or for use in other soil products because of elevated levels of mercury and arsenic.

4.4.3 Off-site Upland Placement

Two off-site upland disposal areas were also considered for material placement: the Juniper Ridge Landfill and the Searsport Gravel Pit.

a. Juniper Ridge Landfill (Beneficial Use)

Juniper Ridge is a landfill in Old Town, Maine, that has been considered as an upland beneficial use site for placement of dredged material that is free of contamination or contains limited levels of contamination. Juniper Ridge landfill is approximately 50 miles north of Searsport Harbor (Figure EA-3). Due to the testing results of the material from FNP, this alternative was deemed unacceptable. Therefore, this alternative was removed from consideration as a viable disposal site.

Costs to dispose of dredged material at the landfill would include dewatering at Mack Point, sediment testing, truck transport, and tipping fees. Like the other upland placement alternatives, this option would require the material to be dredged, brought shoreside at Mack Point where it would be dewatered to a point to pass a standard paint filter test, loaded into trucks and hauled to the facility where it would be spread as cover or placed within a lined cell. As a current requirement of acceptance at Juniper Ridge, the dredged material would require chemical testing against a prescribed set of contaminant levels every 250 tons of material for an initial amount of dredge material quantity. After a specific number of tests proved the consistency of dredge material chemical characterization the number of testing requirements could be reduced. This placement location alternative was removed from further consideration because it was not considered feasible to receive the large volume of material to be dredged during the maintenance of Searsport Harbor. In addition, concerns regarding available space at the landfill to receive this large amount of dredged material contributed to this alternative from being screened out from further consideration.

b. Searsport Gravel Pit (Beneficial Use)

A large, privately-owned gravel pit in Prospect, Maine, approximately 15 miles from Searsport Harbor, was identified by Maine DOT (Ramboll, 2017) (Figure EA-3) as a possible beneficial use site. The gravel pit is no longer active and has been partially reclaimed by the property owner by the placement of materials from various locations over the last several years (Ramboll, 2017). The ownership of the gravel pit identified in the Ramboll (2017) study has recently changed and the current property owner is no longer interested in allowing dredged material to be placed in the pit. This site presents similar concerns as discussed in the Mack Point site because of the containments found in the material. Therefore, this placement location alternative is not a practicable alternative and has been removed from consideration for the placement of dredged material from the FNP.

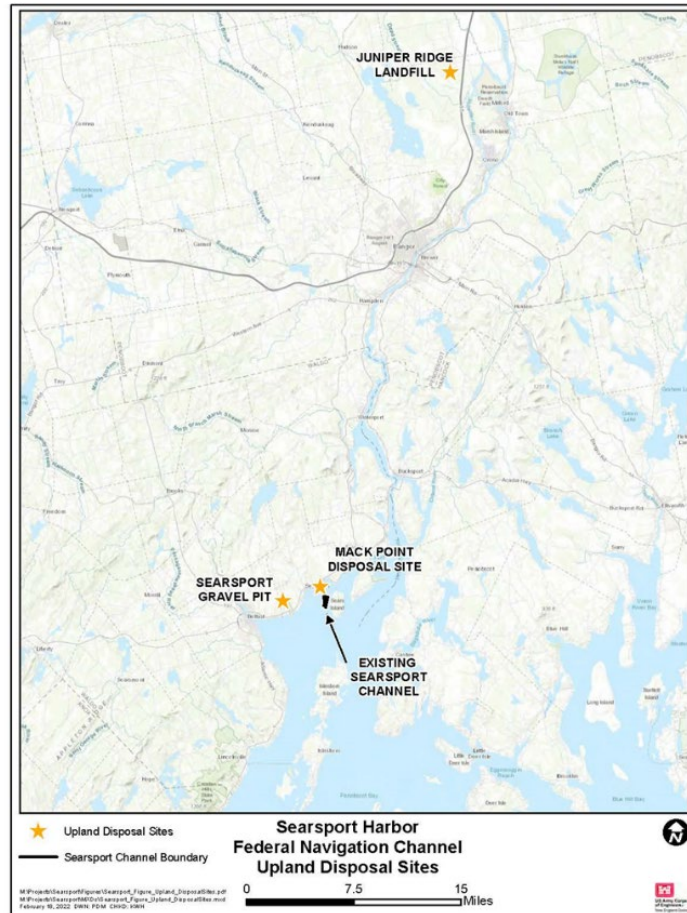


Figure EA-3. Searsport Gravel Pit.

4.4.4 Beneficial Use

a. Beach Nourishment:

A common beneficial use alternative for dredged material is beach nourishment or placing suitable sandy dredged materials on beaches adjacent to the harbor being dredged. In addition to the contaminant issues, a review of the grain size data for the material proposed to be dredged from the FNP shows that the material has significant amounts of silty material and is not suitable as beach nourishment material. Therefore, beach nourishment was dropped as a suitable disposal alternative.

b. Cape Jellison Area (beneficial use)

USACE explored the possibility of using some or all of the 60,000 cubic yards (cy) of suitable material to be dredged from the CAD cells as capping material for the Cape Jellison portion of the Penobscot Bay area that is closed to lobster fishing (Figure EA-6). The concept was to place suitable dredged material over the mercury contaminated sediments of the Cape Jellison area in an effort to minimize the exposure of overlaying waters to mercury contaminated sediments. Benefits would have included reducing contaminated sediment exposure to tidal waters and reducing the distance of the needed haul route to a traditional

placement site. Although this alternative showed initial promise, there were too many unknowns for this alternative to be viable as the preferred alternative. These unknowns included a lack of surficial sediment chemistry of the area, a lack of water quality chemistry of the area, and the possible legal liability of interfering with an ongoing remediation project being undertaken by the Greenfield Penobscot Estuary Remediation Trust in the Penobscot River and upper Penobscot Bay. For these reasons the Cape Jellison area was not carried forward as a viable placement site.

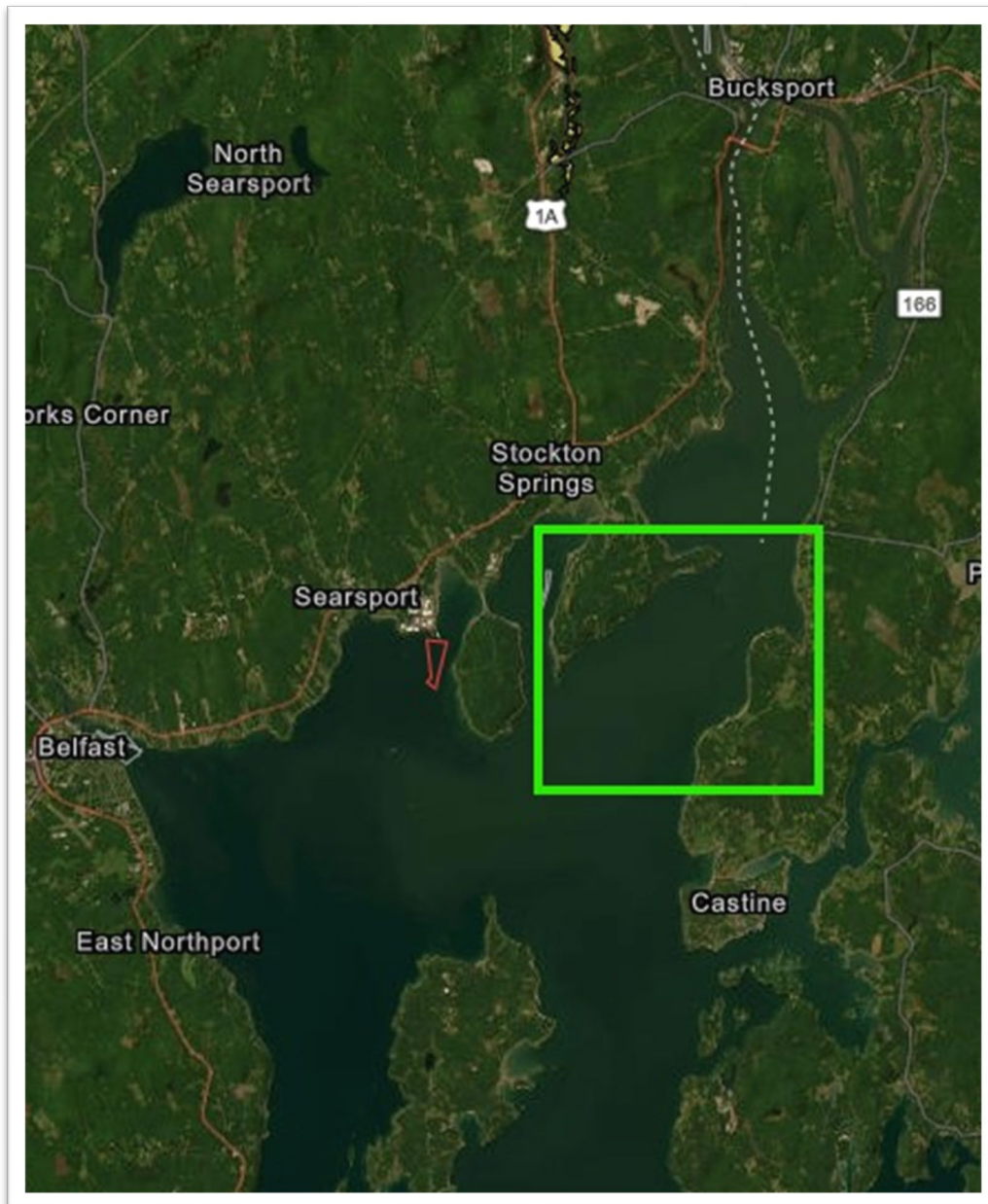


Figure EA-4. Cape Jellison Area

4.4.5. Disposal in Federal Waters

Two disposal sites located in Federal waters were considered for the placement of material from Searsport Harbor. The closest site to Searsport Harbor is the Portland Disposal Site (PDS) (Figure EA-7), located in Federal waters directly east of Cape Elizabeth, Maine approximately 90 nautical miles from Searsport Harbor. The PDS was designated by the U.S. Environmental Protection Agency (EPA) as a dredged material disposal site on October 16, 1987. The Isles of Shoals North Disposal Site (IOSN) (Figure 7), located approximately 15 nautical miles east of Portsmouth, New Hampshire, in the Gulf of Maine, is approximately 120 nautical miles from Searsport Harbor. IOSN was designated by EPA as a disposal site on September 25, 2020. Based on testing results, the material from Searsport Harbor is not suitable for open water placement at the PDS or the IOSN. Therefore, these sites were dropped from further consideration.

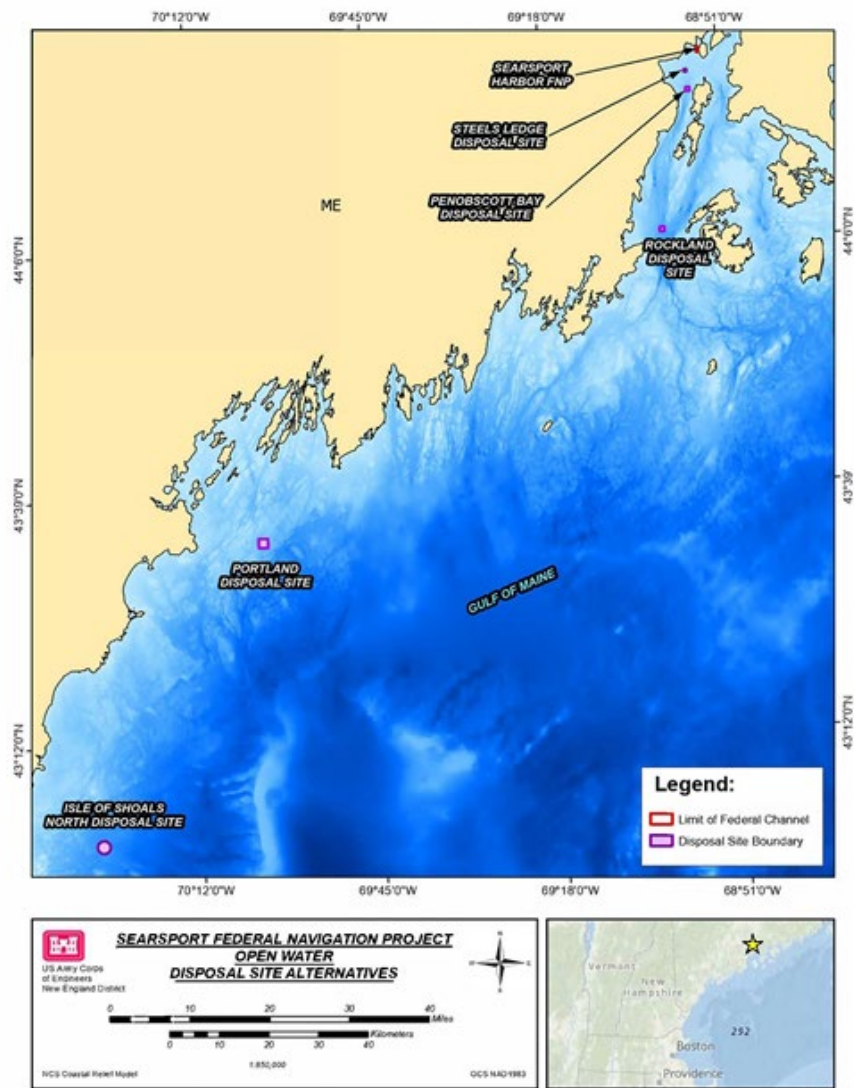


Figure EA-5 Open Water Disposal Sites

4.4.6 Disposal in State Waters

a. Steele's Ledge Disposal Site

The Steele's Ledge disposal site (Figure EA-5) is a historic dredged material disposal area that was last used in 1964 for disposal of dredged material from the construction of the FNP. The site was also likely used for the disposal of material dredged from Belfast Harbor in the 1800s and 1900s and is also located within a State and U.S. Coast Guard designated oil transfer area (SAIC, 2000). Although this is a previously used disposal site, it is located within and adjacent to an area that is a significant commercial fishing area. The Steele's Ledge disposal site was not carried forward as an alternative placement site as there are other CWA regulated disposal sites that have been used more recently than 1964 that will have less impacts to commercial fishing areas.

b. Rockland Disposal Site

The Rockland Disposal Site (RDS) (Figure EA-5), located in lower Penobscot Bay offshore of Owls Head, is the only active disposal site selected for dredged material under Section 230.80 of the CWA. Only dredged material that meets CWA guidelines is suitable for disposal at this or any other CWA disposal site. This disposal site had been used for several decades prior to the USACE identifying the site as a disposal site under CWA guidelines. The site has been occasionally monitored for approximately the last 30 years for any adverse long-term effects. The site receives dredged material most years. RDS is located a distance of 25 miles from the project area. This alternative was retained as a viable alternative for the placement of the suitable dredged material from CAD Cells A and B.

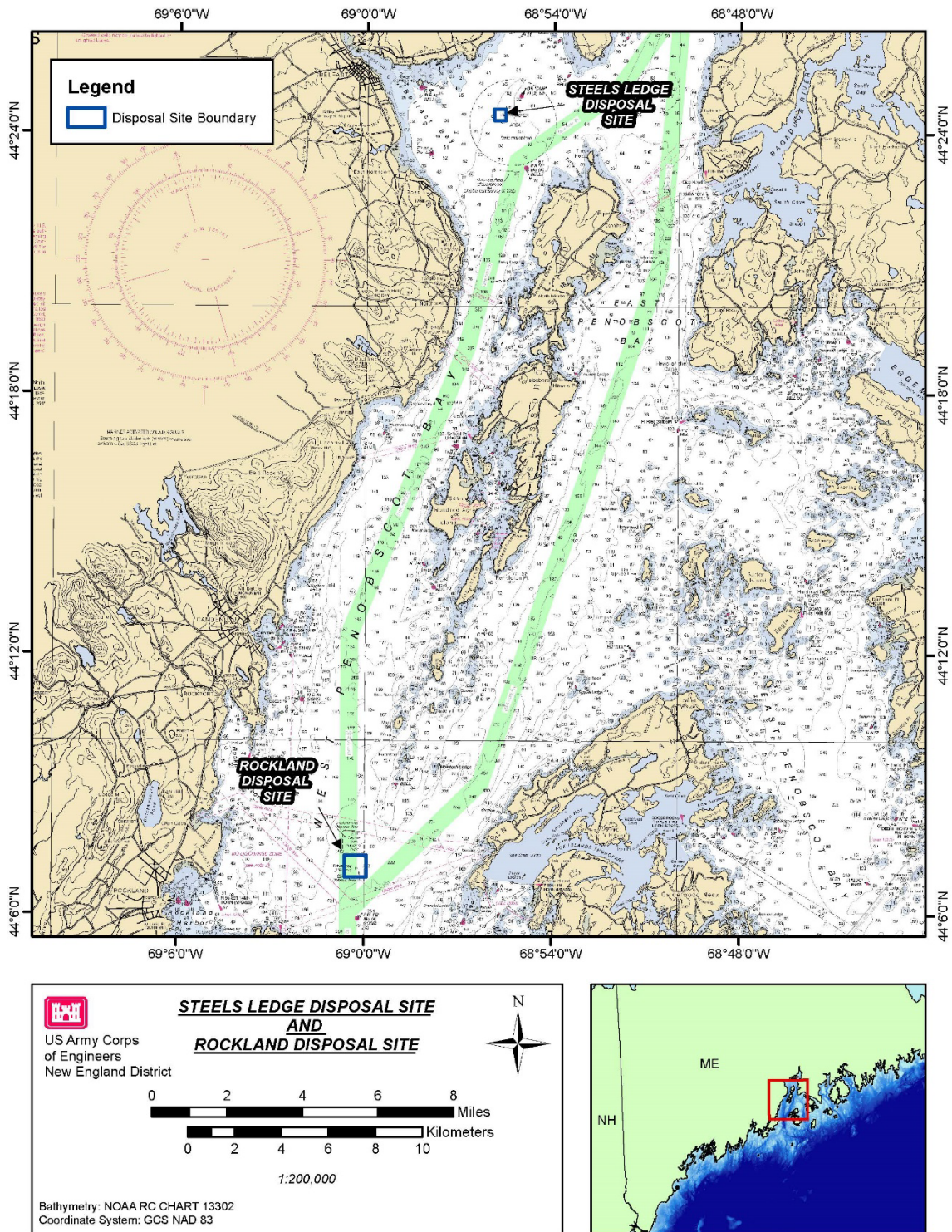


Figure EA-6. Steele’s Ledge and Rockland Disposal Sites

4.4.7 Creation of Confined Aquatic Disposal Cells (CAD) within Searsport Harbor (Recommended Placement Alternative)

A CAD cell is a subaqueous disposal cell constructed beneath the bottom of a harbor to accommodate dredged material unsuitable for beneficial use or open water/ocean placement. CAD cells are sized to accommodate the volume of material requiring containment. A bulking factor is applied to that material depending on material type and the dredging method, and space is left at the top of the CAD cells to allow for a naturally occurring cap to accrete. Due to the contaminated nature of the maintenance material in Searsport Harbor and the surficial material of the CAD cells, a two CAD cell alternative disposal plan is a viable alternative. A small “starter” CAD cell will be constructed first so that the unsuitable surficial material from the cell can be held in barges while the suitable material at depth is excavated. A total of approximately 61,600 cy of material would need to be excavated to create the CAD cells. Once excavated, the starter CAD cell will be filled with the unsuitable material from its’ surface (the material being held in barges) and the unsuitable surficial material from the main CAD cell. The main CAD cell will then be excavated and used for the placement of the unsuitable material from the FNP.

The design of the Searsport Harbor CAD cells (Figure EA-4) was developed using data from previous geophysical reports compiled during the Searsport Harbor Navigation Improvement Feasibility Study, as well as geotechnical explorations conducted in 2024, and reported by GEI Consultants, for this Searsport Harbor CAD cell investigation, along with information pulled from the original design documents for the construction of the Searsport FNP (1964). These CAD cells will be constructed adjacent to the FNP. For design, the best method was determined to be the use of a starter CAD cell (referred to as CAD Cell A) and a main CAD cell (referred to as CAD Cell B). These two CAD cells will be adjacent to each other (Figure EA-4). It was assumed that side slopes, similar to the channel design, would be stable at a slope of 1V:3H for all sides of CAD Cell A and for the North and South side of CAD cell B. Side slopes of 1V:4H were determined to be stable for the East and West side slopes of CAD Cell B.

Due to the fact that no suitable upland or beneficial use options are viable, creation of the two CAD cells is the preferred alternative for the FNP dredged materials. Further discussion in Section 4.5 discusses design considerations for the CAD cells.

4.4.8 Confined Aquatic Disposal (CAD) Cell Location Second Alternative Location

A second in-harbor CAD cell location was also considered but not carried forward. This CAD cell was sited within the FNP in deep water. This secondary location was initially looked at due to concerns from Maine DOT that the first location adjacent to the FNP may impact future plans for development of Mack Point Terminal. As of January 2025, Maine DOT has expressed concurrence and prefers the initial CAD cell area location adjacent to the FNP. Sediment analysis and borings to characterize the sub-bottom profile of this potential second CAD cell location are also included in the 2024 GEI report (Appendix D).

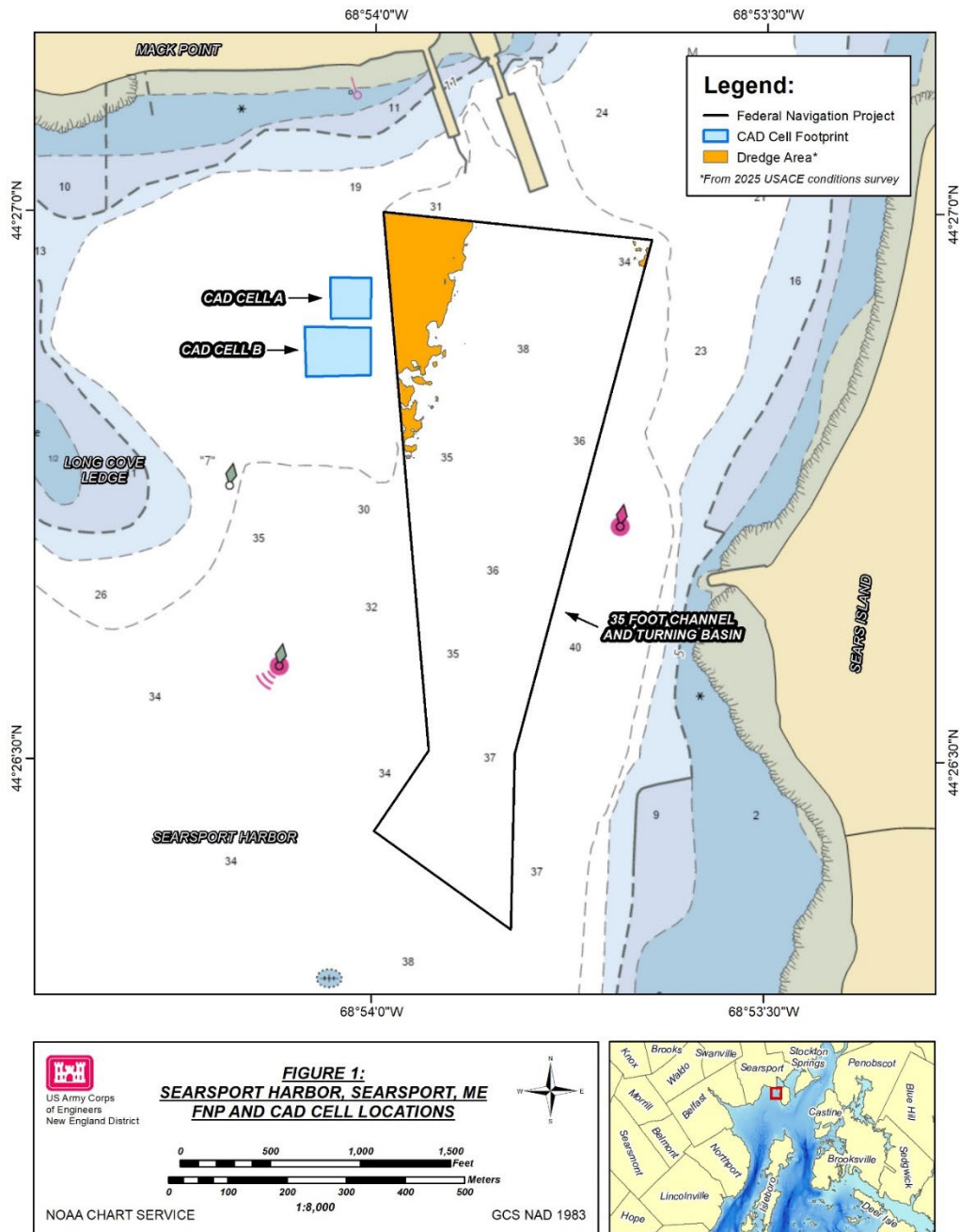


Figure EA-7 Proposed Location of the Confined Aquatic Disposal (CAD) cells.

4.5 Design and Construction Sequencing Considerations for the Recommended Alternative

It has been determined that the surficial 3 feet of sediments in the location of the proposed CAD cells are unsuitable for open water placement based on the CWA guidelines (See Section 6.1 and Suitability Determinations in Appendix C of the Preliminary Assessment), so should this alternative be implemented, the surficial sediments of CAD Cell A (approximately 5,200 CY) would need to be retained in scows and placed back into CAD cell A following its construction. The materials within the CAD cell A below the surficial layer (approximately 17,000 CY) have been deemed suitable for open water placement under the requirements of the CWA. CAD cell A will then receive its own unsuitable surficial sediment that has been stored in scows and will also receive the unsuitable surficial sediments from the creation of CAD cell B (approximately 10,200 CY) (Figure EA-4). The remaining suitable material from CAD cell B (approximately 44,500 CY) to be removed have also been deemed suitable for open water placement under the requirements of the CWA. Next, the unsuitable sediments from the FNP will be placed in CAD cell B. Sediment will be allowed to accumulate naturally above unsuitable sediment placed in both CAD cells A and B resulting in a “cap” of sediment.

Some of the alternatives for placement of the suitable material from CAD Cells A and B are in state waters and therefore subject to CWA guidelines. These sites include the Steele’s Ledge placement site, the Rockland disposal site and the Cape Jellison area. The Portland Disposal Site (PDS), an Ocean Dredged Material Disposal Site located in Federal waters , was also considered for placement of suitable sediment from the CAD cells. However, placement of material at the PDS falls under the Marine Protection, Research, and Sanctuaries Act (MPRSA). MPRSA focuses on regulating placement of materials into the ocean water to prevent harm to human health and the marine environment. The material for CAD cells A and B were evaluated under the CWA guidelines and not the MPRSA criteria.

5.0 Alternatives Analysis and Proposed Project

5.1 Alternatives Analysis

As described in Section 4, it was determined that the physical and chemical nature of the materials to be dredged from the FNP make them unsuitable for most beneficial uses, such as beach nourishment or habitat restoration.

Therefore, the two alternatives that will be carried forward for detailed evaluation are:

1. No Action Alternative.
2. Dredging of the Searsport Harbor FNP and construction of CAD cells west of the FNP.

A summary table that shows all of the alternatives considered and the rationale for screening and/or retaining them is shown in Table EA-1. Section 8 of the Searsport Harbor Preliminary Assessment (USACE, 2025) as well as section 5.2 below detail which of the proposed plans is the selected Federal Base Plan for the project.

Table EA-1: Summary of Alternatives Considered

Alternative Name	Carried Forward for Further Consideration	Screening Analysis
No Action	Yes	NEPA requires that the No Action Alternative be carried forward for analysis. A result of the No Action Alternative would be that shoaling within the FNP would continue to increase, resulting in limited shipping capacity and potential along with frequent maintenance.
Beneficial Use / Beach Nourishment	No	Sediment characteristics within the navigation channel are not suitable for beach nourishment.
Searsport Gravel Pit	No	Sediment characteristics within the navigation channel and the location of residential properties near the gravel pit preclude this option from future consideration.
Juniper Ridge Landfill	No	Concerns regarding available space at the landfill for this large amount of dredged material removed this alternative from future consideration.
Mack Point Upland Placement Site	No	This alternative was concluded to not be feasible due to contaminants contained in the material.
Federal Waters (PDS)	No	Sediment characteristics of the material are unsuitable for open water disposal.

Alternative Name	Carried Forward for Further Consideration	Screening Analysis
CAD Cells	Yes	Based on unsuitable sediment characteristics for beach, nearshore and/or open water disposal.

5.2 Proposed Project

USACE is proposing to dredge approximately 39,100 cubic yards of mixed sand and fine-grained sediments from shoaled areas totaling seven acres within the FNP (16,333 cy to required depth and 22,769 cy of 2-foot allowable overdepth). These areas within the FNP will be mechanically dredged to the authorized project depth of -35 feet at MLLW plus 2 feet of allowable over depth. The unsuitable material from the FNP and CAD Cells A and B will be placed within CAD Cells A and B (Figure EA-4) adjacent to the FNP. The suitable material from CAD Cells A and B will be placed at the RDS (Figure EA-5).

6.0 Affected Environment

6.1 Sediment Quality Searsport Harbor FNP

On October 5, 2017, USACE collected sediment core samples from six locations within the proposed maintenance dredging footprint (Stations A-F; Figure EA-8) to evaluate the material for placement at an upland site in the town of Searsport. This effort was coordinated with the Maine Department of Environmental Protection (MEDEP) Solid Waste Division and included an expanded suite of analytes to meet the requirements of the State's Chapter 418 solid waste management rules. Each core was examined and logged in accordance with Advancing Standards Transforming Markets (ASTM) standard D 2488 before the material from the proposed dredge interval was subsampled for physical and chemical analysis. A composite of the entire dredge interval within each core was sampled for grain size, total organic carbon, total metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, dioxins, and toxicity characteristic leaching procedure (TCLP) testing with metals analysis. Additionally, subsamples for total mercury analysis were collected in one-foot intervals along the length of the dredge interval within each core. Samples were analyzed for the standard suite of contaminants specified in the Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters (RIM) (USEPA/USACE, 2004).

While the 2017 sampling effort was conducted to support the upland placement alternatives under consideration at that time; these data are also appropriate for evaluating the proposed CAD cell placement alternative for FNP dredge material. To examine the sediment concentrations in an ecologically meaningful context, USACE used Sediment Quality Guidelines (SQGs) to screen the contaminant concentrations found in FNP sediment samples. Applicable SQG screening values for marine and estuarine sediments are the National Oceanic and Atmospheric Administration (NOAA) effects range low (ERL) and effects range median (ERM). It is important to understand that these values were not derived as toxicity pass-fail thresholds. Rather, ERL and ERM values are empirically derived guidelines based on a large number of studies nationwide that identify contaminant levels that indicate probability of toxic effects to inform decision making (Long et al., 1995). Toxic effects are considered unlikely at concentrations below ERL values with an increased probability of toxic effects being observed as concentrations increase. At concentrations above ERM values, toxic effects are considered likely. For samples with sediment concentrations that fall between ERL and ERM values, consideration is given to both the number of contaminants that exceed ERL values and where the concentrations fall in the range between ERL and ERM values in assessing the probability of toxic effects and the potential need for additional testing. Results by contaminant category are discussed below and also presented in the Suitability Determinations in Appendix C.

6.1.2 Grain Size and Total Organic Carbon Data

Grain size data and percent total organic carbon (TOC) for each sample location was obtained by compositing each individual core. In general, the material to be dredged is predominately fine grained (silt-clay) sediment with small fractions of sand and gravel. TOC ranged from 0.17% to 2.88%. Table EA-2 presents the grain size data from each individual core.

Table EA-2. Grain size and percent total organic carbon for samples from the Searsport Harbor FNP.

	Station A	Station B	Station C	Station D	Station E	Station F
% Total Gravel	0.7	0.3	1.6	0.6	0.1 (U)	0.1 (U)
% Coarse Sand	2.5	1.3	7.5	1.6	0.7	1.2
% Medium Sand	4	3.2	3	1.3	1.5	3.1
% Fine Sand	7.8	3.1	3.3	1.9	2.6	5.2
% Fines (silt/clay)	85	92.1	84.6	94.6	95.2	90.5
% Total Organic Carbon	1.67	1.94	2.88	2.28	0.175	1.54

6.1.3 Metals Results

Analyses for metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc) for each sample location were obtained by compositing each individual core from a sample location (i.e., combining multiple cores from a given location into a single composite core). Additionally, mercury was sampled from 1-foot intervals of each core. Table EA-3 presents the metals data from FNP samples. Table EA-4 presents the mercury data from the 1-foot interval samples.

In all sample locations, arsenic and nickel were detected at concentrations greater than ERL values, but well below ERM values. Mercury was not detected above the method reporting limit in the composite samples or any of the one-foot subsamples collected from stations A or E. Mercury was detected above the reporting limit, but below the ERL value, in the station B composite sample but was not detected above the method reporting limit in any of the one-foot subsamples from that station. At stations C, D, and F, mercury was detected above the ERL value, but below the ERM value, in the composite samples and the subsamples collected within three feet of the sediment surface. The peak mercury concentration was in the 2-3 foot interval at stations C and D and in the 0-1 foot interval at station F. Mercury concentrations in these subsamples exceeded the Penobscot River Mercury Study (PRMS) target cleanup level in the 2-3 foot interval from station C and as well as the 1-2 and 2-3 foot intervals from station D. Mercury was either not detected or was detected at concentrations below the ERL value in the deeper subsamples collected from more than three feet below the sediment surface at these stations. All other metals were either not detected or were detected at concentrations less than the ERL value.

Table EA-3. Metal concentrations for samples from the Searsport Harbor FNP.							
Metals	Units	Station A	Station B	Station C	Station D	Station E	Station F
Arsenic, Total	mg/kg	14.6	16.7	17.5	15.5	15	15.3
Cadmium, Total	mg/kg	0.128	0.313	0.251	0.229	0.054(U)	0.174
Chromium, Total	mg/kg	38	35.4	42.5	41.8	32	36.2
Copper, Total	mg/kg	12.7	14.4	17.6	19.4	17.1	17.5
Lead, Total	mg/kg	12.8	14.2	21.5	27.2	12.9	19.8
Mercury, Total	mg/kg	0.028(U)	0.032	0.268	0.326	0.016(U)	0.183
Nickel, Total	mg/kg	31.6	28.9	30	31.4	36.9	29.2
Zinc, Total	mg/kg	68.6	62.1	74.4	76.9	60.9	64.7

Table EA-4. Mercury concentrations for discrete interval samples from the Searsport Harbor FNP.							
	Mercury concentrations mg/kg						
Depth Interval in Feet	Station A	Station B	Station C	Station D	Station E	Station F	
0-1	0.025(U)	0.138	0.227	0.369	0.034	0.258	
1-2	0.029(U)	0.028(U)	0.344	0.457	0.018(U)	0.019(U)	
2-3	0.021(U)	0.023(U)	0.498	0.573	0.019(U)	0.018(U)	
3-4	-	0.023(U)	0.026(U)	0.034	-	-	
4-5	-	-	-	0.022(U)	-	-	

6.1.4 Pesticides Results

Analyses for pesticides for each sample location were obtained by compositing each individual core. Table EA-5 presents the pesticide data from the FNP. The concentration of total DDx, the sum of the pesticides 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT, was greater than the ERL value but did not approach the ERM value at stations C, D, and F. In addition, 4,4'-DDT was detected at concentrations just above the ERL value in stations D and F and dieldrin was also above the ERL value at station F. All other pesticides were either not detected or detected at concentrations less than their ERL values.

Table EA-5. Pesticide concentrations for samples from the Searsport Harbor FNP.							
Pesticide	Units	Station A	Station B	Station C	Station D	Station E	Station F
4,4'-DDD	ug/kg	0.472 (U)	0.43 (U)	0.758	1.64	0.333 (U)	1.02
4,4'-DDE	ug/kg	0.472 (U)	0.43 (U)	0.633	1.18	0.333 (U)	0.644
4,4'-DDT	ug/kg	0.472 (U)	0.43 (U)	0.686 (P)	1.25 (P)	0.333 (U)	1.07 (P)
Aldrin	ug/kg	0.472 (U)	0.43 (U)	0.569 (IP)	0.552 (U)	0.879 (P)	0.443 (U)
cis-Chlordane	ug/kg	0.472 (U)	0.43 (U)	0.569 (U)	0.552 (U)	0.333 (U)	0.443 (U)
cis-Nonachlor	ug/kg	0.472 (U)	2.23 (P)	2.47 (P)	0.659 (IP)	0.333 (U)	0.443 (U)
Dieldrin	ug/kg	0.472 (U)	0.43 (U)	0.569 (U)	0.552 (U)	0.333 (U)	0.514 (P)
Endosulfan I	ug/kg	0.472 (U)	0.43 (U)	0.569 (U)	0.552 (U)	0.333 (U)	0.443 (U)
Endosulfan II	ug/kg	0.472 (U)	0.43 (U)	0.569 (U)	1.49	0.333 (U)	1.64 (P)
Endrin	ug/kg	1.17 (IP)	0.555	1.45 (P)	2.6 (P)	0.677 (P)	1.23 (P)
gamma-BHC	ug/kg	0.472 (U)	0.43 (U)	0.569 (U)	0.552 (U)	1.1 (P)	0.443 (U)
Heptachlor	ug/kg	0.472 (U)	0.43 (U)	0.569 (P)	0.552 (U)	0.333 (U)	0.443 (U)
Heptachlor epoxide	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Hexachlorobenzene	ug/kg	0.945 (U)	0.859 (U)	1.14 (P)	1.1 (U)	0.666 (U)	0.886 (U)
Methoxychlor	ug/kg	4.72 (U)	4.3 (U)	5.69 (U)	5.52 (U)	3.33 (U)	4.43 (U)
Oxychlordane	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Toxaphene	ug/kg	23.7 (U)	21.6 (U)	28.5 (U)	27.7 (U)	16.7 (U)	22.2 (U)
trans-Chlordane	ug/kg	0.472 (U)	0.43 (U)	0.569 (U)	0.552 (U)	0.333 (U)	0.443 (U)
trans-Nonachlor	ug/kg	0.472 (U)	0.43 (U)	0.569 (U)	0.552 (U)	0.333 (U)	0.443 (U)

6.1.5 Polycyclic Aromatic Hydrocarbons Results

Analyses for polycyclic aromatic hydrocarbons (PAHs) for each sample location were obtained by compositing each individual core. Table EA-6 presents PAH data from the FNP. All PAHs were detected at concentrations less than their ERL values with the exception of fluorene at station D which was just above its ERL value. Total low molecular weight (LMW) PAHs and high molecular weight (HMW) PAHs were below ERL values at all sample locations.

Table EA-6. PAH concentrations for samples from the Searsport Harbor FNP.							
PAH	Units	Station A	Station B	Station C	Station D	Station E	Station F
Acenaphthene	ug/kg	9.45 (U)	8.59 (U)	11.4 (U)	12.2	6.66 (U)	8.86 (U)
Acenaphthylene	ug/kg	9.45 (U)	8.59 (U)	27.4	37.1	6.66 (U)	29.5
Anthracene	ug/kg	9.45 (U)	8.59 (U)	33	42.4	6.66 (U)	33.4
Benz(a)anthracene	ug/kg	9.45 (U)	21.9	116	143	6.66 (U)	119
Benzo(a)pyrene	ug/kg	9.45 (U)	18.4	113	145	6.66 (U)	123
Benzo(b)fluoranthene	ug/kg	9.45 (U)	25.2	148	206	6.66 (U)	180
Benzo(ghi)perylene	ug/kg	9.45 (U)	13.8	91.6	118	6.66 (U)	81.8
Benzo(k)fluoranthene	ug/kg	9.45 (U)	15.8	94.3	100	6.66 (U)	93
Chrysene	ug/kg	9.45 (U)	18	120	136	6.66 (U)	114
Dibenz(a,h)anthracene	ug/kg	9.45 (U)	8.59 (U)	21.7	27.2	6.66 (U)	20.6
Fluoranthene	ug/kg	9.45 (U)	28.4	177	219	7.63	177
Fluorene	ug/kg	9.45 (U)	8.59 (U)	16.3	20	6.66 (U)	13.4
Indeno(1,2,3-cd) Pyrene	ug/kg	34.3	42.6	118	145	25.8	104
Naphthalene	ug/kg	9.45 (U)	8.59 (U)	42	46.4	6.66 (U)	33.6
Phenanthrene	ug/kg	9.45 (U)	13.1	103	126	6.66 (U)	77.9
Pyrene	ug/kg	9.45 (U)	34.4	224	298	8.56	209

6.1.6 Polychlorinated Biphenyls

Analyses for polychlorinated biphenyl (PCBs) for each sample location were obtained by compositing each individual core. Table EA-7 presents PAH data from the FNP. PCBs were not detected above the method reporting limits in any sample.

Table EA-7. PCB concentrations for samples from the Searsport Harbor FNP.							
PCB	Units	Station A	Station B	Station C	Station D	Station E	Station F
Cl2-BZ#8	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl3-BZ#18	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl3-BZ#28	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl4-BZ#44	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl4-BZ#49	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl4-BZ#52	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl4-BZ#66	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl5-BZ#87	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl5-BZ#101	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl5-BZ#105	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl5-BZ#118	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl6-BZ#128	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl6-BZ#138	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl6-BZ#153	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl7-BZ#170	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl7-BZ#180	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl7-BZ#183	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl7-BZ#184	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl7-BZ#187	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl8-BZ#195	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl9-BZ#206	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)
Cl10-BZ#209	ug/kg	0.945 (U)	0.859 (U)	1.14 (U)	1.1 (U)	0.666 (U)	0.886 (U)

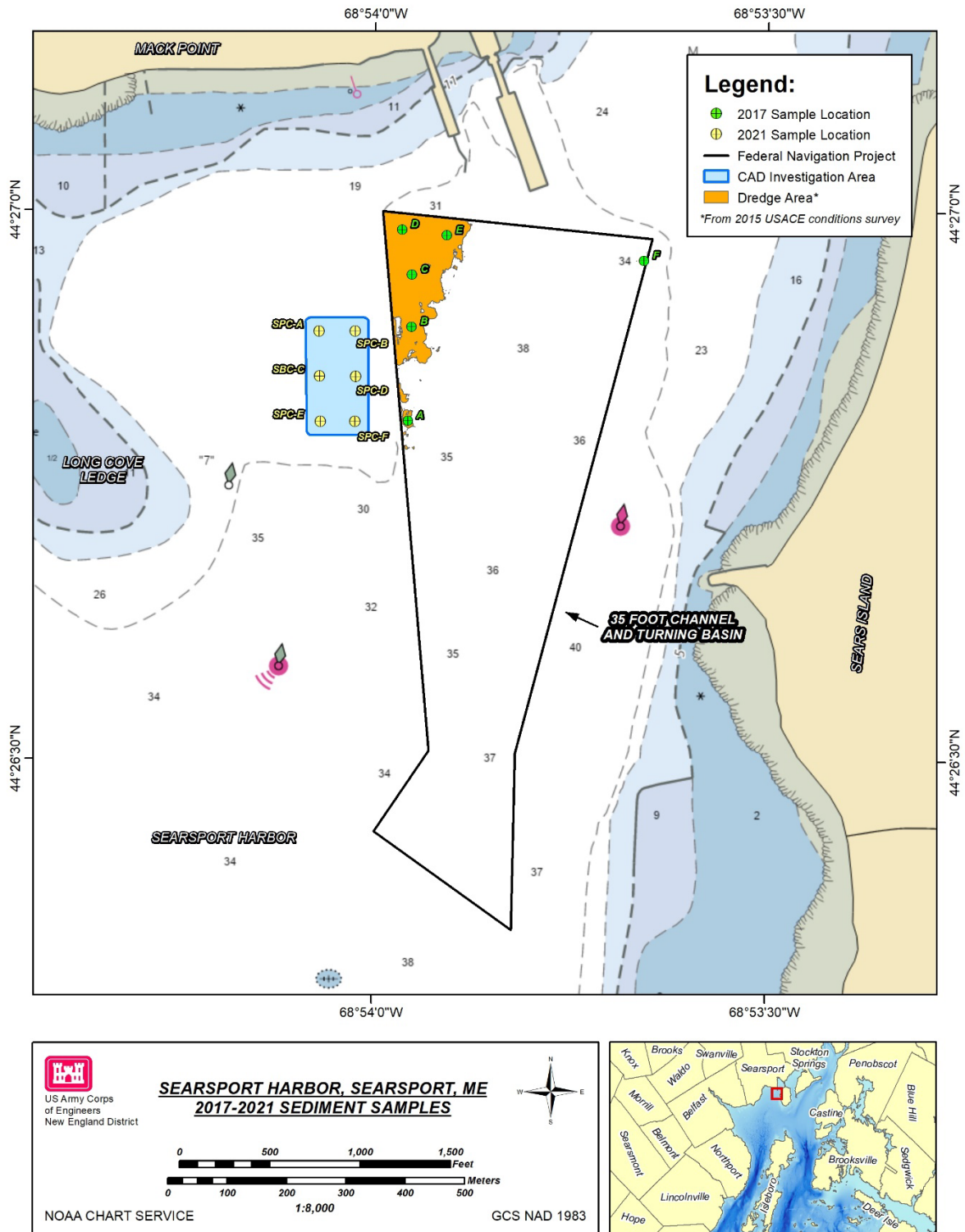


FIGURE EA-8. Sediment Sample Locations

6.2 Sediment Quality Proposed Searsport CAD Cells

On October 13, 2021, USACE completed a sampling and analysis effort to characterize the material in the vicinity of the proposed CAD cell footprints (Figure EA-8) for placement at RDS. This effort was conducted to evaluate the feasibility of CAD cell(s) construction in the area to the northwest of the FNP. Sediment cores from six locations within the proposed footprint for potential CAD cells (stations SPC-A through SPC-F; Figure EA-8) were collected to a maximum depth of eight feet below the water-sediment interface. This length was determined to be sufficient because the previous coring efforts to support the navigation improvement project, and the results of a USACE sub-bottom profiler survey conducted in 2007 (Appendix D of the Preliminary Assessment), indicated that the transition to native sediments beyond the extent of anthropogenic influence occurs within this depth range. As in the 2017 sampling event, each core was examined and logged in accordance with ASTM standard D 2488 before being subsampled based on lithology and physical properties. Subsamples of the surficial interval within each core consisting of unconsolidated organic silt and the more consolidated underlying material were analyzed separately for the standard suite of contaminants specified in the Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters (RIM) (USEPA/USACE, 2004).

The cores collected from the southern portion of the preliminary CAD cell footprint (SPC-E and SPC-F) met shallow penetration depths due to the presence of coal slag. As a result of this sampling effort, the CAD cell footprint was refined to cover a smaller area characterized by stations SPC-A through SPC-D (Figure EA-8). Results by contaminant category are discussed below and also presented in the Suitability Determinations in Appendix C.

6.2.1 Metals

Similar to the samples collected in the FNP in 2017, arsenic and nickel were detected at concentrations above ERL values, but well below ERM values, at all CAD cell sample locations. Mercury was detected at concentrations below the ERL value in all subsurface samples and the surficial sample from station SPC-A. Mercury was detected in concentrations above the ERL value, but below both the ERM values and the PRMS target cleanup level, in the surficial samples at stations SPC-B, SPC-C, and SPC-D. All other analyzed metals were less than ERL values at all locations. Data table of metals can be found in the 2021 Suitability Determination in Appendix C.

6.2.2 Polycyclic Aromatic Hydrocarbons Results

Fluorene was detected at concentrations up to 2 times the ERL value in the surface samples taken at stations SPC-B, SPC-C, and SPC-D but was an order of magnitude lower than the ERM value. Total HMW PAHs were also slightly greater than ERL values in the surface sample at station SPC-C. All other PAHs were either not detected or were detected at concentrations less than ERL values at all locations. Data table can be found in the 2021 Suitability Determination in Appendix C.

6.2.3 Polychlorinated Biphenyls and Pesticides

PCBs and pesticides were not detected at concentrations above the reporting limit in any sample from the proposed CAD cell area. Data tables can be found in the 2021 Suitability Determination in Appendix C.

6.3 Water Quality

For purposes of water quality, the affected environment of the proposed CAD cells and the Searsport Harbor FNP is considered the same given their close proximity (+/- 200 feet).

6.3.1 Penobscot River Watershed

At 350 miles long, the Penobscot River is the largest river in Maine, and the second largest river (after the Connecticut River) in New England. The west branch of the Penobscot River rises near Penobscot Lake on the Maine/Quebec border; the east branch of the Penobscot River begins at the East Branch Pond near the headwaters of the Allagash River. The mainstem of the river begins at the confluence of the East and West Branches at Medway and empties into Penobscot Bay near the town of Bucksport.

The Penobscot River drains a watershed of approximately 8,592 square-miles, roughly one-quarter of the State's land area. Another watershed estimate is 8,570 square miles, depending on where one draws the line between the "river" and the "bay". This watershed is forested with extensive bogs, marshes and wooded swamps and is sparsely populated. Average daily discharge is about 382,000 m³/day, peaking in March-April with a second peak in November-December. The river is tidal from north of Bangor, to the river's mouth near Bucksport (approximately 25 miles). The river is brackish from the mouth upstream to the town of Hampden (approximately 12 miles).

6.3.2 Searsport Water Quality

Water quality in Searsport Harbor is dictated primarily by tidal exchange with Penobscot Bay with freshwater input from the Penobscot River to the northeast. The State of Maine classifies the waters of Searsport Harbor as Class SC. Class SC waters are suitable for recreation in and on the water, fishing, aquaculture, propagation and restricted harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation, navigation, and as habitat for fish and other estuarine and marine life. Shellfish harvesting is prohibited in Searsport Harbor, except for a small area just west of the Sears Island causeway which is classified as "Restricted". "Restricted" areas require a special permit from the Department of Marine Resources.

The remaining waters of Penobscot Bay are classified as SB, except for a few harbors which are classified as SC and the mouth of the Bay near Isle au Haut which is classified as SA. SB waters are the second highest classification. Class SB waters are suitable for the designated uses of recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation, navigation and as habitat for fish and other estuarine and marine life.

6.4 Biological Environment

For purposes of biological environment, the affected environment is considered the same given the proximity of the proposed CAD cells and the Searsport Harbor FNP.

From Marshall Point at Port Clyde to Naskeag Point in Brooklin, Maine, Penobscot Bay's coastline is longer than 1,000 miles and includes more than 1,800 islands. Its marine life is most influenced by cold Gulf of Maine seawater currents. Subtidal circulation in Penobscot Bay is influenced by winds, freshwater discharge from the Penobscot River, and the southwestward Maine Coastal Current flowing past the mouth of Penobscot Bay (Xue, et.al., 2000). Cold water holds more oxygen and supports more nutrients than warm water. Like fertile soil, the nutrient-rich waters in Penobscot Bay support healthy and abundant growth. Penobscot Bay is home to almost all the seventy commercially harvested species of fish and shellfish landed in the Gulf of Maine.

6.4.1 Benthic Resources

Benthic sampling was conducted in the FNP on June 15, 2017. Samples were collected with a 0.04 m² VanVeen grab from the shoaled areas of the existing FNP. The samples were taken at the locations of the sediment cores and station numbers correspond to the sediment sample locations (Figure EA-8). All of the sample's sediments were dominated by fine sediments (silt) with fractions of sand. Taxonomic analysis shows a benthic community primarily dominated by polychaete species (segmented marine worms), with a much smaller number of arthropod (shrimp) and mollusk (clam and snail) species. Most stations had low abundance (i.e., number of individual organisms) and diversity was low at all stations. Table EA-8 shows the results of the benthic community analysis.

The benthic community within the footprint of the CAD cells was not sampled. However, given the similar grain sizes of sediments found in the FNP and CAD cells as well as the chemical contamination in the surficial sediments at both locations, the benthic community in the CAD cell is assumed to be similar to that of the FNP (i.e., a community with low diversity and low abundance).

Table EA- 8. Benthic Community of the shoal areas of the Searsport Harbor FNP.

STATION	A	B	C	D	E	F
ANNELIDA						
POLYCHAETA						
<i>Ampharete acutifron</i>	25	11	1	-	-	5
<i>Aricidea jeffreys</i>	1	9	7	4	4	9
<i>Aricidea quadriloba</i>	1	-	-	-	-	-
Unidentified Capitellida	-	-	11	-	-	2
<i>Cossura longocirrat</i>	51	110	15	41	17	125
<i>Mediomastus ambiset</i>	2	2	-	4	4	14
<i>Ninoe nigripe</i>	-	-	-	-	-	1
<i>Pholoe minut</i>	-	-	-	-	-	1
<i>Prionospio steenstrup</i>	7	1	-	-	3	12
<i>Nephtys incis</i>	-	2	2	-	1	-
<i>Terebellides stroen</i>	2	-	-	1	1	1
OLIGOCHAETA						
Oligochaeta s‡	5	2	1	-	5	2
ARTHROPODA						
AMPHIPODA						
<i>Ampelisca vadorun</i>	3	4	-	-	8	3
Unidentified <i>Ampelisca</i> s‡	-	-	-	-	-	4
<i>Corophium</i> s‡	2	4	2	2	2	-
<i>Photis macrocox</i>	-	1	-	-	-	2
<i>Unicola</i> s‡	-	1	-	-	-	-
CUMACEA						
Cumacea s‡	-	2	-	-	-	-
DECAPODA						
<i>Crangon septemspinos</i>	-	-	-	-	-	1
<i>Pagurus</i> s‡	-	-	-	-	-	1
ISOPODA						
MOLLUSCA						
BIVALVIA						
<i>Modiolus modiolu</i>	-	-	-	1	-	-
<i>Nucula proxim</i>	1	-	1	-	-	-
GASTROPODA						
<i>Retusa obtus</i>	-	-	-	-	-	1
INDIVIDUALS / SAMPLE	88	147	40	53	45	184
SPECIES / SAMPLE	11	11	8	6	8	15

6.4.2 Shellfish and Lobster

Penobscot Bay is one of the richest lobster grounds in the world (Ellis and Cowan, 1999). However, the upper Penobscot Bay does not support habitat for high density larval lobsters in the intertidal zone (Ellis and Cowan, 1999) or the subtidal zone (Wilson, 2009). Relative to the rich density of lobsters in the lower Penobscot Bay, the juvenile and adult lobster population in the upper Penobscot Bay, where the FNP is located, is low (Wilson, 2009).

No significant shellfish or crustacean resources were identified in the benthic sampling data collected within the project area. Green crabs (*Carcinus maenas*) and the seven-spine bay shrimp (*Crangon septemspinosa*) have been observed in the shallow areas of Long Cove (a shallow subtidal area to the east of Mack Point and the FNP) (Lazzari and Tupper, 2002). Additionally, reports of rock crabs (*Cancer irroratus*), green crabs, and scallop (*Placopecten magellanicus*) at Mack Point/Long Cove have been documented (ME DOT, 1987).

6.4.3 Fish

The fish fauna of the Gulf of Maine has been well described by Bigelow and Schroeder (1953). Finfish utilize the coastal waters of the Gulf of Maine and upper Penobscot Bay as year-round residents and for spawning and nursery areas. Penobscot Bay plays an important role in the early life history of fish inhabiting the central coast of Maine by offering habitat for larval fish. Twenty-six species of fish larvae were identified during spring surveys in Penobscot Bay in 1997 and 1998 (Lazzari, 2001). The most commonly occurring larvae (>35% of the samples) were Atlantic seasnail (*Liparis atlanticus*), winter flounder (*Pseudopleuronectes americanus*), radiated shanny (*Ulvaria subbifurcata*), sand lance (*Ammodytes* spp.), American plaice (*Hippoglossoides platessoides*), rock gunnel (*Pholis gunnellus*), sea raven (*Hemitripterus americanus*), longhorn sculpin (*Myoxocephalus octodecimspinosus*), and grubby sculpin (*Myoxocephalus aeneus*). Densities of sand lance were highest in the upper bay and mid-bay stations in 1997 and 1998 respectively (Lazzari, 2001). Winter flounder have their greatest abundance in the mid-bay area (Lazzari, 2001). Larvae from demersal eggs dominated the catch from late winter through spring, but not in early summer collections (Lazzari, 2001). Larvae of taxa that spawn from late winter through early spring, such as sculpins, sand lance, and rock gunnel, were dominant in Penobscot Bay in March and April. Larvae of spring to early spawners such as winter flounder, Atlantic seasnail, and radiated shanny, were abundant in May and June (Lazzari, 2001).

Table EA-9 provides the list of adult finfish species that were collected in the upper Penobscot Bay by the Central Maine Power Company (ME DOT, 1987). The most common pelagic fish were the Atlantic herring (*Clupea harengus*), Atlantic menhaden (*Brevoortia tyrannus*), and spiny dogfish (*Squalus acanthias*). Other important pelagic species include the blueback herring (*Alosa aestivalis*), alewife (*Alosa pseudoharengus*), Atlantic mackerel (*Scomber scombrus*) and rainbow smelt (*Osmerus mordax*) (ME DOT, 1987). Atlantic herring have been found throughout the year in the upper Penobscot Bay, with the highest densities in June. The alewife and blueback herring typically are most numerous in April/May (alewives) and June (blueback herring) (ME DOT, 1987).

Winter flounder (*Pseudopleuronectes americanus*), is the most common demersal species, representing almost half of the total catch in the upper Penobscot Bay (ME DOT, 1987). The winter flounder is a year around resident of the Gulf of Maine and spawns in late winter and early spring. Longhorn sculpin (*Myoxocephalus octodecemspinosus*), windowpane flounder (*Scophthalmus aquosus*), white hake (*Urophycis tenuis*), and the rainbow smelt (*Osmerus mordax*) represented the higher abundance of caught demersal fish (ME DOT, 1987). White hake is collected year around in the lower regions of Penobscot Bay but is absent from the upper bay from January through April (ME DOT, 1987). White hake densities appeared to be highest from late summer through early fall.

Sampling in shallow regions in the vicinity of Sears Island revealed an abundance of Atlantic silversides (*Menidia menidia*), three spine stickleback (*Gasterosteus aculeatus*), blackspotted stickleback (*Gasterosteus wheatlandi*) and American sand lance (*Ammodytes americanus*) (ME DOT, 1987). These species, along with the smelt, alewife and blueback herring are common shoreside species in the Gulf of Maine. Additional species collected from the shallow areas of Long Cove from April through October in 1997 and/or 1998 included the Atlantic herring, sand lance, lumpfish (*Cyclopterus lumpus*), windowpane flounder and winter flounder (Lazzari and Tupper, 2002).

The Penobscot River and its tributaries are important aquatic resources that have or currently support a variety of anadromous (lives in saltwater and enters fresh water to spawn), and catadromous (lives in freshwater and enters saltwater to spawn) fish species. These species include the Atlantic salmon (*Salmo salar*), American shad (*Alosa sapidissima*), alewife (*Alosa pseudoharengus*), Blueback herring (*Alosa aestivalis*), rainbow smelt (*Osmerus mordax*), striped bass (*Morone saxatilis*), tomcod (*Microgadus tomcod*), sea lamprey (*Petromyzon marinus*), Atlantic and shortnose sturgeon (*Acipenser* spp.) and American eel (*Anguilla rostrata*) (NRCM, 2021). The Penobscot Indian Nation and the environmental groups Atlantic Salmon Federation, Natural Resources Council of Maine, Trout Unlimited, American Rivers, and Maine Audubon, are working collaboratively with others to restore the sea-run fisheries of Penobscot River (NRCM, 2021). By 2015 an additional 1,000 miles of river habitat will provide access to these fish when the demolition or fish bypass on the lower three dams along the Penobscot River are complete.

TABLE EA-9
Fish Species in the Area of Searsport Harbor (adjacent to Sears Island), CMP Fish Survey
(ME DOT, 1987)

Common Name	Relative Abundance %	Common Name	Relative Abundance %
<i>Pelagic Fish</i>		<i>Juvenile Fish and Shoreside Fish</i>	
Atlantic herring	28.9	Rainbow smelt	19.5
Atlantic menhaden	25.1	Atlantic silverside	18.5
Spiny dogfish	16.8	Alewife	15.0
Blueback herring	13.0	Three spine stickleback	12.4
Alewife	8.2	Blueback herring	11.9
Atlantic mackerel	3.5	Blackspotted stickleback	5.7
Rainbow smelt	2.2	American sand lance	5.3
Butterfish	-	Atlantic herring	3.1
<i>Demersal Fish</i>		Pollock	2.9
American plaice	-	Cunner	-
Winter flounder	49.2	Tautog	-
Yellowtail flounder	-	Northern pipefish	-
Shorthorn sculpin	-	Radiated shanny	-
Longhorn sculpin	16.0	Snake blenny	-
Windowpane flounder	11.3	Rock gunnel	-
White hake	10.1	Grubby	-
Rainbow smelt	5.3	Atlantic cod/Haddock	-
Fourbeard rockling	1.7	Wrymouth	-
Atlantic tomcod	1.2	Goosefish	-
Lumpfish	-	American eel	-
Sea raven	1.0		
Cusk	-		

6.4.4 Birds

Coastal Maine is important for shorebirds as a feeding and resting area during migration. In addition, piping plover (*Charadrius melodus*), and spotted sandpiper (*Actitis macularius*), breed along the coast of Maine. The purple sandpiper (*Calidris maritima*) is a winter resident. Shorebirds feed on invertebrates in intertidal mudflats and roost on sand, gravel beaches, spits, wetlands, or near shore ledges (Schettig and Schettig, 1980). The habitat of northeastern Maine, which is described by the U.S. Fish and Wildlife Service (USFWS) (Schettig and Schettig, 1980), is generally characterized as excellent habitat for all migrating and wintering waterfowl species of Maine. The high quality of the Maine habitat is due in large part to the large tidal range, which exposes extensive mudflats along the coast. This supplies excellent habitat for dabbling ducks, particularly American black duck (*Anas rubripes*) (Schettig and Schettig 1980).

Several species of migratory birds have potential to use or transit over the waters in the vicinity of Searsport Harbor. USFWS’s “Information for Planning and Consultation” (IPaC) (<https://ecos.fws.gov/ipac/>) lists thirty-seven species of migratory birds, that either call for conservation concern or warrant attention because of the Bald and Golden Eagle Protection Act, that may or have the potential to occur at Searsport Harbor. They include the arctic tern (*Sterna paradisaea*), bald eagle (*Haliaeetus leucocephalus*), black guillemot (*Cepphus grille*), black scoter (*Melanitta nigra*), black-billed cuckoo (*Coccyzus erythrophthalmus*), bobolink (*Dolichonyx oryzivorus*), Bonaparte’s gull (*Chroicocephalus philadelphia*), Canada warbler (*Cardellina canadensis*), cape may warbler (*Setophaga tigrina*), common eider (*Somateria mollissima*), common loon (*Gavia immer*), common tern (*Sterna hirundo*), double-crested cormorant (*Phalacrocorax auritus*), evening grosbeak (*Coccothraustes vespertinus*), black-backed gull (*Larus marinus*), herring gull (*Larus argentatus*), least tern (*Sterna antillarum*), lesser yellowlegs (*Tringa flavipes*), long-tailed duck (*Clangula hyemalis*), nelson’s sparrow (*Ammospiza nelsoni*), northern fulmar (*Fulmarus glacialis*), olive-sided flycatcher (*Contopus cooperi*), prairie warbler (*Dendroica discolor*), purple sandpiper (*Calidris maritime*), razorbill (*Alca torda*), red phalarope (*Phalaropus fulicarius*), red-breasted merganser (*Mergus serrator*), ring-billed gull (*Larus delawarensis*), roseate tern (*Sterna dougallii*), rusty blackbird (*Euphagus carolinus*), semipalmated sandpiper (*Calidris pusilla*), surf scoter (*Melanitta perspicillata*), thick-billed murre (*Uria lomvia*), whimbrel (*Numenius phaeopus*), white-winged scoter (*Melanitta fusca*), and wood thrush (*Hylocichla mustelina*).

6.4.5 Marine Mammals

Several species of marine mammals have potential to use or transit the waters in the vicinity of Searsport Harbor. The Maine Department of Marine Resources (MDMR) lists nine species of marine mammals, that either call for conservation concern or warrant attention because of the Marine Mammal Protection Act, that may or have the potential to occur at Searsport Harbor. They include the Cetaceans (Large Whales) such as the fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), minke whale (*Balaenoptera acutorostrata*) and north Atlantic right whale (*Eubalaena glacialis*), smaller Cetaceans such as the Atlantic White-sided dolphin (*Leucopleurus acutus*), common dolphin (*Delphinus delphis*) and the Harbor porpoise (*Phocoena phocoena*), and the Pinnipeds such as grey seal (*Halichoerus grypus*) and the Harbor Seal (*Phoca vitulina*) (MDMR, 2025).

6.4.6 Vegetation

According to the Maine Department of Marine Resources GIS database, no current or historic eelgrass (*Zostera marina*) resources have been documented within the FNP or in the vicinity of the proposed CAD cells. Eelgrass has been observed to the east of the FNP in Long Cove.

6.7 Threatened and Endangered Species

For purposes of the Threatened and Endangered Species evaluation, the affected environment is considered the same given the proximity of the proposed CAD cells and the Searsport Harbor FNP.

6.7.1 Fish

There are three species of fish that have been listed under the Endangered Species Act (ESA) that may occur in the project area and inhabit all or portions of the lower Penobscot River and the upper portion of Penobscot Bay during part of the year. These species include the Gulf of Maine Distinct Population Segment (GOM DPS) for Atlantic salmon (*Salmo salar*), the shortnose sturgeon (*Acipenser brevirostrum*), and the GOM DPS for Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). Critical habitat was designated for Atlantic salmon in 2009. Based on the 2009 final rule, critical habitat designated for Atlantic salmon that is located closest to the project area is from the mouth of the Penobscot River (located on the east side of Sears Island) upstream and including tributaries.

Atlantic salmon have a complex life history. Their life history begins from territorial rearing in rivers to extensive feeding migrations on the high seas [74 Fed. Reg. 29,300 at 29,315 (June 19, 2009)]. Adult Atlantic salmon return to rivers from the sea and migrate to their natal stream to spawn. In Maine, the majority of Atlantic salmon enters freshwater between May and mid-July. After spawning in the fall, the Atlantic salmon may either return to the sea immediately or remain in freshwater until the following spring before returning to the sea. In Maine, after one to three years in the river, naturally reared smolts enter the sea during May to begin their first ocean migration. The spring migration of post-smolts out of the coastal environment is generally rapid, within several tidal cycles and follows a direct route. Post-smolts generally travel out of coastal systems on the ebb tide and may be delayed by flood tides. Post-smolts live mainly on the surface of the water column. The shortnose sturgeon inhabits rivers and estuaries. It is an anadromous fish that spawns 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. It prefers the nearshore marine, estuarine and riverine habitat of large river systems.

Shortnose sturgeon, unlike other anadromous species in the region, such as shad or salmon, does not appear to make long distance offshore migrations. Shortnose sturgeon are benthic feeders. Juveniles are believed to specifically feed on insects and crustaceans while adults are known to feed on mollusks and large crustaceans (NOAA, 2021g). On June 30, 1978, a shortnose sturgeon was captured in the Penobscot River estuary (Northport, Maine) during a Maine Department of Marine Resources sampling program (Squiers and Smith, 1979). Until recently, few, if any, shortnose sturgeons have been found in the Penobscot River or estuary. Since spring of 2006, University of Maine researchers have documented over 400 shortnose sturgeon in the Penobscot River, the first confirmed captures since 1978. In addition, close to 80 Atlantic sturgeons have also been caught and released. The extent of the shortnose sturgeon's range in the Penobscot is likely from the lower estuary up to the area just downstream of the Veazie Dam. A variation in movement of the typical sturgeon behavioral pattern has been documented since 2007. The movements of some individuals (both shortnose and Atlantic sturgeon) have been observed between the Penobscot River and the Kennebec River. This differs from the current behavioral theory that shortnose sturgeons do not leave the river from where they hatched. The species was believed to move into the estuaries of those rivers, but never to make coastal migrations (NRCM, 2021). Current data from the Penobscot River shows that shortnose sturgeon move to a well-defined area of the river in mid-October and stay throughout the winter. In April, when water temperature in the river rises above 7°C (44°F), sturgeon, if ready to reproduce, move upstream to their spawning location (NRCM, 2021).

Atlantic sturgeons are distributed along the entire East Coast of the U.S. Many Atlantic sturgeon populations, including those found in Maine rivers, have undergone drastic declines in abundance since the late 1800s. Spawning Atlantic sturgeon adults migrate upriver in spring, beginning in February-March in the south and May-June in Canadian waters. Spawning occurs in flowing water between the salt front and the fall line of large rivers. Following spawning, males may remain in the river or lower estuary until fall; females typically exit the rivers within four to six weeks. Adults forage on benthic invertebrates (mussels, worms, shrimp). Juveniles move downstream into brackish waters for a few months; and at about 30-36 inches they move into coastal waters. Tagging data indicate that immature Atlantic sturgeon travel widely once they emigrate from their birth rivers (NOAA, 2021a).

6.7.2 Sea Turtles

Several ESA-listed species of sea turtles seasonally occur in Maine waters, including Penobscot Bay. These include the threatened Northwest Atlantic DPS of loggerhead turtle (*Caretta caretta*), the endangered Kemp's ridley (*Lepidochelys kempii*), the endangered North Atlantic DPS of green sea turtle (*Chelonia mydas*), and the vulnerable leatherback turtle (*Dermochelys coriacea*). ESA-listed sea turtles are generally present in Maine waters from June through October of any year. However, these species are unlikely to be present in Searsport Harbor or the upper portion of Penobscot Bay where the dredging and placement is to occur.

6.7.3 Mammals

Northern Long-Eared Bat (Threatened)

The ESA-listed endangered northern long-eared bat (*Myotis septentrionalis*) can range from 3 to 3.7 inches in length, 9 to 10 inches in wingspan, and weigh 6 to 9 grams. Northern long-eared bat range in color around the body with a dull yellow/brown pelage, pale gray ventral side, and dull brown shoulder spotting. This species is found across the eastern and north central United States, all Canadian provinces from the Atlantic coast west to the southern Northwest Territories, and eastern British Columbia. The northern long-eared bat inhabits northern boreal forests, wet forests of the interior cedar-hemlock biogeoclimatic zone, buildings, under loose bark, tree cavities, caves, and underground mines. No critical habitat has been designated for this species. However, it is assumed they are, or will become, endangered in the foreseeable future within significant portions of the area of interest for this project. The predominant threat to this species is White-nose syndrome which is a fungal disease known to affect bats causing populations in the Northeast to decline by up to ninety-nine percent. Other threats include timber harvesting, chemical and biological insecticides, disturbance from recreational "caving", and closures of cave openings after abandonment of mines (Ollendorff, 2002).

6.7.4 Birds

Roseate Tern (Endangered)

The ESA-listed endangered roseate tern (*Sterna dougallii dougallii*) has the potential to occur within the proposed project area. Roseate terns are generally present in Maine from May to

August. The area of influence for this species includes all coastal habitats where this species may roost and feed, and breeding islands along the coast (USFWS, 2020). Within the project area, the beaches and intertidal areas along the Searsport shoreline and the adjacent Sears Island have the characteristics of areas where roseate terns may forage and rest. A review of recent sighting information (www.ebird.org) did not show reports for this species. The roseate tern is not a commonly abundant bird species in the project area due to the lack of nesting habitat present in the area.

State Listed Species

American eel (*Anguilla rostrata*) and laughing gull (*Leucophaeus atricilla*) are both listed as species of special concern by the State of Maine. Species of special concern are not protected by endangered species statutes and have no special legislative protection. However, they are believed to be vulnerable and could easily become threatened or endangered because of restricted distribution, low or declining numbers, specialized habitat needs or limits, or other factors. They include species suspected of being threatened or endangered or likely to become so, but for which insufficient data are available (MDIFW, 2011).

6.8 Essential Fish Habitat

For the purposes of Essential Fish Habitat, the affected environment is considered the same given the proximity of the proposed CAD cells and the Searsport Harbor FNP.

The NMFS has designated specific areas as Essential Fish Habitat (EFH) in accordance with the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996. The Sustainable Fisheries Act includes requirements for evaluating fish habitat loss and protection of fisheries identified as essential fisheries. “Essential Fish Habitat” are those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (50 CFR Part 600).

The proposed dredging project and CAD cell location occur in areas designated as EFH for several species and are managed by the New England Fishery Management Council. Appendix H lists life history profiles for the 22 EFH designated species. The species in Penobscot Bay are: Atlantic sea scallop (*Placopecten magellanicus*), Atlantic wolffish (*Anarhichas lupus*), haddock (*Melanogrammus aeglefinus*), winter flounder (*Pseudopleuronectes americanus*), little skate (*Leucoraja erinacea*), ocean pout (*Zoarces americanus*), Atlantic herring (*Clupea harengus*), Atlantic cod (*Gadus morhua*), pollock (*Pollachius virens*), red hake (*Urophycis chuss*), silver hake (*Merluccius bilinearis*), windowpane flounder (*Scopthalmus aquosus*), winter skate (*Leucoraja ocellata*), American plaice (*Hippoglossoides platessoides*), smooth skate (*Malacoraja senta*), white hake (*Urophycis tenuis*), thorny skate (*Amblyraja radiata*), Atlantic mackerel (*Scomber scombrus*), Atlantic salmon (*Salmo salar*), bluefin tuna (*Thunnus thynnus*), bluefish (*Pomatomus saltatrix*), and Atlantic butterflyfish (*Peprilus triacanthus*).

6.9 Historic and Archaeological Resources

For the purposes of Historic and Archaeological Resources, the affected environment is considered the same given the proximity of the proposed CAD cells and the Searsport Harbor FNP.

The following cultural context and assessment is taken from the *Marine Archaeological Survey, Searsport Harbor, Searsport, Maine* technical report prepared by the Public Archaeology Laboratory, Inc. (PAL) under contract to the USACE (Robinson and Gardner, 2007).

Pre-Contact Period Archaeological Assessment and Sensitivity

The FNP study area and CAD cell location is in a resource-rich, protected coastal setting on the northwestern shore of the head of Penobscot Bay. Penobscot Bay is the drowned southern end of the Penobscot River valley, which was inundated by changing sea level and coastal subsistence. Together, the river and embayment form Maine's largest estuary and would have been a particularly attractive area for settlement during the pre-contact period.

Review of the available archaeological literature for the Penobscot Bay area indicates that the State's central coastline contains the oldest known coastal pre-contact archaeological sites in Maine, and more sites older than 4,000 Before Present (BP) than any other coastal section of the State. There is ample evidence within the central coast of Maine of a nearly 5,000-year continuum of human habitation extending from circa 5,290 BP through the Contact period. This continuum exhibits a dual marine-terrestrial exploitation pattern consisting of habitation sites that are all located on or very near to the present shoreline.

Although the location of the FNP project area and the CAD cell location fit the predictive model as an area that would be attractive for pre-Contact land use from the Archaic through Contact periods, no National Register or National Register-eligible archaeological properties or Maine site survey archaeological sites are recorded in Searsport Harbor or the project's underwater study area. This absence is probably more attributable to the negligible amount of underwater archaeological research on the pre-Contact period conducted to date, rather than a conclusive indicator of the potential for such sites to exist.

Based on contemporary modeling of pre-Contact archaeological site locations in coastal Maine and in northern coastal environments elsewhere in the world, the strong correlation between nearby water and site presence, and the erosional effects of the harbor's wind-generated waves and tide currents, the Searsport Harbor study area is considered to possess moderate potential for containing formerly terrestrial archaeological deposits dating from circa 11,500 to 2,500 BP. Any pre-Contact Native American archaeological deposits present in the FNP project area, such as those associated with the nearby coastal sites described above, would likely be of a maritime nature (i.e., watercraft or fishing weirs).

Contact and Post-Contact Archaeological Assessment and Sensitivity

Available information for the Searsport area's Contact/post-Contact period history documents an extensive 400-year history of native and non-native fishing, shipbuilding, and maritime commerce in and around Penobscot Bay and Searsport Harbor. The town of Searsport reached its commercial zenith during the mid-19th Century, as Maine became the "foremost builder of wooden ships in the country." Between 1792 and 1892, Searsport had been home to 286 vessel master's and eight different shipyards at the height of the town's wooden shipbuilding era (1840s-1850s). Together, Searsport shipyards produced 232 vessels between 1792 and 1892.

Shipwreck database research conducted for this study produced only three documented vessel casualties within all of Searsport Harbor. One of these casualties is the charted shipwreck located southwest of the FNP, identified during the Searsport Navigation Improvement project in 2006. A preliminary assessment of this wreck was conducted to determine site boundaries and to assess its significance for listing on the National Register of Historic Places in coordination with the Maine State Historic Preservation Officer (SHPO). As a result of this assessment, a comprehensive site examination including diver-based archaeological documentation, site testing, and archival research was recommended to conclusively confirm the shipwreck's identity, assess the condition and integrity of the remains, and evaluate the site's National Register eligibility (March 9, 2009, correspondence from ME SHPO to USACE). However, it was later determined that the wreck site fell outside of the most recent channel alignment and would not be impacted by project improvements. No further archaeological investigations were required as a result.

Recognizing the region's extremely long history of maritime activity and that most vessel casualties went unrecorded, as well as the relatively protected nature of the project study area, the FNP project study area, including the CAD cell location has a moderate archaeological sensitivity for containing sunken Contact/post-Contact period vessels and/or coastal structures.

Because effects on historic properties cannot be fully determined prior to approval of the recommended plan, the USACE is developing a Programmatic Agreement (PA) pursuant to 36 CFR 800.14(b)(1)(ii) to comply with Section 106 of the NHPA. Disposal of material at the RDS, a previously utilized disposal site, will not affect historic properties. Consultation will be initiated with the following Tribal governments to determine if there are areas of concern or sacred and/or spiritual sites within the Searsport Harbor FNP and CAD cell locations in accordance with Section 106 of the National Historic Preservation Act (NHPA) and implementing regulations 36 CFR 800:

Houlton Band of Maliseet Indians
Mi'kmaq Nation
Passamaquoddy Tribe
Penobscot Nation
Wampanoag Tribe of Gay Head (Aquinnah).

6.10 Air Quality

For the purposes of Air Quality, the affected environment of the proposed CAD cells and the Searsport Harbor FNP is considered the same given their proximity.

Ambient air quality is protected by Federal and state regulations. The U.S. EPA has developed National Ambient Air Quality Standards (NAAQS) for certain air pollutants and air quality standards for each state cannot be less stringent than the NAAQS. The NAAQS determined by the EPA set the concentration limits that determine the attainment status for each criteria pollutant. EPA has identified seven specific pollutants (called criteria pollutants) that are of concern with respect to the health and welfare of the general public. The criteria pollutants are carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), particulate matter 10 micrometers or less in aerodynamic diameter (PM₁₀), particulate matter 2.5 micrometers or less in aerodynamic diameter (PM_{2.5}), and lead (Pb). Waldo County, the county in which Searsport Harbor is located, is currently designated as attainment for the air pollutants listed above.

6.11 Socioeconomic Environment

For the purposes of the socioeconomic environment, the affected environment is considered the same given the proximity of the proposed CAD cells and the Searsport Harbor FNP.

In 2020, the population of Searsport, Maine, was 999 (US Census, 2025). The median household income was \$62,159, poverty was 16.1%, and the employment rate was 76.9%. (U.S. Census 2025). As of 2020 in Waldo County, Maine, 96.6% of the population is white, 0.6% is Black or African American, 0.5% is Indigenous or Native American, 0.6% is Asian, less than 1% is Native Hawaiian or Pacific Islander, 1.6% is Hispanic or Latino, and 1.6% identified as two or more races. Within Waldo County, only 18.2% of the population is under 18 years old and approximately 13.7% of the population are living below the poverty level (U.S. Census, 2025).

6.12 Noise

Noise is often defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, or is otherwise annoying. Response to noise varies by the type and characteristics of the noise source; distance from the source; receptor sensitivity, and time of day. Noise can be intermittent or continuous, steady or impulsive, and it may be generated by stationary or mobile sources.

Searsport Harbor has the typical noise characteristics of a deep water harbor. Sources include recreational and commercial vessel traffic, dredging vessels and dockside facilities. Noise sources for vessels include cranes, whistles and various motors for propulsion. Dockside noise sources include cranes, trucks, cars, and loading and unloading equipment. In addition to the noise in the water/marine environment, noise can impact the human environment. Background noise exposures change during the course of the day in a gradual manner, which reflects the addition and subtraction of distant noise sources.

7.0 Environmental Consequences

7.1 Sediment Quality Impacts

7.1.1 No Action Alternative

Under the no action alternative, the existing sediment quality conditions noted in section 6.1 would remain unchanged.

7.1.2 Preferred Alternative

7.1.2.1 Dredging Searsport Harbor FNP and CAD Cells

USACE evaluated the sediment from the FNP and found the material unsuitable for open water placement (see Appendix C of the Preliminary Assessment). One viable project alternative proposes to contain the unsuitable material from the FNP in CAD cells within Searsport Harbor (Figure EA-4). The surficial material from the proposed CAD cells was deemed unsuitable, while the material at depth in the CAD cells was found to be suitable for open water placement (Appendix C of the Preliminary Assessment). Surficial CAD cell material will be excavated, held in barges, and placed back into the CAD cell following CAD cell completion. Material from depth in the CAD cell, which is suitable native glacial till, will be placed at the RDS.

As described in Section 6.1, the sediments to be dredged as part of the maintenance dredging effort within Searsport Harbor are predominately silt with small fractions of sand. Upon completion of the maintenance dredging project, the material at the dredged areas is anticipated to remain silt. Additionally, the sediments at the surface of the proposed CAD cell are silt. Following the creation of the CAD cells and their subsequent filling, the sediments are expected to remain silt. The change in sediment quality at both the FNP area and the CAD cell is expected to improve as unsuitable surficial material will be removed and sequestered within the CAD cells.

7.1.2.2 Rockland Disposal Site

Suitable material excavated from the proposed CAD cells in Searsport Harbor will be placed at the RDS. RDS is an active disposal site that has received dredged material from Camden Harbor, Castine Harbor, and Lassell Island. The placement of the suitable material from the Searsport Harbor CAD cells is not anticipated to affect sediment quality at the RDS.

7.2 Water Quality Impacts

7.2.1 No Action Alternative

Under the no action alternative, the existing water quality conditions noted in section 6.2 would remain unchanged.

7.2.2 Preferred Alternative

7.2.2.1 Searsport Harbor FNP, CAD Cells, and RDS

Water Chemistry

Following the methodology outlined in the Inland Testing Manual (USEPA/USACE, 1998), USACE evaluated the potential impacts to the water column from dredging and the discharge of dredged material at RDS and into the proposed CAD cells. To determine if the discharge would comply with the State of Maine's Water Quality Criteria (WQC), USACE utilized the Short-Term Fate (STFATE) numerical model to analyze the disposal cloud as it descends through the water column after release from a scow.

Based on the 2021 bulk sediment chemistry results for the subsurface material in the revised CAD cell footprints, the water column modeling showed that all chemicals of concern (COCs) comply with WQC and no adverse impacts to the water column are expected during placement of this material at RDS. Based on the 2017 bulk sediment chemistry concentrations in the FNP maintenance material, and the 2021 bulk sediment chemistry concentrations in the surficial material from the revised CAD cells footprints, the discharge of this material into the CAD cells also complies with WQC with the exception of arsenic and mercury.

Arsenic concentrations measured in 2017 and 2021 samples were lower than arsenic concentrations measured during the 2015 sampling event. The 2015 samples were used to create elutriates and results of subsequent STFATE modeling based on maximum arsenic elutriate concentrations comply with WQC and serve as conservative estimates of potential arsenic impacts from 2017 and 2021 samples. Using the relationship of bulk sediment arsenic concentration to elutriate concentration from the 2015 data as an indicator, the predicted arsenic elutriate concentrations based on the 2017 and 2021 results are expected to attain WQC during discharge into the proposed CAD cell.

The maximum mercury concentrations measured in the FNP maintenance material in 2017 and measured in the surficial material from the revised CAD cell footprint in 2021, exceeded the concentrations measured in 2015. However, using the relationship of bulk sediment mercury concentration to elutriate concentration from the 2015 data as an indicator, the predicted mercury elutriate concentrations based on the 2017 and 2021 results are expected to attain WQC during discharge into the proposed CAD cell.

In December of 2022, USACE collected dredge site sediment from previously sampled stations C and D within the shoaled portion of the FNP, and SPC-D in the proposed CAD cells footprints (Figure EA-8). The sediment sample locations and depth intervals were selected to represent the peak metals concentrations previously measured in both areas. Dredge site water was collected at the mid-depth interval from a central location within the proposed project footprint. An elutriate composite sample for each project area was prepared according to the methods presented in the Inland Testing Manual (EPA/USACE, 1998). The two project area elutriate composite samples, and one elutriate blank were analyzed for the standard suite of contaminants specified in the Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New

England Waters (RIM) (USEPA/USACE, 2004), including metals, polychlorinated biphenyl (PCB) congeners, pesticides, and pentachlorophenol. A summary of the testing results is presented in Table EA-10. PCB congeners, pesticides, and pentachlorophenol were not detected above the laboratory method detection limits (MDL) in any of the project area samples. The only metal detected at concentrations above the project reporting limit (RL) was Arsenic, which ranged from 15.41 ug/l in the CAD cells composite to 54.75 ug/l in the FNP composite. Arsenic was measured at a concentration between the MDL and the RL in the elutriate blank, indicating that dissolved metals in the background site water did not contribute to the elutriate composite concentrations.

All analyzed contaminants in both elutriate composite samples were either not detected above the MDL or were measured at concentrations below the State of Maine WQC; therefore, the proposed discharge is in compliance with the requirements of 40 CFR 230.

Table EA-10. Summary of 2022 Elutriate Chemistry Results

	ME WQC	FNP COMPOSITE	CAD COMPOSITE	ELUTRIATE BLANK
DISSOLVED METALS				
Arsenic	69	54.75	15.41	0.79 (J)
Cadmium	40	2.995 (U)	2.995 (U)	2.995 (U)
Chromium, Hexavalent	1108	1.5 (U)	1.5 (U)	1.5 (U)
Copper	5.78	19.2 (U)	19.2 (U)	19.2 (U)
Lead	221	17.15 (U)	17.15 (U)	17.15 (U)
Mercury	2.1	0.01 (U)	0.01 (U)	0.01 (U)
Selenium	291	0.065 (U)	0.065 (U)	0.065 (U)
Silver	2.24	8.15 (U)	8.15 (U)	8.15 (U)
Zinc	95	170.5 (U)	170.5 (U)	170.5 (U)
PCB CONGENERS				
C12-BZ#8		0.000065 (U)	0.000065 (U)	0.000065 (U)
C13-BZ#18		0.000085 (U)	0.000085 (U)	0.000085 (U)
C13-BZ#28		0.000085 (U)	0.000085 (U)	0.00008 (U)
C14-BZ#44		0.000055 (U)	0.000055 (U)	0.000055 (U)
C14-BZ#49		0.000045 (U)	0.000045 (U)	0.00004 (U)
C14-BZ#52		0.00005 (U)	0.00005 (U)	0.000045 (U)
C14-BZ#66		0.000065 (U)	0.000065 (U)	0.00006 (U)
C15-BZ#87		0.000085 (U)	0.000085 (U)	0.000085 (U)
C15-BZ#101		0.000105 (U)	0.0001 (U)	0.0001 (U)
C15-BZ#105		0.00007 (U)	0.00007 (U)	0.00007 (U)
C15-BZ#118		0.00006 (U)	0.00006 (U)	0.00006 (U)
C16-BZ#128		0.00007 (U)	0.00007 (U)	0.00007 (U)
C16-BZ#138		0.00005 (U)	0.00005 (U)	0.00005 (U)
C16-BZ#153		0.00003 (U)	0.00003 (U)	0.00003 (U)
C17-BZ#170		0.000075 (U)	0.000075 (U)	0.000075 (U)
C17-BZ#180		0.000065 (U)	0.000065 (U)	0.000065 (U)
C17-BZ#183		0.00007 (U)	0.00007 (U)	0.000065 (U)
C17-BZ#184		0.000065 (U)	0.000065 (U)	0.000065 (U)
C17-BZ#187		0.000045 (U)	0.000045 (U)	0.000045 (U)
C18-BZ#195		0.00004 (U)	0.00004 (U)	0.000035 (U)
C19-BZ#206		0.000085 (U)	0.000085 (U)	0.000085 (U)
C110-BZ#209		0.00004 (U)	0.00004 (U)	0.00004 (U)
Total PCBs	0.03	0.00228 (U)	0.00227 (U)	0.00223 (U)
ORGANOCHLORINE PESTICIDES				
4,4'-DDT	0.13	0.000075 (U)	0.000075 (U)	0.000075 (U)
Aldrin	1.3	0.000155 (U)	0.00015 (U)	0.00015 (U)
Chlorpyrifos	0.011 ¹	0.000075 (U)	0.00007 (U)	0.00007 (U)
cis-Chlordane	0.09 ¹	0.00007 (U)	0.00007 (U)	0.00007 (U)
trans-Chlordane	0.09 ¹	0.00003 (U)	0.00003 (U)	0.00003 (U)
Dieldrin	0.71	0.000035 (U)	0.000035 (U)	0.000035 (U)
Endosulfan I	0.034	0.00007 (U)	0.00007 (U)	0.00007 (U)
Endosulfan II	0.034	0.000065 (U)	0.000065 (U)	0.00006 (U)
Endrin	0.037	0.000075 (U)	0.000075 (U)	0.000075 (U)
gamma-BHC	1.3 ¹	0.000045 (U)	0.000045 (U)	0.00004 (U)
Heptachlor	0.053	0.000055 (U)	0.00005 (U)	0.00005 (U)
Heptachlor epoxide	0.053	0.00006 (U)	0.00006 (U)	0.00006 (U)
Toxaphene	0.21	0.00241 (U)	0.00239 (U)	0.002365 (U)
SEMIVOLATILES				
Pentachlorophenol	13 ¹	0.2075 (U)	0.214 (U)	0.2055 (U)

All results presented as ug/l

U: analyte not detected above the laboratory RL, reported as ½ the MDL

J: estimated value between the MDL and RL

¹ Federal WQC used in absence of a state value

Turbidity from dredging efforts

The dredging efforts are proposed to be performed with a mechanical clamshell dredge. This action will remove and suspend some of the bottom sediments, causing localized increases in turbidity and sedimentation. Numerous studies (ranging over decades) have been conducted to document levels of suspended sediments and sediment plume distances associated with mechanical dredging. Two relevant projects are discussed below.

New Haven Harbor Monitoring Example

Sediment plumes were monitored during a maintenance dredging effort of the New Haven Harbor FNP (New Haven, CT) between October 1993 and January 1994 (USACE, 1996). Dredging of silty material from New Haven Harbor was conducted with an enclosed mechanical bucket. The two major objectives of the New Haven monitoring were to: 1) establish the background suspended solids concentration before and after dredging, and 2) document the movement of the dredge plume relative to fisheries resource areas. The results of the survey revealed that background suspended sediments in the harbor average 8 mg/l prior to dredging efforts, and that during dredging, numerous aperiodic short duration spikes of 100 mg/l were observed.

The study also concluded that there were dredge-induced sediment plumes, and that the plumes did travel outside of the navigation channel. However, these excursions into the shoal areas outside the navigation channel only occurred when the dredge was in the immediate vicinity (i.e., dredging the side of the navigation channel directly adjacent to the shoal areas).

The study also noted that monitoring detected several long duration (1-3 days) - high suspended sediment perturbations (concentrations reaching 700 mg/l) that were not likely related to dredging operations. Evidence from meteorological data and wastewater effluent records indicate that these high suspended sediment events were likely the result of winds and wind-generated waves, alone or in combination with discharges from wastewater treatment plant outfalls (USACE, 1996).

The study concluded that dredge-induced sediment resuspension was found to be a minor perturbation to the longer duration, larger amplitude events associated with wind, wind-waves, and effluent discharges from outfalls. The effects of dredge related spikes in suspended sediments on the winter flounder spawning grounds (i.e., the shoal areas outside the channel), and the regional water quality in general, appear to have been limited in duration and of relatively low amplitude (USACE, 1996).

Boston Harbor Monitoring Example

Monitoring was conducted in 1996 for dredging of the surface silty material during construction of a CAD cell for the Boston Harbor Navigation Improvement Project. This monitoring included: 1) documentation of the spatial and temporal distribution of the sediment plume for the four extremes of tidal currents (high water slack, maximum ebb, low water slack, maximum flood) on two days within the first week of dredging, and 2) collection of water samples from the lower half of the water column at two locations – 1,000 feet up current of the dredging and 500 feet down current from the dredging; and 3) analysis of water samples for total suspended solids (TSS).

During dredging, turbidity measurements ranged from 3-5 NTU (Nephelometric Turbidity Units) at the reference station 1,000 feet up current from where the dredging of the silty surface material was performed using a closed mechanical bucket (i.e., an environmental bucket) . Turbidity was only slightly elevated at the station 500 feet down current of where dredging occurred and ranged from 4-11 NTU. TSS ranged from 4-5 mg/l at the reference station and from 5-9 mg/l at the down current station. No plume was visible at the surface outside the immediate area of the dredging operation, and no significant plume was detected in the water column (ENSR, 1997).

Monitoring of turbidity plumes in 1998 associated with the dredging of silty maintenance material from Boston Harbor was also performed (USACE/Normandeau, 1998b). Mapping of the turbidity associated with the use of an environmental bucket to dredge silty material in Boston Harbor was performed during periods of high and low water slack and during maximum flood and ebb tides. The mapping required the generation of plan views of turbidity at mid-depth and near bottom extending from 300 feet up current to 1,000 feet down current of continuous dredging operations. Generation of a cross section of turbidity located 300 feet down current of the dredging was also required. Near bottom turbidity values were highest for all measurements with values no higher than 100 NTU approximately 300 feet down current of the dredging operation. Mid-depth turbidity was much less, and all values returned to background levels (10-20 NTU) between 600 and 1,000 feet down current (ENSR, 2002).

The monitoring studies noted above show that turbidity plumes associated with mechanical bucket dredges are produced during dredging; however, they are generally limited to the immediate vicinity of the dredge. Therefore, while suspended sediment plumes will be produced during the construction of the proposed project, they are not anticipated to significantly impact water quality.

Turbidity from Dredged Material Placement

During disposal, dredged material released from a scow descends through the water column and then deposits on the seafloor over a limited area. Most of the sediment falls rapidly to the seafloor, but approximately 1-5% of the discharged sediment remains suspended in a plume and then settles to the seafloor (Ruggaber and Adams, 2000; Tavolaro, 1984; USACE, 1986). Field studies have confirmed that these plumes are transient and have short-term (i.e., hours in duration) impacts on water quality (Dragos and Lewis, 1993; Dragos and Peven, 1994; ENSR, 2008). The primary impacts to the water quality following dredged material disposal are associated with the residual particles that remain suspended from minutes to a few hours after the majority of sediment has reached the seafloor. These impacts may be adverse (light reduction, interference with biological processes) or beneficial (increased productivity of specific species as the suspended sediment may serve as a food source). While turbidity from suspended sediments will be produced during the construction of the proposed project, they are not anticipated to significantly impact water quality.

Dissolved Oxygen

The resuspension of sediments by dredging activities has the potential to depress dissolved oxygen concentrations in the water column. Dissolved oxygen (DO) concentrations were monitored during dredging of parent materials to construct CAD cells in Boston Harbor in conditions similar to Searsport Harbor (ENSR, 1997). Dissolved oxygen concentrations during CAD cell construction varied by a maximum of 0.6 mg/l between the upstream reference and downstream monitoring stations and never dropped below the level specified in the water quality standards of 5.0 mg/l for Class SB waters or 6.0 mg/l for Class SA waters. While small decreases in DO are expected during dredging operations, no long-term impairment to DO is expected from the dredging process.

Placement of material into the Searsport CAD cells and at the RDS also has the potential to depress dissolved oxygen concentrations in the near bottom waters temporarily. However, as suspended sediments settle, dissolved oxygen levels are anticipated to return to ambient levels.

7.3 Biological Impacts

7.3.1 No Action Alternative

The No Action Alternative will have no effect on the biological resources of Searsport Harbor.

7.3.2 Preferred Alternative

The preferred alternative will impact biological resources within Searsport Harbor including the FNP dredge footprint, the CAD cell creation areas as well as RDS. The sections below detail the impacts to each resource group.

7.3.2.1 Benthic Resources

Dredging Impacts

Most shallow benthic habitats in estuarine and marine systems are subject to deposition and resuspension events on daily or even tidal time scales (Oviatt and Nixon, 1975). Many organisms have behavioral or physiological responses to sediments that settle on or around them. Many organisms avoid the area of disturbances while others have a tolerance to attenuated light conditions or anaerobic conditions caused by partial or complete burial. Direct effects of sedimentation include smothering, toxicity (exposure to anaerobic sediment layers), reduced light intensity, and physical abrasion, whereas indirect effects include changes in habitat quality (Wilber, et al., 2005).

Studies of burial of estuarine and marine invertebrates have found species specific responses. According to Hinchey et al., (in Berry, et al., 2003), the responses varied as a function of motility, living position, and inferred physiological tolerance of anoxic conditions while buried. The deposition of dissimilar sediments has a greater impact on organisms than sedimentation of like materials (Maurer, et al., 1978, 1986). In the FNP navigation channel and the CAD cell areas, the benthic community already experiences and has adapted to sedimentation stress caused by resuspension of sediments due to natural processes (e.g., storms and tides) as well as anthropogenic influences (e.g., large vessel traffic). Monitoring of dredging activities in New Haven Harbor (New Haven, CT) and in Boston Harbor (Boston, Massachusetts) have shown that sediment plumes settle out predominantly in the dredge area (see Section 7.2) limiting the extent of additional stress to the system. However, the Boston and New Haven monitoring studies did show that, to a limited extent, sediment plumes can extend outside of navigation channels and can produce short-term increases in turbidity.

Turbidity impacts are dependent on the concentration and the duration of the suspended sediments (Clarke and Wilber, 2000; Suedel, 2015). Motile benthic organisms (e.g., lobster and crab) can generally avoid unsuitable conditions in the field and, under most dredging scenarios, encounter

localized suspended sediment plumes for exposure durations of minutes to hours, unless the organism is attracted to the plume and follows its location. Although adult bivalve mollusks are silt-tolerant organisms (Sherk, 1972 in Clarke and Wilber, 2000), they can be affected by high suspended sediment concentrations. Hard clams (Pratt and Campbell, 1956 in Clarke and Wilber, 2000), and oysters (Kirby, 1994 in Clarke and Wilber, 2000), exposed to fine silty-clay sediments have exhibited reduced growth and survival, respectively. Suspended sediment concentrations required to elicit these responses and mortality, however, are extremely high, i.e., beyond the upper limits of concentrations reported for most estuarine systems under natural conditions, as well as typical concentrations associated with dredging operations (see Section 7.2). Sublethal effects, such as reduced pumping rates and growth, were evident for adult bivalves at concentrations that occur under natural conditions, but may be of a short-term duration (i.e., hours to days), for example, during a storm (Schubel, 1971; Turner and Miller, 1991 in Clarke and Wilber, 2000). The egg and larval stages of benthos (e.g., shellfish) are more sensitive to suspended sediment impacts than adults. Estimates of suspended sediment impacts to these pelagic, early life history stages must consider the local hydrodynamics of the dredging site, which strongly influence the likelihood of extended exposure to suspended sediment plumes (Clarke and Wilber, 2000, Suedel, et al., 2015).

The benthic community in the dredge area of the FNP and CAD cells will be eliminated by direct removal from dredging efforts. Once dredging is completed, the benthic community is expected to begin recolonization by recruitment from benthic species in other areas of Searsport Harbor. As the benthic community throughout the existing channel and side slopes is a mix of opportunistic early-successional stage benthic communities and mid-successional stage benthic communities, a return to a similar community following dredging is expected within approximately 1-3 years. The FNP is composed of shallow subtidal water with surficial sediments dominated by silt. The proposed maintenance of the project will not alter the habitat type (soft bottom) of the project area.

Impacts of Material Placement

For over 40 years studies and monitoring efforts have been conducted in New England to understand the consequences of dredged material placement to benthic habitats and local food webs (Wolf, et al., 2012, Fredette & French, 2004, Valente, 2007). The type and extent of impacts depend on the characteristics of both the dredged material and the habitat at the placement site (Bolam, et al., 2006). Although short-term impacts and long-term changes in habitat due to sediment type and elevation of the seafloor have occurred at studied sites, there is no evidence of long-term effects on benthic processes or habitat conditions (Germano, et al., 2011; Lopez, et al., 2014).

One of the key biological impacts is the burial of benthic invertebrates where dredged material is deposited. Sediment type, sediment depth, burial duration, temperature, and adaptive features such as an organism's ability to burrow and to survive can affect the ability of organisms to migrate to normal depths of habitation. Benthic disturbance from dredged material placement at designated disposal sites has direct, immediate effects on sessile epifauna and infauna (Germano, et al., 1994, 2011). Sediment accumulations greater than six inches are expected to smother most benthic infauna (Lopez, et al., 2014). Large decapod crustaceans (i.e., cancer crabs, shrimp species, lobster) are able to penetrate deeply into the sediment, which provides them with mechanisms that enable them to survive some burial. Other deep deposit feeders can withstand burial of four inches or more (Jackson & James, 1979; Bellchambers & Richardson, 1995), while 0.4 inch of sediment can kill

attached epifaunal suspension feeders (Kranz, 1974). The greatest impacts from burial occur in the central mound area, where multiple deposits result in the thickest amounts of placed sediment (Germano, et al., 1994). The burial on benthic invertebrate populations is typically a short-term impact because infauna rapidly recolonize the freshly placed, organic-rich material.

Additional short-term impacts of placement may occur. Small surface-dwelling animals (e.g., some amphipod and polychaete species) may be dislodged and transported to the outer region of the deposit with water and sediment movement. The sediment plume may temporarily interfere with benthic feeding and respiration in the water column.

The physical nature of seafloor sediments defines the type of habitat that is available for benthic organisms to colonize, and thus the types of organisms and benthic community that can live and thrive on the placed dredged material. Potential long-term impacts may include changes in benthic community composition that result from potential alterations in sediment grain size and TOC as well as alterations in seafloor elevation.

7.3.2.2 Shellfish and Lobster

The maintenance dredging of the FNP and the creation of CAD cells will remove any shellfish and lobster resources in the direct footprint of the dredged areas. Additionally, the benthic community, which lobsters utilize as a forage source, will also be removed. Shellfish resources in adjacent areas should not be significantly impacted and will serve as a recruitment source following the cessation of dredging. Impacts from elevated turbidity to shellfish resources in the vicinity of the dredging operation should be minimal as the impact area will be highly localized. Several studies have demonstrated that shellfish are capable of withstanding elevated turbidity levels for short time periods (i.e., days) with no significant metabolic consequences or mortality (Wilbur and Clarke, 2001; Archambault, et al., 2004; Norkko, et al., 2006). Adult lobsters are also tolerant of exposure to elevated suspended sediment concentrations (Stern and Stickle, 1978). Since the dredging of the project area will be a short-term effort and reestablishment of benthic populations in the dredge footprint will recover, impacts to shellfish resources are anticipated to be minimal. Therefore, the proposed project should not have long-term significant impacts to lobster and shellfish resources in the dredging area.

Placement of suitable dredged material generated from the creation of the CAD cells will bury any shellfish and lobster resources within the direct footprint of the dredged material mound at RDS. However, once the proposed project is complete, full recovery of bottom resources at RDS such as benthic communities and lobster resources are anticipated.

7.3.2.3 Fish

Dredging and placement activities will temporarily disrupt the immediate project areas. Mobile fish species would be expected to leave the area of disturbance. However, non-motile species may be entrained by dredging activities or buried during placement activities. However, as the footprint of the dredge areas and placement areas are relatively small compared to Penobscot Bay as a whole, no significant effects to fish populations are anticipated. Additionally, for bottom feeding fish species, the temporary loss of benthic habitat will mean that the area will not be available for food

sources or nursery habitat for a certain period of time. For other species, the newly formed disposal mound may attract animals such as crabs to the food-rich sediments (O'Donnell, et al., 2007). These impacted areas are expected to return to near normal levels of density and diversity within a few years after construction ceases. A construction window of November 8 through April 8 will be utilized to minimize impacts to marine resources at the dredging and placement sites.

7.3.2.4 Birds

As discussed in Section 6.3.4, a large and diverse bird community exists in the Searsport Harbor area. The USACE does not anticipate that avian species, including shorebirds, seabirds, and migratory birds, would be adversely (directly or indirectly) affected by the proposed project. The proposed project would cause only temporary impacts to the bird community as individuals avoid active construction areas due to noise and general activity. Since dredging would occur in open and deep water, impacts to the bird community are expected to be temporary and minor.

7.3.2.5 Marine Mammals

The proposed project is not likely to adversely affect marine mammals. As noted in Section 6.3.5, marine mammals that frequent the project area are non-residential and unlikely to occur during dredging and placement activities. Additionally, marine mammals are highly mobile and should be able to avoid all construction activities should they be present.

7.3.2.6 Vegetation

No significant impacts to vegetation resources at the dredge or proposed CAD cell locations are expected. The FNP and proposed CAD cell locations do not contain submerged aquatic vegetation (SAV) and the marsh systems that border the FNP project area will not experience any impact.

7.3.2.7 Threatened and Endangered Species

Dredge Area and Proposed CAD cells

Pursuant to section 7 of the ESA of 1973 (16 U.S.C. § 1531 et seq.), as amended, the USACE determined that the Proposed Action may affect, but is not likely to adversely affect the Gulf of Maine Distinct Population Segment (DPS) of Atlantic Sturgeon, Gulf of Maine DPS of Atlantic Salmon, North Atlantic DPS of Green Sea Turtle, Kemp's Ridley Sea Turtle, Leatherback Sea Turtle, Northwest Atlantic DPS of Loggerhead Sea Turtle, Roseate Tern, and Shortnose Sturgeon. Additionally, USACE has determined that no effects will occur to the threatened northern long eared bat.

The project involves subtidal dredging of estuarine sediments. Terrestrial species such as the northern long-eared bat and roseate tern may experience some insignificant disturbances from equipment should they be present at the time of construction. However, given that the project will occur between November 8 and April 8 of the year the project is funded and that there is no roosting habitat in the direct footprint of the project for any of these species, it is unlikely that these species would be present during project activities. Impacts to aquatic species are also anticipated to be

insignificant given the time of year the project will be constructed. Coordination with the USFWS and the NMFS is in progress.

Rockland Disposal Site

Some endangered fish species and/or sea turtles may be present at RDS during disposal activities. As no dredging would occur during the summer months through early fall, the proposed project is not likely to affect any threatened or endangered species during that timeframe. A construction window of November 8 through April 8 will be utilized to minimize impacts to marine resources at the dredging and disposal sites. Group B Special Conditions, which are management conditions developed and agreed to by USACE and NMFS for threatened and endangered species at disposal sites within New England waters, will apply to the disposal of suitable dredged material at RDS. USACE has made the determination that disposal activities are not likely to adversely affect any threatened or endangered species. Coordination with the USFWS and the NMFS is in progress.

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.

At the end of the disposal operation, the vessel captain is required to submit a report by email to the USACE project manager and to NMFS summarizing the vessel route taken, number of trips, sightings of ESA-listed species, and any action taken to avoid interactions with ESA-listed species.

7.4 Essential Fish Habitat

7.4.1 No Action Alternative

The No Action Alternative will have minor effects on the essential fish habitat and managed species of Searsport Harbor. Naturally occurring storms have the ability to produce elevated turbidity levels in systems like Searsport Harbor (USACE, 1996). Additionally, large storm events can mobilize sediments that cover benthic resources and affect the forage base for fish species. These impacts would continue to exist without the proposed action. Additionally, the typical noise environment of Searsport Harbor, which includes impacts from large commercial shipping vessels, tugboats, pilot boats, and a recreational fleet, would continue to provide minor noise impacts to EFH in the harbor.

7.4.2 Preferred Alternative

The proposed project would impact EFH for managed species. The habitats affected include shallow subtidal soft bottom habitat and water column habitat. Effects of the proposed project include potential mortality of non-motile fishes and forage during dredging operations and in-water disposal operations should that alternative be selected. Direct removal of soft bottom habitats will occur in the dredging areas and direct covering of soft bottom habitats will occur at the RDS. Indirect impacts due to changes in water quality will occur; however, they are

anticipated to be short-term and localized to within hundreds of feet of the dredging and disposal efforts. These effects have been documented in Sections 7.1, 7.2, and 7.3. The list below summarizes potential effects of the proposed project on EFH and managed species. Details on the effects to specific groups of managed species associated with certain essential fish habitats can be found in Appendix H.

1. Directly affecting mortality or injury of individual fishes (adults, subadults, juveniles, larvae, and/or eggs, depending on species, time of year, location, etc.) due to dredge equipment during construction. The project area would not experience an extended duration of effects and impacts would be highly localized.
2. Indirectly affecting foraging behavior of individuals through production of turbidity at dredging and placement sites (an effect temporary in duration).
3. Indirectly affecting movements of individuals around/away from the dredging site due to construction equipment and related disturbed benthic habitats (an effect temporary in duration).
4. Indirectly affecting foraging and refuge habitats by removal of benthic habitat (i.e., soft bottom) (an effect temporary in duration).

Many of the dredging related impacts (i.e., increases in turbidity, changes in fish movement behavior, benthic community changes) are common temporary occurrences in embayments like Searsport Harbor. Therefore, these temporary impacts will occur in the No Action alternative. However, the proposed project involves a longer duration of these temporary impacts. As noted, the effects would only occur in the area of dredging activity and material placement locations, which would not be taking place at all locations at the time. A construction window of November 8 through April 8 will be utilized to minimize impacts to marine resources at the dredging and placement sites. Individually or cumulatively, the above impacts are not anticipated to significantly adversely affect managed species or most species EFHs. An EFH Assessment has been prepared for this project and is presented in Appendix H.

7.5 Historic and Archaeological Resources

7.5.1 No Action Alternative

Under the no action alternative, the existing conditions noted in section 6.6 would remain unchanged.

7.5.2 Preferred Alternative

Dredge Area and Proposed CAD cells

Public Archaeology Laboratory, Inc. (PAL) completed a remote sensing archaeological survey of a proposed navigation improvement project in Searsport Harbor during the summer of 2007, consisting of archival research and field investigations. The survey documented the wreck of the historic schooner-barge Cullen No. 18, as well as a buried relict fluvial geomorphic feature with archaeological sensitivity for potentially containing pre-Contact period archaeological deposits.

Based on these results, additional archaeological investigations within the Searsport Harbor project area were recommended to include:

1. A limited program of vibratory coring to determine the presence or absence of archaeologically sensitive paleosols.
2. Visual inspection of the Cullen No. 18 shipwreck for purposes of determining preliminary eligibility to the National Register of Historic Places.

Coordination of the results and recommendations from the PAL remote sensing archaeological survey with the Maine State Historic Preservation Officer (ME SHPO) was completed in accordance with Section 106 of the National Historic Preservation Act (NHPA). Due to the clarity and detail of the side scan sonar images, PAL informally recommended that the existing remote sensing data be utilized, along with more detailed archival and historical research, in place of the visual inspection of the shipwreck. The USACE felt that this was a reasonable conclusion and that this would eliminate the need for a costly underwater site inspection that may not provide any additional information than what was available in existing data. A scope of work was developed by the USACE for this follow-up “wreck assessment”. The scope of work and the original survey data were included in coordination with the ME SHPO. Comments on the survey report and scope of work for the wreck assessment were received from the ME SHPO by letter dated February 28, 2008.

Although the ME SHPO did agree with the original survey recommendations for additional coring and inspection of the wreck, they did not concur with the approach recommended by PAL, namely substituting the visual inspection with additional archival and data interpretation. A conference call was held between the ME SHPO, USACE, and PAL staff on June 13, 2008, to further refine the scope of the wreck assessment. Rather than discard already obtained data, it was decided to complete the wreck assessment as planned and to coordinate the results with SHPO. At that time, further coordination would be conducted based upon the results.

Following these discussions, PAL completed a preliminary assessment of a large wooden-hulled shipwreck identified during the 2006 remote sensing archaeological survey for a proposed USACE navigation improvement project in Searsport Harbor (Robinson, et al., 2008). The goals of the assessment were to further interpret and define the wreck site and its boundaries and develop research contexts for future assessment of its National Register eligibility. These goals were met through a combination of additional post-processing of remote sensing data recorded at the site and supplemental archival research. The supplemental archival research focused on Searsport’s maritime trade during the first half of the 20th Century, and the role of schooner barges in the history of North American ship design and technology, maritime commerce, and Maine’s shipbuilding industry.

Based on the results of this study and consultation with ME SHPO, it was recommended that a comprehensive site examination be completed consisting of diver-based archaeological documentation, subsurface testing, and supplemental archival research to conclusively confirm the shipwreck’s identity, to assess in detail the condition and integrity of the remains, and to fully evaluate the site’s National Register eligibility.

During the initial stages of project planning, it was thought that the shipwreck was located within the area of potential effect for proposed navigation improvement. However, the proposed channel alignment for the harbor indicates that the wreck falls outside of this area and would not be impacted by project maintenance (see Figure EA-5). Therefore, the current project should not impact the shipwreck, and the further archaeological investigations summarized above are not required at this time. However, should the channel alignment change during final project design in such a manner as to encroach upon the wreck, the USACE would resume coordination efforts with the ME SHPO and conduct the additional recommended work.

The current project consists of maintenance dredging within the existing Federal navigation project dimensions; the Cullen No. 18 shipwreck site will not be impacted by dredging activities as it is located outside of the FNP boundaries. Additionally, the proposed CAD sites located adjacent to the Searsport Harbor navigation channel are included within the area subjected to remote sensing archaeological survey. No submerged archaeological features or sites were identified; use of these CAD sites will have no effect upon significant historic properties. Disposal of material at the RDS, a previously utilized disposal site, will not impact historic properties.

The entirety of the proposed CAD sites located adjacent to the Searsport Harbor navigation channel was not included in the 2007 and 2008 surveys. As such, the USACE will conduct an additional archaeological investigation during Pre-Construction Engineering and Design of the Preferred Alternative. Because effects on historic properties cannot be fully determined prior to approval of the Preferred Alternative, the USACE is developing a Programmatic Agreement (PA) pursuant to 36 CFR 800.14(b)(1)(ii) to comply with Section 106 of the NHPA. Disposal of material at the RDS, a previously utilized disposal site, will not affect historic properties. The USACE is consulting with the ME SHPO, Houlton Band of Maliseet Indians, Mi'kmaq Nation, Passamaquoddy Tribe, Penobscot Nation, the Wampanoag Tribe of Gay Head (Aquinnah) and the Searsport Historical Society.

The proposed navigation maintenance project at the FNP is expected to have no effect on historic properties as defined by Section 106 of the NHPA, as amended, and the implementing regulations of 36 CFR 800. No further action is required. The federally recognized Tribes and ME SHPO are expected to concur with this determination.

7.6 Air Quality

7.6.1 No Action Alternative

Under the no action alternative, the existing air quality conditions noted in section 6.6 would remain unchanged.

7.6.2 Preferred Alternative

Section 176 (c) of the Clean Air Act (CAA) requires that Federal agencies assure that their activities are in conformance with Federally approved CAA State Implementation Plans (SIP) for geographic areas designated as non-attainment and maintenance areas under the CAA. The EPA General Conformity Rule to implement Section 176 (c) is found in 40 CFR Part 93. Also, Section 309 of

CAA, authorizes EPA to review certain proposed actions of other Federal agencies in accordance with the National Environmental Policy Act.

Maintenance dredging projects are exempt from performing a conformity review based on 40 CFR 93.153(c) (2) “*The following actions which would result in no emissions increase or an increase in emissions that is clearly de minimis: ... (ix) Maintenance dredging and debris disposal where no new depths are required, applicable permits are secured, and disposal will be at an approved disposal site.*” However, the creation of the proposed CAD cells is considered achieving new depths and is subject to CAA conformity. As the proposed project is located in Waldo County, Maine which is in attainment for all air quality pollutants (EPA, 2021), an air quality conformity analysis is not required.

7.7 Socioeconomic Impact

7.7.1 No Action Alternative

Under the no action alternative, the existing conditions noted in section 6.7 would remain unchanged.

7.7.2 Preferred Alternative

Executive Order 13045, “Protection of Children from Environmental Health Risks and Safety Risks,” requires Federal agencies to identify and assess environmental health risks and safety risks that may disproportionately affect children.

No significant adverse impacts to children or vulnerable populations are anticipated as a result of this project. As of 2020 in Waldo County, Maine, 96.6% of the population is white, 0.6% is Black or African American, 0.5% is Indigenous or Native American, 0.6% is Asian, less than 1% is Native Hawaiian or Pacific Islander, 1.6% is Hispanic or Latino, and 1.6% identified as two or more races. Within Waldo County, only 18.2% of the population is under 18 years old and approximately 13.7% of the population are living below the poverty level (U.S. Census Bureau, 2025)

The proposed project is designed to restore the FNP to authorized dimensions and return navigation efficiency to the Searsport Harbor FNP. The construction of the project and increased navigational efficiency may have a positive economic impact on the local and surrounding communities. As the potential environmental effects of this project are expected to be temporary and minor and no populations of minorities, low-income people, or children are located within the project area, no significant effects to these populations are expected.

7.8 Noise Impacts

7.8.1 No Action Alternative

Under the no action alternative, the existing conditions noted in section 6.11 would remain unchanged.

7.7.2 Preferred Alternative

Sound from operations may also impact marine life. The noise associated with dredging activities in Searsport Harbor may disturb fishes, seabirds, and marine mammals. Although data on effects of noise on fishes are limited, the data suggest that fishes would be more likely to be startled by sudden staccato noises than by steady noises (i.e., engine noise). Moreover, the noise of the proposed operations would occur against a background area with large amounts of vessel traffic. The sudden staccato noises of the bucket coming into contact with the sediment would likely temporarily deter many organisms from entering the dredging areas, although, not impede the movement or migration of fish species given the size of the dredge template in relation to the surrounding harbor and available area for the fish species to utilize.

8.0 Actions to Minimize Environmental Impacts

The following actions will be taken to minimize impacts from the proposed project:

- Contractors will be responsible for complying with any special conditions and/or stipulations incorporated into the appropriate permits.
- Haul routes for barge traffic from the FNP to the placement site will be identified and will be coordinated with Maine DEP, lobster fishermen, and the public once the mainland loading sites have been determined.
- A construction window of November 8 through April 8 will be utilized to minimize impacts to marine resources at the dredging and placement sites.
- Tugs with scows transiting between the dredge site and the placement sites shall operate at speeds not to exceed 10 knots.

9.0 Public Communication and Coordination

The following Federal, State, and local governments were contacted for comment. Appendix A of the Preliminary Assessment contains all correspondence that occurred during preparation of this EA. A 30-day public notice for this project will be released on April 20, 2026. All comments received will be contained within Appendix A of the Preliminary Assessment.

Federal agencies:

U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
National Marine Fisheries Service

State agencies:

Maine Department of Environmental Protection
Maine Department of Marine Resources
Maine Historic Preservation Commission
Maine Coastal Program

Local agencies:

Town of Searsport
Searsport Historical Society

Tribes:

Houlton Band of Maliseet Indians
Mi'kmaq Nation
Passamaquoddy Tribe
Penobscot Nation
Wampanoag Tribe of Gay Head (Aquinnah)

10.0 Compliance with Environmental Federal Statutes and Executive Orders

Federal Statutes

1. Clean Water Act of 1977 (Federal Water Pollution Control Act Amendments of 1972) 33 U.S.C. 1251 et seq.

Compliance: A Section 404(b)(1) Evaluation and Compliance Review have been incorporated into this report. A State Water Quality Certification, pursuant to Section 401 of the Clean Water Act, will be requested from the Maine Department of Environmental Protection.

2. Marine Protection, Research, and Sanctuaries Act of 1972, as amended, 33 U.S.C. 1401 et seq.

Compliance: Not applicable. This project is being evaluated under Section 404 (b) (1) of the Clean Water Act, not 103 of the MPRSA, as all disposal will occur in state waters.

3. National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq.

Compliance: Coordination with the Maine State Historic Preservation Officer to determine whether historic or archaeological resources would be affected by the proposed project signifies compliance with this Act.

4. Preservation of Historic and Archaeological Data Act of 1974, as amended, 16 U.S.C. 469 et seq. This amends the Reservoir Salvage Act of 1960 (16 U.S.C. 469).

Compliance: Not applicable. Project does not require mitigation of historic or archaeological resources.

5. Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq.

Compliance: Coordination with the USFWS and NMFS is on-going. The USACE has made the preliminary determination that impacts associated with the proposed project are not likely to adversely affect threatened or endangered species under the jurisdiction of the USFWS or NMFS.

6. The Estuary Protection Act (16 U.S.C. 1221)

Compliance: Not applicable, as this report is not being submitted to Congress.

7. Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 et seq.

Compliance: Coordination with the USFWS, NMFS, the Maine Department of Environmental Protection, and the Maine Department of Marine Resources signifies compliance with the Fish and Wildlife Coordination Act.

8. National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321 et seq.

Compliance: Preparation of this report signifies partial compliance with NEPA. Full compliance shall be noted at the time the Finding of No Significant Impact is issued.

9. Wild and Scenic Rivers Act, as amended, 16 U.S.C. 1271 et seq.

Compliance: Not applicable. The project does not occur in an area designated as a Wild and Scenic River area.

10. Coastal Zone Management Act of 1972, as amended, 16 U.S.C. 1431 et seq.

Compliance: A CZMA consistency determination will be provided to the Maine Department of Marine Resources for review and concurrence that the proposed project is consistent, to the maximum extent practicable, with the approved State CZM program.

11. Clean Air Act, as amended U.S.C. 7401 et seq.

Compliance: Public notice of the availability of this report to the Regional Administrator of the Environmental Protection Agency for review pursuant to Sections 176c and 309 of the Clean Air Act signifies compliance.

12. Federal Water Project Recreation Act, as amended, 16 U.S.C. 4601-12 et seq.

Compliance: The proposed project has given full consideration to recreational uses in the project area.

13. Land and Water Conservation Fund Act of 1965, as amended, 16 U.S.C. 4601-1.

Compliance: Public notice of the availability of this report to the National Park Service (NPS) and the Maine State Planning Office relative to the Federal and State comprehensive outdoor recreation plans signifies compliance with this Act.

14. Rivers and Harbors Act of 1899, as amended, 33 U.S.C. 401 et seq.

Compliance: No requirements for USACE's projects or programs authorized by Congress. The proposed maintenance project is being conducted pursuant to the Congressionally-approved authority.

15. Watershed Protection and Flood Prevention Act, as amended, 16 U.S.C. 1001 et seq.

Compliance: Not applicable, the project does not include efforts to improve soil conservation and will not affect flooding.

16. Magnuson-Stevens Fisheries Conservation and Management Act, as amended, 16 U.S.C. 1801 et seq.

Compliance: Coordination with the NMFS and preparation of an Essential Fish Habitat (EFH) Assessment signifies compliance with the EFH provisions of the Magnuson-Stevens Fisheries

Conservation and Management Act. Coordination is ongoing.

17. Archaeological Resources Protection Act of 1979, as amended, 16 USC 470 et seq.

Compliance: Not applicable. Project is not located on Federal property.

18. American Indian Religious Freedom Act of 1978, 42 U.S.C. 1996.

Compliance: Must ensure access by Native Americans to sacred sites, possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. Coordination revealed no conflicts.

19. Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C. 3000-3013, 18 U.S.C. 1170

Compliance: Regulations implementing NAGPRA will be followed if discovery of human remains and/or funerary items occur during implementation of this project.

20. Coastal Barrier Resources Act, 16 USC 3501 et seq.

Compliance: Not applicable, no coastal barrier resource areas will be affected by the proposed project as there are none in the project area.

21. Bald and Golden Eagle Protection Act, 16 U.S.C. 688 et seq.

Compliance: No bald or golden eagles or their habitats will be impacted by the proposed project. All construction efforts are in subtidal environments.

22. Marine Mammal Protection Act of 1972, 16 U.S.C. 1361 – 1423h

Compliance: No marine mammals are expected to be affected by the proposed project.

23. National Invasive Species Act (NISA), as amended, 16 U.S.C. 4701 et seq.

Compliance: The project is not anticipated to introduce invasive species into the project area.

24. Noise Control Act of 1972, as amended (42 U.S.C. 4901 et seq.)

Compliance: The project is not anticipated to produce significant noise impacts in the project area.

Executive Orders

1. Executive Order 11593, Protection and Enhancement of the Cultural Environment, 13 May 1971

Compliance: Coordination with the State Historic Preservation Officer signifies compliance.

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2. Executive Order 11988, Floodplain Management, 24 May 1977 amended by Executive Order 12148, 20 July 1979.

Compliance: Public notice of the availability of this report or public review fulfills the requirements of Executive Order 11988, Section 2(a)(2).

3. Executive Order 11990, Protection of Wetlands, 24 May 1977.

Compliance: Public notice of the availability of this report for public review fulfills the requirements of Executive Order 11990, Section 2 (b).

4. Executive Order 12114, Environmental Effects Abroad of Major Federal Actions, 4 January 1979.

Compliance: Not applicable to projects located within the United States.

5. Executive Order 13007, Accommodation of Sacred Sites, 24 May 1996

Compliance: Not applicable unless on Federal lands, then agencies must accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites.

6. Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. 21 April 1997.

Compliance: This project would not create a disproportionate environmental health or safety risk for children and is therefore compliant with this Order.

7. Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, 6 November 2000.

Compliance: Consultation with Indian Tribal Governments, where applicable, and consistent with executive memoranda, DoD Indian policy, and USACE Tribal Policy Principles signifies compliance.

9. Executive Order 13112, Invasive Species Control, 3 February 1999.

Compliance: This project will not introduce invasive species into Blue Hill Harbor.

10. Executive Order 13061, and Amendments – Federal Support of Community Efforts Along American Heritage Rivers

Compliance: Not applicable, the project is not located on an American Heritage River.

Executive Memorandum

1. Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing NEPA, 11 August 1980.

Compliance: Not applicable. This project does not involve or impact agricultural lands.

2. White House Memorandum, Government-to-Government Relations with Indian Tribes, 29 April 1994.

Compliance: Consultation with Federally Recognized Indian Tribes, where appropriate, signifies compliance.

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