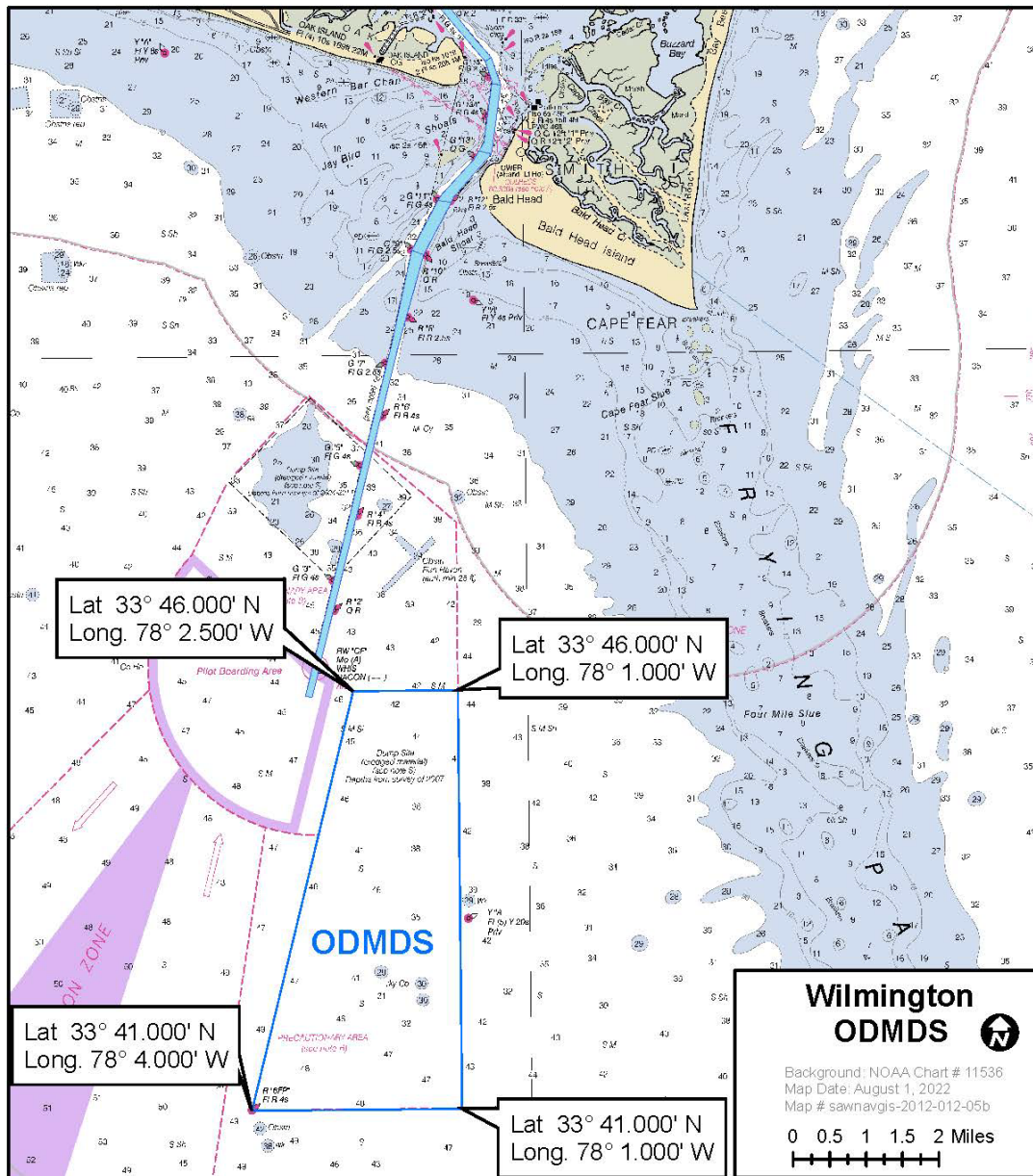


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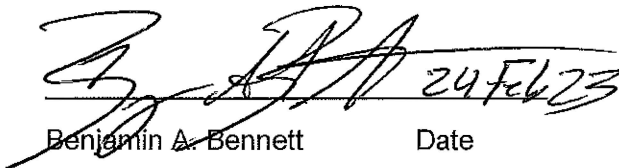
US Army Corps  
of Engineers®  
Wilmington District

# WILMINGTON OCEAN DREDGED MATERIAL DISPOSAL SITE SITE MANAGEMENT AND MONITORING PLAN




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The following Site Management and Monitoring Plan (SMMP) for the Wilmington Ocean Dredged Material Disposal Site (ODMDS) has been developed in order to comply with Section 102(c)(3) of the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 (33 U.S.C. Section 1401, et seq.) as amended by Section 506 of the Water Resources Development Act (WRDA) Amendments of 1992 (Public Law 102-580) and has been approved by the following officials of the U.S. Environmental Protection Agency (EPA) Region 4 and the U.S. Army Corps of Engineers (USACE), Wilmington District. This supersedes all prior SMMPs for the New Wilmington ODMDS, now referred to as the Wilmington ODMDS. As of July 13, 2020, the original Wilmington ODMDS designation was cancelled (EPA 2020a), meaning it is no longer managed, monitored or authorized for use pursuant to the MPRSA, as amended. The original Wilmington ODMDS, which was designated in 1987, was replaced in 2002 by the nearby New Wilmington ODMDS. Following designation cancellation of the original Wilmington ODMDS, the New Wilmington ODMDS formally assumed the name of Wilmington, North Carolina ODMDS but remains defined by its existing coordinates.

 24 Feb 23  
Benjamin A. Bennett                      Date

Colonel, U.S. Army  
District Engineer  
Wilmington District  
U.S. Army Corps of Engineers  
Wilmington, North Carolina

DANIEL  
BLACKMAN

 Digitally signed by DANIEL  
BLACKMAN  
Date: 2023.03.09 11:58:11 -05'00'

Daniel Blackman                      Date  
Regional Administrator  
U.S. Environmental Protection Agency  
Region 4  
Atlanta, Georgia

This plan is effective from the date of signature for a period not to exceed 10 years. The plan shall be reviewed and revised more frequently if site use and conditions at the site indicate a need for revision.

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**Appendix B.** Water Column Evaluations Numerical Model (STFATE) Input Parameters

**Appendix C.** Generic Special Conditions for MPRSA Section 103 MPRSA Permits

**Appendix D.** Typical Contract Language for Implementing SMMP Requirements

**Appendix E.** Scow Certification Template

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**SITE MANAGEMENT AND MONITORING PLAN  
FOR THE  
WILMINGTON OCEAN DREDGED MATERIAL DISPOSAL SITE (ODMDS)  
FEBRUARY 2023**

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## **1.0 INTRODUCTION**

The Marine Protection, Research, and Sanctuaries Act (MPRSA), sometimes referred to as the Ocean Dumping Act, regulates the transportation and dumping of any material into ocean waters. Under the MPRSA, no permit may be issued for ocean dumping if the proposed dumping will unreasonably degrade or endanger human health or the marine environment. Most material dumped in the ocean is dredged material (i.e., sediments) removed from the bottom of water bodies to maintain navigation channels and berthing areas.

In the case of dredged material, the U.S. Army Corps of Engineers (USACE) is responsible for issuing ocean dumping permits and authorizing or conducting Federal projects involving ocean dumping of dredged material (MPRSA Section 103). The USACE applies the U.S. Environmental Protection Agency (EPA) ocean dumping criteria when evaluating permit requests for, and implementing Federal projects involving, the transportation of dredged material for the purpose of dumping into ocean waters. MPRSA permits and Federal projects involving the ocean dumping of dredged material are subject to EPA review and written concurrence. EPA may concur (with or without inclusion of conditions) or decline to concur (i.e., non-concur) with a proposed permit or Federal project. If EPA concurs and provides associated conditions, the final permit or the terms of the Federal project must include those conditions. If EPA declines to concur on a MPRSA Section 103 permit or Federal project, the USACE cannot issue the permit or conduct the transportation to and disposal of dredged material in the ocean associated with the Federal project. According to the USACE regulations at 33 CFR 325.6, MPRSA permits issued for the transport of dredged material for the purpose of disposing of it in ocean waters will specify a completion date for the disposal not to exceed three years from the date of permit issuance.

Under MPRSA Section 102, EPA is responsible for the designation of all ocean dredged material disposal sites (ODMDSs) and the management of such designated sites. The EPA's ocean dumping regulations at 40 CFR Part 228 establish procedures for the designation and management of ocean disposal sites. EPA bases the designation of an ocean disposal site on the findings of environmental studies of the proposed site and adjacent regions, and historical knowledge of the impact of ocean disposal on areas with similar physical, chemical, and biological characteristics to the proposed site. All studies for the evaluation and potential selection of ODMDSs are conducted in accordance with the criteria published in 40 CFR 228.5 and 228.6. EPA-designated ODMDSs are published at 40 CFR 228.15. Unless otherwise specifically noted, site management authority for each site set forth in 40 CFR 228.15 is delegated to the EPA Regional office under which the site entry is listed. Management of a site consists of regulating times, rates, and methods of disposal; regulating quantities and types of materials disposed; developing and maintaining effective ambient monitoring programs for the site; conducting disposal site evaluation studies; and recommending modifications in site use and/or designation (40 CFR 228.3(a)).

EPA shares the responsibilities of conducting management and monitoring activities at EPA-designated ODMDSs with the USACE. Under MPRSA Section 102, EPA, in cooperation with the USACE (EPA and USACE 2017), is responsible for developing a site management and monitoring plan (SMMP) for each designated ODMDS. The objective of each SMMP is to ensure that dredged material ocean disposal activities will not unreasonably degrade the marine environment or endanger human health or economic potentialities or other uses of the ocean. The SMMP provisions are an integral part of managing all disposal activities at an ocean disposal site.

This SMMP provides a framework for site monitoring and management as required by the MPRSA. Preparation of this SMMP has been informed by the Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites (EPA and USACE 1996), which included an opportunity for public review. A draft of this SMMP dated October 2022 was made available on the USACE website (<https://www.saw.usace.army.mil/Missions/Navigation/Dredging/Wilmington-Harbor/>) for a 30-day public review and comment period. Stakeholders were informed of the review and comment period through email distribution of a Joint Public Notice (JPN) / Notice of Availability (NOA) on November 2, 2022. To accommodate a stakeholder request, the review and comment period deadline was extended from December 2, 2022 to December 9, 2022. The review and comment period extension was shared with all original JPN / NOA recipients on December 5, 2022. All comments received, and associated responses, are included in Appendix A. All comments were given consideration and where appropriate, were incorporated into this SMMP.

The SMMP provisions contained in this plan are requirements for all placement activities at the Wilmington ODMDS.

This SMMP may be modified during its term if EPA and USACE determine that such changes are warranted, including information obtained from monitoring or due to other factors. This SMMP will be reviewed and revised as needed, but no later than 10 years following issuance, whichever is sooner. The MPRSA provides that the SMMP shall include, but not be limited to:

- A baseline assessment of conditions at the site;
- A program for monitoring the site;
- Special management conditions or practices to be implemented at each site that are necessary for the protection of the environment;
- Consideration of the quantity of the material to be disposed of at the site and the presence, nature, and bioavailability of the contaminants in the material;
- Consideration of the anticipated long-term use of the site including the anticipated closure of the site, if applicable, and any need for continued management after closure of the site; and
- A schedule for review and revision of the plan (which shall be reviewed and revised at least every 10 years).

The provisions in this SMMP apply to all dredged material disposal activities at the Wilmington ODMDS including monitoring and management activities by the federal agencies. This SMMP also includes template provisions for the USACE to include in future MPRSA Section 103 permits issued for disposal at this site (Appendix C) and USACE template contract conditions (Appendix D). Whereas the regulation designating the ODMDS requires compliance with the

conditions set forth in an approved SMMP, the failure to follow any minimum or mandatory conditions in the SMMP constitutes a violation of Section 1411(a) of MPRSA.

References in this document to matters that “should be required” refer to implementation in a subsequent proceeding to authorize disposal of dredged material, whether in a permit, in a contract, in Federal project specifications for the transportation and disposal of dredged material, or by the USACE directly. Additionally, matters that “should be required” are for implementation through application of the template language included in Appendices B and C, or the language may vary from the terms of the Appendices. EPA can ensure implementation of the template provisions in Appendix C and D as necessary through the EPA’s MPRSA Section 103 concurrence actions.

A SMMP was originally developed as part of the designation process and was published in November 2001 as part of, *Final EIS for the New Wilmington Ocean Dredged Material Disposal Site Designation* (USACE and EPA 2001) with SMMP revisions in 2013. This revision to the Wilmington ODMDS SMMP incorporates monitoring results since the 2013 SMMP and updates management strategies for the ODMDS based on those results. This current revision to the Wilmington ODMDS SMMP supersedes all prior SMMPs. Upon issuance of this revised SMMP, the SMMP provisions provide the framework for future site monitoring and management as required by MPRSA. All MPRSA Section 103 ocean disposal permits and dredged material disposal contract specifications will be conditioned as necessary to assure consistency with the SMMP.

For the purposes of this document the following definitions apply:

- “*Authorization document*” means any permit issued pursuant to MPRSA and/or authorizations from the USACE for the transportation and/or ocean disposal of dredged material including but not limited to transportation-related or disposal-related conditions in contract documents and/or specifications.
- “*Site user*” as used here means a person utilizing a permit issued by the USACE under MPRSA Section 103 (see 33 C.F.R. 209.120) and any person operating any Federal dredging and ocean disposal projects reviewed under MPRSA Section 103(e) (see 33 C.F.R. 209.145) or under a Dredged Material Permit as defined as defined in 40 C.F.R. 220.2(h).
- “*Disposal vessel*” is any barge, scow, or self-propelled vessel (e.g., hopper dredge) that carries dredged material during transit and from which the dredged material is discharged, typically by opening doors in the bottom of the hull or by splitting the hull.
- “*Transit*” or “*transport*” to the disposal site begins as soon as dredged material loading into the disposal vessel is completed and a towing vessel begins moving the disposal vessel to the disposal site.
- “*Disposal Release Zone*” is the area identified within the ODMDS in which dumping of dredged material must occur for it to stay within the boundaries of the site, within which the disposal vessel must discharge all the dredged material.
- “*Towing vessel*” is any self-propelled tug or other marine vessel used to transport (tow or push) the “disposal vessel” for any portion of the transit to the ODMDS.

### **1.1 Site Management and Monitoring Plan Team**

In 2002, an interagency SMMP team was established to assist EPA and USACE in developing and revising the Wilmington ODMDS SMMP. The team consisted of the following agencies:



- USACE, Wilmington District
- EPA Region 4
- North Carolina State Ports Authority (NCSPA)
- North Carolina Department of Environmental Quality, Division of Coastal Management
- National Marine Fisheries Service (NMFS)

EPA and USACE will continue to consult with these State and Federal agencies, as appropriate, to assess the need for future revisions to the Wilmington ODMDS SMMP. Agencies other than EPA and USACE have, in the past, assisted EPA and USACE to determine appropriate disposal practices, appropriate monitoring techniques, required level of monitoring, significance of results, and potential management options.

Specific responsibilities of EPA and the USACE are:

- EPA is responsible for designating/modifying/de-designating ODMDSs under MPRSA Section 102, regulating site use, developing and implementing disposal monitoring programs, evaluating environmental effects of disposal of dredged material at these sites, and reviewing and concurring on dredged material suitability determinations under MPRSA Section 103.
- Under Section 1411 and 1415 of MPRSA, EPA has broad authority to assess civil penalties and seek injunctive remedies for unauthorized transportation of material for the purpose of dumping it into ocean waters, including deviations from transportation-related and disposal-related conditions required by a regulation designating the ODMDS or (for Federal projects) deviations from disposal-related conditions required by a Dredged Material Permit (as defined in 40 C.F.R. 220.2(h)) or construction contract.
- The USACE is responsible for evaluating and documenting the suitability of dredged material proposed for disposal at the ODMDS, issuing MPRSA Section 103 permits, and cooperating with EPA in regulating site use and developing and implementing disposal monitoring programs. USACE contracts for transportation and disposal of dredged material at the ODMDS shall incorporate performance requirements, including quality assurance/quality control system requirements.
- The provisions of this SMMP apply to all dredged material transportation to and disposal at the site, including monitoring and management activities by the Federal agencies. In addition to the SMMP provisions, the SMMP also includes template provisions for USACE to include in subsequently issued permits (see Appendix C) or in the transportation and disposal requirements for a Federal project (see Appendix D). The agencies may adjust the template provisions to individual projects as necessary. EPA can ensure implementation of the template provisions, as necessary, through their inclusion of specific management conditions included in EPA's Section 103 concurrence documentation. All MPRSA Section 103 ocean disposal permits, or contract specifications, shall ensure compliance with the conditions of the SMMP.

## 2.0 SITE MANAGEMENT

Section 228.3 of the Ocean Dumping Regulations (40 Code of Federal Regulation (CFR) 220-229) states: "Management of a site consists of regulating times, rates, and methods of disposal

and quantities and types of materials disposed of; developing and maintaining effective ambient monitoring programs for the site; conducting disposal site evaluation and designation studies; and recommending modifications in site use and/or designation (e.g., termination of use of the site for general use or for disposal of specific wastes)." The SMMP may be modified if it is determined that such changes are warranted because of information obtained during the monitoring process. MPRSA, as amended by WRDA 92, provides that the SMMP shall include but not be limited to:

- A baseline assessment of conditions at the site;
- A program for monitoring the site;
- Special management conditions or practices to be implemented at each site that are necessary for the protection of the environment;
- Consideration of the quantity and biological/physical/chemical characteristics of dredged materials to be disposed of at the site;
- Consideration of the anticipated use of the site over the long-term; and
- A schedule for review and revision of the plan.

## 2.1 Disposal Site Characteristics

The designation of the Wilmington ODMDS can be found in 40 CFR 228.15(h)(20). Coordinates in the CFR are provided in NAD 27. The coordinates have been converted to NAD 83 in this document. Coordinates defining the four corners of the site are shown in Table 1.

Table 1. Wilmington ODMDS Corner Coordinates

Vertices	Geographic NAD 83	
	Latitude (North)	Longitude (West)
Northwest	33° 46.0"	78° 02.5"
Northeast	33° 46.0"	78° 01.0"
Southeast	33° 41.0"	78° 01.0"
Southwest	33° 41.0"	78° 04.0"

The site is located approximately 5 nautical miles offshore Bald Head Island, North Carolina. The Wilmington ODMDS has an area of about 9.4 square nautical miles (nmi<sup>2</sup>) and is depicted in **Figure 1**. Depths within the ODMDS range from about -35 to -52 feet local mean low water (m.l.l.w.). Physical and biological conditions at the ODMDS were first described in 2001 (USACE and EPA 2001) and were most recently described in 2020 (EPA 2020b).

## 2.2 Management Objectives

Appropriate management of an ODMDS is aimed at assuring that disposal activities do not unreasonably degrade or endanger human health, welfare, or amenities, or the marine

environment, ecological systems, or economic potentialities (MPRSA Section 103(a)). The primary objectives for management of an ODMDS include but are not limited to:

- Protecting the marine environment, such that:
  - No unacceptable physical, chemical, or biological impacts occur inside or outside the disposal site; and
  - Adequate site monitoring is conducted to detect environmental impacts.
- Ensuring that disposed material (1) meets the suitability requirements of the ocean dumping regulations (40 CFR Parts 227 & 228); and (2) is consistent with national and regional guidance for the evaluation of dredged material proposed for ocean dumping.
  - Under MPRSA Section 103, evaluation of any proposed dumping of dredged material into ocean waters must apply the EPA ocean dumping criteria. To apply the criteria, the Ocean Testing Manual, sometimes referred to as the “Green Book”, (EPA/USACE, 1991) and the Southeast Regional Implementation Manual also known as the “SERIM” (EPA 2008) provide guidance for sampling, testing, and analysis of water, sediment, and tissue to evaluate the environmental acceptability of dredged material proposed for ocean disposal. The criteria prohibit the ocean dumping of uncharacterized materials (40 CFR 227.5(c)).
- Identifying management conditions to be implemented by EPA and the USACE and those to be required in permits, contracts, and documents establishing the terms of a Federal project applicable to transportation and dumping in ocean waters. For Federal projects, EPA will condition its Section 103 concurrence letters to the USACE, to include site management and monitoring conditions. These conditions will be included in applicable contract documents.
- Documenting disposal activities and ensuring compliance with transportation-related and disposal-related conditions in the SMMP, the permit, and/or contract conditions.
- Maintaining a long-term disposal alternative for dredged material, while encouraging beneficial use of dredged material where practicable.
- Identifying a schedule or condition triggering a review or renewal of this SMMP.

SMMP sections 2.0, 3.0, and 4.0 summarize the disposal operation conditions that EPA and USACE will consider for management of the Wilmington ODMDS as described in 40 CFR 228.15(h)(20).

The template special conditions provided in Appendix C are applicable to dredging projects authorized under a USACE-issued MPRSA Section 103 permit. Appendix D provides example language for the USACE to use in development of contract specifications for use of the site in Federal projects, and EPA’s concurrence should be conditioned on use of these specifications. If EPA concurs with conditions, the USACE must incorporate the conditions in the MPRSA Section 103 permit or in contract documents per 33 U.S.C. 1413(c)(3), (5). The conditions specified or confirmed by the EPA in its ocean disposal concurrence letters for individual projects are in addition to any other conditions that the USACE may include in its MPRSA Section 103 permits or in contract documents.

EPA may determine not to include one or more of the conditions identified in this SMMP or to require additional, more specific, or different conditions on a project-specific basis. Violations of the MPRSA may be subject to compliance action, including recommendations for suspension of

disposal operations or other injunctive remedies or possible assessment of administrative, civil, or criminal penalties, as appropriate.

### **2.3 Disposal History and Dredged Material Volumes**

It is intended that the Wilmington ODMDS will be used to contain dredged material from the greater Cape Fear River, North Carolina, vicinity (40 CFR 228.15 (h)(20)). The three primary users of the Wilmington ODMDS are:

- U.S. Army Corps of Engineers
- U.S. Army, Military Ocean Terminal, Sunny Point (MOTSU).
- North Carolina State Ports Authority

Since 2002, approximately 34.3 million cubic yards of dredged materials have been disposed in the Wilmington ODMDS. Table 2 shows the annual disposal volumes from 2002-2021. Table 3 displays the projected 2022- 2032 disposal volumes, to total approximately 20.4 million cubic yards over ten years.

Table 2. Annual Disposal Volumes in Wilmington ODMDS (2002-2021)

DREDGED MATERIAL QUANTITY – CUBIC YARDS			
YEAR	WILMINGTON HARBOR FEDERAL NAVIGATION PROJECT	MILITARY OCEAN TERMINAL SUNNY POINT	YEAR TOTAL
2002	1,259,000	233,000	1,492,000
2003	3,165,000	0*	3,165,000
2004	95,000	0	95,000
2005	2,384,000	1,503,000	3,887,000
2006	1,680,000	0	1,680,000
2007	1,114,000	1,198,000	2,312,000
2008	138,000	934,000	1,072,000
2009	0	0*	0
2010	470,000	723,000	1,193,000
2011	360,000	429,000	789,000
2012	1,733,650	1,238,846	2,972,496
2013	0	673,825	673,825
2014	1,067,487	0	1,067,487
2015	397,198	1,209,497	1,606,695
2016	1,378,085	800,431	2,178,516
2017	808,343	1,308,430	2,116,773
2018	977,555	375,095	1,352,650
2019	737,315	0	737,315
2020	2,754,092	1,647,025	4,401,117
2021	672,661	836,095	1,508,756

\* Ocean disposal crossed the calendar year. Quantity reported in year in which majority of work was performed.

Future disposal volumes, from both Federal and non-federal users, are expected to average around 2.05 million cubic yards per year. Civil works projects (i.e., the Wilmington Harbor Federal Navigation Project) are anticipated to account for a majority of the total volume of material to be disposed at the Wilmington ODMDS.

Table 3. Projected Annual Disposal Volumes in Wilmington ODMDS (2022-2031)

PROJECTED DREDGED MATERIAL QUANTITY – CUBIC YARDS			
YEAR	WILMINGTON HARBOR FEDERAL NAVIGATION PROJECT	MILITARY OCEAN TERMINAL SUNNY POINT	YEAR TOTAL
2022	1,598,546	685,788	2,284,334
2023	800,000	900,000	1,700,000
2024	1,500,000	900,000	2,400,000
2025	800,000	900,000	1,700,000
2026	1,500,000	900,000	2,400,000
2027	800,000	900,000	1,700,000
2028	1,500,000	900,000	2,400,000
2029	800,000	900,000	1,700,000
2030	1,500,000	900,000	2,400,000
2031	800,000	900,000	1,700,000

## 2.4 Dredged Material Characteristics

The sediments dredged from navigation channels in the Cape Fear River include ocean source (sandy, littoral materials), river source (fine grained sands, silts, and clays derived from easily eroded soils from the upper Cape Fear River basin), and mixtures of both. Shoals occur where specific physical factors promote deposition or movement of sediments. These factors may vary spatially and temporally. Based on available grain size data (Table 4), some Wilmington Harbor channel sediments have significant silt and clay components and therefore do not meet Part 227.13(b) criteria for exclusion from further evaluation. For those materials, additional information is necessary to determine compliance with the Ocean Dumping Regulations and Criteria.

### 2.4.1 Previously Dredged Materials

Materials disposed in the Wilmington ODMDS have historically consisted of silty sand, and silts and clay. **Figure 2** depicts Wilmington Harbor Federal Navigation Channels and MOTSU's general location, and Table 4 summarizes grain size characteristics by channel.

Table 4. Grain Size Characteristics of Wilmington Harbor Federal Navigation Project and MOTSU Channel Sediments

Channel		Associated Dredging Unit	% Gravel	% Sand	% Silt and Clay
Upper Harbor Reaches	Above Hilton Railroad Bridge	n/a*	0	58	42
	Hilton Railroad Bridge to Hwy 133	n/a*	10	55	35
	Turning Basin	n/a*	-	-	-
	Anchorage Basin	ABMA**	0	2.6	97.4
	Between Channel	SPMA**	1	47.8	51.2
	North Carolina State Port				
	Fourth East Jetty	URCMA**	0	58.9	41.1
	Upper Brunswick				
	Lower Brunswick				
Mid River Reaches	Upper Big Island	UMRMA**	0	70.8	29.2
	Lower Big Island				
	Keg Island				
	Upper Lilliput				
	Lower Lilliput	LMRMA**	0	41.5	58.5
	Upper Midnight				
	Lower Midnight				
	MOTSU North Wharf	MOTMA-N***	2.9	22.8	74.3
	MOTSU Center Wharf	MOTMA-C***	0	9.3	90.7
	MOTSU South Wharf	MOTMA-S***	0	9.3	90.7
	Reaves Point	n/a*	0	99	1
	Horseshoe Shoal	n/a*	0	98	2
	Snow's Marsh	n/a*	-	-	-
Ocean Bar Reaches	Lower Swash	n/a*	27	70	3
	Battery Island	BI**	3.3	75.1	21.6
	Southport	n/a*	12.5	85.5	2
	Baldhead-Caswell	n/a*	18	80.5	1.5
	Smith Island	n/a*	7.9	92	0.1
	Baldhead Inner Bar Channel (Ranges 1 and 2)	BHI**	0	18.4	81.6
	Baldhead Outer Bar Channel (Range 3)	OBHMA**	0	46.8	53.2

\*Sampling has not occurred in over 10 years. Data, where available, are identical to those presented in the previous Wilmington ODMDS SMMP (2013).

\*\*Data based upon 2016 sampling Conducted by ANAMAR, Environmental Consulting, Inc. under contract to the US Army Corps of Engineers, Wilmington District.

\*\*\*Data based upon 2017 sampling Conducted by ANAMAR, Environmental Consulting, Inc. under contract to the US Army Corps of Engineers, Wilmington District.



### **2.4.2 Anticipated Dredged Materials**

Material that is to be placed at the site is expected to be generated from: (1) new work dredging and maintenance dredging related to the Wilmington Harbor Federal Navigation Project, (2) maintenance dredging related to MOTSU's facilities, and (3) maintenance dredging related to the North Carolina State Ports Authority facilities. These materials will consist of mixtures of silt, clay, and sand in varying percentages.

### **2.4.3 Associated Beach Quality Materials**

The disposition of any beach compatible sand from future projects will be determined during state and local permitting activities for any such projects. Disposal of coarser material, such as rubble, should be coordinated during these permitting activities, as well. USACE and EPA will work to promote possible beneficial uses of the material, to the maximum extent practicable, to preclude placement in the Wilmington ODMDS. Specifically, beach-quality dredged material (sediments that are  $\geq 90\%$  sand) not placed directly on nearby beaches will be placed in a designated "sand cell" located towards the north of the ODMDS as depicted in **Figure 4** and **Figure 5**. This material will be available to local entities for purposes of beach nourishment, pending any required coordination with the Bureau of Ocean Energy Management (BOEM) and/or other agencies. Dredged material not of beach quality ( $< 90\%$  sand) will be placed elsewhere in the ODMDS as depicted in **Figure 4**.

### **2.4.4 Dredged Material Quality Verification**

Prior to authorizing transportation and disposal, the USACE verifies the suitability of dredged material for ocean disposal via physical, chemical, and biological testing described in the Green Book (EPA and USACE 1991) and the Southeast Regional Implementation Manual (EPA 2008). EPA must concur with the findings of USACE testing in writing (with or without conditions). Pursuant to the terms of 33 CFR 325.6(c), EPA concurrence regarding sediment disposal at the ODMDS is valid for a period up to three years, on a project-specific basis.

The sediment quality verification process provides for the following:

- 1) Case-specific evaluation against the exclusion criteria (40 CFR 227.13(b))
- 2) Determination of testing requirements for non-excluded material based on the potential of sediment contamination since last verification.
- 3) When applicable, conduct testing and confirm the suitability of non-excluded material for ocean disposal.

The site user, project sponsor, or USACE completes documentation regarding dredged material suitability prior to use of the ODMDS in the form of an evaluation to satisfy MPRSA Section 103. Potential testing and the evaluation follow the procedures outlined in the Green Book (EPA/USACE, 1991) and the SERIM (EPA 2008), or the appropriate updated version. Necessary testing and evaluation include descriptions of how dredging projects will be subdivided into project segments for sampling and analysis. Appendix D of the SERIM outlines the form used for the MPRSA Section 103 Evaluation. Water Quality Compliance determinations will be made using STFATE (ADDAMS) modeling. Only material determined to be suitable and in compliance with the Ocean Dumping Criteria (40 CFR Part 227) through the verification process by the USACE and EPA Region 4 is appropriate for transportation and disposal in the ODMDS.

## **2.5 Time of Disposal**

No restrictions have been determined to be necessary for disposal related to seasonal variations in ocean current or biotic activity. During the winter, precautions necessary to protect whales, as described in Section 2.6, are required. As additional monitoring results are compiled, should any such restrictions appear necessary, disposal activities will be scheduled so as to avoid potential adverse impacts. Additionally, if new information indicates that endangered or threatened species are being adversely impacted, appropriate restrictions may be imposed.

## **2.6 Disposal Technique**

No specific disposal technique is required for this site. However, to protect North Atlantic right whales, disposal vessel (either hopper dredge or tug and scow) speed and operation will be restricted in accordance with the USACE South Atlantic Division Endangered Species Act Section 7 Consultation South Atlantic Regional Biological Opinion for Dredging and Material Placement Activities in the Southeast United States (SARBO). The most recent SARBO is dated 2020 (NMFS 2020). In addition, the disposal vessel's captain should be aware of the vessel approach restrictions in 50 CFR §224.103, which, at the time of this SMMP, prohibits approach within 500 yards of a right whale by vessel, aircraft, or any other means. Standard surveillance and evasive measures to protect sea turtles and marine mammals shall also be employed during all disposal operations at the ODMDS.

## **2.7 Disposal Route**

A transportation route to and from the Wilmington ODMDS is specified to minimize possible interference with nearby fishing grounds and commercial navigation. The route connecting the Wilmington Harbor Federal Navigation Channel (i.e., southern portion of Baldhead Shoal Range 3) to the Wilmington ODMDS is of a generally southeastern-northwestern orientation and is marked by "Red Buoy Number 4" in the channel. Minor departures from the navigation channel to avoid traffic or facilitate safe vessel passage are acceptable.

For all disposal activities, permits and projects must use an electronic tracking system (ETS), such as the Dredge Quality Management (DQM) system. The ETS will provide surveillance of the transportation and disposal of dredged material. The ETS will be maintained and operated to continuously track, in real-time, the horizontal location and draft condition (nearest 0.5 foot) of the disposal vessel (i.e., hopper dredge or disposal scow) from the point of dredging to the disposal site and return to the point of dredging. Data shall be collected at least every 500 feet during travel to and from the ODMDS, and every minute or every 200 feet of travel, whichever occurs first, within 1,000 feet of and within the ODMDS. State Plane coordinates shall be reported to the nearest foot and latitude and longitude coordinates shall be reported as decimal degrees to 6 decimals. Westerly longitudes are to be reported as negative. Draft readings shall be recorded in feet out to 2 decimals. If the electronic positioning system fails or navigation problems are detected, all disposal operations shall cease until the failure or navigation problems are corrected. Appendices C and D provide template language that should be used. In addition to the continuous tracking data, the following trip information shall be electronically recorded for each disposal cycle:

- a. Load Number
- b. Disposal Vessel or Scow Name
- c. Tow Vessel Name (if scow used)

- d. Captain of Disposal or Tow Vessel
- e. Estimated Volume of Load
- f. Description of Material Disposed
- g. Source of Dredged Material (i.e., channel or reach name)
- h. Date, Time and Location at Initiation and Completion of Disposal Event

The monitoring/verification plan will include an automated system that will record the horizontal location and draft condition of the disposal vessel from the time it enters Baldhead Shoal Channel outbound until it leaves Baldhead Shoal Channel inbound. Vessel positioning, as a minimum, shall be global positioning.

## **2.8 Disposal Location**

To manage site use, maximize site capacity, reduce multiple user conflicts, simplify monitoring and management, and reduce potential adverse impacts to the marine environment, the Wilmington District, USACE, in consultation with EPA Region 4, has designated specific zones or “cells” within the ODMDS to accommodate and distribute dredged sediment. Although three zones were originally designated (**Figure 3**), the ODMDS currently consists of five zones, including a “sand cell” (**Figure 4** and **Figure 5**). The area of each zone receiving non-beach-quality material is approximately 574 acres. Disposal shall be initiated within the specified disposal release zone and completed (i.e., doors closed) prior to leaving the ODMDS. Dredged material disposal authorization documents or contract specifications should specify methods to prevent mounding of dredged materials. 40 CFR §227.28 requires that disposal occur inside the designated ODMDS boundaries and no closer than 100 meters (~330 feet) from the designated site boundaries. All existing disposal release zones were established to satisfy this criterion as well as manage dredged material disposal and contain impacts to within the ODMDS boundaries. Should future disposal zones be required, they will similarly be established to satisfy these criteria. The specific release zone(s) will be specified as part of the dredged material quality verification process and included in the EPA’s MPRSA Section 103 concurrence letter. Dredged material shall be disposed so that depths within the site boundaries will be no shallower than -30 feet Mean Lower Low Water (MLLW). Current average depths in the ODMDS are approximately -45 feet MLLW.

## **2.9 Permit and Contract Conditions**

The disposal monitoring and post-disposal monitoring requirements described under Site Monitoring (section 3.0) will be included with the management requirements described in this section as conditions of all MPRSA Section 103 permits and will be incorporated in contract language for all federal projects. A summary of ODMDS management and monitoring requirements to be included is listed in Table 5. Template language to be used is included in appendices (see Appendices B and C).

Table 5. Summary of Permit and Contract Conditions

Condition	Reference
Dredged Material Suitability and Term of Verification	Wilmington ODMDS SMMP (2.4.4) and SERIM
Disposal Release Zone	Wilmington ODMDS SMMP (4.1.4)
Pre- and Post-Bathymetric Surveys	Wilmington ODMDS SMMP (3.1 & 3.3)
Disposal Monitoring	Wilmington ODMDS SMMP (3.2)
Reporting Requirements	Wilmington ODMDS SMMP (4.4)

### 2.9.1 Permit Process

All transportation of dredged material to ocean waters and disposal of dredged material in ocean waters, with the exception of Federal Civil Works projects, requires an ocean dumping permit issued by the USACE pursuant to Section 103 of the MPRSA. A summary of the permitting process can be found at:

<https://www.epa.gov/ocean-dumping/ocean-disposal-dredged-material>

### 2.9.2 Information Management of Dredged Material Placement Activities

As discussed in the following sections, a substantial volume of diverse data is required from many sources to inform dredged material suitability and management decisions for the Wilmington ODMDS. If these data are readily available and in useable formats accessible to all entities concerned with ODMDS use, they can be used to answer typical management and monitoring questions including:

- What is the general area or channel being dredged?
- How much material is being dredged (i.e., volume)?
- Where, specifically, and from which depths did the dredged material originate?
- In which areas of the ODMDS was dredged material placed?
- Was dredged material dredged and disposed of in accordance with conditions of EPA Region 4's Section 103 concurrence document and, if applicable, the USACE's Section 103 permit?
- What are the realized environment effects at the disposal site following material disposal?

To streamline data sharing, EPA Region 4 and USACE South Atlantic Division have agreed on an eXtensible Markup Language (XML) standard for transmittal of disposal monitoring data (see also Section 4.4). Additional data transmittal standards and formats will continue to be investigated for sharing of other disposal site related information (e.g., environmental monitoring data, testing data, etc.).

## 3.0 SITE MONITORING

Under the SMMP, site monitoring is conducted to ensure the environmental integrity of the ODMDS and the surrounding area, as well as to verify compliance with the site designation criteria, any special management conditions, and any permit requirements. Monitoring programs should be flexible, cost effective, and based on scientifically proven procedures and methods to meet site-specific monitoring needs. Tiered approaches to monitoring should be used where

specific management actions or additional monitoring activities may be triggered when unacceptable environmental conditions are recorded. The intent of the program is to provide the following:

- 1) Information indicating whether dredged material disposal activities are occurring in compliance with conditions of the EPA Region 4's Section 103 concurrence and, if applicable, the USACE's Section 103 permit (or Federal project authorization documents) and site use restrictions;
- 2) Information indicating the short-term and long-term fate of dredged materials disposed of in the marine environment, specifically at the ODMDS and in the surrounding area.
- 3) Information concerning the short-term and long-term environmental impacts of disposal activities, specifically at the ODMDS and in the surrounding area.

The main purpose of a disposal site monitoring program is to determine whether dredged material site management practices, including disposal operations, at the site need to be altered to avoid adverse impacts.

### **3.1 Routine Monitoring**

#### **3.1.1 Site Designation EIS Baseline**

Baseline conditions at the Wilmington ODMDS are principally reported in the site designation Environmental Impact Statement (USACE and EPA 2001) and the Site Characterization Study (EPA 2000). This baseline data includes information referenced from the scientific literature and information compiled from field surveys at the Wilmington ODMDS. The field survey data included: water quality, sediment chemistry; benthic macroinfauna identification; and ocean currents at the site. Side scan sonar and echosounding records were also used to characterize site conditions.

#### **3.1.2 Information Obtained for Site Designation**

##### Bathymetry

**Figure 3** illustrates bathymetry of the Wilmington ODMDS prior to any disposal of dredged material. **Figure 4** illustrates 2022 bathymetry.

##### Sediment Characterizations

A reconnaissance survey of marine sediments within a 28 square nautical mile area (**Figure 6**) was initiated in 1997 (USACE 1999) to locate what was known at the time as the "New Wilmington" ODMDS. Median grain size in this area ranged from 0.0797 mm to 0.770 mm. The % fines (silt and clay) ranged from 0% to 35.5%; median percentage of fines was 4.4%. The organic content of the sediments ranged from 0.56% to 3.98%. Chemical characterizations of these sediments are summarized in EPA (2000).

##### Benthic Communities

In 1998 a benthic survey was conducted of the same 28 square nautical mile area which also encompasses the proposed Frying Pan Shoal Site (USACE 1999). A total of 21,832 organisms representing 311 taxa were identified from 28 blocks (stations) (8 or more grab samples per block). Polychaetes were the most numerous taxa representing 39.7% of the total assemblage,

followed in abundance by arthropods malacostracans (23.7%), gastropods (14.1%) and bivalves (1.9%). Gastropods represented 34.3% of the total number of individuals followed by polychaetes (30.7%), and bivalves (18.4%). Dominant taxa included the gastropod *Caecum pulchellum*, the bivalve *Lucina radians*, and the polychaete *Apoprionospio pygmaea*. Mean densities ranged from 538 to 6019 organisms per square meter. The highest densities were found in the more offshore stations sampled. The greatest number of taxa tended to be located on the eastern-most edge of the survey area. Mean station biomass ranged from 27.4 to 836.4 grams per square meter (wet-weight). Statistical analysis of the data showed a relatively homogeneous distribution between stations sampled, with a significant correlation between density and sediment grain size. Density was positively correlated with increasing percent fines (silt and clay).

A reconnaissance survey of hard bottom habitats in the project area was undertaken for the EIS (USACE and EPA 2001). The evaluation included review of side scan sonar records and echosounder profiles. A select number of underwater video transects, SCUBA diver observations, and bottom grab samples were used to ground-truth interpretation of the side scan records. The benthic samples taken and hard bottom habitats delineated during these studies are shown in **Figure 6** and **Figure 7**.

### **3.1.3 Information Obtained Since Site Designation**

Site evaluations and monitoring since the site designation has produced supplemental management information. Information to follow in this section is supplemented by section 3.4 (Summary of Results of Past Monitoring Surveys).

#### Bathymetry

Bathymetric surveys have generally been conducted on portions of the ODMDS before and after each use since the site designation. These surveys have focused on the portions of the ODMDS that were actually used for dredged material disposal. **Figure 8** compares bathymetric differences at the site between 2012 and 2022. These data show accumulation of material in distinct mounds within specific disposal zones.

#### Sediment Characterizations

The EPA first conducted status and trends analyses at the Wilmington ODMDS in 2010 (EPA 2010) and again in 2020 (EPA 2020b). These analyses confirmed that sediment characterizations were generally consistent with pre-disposal conditions at the site.

#### Benthic Communities

The EPA first conducted status and trends analyses at the Wilmington ODMDS in 2010 (EPA 2010) and again in 2020 (EPA 2020b). These analyses confirmed that benthic communities were generally consistent with pre-disposal conditions at the site.

### **3.2 Disposal Monitoring**

For all disposal activities, permits and projects must use an electronic tracking system (ETS), such as the Dredge Quality Management (DQM) system. The ETS will provide surveillance of the transportation and disposal of dredged material. The ETS will be maintained and operated to continuously track in real-time the horizontal location and draft condition (nearest 0.5 foot) of the disposal vessel (i.e., hopper dredge or disposal scow) from the point of dredging to the

disposal site and return to the point of dredging. Data shall be collected at least every 500 feet during travel to and from the ODMDS, and every minute or every 200 feet of travel, whichever occurs first, within 1,000 feet of and within the ODMDS. State Plane coordinates shall be reported to the nearest foot and latitude and longitude coordinates shall be reported as decimal degrees to 6 decimals. Westerly longitudes are to be reported as negative. Draft readings shall be recorded in feet out to 2 decimals. If the electronic positioning system fails or navigation problems are detected, all disposal operations shall cease until the failure or navigation problems are corrected. Appendices C and D provide template language that should be used. In addition to the continuous tracking data, the following trip information shall be electronically recorded for each disposal cycle:

- a. Load Number
- b. Disposal Vessel or Scow Name
- c. Tow Vessel Name (if scow used)
- d. Captain of Disposal or Tow Vessel
- e. Estimated Volume of Load
- f. Description of Material Disposed
- g. Source of Dredged Material (i.e., channel or reach name)
- h. Date, Time and Location at Initiation and Completion of Disposal Event

The SMMP expects that disposal monitoring will be conducted utilizing the DQM system [see <http://dqm.usace.army.mil/Specifications/Index.aspx>], or equivalent acceptable system. Disposal monitoring and ETS data will be reported to EPA Region 4 on a weekly basis (within one week of disposal) utilizing the eXtensible Markup Language (XML) specification and protocol. EPA Region 4 and the USACE District require notification by email within 24 hours if disposal occurs outside of the specified disposal release zone, if excessive leakage occurs, if hull open status occurs outside the ODMDS, or other violation of the conditions in this SMMP occur. Excessive leakage is defined as more than 1.5 feet of draft loss during transit to the ODMDS averaged between forward and aft sensors. Correspondence will be required to explain how the issue was addressed, pertinent dates, and corrective actions to be implemented to prevent repetition in the future.

### **3.3 Post Disposal Monitoring**

The USACE, or other site user, will be required to conduct a bathymetric survey consistent with the pre-disposal survey requirements within 30 days after disposal project completion, unless a deviation is coordinated with EPA. Surveys will not be required for projects less than 100,000 cy. The number and length of transects required will be sufficient to encompass the release zone and a 500-foot-wide area around it. Bathymetric surveys will be utilized to monitor the disposal release zone to ensure a navigation hazard is not produced, to assist in verification of material disposal location, to monitor bathymetry changes and trends, and to ensure that the site capacity is not exceeded (i.e., the dredged sediment does not exceed the site boundaries upon disposal).

### **3.4 Summary of Results of Past Monitoring Surveys**

#### **Trends Monitoring**

A status and trends study was conducted at the ODMDS in February 2020 (EPA 2020b) in order to assess the condition of the benthic communities within areas used for disposal, as well as



areas surrounding the site. The study collected water, sediment, and biological samples to determine water quality, water chemistry, sediment grain size, sediment chemistry, and macroinfaunal community parameters at 16 locations shown in **Figure 9**. Prior to 2020, most recent status and trends study at the ODMDS was conducted in May 2010 (EPA 2010).

### Sediment Characterizations

Samples collected in 2020 showed the sediments inside the ODMDS, as well as those in the surrounding environs, to be predominantly sand (ODMDS = >94% sand; non- ODMDS = >95.0 % sand) with two exceptions. Stations W01 and W08 had the highest percentages of silts/clays (22.1% and 7.9%, respectively).

Chemical analyses of these sediments included testing for PCBs, pesticides, semi-volatile organics (SVOAs), metals, total organic carbon (TOC), and butyl-tins. The only contaminants seen above detection limits were several metals, although none were present at levels of concern. A summary of the average metal concentrations for stations inside the site, as well as outside the site, is provided below in Table 6.

Table 6. Metals in Sediments (mg/kg)

Analyte	Inside Mean	Outside Mean
Aluminum	830	727.5
Arsenic	1.754	2.6625
Chromium	3.34	5.588
Copper	0.914	0.755
Iron	2497.78	1950
Lead	1.153	1.208
Nickel	1.06	0.955
Zinc	5.544	4.925

### Benthic Communities

Macroinfaunal analyses of the same sixteen stations were also conducted by EPA (2020). The results of these analyses are summarized in Table 7 and Table 8.

The most abundant taxa collected at stations inside the ODMDS were the haustoriid amphipod, *Acanthohaustorius millsi*, the bivalve, *Solen viridis*, the bivalve Family Tellinidae, and the polychaete, *Mediomastus* (LPIL), representing 10%, 9%, 5%, and 5% of the assemblage, respectively. The most abundant taxa collected at stations outside the ODMDS were the polychaetes, *Mediomastus* and *Apopronospio pygmaea*, the bivalve, *Parvilucina crenella*, and the bivalve Family Tellinidae, representing 21%, 5% 15%, and 5% of the assemblage, respectively.

Table 7. Percent Abundance of Major Taxonomic Groups in Wilmington ODMDS (2020)

Station	Annelida	Mollusca	Arthropoda	Other Taxa
<b>Inside the ODMDS</b>				
W01	63.6	20	5.5	10.9
W02	52.9	20.6	23.5	2.9
W03	47.8	29	4.3	18.8
W04	13.5	30.8	44.2	11.5
W05	37.4	38.3	21.5	2.8
W06	7.5	22.6	68.8	1.1
W07	37.4	36.8	19.8	6.1
W08	37.4	29.3	28.3	5.1
<b>Outside the ODMDS</b>				
W09	56	26.7	8	9.3
W10	64.3	27.5	2.2	6
W11	63.4	23.8	5	7.9
W12	32.1	56	6	6
W13	41.5	39.2	4.6	14.6
W14	59.3	35.6	3	2.1
W15	32.3	51.5	8.1	8.1
W16	43.7	46	9.2	1.1

Table 8. Wilmington ODMDS Benthic Summary (2020)

Station	Total No. Taxa	Total No. Individuals	Density (nos/m <sup>2</sup> )	Shannon Diversity (loge)	Pielou Evenness
<b>Inside the ODMDS</b>					
W01	22	55	687.5	2.7	0.87
W02	18	34	425	2.72	0.94
W03	27	69	862.5	2.92	0.88
W04	18	52	650	2.48	0.86
W05	26	107	1337.5	2.9	0.89
W06	20	93	1162.5	2.29	0.76
W07	44	131	1637.5	3.35	0.89
W08	34	99	1237.5	3.08	0.87
<b>Outside the ODMDS</b>					
W09	39	75	937.5	3.42	0.93
W10	44	182	2275	2.85	0.75
W11	37	101	1262.5	3.07	0.85
W12	34	84	1050	3.22	0.91
W13	34	130	1625	3.17	0.9
W14	44	329	4112.5	2.44	0.64
W15	35	99	1237.5	3.12	0.88
W16	28	87	1087.5	2.93	0.88
<b>Mean:</b>	36.9		1698.4	3.03	

### **3.5 Future Monitoring Surveys**

Based on the type and volume of material disposed and impacts of concern, various monitoring surveys can be used to examine if and the direction the disposed dredged material is moving, and what environmental effect the material is having on the site and adjacent areas.

Furthermore, should monitoring activities reveal a site management concern remedial action may be required. Monitoring strategies and thresholds for action are summarized in Table 9.

As of the signing of this SMMP, no nearby biological resources have been identified that are of concern for potential impact. The Wilmington ODMDS is approximately 1.25 nautical miles from all known fish havens, artificial reefs, and fishing areas. The site has been identified as partially dispersive. This means that it is expected that material will be moved outside the site boundaries. It is also expected that this material will not move in distinct mounds, but instead will blend with the surrounding environment causing a progressive transition to sediments containing a higher percentage of silt and clay. Changes in sediment composition will likely alter the benthic community structure. However, based on previous benthic studies, it is unlikely that permanent or long-term adverse impacts will result due to changes in sediment composition.

Table 9. Wilmington ODMDs Monitoring Strategies and Thresholds for Action

Goal	Technique	Sponsor	Rationale	Frequency	Threshold for Action	Management Options	
						Threshold Not Exceeded	Threshold Exceeded
Trend Assessment	Sediment Quality and Benthic Community Analysis (40CFR228.13)	U.S. EPA	Periodically evaluate the impact of disposal on the marine environment (40CFR 228.9)	Approximately every 10 years.	-Absence from the site of pollution sensitive biota -Progressive non-seasonal changes in sediment quality	Continue Monitoring	-Conduct normal or Advanced Environmental Effects Monitoring  -Review dredged material evaluation procedures
Environmental Effects Monitoring	Chemical Monitoring	EPA/ USACE	Determine if chemical contaminants are significantly elevated <sup>1</sup> within and outside of site boundaries	Implement if disposal footprint extends beyond the site boundaries or if Trend Assessment results warrant.	Contaminants are found to be elevated <sup>1</sup>	Discontinue monitoring.	-Institute Advanced Environmental Effects Monitoring  -Implement case specific management options (i.e., Remediation, limits on quantities or types of material)
	Benthic Monitoring	EPA/ USACE	Determine if adverse changes are seen in the benthic populations outside of the site		Adverse changes observed outside of the site that may endanger the marine environment		-Consider isolating dredged material (capping)
Advanced Environmental Effects Monitoring	Tissue Chemical Analysis	EPA/ USACE	Determine if the site is a source of adverse bioaccumulation which may endanger the marine environment	Implement if Environmental Effects Monitoring warrants.	Benthic body burdens and risk assessment models indicate potential for food chain impacts.	Discontinue monitoring	-Discontinue site use  -Implement case specific management options (i.e., Remediation, limits on quantities or types of material)
	Benthic Monitoring		Determine if the site is a source of adverse sub-lethal <sup>2</sup> changes in benthic organisms which may endanger the marine environment		Sub-lethal effects are unacceptable.		
Monitor Bathymetric Trends	Bathymetry	USACE	Determine the extent of the disposal mound and major bathymetric changes	Every 2 years	Disposal mound occurs outside ODMDs boundaries	Continue Monitoring	-Modify disposal method/placement  -Restrict disposal volumes  -Enlarge site
Ensure Safe Navigation Depth	Bathymetry	Site User	Determine height of mound and any excessive mounding	Post disposal for projects greater than 50,000 cy	Mound height > -30 feet mean lower low water (MLLW)	Continue Monitoring	-Modify disposal method/placement  -Restrict disposal volumes
Site Capacity	MDFATE Modeling	USACE	Determine capacity of the site	-As resources allow -See section 2.3	Volumes exceed estimated capacity	Continue to use site without restrictions	-Enlarge site or designate new site.
Compliance	Disposal Site Use Records in EPA Region 4's XML format	Site User	-Ensure management requirements are being met  -To assist in site monitoring	Weekly during the project	Disposal records required by SMMP are not submitted or are incomplete	Continue Monitoring	-Restrict site use until requirements are met

<sup>1</sup> Significantly elevated: Concentrations above the range of contaminant levels in dredged sediments that the Regional Administrator and the District Engineer found to be suitable for disposal at the ODMDs.<sup>2</sup> Examples of sub-lethal effects include without limitation the development of lesions, tumors, development abnormality, and/or decreased fecundity.

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## **4.0 CONDITIONS FOR USE OF THE WILMINGTON ODMDS**

### **4.1 Standard Conditions for Use of the Wilmington ODMDS**

#### **4.1.1 Prohibition on Trash and Debris**

Only dredged material determined in advance by EPA and USACE to be suitable for ocean disposal may be discharged at the Wilmington ODMDS. Disposal shall be limited to suitable dredged material per the 40 CFR 228 (h)(20). Uncharacterized dredged material, vessels, trash, and other debris are prohibited from being dumped at the site.

#### **4.1.2 Prohibition on Leaking or Spilling During Transport**

Excessive leakage/spillage or other loss of material means an apparent loss of dredged material greater than limits established in the most current Section 103 Concurrence, Section 103 permit, and/or described within the USACE contract specifications. In any event loss of dredged material during transit to the ODMDS (in open water) is not to exceed 1.5 feet. Transportation of dredged material to the ODMDS shall not begin or continue when weather and sea state conditions interfere with safe transportation and create risk of spillage, leaks, or other loss of dredged material during transit. Disposal vessels shall not be authorized to load beyond a level at which dredged material would be expected to be spilled in transit under anticipated sea state conditions.

#### **4.1.3 Quality Control Inspector, and Scow Certification Checklist**

Before any disposal vessel departs for the Wilmington ODMDS, a dedicated quality control inspector, identified and appointed by the dredging contractor, shall certify in writing that the disposal vessel is not overloaded, and otherwise meets the conditions and requirements of a Scow Certification Checklist that contains all of the substantive elements found in the example provided in this SMMP. If an alternate version of the Scow Certification Checklist (Appendix E) is utilized, EPA and USACE must approve the proposed Scow Certification Checklist prior to the commencement of ocean disposal operations. As indicated in USACE dredging specifications, no ocean disposal trip may be initiated until both the towing vessel captain and the quality control inspector have signed all relevant entries on the Scow Certification Checklist. The inspector shall provide a summary of any discrepancies or inaccuracies on the Checklist in the site user's report to EPA and USACE.

#### **4.1.4 Disposal Release Zone**

When dredged material is discharged within the ODMDS, no portion of the vessel from which the materials are released (e.g., hopper dredge or towed barge or scow) may be outside of the disposal release zone described in contract and/or permit documents.

#### **4.1.5 Closed Door Hull Status**

Doors shall be in the closed state on any disposal vessel and discharges complete before exiting the boundaries of the ODMDS (Table 1). "Closed state" means having both fully and physically closed doors and a properly functioning hull status sensor indicating that the doors are fully closed. In the event that doors are not closing sufficiently, the vessel operator will need to implement a procedure to verify dredged material has been disposed of in the authorized release zone. One such practice is to circle within the ODMDS three times before exiting. Visual

verification via remote camera is another option. All such incidents shall be reported to USACE and EPA within 24 hours and the vessel in which the malfunction occurred shall be repaired and verified as functional before returning to service.

#### **4.1.6 Twenty-Four (24) Hour Notification Requirement for Potential Leaks, Mis-Dumps, or Other Violations**

The site user shall report any anticipated, potential, or actual variances from compliance with these ocean dumping conditions, and any additional project-specific special conditions, to the USACE and EPA within 24 hours of discovering such a situation. A message from an operational “e-mail alert” system, will be considered as fulfilling this 24-hour notification requirement when it includes the following information: description of the cause(s) of the problems, any steps taken to rectify the problems, and whether the problems occurred on subsequent disposal trips.

#### **4.2 Additional Project-Specific Conditions**

Additional project-specific conditions or modifications to the standard conditions specified above may be required in the Dredged Material Permit if USACE or EPA determine additional or more specific conditions are necessary to facilitate safe use or accurate monitoring of the disposal site, or to prevent potential harm to the environment, including conditions specifying the timing of operations or methods of transportation and disposal.

#### **4.3 Alternative Permit/Project Conditions**

Project-specific alternatives or modifications to the Standard and/or Project-Specific conditions specified above may be authorized in advance by EPA and USACE at their discretion, at the request of the site user. In such cases the site user must demonstrate to the satisfaction of EPA and USACE that:

- the alternative conditions are sufficient to accomplish the specific intended purpose of the original permit condition;
- disposal will not increase the risk of harm to the environment or the health or safety of persons; and
- the site user will not impede monitoring of compliance with the MPRSA, regulations promulgated under the MPRSA, or the permit or authorization issued under the MPRSA.

#### **4.4 Reporting and Data Formatting**

##### **4.4.1 Project Initiation and Violation Reporting Other Violations**

The USACE or other site user shall notify EPA 15 days prior to the beginning of a dredging cycle or project disposal. The user is also required to notify the USACE and the EPA within 24 hours if a specified violation of the authorization documents and/or Dredged Material Permit occurs during transportation and disposal operations, including details and proposed corrective actions.



#### **4.4.2 Disposal Monitoring Data**

Disposal monitoring data shall be provided to EPA Region 4 electronically on a weekly basis. Data shall be provided to EPA Region 4 in XML format and delivered as an attachment to an email to [DisposalData.R4@epa.gov](mailto:DisposalData.R4@epa.gov). The XML format is available from EPA Region 4.

#### **4.4.3 Post Disposal Summary Reports**

The USACE shall provide a Post Disposal Summary Report to EPA within 90 days after project completion. Necessary report elements include: dredging project title; permit number and expiration date (if applicable); contract number; name of contractor(s) conducting the work, name and type of vessel(s) disposing material in the ODMDS; disposal time from each vessel; volume disposed at the ODMDS (as paid in situ volume, total paid and un paid in situ volume, and gross volume reported by dredging contractor), number of loads to ODMDS, type of material disposed at the ODMDS; identification by load number of any misplaced material; dates of pre and post disposal bathymetric surveys of the ODMDS and a narrative discussing any violation(s) of the 103 concurrence and/or permit (if applicable). The narrative should include a description of the violation, indicate the time it occurred and when it was reported to the EPA and USACE, discuss the circumstances surrounding the violation, and identify specific measures taken to prevent reoccurrence. The Post Disposal Summary Report must be accompanied by the bathymetry survey results (plot and X,Y,Z ASCII data file, optionally a GIS shapefile), a summary scatter plot of all disposal start locations, and a summary table of the trip information required by Section 3.2 with the exception of the disposal completion data. If all data is provided in the required XML format, scatter plots and summary tables will not be necessary.

#### **4.4.4 Environmental Monitoring Data Availability**

Field monitoring data collected by EPA such as material tracking, disposal effects monitoring, and other site-specific parameters will be coordinated with and provided to SMMP team members, federal and state agencies, and other interested parties as appropriate by EPA and/or USACE. Data will be provided for all surveys in a report generated by EPA. The report should indicate how the survey relates to the SMMP and previous surveys at the Wilmington ODMDS and should provide data interpretations, conclusions, and recommendations, and should project the next phase of the SMMP. Monitoring results will be summarized in subsequent modifications to the SMMP posted to EPA's website (<https://www.epa.gov/ocean-dumping>).

### **5.0 MODIFICATION OF THE WILMINGTON ODMDS SMMP**

Should the results of the monitoring surveys or reports from other sources indicate that continued use of the ODMDS would lead to unacceptable effects, EPA, in conjunction with USACE, will modify the ODMDS SMMP to mitigate the adverse impacts. EPA will review the SMMP every ten years and revise as necessary, for example, if site use changes significantly. The SMMP also may be revised if the quantity or type of dredged material placed at the site changes significantly or if conditions at the site indicate a need for revision.

### **6.0 IMPLEMENTATION OF THE WILMINGTON ODMDS SMMP**

This plan is effective from the date of signature. EPA, in conjunction with the USACE, will review and revise more frequently if site use and conditions at the site indicate a need for

revision. EPA and USACE share responsibility for implementation of the SMMP. Site users may be required to undertake monitoring activities as a condition of their permit. The USACE and any USACE contractor remain responsible for implementation of the SMMP for Federal new work and maintenance projects.

## 7.0 REFERENCES

- National Marine Fisheries Service (NMFS), 2020. *South Atlantic Regional Biological Opinion for Dredging and Material Placement Activities in the Southeast United States*. Southeast Regional Office. July 2020.
- U.S. Army Corps of Engineers (USACE), 1990. *Selected Tools and Techniques for Physical and Biological Monitoring of Aquatic Dredged Material Disposal Sites*. Dredging Operations Technical Support Program Technical Report D-90-11. Waterways Experiment Station. September 1990.
- U.S. Army Corps of Engineers (USACE), 1999. *Unpublished data*.
- U.S. Army Corps of Engineers and U.S. Environmental Protection Agency (USACE and EPA), 2001. *Final Environmental Impact Statement (FEIS) New Wilmington Harbor, Ocean Dredged Material Disposal Site (ODMDS) Site Designation*. November 2001.
- U.S. Environmental Protection Agency (EPA), 2000. *Wilmington Harbor, North Carolina, New Ocean Dredged Material Disposal Site Characterization Study, Draft Report, June 2000*. Draft Report Prepared by EPA Science and Ecosystem Support Division, Athens, GA.
- U.S. Environmental Protection Agency (EPA), 2010. *New Wilmington ODMDS Status and Trends, May 2010 Monitoring Survey Report*. September 2010.
- U.S. Environmental Protection Agency (EPA), 2020a. *Cancellation of the Final Designation of the original Wilmington, NC Ocean Dredged Material Disposal Site*. June 2020.
- U.S. Environmental Protection Agency (EPA), 2020b. *Site Monitoring Assessment Report for the Morehead City and Wilmington, North Carolina ODMDS Trend Assessment Survey*. November 2020.
- U.S. Environmental Protection Agency and U.S. Army Corps of Engineers (EPA and USACE), 1991. *Evaluation of Dredged Material Proposed for Ocean Disposal (Testing Manual), February 1991*. Prepared by Environmental Protection Agency Office of Marine and Estuarine Protection and Department of Army United States Army Corps of Engineers under EPA Contract No. 68-C8-0105.
- U.S. Environmental Protection Agency and U.S. Army Corps of Engineers (EPA and USACE), 1996. *Guidance Document for Development of Site Management Plans for Ocean Dredged Material Disposal Sites, February 1996*. Prepared by Environmental Protection Agency Office of Water and Department of Army United States Army Corps of Engineers.
- U.S. Environmental Protection Agency and U.S. Army Corps of Engineers (EPA and USACE) 2017. *Memorandum of Understanding Between U.S. Army Corps of Engineers, South Atlantic Division and U.S. Environmental Protection Agency, Region, 4 on Ocean Dredged Material Disposal*. May 2017.
- U.S. Environmental Protection Agency and U.S. Army Corps of Engineers (EPA and USACE), 2008. *Southeast Regional Implementation Manual (SERIM) Requirements and Procedures for Evaluation of the Ocean Disposal of Dredged Material in Southeastern Atlantic and Gulf Coastal Waters*. August 2008.

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## **FIGURES**

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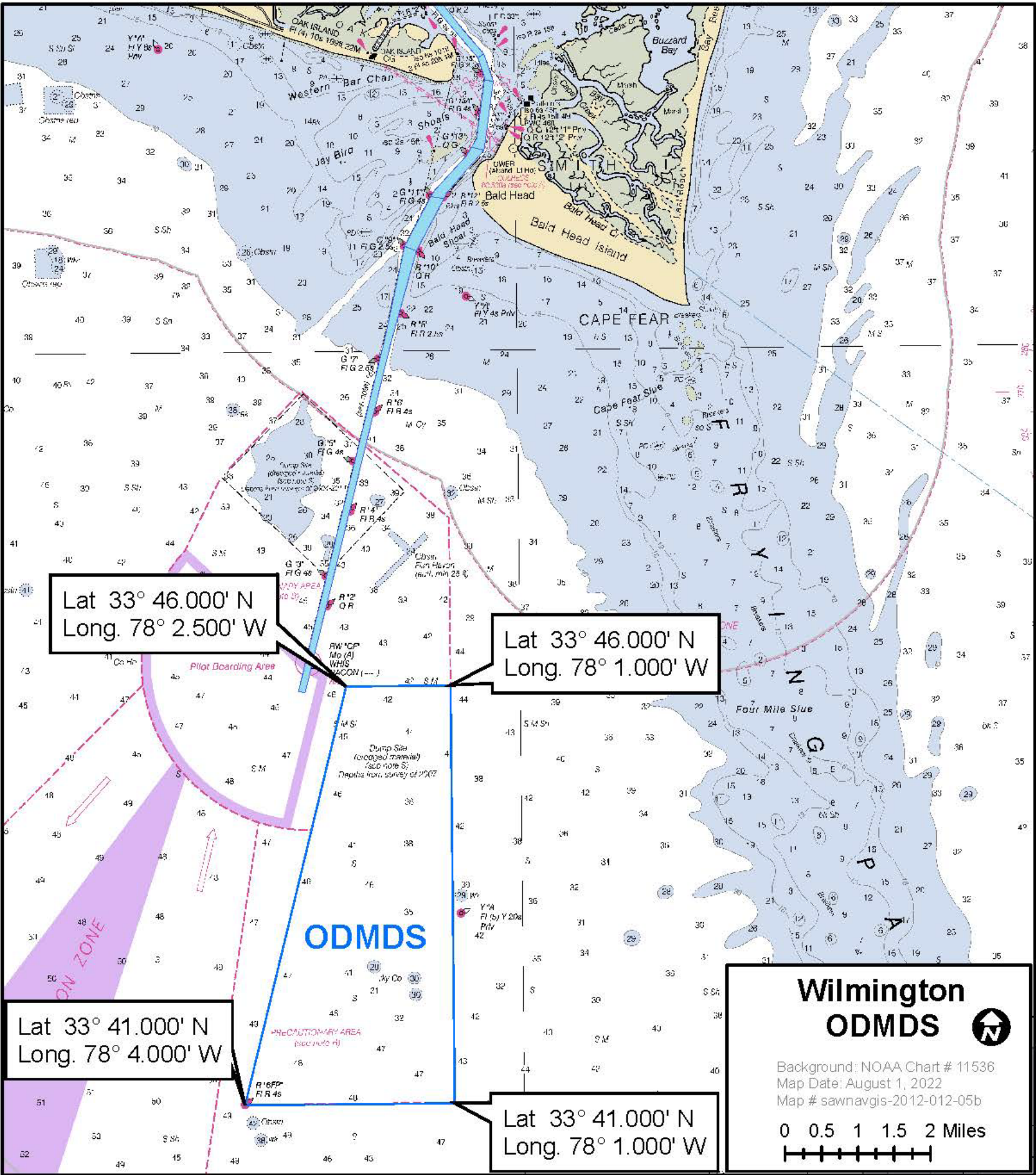
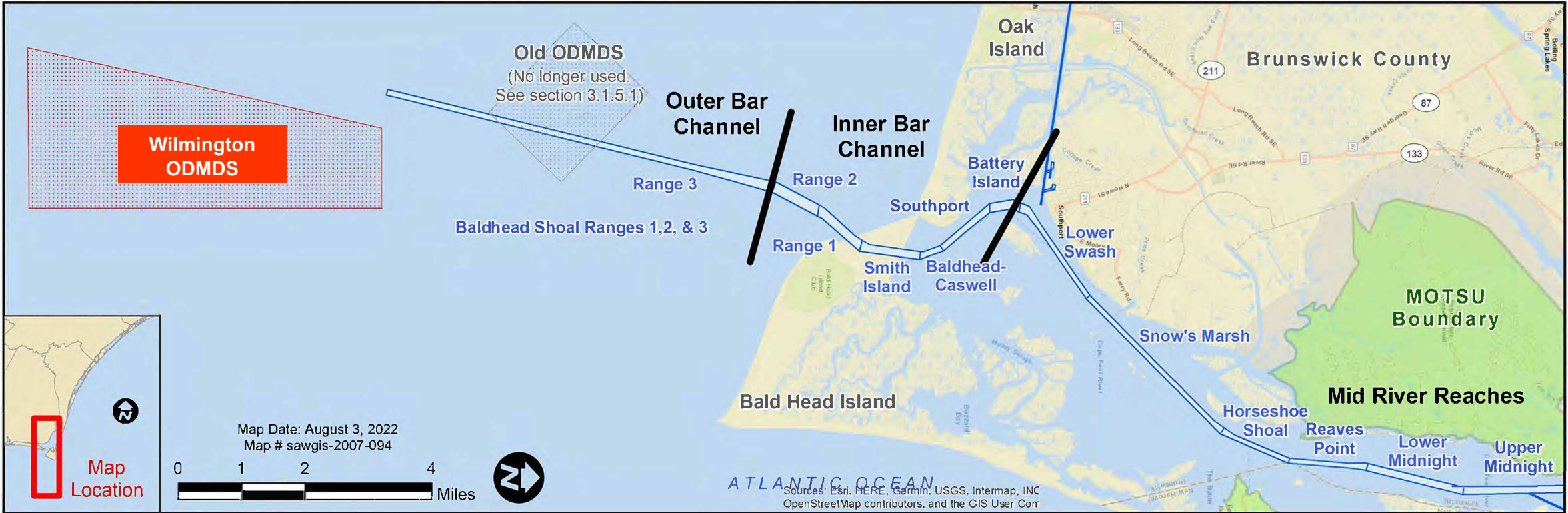


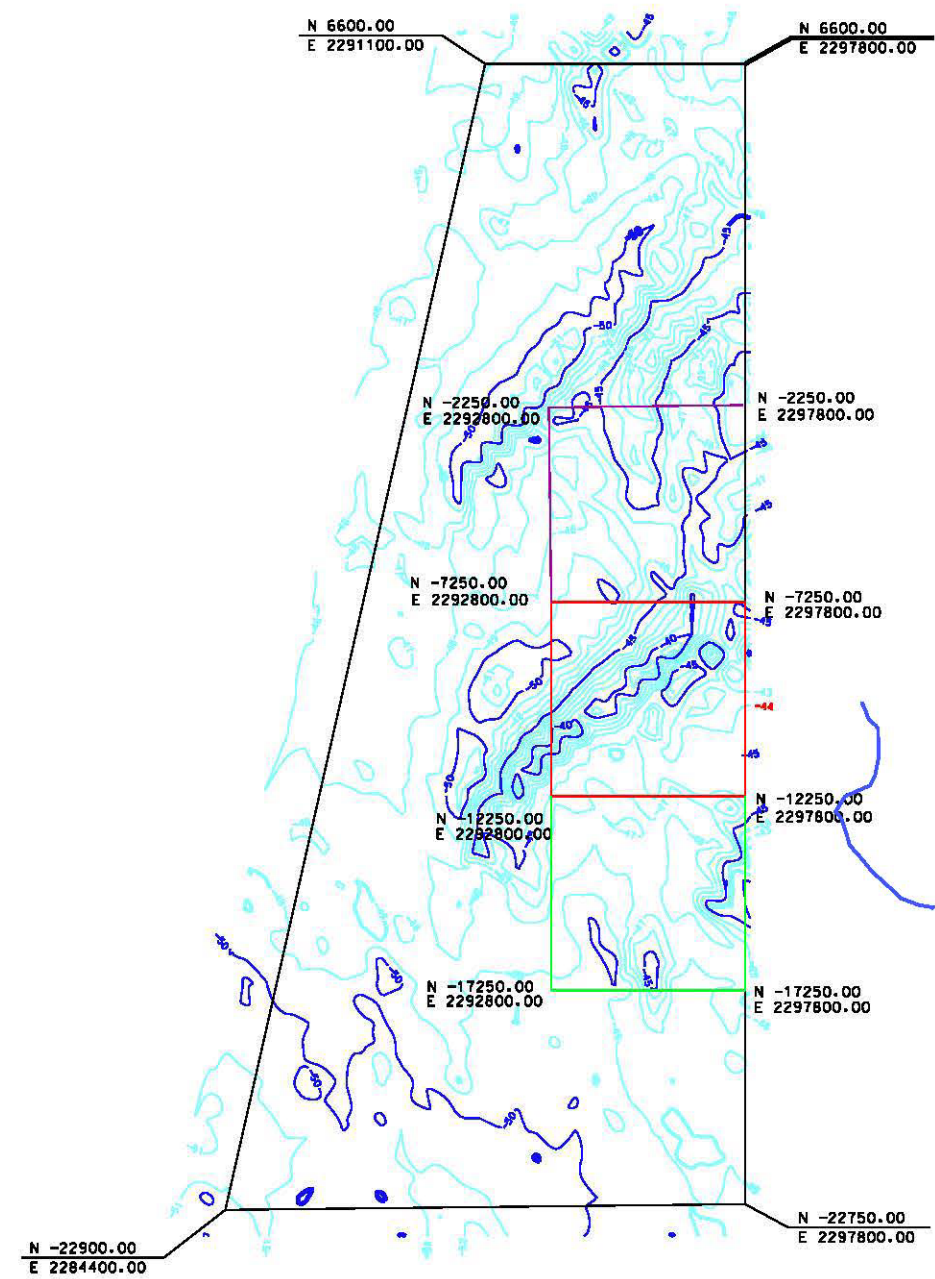
Figure 1. Wilmington ODMDs General Location.





**Figure 2. Wilmington Harbor Federal Navigation Project Channels and MOTSU Location.**





NOTES:

1. HORIZONTAL DATUM NAD 1883.
2. SOUNDINGS ARE EXPRESSED IN FEET AND TENTHS AND REFER TO MEAN LOWER LOW WATER (MLLW).
3. NEW OCEAN DREDGED MATERIAL DISPOSAL SITE (ODMS) AREA WAS SURVEYED BY NOAA SHIP "WHITING" DURING 1996-1997. THIS SURVEY DATA WAS USED TO GENERATE CURRENT EDITION OF CHART 11536 APPROACHES TO CAPE FEAR (14TH EDITION AUGUST 15, 1998).
4. SURFACE TRANSPORTATION TO AND FROM THE NEW ODMS DISPOSAL AREA AND DISPOSAL OF DREDGED MATERIAL SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.



Figure 3. Wilmington ODMS Disposal Zones and Pre-Disposal Bathymetry (1996-1997).



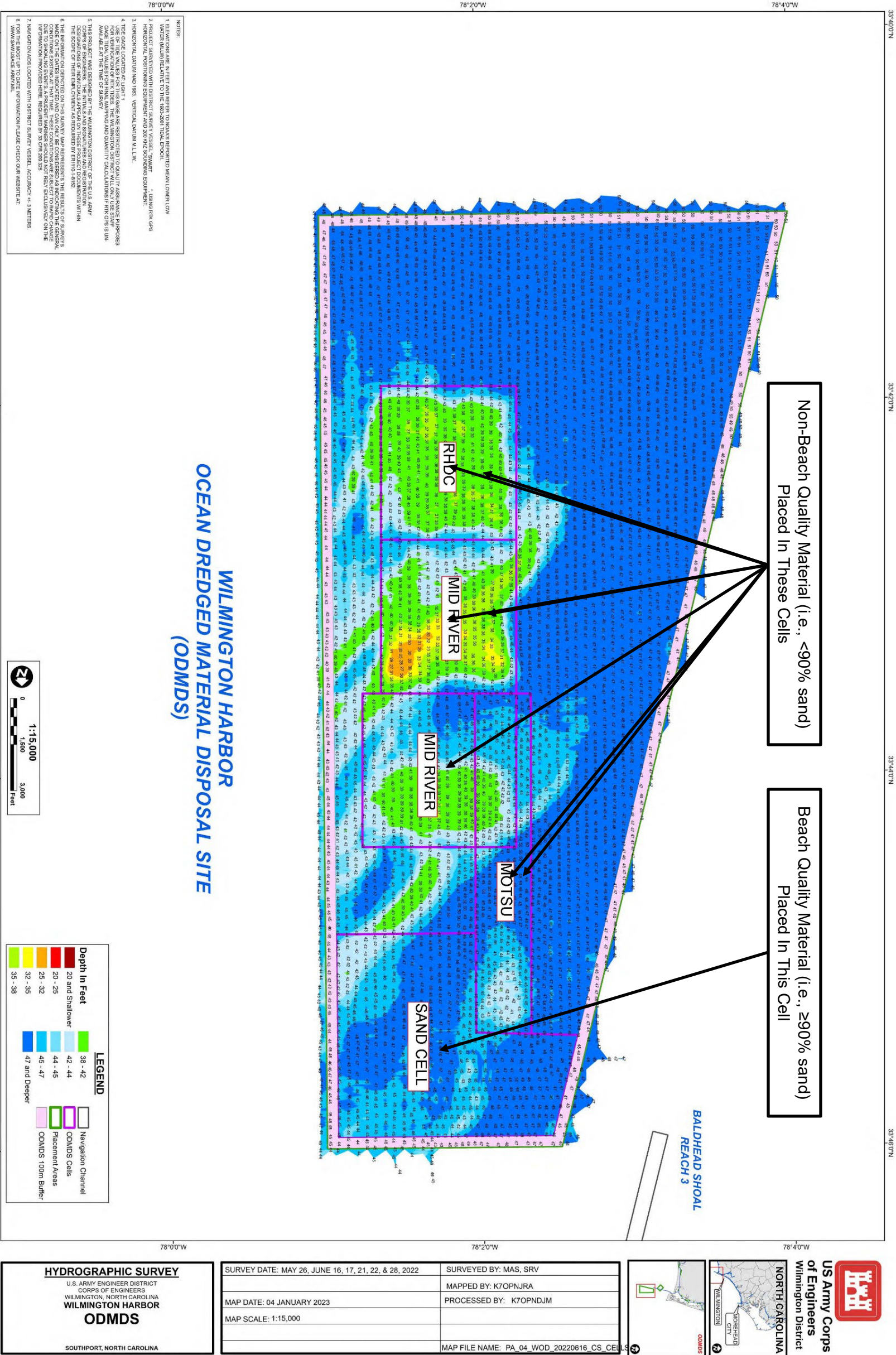
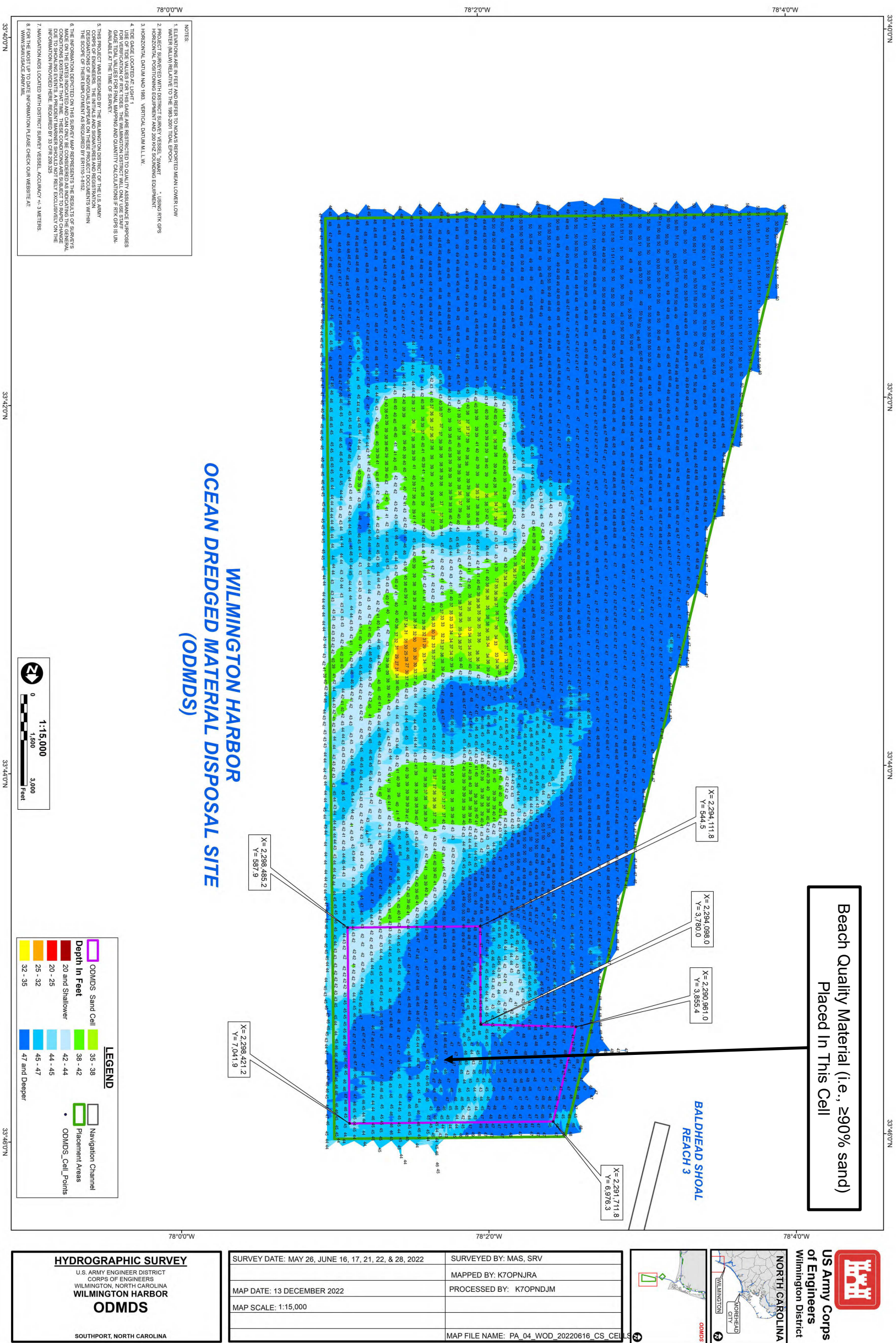


Figure 4. Wilmington ODMDS Bathymetry (2022) and, All Placement Cells, and Typical Material Sources.





**Figure 5. Wilmington ODMDs Bathymetry (2022) and Sand Placement Cell.**



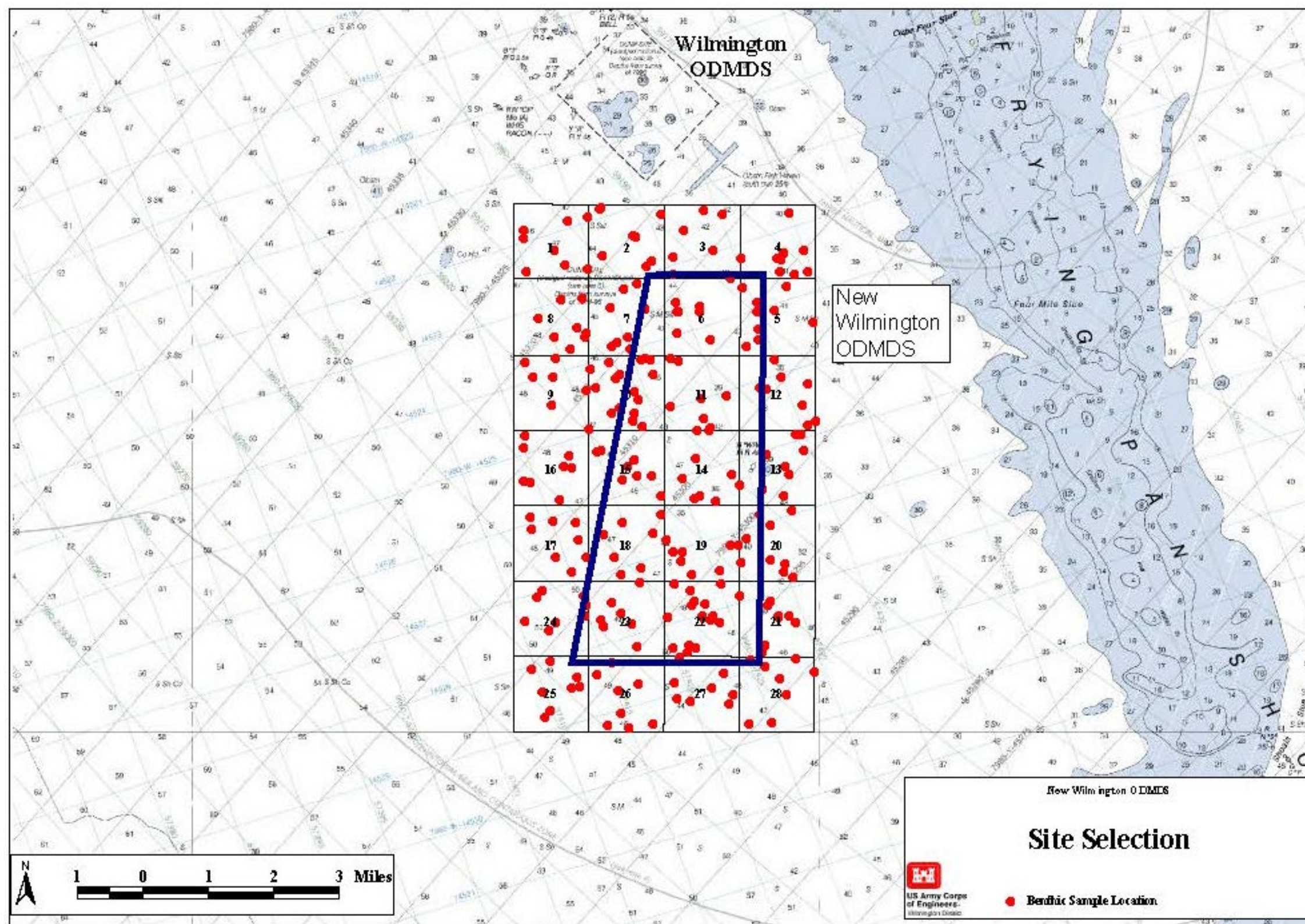


Figure 6. "New Wilmington" ODMS Site Selection, Benthic Sample Locations.



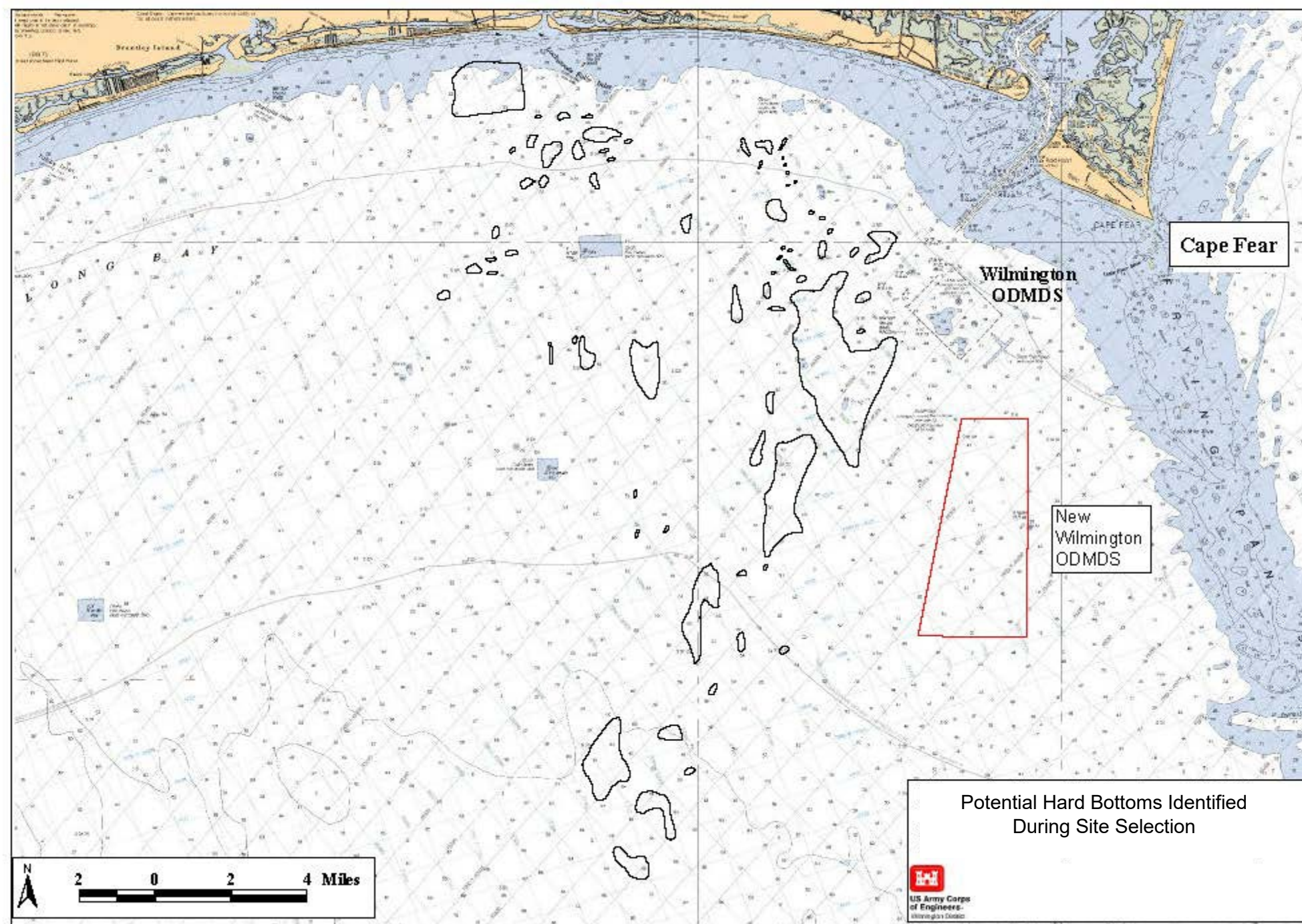


Figure 7. Potential Hard Bottoms Identified During “New Wilmington” ODMDS Site Selection (outlined in black).



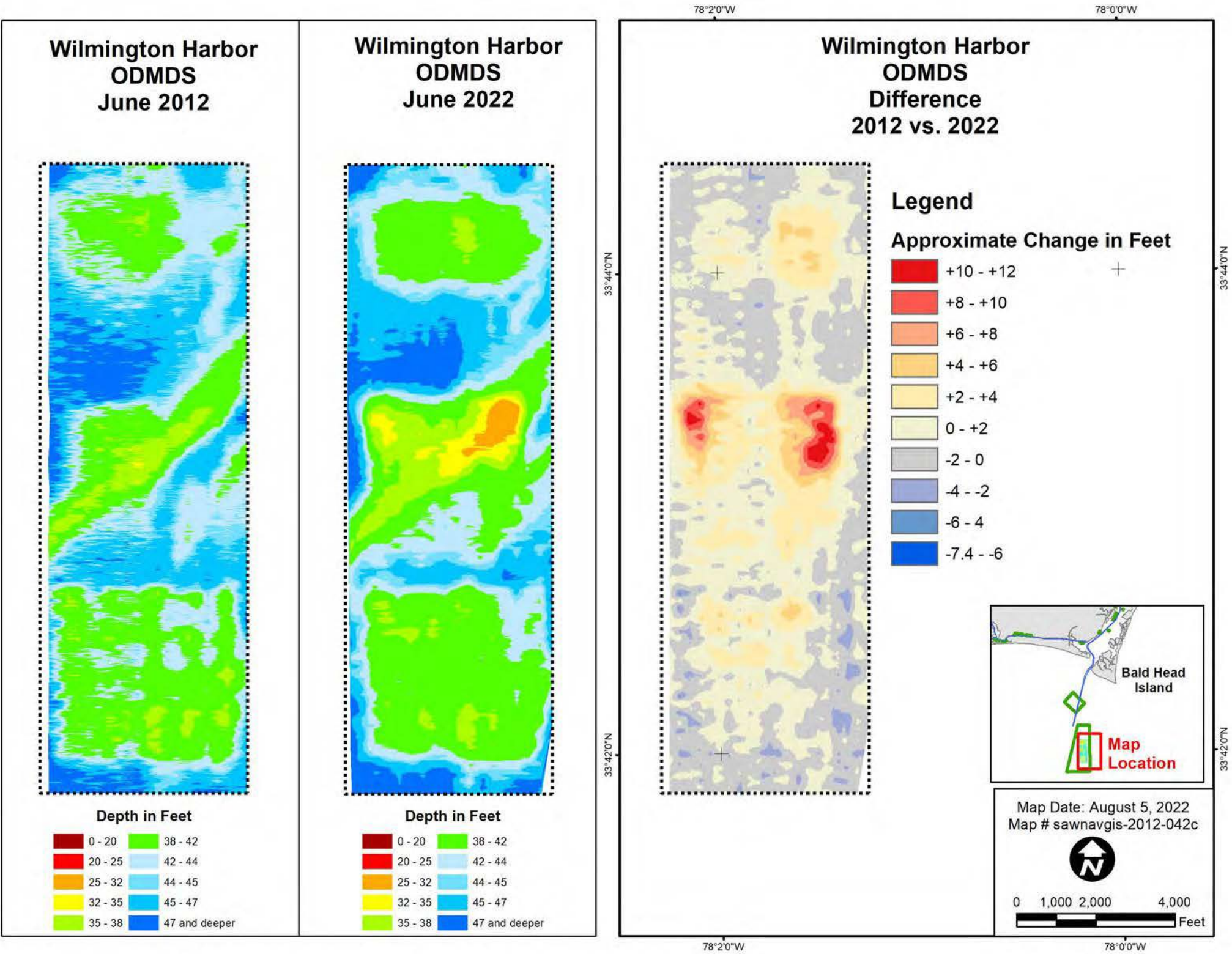


Figure 8. Wilmington ODMDS Bathymetry Comparison, Emphasis on Typical Disposal Zones (2012 / 2022).

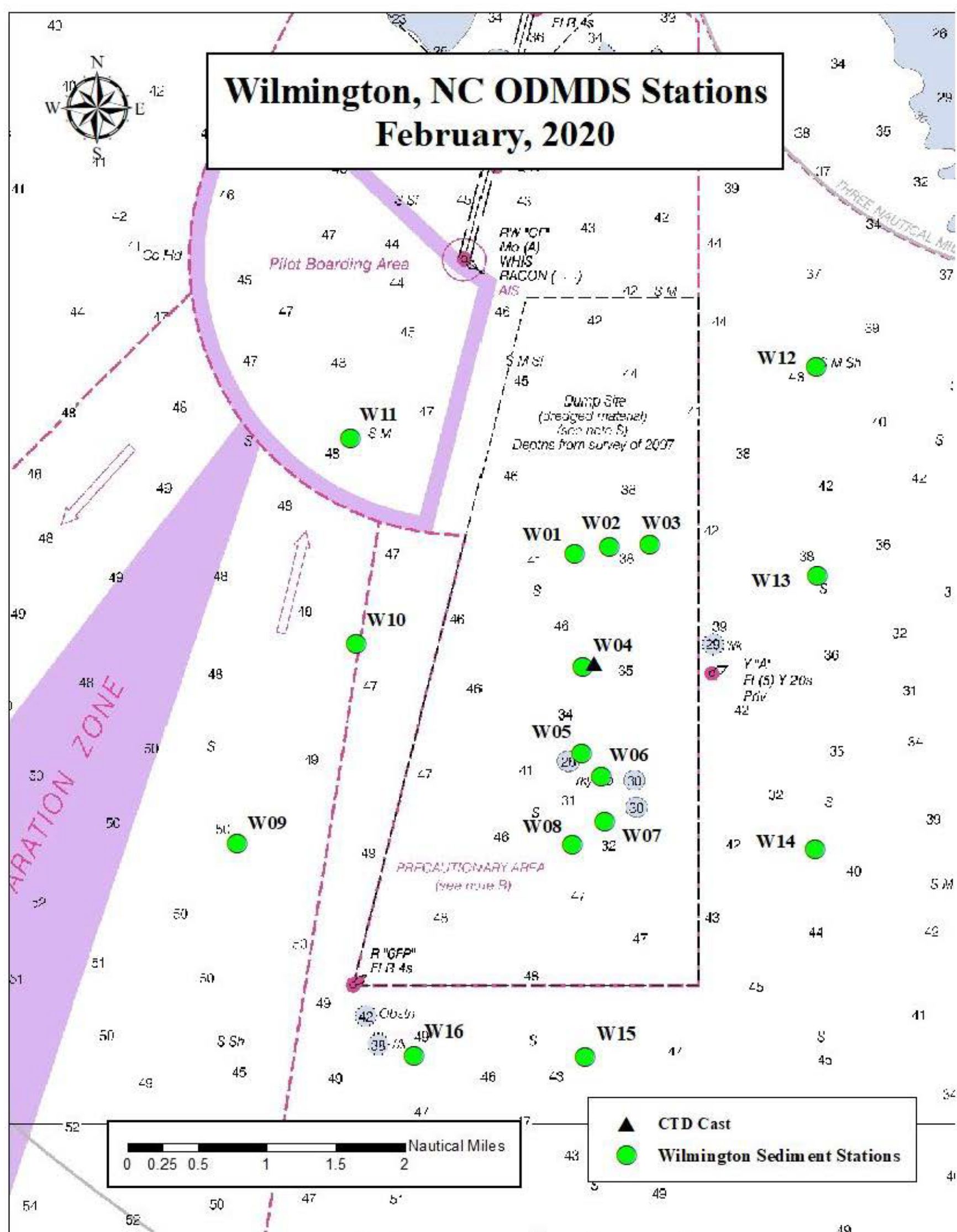


Figure 9. Wilmington ODMDS Status and Trends Survey Sample Locations (2020).

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## APPENDICES

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## **Appendix A**

Public Involvement

Draft Dated October 2022

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## **Public Involvement**

U.S. Environmental Protection Agency, Region 4 (EPA) / U.S. Army Corps of Engineers, Wilmington District (USACE) – Joint Public Notice (JPN) and Notice of Availability (NOA) for Draft Wilmington ODMDS SMMP dated October 2022 (JPN / NOA) was provided to known regional stakeholder entities including the North Carolina Department of Environmental Quality and multiple agencies within, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Audubon Society. The JPN / NOA was independently shared with additional stakeholders.

The Draft Wilmington ODMDS SMMP was also made publicly available on the USACE website (<https://www.saw.usace.army.mil/Missions/Navigation/Dredging/Wilmington-Harbor/>) on November 2, 2022 for a 30-day review and comment period. To accommodate a stakeholder request, the review and comment period was extended until December 9, 2022. The review and comment period extension was shared with all original JPN / NOA recipients on December 5, 2022.

## **Index of Comments Received**

In total, two entities provided comments on the Draft Wilmington ODMDS SMMP. Comments are summarized below:

- North Carolina Wildlife Resources Commission (December 9, 2022)
  - Comment 1: “NCWRC has reviewed the Wilmington ODMDS SMMP and have no specific comment on the document at this time for resources under the purview of the NCWRC. We appreciate the opportunity to review and provide comment on this document and request if conditions associated with dredging or disposal methodology, material quality, material reuse, site conditions, or change in state or federal listing of species affected by activities in the ODMDS occur, to reevaluate the document and provide opportunity for agency review and comment.”
  - Response 1: Noted.
- Town of Oak Island, North Carolina (December 9, 2022)
  - Comment 1: “Offshore sediment sources [potentially available to the Town for beach management] consist of Frying Pan Shoals, the Old and New [Wilmington] ODMDS, Lockwoods Folly Inlet complex, Jay Bird Shoals, and upland sources. Geophysical and geologic sampling has been conducted [by the Town] in the Old and New ODMDS. Results of sampling conclude there is approximately 1 Mcy of beach compatible sand in the Old ODMDS, and 0.7 Mcy in the New ODMDS. Further testing of sediment mounds in the New ODMDS in 2023 will determine if additional beach compatible material exists.”
  - Response 1: The EPA and USACE appreciate that there exist regional beach management considerations and that the Town is exploring use of Wilmington ODMDS as a potential resource for beach- quality material. The October 2022 Draft Wilmington ODMDS SMMP did not formally identify a sand cell; however, this final signed document does provide for such a provision. The USACE will place beach quality dredged material (i.e.,  $\geq 90\%$  sand) in the cell depicted in Figures 4 and 5 of this SMMP. Sampling conducted by the EPA within the Wilmington ODMDS was most recently accomplished in February 2020 using grab samples to ensure acceptability of in situ materials in accordance with the Marine Protection, Research, and Sanctuaries Act. This sampling event and its results are summarized in Section 3.4 of this SMMP. The EPA or USACE has not performed or analyzed core

sampling in the ODMDs aimed at revealing potential available sand volumes. The USACE respectfully requests that the Town share results of “testing of sediment mounds in the New ODMDs in 2023”.

- Comment 2: “The Town has coordinated with the U.S. Army Corps of Engineers, Wilmington District (USACE) since 2018 on the Town's 50-Year Beach Management Plan, and more recently in April 2022, in which Civil Works Project Management distinctly addressed the need for the USACE to designate areas of the ODMDs to compartmentalize for beach compatible material and for future beneficial regional sediment management.”
- Response 2: In response to the Town’s draft SMMP comments and past coordination with the USACE, a sand cell has been designated in the Wilmington ODMDs. The USACE now intends to place beach quality dredged material (i.e.,  $\geq 90\%$  sand) in the cell depicted in Figures 4 and 5 of this SMMP.
- Comment 3: “The Town has reviewed existing geophysical and geologic data with the USACE to allow for better management of the ODMDs and offer the transfer of data to the USACE for its use in the SMMP.”
- Response 3: The USACE appreciates the opportunity to inform its management actions using existing data provided by the Town and other entities. Thank you. ODMDs SMMP documents are required to be updated every 10 years or more frequently if site use and conditions at the site indicate a need for revision. New data regarding site conditions may be considered in future updates of this SMMP.
- Comment 4: “According to the USACE's South Atlantic Coastal Study (SACS; 2022), Wilmington Harbor manages only 26% of dredged material using Regional Sediment Management (RSM) strategies. Improved management of the ODMDs by creating beach-compatible and non-beach compatible cells for future shoreline protection could support RSM strategies as well as may extend the life of the ODMDs through re-use of material. The Town requests the USACE and EPA to address the management of the ODMDs to maximize beneficial use opportunities for future shore protection.”
- Response 4: The EPA and USACE appreciate that beach quality material is a valuable regional resource. The October 2022 Draft Wilmington ODMDs SMMP did not formally identify a sand cell; however, this final signed document does provide for such a provision. The USACE will place beach quality dredged material (i.e.,  $\geq 90\%$  sand) in the cell depicted in Figures 4 and 5 of this SMMP.

## **Appendix B**

Water Column Evaluations Numerical Model (STFATE) Input Parameters

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## **WATER COLUMN EVALUATIONS NUMERICAL MODEL (STFATE) INPUT PARAMETERS**

### **Input Parameters**

#### **Wilmington ODMDs**

STFATE (Short-Term FATE of dredged material disposal in open water) models the discharge of a single load of dredged material from a scow or hopper. STFATE computes a prediction of the deposition and water quality effects of dredged materials disposed of in open water. This numerical model is used for required evaluations of initial mixing and water column effects. STFATE is an outgrowth of the first comprehensive model for predicting the fate of dredged material developed by Koh and Chang (1993). STFATE models three disposal phases, convective descent, dynamic collapse, and passive transport dispersion. STFATE models conventional displacement (bottom dumping) where the vast majority of the dredged material released from a barge or hopper dredge descends rapidly to the bottom in a high-density jet known as the convective descent phase. The dynamic collapse phase begins when the jet impacts the bottom. The denser material immediately deposits, while the less dense particles are spread outward as a density flow when the vertical energy is transferred into horizontal momentum. Over time the less dense material also settles.

Input data for the model includes information regarding the following:

- Disposal operation
- Disposal site
- Dredged material
- Model coefficients
- Input/output/execution controls

The STFATE input parameters are to be used in future evaluations of disposal operations. These parameters are based on information obtained during site designation studies as presented in the New Wilmington ODMDs FEIS, previous applications of the disposal models, and default parameters. Additional project and site-specific information should be used in future STFATE applications to improve the predictive capability of the model.

The STFATE model input parameters include site description, ambient velocity data, disposal operation information, and coefficients. A 45 by 45 grid was chosen to provide the highest resolution. The grid spacing in the north/south and east/west directions was selected at 700 feet to keep the disposal plume within the grid during the model execution. As discussed above, an average depth of 45 feet is used and a three-point density profile is used. A depth averaged logarithmic velocity profile was selected using median values to the East. Disposal operation and execution parameters include disposal site boundaries and disposal location and model time step and duration. The duration is set to 14,400 seconds (4 hours) to meet the 4-hour dilution requirement. Project specific disposal operations data (i.e., vessel speed, dimensions and draft) will depend on the individual projects. Likewise, dredged material characteristics may vary based on specific sediment testing information. Model default values are specified where appropriate.

### **ADDAMS Model**

Section 103 Regulatory Analysis for Ocean Water, Tier III, Short-Term Fate of Dredged Material from Split Hull Barge or Hopper/Toxicity Run

Average sediment characteristics of recent sediment 103 evaluations were used to calculate the Volumetric Fractions. Parameters described in the disposal site were obtained from the Wilmington ODMDs Site

Designation EIS (EPA 2000), COE Bathymetric data, Nautical Charts, and The Mid-Atlantic Regional Association Coastal Ocean Observing System [www.MARACOOS.org](http://www.MARACOOS.org), Buoy 41035. Map 1 shows the location and configuration of the reference station. STFATE model input parameters utilized in the module were as follows:

### ***Site Description***

Parameter	Value	Units
Number of Grid Points (left to right)	45	
Number of Grid Points (top to bottom)	45	
Spacing Between Grid Points (left to right)	700	ft
Spacing Between Grid Points (top to bottom)	700	ft
Constant Water Depth	45	ft
Roughness Height at Bottom of Disposal Site	0.0051	ft
Slope of Bottom in X-Direction	0	Deg.
Slope of Bottom in Z-Direction	0	Deg.
Number of Points in Ambient Density Profile Point	3	
Ambient Density at Depth = 0 ft	1.0241	g/cc
Ambient Density at Depth = 22.5 ft	1.0241	g/cc
Ambient Density at Depth = 45 ft	1.0248	g/cc

### ***Ambient Velocity Data***

Parameter	Value	Units
Water Depth	45	ft
Profile	Logarithmic	
X-Direction Velocity	0	ft/sec
Z-Direction Velocity	0.65	ft/sec

### ***Disposal Operation Data***

Parameter	Value	Units
Location of Disposal Point from Top of Grid	15,750	ft
Location of Disposal Point from Left Edge of Grid	7,875	ft
Dumping Over Depression	0	n/a

### ***Input, Execution, and Output***

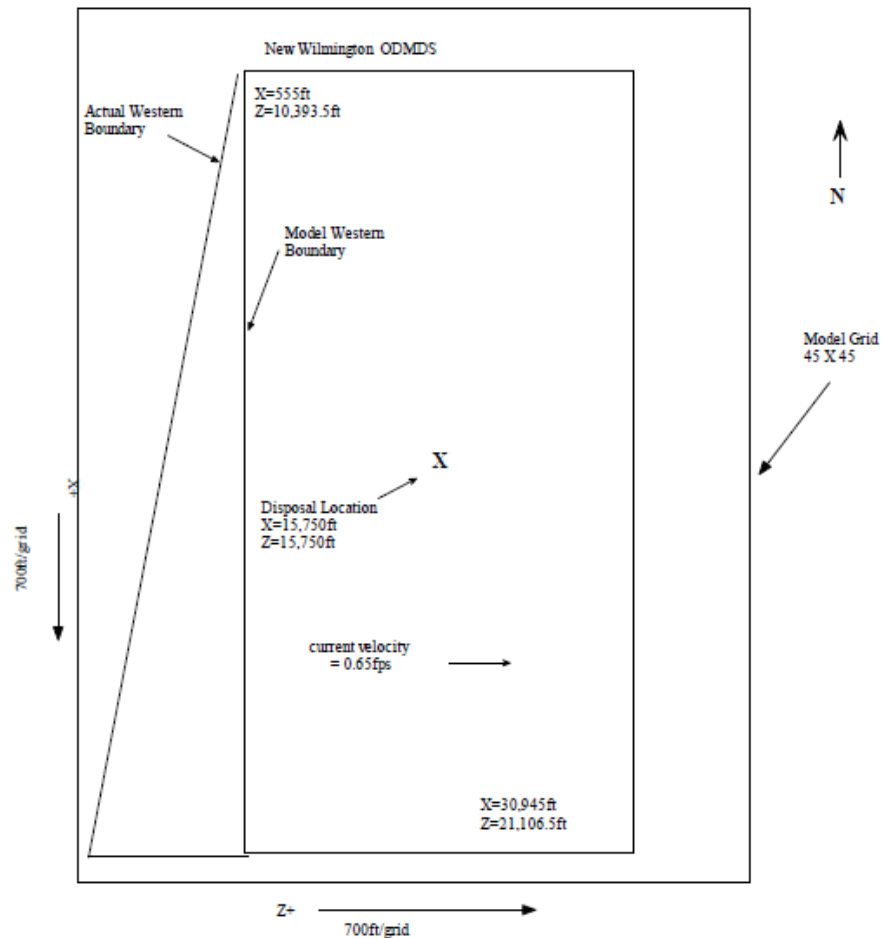
Parameter	Value	Units
Location of the Upper Left Corner of the Disposal Site -Distance from Top Edge	555	ft
Location of the Upper Left Corner of the Disposal Site -Distance from Left Edge	10,393.50	ft
Location of the Lower Right Corner of the Disposal Site -Distance from Top Edge	30,945	ft
Location of the Lower Right Corner of the Disposal Site -Distance from Left Edge	21,106.50	ft
Duration of Simulation	14,400	sec
Long Term Time Step	600	sec

### Coefficients

Parameter	Keyword	Value
Settling Coefficient	BETA	0.000 <sup>1</sup>
Apparent Mass Coefficient	CM	1.000 <sup>1</sup>
Drag Coefficient	CD	0.500 <sup>1</sup>
Form Drag for Collapsing Cloud	CDRAG	1.000 <sup>1</sup>
Skin Friction for Collapsing Cloud	CFRIC	0.010 <sup>1</sup>
Drag for an Ellipsoidal Wedge	CD3	0.100 <sup>1</sup>
Drag for a Plate	CD4	1.000 <sup>1</sup>
Friction Between Cloud and Bottom	FRICTN	0.010 <sup>1</sup>
4/3 Law Horizontal Diffusion Dissipation Factor	ALAMDA	0.0010 <sup>1</sup>
Unstratified Water Vertical Diffusion Coefficient	AKYO	Pritchard Expression
Cloud/Ambient Density Gradient Ratio	GAMA	0.250 <sup>1</sup>
Turbulent Thermal Entrainment	ALPHAO	0.235 <sup>1</sup>
Entrainment in Collapse	ALPHAC	0.100 <sup>1</sup>
Stripping Factor	CSTRIP	0.003 <sup>1</sup>

<sup>1</sup>Model Default Value

### Wilmington ODMDS STFATE Input Parameters



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## **Appendix C**

Generic Special Conditions for MPRSA Section 103 Permits

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**GENERIC SPECIAL CONDITIONS FOR MPRSA SECTION 103 PERMITS**


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**1. Disposal Operations**

- A. For this permit, the term disposal operations shall mean: navigation of any vessel used in disposal of operations, transportation of dredged material from the dredging site to the Wilmington ODMDS, proper disposal of dredged material at the disposal area within the Wilmington ODMDS, and transportation of the hopper dredge or disposal barge or scow back to the dredging site.
- B. The Wilmington ODMDS is defined as the polygon with center coordinates of ###.###'N latitude and -##°##.###'W longitude (NAD 83) or state plane coordinates #,###,### ft N and ###,### ft E (NAD83). The site defined by coordinates are as follows:

Vertices	Geographic NAD 83		[INSERT STATE] State Plane Feet NAD 83	
	Latitude (North)	Longitude (West)	Easting	Northing
NE	##°##.###'N	-##°##.###'W	##### E	##### N
NW	##°##.###'N	-##°##.###'W	##### E	##### N
SW	##°##.###'N	-##°##.###'W	##### E	##### N
SE	##°##.###'N	-##°##.###'W	##### E	##### N

- C. No more than [NUMBER] cubic yards of dredged material excavated at the location defined in [REFERENCE LOCATION IN PERMIT] are authorized for disposal at the Wilmington ODMDS.
- D. The permittee shall use an electronic positioning system to navigate to and from the Wilmington ODMDS. For this section of the permit, the electronic positioning system is defined as: a differential global positioning system or a microwave line of site system. Use of LORAN-C alone is not an acceptable electronic positioning system for disposal operations at the Wilmington ODMDS. If the electronic positioning system fails or navigation problems are detected, all disposal operations shall cease until the failure or navigation problems are corrected.
- E. The permittee shall certify the accuracy of the electronic positioning system proposed for use during disposal operations at the Wilmington ODMDS. The certification shall be accomplished by direct comparison of the electronic positioning system's accuracy with a known fixed point.

- F. Before any disposal vessel departs for the Wilmington ODMDS, a dedicated quality control inspector shall certify in writing that the disposal vessel is not overloaded, and otherwise meets the conditions and requirements of a Scow Certification Checklist that contains all of the substantive elements found in the example provided in this SMMP in Appendix E. If an alternate version of the Scow Certification Checklist is utilized, EPA and USACE must approve the proposed Scow Certification Checklist prior to the commencement of ocean disposal operations. No ocean disposal trip may be initiated until both the towing vessel captain and the quality control inspector have signed all relevant entries on the Scow Certification Checklist. The inspector shall provide a summary of any discrepancies or inaccuracies on the Checklist in the site user's report to EPA and USACE.
- G. The permittee shall not allow any water or dredged material placed in a hopper dredge or disposal barge or scow to flow over the sides or leak from such vessels during transportation to the Wilmington ODMDS. Excessive leakage/spillage or other loss of material means an apparent loss of dredged material greater than limits established in the most current Section 103 Concurrence, Section 103 permit, and/or described within the USACE contract specifications in any event loss of dredged material during transit to ODMDS (in open water) is not to exceed 1.5 feet. Transportation of dredged material to the ODMDS may not begin or continue when weather and sea state conditions interfere with safe transportation and create risk of spillage, leaks, or other loss of dredged material during transit. Disposal vessels cannot be loaded beyond a level at which dredged material would be expected to be spilled in transit under anticipated sea state conditions.
- H. A disposal operations inspector and/or captain of any tugboat, hopper dredge or other vessel used to transport dredged material to the Wilmington ODMDS shall ensure compliance with disposal operation conditions defined in this permit.
  - a) If the disposal operations inspector or the captain detects a violation, he shall report the violation to the permittee immediately.
  - b) The permittee shall contact the U.S. Army Corps of Engineers, [INSERT USACE DISTRICT]'s Regulatory Branch at [TELEPHONE NUMBER] and EPA Region 4 via email and at [TELEPHONE NUMBER] to report the violation within twenty-four (24) hours after the violation occurs. A complete written explanation of any permit violation shall be included in the disposal summary report.
- I. When dredged material is disposed, no portion of the hopper dredge or disposal barge or scow shall be outside of the boundaries of the Wilmington ODMDS as defined in Special Condition B. Additionally, disposal shall be initiated within the designated disposal release zone defined below:



Vertices	Geographic NAD 83		[INSERT STATE] State Plane Feet NAD 83	
	Latitude (North)	Longitude (West)	Easting	Northing
NE	##°##.###'N	-##°##.###'W	##### E	##### N
NW	##°##.###'N	-##°##.###'W	##### E	##### N
SW	##°##.###'N	-##°##.###'W	##### E	##### N
SE	##°##.###'N	-##°##.###'W	##### E	##### N

- J. The permittee shall use an electronic tracking system (ETS) that will continuously track the horizontal location and draft condition of the disposal vessel (i.e., hopper dredge or disposal barge or scow) from the point of dredging to the disposal site and return to the point of dredging. Data shall be collected at least every 500 feet during travel to and from the ODMDS and every minute or every 200 feet of travel, whichever is smaller, while approaching within 1,000 feet and within the ODMDS. State Plane coordinates shall be reported to the nearest foot and latitude and longitude coordinates shall be reported as decimal degrees to 6 decimals. Westerly longitudes are to be reported as negative. Draft readings shall be recorded in feet out to 2 decimals. If the Electronic positioning system fails or navigation problems are detected, all disposal operations shall cease until the failure or navigation problems are corrected.
- K. In addition, the permittee shall record electronically, for each disposal cycle, the following information:
- Load Number
  - Disposal Vessel or Scow Name
  - Tow-Vessel Name (if scow used)
  - Captain of Disposal or Tow Vessel
  - Estimated Volume of Load
  - Description of Material Disposed
  - Source of Dredged Material
  - Date, Time, and Location at State of Initiation of Disposal and Completion of Disposal Event
  - The ETS Data Required by Special Condition I
- L. The permittee shall conduct a bathymetric survey of the Wilmington ODMDS within 30 days following project completion.
- The number and length of the survey transects shall be sufficient to encompass the release zone specified in Special Condition H and a 500-foot-wide border around the site. The transects shall be spaced at 500-foot intervals or less.

- b) Vertical accuracy of the survey shall be  $\pm 0.5$  feet. Horizontal location of the survey lines and depth sounding points will be determined by an automated positioning system utilizing either microwave line of site system or differential global positioning system. The vertical datum shall be mean lower low water (m.l.l.w) and the horizontal datum shall use Florida State Plane or latitude and longitude coordinates (North American Datum 1983). State Plane coordinates shall be reported to the nearest 0.10 foot and latitude and longitude coordinates shall be reported as decimal degrees to 6 decimal points.
- M. The permittee shall abide by the applicable National Marine Fisheries Service (NMFS) Biological Opinion (BO) (i.e., the South Atlantic Regional Biological Opinion (SARBO 2020) for Operations and Maintenance activities or the project specific BO for deepening and new construction projects). The BO covers 25 listed species including swimming sea turtles, whales, corals, and sturgeon. The SARBO contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with “incidental take” that is also specified in the SARBO. Your authorization under the Corps-issued Section 103 permit is conditional upon your compliance with all of the mandatory terms and conditions associated with the incidental take of the SARBO, which terms and conditions are incorporated by reference in the permit. Failure to comply with the terms and conditions associated with the incidental take of the SARBO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps-issued Section 103 permit. However, depending on the affected species NMFS is the appropriate authority to determine compliance with the terms and conditions of its SARBO and with the Endangered Species Act (ESA). For further clarification on this point, you should contact the appropriate agency. Should they determine that the conditions of the SARBO have been violated; normally they will enforce the violation of the ESA or refer the matter to the Department of Justice.

## 2. Reporting Requirements

- A. All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following addresses: U.S. Army Corps of Engineers (Corps), [INSERT USACE DISTRICT] Regulatory Division at [INSERT MAILING ADDRESS] and Environmental Protection Agency Region 4 Oceans Estuary, and Marine Management Section (61 Forsyth Street, Atlanta, GA 30303) and via email at [OceandumpingR4@epa.gov](mailto:OceandumpingR4@epa.gov). The Permittee shall reference this permit number, [INSERT PERMIT NUMBER], on all submittals.
- B. At least 15 days before initiating any dredging operations authorized by this permit, the Permittee shall provide to the Corps and EPA a written notification of the date of commencement of work authorized by this permit.
- C. Electronic data required by Special Conditions I.J and I.K shall be provided to EPA Region 4 on a daily basis. Data shall be submitted as an eXtensible Markup Language (XML) document via e-mail to [DisposalData.R4@epa.gov](mailto:DisposalData.R4@epa.gov). XML data file format specifications are available from EPA Region 4 upon request.

- D. The permittee shall send one (1) copy of the disposal summary report to the Wilmington District's Regulatory Branch and one (1) copy of the disposal summary report to EPA Region 4 documenting compliance with all general and special conditions defined in this permit. The disposal summary report shall be sent within 90 days after completion of the disposal operations authorized by this permit. The disposal summary report shall include the following information:
- a. The report shall indicate whether all general and special permit conditions were met. Any violations of the permit shall be explained in detail.
  - b. The disposal summary report shall include the following information: dredging project title; dates of disposal; permit number and expiration date; name of contractor(s) conducting the work, name and type of vessel(s) disposing material in the ODMDS; disposal timeframes for each vessel; volume disposed at the ODMDS (as paid in situ volume, total paid and un paid in situ volume, and gross volume reported by dredging contractor), number of loads to ODMDS, type of material disposed at the ODMDS; identification of any misplaced material (outside disposal release zone or the ODMDS boundaries); dates of pre and post disposal bathymetric surveys of the ODMDS and a narrative discussing any violation(s) of the 103 permit. The disposal summary report should be accompanied by the bathymetry survey results (plot and X, Y, Z ASCII data file).

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## **Appendix D**

Typical Contract Language for Implementing SMMP Requirements

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**TYPICAL CONTRACT LANGUAGE FOR IMPLEMENTING SMMP REQUIREMENTS****Disposal of Dredged Material****A. General**

All material dredged shall be transported to and deposited in the disposal area(s) designated in the drawings. The approximate maximum and average distance to which the material will have to be transported are as follows:

Disposal Area	Maximum Distance	Average Distance
	Statute Miles	Statute Miles

Wilmington ODMDS

[INSERT DISPOSAL AREA]	[XX miles]	[XX miles]
---------------------------	------------	------------

[IF MATERIAL FROM DIFFERENT PROJECT AREAS GOES TO DIFFERENT DISPOSAL AREAS, IT COULD BE SPECIFIED HERE]

**B. Ocean Disposal Notification**

- a) The Corps or the contractor shall notify EPA Region 4 's Oceans, Wetlands, and Stream Protection Branch (61 Forsyth Street, Atlanta, GA 30303) and via email at [OceandumpingR4@epa.gov](mailto:OceandumpingR4@epa.gov) at least 15 calendar days and the local Coast Guard Captain of the Port at least 5 calendar days prior to the first ocean disposal. The notification will be by certified mail with a copy to the Contracting Officer. The following information shall be included in the notification:
- 1) Project designation; Corps of Engineers' Contracting Officer's name and contract number; and, the Contractor's name, address, and telephone number.
  - 2) Port of departure.
  - 3) Location of ocean disposal area (and disposal zones(s)).
  - 4) Schedule for ocean disposal, giving date and time proposed for first ocean disposal.

**C. Ocean Dredged Material Disposal Sites**

The material excavated shall be transported to and deposited in the Wilmington ODMDS as shown on the drawings. When dredged material is disposed, no portion

of the hopper dredge or disposal barge or scow shall be outside of the boundaries of the Wilmington ODMDS. Additionally, disposal shall be initiated within the disposal release zone(s) defined by the following coordinates:

Vertices	Geographic NAD 83		[INSERT STATE] State Plane Feet NAD 83	
	Latitude (North)	Longitude (West)	Easting	Northing
NE	##°##.###'N	-##°##.###'W	##### E	##### N
NW	##°##.###'N	-##°##.###'W	##### E	##### N
SW	##°##.###'N	-##°##.###'W	##### E	##### N
SE	##°##.###'N	-##°##.###'W	##### E	##### N

During transit to and from the Wilmington ODMDS, the disposal vessel shall remain within the navigation channel until east of the sea buoy.

#### D. Logs

The Contractor shall keep a log for each load placed in the Wilmington ODMDS. The log entry for each load shall include:

- a) Load Number
- b) Disposal Vessel or Scow Name
- c) Tow-Vessel or Scow Name
- d) Tow-Vessel Name (if used)
- e) Captain of Vessel
- f) Description of Material Disposed
- g) Source of Dredged Material
- h) Date, Time, and Location at State of Initiation of Disposal and Completion of Disposal Event
- i) The ETS Data Required by Special Conditions identified in associated Section 103 Permit, if applicable

At the completion of dredging and at any time upon request, the log(s) shall be submitted in paper and electronic formats to the Contracting Officer for forwarding to the appropriate agencies.

#### E. Scow Checklist

Before any disposal vessel departs for the Wilmington ODMDS, a dedicated quality control inspector shall certify in writing that the disposal vessel is not overloaded, and otherwise meets the conditions and requirements of a Scow Certification Checklist that contains all of the substantive elements found in the example provided in this SMMP in Appendix E. If an alternate version of the Scow Certification Checklist (Appendix E) is utilized, EPA and USACE must approve the proposed Scow Certification Checklist prior to the commencement of ocean disposal operations. No ocean disposal trip may be initiated until both the towing vessel captain



and the quality control inspector have signed all relevant entries on the Scow Certification Checklist. The inspector shall provide a summary of any discrepancies or inaccuracies on the Checklist in the site user's report to EPA and USACE.

#### **F. Overflow, Spills, and Leaks**

The permittee shall not allow any water or dredged material placed in a disposal vessel (i.e., a hopper dredge, disposal barge or scow) to flow over the sides or leak from such vessels during transportation to the Wilmington ODMDS. Excessive leakage/spillage or other loss of material means an apparent loss of dredged material greater than limits established in the most current Section 103 Concurrence, Section 103 permit, and/or described within the USACE contract specifications. In any event, loss of dredged material during transit to ODMDS (in open water) is not to exceed 1.5 feet. Transportation of dredged material to the ODMDS may not begin or continue when weather and sea state conditions interfere with safe transportation and create risk of spillage, leaks, or other loss of dredged material during transit. Disposal vessels cannot be loaded beyond a level at which dredged material would be expected to be spilled in transit under anticipated sea state conditions.

#### **G. Electronic Tracking System (ETS) for Ocean Disposal Vessels**

The Contractor shall furnish an ETS for surveillance of the movement and disposition of dredged material during dredging and ocean disposal. This ETS shall be established, operated and maintained by the Contractor to continuously track in real-time the horizontal location and draft condition of the disposal vessel (hopper dredge or disposal scow) from the point of dredging to the disposal site and return to the point of dredging. The ETS shall be capable of displaying and recording, in real-time, the disposal vessel's draft, speed, and location. The ETS shall continuously track the horizontal location and draft condition of the disposal vessel (i.e., hopper dredge or disposal barge or scow) from the point of dredging to the disposal site and return to the point of dredging. Data shall be collected at least every 500 feet during travel to and from the ODMDS and every minute or every 200 feet of travel, whichever is smaller, while approaching within 1,000 feet and within the ODMDS. State Plane coordinates shall be reported to the nearest foot and latitude and longitude coordinates shall be reported as decimal degrees to 6 decimals. Westerly longitudes are to be reported as negative. Draft readings shall be recorded in feet out to 2 decimals. If the Electronic positioning system fails or navigation problems are detected, all disposal operations shall cease until the failure or navigation problems are corrected.

-----[USE LANGUAGE BELOW FOR NON-DQM PROJECTS]-----

#### **H. ETS Standards**

The Contractor shall provide automated (computer) system and components to perform in accordance with COE EM 1110-1-2909. A copy of the EM can be downloaded from the following web site: <http://www.usace.army.mil/inet/usace-docs/eng-manuals/em.htm>. Horizontal location and draft condition shall have an accuracy of  $\pm 0.1$  foot. Data shall be collected at least every 0.25 nautical mile or every 4 minutes during travel to and from the ODMDS and every twelve seconds or every 30 feet of travel within the ODMDS and while hull status is open. In addition to the continuous tracking data, the following trip information shall be electronically recorded for each disposal cycle:

- a) Load Number
- b) Disposal Vessel Name and Type (e.g., scow)
- c) Estimated volume of Load
- d) Description of Material Disposed
- e) Source of Dredged Material
- f) Date, Time and Location at Initiation and Completion of Disposal Event

The ETS shall be calibrated, as required, in the presence of the Contracting Officer at the work location before disposal operations have started, and at 30-day intervals while work is in progress. The Contracting Officer shall have access to the ETS in order to observe its operation. Disposal operations will not commence until the ETS to be used by the Contractor is certified by the Contracting Officer to be operational and within acceptable accuracy. It is the Contractor's responsibility to select a system that will operate properly at the work location. The complete system shall be subject to the Contracting Officer's approval.

#### ETS Data Requirements and Submissions

- a) The ETS for each disposal vessel shall be in operation for all dredging and disposal activities and shall record the full round trip for each loading and disposal from the point of dredging to the disposal site and return to the point of dredging. The Contracting Officer shall be notified immediately in the event of ETS failure and all dredging operations for the vessel shall cease until the ETS is fully operational. Any delays resulting from ETS failure shall be at the Contractor's expense.
- b) Data shall be collected, during the dredging and disposal cycle (NOTE: A dredging and disposal cycle constitutes the time from commencement of dredging to complete discharge of the material), at least every 500 feet during travel to and from the ODMDS and every minute or every 200 feet of travel, whichever is smaller, while approaching within 1,000 feet and within the ODMDS. State Plane coordinates shall be reported to the nearest foot and latitude and longitude coordinates shall be reported as decimal degrees to 6 decimals. Westerly longitudes are to be reported as negative. Draft readings shall be recorded in feet out to 2 decimals. If the Electronic positioning system fails or navigation problems are detected, all disposal operations shall cease until the failure or navigation problems are corrected..
- c) Plot Reporting (2 types):
  - 1. Tracking Plot - For each disposal event, data collected while the disposal vessel is in the vicinity of the disposal area shall be plotted in chart form, in at least 500-foot intervals, to show the track and draft of the disposal vessel approaching and traversing the disposal area. The plot shall identify the exact position at which the dump commenced.
  - 2. Scatter Plot - Following completion of all disposal events, a single and separate plot will be prepared to show the exact disposal locations of all dumps. Every plotted location shall coincide with the beginning of the respective dump. Each dump shall be labeled with the corresponding Trip Number and shall be at a small but readable scale.

3. Summary Table – A spreadsheet which contains all of the information in the log(s) above shall be prepared and shall correspond to the exact dump locations represented on the Scatter Plot.
- d) ETS data and log data required by Section 3.2 shall be provided to EPA Region 4 on a weekly or more frequent basis (within one week of disposal). Data shall be submitted to EPA Region 4 as an eXtensible Markup Language (XML) document via Internet e-mail to DisposalDataR4@epa.gov. XML data file format specifications are available from EPA Region 4. EPA Region 4 and the USACE District require notification by email within 24 hours if disposal occurs outside of the specified disposal release zone, if excessive leakage occurs, if hull open status occurs outside the ODMDS, or other violation of the conditions in this SMMP occur. Excessive leakage is defined as more than 1.5 feet of draft loss during transit to the ODMDS averaged between forward and aft sensors. Correspondence will be required to explain how the issue was addressed, pertinent dates, and corrective actions to be implemented to prevent repetition in the future. All digital ETS data shall be furnished to the Contracting Officer within 24 hours of collection. The digital plot files should be in an easily readable format such as Adobe Acrobat PDF file, Microstation DGN file, JPEG, BMP, TIFF, or similar. The hard copy of the ETS data and tracking plots shall be both maintained onboard the vessel and submitted to the Contracting Officer on a weekly basis.

-----[USE LANGUAGE BELOW FOR DQM PROJECTS]-----

See: <http://dgm.usace.army.mil/Specifications/Index.aspx>

For scows, the monitoring profile, TDS profile or Ullage profile shall be used.

#### **I. Misplaced Materials**

For civil works projects, materials deposited outside of the disposal release zone specified in 3.3.3 will be classified as misplaced material and will result in a suspension of dredging operations. Redredging of such materials will be required, where applicable, as a prerequisite to the resumption of dredging unless the Contracting Officer, at his discretion, determines that redredging of such material is not practical. If redredging of such material is not required, then the quantity of such misplaced material may be deducted from the Contractor's pay quantity. If the quantity for each misplaced load to be deducted cannot initially be agreed to by both the Contractor and Contracting Officer, then an average hopper/scow load quantity for the entire contract will be used in the determination. Both regulatory and civil works projects misplaced loads may be subject to penalty under the Marine, Protection, Research and Sanctuaries Act. Materials deposited above the maximum indicated elevation or outside of the disposal area template shown will require the redredging, relocation, or removal of such materials. In addition, the Contractor must notify the USACE Contracting Officer and the Environmental Protection Agency Region 4 's Oceans Estuary and Marine Management Section (61 Forsyth Street, Atlanta, GA 30303) within 24 hours of a misplaced dump or any other violation of the Site Management and Monitoring Plan for the Wilmington ODMDS. Corrective actions must be implemented prior to the next dump and the Contracting Officer must be informed of actions taken.

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## **Appendix E**

### Scow Certification Template

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## SCOW CERTIFICATION TEMPLATE

SCOW CERTIFICATION CHECKLIST		USACE PERMIT or CONTRACT #		4/17/2015	
[PROJECT NAME]		DATE:			
CHECKLIST ITEM	RECORD DATA	INITIALS			
	TO BE FILLED OUT AND SIGNED WITHIN 1 HOUR PRIOR TO DEPARTURE TIME IN NO. 3.	CONTRACTOR	Permittee or Authorized Representative		
1. OCEAN DISPOSAL TRIP NUMBER					
2. DEPARTURE DATE TO ODMDS					
3. DEPARTURE TIME TO ODMDS					
4. DEPARTURE LOCATION (dredge, berth, etc.)					
5. SCOW NAME					
6. SCOW CAPACITY (CY)					
7. TUG NAME					
8. TUG CAPTAIN'S NAME					
9. DREDGED MATERIAL SOURCE (area, reach, berth, etc.)					
10. CUBIC YARDS HAULED					
11. SCOW FORE DRAFT / AFT DRAFT / AVG AND TIME					
12. SCOW FORE DRAFT / AFT DRAFT / AVG AND TIME (must be at least one hour prior to time in No. 11)					
13. DRAFT CHANGE (No 12 - No. 11)					
14. FREE BOARD OF MATERIAL AND/OR WATER SURFACE					
15. NWS COASTAL MARINE FORECAST (out to 20 nm)	DATE / TIME OF REPORT				
[area]	WAVE HT (FT)				
WRITE IN APPROPRIATE FORECAST PERIODS (ie, TODAY, TONIGHT, TOMORROW)	WIND SPEED (KTS)				
	PERIOD (SEC)				
	COMMENTS:				
16. SCOW TRACKING SYSTEM FUNCTIONING?	<input type="checkbox"/> YES <input type="checkbox"/> NO				
17. HELMSMAN DISPLAY FUNCTIONING ON TUG?	<input type="checkbox"/> YES <input type="checkbox"/> NO				
18. GPS FUNCTIONING ON TUG?	<input type="checkbox"/> YES <input type="checkbox"/> NO				
19. COMMENTS					
20. CONTRACTOR'S SIGNATURE	PRINT NAME:		TIME / DATE:		
21. PERMITTEE/REPRESENTATIVE'S SIGNATURE	PRINT NAME:		TIME / DATE:		
22. THE DECISION TO PROCEED TO THE OCEAN DISPOSAL SITE, BASED UPON ALL AVAILABLE DATA INCLUDING THE RECORDING AND CALCULATIONS ON THIS FORM, IS ALSO SUBJECT TO THE PROFESSIONAL JUDGEMENT OF THE TUG CAPTAIN AS TO THE SAFETY OF THE CREW AND VESSEL.					
TUG CAPTAIN'S SIGNATURE:	PRINT NAME:		TIME / DATE:		
DATE/TIME OF DUMP:					
BARGE X OR LONGITUDE:					
BARGE Y OR LATITUDE:					
TUG X OR LONGITUDE:					
TUG Y OR LATITUDE:					
DATE/TIME OF DISPOSAL VESSEL CLOSURE:					
BARGE X OR LONGITUDE:					
BARGE Y OR LATITUDE:					
TUG X OR LONGITUDE:					
TUG Y OR LATITUDE:					
ADDITIONAL COMMENTS, PROBLEM DESCRIPTIONS, ETC.					