



US Army Corps
of Engineers®
Wilmington District

ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT (FONSI)

MAINTENANCE DREDGING OF BULKHEAD CHANNEL (WITH ADVANCE MAINTENANCE WIDENER) AND MORGAN CREEK



BEAUFORT HARBOR NAVIGATION PROJECT CARTERET COUNTY, NORTH CAROLINA

December 2018

Finding of No Significant Impact

MAINTENANCE DREDGING OF BULKHEAD CHANNEL (WITH ADVANCE MAINTENANCE WIDENER) AND MORGAN CREEK BEAUFORT HARBOR NAVIGATION PROJECT CARTERET COUNTY, NORTH CAROLINA

The U.S. Army Corps of Engineers, Wilmington District (Corps), has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The Corps assessed the effects of the following actions in the Environmental Assessment (EA), Maintenance Dredging of Bulkhead Channel (with advance maintenance widener) and Morgan Creek, Beaufort Harbor Navigation Project, dated December 2018.

As District Commander, U.S. Army Corps of Engineers, Wilmington District, it is my duty in the role of responsible Federal official to review and evaluate, in light of public interest, the stated views of other interested agencies and concerned public, the environmental effects of this proposed action.

My evaluation and findings are as follows:

- **PROJECT DESCRIPTION**

Development of the alternatives for the Maintenance Dredging of Bulkhead Channel (with advance maintenance widener) and Morgan Creek project began in 2017. The Corps collected information and coordinated with Federal, State, and local agencies with knowledge of the project resources. The data collection, agency comments, and findings of the planning team resulted in the proposed action, which adds the option of using small shallow draft hopper dredges to perform maintenance dredging in Bulkhead Channel and Morgan Creek, with placement of dredged material in the previously approved Nearshore East and Nearshore West placement areas to the east and west of Beaufort Inlet. Additionally, a 50-foot by 1,200-foot advance maintenance widener will be implemented at Range 1 of Bulkhead Channel if approved by the Division Commander, South Atlantic Division. The proposed action without the aforementioned widener was also considered as an alternative, and will be the proposed action unless and until Division Commander approval is received for the widener. Use of shallow draft hopper dredges with nearshore placement will only occur in areas where shoaled sediments have been shown to be comprised of $\geq 90\%$ sand (beach quality). Shoaled sediments will be considered $\geq 90\%$ sand in perpetuity only after three individual and consecutive geotechnical analysis events have shown that shoaled sediments are $\geq 90\%$ sand.

In addition to the no action alternative, three alternatives were evaluated, including the proposed action, which is also the environmentally preferable alternative. The proposed action will expand the array of available maintenance dredging and dredged material placement options for Bulkhead Channel and Morgan Creek shoaled sediments and will provide a widener in Range 1 of Bulkhead Channel. Also, placement of beach quality dredged material in the nearshore placement areas is a beneficial use of dredged material that contributes to sand

retention in the Beaufort Inlet ebb tide delta complex. All practicable means to avoid and minimize adverse environmental effects have been incorporated into the proposed action. The proposed action would not result in any adverse impacts to federally-listed threatened or endangered species or their designated critical habitat, would have no impact to sites listed on or eligible for inclusion on the National Register of Historic Places, and would not significantly affect any wetlands or water of the U.S., nor any important wildlife habitat. Therefore, no compensatory mitigation is required.

- **Coordination**

A scoping letter describing the proposed Wilmington Harbor Navigation Improvement Project and requesting public and agency participation was circulated March 28, 2018. Agency and public responses were received from Region 4 of the U.S. Environmental Protection Agency, the North Carolina (N.C.) Department of Transportation, N.C. Division of Marine Fisheries, N.C. Natural Heritage Program, N.C. State Historic Preservation Office, and N.C. Wildlife Resources Commission.

The Corps has coordinated the proposed action with Federal, state, and local agencies and issued a Public Notice on September 4, 2018, to solicit comments. The U.S. Fish and Wildlife Service provided its Section 7(a)(1) of the Endangered Species Act (ESA) concurrence on October 9, 2018. Per direction from National Oceanographic and Atmospheric Administration Fisheries (NOAA Fisheries), the Corps provided a copy of the EA and the Biological Opinion covering the proposed action on September 4, 2018. This satisfied Section 7(a)(1) NOAA Fisheries consultation requirements. By memorandum dated September 25, 2018, the N.C. State Historic Preservation Office determined the project will have no adverse effect on historic properties.

A summary of the most significant public comments and the responses thereto are as follows:

- **Comment-** Material Testing – The EPA commented that p. 15 of the draft EA stated that, “Data associated with all borings featured in Figure 5 indicate that shoaled sediments in these areas are comprised of $\geq 90\%$ sand.” No other discussion of testing of material is provided in the draft EA. In the 404(b)(1) analysis under section 3 – Evaluation of Dredged or Fill Material, it is implied that testing has been conducted on material in the vicinity of the project and that this testing could be used to evaluate the possible contaminants in the dredged or fill material. If testing of material has been conducted, the EPA recommends that information be included in the final EA. If the USACE has reason to believe that the dredged material is not contaminated, then rationale should be provided in the final EA.”
Response- Section 4.2 (Water Quality) of the EA has been revised to include the rationale for not testing the sediments that have been sampled and which are $\geq 90\%$ sand. Section 3 ‘Evaluation of Dredged or Fill Material’ of the 404(b)(1) analysis has also been revised to better address your concerns. It should be noted that only that material which is determined to be $\geq 90\%$ sand is proposed to be placed in the nearshore placement areas. If future sediment sampling encounters sediments that are $< 90\%$ sand, that material would be placed in previously approved upland confined disposal areas and would not be placed in the nearshore placement areas.

- **Comment-** Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual – Inland testing Manual – The EPA recommends that the Corps review the above testing manual and determine if the proposed activity complies with the evaluation required by 40 CFR 404(b)(1).

Response- The Corps acknowledges that the ‘Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual, Inland testing Manual’, also known as the Inland Testing Manual (ITM), is the document describing sediment testing and evaluation procedures regarding discharges in waters of the United States. Section 1.2.2.2 of the ITM describes *Reason to Believe* guidelines, which allow for the use of available information to make a preliminary determination concerning the need for testing of material proposed for dredging. Furthermore, the *Reason to Believe* that no testing is required is based on the type of material to be dredged and/or its potential to be contaminated. Given the results of geotechnical evaluations described in section 4.1 the EA ($\geq 90\%$ sand), the probable absence of hazardous, toxic, and radioactive wastes in the project areas as discussed in section 4.4 of the EA (which has been updated to include recent U.S. Coast Guard National Response Center records), and the project area itself being tidal and susceptible to strong currents (text regarding current velocities has been added to section 4.1 of the EA), all sediments proposed to be dredged by shallow draft hopper dredge and placed in existing nearshore placement areas do not require additional testing to be in compliance with Section 404 of the Clean Water Act. ‘Section 3 – Evaluation of Dredged or Fill Material’ of the 404(b)(1) analysis included in the EA as Appendix B has been updated with appropriate considerations and references, and EA text qualifying satisfaction of the ITM’s *Reason to Believe* guidelines has been added to Section 4.2 of the EA.

- **Environmental Effects and Impacts**

This proposed action will be in compliance with all environmental laws. A “no action” alternative was considered in addition to the proposed action. The proposed action meets the Corps’ Environmental Operating Principles, and minimizes environmental impacts to protected resources to the maximum extent practicable.

- **Determination**

Based on the EA prepared for this project, I have determined that this action does not constitute a major Federal action significantly affecting the quality of the human environment. Therefore, the proposed action does not require the preparation of a detailed statement under Section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.). My determination was made considering the following factors discussed in the EA to which this document is attached:

a. The proposed action may affect but is not likely to adversely affect leatherback, loggerhead and green sea turtles, north Atlantic right and humpback whales, west Indian manatee, Atlantic and shortnose sturgeon, and Smalltooth sawfish.

b. No significant cumulative or secondary impacts would result from implementation of this action.

c. The proposed action would not significantly impact cultural resources.

d. The proposed action would result in no significant impacts to air or water quality.

e. The proposed action would result in no significant adverse impact to fish and wildlife resources.

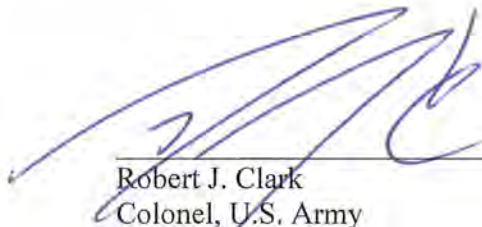
f. The proposed action will not cause any environmental health risks or safety risks that may disproportionately affect children and complies with Executive Order 13045, "Protection of Children from Environmental Health Risks and Safety Risks." FONSI-3

g. The proposed action will not cause any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations and complies with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."

- **Findings and Conclusions**

The proposed action to implement the Maintenance Dredging of Bulkhead Channel (with advance maintenance widener) and Morgan Creek would result in no significant environmental impacts.

31 DEC 2018
Date


Robert J. Clark
Colonel, U.S. Army
District Commander

Environmental Assessment and Finding of No Significant Impact (FONSI)
Maintenance Dredging of Bulkhead Channel
(with advance maintenance widener)
and Morgan Creek
Beaufort Harbor Navigation Project
Carteret County, North Carolina

December 2018

Table of Contents

FONSI	
1.0 INTRODUCTION	1
1.1 Authority	1
1.2 Incorporation by Reference.....	6
1.3 Bulkhead Channel and Morgan Creek Background	6
2.0 PURPOSE AND NEED FOR ACTION.....	7
3.0 ALTERNATIVES CONSIDERED	10
3.1 Alternative 1: No Action (Continued Use of a Pipeline Dredge (only) with Upland Confined Disposal (only)).....	10
3.2 Alternative 2: Addition of Sidecast Dredging and Sidecast Placement of Dredged Material	10
3.3 Alternative 3: Addition of Shallow Draft Hopper Dredging with Nearshore Placement of Dredged Material	11
3.4 Alternative 4 (Proposed Action): Addition of Shallow Draft Hopper Dredging with Nearshore Placement and a 50-foot by 1,200-foot Advance Maintenance Widener in Bulkhead Channel Range 1	11
4.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS	16
4.1 Sediments	16
4.2 Water Resources	18
4.2.1 Hydrology	18
4.2.2 Water Quality.....	18
4.3 Wetlands and Floodplains.....	19
4.4 Hazardous, Toxic, and Radioactive Wastes (HTRW)	20
4.5 Cultural Resources	21
4.6 Air Quality	22
4.7 Noise	23
4.8 Benthic Resources.....	23
4.9 Fisheries Resources and Essential Fish Habitat.....	25

4.10	Terrestrial Resources	26
4.11	Threatened and Endangered Species	26
4.12	Aesthetic and Recreational Resources	27
4.13	Climate Change.....	28
4.14	Sea Level Rise.....	29
4.15	Socio-Economic Resources	29
4.16	Environmental Impact Comparison of Alternatives	33
5.0	CUMULATIVE EFFECTS	34
6.0	STATUS OF ENVIRONMENTAL COMPLIANCE.....	35
6.1	National Environmental Policy Act (NEPA).....	35
6.2	North Carolina Coastal Zone Management Program.....	35
6.3	Clean Water Act (CWA).....	36
6.4	Areas of Environmental Concern (AECs)	36
7.0	CONCLUSION.....	38
8.0	POINT OF CONTACT.....	39
9.0	REFERENCES	39

List of Figures

Figure 1. Beaufort Harbor Project Map, Including Bulkhead Channel and Morgan Creek.	2
Figure 2. Bulkhead Channel and Morgan Creek Range Map.	3
Figure 3. Upland Confined Disposal Areas (UCDA) in Project Area.	4
Figure 4. Nearshore Placement Areas Map.	5
Figure 5. Bulkhead Channel and Morgan Creek Geotechnical Borings to Date, and Bathymetry as of May 22, 2018.	9
Figure 6. Areas In Which Shallow Draft Hopper Dredging and Nearshore Placement of Dredged Material are Currently Proposed.	14
Figure 7. Proposed 50-Foot Widener and Historically Dredged Areas at Bulkhead Channel Range 1.	15
Figure 8. Current Velocities in the Beaufort Harbor Vicinity.	217
Figure 9. Regulated Facilities in Project Area Vicinity.	21
Figure 10. Cultural Resources Near Proposed Project Area.	21

List of Tables

Table 1. Population Comparison (2000 and 2016).	30
Table 2. Population Projections through 2030.	30
Table 3. Population by Race.	30
Table 4. Civilian Labor Force by Occupation.	31
Table 5. Income.	32
Table 6. Comparison of Environmental Impacts Associated with Proposed action and No Action Alternative.	33
Table 7: The Relationship of the Proposed Action/Alternative 3 to Federal Laws and Policies.	37

List of Appendices

APPENDIX A WQC #4099.	A-1
APPENDIX B Section 404(b)(1) Evaluation	B-1
APPENDIX C USFWS IPaC Query	C-1
APPENDIX D March 9, 1999 NMFS Biological Opinion	D-1
APPENDIX E USFWS Guidelines for Avoiding Impacts to the West Indian Manatee	E-1
APPENDIX F NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions.	F-1
APPENDIX G Correspondence	G-1
APPENDIX H Public Review – Comments and Responses	H-1

1.0 INTRODUCTION

This Environmental Assessment (EA) evaluates the environmental impacts associated with proposed changes to U. S. Army Corps of Engineers' (USACE) maintenance dredging practices for Bulkhead Channel and Morgan Creek, which are part of the Beaufort Harbor Federal Navigation Project, in Carteret County, North Carolina (Figures 1 and 2). Historically, these channels have been maintained by a small pipeline dredge with disposal in approved upland confined disposal sites (Figure 3). The proposed changes include: 1) use of a small shallow draft hopper dredge, capable of working in shallow draft channels, with placement of dredged material in the approved nearshore placement areas to the east (Nearshore East) and west (Nearshore West) of Beaufort Inlet (Figure 4), and 2) dredging of a 50-foot wide by approximately 1,200-foot long advance maintenance widener in a frequently shoaled area of Range 1 in Bulkhead Channel.

The National Environmental Policy Act of 1969, as amended (NEPA), requires consideration of the environmental impacts for major federal actions. The purpose of this EA is to ensure the environmental consequences of the proposed action are considered and that environmental and project information are available to the public. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) parts 1500- 1508), and Engineering Regulation (ER) 200-2-2.

1.1 Authority

The authorities to construct and maintain the Beaufort Harbor project are discussed below in Section 1.2. The establishment of an advance maintenance widener in Range 1 of Bulkhead Channel is authorized by ER 1130-2-520, paragraph 8-2 (7): "Advance maintenance dredging, to a specified depth and/or width, may be performed in critical and/or fast-shoaling areas to avoid frequent redredging and ensure the least overall cost of maintaining the project." An advance maintenance widener may be approved by the Division Commander, South Atlantic Division. While the effects of that advance maintenance widener are considered in this document, dredging of any advance maintenance widener will not commence unless and until that approval has been granted.

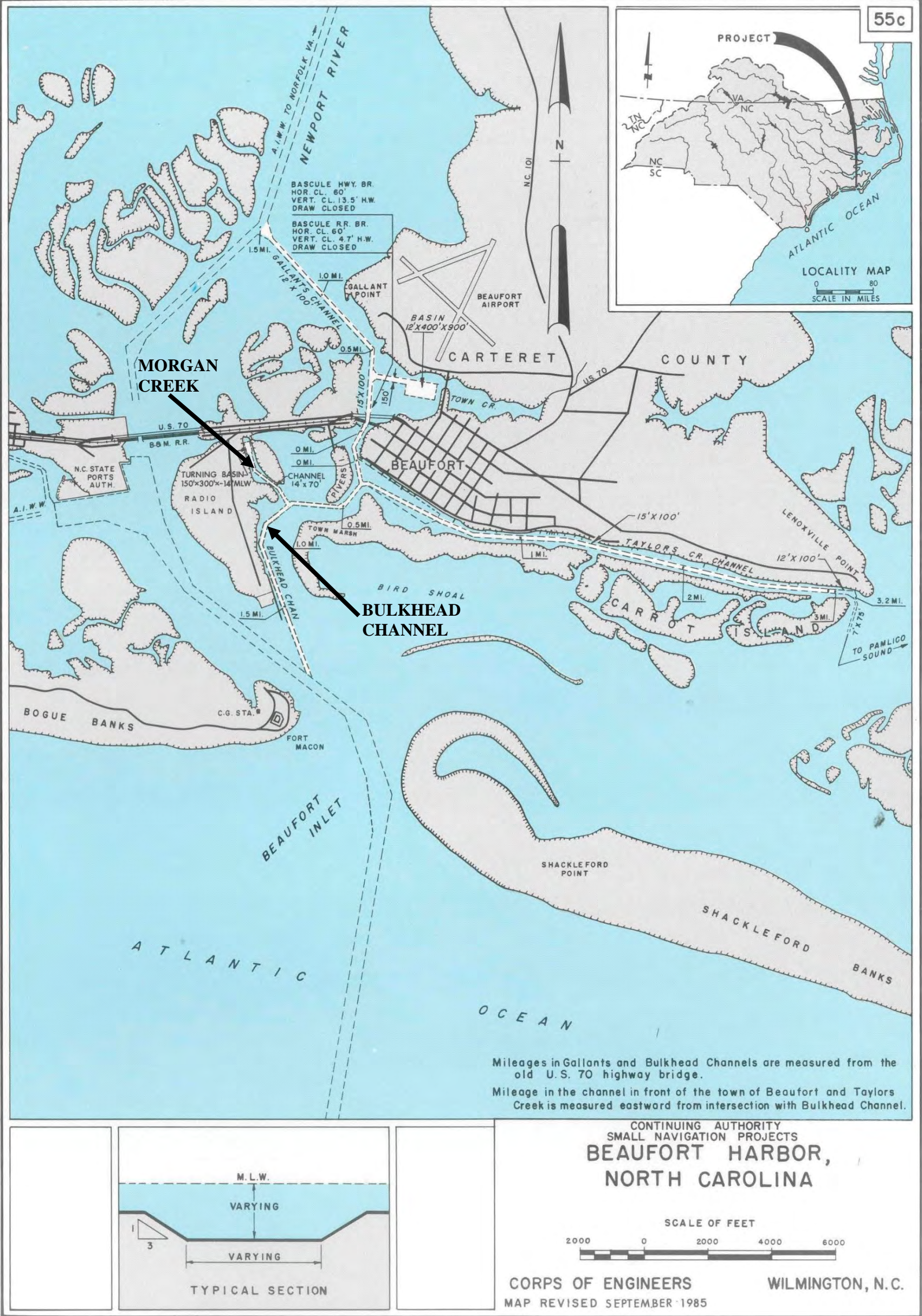


Figure 1. Beaufort Harbor Project Map, Including Bulkhead Channel and Morgan Creek.

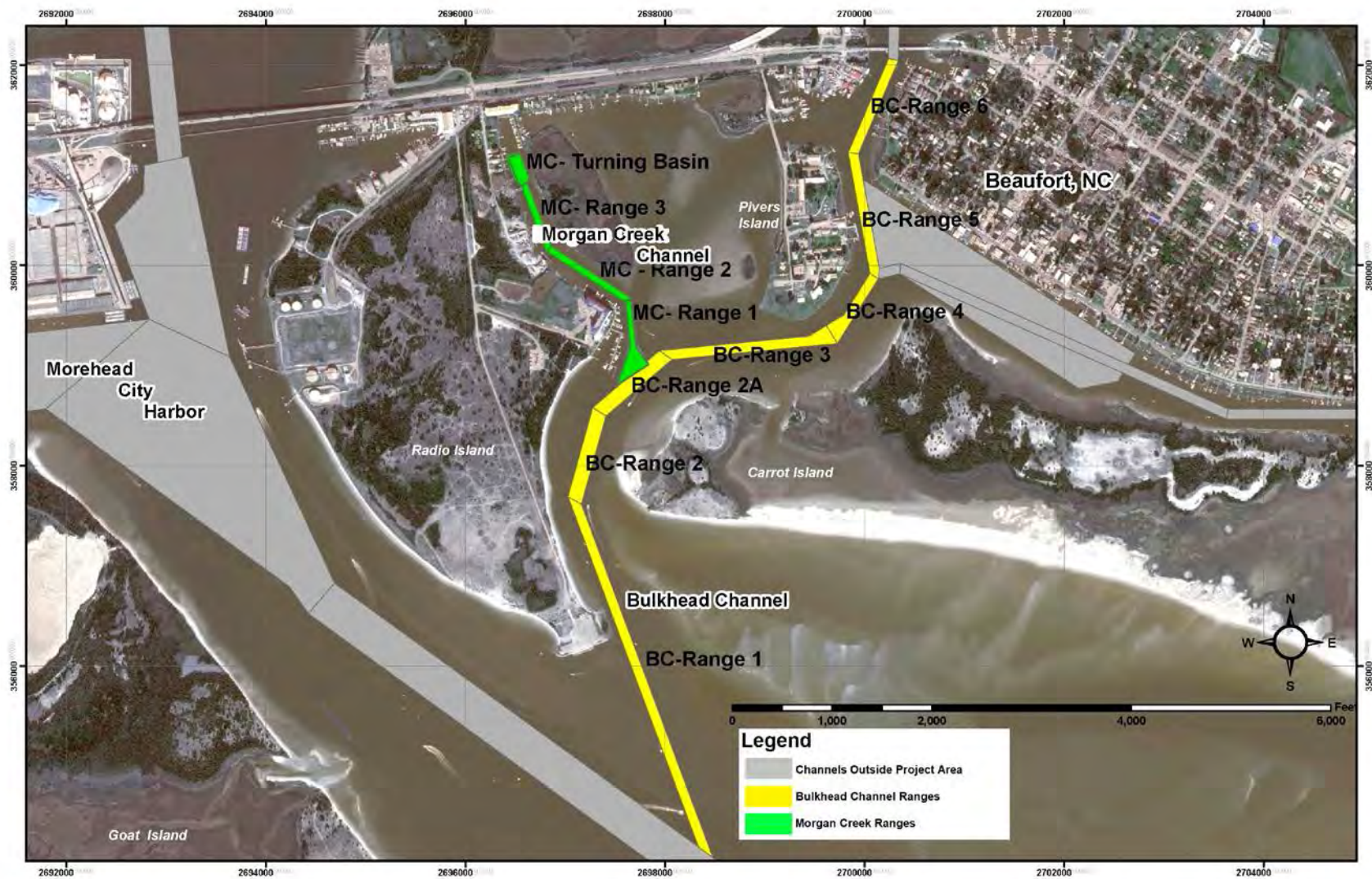


Figure 2. Bulkhead Channel and Morgan Creek Range Map.



Figure 3. Upland Confined Disposal Areas (UCDA) in Project Area.



Figure 4. Nearshore Placement Areas.

1.2 Incorporation by Reference

The USACE has produced a number of environmental and planning reports that describe dredging and material disposal in the project area and vicinity. These documents were used in the writing and development of this EA and are cited below:

- a) U.S. Army Corps of Engineers, Wilmington District. 1976. Maintenance of the Waterway Connecting Pamlico Sound and Beaufort Harbor, Environmental Impact Statement.
- b) U.S. Army Corps of Engineers, Wilmington District. August 1994. Design and Use of a Placement Area for Underwater Nearshore Berm, Morehead City Harbor Project, Morehead City, North Carolina, Environmental Assessment.
- c) National Oceanic and Atmospheric Administration, National Marine Fisheries Service. March 1997. South Atlantic Regional Biological Opinion Regarding the Use of Hopper Dredges in Channels and Borrow Areas along the Southeast U.S. Atlantic Coast.
- d) National Oceanic and Atmospheric Administration, National Marine Fisheries Service. March 1999. Biological Opinion Regarding Government Hopper and Sidecast Dredges.
- e) U.S. Army Corps of Engineers, Wilmington District. March 2004. Use of Government Plant to Dredge in Federally Authorized Navigation Projects in North Carolina, Environmental Assessment.
- f) U.S. Army Corps of Engineers, Wilmington District. June 2016. Morehead City Harbor Dredged Material Management Plan (DMMP), Morehead City, North Carolina.

1.3 Bulkhead Channel and Morgan Creek Background

The Beaufort Harbor Project, which includes Bulkhead Channel and Morgan Creek (Figure 1), was authorized May 21, 1965 under authority of Section 107, River and Harbor Act of July 14, 1960. Bulkhead Channel includes seven sections, or ranges (Ranges 1, 2, 2A, 3, 4, 5, 6), each with an authorized depth of -15 feet mean lower low water (MLLW) + 2 feet allowable overdepth. Existing authorized widths vary by range; Ranges 1, 3, 4, 5, and 6 are 100 feet wide, with the exception of the area where Ranges 4 and 5 connect, which is authorized to a width of 210 feet (Figure 2); and Ranges 2 and 2A are 150 feet wide. Morgan Creek includes three ranges (Ranges 1-3) and a turning basin. The ranges and turning basin have an authorized depth of -14 feet MLLW + 2 feet allowable overdepth. The authorized width of Ranges 1-3 is 70 feet and the width of the turning basin is 150 feet. The intersection of Morgan Creek and Bulkhead Channel has an authorized width of 420 feet (Figure 2).

Maintenance dredging of Bulkhead Channel and Morgan Creek was originally addressed in the USACE 1976 EIS, referenced above in Section 1.2, and addressed use of a hydraulic pipeline dredge with dredged material placement in shallow water within submerged diked areas on the sound-facing side of barrier islands in the project area. By this material placement methodology

islands were created and/or proposed, which were not to exceed elevations of 6-8 feet above mean high tide. These submerged diked areas exist east and north of the project area and aren't feasible for use in connection with the proposed action, as the nearest of these diked areas is approximately nine miles east of the project area. Pipeline dredging within the project area currently, and for decades, has resulted in placement of dredged materials in upland confined disposal areas including Carrot Island, Northern Radio Island, Brandt Island, and Marsh Island (Figure 3).

2.0 PURPOSE AND NEED FOR ACTION

Both Bulkhead Channel and Morgan Creek are commonly used waterways of economic and recreational importance to Carteret County, the region, and the State. Reliable and safe navigation in these federal channels is vital to the region and is difficult to ensure given the limited maintenance dredging and dredged material disposal options currently available.

Typically, maintenance dredging in the project area is accomplished by pipeline dredge with material placement in nearby upland confined disposal sites (Carrot Island, Northern Radio Island, Brandt Island, and Marsh Island). Recently, a shortfall of available pipeline dredges and reduced government funding has resulted in excessive shoaling in portions of Bulkhead Channel and Morgan Creek (Figure 5). To provide more reliable and consistent maintenance dredging of the Bulkhead and Morgan Creek channels, the USACE requires operational flexibility, such as expanding the array of available maintenance dredging and/or dredged material disposal options for Bulkhead Channel or Morgan Creek. Having the ability to employ more than one type of dredge and more than one method of dredged material disposal would increase opportunities to maintain Bulkhead Channel and Morgan Creek on a more regular basis. Additionally, adding the ability to perform advance maintenance in areas where the most significant, rapid shoaling occurs would help keep channels open longer between dredging events, alleviating the recurring shoaling that results in a hazard to navigation.

Shoaled areas of Bulkhead Channel are typically dredged annually as funding and resources allow. Based on May 22, 2018 bathymetry, approximately 5,700 cubic yards (cy) of materials would need be removed from shoaled areas of Bulkhead Channel to ensure safe navigation. This volume estimate takes into consideration allowable overdepth. Should the proposed 50-foot widener be included, and also dredged to a depth of -15 feet MLLW + 2 feet allowable overdepth, estimated total volume of shoaled materials currently requiring removal in Bulkhead Channel would be 8,800 cy. This 50-foot widener is proposed as this shoaled area of Bulkhead Channel Range 1 is affected by wind action across a wider and longer fetch of water than other channel ranges, which exacerbates shoaling. Typically, shoaled areas within Bulkhead Channel are dredged by pipeline dredge with placement in upland confined disposal areas; however, shallow draft hopper dredges have been used to perform maintenance dredging work, most recently in response to emergency shoaled conditions in the channel. In these cases, dredged material has been taken to the west nearshore placement area.

Morgan Creek has been dredged twice since 1987, and most recently in April 1999. During the 1999 dredging event, approximately 10,000 cy of material was removed by pipeline dredge and placed in upland confined disposal areas. Based on May 22, 2018 bathymetry, it is estimated

near term dredging in Morgan Creek will again consist of the removal of approximately 10,000 cy or shoaled sediments, primarily towards the confluence of Morgan Creek and Range 2A of Bulkhead Channel.

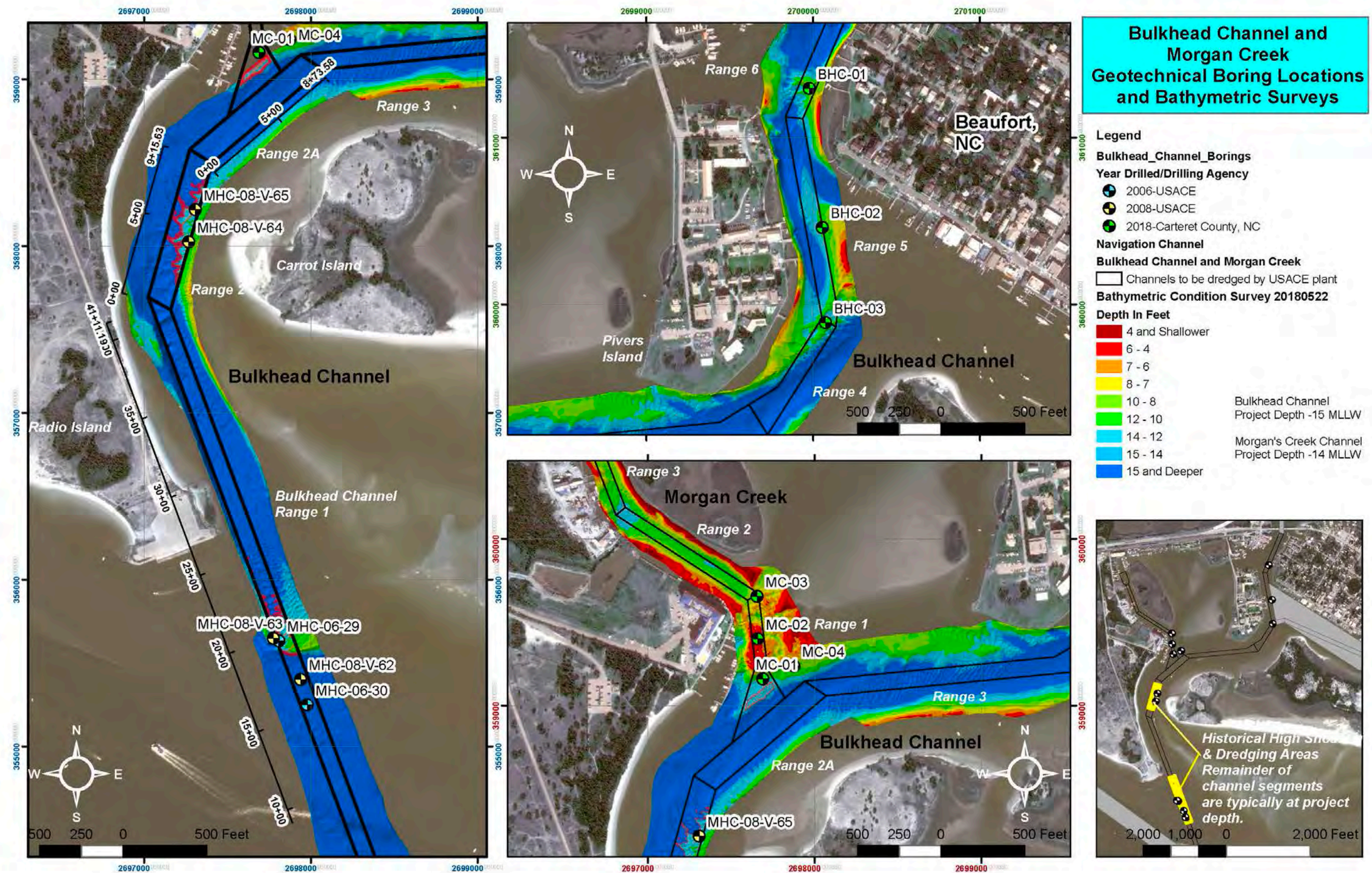


Figure 5. Bulkhead Channel and Morgan Creek Geotechnical Borings to Date, and Bathymetry as of May 22, 2018.

3.0 ALTERNATIVES CONSIDERED

Considering the shortfall of available pipeline dredges to perform maintenance dredging in the project area, and to provide additional operational flexibility, alternative dredging methodologies and dredged material placement options are needed. For areas that are especially challenging to properly maintain, given the currently limited available resources, additional options will help improve safe, reliable navigability in the project area.

3.1 Alternative 1: No Action (Continued Use of a Pipeline Dredge (only) with Upland Confined Disposal (only))

Under the no action alternative, maintenance dredging of Bulkhead Channel and Morgan Creek would continue to be accomplished by a small pipeline dredge with material placement occurring in approved nearby upland confined disposal areas (Figure 3). No other types of dredging vessel or dredged material placement options would be used. Under this scenario, it's expected that difficulties in ensuring reliable navigation, especially in frequently shoaled areas, such as at the confluence of Morgan Creek and Bulkhead Channel Range 2A and Range 1 of Bulkhead Channel (Figure 5), will continue. The no action alternative would not meet the purpose and need for action, since it includes no new opportunities for expanding the array of available maintenance dredging or dredged material disposal options for Bulkhead Channel or Morgan Creek shoaled sediments. Particularly, as mobilization costs for pipeline dredges are substantial and the amount of shoaling is usually quite small, the exclusive use of pipeline dredging for routine maintenance of the channel is not generally cost-effective. Although pipeline dredging with upland disposal will continue to be used when feasible and appropriate, the no action alternative, which does not consider additional dredging and dredged material placement methods, does not meet the purpose and need and therefore is not considered an acceptable alternative.

3.2 Alternative 2: Addition of Sidecast Dredging and Sidecast Placement of Dredged Material

Use of a sidecast dredge vessel, which would cast dredged material adjacent to, but outside the Bulkhead Channel and Morgan Creek ranges was considered; however, sidecast material could result in adverse impacts to adjacent marine aquatic habitat, which could include submerged aquatic vegetation (SAV). Additionally, significant portions of Bulkhead Channel and Morgan Creek are not conducive to sidecasting due to the close proximity of infrastructure and development (marinas/docks) and established islands immediately adjacent to the channels. For these reasons, sidecast dredging was eliminated from further consideration.

3.3 Alternative 3: Addition of Shallow Draft Hopper Dredging with Nearshore Placement of Dredged Material

Alternative 3 would add the option of using a small shallow draft hopper dredge to perform maintenance dredging in Bulkhead Channel and Morgan Creek, with placement of dredged material in the previously approved Nearshore East and Nearshore West placement areas to the east and west of Beaufort Inlet (Figures 4 and 6). Hopper dredges that may be used for this work could include the Currituck or Murden shallow draft hopper dredges or other small hopper dredges substantially similar to these vessels. Use of shallow draft hopper dredges with nearshore placement would only occur in areas where shoaled sediments have been shown to be comprised of $\geq 90\%$ sand (beach quality). Sediment sampling in the project area (vibracore samples to project depth including allowable overdepth) has occurred in areas of frequent and/or persistent shoaling. The USACE performed sampling in Ranges 1 and 2 of Bulkhead channel in 2006 and 2008 (Figures 5 and 7). Additionally, Carteret County performed sampling in Range 1 of Morgan Creek and in Ranges 4, 5, and 6 of Bulkhead Channel in 2018 (Figure 5). Shoaled sediments depicted by a black cross-hatch pattern on Figure 6 are considered $\geq 90\%$ sand in perpetuity based on past geotechnical analyses and historic dredging in these areas. Shoaled sediments in areas depicted as pink in Figure 6 are currently considered $\geq 90\%$ sand for purposes of one-time maintenance dredging by shallow draft hopper dredges and will be considered $\geq 90\%$ sand in perpetuity only after two additional consecutive geotechnical analysis events have shown that shoaled sediments are $\geq 90\%$ sand. Similarly, shoaled sediments in areas depicted as green in Figure 6 have not been evaluated through geotechnical analyses and will be considered $\geq 90\%$ sand in perpetuity only after three individual and consecutive geotechnical analysis events have shown that shoaled sediments are $\geq 90\%$ sand. Furthermore, future geotechnical analysis events in green and pink areas would only take place following material shoaling to ensure that each analysis event addresses naturally shoaled materials.

Alternative 3 would sufficiently address the maintenance dredging requirements in Bulkhead Channel and Morgan Creek. However, in addition to measures featured in alternative 3, a more cost-effective measure was developed to include an advance maintenance widener at Bulkhead Channel Range 1 to potentially reduce the frequency and recurring costs of dredging events. This more cost-effective measure, alternative 4 (proposed action), is described below.

3.4 Alternative 4 (Proposed Action): Addition of Shallow Draft Hopper Dredging with Nearshore Placement and a 50-foot by 1,200-foot Advance Maintenance Widener in Bulkhead Channel Range 1

The proposed action includes shallow draft hopper dredging with nearshore placement of dredged material (alternative 3), plus an advance maintenance widener. In addition to adding the ability to use small shallow draft hopper dredges with nearshore placement, a 50-foot advance maintenance widener is proposed in Range 1 of Bulkhead Channel (Figures 6, 7). Historically, Range 1 has been the area within Bulkhead Channel with the most problematic and rapid shoaling. On a few occasions in the past, advance maintenance in the proposed widener area has been performed (dredged) in an attempt to keep the channel navigable between dredging events.

Past dredging of this proposed widener, coupled with the aforementioned 2006 and 2008 geotechnical borings and analysis in the channel itself (approximately 50 feet to the west of the proposed widener; Figure 7), has shown that shoaled materials in the proposed 50-foot widener are also $\geq 90\%$ sand. An advance maintenance widener, 50 feet wide and 1,200 feet long, in Range 1 of Bulkhead Channel is proposed to reduce shoaling that presents the greatest challenge to navigation (Figures 5-7). The existing authorized width of Bulkhead Channel Range 1 is 100 feet, so the proposed 50-foot widener would extend the total channel width to 150 feet. It is estimated that an average of not more than 5,000 cy of material would be dredged from the widener based on May 22, 2018 bathymetry and assuming that depth would be -15 feet MLLW + 2 feet allowable overdepth. This volume, combined with the relatively small total sediment volumes that would be removed from the Bulkhead Channel and Morgan Creek, would not adversely affect capacity in the nearshore placement areas. Based on May 22, 2018 bathymetry and dredged material volumes removed during past maintenance dredging events, annual dredged material volumes required to be removed to ensure safe navigation, from Bulkhead Channel and Morgan Creek, would be less than 10,000 cy and 8,000 cy, respectively. These volume estimates take into consideration allowable overdepth. The Proposed Action would meet the purpose and need by expanding the array of available maintenance dredging and dredged material placement options for Bulkhead Channel and Morgan Creek shoaled sediments and by providing a widener in Range 1 of Bulkhead Channel. Also, placement of beach quality dredged material in the nearshore placement areas is a beneficial use of dredged material that contributes to sand retention in the Beaufort Inlet ebb tide delta complex.

Figure 6 depicts areas in which the USACE proposes use of a shallow draft hopper dredge with nearshore placement of dredged material as follows:

- a. Black cross-hatching and orange cross-hatching (proposed advance maintenance widener) represent areas in which sufficient geotechnical data, dredging history, and shoaling patterns exist to demonstrate that shoaled sediments in these areas are consistently $\geq 90\%$ sand. In black- and orange-cross-hatched areas, the USACE proposes to allow year round dredging by a shallow draft hopper dredge with nearshore placement of dredged material. Within the orange shaded area, which represents the proposed advance maintenance widener, dredging will only occur upon approval of the widener by the South Atlantic Division Commander.
- b. Pink shading represents areas in which geotechnical data demonstrate that shoaled sediments are presently comprised of $\geq 90\%$ sand and can be dredged using a shallow draft hopper dredge with nearshore placement; however, this determination will only be valid for present dredging needs. Prior to additional dredging in pink-shaded areas, beyond present needs, two additional cycles of geotechnical sampling and analyses and dredging will be required to again verify that future shoaled materials are still $\geq 90\%$ sand. If these additional sampling events indicate consistent shoaling of $\geq 90\%$ sand, subsequent year-round maintenance dredging and nearshore placement will be allowed.
- c. Green shading represents areas in which the grain size of shoaled sediments is presently unknown and geotechnical sampling and analyses have not occurred. In

green-shaded areas, use of a shallow draft hopper dredge with nearshore placement would not occur until/unless geotechnical analyses determine that shoaled materials are $\geq 90\%$ sand. Two additional cycles of geotechnical sampling and analyses and dredging will be required to again verify if future shoaled materials are still $\geq 90\%$ sand and qualify for shallow draft dredging vessels with nearshore disposal. If these additional sampling events indicate consistent shoaling of $\geq 90\%$ sand, subsequent year round maintenance dredging and nearshore placement will be allowed.

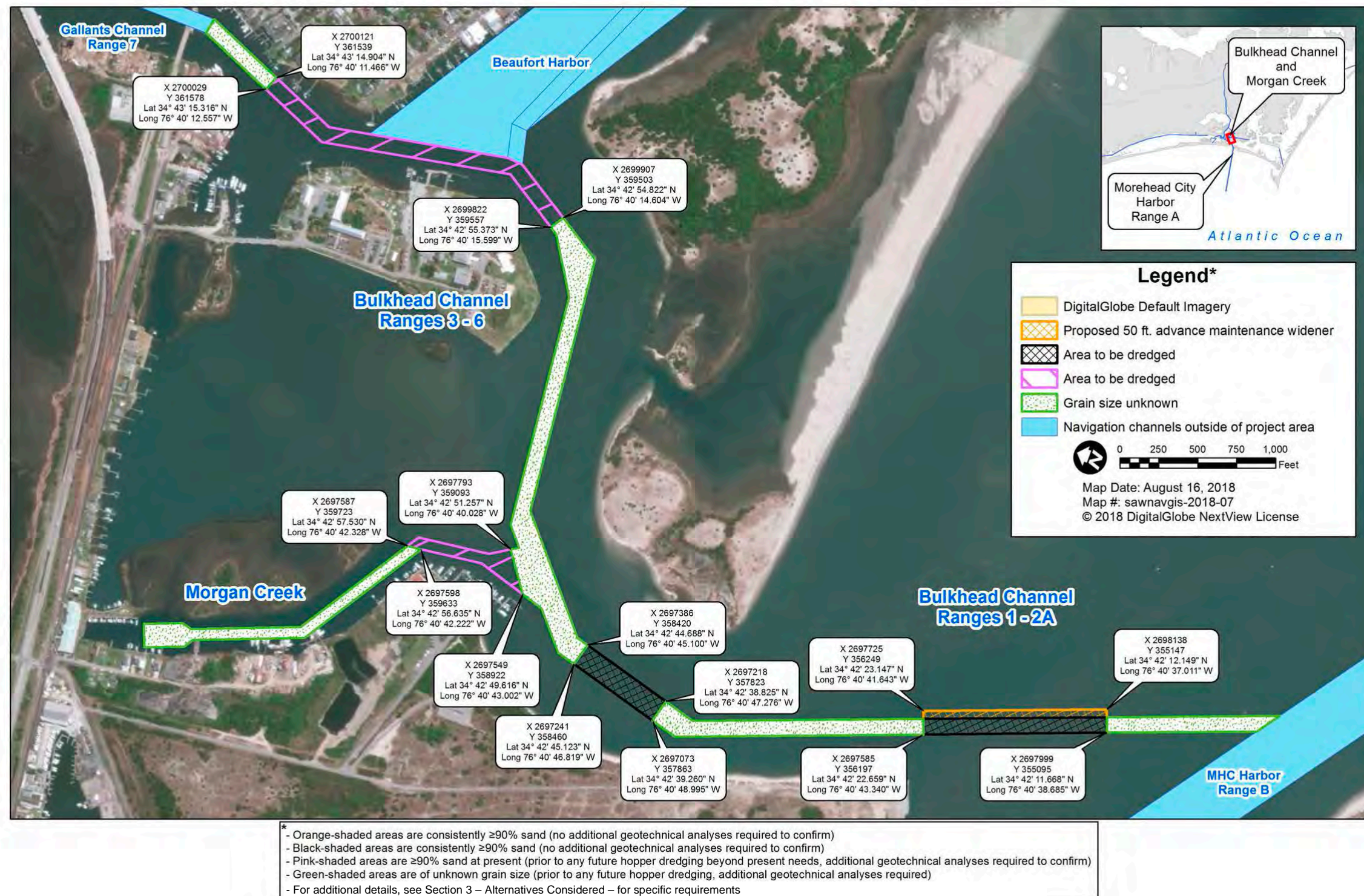


Figure 6. Areas In Which Shallow Draft Hopper Dredging and Nearshore Placement of Dredged Material are Currently Proposed.

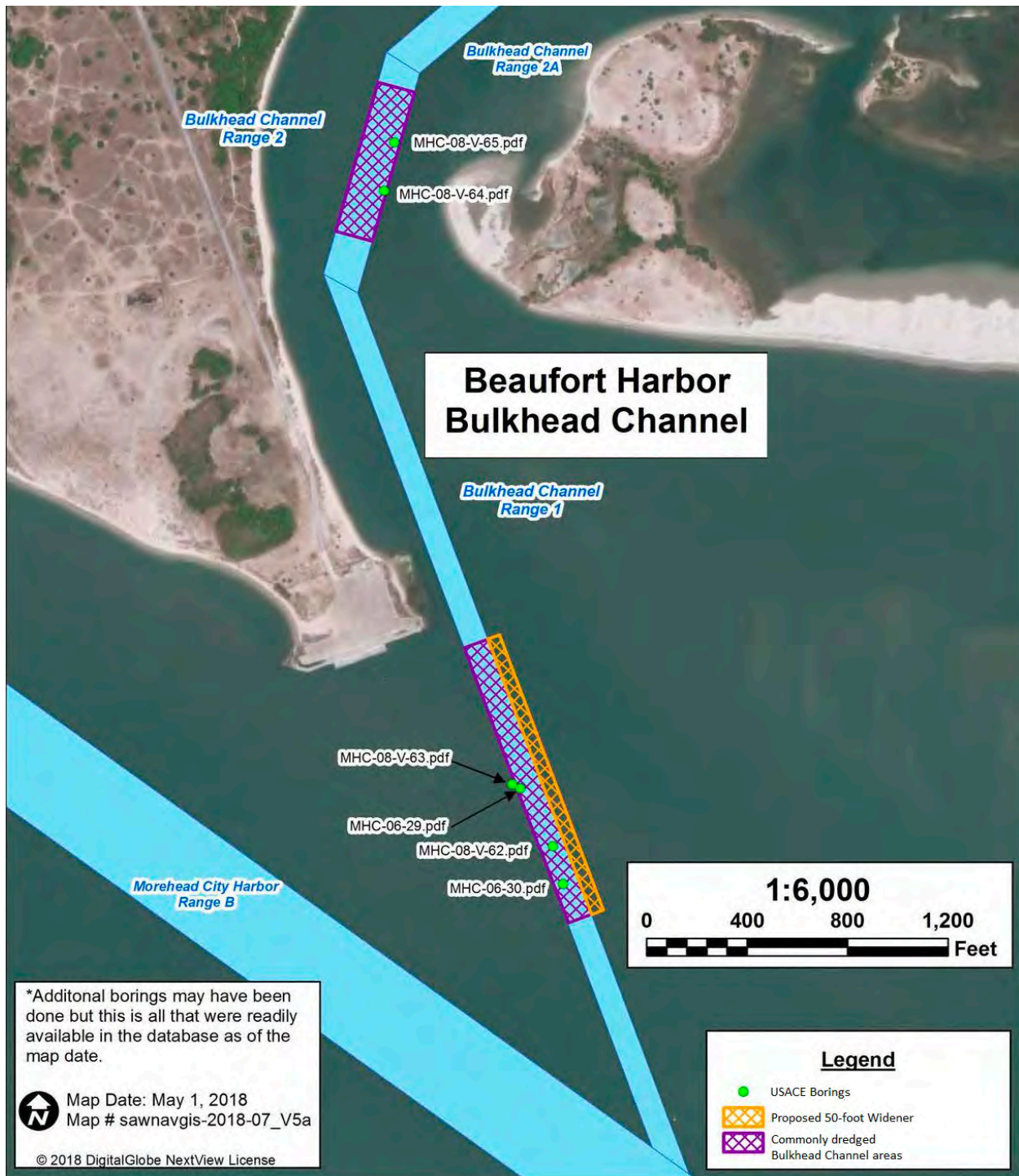


Figure 7. Proposed 50-Foot Widener and Historically Dredged Areas at Bulkhead Channel Range 1.

4.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This section will only address the proposed action (alternative 4: hopper dredging with nearshore placement and a widener in Range 1 of Bulkhead Channel), alternative 3 (hopper dredging with nearshore placement and no widener), and the no action alternatives. The only other alternative considered, alternative 2 (sidecast dredging), was eliminated early in the planning process and will not be addressed in this section. The affected environment of the project area includes the previously approved upland diked disposal areas, the Nearshore East and Nearshore West placement areas, as well as, Bulkhead Channel, Morgan Creek, and the waters adjacent to these areas. The proposed action and alternative 3 are substantially similar in terms of potential impacts and will be addressed as such in this section unless otherwise noted.

4.1 Sediments

Sediments in the project area are continually subject to movement facilitated by strong currents, thus the need for regular maintenance dredging. Evidence of current velocities ranging from approximately 0.5-0.9 meters/second (m/s) in the Beaufort Inlet area, which is immediately oceanward of the project area, is shown in Figure 8. Redistribution of sediments is, therefore, a natural and continuous phenomenon. The proposed augmentation of dredging methodology, to include the proposed 50-foot widener in Range 1 of Bulkhead Channel, would allow added flexibility in removal of shoaled sediments in Bulkhead Channel and Morgan Creek.

Sediments in the project area generally consist of sands, silts, and clays occurring in various mixtures. Mapped geologic strata in the vicinity of Bulkhead Channel and Morgan Creek consist of surficial Quaternary deposits of sand, clay, gravel, and peat, which were deposited in marine, fluvial, eolian, and lacustrine environments (NCGS 1998).

In preparing this EA, the USACE re-evaluated seven vibracore borings that were originally drilled at shoaled areas within Bulkhead Channel's Ranges 1 and 2 in 2006 and 2008 (Figures 5, 7). All boring elevations were referenced to mean lower low water (MLLW) and were taken to either project depth (including allowable overdepth) or refusal. No new sampling in the area has been conducted by the USACE since 2008. Single-beam bathymetric surveys from the past three years, maintained by the USACE, were also referenced to determine where the areas of shoaling are most predominant within the channel and informed 2006 and 2008 boring locations.

In April 2018, Carteret County, NC contracted a subsurface investigation to determine the physical character (grain size) of shoaled areas at Bulkhead Channel's Ranges 5, 6 and 7, and at Morgan Creek near its confluence with Bulkhead Channel Range 2A in an effort to determine sediment characteristics sand (Figure 5). Data associated with all borings featured in Figure 5 indicate that shoaled sediments in these areas are comprised of $\geq 90\%$ sand.

Results of all vibracore borings collected to date in the project area, including drilling logs and gradation testing, are available at

<http://www.saw.usace.army.mil/Missions/Navigation/Dredging/District-Plant-Dredging/>.

Although both the proposed action and alternative 3 will result in removal of sediment from project area channels, due to the dynamic nature of the environment, impacts to sediments will not be significant. An average of not more than 5,000 cy of shoaled sediments would be removed from the proposed 50-foot widener under the proposed action, which would be in addition to average of not more than 10,000 cy to be removed from shoaled areas within Bulkhead Channel and not more than 8,000 cy to be removed from Morgan Creek, according to May 22, 2018 bathymetry and past data.

Likewise, no action will result in removal of sediment from project area channels. Again, citing the dynamic nature of the environment, impacts to sediments will not be significant. Under the no action alternative, an average of not more than 10,000 cy of shoaled material would be removed from Bulkhead Channel and not more than 8,000 cy would be removed from Morgan Creek, according to May 22, 2018 bathymetry and past data.

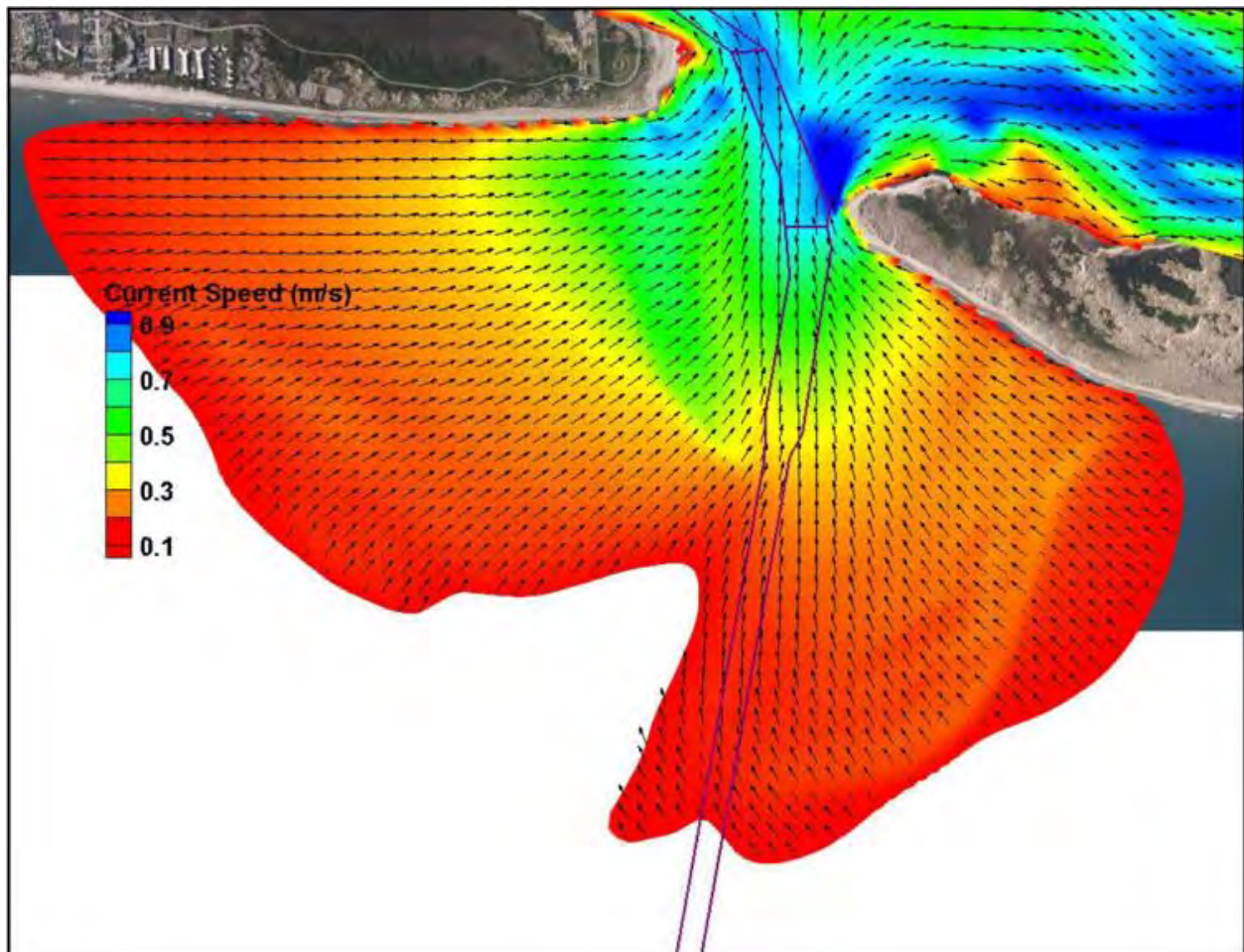


Figure 8. Current velocities in the Beaufort Inlet vicinity.
(source; unpublished 2009 USACE report)

4.2 Water Resources

4.2.1 Hydrology

Tides in the project area, as measured at the Duke Marine Lab in Beaufort, NC (Station ID: 8656483), are semidiurnal and the mean tidal range is approximately 2.25 feet. Regular reversals of flow occur with each tidal cycle. Salinity in the project area varies due to many factors including freshwater inflow, tidal action, and wind. However, salinity is usually near that of seawater (~35ppt) due to the proximity to the inlet and the ocean.

Neither the proposed action nor alternative 3 will effect hydrology in the project area. Likewise, the no action alternative will have no effect on hydrology in the project area.

4.2.2 Water Quality

The waters of Bulkhead Channel and Morgan Creek are classified by the North Carolina Division of Water Quality (NCDWQ) as SC (tidal salt waters protected for secondary recreation) and HQW (high quality waters). The NCDWQ identifies best usages of Class SC as including fishing, boating, secondary recreation, fish and noncommercial shellfish consumption, propagation and survival, and wildlife habitat (NCDEQ 2018).

The potential water quality impacts of the proposed action include minor and short-term suspended sediment plumes and the release of soluble trace constituents from the sediment. During dredging, turbidity increases outside the immediate dredging area should be less than 25 nephelometric turbidity units (NTUs) and are, therefore, considered insignificant.

The Bulkhead Channel and Morgan Creek channels have been subject to maintenance dredging many times in the past and are located in bathymetrically dynamic areas routinely navigated by commercial and recreational vessels. Sediments suspended as a result of maintenance dredging are anticipated to settle out of the water column quickly following cessation of dredging.

Placement of dredged material in the existing nearshore placement areas via hopper dredge would only include material comprised of $\geq 90\%$ coarse-grained (sandy) sediments. Therefore, suspended sediments resulting from placement would settle quickly and would not significantly contribute to turbidity in the vicinity of the nearshore placement areas. Furthermore, bacterial adsorption and relative concentration of any potential toxicants in dredged materials to be placed in the nearshore placement areas are expected to be relatively low due to the material's grain size classification. The 'Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual, Inland testing Manual' (USACE/USEPA 1998), also known as the Inland Testing Manual (ITM), describes sediment testing and evaluation procedures regarding discharges in waters of the United States in order to meet the requirements of Section 404 of the Clean Water Act. Section 1.2.2.2 of the ITM describes *Reason to Believe* guidelines, which allow for the use of available information to make a preliminary determination concerning the need for testing of material proposed for dredging. The USACE has *Reason to Believe* that no testing is required regarding the proposed action citing evidence of the material being $\geq 90\%$ sand (see Section 4.1 of this EA), high current velocities in the project area (see Sections 4.1 and 4.2.1 of this EA), and absence of contaminant sources in close proximity to the proposed dredging

sites as described in the text to follow. Refer to Section 4.4 for more detailed discussion of Hazardous, Toxic, and Radioactive Wastes.

Pursuant to Section 401 of the Clean Water Act, the placement of beach quality dredged material in the nearshore placement areas is authorized by General Water Quality Certification #4099 (GC # 4099) (Appendix A). Although GC #4099 is titled “Emergency Activities on Ocean Beaches,” NCDWR has determined that this GC is applicable to the nearshore placement of beach quality dredged material. All conditions of GC #4099 will be met. Pursuant to 33 C.F.R. § 335.7, and meeting the environmental standards established by the Clean Water Act Section 404(b)(1) evaluation process or ocean dumping criteria, a 404(b)(1) analysis is included as Appendix B and will be finalized prior to conclusion of the NEPA process.

With implementation of the proposed action or alternative 3, the relatively small anticipated volumes of shoaled sediments within Bulkhead Channel and Morgan Creek and associated dredging and dredged material placement anticipated from work in the project area, would result in temporary and minor impacts to water quality. No violations of State water quality standards would occur. Living marine resources dependent upon good water quality should not experience significant adverse impacts due to water quality changes from dredging or material placement in the nearshore placement areas.

Likewise, the no action alternative will have temporary and minor effects on water quality due to turbidity increases.

4.3 Wetlands and Floodplains

Coastal wetlands in the vicinity of the proposed project area include tidal salt marshes along the shorelines and island fringes. These marshes are comprised mainly of smooth cordgrass (*Spartina alterniflora*) and are generally more extensive where protected from wind and wave action. Intertidal wetlands near the proposed project area are ecologically important due to their high primary productivity, their role as nursery areas for larvae and juveniles of many marine species, and their refuge/forage value to wildlife. In addition, they provide aesthetically valuable natural areas.

Both the proposed action or alternative 3 would be confined to previously dredged channels, except for the proposed 50-foot widener in Bulkhead Channel’s Range 1 where dredging has occurred on few occasions, as required. Neither alternative would affect wetlands or floodplains. Dredged material placement in the existing nearshore placement areas would occur in open water and would also have no effect on wetlands or floodplains.

Executive Order 11988 states that federal agencies shall avoid, to the extent possible, the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative, federal agencies shall take action to reduce the risk of flood loss, and minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains. Furthermore, Executive Order 11990 mandates each federal agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of

wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of federal lands and facilities; and (2) providing federally undertaken, financed, or assisted construction and improvements; and (3) conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

No alternatives considered would adversely affect floodplains or alter their function and will be in full compliance with Executive Order 11988 following completion of the NEPA process. Likewise, the proposed action, alternative 3, and no action alternative, would not result in placement of fill in wetlands or significant hydrologic or salinity changes affecting wetlands. The proposed action, alternative 3, and no action alternative are in compliance with Executive Order 11990.

4.4 Hazardous, Toxic, and Radioactive Wastes (HTRW)

The United States Environmental Protection Agency's (EPA) Envirofacts website was queried to identify the presence of EPA-regulated facilities in the vicinity of project area (USEPA 2018). The Envirofacts website contains information collected from regulatory programs and other data relating to environmental activities with the potential to affect air, water, and land resources in surrounding areas. Several sites exist in the project area vicinity (Figure 9), but none will affect or be affected by the proposed action or alternative 3.

Additionally, the United States Coast Guard's (USCG) National Response Center was queried to identify any spills of hazardous substances in the project area (USCG 2018). In 2018, to date, four incidents were reported in the Morehead City area, of which none were in the immediate project area. In 2017, ten incidents were reported. In 2016, six incidents were reported. In 2015, five incidents were reported. All reported incidents can be considered minor and did not contribute to sediment contamination in the proposed project area.

Based on an investigation of historic aerial photographs and current imagery, no evidence of improperly-managed hazardous and/or toxic materials, or indicators of those materials were present in the proposed project area; therefore, neither the proposed action or alternative 3 would affect HTRW since there are none present in the proposed project area, nor would either of these alternatives result in the production or creation of HTRW.

Likewise, based on an investigation of historic aerial photographs and current imagery, no evidence of improperly-managed hazardous and/or toxic materials, or indicators of those materials were present in the proposed project area; therefore, the no action alternative would have no effect on HTRW since there are none present in the proposed project area, nor would the no action alternative result in the production or creation of HTRW.

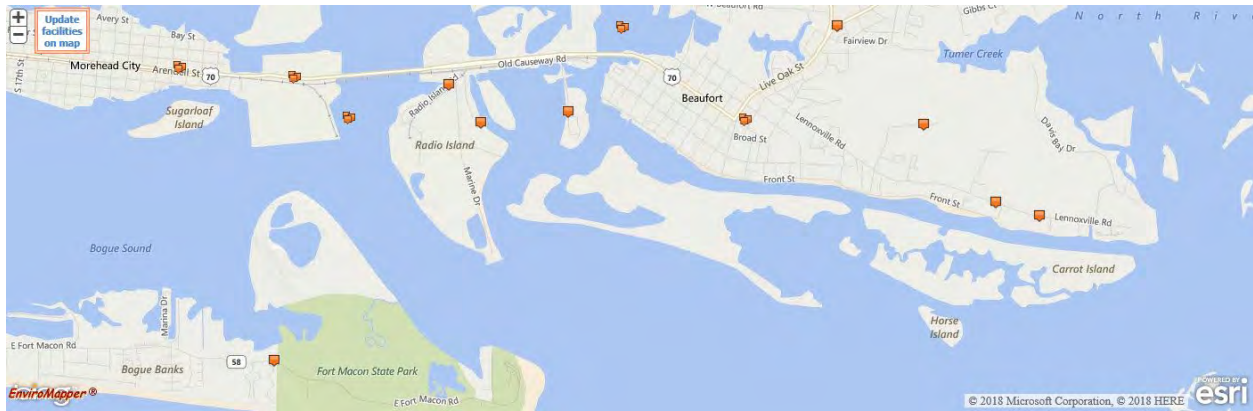


Figure 9. Regulated Facilities in Project Area Vicinity.

4.5 Cultural Resources

The North Carolina State Historic Preservation Office's (SHPO) HPOWEB Map Service was queried to identify known cultural resources in and near the project area (NC State Historic Preservation Office 2018). This service provides information such as cultural resources sites listed on the National Register of Historic Places, sites designated as Local Landmarks, and other data useful in considering potential impacts to cultural resources. Both the proposed action and alternative 3 include dredging in areas located within the boundaries of the Beaufort Historic District (Figure 10); however, only maintenance dredging to existing authorized depths and widths would occur within this boundary. The proposed 50-foot widener in Range 1 of Bulkhead Channel, associated with the proposed action alone, would be just south of the Historic District boundary (Figures 7, 10).

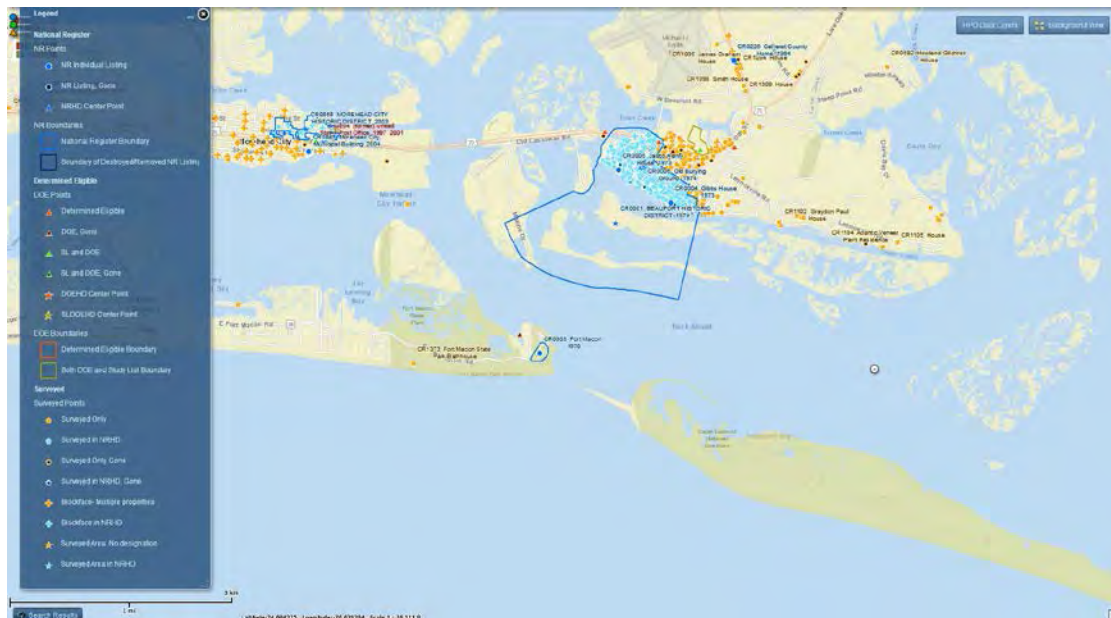


Figure 10. Cultural Resources Near Proposed Project Area.

Blackbeard and other pirates used Beaufort Inlet during the 18th and 19th centuries. Blackbeard's ship, the Queen Anne's Revenge (QAR), rests on the sea floor just southwest of the inlet and in close proximity to the Nearshore West placement area, which may be utilized under the proposed action. An archaeological restricted area has been established, in coordination with the SHPO and NC Office of State Archaeology, so that any potential impacts to the QAR will be avoided (Figure 4).

By letter dated February 10, 2006, it had been determined that long term dredging as well as other known environmental factors, such as storms, natural shoreline migration, and profile movement, were affecting preservation of the QAR site (31CR314). At the time, it was proposed that placing sand dredged from the channels of the Beaufort Harbor project approximately 400 feet seaward of the QAR may halt or slow loss of data due to geologic processes. It was thought that this artificial berm could potentially provide a source for replenishing sand loss at the site and may act to diffuse wave energy. This proposal was considered experimental, but at the time, the SHPO, the NC Office of State Archaeology's Underwater Archaeology Branch (UAB), and the USACE were willing to implement this change in dredged material placement for purposes of protecting a sensitive archaeological site. In February/March 2006 a minimum of 4,800 cy of sand was placed 400 feet seaward of the QAR to offer the site protection for a period of approximately six years. Spanning approximately 2012 to 2015, investigations on the QAR were conducted; although work at the site was originally expected to continue until 2018.

The USACE may consider future, similar placement of beach quality material to protect the QAR site, should there be an identified need to do so. Any potential dredged material placement having the purpose of archaeological resource protection will be coordinated with the SHPO and UAB.

Executive Order 11593 states that the Federal Government shall provide leadership in preserving, restoring and maintaining the historic and cultural environment of the Nation. Federal agencies shall administer the cultural properties under their control in a spirit of stewardship and trusteeship for future generations, initiate measures necessary to direct their policies, plans and programs in such a way that federally owned sites, structures, and objects of historical, architectural or archaeological significance are preserved, restored, and maintained for the inspiration and benefit of the people, and, in consultation with the Advisory Council on Historic Preservation (16 U.S.C. 470i), institute procedures to assure that Federal plans and programs contribute to the preservation and enhancement of non-federally owned sites, structures and objects of historical, architectural or archaeological significance.

No alternatives considered would adversely affect cultural resources and will be in full compliance with Executive Order 11593 following completion of the NEPA process. The proposed action, alternative 3, and no action alternative are in compliance with Executive Order 11593.

4.6 Air Quality

The Wilmington Regional Office of the North Carolina Department of Environmental Quality (NCDEQ) has air quality jurisdiction for the project area. The ambient air quality for Carteret County has been determined to be in compliance with the National Ambient Air Quality

Standards, and is designated an attainment area for Ozone (O₃), Particulates (PM_{2.5}), Carbon Monoxide (CO), and Sulfur Dioxide (SO₂) (N.C. Division of Air Quality, 2016); therefore, a conformity determination is not required.

The proposed action would result in removal of additional sediment from project area channels due to inclusion of the proposed 50-foot widener in Range 1 of Bulkhead Channel, which would minimally increase the amount of time dredge plants would operate as compared to the alternative 3 and the no action alternatives, thereby increasing associated air emissions; however this increase in emissions is considered insignificant in its overall effects to air quality in the project area. Emissions produced during dredging and dredged material placement operations would be temporary and would not result in significant adverse effects to the air quality within this attainment area.

Under alternative 3 and the no action alternatives, a lesser amount of material would be removed during channel maintenance as compared to the proposed action. Again, by comparison, dredging operations may be of shorter duration (not to exceed one week) than with implementation of the proposed action. Emissions produced during dredging and material placement operations would be temporary and would not result in significant adverse effects on the air quality within this attainment area.

4.7 Noise

Noise levels within Carteret County, NC and the project vicinity are variable and often include commercial and recreational boat/ship traffic. Various construction projects and dredging operations may temporarily impact noise; however, it is unlikely that the noise created by the proposed action will have much effect on the local mainland residences. Section 10-1 of the Carteret County, NC code of ordinances (Municode 2018) discusses noise.

The proposed action would require removal of additional sediment from project area channels, as compared to alternative 3 and the no action alternative, due to the inclusion of the proposed 50-foot widener in Range 1 of Bulkhead Channel. Dredging-related noise may be expected to be of moderately longer duration than alternative 3 and the no action alternative, and would be audible within the project area vicinity. No significant impact to area noise levels is expected.

Alternative 3 and the no action alternative are not expected to result in significant increases in noise levels within the project area or nearby surrounding areas; although, dredging-related noise may be expected to be of moderately shorter duration than the proposed action, and would be audible within the project area vicinity. No significant impact to area noise levels is expected.

4.8 Benthic Resources

Given the susceptibility of the Bulkhead Channel and Morgan Creek project area to currents and water movement, and their proximity to Beaufort Inlet, sandy sediments would not be expected to harbor significant numbers of organisms within benthic communities. Common benthic organisms in these sediments would likely include polychaetes, amphipods, decapods, and mollusks.

Shellfish beds are present in Bogue Sound, beyond the project area to the west, and are likely present in calm shallow waters away from the navigation channels including areas in relative close proximity Bulkhead Channel and Morgan Creek; although, proposed Bulkhead Channel and Morgan Creek maintenance dredging locations all fall within waters currently classified as “prohibited” to the harvest of shellfish according to the NC Division of Marine Fisheries. Due to the dynamic conditions present within much of the project area, significant numbers of shellfish are not expected within the channels themselves. The dominant species of shellfish near the proposed project area are the American oyster (*Crassostrea virginica*) and the hard clam (*Mercenaria mercenaria*). In the proposed project area vicinity, both species are harvested for sale and personal consumption.

With the exception of the proposed 50-foot widener, which is addressed below, dredging that would occur with implementation of the proposed action, alternative 3, or the no action alternative, would be within the footprint of existing channels that have been previously disturbed. Dredging by shallow draft hopper dredge or pipeline dredge would result in mortality of nearly all sedentary or slow-moving benthic organisms that had moved into the area, along with removal of the sediments down to the specific depth of the area to be dredged. Removal of benthic habitat by channel maintenance dredging represents a temporary resource loss since the channel bottom would be soon re-colonized by like benthic organisms. The benthic community which develops would be similar to that present before being removed by dredging. The ecological significance of temporary benthic losses will be minor since the affected area is considered small relative to the amount of benthic habitat present on the estuarine bottom in the project area vicinity, and the time span of disturbance and will be short. Benthic organism populations in the vicinity of the proposed project area are naturally in a state of flux due to continual sedimentation and shoaling which creates the need for maintenance dredging and implementation of the proposed action.

The proposed 50-foot advance maintenance widener (50 feet wide by 1,200 feet long) in Range 1 of Bulkhead Channel, associated with the proposed action, represents an approximately 1.4-acre area of additional impact to the benthic environment. Impacts to benthic resources are expected to be substantially similar to those experienced during maintenance dredging of the existing Bulkhead Channel and Morgan Creek footprints. Namely, dredging by hopper dredge or pipeline dredge would result in mortality of nearly all sedentary or slow-moving benthic organisms that have moved into the area, along with removal of the sediments down to the specific depth of the area to be dredged. Depth of material removal in this area would be greater than in most areas of the existing Bulkhead Channel and Morgan Creek, as the existing project reaches are regularly maintained and, with occasional exceptions, the proposed 50-foot advance maintenance widener is not. Benthic organisms would soon re-colonize the area following completion of dredging.

The affected environment and impacts associated with placement of dredged material in the nearshore placement areas is addressed in detail in the Morehead City Harbor DMMP (USACE 2017), which is incorporated by reference. There would be temporary and minor impacts to benthic communities due to burial and as a result of dredged material placement in the existing nearshore placement areas as a result of the proposed action.

Given the scopes of the proposed action and alternative 3, and natural dynamic nature of benthic environments in the project area, the proposed action and alternative 3 will result in temporary and minor impacts on benthic resources due to mortality of sedentary or slow-moving benthic organisms during dredging and placement of material.

Likewise, the no action alternative will result in temporary and minor effects on benthic resources during dredging.

4.9 Fisheries Resources and Essential Fish Habitat

Beaufort Inlet, just southwest of the project area, supports many popular recreational and commercial fish species. Fish species common to the inlet include: Atlantic Menhaden (*Brevoortia tyrannus*), Black Drum (*Pogonias cromis*), Bluefish (*Pomatomus saltatrix*), Croaker (*Micropogonias undulates*), Grey Trout (*Cynoscion regalis*), Flounder (*Paralichthys dentatus* (Summer), *Paralichthys lethostigma* (Southern), and *Paralichthys albigutta* (Gulf)), Lizardfish (*Synodus foetens*), Spanish Mackerel (*Scomberomorus maculatus*), Speckled Trout (*Cynoscion nebulosus*), and Spot (*Leiostomus xanthurus*).

Pursuant to the Magnuson-Stevens Act, the South Atlantic Fisheries Management Council (SAFMC) has designated EFH within the project area to encompass intertidal flats, high salinity surf zones, and tidal inlets (including their ebb and flood shoal complexes).

Based on review of the NOAA Habitat Conservation National Marine Fisheries Service's Essential Fish Habitats (EFH) Mapper, there are no EFH or Habitat Areas of Particular Concern (HAPC) identified within the project area; however, EFH does for the Snapper Grouper and Bluefin Tuna species/management units in the project area. At this time, the EFH Mapper does not contain spatial data for all managed species in the proposed project area such as shrimps and coastal migratory pelagic species. Impacts to EFH are expected to be minor on an individual and on a cumulative effects basis.

Beaufort Inlet is an important passageway for the larvae of many species of commercially or ecologically important fish. Spawning grounds for many marine fishes are believed to occur on the continental shelf with immigration to estuaries during the juvenile stage. The shelter provided by the marsh and creek systems in the project area vicinity serve as nursery habitat where young fish undergo rapid growth before returning to the offshore environment.

The proposed action and alternative 3 could have minor adverse impacts on the marine water column during the dredging events in the form of minor and short-term suspended sediment plumes and related turbidity. Overall water quality impacts of the proposed action and alternative 3 are expected to be short-term and minor. Living marine resources dependent upon good water quality are not expected to experience significant adverse impacts due to water quality changes. Fish larvae are likely to become entrained by any dredging within the channel. As a worst-case, it is assumed that entrained animals experience 100% mortality, although some small number may survive. Since the project area hosts very large numbers of larval organisms, it is not expected that entrainment mortality would adversely affect species population levels.

The no action alternative would have similar minor adverse impacts on the marine water column as compared to the proposed action and alternative 3.

The proposed action and alternative 3 will not have a significant adverse impact on area fisheries, EFH or HAPC within the project area. Additional EFH and HAPC analysis was completed for the nearshore placement areas as part of the Morehead City Harbor DMMP dated June 2017. The report concluded that any impact to EFH would be minor on an individual and cumulative effects basis, and would not require mitigation.

The no action alternative will also not have a significant adverse impact on area fisheries, EFH or HAPC within the project area.

4.10 Terrestrial Resources

There are no terrestrial resources located within the project area. Both the proposed action and alternative 3 involve dredging by shallow draft hopper dredge in defined, frequently navigated channels with placement of dredged material in existing nearshore placement areas, should dredged materials consist of $\geq 90\%$ sand. The proposed action and alternative 3 will have no effect on terrestrial resources, including terrestrial vegetation and wildlife, if dredged materials are placed in nearshore placement areas. Otherwise, effects will be substantially similar to those of the no action alternative.

The no action alternative may be expected to have minor and temporary effects on terrestrial resources, including terrestrial vegetation and wildlife, given that dredged material placement would continue to exclusively occur in upland confined disposal areas. During material placement, vegetation may become buried and wildlife may be temporarily displaced.

4.11 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531–1543), provides a program for the conservation of threatened and endangered (T&E) plants and animals and the habitats in which they are found. In accordance with Section 7 (a)(2) of the ESA, this EA will be coordinated with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to ensure that effects of the proposed project would not jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat of such species.

A complete list of T&E species potentially present the project area were obtained from the USFWS Information, Planning and Conservation System website (USFWS 2018; Appendix C). T&E species that could be present within or near the project area include: sea turtles [green (*Chelonia mydas*), loggerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*), leatherback (*Dermochelys coriacea*), and Kemp's ridley (*Lepidochelys kempii*)]; red knot (*Calidris canutus rufa*); piping plover (*Charadrius melodus*); red-cockaded woodpecker (*Picoides borealis*); Roseate Tern (*Sterna dougalli dougalli*); northern long-eared Bat (*Myotis septentrionalis*); shortnose sturgeon (*Acipenser brevirostrum*); Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*); North Atlantic right whale (*Eubalaena glacialis*); West Indian Manatee (*Trichechus manatus*); Rough-leaved loosestrife (*Lysimachia asperulaefolia*); and Seabeach amaranth (*Amaranthus pumilus*).

By letter dated March 9, 1999, the NMFS provided the USACE with a Biological Opinion (BO) regarding the effects of government-conducted sidecast and hopper dredge use in maintaining shallow, coastal inlet navigation channels including the proposed project area (Appendix D). Shallow draft hopper dredges of the kind addressed in this BO are smaller and less powerful than commercial hopper dredges, and are provided different consideration in their use. This BO concludes that the NMFS believes year-round operation of government-owned and operated sidecast and shallow draft hopper dredges to perform maintenance dredging in the proposed project area may affect but are unlikely to adversely affect the continued existence of listed species under NMFS purview. Should the proposed action be conducted by vessels other than, but substantially similar to, government-owned shallow draft hopper dredges, their use would be covered under the 'South Atlantic Regional Biological Opinion' dated September 25, 1997 (NOAA 1997).

The proposed action and alternative 3 may affect but are not likely to adversely affect sea turtles [green (*Chelonia mydas*), loggerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*), leatherback (*Dermochelys coriacea*), and Kemp's ridley (*Lepidochelys kempii*)], shortnose sturgeon (*Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), North Atlantic right whale (*Eubalaena glacialis*), and Smalltooth sawfish (*Pristis pectinata*). For past dredging activities in the project area, the USFWS has recommended compliance with all "Guidelines for Avoiding Impacts to the West Indian Manatee" (Appendix E); however, due to its rare occurrence in the project area, both the proposed action and alternative 3 may affect but are not likely to adversely affect the West Indian manatee (*Trichechus manatus*). Additionally, dredging activities in the project area will comply with NMFS "Sea Turtle and Smalltooth Sawfish Construction Conditions" (Appendix F).

The no action may affect but is not likely to adversely affect sea turtles [green (*Chelonia mydas*), loggerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*), leatherback (*Dermochelys coriacea*), and Kemp's ridley (*Lepidochelys kempii*)], shortnose sturgeon (*Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), North Atlantic right whale (*Eubalaena glacialis*), West Indian manatee (*Trichechus manatus*), and Smalltooth sawfish (*Pristis pectinata*).

4.12 Aesthetic and Recreational Resources

The nearby ocean, waterways, coastal marshes and beaches, and numerous commercial and recreational vessels traveling in the project area contribute to unique aesthetics common to coastal North Carolina communities. Recreational opportunities in the area include boating, kayaking, fishing, birding, beach visitation, and other outdoor and ecotourism-type activities. The proposed 50-foot advance maintenance widener associated with the proposed action will allow for frequently shoaled portions of Bulkhead Channel Range 1 to remain open and navigable for longer periods of time as compared to alternative 3 and the no action alternative, allowing for consistent, safe use by the recreating public.

The proposed action and alternative 3 would take place in areas frequented by, and in areas adjacent to those frequented by boat traffic, fishermen, and beach goers. Multiple marinas, docks, yacht clubs, and restaurants with marine access exist in the vicinity and offer the boating public opportunities to navigate project area channels while enjoying the area's offerings.

Additionally, approximately ½ mile of publicly accessible beach exists adjacent to and west of Ranges 1 and 2 of Bulkhead Channel.

Aesthetics and public use of the project area, under the proposed action and alternative 3, would be disrupted temporarily and only while actual dredging is occurring. Based on similar projects and current dredging practices in the project area, impacts of the proposed action to aesthetic and recreational resources, such as temporarily obstructed view sheds and navigation channels when dredging is occurring, are expected to be temporary, minimal, and not create hardships for the public.

Bulkhead Channel and Morgan Creek maintenance dredging locations all fall within waters currently classified as “prohibited” to the harvest of shellfish. Under the proposed action and alternative 3 dredged materials from “prohibited” areas will be disposed of in nearshore placement areas, which are in close proximity to public swimming beaches. Nearshore material placement has the potential to cause an increase in bacteria concentrations, although the relatively large grain size of placed sediments ($\geq 90\%$ sand) is expected to reduce bacterial load within this material and not pose any risk to the public in terms of health and safety. The USACE will notify the NC Division of Marine Fisheries prior to dredging or material placement in the project area occurring between April 1st and October 31st so that increased sampling of nearby swimming water can occur and the public be notified of unsafe conditions, if necessary.

There are no long-term significant adverse effects to aesthetics and recreational resources associated with the proposed action and alternative 3. The proposed action and alternative 3 would temporarily and minimally affect aesthetics and recreational resources in the project area. Soon following completion of proposed dredging and dredged material placement, aesthetics and recreational opportunities would return to the conditions which existed prior to implementation of the proposed action.

Likewise, the no action alternative would temporarily and minimally affect aesthetic and recreational resources such as obstructing view sheds and navigation channels when dredging is occurring.

4.13 Climate Change

A review of the U.S. Environmental Protection Agency’s analysis for climate change for North Carolina titled *What Climate Change Means for North Carolina* (<https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-nc.pdf>) states that the sea level rise along the coast of NC is expected to likely rise anywhere from one to four feet in the next 100 years. Barrier island features, such as beaches just north of the nearshore east and west placement areas addressed in this EA, are likely to experience higher water levels causing beach erosion and opening of new or changing of alignments of existing inlets during larger storm events.

The proposed action and alternative 3 and the no action alternative will not increase the effects of climate change in the project area; however, both alternatives are likely to be affected by climate change in the future due to the proximity of the project area being on the coast where effects of

climate change, such as increased storm events and sea level rise, will likely be more dramatic than inland portions of the State.

Likewise, the no action alternative will not increase the effects of climate change in the project area; however, the no action alternative may be affected by climate change in the future due to the proximity of the project area being on the coast where effects of climate change, such as increased storm events and sea level rise, will likely be more dramatic than inland portions of the State.

4.14 Sea Level Rise

In accordance with ER 1100-2-8162 dated 31 December 2013, potential relative sea level change must be considered in every USACE coastal activity as far inland as the extent of estimated tidal influence. The entirety of the area potentially impacted by the proposed action and alternative 3 exists in areas presently submerged and may be minimally affected by sea level rise. The tide gauge used in this analysis is a long term data gauge with a 53-year data record used to develop mean sea level rise trends, and was used here to develop “low” and “high” scenarios. Using the historic sea level rise rate (“low”), extrapolation produced a sea level rise increase of approximately 0.035 meters in the project area by the year 2033 while using National Research Council curve 3 (“high”) predicted a sea level rise over the same period of approximately 0.410 meters, or a 0.375 meter difference between “low” and “high” scenarios.

The proposed action and alternative 3 would not affect climate change or sea level rise; however, rising sea levels may affect the proposed action and alternative 3 by increasing water depths in the coming years which may affect future dredging needs.

Likewise, the no action alternative would not affect climate change or sea level rise but may be affected by future sea level rise and increasing water depths, which may reduce ing required dredging frequencies.

4.15 Socio-Economic Resources

Carteret County is located on the lower coastal plain of eastern North Carolina. The county seat of Beaufort lies 150 miles east of Raleigh and 90 miles north of Wilmington, NC. The principal industries of Carteret County are tourism, construction, services, and sport and commercial fisheries. The County is also home to a growing retirement population, attracted to the area by a mild climate and beautiful natural surroundings. Tourism in the area is generated by the 65 miles of south-facing beaches, Fort Macon State Park, the NC Aquarium at Pine Knoll Shores, the NC Maritime Museum, and Cape Lookout National Seashore. Large numbers of vacation homes, motels, restaurants, and shopping centers have been developed to serve the local, retirement, and tourist populations.

From 2010 to 2016, the population of Carteret County grew at a rate of about 3.6% (i.e., 2010 population was 66,469 and 2016 population was 68,890). With its overwhelming economic emphasis on tourism, retail sales in Carteret County comprise the most important source of jobs and income for the County's economy. In 2007, total crop sales for Carteret County were over 20 million dollars, with corn and soybeans as the leading commodities.

Table 1 features the populations of notable towns within Carteret County, Carteret County itself, and the state of North Carolina.

Table 1. Population Comparison (2000 and 2016).

Town/County/State	2000 Population	2016 Population
Atlantic Beach	789	1,492
Pine Knoll Shores	1,524	1,357
Indian Beach	95	114
Morehead City	7,691	9,402
Carteret County	59,404	68,890
North Carolina	8,046,813	10,270,000

Table 2 features population projections through 2030, based on 2010 projections.

Table 2. Population Projections through 2030.

County/State	2010 Population	2020 Population	2030 Population
Carteret County	66,692	71,652	77,380
North Carolina	9,535,483	10,584,376	11,643,181

As indicated in Table 3, the majority of individuals in Carteret identify themselves as white. Statistically, Carteret County's population by race is comparable to that of North Carolina and, to a degree, the United States as a whole.

Table 3. Population by Race.

	Carteret County	Craven County	North Carolina	United States
Population, 2012	206,189	112,257	9,752,073	313,914,040
White persons, percent	79.10%	85.40%	72.10%	78.10%
Black persons, percent	14.80%	11.60%	22.00%	13.10%
Hispanic	5.30%	5.10%	8.60%	16.70%
Asian persons, percent	1.20%	0.60%	2.30%	5.00%
Native (American Indian, Alaska Native, Hawaiian, etc.)	0.60%	0.80%	1.50%	1.20%
Two or More Races	2.00%	1.50%	1.90%	2.30%

Data presented in Table 4 supports the heavy tourism and retail-based economy of the project area.

Table 4. Civilian Labor Force by Occupation.

	Carteret County	North Carolina	United States
Civilian employed population 16 years and over	98,896	4,128,576	139,033,928
OCCUPATION			
Agriculture Forestry, Fishing, Hunting, Mining	0.18%	1.37%	1.90%
Construction	6.89%	6.85%	6.25%
Manufacturing	6.28%	12.41%	10.39%
Wholesale Trade	3.10%	3.03%	2.83%
Retail Trade	12.54%	11.99%	11.65%
Transportation, Warehousing, Utilities	3.80%	4.25%	4.92%
Information	3.15%	1.69%	2.17%
Finance, Insurance, Real Estate, Rental, Leasing	5.43%	6.35%	6.67%
Professional, Scientific, Management, Administrative, Waste Management Services	10.84%	9.51%	10.58%
Educational Services, Healthcare, Social Assistance	25.15%	23.41%	23.24%
Arts, Entertainment, Recreation, Accommodation, Food Services	13.54%	9.25%	9.25%
Public Administration	3.28%	4.86%	5.17%
Other Services, Except Public Administration	5.83%	5.04%	4.97%

Multiple marine-based businesses in the project area are dependent on the navigability of Bulkhead Channel and Morgan Creek. These marine-based businesses include, but are not limited to, Beaufort Docks, Crystal Coast Lady, Town Creek Marina, Ted and Todd's Marine Service, Beaufort Inlet Seafood, Homer Smith Seafood, Gillikin Marine Railways, and Morgan Creek Seafood. In addition to direct loss of revenue for marine-based business such as these, failure to ensure consistent navigability within Bulkhead Channel and Morgan Creek may cause downtown Beaufort business to suffer revenue losses as boaters commonly eat and shop downtown after docking their vessels.

Table 5 compares household incomes of Carteret County, North Carolina, and the United States.

Table 5. Income.

Total Household Income	Carteret County	Craven County	North Carolina	United States
Less than \$10,000	10.47%	7.64%	8.97%	7.64%
\$10,000 to \$14,999	9.98%	17.45%	13.01%	11.46%
\$15,000 to \$24,999	12.07%	10.86%	12.47%	11.17%
\$25,000 to \$34,999	10.85%	8.82%	11.59%	10.41%
\$35,000 to \$49,999	9.90%	11.76%	10.20%	9.27%
\$50,000 to \$74,999	17.91%	19.15%	18.39%	18.28%
\$75,000 to \$99,999	11.35%	11.36%	10.79%	11.81%
\$100,000 to \$149,999	11.15%	8.62%	9.05%	11.82%
\$150,000 to \$199,999	3.12%	2.04%	2.88%	4.20%
\$200,000 or more	3.21%	2.30%	2.66%	3.94%

Executive Order 12898 requires federal agencies to address environmental justice in relation to proposed actions. Environmental justice is defined as the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA further defines fair treatment to mean that no group of people should bear a disproportionate share of the negative environmental consequences of industrial, governmental, or commercial operations or policies. Furthermore, Executive Order 13045 Federal agencies identify and assess environmental health and safety risks that may disproportionately affect children as a result of the implementation of federal policies, programs, activities, and standards.

Neither the proposed action, alternative 3, nor the no action alternative will adversely affect environmental justice in minority populations and/or low-incomes populations, or disproportionately affect children and will be in full compliance with Executive Orders 12898 and 13045 following completion of the NEPA process.

The proposed action and alternative 3 would allow Bulkhead Channel and Morgan Creek to remain navigable with no draft restrictions and would benefit the local economy through allowing for channel use by recreational and commercial vessels. The proposed action and alternative 3 would likely positively benefit the economy and socioeconomics in the project area.

The no action alternative is not expected to result in adverse effects to socioeconomic resources; however, absence of a modification to existing operations in the future could result in draft restrictions and more frequent navigability difficulties in frequently shoaled areas, which has the potential to impact the local economy.

4.16 Environmental Impact Comparison of Alternatives

Table 6 below provides a brief summary and comparison of impacts to the physical and natural environment for the alternatives considered.

Table 6. Comparison of Environmental Impacts Associated with Proposed action and No Action Alternative.

Project Area Resource	Impacts of Proposed Action	Impacts of Alternative 3	Impacts of No Action Alternative
Sediments	No adverse effects.	No adverse effects.	No adverse effects.
Water Resources	Temporary and minor effects on water quality in the project area due to proposed action via turbidity increases.	Temporary and minor effects on water quality in the project area due to proposed action via turbidity increases.	Temporary and minor effects on water quality in the project area due to proposed action via turbidity increases.
Wetlands and Floodplains	No effect.	No effect.	No effect.
Hazardous, Toxic, and Radioactive Wastes	No effect.	No effect.	No effect.
Cultural Resources	No effect.	No effect.	No effect.
Air Quality	Temporary increases in emissions during dredging and dredged material placement due to proposed action, which would be slightly elevated as compared to alternative 3 and the no action alternative.	Temporary increases in emissions during dredging and dredged material placement, which would be slightly decreased as compared to the proposed action.	Temporary increases in emissions during dredging and dredged material placement, which would be slightly decreased as compared to the proposed action.
Noise	Temporary increases in noise during dredging and dredged material placement due to proposed action, which would be slightly elevated as compared to alternative 3 and the no action alternative.	Temporary increases in noise during dredging and dredged material placement due to proposed action, which would be slightly decreased as compared to the proposed action.	Temporary increases in noise during dredging and dredged material placement due to proposed action, which would be slightly decreased as compared to the proposed action.
Benthic Resources	Temporary and minor effect on benthic resources at dredging locations within the existing channels and within the proposed 50-foot widener, and at nearshore east and west material placement locations.	Temporary and minor effect on benthic resources at dredging locations within the existing channels, and at nearshore east and west material placement locations.	Temporary and minor effect on benthic resources at dredging locations within the existing channels.
Fisheries Resources	Temporary and minor effect on fisheries in terms of turbidity increases and larval entrainment, may be expected to have minor effects on EFH, and will have no effect on HAPC.	Temporary and minor effect on fisheries in terms of turbidity increases and larval entrainment, may be expected to have minor effects on EFH, and will have no effect on HAPC.	Temporary and minor effect on fisheries in terms of turbidity increases and larval entrainment, may be expected to have minor effects on EFH, and will have no effect on HAPC.
Terrestrial Resources	Temporary and minor effect on terrestrial resources via dredged material placement in upland confined disposal areas, if required.	Temporary and minor effect on terrestrial resources via dredged material placement in upland confined disposal areas, if required.	Temporary and minor effect on terrestrial resources via dredged material placement in upland confined disposal areas.
Threatened and Endangered Species, and Species of Concern	May affect but is not likely to adversely affect multiple marine aquatic species.	May affect but is not likely to adversely affect multiple marine aquatic species.	May affect but is not likely to adversely affect multiple marine aquatic species.

Aesthetic and Recreational Resources	Temporary and minor effects on aesthetic and recreational resources when dredging is in progress, which would be slightly greater as compared to alternative 3 and the no action alternative.	Temporary and minor effects on aesthetic and recreational resources when dredging is in progress, which would be slightly lesser as compared to the proposed action.	Temporary and minor effects on aesthetic and recreational resources when dredging is in progress, which would be slightly lesser as compared to the proposed action.
Climate Change	No effect, but may be affected by climate change in the future.	No effect, but may be affected by climate change in the future.	No effect, but may be affected by climate change in the future.
Sea Level Rise	No effect, but may be affected by sea level rise in the future.	No effect, but may be affected by sea level rise in the future.	No effect, but may be affected by sea level rise in the future.
Socio-economic Resources	Channel maintenance would be reduced in terms of frequencies and recurring costs, as compared to alternative 3 and the no action alternative, due to additional sediment removed in the widener. Positive effects to local economy. Widener would curb excessive shoaling in Bulkhead Channel range 1. No effect regarding environmental justice or disproportionately affecting children.	As compared to the proposed action, channel maintenance frequencies and recurring costs would be increased. As compared to the no action alternative, channel maintenance frequencies would be shared but recurring costs would be decreased. Positive effects to local economy; however, potential draft restrictions in Bulkhead Channel range 1 would remain due to excessive shoaling. No effect regarding environmental justice or disproportionately affecting children.	As compared to the proposed action, channel maintenance frequencies and costs would be higher. As compared to alternative 3, channel maintenance frequencies would be shared but recurring costs would be higher. Potential for draft restrictions in commonly shoaled areas. No effect regarding environmental justice or disproportionately affecting children.

5.0 CUMULATIVE EFFECTS

The Federal Executive Branch’s Council on Environmental Quality defines cumulative impact as “the impact on the environment [that] results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7, National Environmental Policy Act of 1969, as amended).

Past actions in the project area vicinity include federal dredging activities in the Atlantic Intracoastal Waterway (AIWW) and associated navigation channels. The existing nearshore placement areas, and nearby upland confined disposal areas (Carrot Island, Northern Radio Island, Brandt Island, and Marsh Island) have been used for placement of dredged material from some of these dredging projects. The project area has been maintenance dredged in the past by other means, as described by the no action alternative.

It is reasonably foreseeable that dredging of the existing navigation channels in the project vicinity would be expected to continue. The use of the project area for commercial and recreational navigation is expected to continue and will likely increase as the mariner population in the area continues to grow.

For multiple years, shoaled areas of Bulkhead Channel and Morgan Creek have been dredged, as required, to allow for safe, reliable navigation and uninterrupted commerce. The proposed action and alternative 3 will not negatively contribute to cumulative impacts of the area. Placement of sandy dredged material in the nearshore placement areas is a beneficial use of dredged material

that may serve to offer environmental benefits by means of sand retention in the Beaufort Inlet ebb tide delta complex.

The proposed action and alternative 3 would have no appreciable adverse effects on environmental resources in the project area, and may provide environmental benefits by contributing sand to the Beaufort Inlet ebb tide delta complex. Any adverse effects, such as turbidity increases and excavation/burial of benthic organisms, will be temporary and short-lived and will not significantly affect biological communities in the project area.

Likewise, the no action alternative would have no appreciable adverse effects on environmental resources in the project area.

6.0 STATUS OF ENVIRONMENTAL COMPLIANCE

6.1 National Environmental Policy Act (NEPA)

The USACE circulated a scoping letter dated March 28, 2018 to local governments, State and federal resource agencies, the N.C. State Clearinghouse, and the interested public for a 30-day comment period. No formal scoping meeting was conducted. A draft of this EA was circulated to the same entities by correspondence dated September 4, 2018. Topics of concern received in response included impacts to nearshore placement capacity and beach placement, endangered and threatened species, recreational water quality, endangered and threatened species, local traffic flow, and N.C. natural heritage elements (Appendix G). Responses to comments received during public review of the draft EA are included in Appendix H. All identified agency and stakeholder concerns were considered during the development of this EA.

6.2 North Carolina Coastal Zone Management Program

The proposed action and alternative 3 addressed in this EA will take place in the designated coastal zone of the State of North Carolina. Pursuant to the Federal Coastal Zone Management Act (CZMA) of 1972, as amended (P.L. 92-583), federal activities are required to be consistent to the maximum extent practicable with the federally approved coastal management program of the state in which their activities would be occurring.

Along with a copy of this EA, the USACE submitted a separate consistency determination to the N.C. Division of Coastal Management (NCDQM) in accordance with Section 307 (c) (1) of the CZMA of 1972, as amended.

Section 1102 (a) of the CZMA states that “clean, beach quality material from navigation channels within the active nearshore, beach, or inlet shoal systems must not be removed permanently from the active nearshore, beach or inlet shoal system unless no practicable alternative exists. Preferably, this dredged material will be disposed of on the ocean beach or shallow active nearshore area where environmentally acceptable and compatible with other uses of the beach.” When considering a project’s compliance with Section 1102, the NCDQM has stated that the section should be read in concert with North Carolina Administrative Code (NCAC) 7H.0208 (2)(G), which provides some flexibility for publicly funded projects, allowing them to be considered by review agencies on a case by case basis with respect to dredged

material disposal. Disposal of dredged material associated with the proposed action and alternative 3 will be done in accordance with this regulation with the majority of the clean, beach quality material (i.e., 90% or greater sand) being placed in approved the nearshore placement areas.

By letter dated November 9, 2018, the NCDCM concurred that the proposed action is consistent with North Carolina's approved coastal management program (Appendix G).

6.3 Clean Water Act (CWA)

The proposed action and alternative 3 have been evaluated under Section 404(b)(1) of the Clean Water Act (CWA) (P.L. 95-217) and was found to be in compliance (Appendix B). If material consisting of $\geq 90\%$ sand is placed in the authorized nearshore placement areas under the proposed action or alternative 3, the placement would be covered under Water Quality Certification (WQC) #4099. All conditions of WQC #4099 will be met. A copy of the WQC can be found in Appendix A.

The proposed action and alternative 3 are in compliance with Sections 404 and 401 of the Clean Water Act.

6.4 Areas of Environmental Concern (AECs)

The proposed action and alternative 3 would take place in areas designated as areas of environmental concern (AECs) under the North Carolina Coastal Management Program. Activities would occur in Estuarine Shorelines, Estuarine Waters, and Public Trust Areas. The following determinations have been made regarding the consistency of the proposed action and alternative 3 with the State's management objective for each of the areas affected:

- Coastal Wetlands – The proposed action and alternative 3 are consistent with the highest priority use of coastal wetlands, preservation. Dredging and the proposed dredged material placement areas avoid wetlands.
- Estuarine Waters – The waters of the project area are estuarine waters. Upland diked placement areas are not considered under the proposed action or alternative 3, so no water would be released. Material placement associated with the proposed action and alternative 3 is seaward of Shackleford Banks and Atlantic beach and Fort Macon in the existing nearshore placement areas and will not affect estuarine waters.
- Estuarine Shorelines – Estuarine shorelines will be unaffected by the proposed action and alternative 3.
- Public Trust Areas – The proposed action and alternative 3 would not affect the physical and biological functions of public trust areas. The proposed action and alternative 3 would not violate State water quality standards.

Table 7: The Relationship of the Proposed Action/Alternative 3 to Federal Laws and Policies

Title of Public Law	US CODE	*Compliance Status
Abandoned Shipwreck Act of 1987	43 USC 2101	Full Compliance
Anadromous Fish Conservation Act of 1965, As Amended	16 USC 757 a et seq.	Full Compliance
Clean Air Act of 1972, As Amended	42 USC 7401 et seq.	Full Compliance
Clean Water Act of 1972, As Amended	33 USC 1251 et seq.	Full Compliance
Coastal Zone Management Act of 1972, As Amended	16 USC 1451 et seq.	Full Compliance
Endangered Species Act of 1973	16 USC 1531	Full Compliance
Estuary Program Act of 1968	16 USC 1221 et seq.	Full Compliance
Fish and Wildlife Coordination Act of 1958, As Amended	16 USC 661	Full Compliance
Historic and Archeological Data Preservation	16 USC 469	Full Compliance
Magnuson Fishery Conservation and Management Act – Essential Fish Habitat	16 USC 1801	Full Compliance
National Environmental Policy Act of 1969, As Amended	42 USC 4321 et seq.	Full Compliance
National Historic Preservation Act of 1966, As Amended	16 USC 470	Full Compliance
National Historic Preservation Act Amendments of 1980	16 USC 469a	Full Compliance

Title of Executive Order	Executive Order Number	*Compliance Status
Protection and Enhancement of the Cultural Environment	11593	Full Compliance
Floodplain Management	11988	Full Compliance
Protection of Wetlands	11990	Full Compliance
Federal Actions to Address Environmental Justice and Minority and Low-Income Populations	12898	Full Compliance
Federal Actions to Address Environmental Health and Safety Risks that may Disproportionately Affect Children	13045	Full Compliance

*Full compliance once the NEPA process is complete.

7.0 CONCLUSION

Based on findings described in this EA, it is in the federal interest to implement the proposed action of maintenance dredging of Bulkhead Channel (to include the proposed 50-foot advance maintenance widener in Range 1) and Morgan Creek by shallow draft hopper dredge and to place dredged material in the established nearshore placement areas, should approval be provided by the USACE South Atlantic Division Commander. If not, alternative 3 would be implemented, which is identical to the proposed action except the proposed advance maintenance widener would be excluded. Hopper dredging with placement of material in the nearshore placement areas will only occur in areas where shoaled sediments have been shown to be comprised of $\geq 90\%$ sand following geotechnical analysis.

The proposed action and alternative 3 would meet the objective of allowing for increased operational flexibility regarding dredging methodology and equipment availability for Bulkhead Channel and Morgan Creek. Implementation of the proposed action, specifically, would result in long-term benefits in terms of keeping the federally authorized navigation channels in the project area navigable for extended periods of time between required dredging events increasing flexibility in available options to accomplish required maintenance dredging (to include advance maintenance widener), and increasing flexibility in dredged material placement options. Also, placement of beach quality dredged material in the nearshore placement areas under the proposed action and alternative 3 is a beneficial use of dredged material that may contribute to sand retention in the Beaufort Inlet ebb tide delta complex.

8.0 POINT OF CONTACT

US Army Corps of Engineers, Wilmington District
Environmental Resources Section
Attn: Mr. Justin Bashaw
69 Darlington Avenue
Wilmington, NC 28403

Email: Justin.P.Bashaw@usace.army.mil

9.0 REFERENCES

- Carteret County. *2005 Land Use Plan Update, Carteret County, North Carolina*. 2005. 22 Jun. 2018. <<https://www.carteretcountync.gov/DocumentCenter/View/142/2005-CAMA-Land-Use-Plan>>
- Municode. *Carteret County, North Carolina Code Of Ordinances*. Code of Ordinances, 20 Nov. 2017. Web. 22 Jun. 2018. <https://library.municode.com/nc/carteret_county/codes/code_of_ordinances?nodeId=CO_OR_CH10NU_ARTIINGE_S10-1LODINO>.
- National Oceanic And Atmospheric Administration. *South Atlantic Regional Biological Opinion*. National Marine Fisheries Service, n.d. Web. 6 Nov. 2018. <[http://www.saj.usace.army.mil/Portals/44/docs/Planning/EnvironmentalBranch/EnviroCompliance/SARBO_1997\[508\].pdf](http://www.saj.usace.army.mil/Portals/44/docs/Planning/EnvironmentalBranch/EnviroCompliance/SARBO_1997[508].pdf)>.
- National Oceanic And Atmospheric Administration. *Essential Fish Habitat Mapper V3.0*. National Marine Fisheries Service, n.d. Web. 22 Jun. 2018. <<https://www.habitat.noaa.gov/protection/efh/efhmapper/>>.
- NC Department of Environmental Quality. *Water Quality Classifications*. Division of Water Resources, n.d. Web. 22 Jun. 2018. <<https://deq.nc.gov/about/divisions/water-resources/planning/classification-standards/classifications>>
- NC Geological Survey. *Geology – North Carolina. NC Department of Environment, Health, and Natural Resources, Division of Land Resources, in cooperation with the NC Center for Geographic Information and Analysis*. 1998.
- NC State Historic Preservation Office. *HPOWEB Map Service*. N.p., n.d. Web. 22 Jun. 2015. <<http://gis.ncdcr.gov/hpoweb/>>.
- US Army Corps of Engineers / US Environmental Protection Agency. *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual, Inland testing Manual*. Feb 1998. Web. 6 Nov. 2018. <https://www.epa.gov/sites/production/files/2015-08/documents/inland_testing_manual_0.pdf>
- US Coast Guard. *National Response Center*. N.p., n.d. Web. 6 Nov. 2018. <<http://www.nrc.uscg.mil/>>.
- US Environmental Protection Agency. North Carolina Fact Sheet: *What Climate Change Means for North Carolina*. 2016. Web. 22 Jun. 2018. <<https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-nc.pdf>>.
- US Environmental Protection Agency. *Envirofacts*. N.p., n.d. Web. 22 Jun. 2018. <<https://www3.epa.gov/enviro/>>.

US Fish And Wildlife Service. *Information for Planning and Consultation*. 2018. Web. 22 Jun. 2018. <<http://ecos.fws.gov/ipac/>>.

APPENDICES

APPENDIX A
WQC #4099

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER RESOURCES

WATER QUALITY GENERAL CERTIFICATION NO. 4099

GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR US ARMY CORPS OF ENGINEERS

- **REGIONAL GENERAL PERMIT 198000048 (EMERGENCY ACTIVITIES ON OCEAN BEACHES)**


Water Quality Certification Number 4099 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina in 15A NCAC 02H .0500 and 15A NCAC 02B .0200 for the discharge of fill material to surface waters and wetland areas as described in the US Army Corps of Engineers Wilmington District's Regional General Permit 198000048.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Effective date: March 19, 2017

Signed this day March 3, 2017

By


for S. Jay Zimmerman, P.G.
Director

GC4099

Activities meeting any one (1) of the following thresholds or circumstances require written approval for a 401 Water Quality Certification from the Division of Water Resources (DWR):

- a) If any of the Conditions of this Certification (listed below) cannot be met; or
- b) Any permanent fill into or modification of wetlands and/or waters; or
- c) Any impacts to streams from excavation or dredging; or
- d) Any stream relocation or stream restoration; or
- e) Any impacts to waters, or to wetlands adjacent to waters, designated as: ORW (including SAV), HQW (including PNA), SA, WS-I, WS-II, Trout, or North Carolina or National Wild and Scenic River; or
- f) Any impacts to coastal wetlands [15A NCAC 07H .0205], or Unique Wetlands (UWL); or
- g) Any impact associated with a Notice of Violation or an enforcement action for violation(s) of NC Wetland Rules (15A NCAC 02H .0500), NC Isolated Wetland Rules (15A NCAC 02H .1300), NC Surface Water or Wetland Standards (15A NCAC 02B .0200), or State Regulated Riparian Buffer Rules (15A NCAC 02B .0200); or
- h) Any impacts to subject water bodies and/or state regulated riparian buffers along subject water bodies in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman Lake, Jordan Lake or Goose Creek Watersheds (or any other basin or watershed with State Regulated Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless*:
 - i) The activities are listed as "EXEMPT" from these rules; or
 - ii) A Buffer Authorization Certificate is issued by the NC Division of Coastal Management (DCM); or
 - iii) A Buffer Authorization Certificate or a Minor Variance is issued by a delegated or designated local government implementing a state riparian buffer program pursuant to 143-215.23.

Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval.

I. ACTIVITY SPECIFIC CONDITIONS:

1. The discharge shall not contain levels of pollutants that would result in a violation of state water quality and wetland standards. [15A NCAC 02H .0200]

II. GENERAL CONDITIONS:

1. When written authorization is required, the plans and specifications for the project are incorporated into the authorization by reference and are an enforceable part of the Certification. Any modifications to the project require notification to DWR and may require an application submittal to DWR with the appropriate fee. [15A NCAC 02H .0501 and .0502]

GC4099

2. No waste, spoil, solids, or fill of any kind shall occur in wetlands or waters beyond the footprint of the impacts (including temporary impacts) as authorized in the written approval from DWR; or beyond the thresholds established for use of this Certification without written authorization. [15A NCAC 02H .0501 and .0502]

No removal of vegetation or other impacts of any kind shall occur to state regulated riparian buffers beyond the footprint of impacts approved in a Buffer Authorization or Variance or as listed as an exempt activity in the applicable riparian buffer rules. [15A NCAC 02B .0200]

3. In accordance with 15A NCAC 02H .0506(h), compensatory mitigation may be required for losses of greater than 150 linear feet of streams and/or greater than one (1) acre of wetlands. Impacts to isolated and other non-404 jurisdictional wetlands shall not be combined with 404 jurisdictional wetlands for the purpose of determining when impact thresholds trigger a mitigation requirement. For linear publicly owned and maintained transportation projects that are not determined to be part of a larger common plan of development by the US Army Corps of Engineers, compensatory mitigation may be required for losses of greater than 150 linear feet per stream.

Compensatory stream and/or wetland mitigation shall be proposed and completed in compliance with G.S. 143-214.11. For applicants proposing to conduct mitigation within a project site, a complete mitigation proposal developed in accordance with the most recent guidance issued by the US Army Corps of Engineers Wilmington District shall be submitted for review and approval with the application for impacts.

4. All activities shall be in compliance with any applicable State Regulated Riparian Buffer Rules in Chapter 2 of Title 15A.
5. When applicable, all construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sediment and Pollution Control Act of 1973). Regardless of applicability of the Sediment and Pollution Control Act, all projects shall incorporate appropriate Best Management Practices for the control of sediment and erosion so that no violations of state water quality standards, statutes, or rules occur. [15A NCAC 02H .0506(b)(3) and (c)(3) and 15A NCAC 02B .0200]

Design, installation, operation, and maintenance of all sediment and erosion control measures shall be equal to or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*, or for linear transportation projects, the *NCDOT Sediment and Erosion Control Manual*.

All devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) sites, including contractor-owned or leased borrow pits associated with the project. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.

GC4099

For borrow pit sites, the erosion and sediment control measures shall be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*. Reclamation measures and implementation shall comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.

If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality Waters (HQW), or Outstanding Resource Waters (ORW), then the sedimentation and erosion control designs shall comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.

6. Sediment and erosion control measures shall not be placed in wetlands or waters except within the footprint of temporary or permanent impacts authorized under this Certification. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0501 and .0502]
7. Erosion control matting that incorporates plastic mesh and/or plastic twine shall not be used along streambanks or within wetlands. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02B .0201]
8. An NPDES Construction Stormwater Permit (NCG010000) is required for construction projects that disturb one (1) or more acres of land. The NCG010000 Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If the project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. [15A NCAC 02H .0506(b)(5) and (c)(5)]

The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit. [15A NCAC 02H .0506(b)(5) and (c)(5)]

9. All work in or adjacent to streams shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the *NC Sediment and Erosion Control Manual*, or the *NC DOT Construction and Maintenance Activities Manual*, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0506(b)(3) and (c)(3)]
10. If activities must occur during periods of high biological activity (e.g. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities. [15A NCAC 02H .0506(b)(2) and 15A NCAC 04B .0125]

GC4099

All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium. A copy of the approval from the resource agency shall be forwarded to DWR.

Work within a designated trout watershed of North Carolina (as identified by the Wilmington District of the US Army Corps of Engineers) or identified state or federal endangered or threatened species habitat, shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

11. Culverts shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. The dimension, pattern, and profile of the stream above and below a pipe or culvert shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert shall be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. [15A NCAC 02H .0506(b)(2) and (c)(2)]

Placement of culverts and other structures in streams shall be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20% of the culvert diameter for culverts having a diameter less than or equal to 48 inches, to allow low flow passage of water and aquatic life.

If multiple pipes or barrels are required, they shall be designed to mimic the existing stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel shall be avoided.

When topographic constraints indicate culvert slopes of greater than 5%, culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/connectivity has been provided when possible (e.g. rock ladders, cross vanes, etc.). Notification, including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations, shall be provided to DWR 60 calendar days prior to the installation of the culvert.

When bedrock is present in culvert locations, culvert burial is not required provided that there is sufficient documentation of the presence of bedrock. Notification, including supporting documentation such as, a location map of the culvert, geotechnical reports, photographs, etc. shall be provided to DWR a minimum of 60 calendar days prior to the installation of the culvert. If bedrock is discovered during construction, then DWR shall be notified by phone or email within 24 hours of discovery.

If other site-specific topographic constraints preclude the ability to bury the culverts as described above and/or it can be demonstrated that burying the culvert would result in destabilization of the channel, then exceptions to this condition require application to and written approval from DWR.

GC4099

Installation of culverts in wetlands shall ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. When roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges shall be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native woody vegetation and other soft stream bank stabilization techniques shall be used where practicable instead of rip-rap or other bank hardening methods.

12. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means to the maximum extent practicable (e.g. grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Exceptions to this condition require application to and written approval from DWR. [15A NCAC 02H .0506(b)(5)]
13. Application of fertilizer to establish planted/seeded vegetation within disturbed riparian areas shall be conducted at agronomic rates and shall comply with all other Federal, State and Local regulations. Fertilizer application shall be accomplished in a manner that minimizes the risk of contact between the fertilizer and surface waters. [15A NCAC 02B .0200 and 15A NCAC 02B .0231]
14. If concrete is used during construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state. [15A NCAC 02B .0200]
15. All proposed and approved temporary fill and culverts shall be removed and the impacted area shall be returned to natural conditions within 60 calendar days after the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross sectional dimensions, planform pattern, and longitudinal bed profile. For projects that receive written approval, no temporary impacts are allowed beyond those included in the application and authorization. All temporarily impacted sites shall be restored and stabilized with native vegetation. [15A NCAC 02H .0506(b)(2) and (c)(2)]
16. All proposed and approved temporary pipes/culverts/rip-rap pads etc. in streams shall be installed as outlined in the most recent edition of the *North Carolina Sediment and Erosion Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* or the *North Carolina Department of Transportation Best Management Practices for Construction and Maintenance Activities* so as not to restrict stream flow or cause dis-equilibrium during use of this Certification. [15A NCAC 02H .0506(b)(2) and (c)(2)]

GC4099

17. Any rip-rap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall be placed such that the original stream elevation and streambank contours are restored and maintained. Placement of rip-rap or other approved materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area or in a manner that precludes aquatic life passage. [15A NCAC 02H .0506(b)(2)]
18. Any rip-rap used for stream or shoreline stabilization shall be of a size and density to prevent movement by wave, current action, or stream flows and shall consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures. [15A NCAC 02H .0506(b)(2)]
19. Applications for rip-rap groins proposed in accordance with 15A NCAC 07H .1401 (NC Division of Coastal Management General Permit for construction of Wooden and Rip-rap Groins in Estuarine and Public Trust Waters) shall meet all the specific conditions for design and construction specified in 15A NCAC 07H .1405.
20. All mechanized equipment operated near surface waters shall be inspected and maintained regularly to prevent contamination of surface waters from fuels, lubricants, hydraulic fluids, or other toxic materials. Construction shall be staged in order to minimize the exposure of equipment to surface waters to the maximum extent practicable. Fueling, lubrication and general equipment maintenance shall not take place within 50 feet of a waterbody or wetlands to prevent contamination by fuels and oils. [15A NCAC 02H .0506(b)(3) and (c)(3) and 15A NCAC 02B .0211 (12)]
21. Heavy equipment working in wetlands shall be placed on mats or other measures shall be taken to minimize soil disturbance. [15A NCAC 02H .0506(b)(3) and (c)(3)]
22. In accordance with 143-215.85(b), the applicant shall report any petroleum spill of 25 gallons or more; any spill regardless of amount that causes a sheen on surface waters; any petroleum spill regardless of amount occurring within 100 feet of surface waters; and any petroleum spill less than 25 gallons that cannot be cleaned up within 24 hours.
23. If an environmental document is required under the State Environmental Policy Act (SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse. If an environmental document is required under the National Environmental Policy Act (NEPA), then this General Certification is not valid until a Categorical Exclusion, the Final Environmental Assessment, or Final Environmental Impact Statement is published by the lead agency. [15A NCAC 01C .0107(a)]

GC4099

24. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to, Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.
25. The applicant and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If DWR determines that such standards or laws are not being met, including failure to sustain a designated or achieved use, or that State or Federal law is being violated, or that further conditions are necessary to assure compliance, then DWR may revoke or modify a written authorization associated with this General Water Quality Certification. [15A NCAC 02H .0507(d)]
26. When written authorization is required for use of this Certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return a certificate of completion (available on the DWR website: <https://edocs.deq.nc.gov/Forms/Certificate-of-Completion>). [15A NCAC 02H .0502(f)]
27. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards. [15A NCAC 02H .0507(c)]
28. If the property or project is sold or transferred, the new Permittee shall be given a copy of this Certification (and written authorization if applicable) and is responsible for complying with all conditions. [15A NCAC 02H .0501 and .0502]

III. GENERAL CERTIFICATION ADMINISTRATION:

1. In accordance with North Carolina General Statute 143-215.3D(e), written approval for a 401 Water Quality General Certification must include the appropriate fee. An applicant for a CAMA permit under Article 7 of Chapter 113A of the General Statutes for which a Water Quality Certification is required shall only make one payment to satisfy both agencies; the fee shall be as established by the Secretary in accordance with 143-215.3D(e)(7).
2. This Certification neither grants nor affirms any property right, license, or privilege in any waters, or any right of use in any waters. This Certification does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and this Certification does not create any prescriptive right or any right of priority regarding any usage of water. This Certification shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Certification to possess any prescriptive or other right of priority with respect to any other consumptive user regardless of the quantity of the withdrawal or the date on which the withdrawal was initiated or expanded.

GC4099

3. This Certification grants permission to the Director, an authorized representative of the Director, or DWR staff, upon the presentation of proper credentials, to enter the property during normal business hours. [15A NCAC 02H .0502(e)]
4. This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide Permit and/or Regional General Permit. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Certification. This General Certification is rescinded when the US Army Corps of Engineers reauthorizes any of the corresponding Nationwide Permits and/or Regional General Permits or when deemed appropriate by the Director of the Division of Water Resources.
5. Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also result in criminal and/or civil penalties.
6. The Director of the North Carolina Division of Water Resources may require submission of a formal application for Individual Certification for any project in this category of activity if it is determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the water or downstream waters are precluded.
7. Public hearings may be held prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Resources.

History Note: Water Quality Certification (WQC) Number 4099 issued March 3, 2017 replaces WQC 3908 issued March 19, 2012; WQC 3703 issued November 1, 2007; WQC 3640 issued March 2007; WQC 3493 issued December 2004; and WQC 3372 issued March 18, 2002.

Appendix B
Section 404(b)(1) Evaluation

Evaluation of Section 404(b)(1) Guidelines

40 CFR 230

**ENVIRONMENTAL ASSESSMENT
MAINTENANCE DREDGING OF BULKHEAD CHANNEL (WITH ADVANCE
MAINTENANCE WIDENER)
AND MORGAN CREEK
CARTERET COUNTY, NORTH CAROLINA**

Evaluation of Section 404 (b) (1) Guidelines 40 CFR 230
Section 404 Public Notice

	Preliminary <u>1/</u>	Final <u>2/</u>
<p>1. <u>Review of Compliance (230.10(a)-(d))</u> A review of the NEPA Document indicates that:</p>		
<p>a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose;</p>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
<p>b. The activity does not: 1) violate applicable State water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of federally listed endangered or threatened species or their habitat; and 3) violate requirements of any federally designated marine sanctuary;</p>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
<p>c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organism's dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values;</p>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
<p>d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.</p>	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> *	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

2. Technical Evaluation Factors (Subparts C-F)

N/A Not Significant Significant

a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)

- (1) Substrate impacts.
- (2) Suspended particulates/turbidity impacts.
- (3) Water column impacts.
- (4) Alteration of current patterns and water circulation.
- (5) Alteration of normal water fluctuations/hydroperiod.
- (6) Alteration of salinity gradients.

	X	
	X	
	X	
	X	
	X	
NA		

b. Biological Characteristics of the Aquatic Ecosystem (Subpart D)

- (1) Effect on threatened/endangered species and their habitat.
- (2) Effect on the aquatic food web.
- (3) Effect on other wildlife (mammals birds, reptiles, and amphibians).

	X	
	X	
	X	

c. Special Aquatic Sites (Subpart E)

- (1) Sanctuaries and refuges.
- (2) Wetlands.
- (3) Mud flats.
- (4) Vegetated shallows.
- (5) Coral reefs.
- (6) Riffle and pool complexes.

NA		
NA		
NA		
NA		
NA		
NA		

d. Human Use Characteristics (Subpart F)

- (1) Effects on municipal and private water supplies.
- (2) Recreational and commercial fisheries impacts
- (3) Effects on water-related recreation.
- (4) Aesthetic impacts.
- (5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.

NA		
	X	
	X	
NA		
NA		

3. Evaluation of Dredged or Fill Material (Subpart G)

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)

- | | |
|--|-------------------------------------|
| (1) Physical characteristics | <input checked="" type="checkbox"/> |
| (2) Hydrography in relation to known or anticipated sources of contaminants | <input checked="" type="checkbox"/> |
| (3) Results from previous testing of the material or similar material in the vicinity of the project | <input checked="" type="checkbox"/> |
| (4) Known, significant sources of persistent pesticides from land runoff or percolation | <input checked="" type="checkbox"/> |
| (5) Spill records for petroleum products or designated (Section 311 of CWA) hazardous substances | <input checked="" type="checkbox"/> |
| (6) Other public records of significant introduction of contaminants from industries, municipalities, or other sources | <input type="checkbox"/> |
| (7) Known existence of substantial material deposits of substances, which could be released in harmful quantities to the aquatic environment by man-induced discharge activities | <input checked="" type="checkbox"/> |
| (8) Other sources (specify). | <input type="checkbox"/> |

List appropriate references.

References:

National Marine Fisheries Service. March 1999. Biological Opinion Regarding Government Hopper and Sidecast Dredges.

U.S. Army Corps of Engineers, Wilmington District. 1976. Maintenance of the Waterway Connecting Pamlico Sound and Beaufort Harbor, Environmental Impact Statement.

U.S. Army Corps of Engineers, Wilmington District. August 1994. Design and Use of a Placement Area for Underwater Nearshore Berm, Morehead City Harbor Project, Morehead City, North Carolina, Environmental Assessment.

U.S. Coast Guard. National Response Center. N.p., n.d. Web. 6 Nov. 2018.
<<http://www.nrc.uscg.mil/>>.

U.S. Environmental Protection Agency. *Envirofacts*. N.p., n.d. Web. 22 Jun. 2018.
<<https://www3.epa.gov/enviro/>>.

U.S. Army Corps of Engineers, Wilmington District. March 2004. Use of Government Plant to Dredge in Federally Authorized Navigation Projects in North Carolina, Environmental Assessment.

U.S. Army Corps of Engineers, Wilmington District. June 2016. Morehead City Harbor Dredged Material Management Plan (DMMP), Morehead City, North Carolina.

- b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to result in degradation of the disposal site.*

YES ☒ NO ☐

4. Disposal Site Determinations (230.11(f)).

- a. The following factors as appropriate, have been considered in evaluating the disposal site.

- | | |
|--|-------------------------------------|
| (1) Depth of water at disposal site | <input checked="" type="checkbox"/> |
| (2) Current velocity, direction, and variability at disposal site | <input checked="" type="checkbox"/> |
| (3) Degree of turbulence | <input checked="" type="checkbox"/> |
| (4) Water column stratification | <input type="checkbox"/> |
| (5) Discharge vessel speed and direction | <input type="checkbox"/> |
| (6) Rate of discharge | <input type="checkbox"/> |
| (7) Dredged material characteristics (constituents, amount and type of material, settling velocities). | <input checked="" type="checkbox"/> |
| (8) Number of discharges per unit of time | <input type="checkbox"/> |
| (9) Other factors affecting rates and patterns of mixing (specify) | |

References:

National Marine Fisheries Service. March 1999. Biological Opinion Regarding Government Hopper and Sidecast Dredges.

U.S. Army Corps of Engineers, Wilmington District. 1976. Maintenance of the Waterway Connecting Pamlico Sound and Beaufort Harbor, Environmental Impact Statement.

U.S. Army Corps of Engineers, Wilmington District. August 1994. Design and Use of a Placement Area for Underwater Nearshore Berm, Morehead City Harbor Project, Morehead City, North Carolina, Environmental Assessment.

U.S. Coast Guard. National Response Center. N.p., n.d. Web. 6 Nov. 2018.
<<http://www.nrc.uscg.mil/>>.

U.S. Environmental Protection Agency. *Envirofacts*. N.p., n.d. Web. 22 Jun. 2018.
<<https://www3.epa.gov/enviro/>>.

U.S. Army Corps of Engineers, Wilmington District. March 2004. Use of Government Plant to Dredge in Federally Authorized Navigation Projects in North Carolina, Environmental Assessment.

U.S. Army Corps of Engineers, Wilmington District. June 2016. Morehead City Harbor Dredged Material Management Plan (DMMP), Morehead City, North Carolina.

- b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable.

YES ☒ NO ☐*

5. Actions to Minimize Adverse Effects (Subpart H).

All appropriate and practicable steps have been taken, through application of recommendations of 230.70-230.77, to ensure minimal adverse effects of the proposed discharge.

YES ☒ NO ☐*

6. Factual Determinations (230.11).

A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge as related to:

- a. Physical substrate at the disposal site (review sections 2a, 3, 4, and 5).

YES ☒ NO ☐*

- b. Water circulation, fluctuation, and salinity (review sections 2a, 3, 4, and 5).

YES ☒ NO ☐*

- c. Suspended particulates/turbidity (review sections 2a, 3, 4, and 5).

YES ☒ NO ☐*

- d. Contaminant availability (review sections 2a, 3, and 4).

YES ☒ NO ☐*

- e. Aquatic ecosystem structure and function (review sections 2b and c, 3, and 5).

YES ☒ NO ☐*

- f. Disposal site
(review sections 2, 4, and 5). YES ☒ NO ☐*
- g. Cumulative impact on the aquatic
ecosystem. YES ☒ NO ☐*
- h. Secondary impacts on the aquatic
ecosystem. YES ☒ NO ☐*

7. Findings.

- a. The proposed disposal site for discharge of
dredged or fill material complies with the
Section 404(b)(1) guidelines ☒

- b. The proposed disposal site for discharge of
dredged or fill material complies with the
Section 404(b)(1) guidelines with the
inclusion of the following conditions: ☐

NA

- c. The proposed disposal site for discharge of
dredged or fill material does not comply with
the Section 404(b)(1) guidelines for the
following reasons(s):
- (1) There is a less damaging practicable alternative. ☐
- (2) The proposed discharge will result in significant
degradation of the aquatic ecosystem ☐
- (3) The proposed discharge does not include all
practicable and appropriate measures to minimize
potential harm to the aquatic ecosystem. ☐

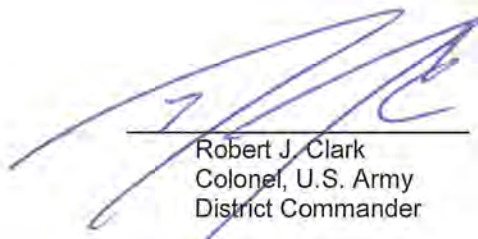
8.



Elden J. Gatwood
Chief, Planning
and Environmental Branch

Date

12/19/18



Robert J. Clark
Colonel, U.S. Army
District Commander

Date

31 DEC 2018

*A negative, significant, or unknown response indicates that the permit application may not be in compliance with the Section 404(b)(1) Guidelines.

1/ Negative responses to three or more of the compliance criteria at this stage indicate that the proposed projects may not be evaluated using this "short form procedure." Care should be used in assessing pertinent portions of the technical information of items 2 a-d, before completing the final review of compliance.

2/ Negative response to one of the compliance criteria at this stage indicates that the proposed project does not comply with the guidelines. If the economics of navigation and anchorage of Section 404(b)(2) are to be evaluated in the decision-making process, the "short form evaluation process is inappropriate."

3/ If the dredged or fill material cannot be excluded from individual testing, the "short-form" evaluation process is inappropriate.

APPENDIX C
USFWS IPaC Query



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Ecological Services Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
Phone: (919) 856-4520 Fax: (919) 856-4556



In Reply Refer To:
Consultation Code: 04EN2000-2018-SLI-0517
Event Code: 04EN2000-2018-E-01094
Project Name: Bulkhead Channel

March 23, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The species list generated pursuant to the information you provided identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Section 7 of the Act requires that all federal agencies (or their designated non-federal representative), in consultation with the Service, insure that any action federally authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of any federally-listed endangered or threatened species. A biological assessment or evaluation may be prepared to fulfill that requirement and in determining whether additional consultation with the Service is necessary. In addition to the federally-protected species list, information on the species' life histories and habitats and information on completing a biological assessment or

evaluation and can be found on our web page at <http://www.fws.gov/raleigh>. Please check the web site often for updated information or changes

If your project contains suitable habitat for any of the federally-listed species known to be present within the county where your project occurs, the proposed action has the potential to adversely affect those species. As such, we recommend that surveys be conducted to determine the species' presence or absence within the project area. The use of North Carolina Natural Heritage program data should not be substituted for actual field surveys.

If you determine that the proposed action may affect (i.e., likely to adversely affect or not likely to adversely affect) a federally-protected species, you should notify this office with your determination, the results of your surveys, survey methodologies, and an analysis of the effects of the action on listed species, including consideration of direct, indirect, and cumulative effects, before conducting any activities that might affect the species. If you determine that the proposed action will have no effect (i.e., no beneficial or adverse, direct or indirect effect) on federally listed species, then you are not required to contact our office for concurrence (unless an Environmental Impact Statement is prepared). However, you should maintain a complete record of the assessment, including steps leading to your determination of effect, the qualified personnel conducting the assessment, habitat conditions, site photographs, and any other related articles.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

Not all Threatened and Endangered Species that occur in North Carolina are subject to section 7 consultation with the U.S Fish and Wildlife Service. Atlantic and shortnose sturgeon, sea turtles, when in the water, and certain marine mammals are under purview of the National Marine Fisheries Service. If your project occurs in marine, estuarine, or coastal river systems you should also contact the National Marine Fisheries Service, <http://www.nmfs.noaa.gov/>

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. If you have any questions or comments, please contact John Ellis of this office at john_ellis@fws.gov.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Raleigh Ecological Services Field Office

Post Office Box 33726

Raleigh, NC 27636-3726

(919) 856-4520

Project Summary

Consultation Code: 04EN2000-2018-SLI-0517

Event Code: 04EN2000-2018-E-01094

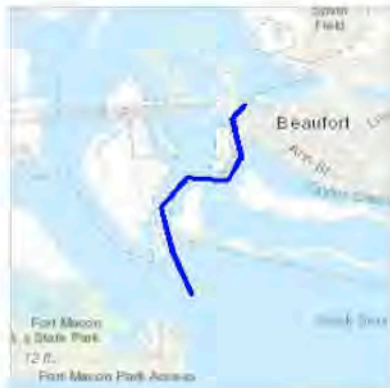
Project Name: Bulkhead Channel

Project Type: Federal Grant / Loan Related

Project Description: Dredging of Bulkhead Channel

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/34.712144853861105N76.6791851047227W>



Counties: Carteret, NC

Endangered Species Act Species

There is a total of 14 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened
West Indian Manatee <i>Trichechus manatus</i> There is final critical habitat for this species. Your location is outside the critical habitat. <i>This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.</i> Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot <i>Calidris canutus rufa</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Red-cockaded Woodpecker <i>Picoides borealis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7614	Endangered
Roseate Tern <i>Sterna dougallii dougallii</i> Population: northeast U.S. nesting pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

Reptiles

NAME	STATUS
American Alligator <i>Alligator mississippiensis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/776	Similarity of Appearance (Threatened)
Green Sea Turtle <i>Chelonia mydas</i> Population: North Atlantic DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
Hawksbill Sea Turtle <i>Eretmochelys imbricata</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3656	Endangered
Kemp's Ridley Sea Turtle <i>Lepidochelys kempii</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5523	Endangered
Leatherback Sea Turtle <i>Dermochelys coriacea</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1493	Endangered
Loggerhead Sea Turtle <i>Caretta caretta</i> Population: Northwest Atlantic Ocean DPS There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1110	Threatened

Flowering Plants

NAME	STATUS
Rough-leaved Loosetrife <i>Lysimachia asperulaefolia</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2747	Endangered
Seabeach Amaranth <i>Amaranthus pumilus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8549	Threatened

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Piping Plover <i>Charadrius melodus</i>	Final

03/23/2018

Event Code: 04EN2000-2018-E-01094

6

NAME

STATUS

<https://ecos.fws.gov/ecp/species/6039#crithab>

APPENDIX D
March 9, 1999 NMFS Biological Opinion



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33702
(727) 570-5312; FAX 570-5517

MAR 9 1999

F/SER3:EGH:ts

Mr. C. E. Shuford, Jr., P.E.
Chief, Technical Services Division
Wilmington District Corps of Engineers
P.O. Box 1890
Wilmington, NC 28402-1890

Dear Mr. Shuford:

This letter responds to your letter to me dated July 1, 1998 and enclosed Biological Assessment (BA). Your BA, submitted pursuant to Endangered Species Act (ESA) section 7 consultation requirements, assesses the use of the U.S. Army Corps of Engineers (COE) sidecast dredges FRY, MERRITT and SCHWEIZER, and the split-hull hopper dredge CURRITUCK in United States coastal waters. Additional, revised information was submitted to this office on March 2, 1999.

Proposed Action

This consultation addresses the use of the sidecast dredges FRY, MERRITT and SCHWEIZER and the split-hull hopper dredge CURRITUCK, to maintain shallow, coastal inlet navigation channels along the eastern seaboard of the United States. These specialized dredge plants are currently used primarily by the Wilmington District Corps of Engineers at many locations in North Carolina but also occasionally elsewhere along the eastern seaboard. Normally, they are used in: 1) shallow coastal inlets which cannot be dredged safely or effectively with commercially available dredges, 2) during emergencies, or 3) when an urgent and compelling need exists for clearing out a navigation channel, such as periods when rapid shoaling has occurred, a navigation hazard may exist, and there is insufficient time to contract commercial dredges.

The sidecast dredges FRY and MERRITT each have two drag arms, one on each side, that vacuum the sediment through 10-inch intake pipes as the arms drag along the bottom. The sediment is pumped through a combined 12-inch discharge pipe that is above the water surface and perpendicular to the dredge. The SCHWEIZER is laid out similarly but its dredge suction pipes are 14 inches in diameter and combined discharge pipe is 16 inches in diameter. In all three dredges the discharge pipe extends about 60 feet beyond the side of the dredge. This pipe distance and force from the pumps generally results in the sediment being deposited 85 to 100 feet from the dredge. The sediment is discharged on the side of the channel where the predominant currents would tend to move the sediment away from the channel.



The split-hull hopper dredge CURRITUCK has drag arms similar to a sidecast dredge, but the sediment is pumped into the dredge's hopper. The water in the hopper is overflowed to provide an economic load of sand, since the dredged slurry entering the hopper contains about 20% sand and 80% water. Once the hopper is full of sand (about 300 cubic yards), the sediment is taken to nearshore ocean waters (normally 6 to 10 below feet mean low water) where the split-hull hopper is opened and the sediments are dumped.

These vessels operate year-round to dredge and maintain shallow navigation channels with depths between 4 feet and 14 feet below mean low water. Vessels operate without sea turtle deflectors on the dragheads, and have no screening or observers. Draghead suction is produced by use of dredge pumps averaging 350-horsepower, with a maximum horsepower of 400. The draghead sizes range from approximately 2 feet by 2 feet to 2 feet by 3 feet. The draghead openings are further subdivided on their undersides by gridded baffles, with openings ranging from about 5 inches by 5 inches to 5 inches by 8 inches. These baffles restrict the size of objects which can enter the dredge draghead.

Listed Species and Critical Habitat

Listed species under the jurisdiction of the NMFS that may occur in channels along the southeastern United States and which may be affected by dredging include:

THREATENED:

- (1) the loggerhead turtle - *Caretta caretta*

ENDANGERED:

- (1) the right whale - *Eubalaena glacialis*
- (2) the humpback whale - *Megaptera novaeangliae*
- (3) the green turtle - *Chelonia mydas*

Note: green turtles in U.S. waters are listed as threatened, except for the Florida breeding population which is listed as endangered.

- (4) the Kemp's ridley turtle - *Lepidochelys kempii*
- (5) the hawksbill turtle - *Eretmochelys imbricata*
- (6) the shortnose sturgeon - *Acipenser brevirostrum*

Additional endangered species which are known to occur along the Atlantic coast include the finback (*Balaenoptera physalus*), the sei (*Balaenoptera borealis*), and sperm (*Physeter macrocephalus*) whales and the leatherback sea turtle (*Dermochelys coriacea*). NMFS has determined that these species are unlikely to be adversely affected by the proposed dredge vessel activities because they are unlikely to be encountered in the shallow, coastal inlet waters that typify the project areas.

Right whale critical habitat overlaps portions of the project area. There are five well-known habitats used annually by right whales including: 1) coastal Florida and Georgia, 2) the Great South Channel, east of Cape Cod, 3) Cape Cod and Massachusetts bays, 4) the Bay of Fundy, and 5) Browns and Baccaro Banks, south of Nova Scotia. The first three areas occur in U.S. waters and have been designated by NMFS as critical habitat (59 FR, 28793, June 3, 1994).

Biological information on the right whale and humpback whale is included by reference to the August 25, 1995 Biological Opinion on hopper dredging in the southeastern United States, and the NMFS recovery plans for right whales and humpback whales (NMFS 1991a; 1991b). The following discussions focus primarily on vessel interactions with whales.

Right Whales:

New information has recently become available on the right whale population. A progression of discussions and analysis has occurred during ESA section 7 consultations conducted in 1995 and 1996 on vessel and aircraft operations of the U.S. Coast Guard, and the prosecution of northeast Atlantic fisheries for American lobster and multi-species, concerning the population trend for the northern right whale. The current conclusion is that it remains unknown whether or not the population is showing a decline, or whether the population growth rate has remained at a constant rate of 2.5% or at a constant, but lower rate. The 1996 NMFS draft stock assessment report indicates that the size of this population may have been as low as 50 at the turn of the century, which suggests that the species may be showing signs of a slow recovery to the current estimate of 295. However, a recent statistical analysis based on current trends in right whale mortality predicts that the northern right whale population is doomed to extinction and calculates their extinction date as 2189 (Caswell *et al.* 1999 in press). Other right whale researchers have expressed their doubts as to the efficacy of current conservation measures to prevent extinction of the northern right whale population (Slay 1999, personal communication). In any event, the current small population size combined with their low reproductive rate suggest that anthropogenic impacts may have a greater effect on this species than other endangered whales subject to the same impacts.

Anthropogenic causes of right whale mortality are discussed in detail in Kraus (1990) as well as in NMFS (1991a). Ship collisions and entanglements are the most common direct causes of mortality identified through right whale strandings. Twenty percent of all right whale mortalities observed between 1970 and 1989 were caused by vessel collisions/interactions with right whales. An additional 8% of these mortalities are suspected to have resulted from vessel collision.

As a result of the potential for interactions between vessels and right whales from December through March in the calving area off Georgia and northern Florida, aerial surveys funded by the COE, Navy and USCG have been implemented as the right whale early warning system. These surveys are conducted to identify the occurrence and distribution of right whales in the vicinity of ship channels in the winter breeding area, and to notify nearby vessel operators of whales in their path. Data collected during these surveys indicate that right whales are observed off Savannah,

Georgia, in December and March, and are relatively abundant between Brunswick, Georgia, south to Cape Canaveral from December through March. During early 1995, a right whale was also observed by shipboard observers off Morehead City, North Carolina.

Humpback Whales:

The Humpback Whale Recovery Plan (NMFS 1991b) identifies entanglement and ship collisions as potential sources of mortality, and disturbance, habitat degradation, and competition with commercial fisheries as potential factors delaying recovery of the species.

Until recently, humpback whales in the mid- and south Atlantic were considered transients. Few were seen during aerial surveys conducted over a decade ago (Shoop *et al.*, 1982). However, since 1989, sightings of feeding juvenile humpbacks have increased along the coasts of Virginia and North Carolina, peaking during the months of January through March in 1991 and 1992 (Swingle *et al.*, 1993). Shipboard observations conducted during daylight hours during dredging activities in the Morehead City Harbor entrance channel during January and February 1995 documented sightings of young humpback whales on at least six days near the channel and disposal area, through January 22, 1995. Three humpback strandings were documented in North Carolina in that year, one each in February, March, and April, suggesting that humpback whales remained within South Atlantic waters through April.

Swingle *et al.* (1993) identify a shift in distribution of juvenile humpback whales in the nearshore waters of Virginia, primarily in winter months. Those whales using this mid-Atlantic area that have been identified were found to be residents of the Gulf of Maine feeding group, suggesting a shift in distribution that may be related to winter prey availability. In concert with the increase in mid-Atlantic whale sightings, strandings of humpback whales have increased between New Jersey and Florida since 1985. Strandings were most frequent during the months of September through April in North Carolina and Virginia waters, and were composed primarily of juvenile humpback whales of no more than 11 meters in length (Wiley *et al.*, 1995). Six of 18 humpbacks (33 percent) for which the cause of mortality was determined were killed by vessel strikes. An additional humpback had scars and bone fractures indicative of a previous vessel strike that may have contributed to the whale's mortality. Sixty percent of those mortalities that were closely investigated showed signs of entanglement or vessel collision (Wiley *et al.*, 1993).

Sea Turtles:

Information on the biology and distribution of sea turtles can be found in the 1991 and 1995 Biological Opinions on hopper dredging in channels and borrow areas, which are incorporated by reference. Channel specific information has been collected by the COE for channels at Morehead City, Charleston, Savannah, Brunswick, Fernandina and Canaveral, and is presented in detail in COE summary report entitled "Assessment of Sea Turtle Abundance in Six South Atlantic U.S. Channels" (Dickerson *et al.* 1994) and in the COE's Biological Assessment. Information on the

biology and distribution of right whales and humpback whales can be found in the 1991 and 1995 Biological Opinions as well. There is no significant new information regarding the status of sea turtle species that has not been discussed in the Biological Opinions that have been incorporated by reference.

Sturgeons:

Shortnose sturgeon are found in rivers, estuaries, and the sea, but populations are confined mostly to natal rivers and estuaries. The species appears to be estuarine anadromous in the southern part of its range, but in some northern rivers it is "freshwater amphidromous," i.e., adults spawn in freshwater but regularly enter saltwater habitats during their life. Adults in southern rivers forage at the interface of fresh tidal water and saline estuaries and enter the upper reaches of rivers to spawn in early spring (NMFS 1998).

The use of saline habitat varies greatly among northern populations. In the Saint John and Hudson rivers, adults occur in both freshwater and upper tidal saline areas all year. This situation may also exist in the Kennebec River system where, during summer, some adults forage in the saline estuary while others forage in freshwater reaches. In the Delaware, Merrimack and Connecticut Rivers, adults remain in freshwater all year, but some adults briefly enter low salinity river reaches in May-June then return upriver. Some adults have been captured in nearshore marine habitat, but this is not well documented. Many tagging and telemetry studies in rivers throughout the species' range indicate that these fish remain in their natal river or the river's estuary (NMFS 1998).

The final recovery plan for the shortnose sturgeon (NMFS 1998b) gives the current, best available information on the distribution and abundance of shortnose sturgeon, and is incorporated herein by reference. However, in the project area, the Cape Fear River, North Carolina, shortnose sturgeon population would be the most likely to be affected by the proposed dredging activities. No other shortnose sturgeon populations are known from North Carolina, which is where most of the maintenance dredging by the vessels considered in this consultation has historically occurred and will continue.

Effects of the Proposed Action

Effects on Sea Turtles

The construction and maintenance of Federal navigation channels by hopper dredges have been identified as a source of turtle mortality. NMFS has previously consulted on the use of hopper dredges in southeastern United States channels and borrow areas, and Gulf of Mexico channels. The November 25, 1991 biological opinion issued to the COE's South Atlantic Division (SAD) found that continued hopper dredging activity was likely to jeopardize the continued existence of the Kemp's ridley sea turtle. The reasonable and prudent alternative issued with the 1991

biological opinion included the prohibition of hopper dredging in the Canaveral channel (Florida), seasonal restrictions which allowed hopper dredging from December through March in channels from North Carolina through Canaveral, or use of alternative dredges in all southeastern U.S. channels.

In addition to hopper dredges, clamshell, sidecast and pipeline dredges are all used to dredge and maintain navigation channels. Pipeline and clamshell dredges are relatively stationary, and therefore act on only small areas at any given time. Observer coverage was required at pipeline outflows during several dredging projects deploying pipeline dredges along the Atlantic coast. No turtles or turtle parts were observed. Additionally, the COE's SAD provided documentation of hundreds of hours of informal observation by COE inspectors during which no takes of listed species were observed. Additional monitoring by other agency personnel, conservation organizations, and the general public has never resulted in reports of a turtle take by pipeline dredges. In contrast, large capacity, oceangoing hopper dredges, which are frequently used in ocean bar channels and sometimes in harbor channels and offshore borrow areas, move relatively rapidly and can entrain and kill sea turtles, presumably as the drag arm of the moving dredge overtakes the slower moving turtle. Brumation by sea turtles in southeastern channels, when they bury themselves in the channel bottom mud and presumably slow their metabolic processes, is also suspected in deaths of some sea turtles by hopper dredge. The reasons for this are that: 1) the turtle deflector device on the leading edge of the draghead is probably less effective at deflecting buried sea turtles than deflecting turtles which are simply resting or foraging on the channel bottom, 2) the turtles' ability to move out of the way quickly may be compromised because they are partially buried in sediment, and 3) their flight response time may be lengthened due to their torpor or reduced metabolic rate during brumation.

The operation of sidecast dredges FRY, MERRITT and SCHWEIZER and the small capacity, coastal hopper dredge CURRITUCK is not expected to adversely affect listed species of sea turtles because of the slow speed of the vessels, the low suction levels inherent to these small dredges, and the small size of the dragheads. These species should be able to get out of the way of the slow moving dredges, which operate at speeds of 1 to 3 knots when working in inlet channels. From sea turtle tests performed by the Corps of Engineers in New River Inlet in 1998, it is known that the suction dragheads of these vessels exhibit very low suction forces. Further, the dragheads have very small openings--3 inches by 5 inches for the CURRITUCK and 5.5 inches by 8 inches for the sidecast dredges. The results of the tests conducted by the Corps of Engineers on a previously-dead, juvenile (13.5-inch carapace length) green turtle demonstrated that the low suction forces and small openings prevented the lifeless turtle from being entrained. Further, the suction force was low enough that the turtle was easily prodded and moved with a pole despite being held by the suction force against the draghead. If a small, live turtle did get impinged by the pump suction against the draghead, the turtle would very likely soon be broken free of the suction by the motion of the draghead along the irregular bottom and/or its own efforts to free itself. Even if a turtle small enough to pass through the draghead were encountered, it could pass through the dredge relatively unharmed due to the low pump pressures involved.

It is unlikely that turtles small enough to pass through the dragheads will be encountered in significant numbers in the proposed operating area of the dredges. The smallest of three sea turtles (all loggerheads) taken during hopper dredging operations in November-December 1998 at Beaufort Inlet Entrance Channel, North Carolina by the dredge SUGAR ISLAND measured 57 cm by 44 cm curved carapace length (CCL) by curved carapace width (CCW). During hopper dredging operations in February of 1999 in Kings Bay Entrance Channel, Fernandina, Florida, a total of 33 sea turtles (all juvenile loggerheads) were captured and relocated by a contract trawler sweeping the area in front of the large capacity hopper dredge R.N. WEEKS. (The R.N. WEEKS has a dredged material storage capacity approximately 10 times that of the CURRITUCK, and significantly larger dragheads, pumps and suction). The smallest captured and relocated loggerhead measured 54.5 cm CCL by 52.0 cm CCW. One Kemp's ridley that was lethally taken by the R.N. WEEKS measured approximately 30 cm in carapace diameter. Neither of these turtles would have been entrained by the smaller sized gridded dragheads of the vessels considered in this consultation because of their small openings.

Sea turtle strandings were compiled by R. Boettcher of North Carolina Marine Fisheries Commission for beaches within 3 miles (north, south, and inland) of Oregon Inlet, Drum Inlet, New Topsail Inlet, and Lockwood Folly Inlet, North Carolina for all periods when dredging operations occurred for 1994 - 1997 (ACOE, 1998) for the four vessels considered in this consultation. A total of 19 loggerheads, one green and one Kemp's ridley were reported stranded. The size of the stranded loggerheads would have precluded their entrainment by the vessels considered in this consultation (the smallest loggerhead which stranded measured 23.5 inches by 22.5 inches (CCL by CCW). The rarest and smallest of the turtles which stranded during the reporting period—the green and the Kemp's ridley – measured 12 inches by 10 inches (CCL by CCW), and 15 inches by 15 inches, respectively, and were also too large to have been entrained by the dragheads of the vessels considered in this consultation. Both of these turtles stranded within three miles of Lockwood Folly Inlet.

Additional data was compiled and analyzed by Boettcher on the measurements of sea turtle strandings and incidental captures in North Carolina from 1996-1998. Of 25 stranded green turtles for which straight-line carapace widths (SCWs) were measured in 1996, roughly 95% (mean plus or minus two standard deviations) ranged between 7.5-12.5 inches (mean SCW was 10.0 inches); in 1997, roughly 95% of 29 stranded green turtles had SCWs of 6.7-12.4 inches (mean SCW was 9.5 inches); in 1998, roughly 95% of 43 stranded green turtles had SCWs of 3.8-16.4 inches (mean SCW was 10.1 inches), while roughly 68% (mean plus or minus one standard deviation) had SCWs of 7.0-13.3 inches. In 1996 of 9 stranded Kemp's, roughly 95% had SCWs of 7.5-17.4 inches (mean SCW was 12.6 inches); in 1997 of 34 stranded Kemp's, roughly 95% had SCWs of 6.2-19.2 inches (mean SCW was 12.7 inches); in 1998 of 75 stranded Kemp's, roughly 95% had SCWs of 4.6-19.5 inches (mean SCW was 12.0 inches). The difference between the SCW and straight-line carapace length (SCL) measurements of the 212 stranded Kemp's and greens considered above ranged from 0.8 to 2.2 inches. It appears based on these measurements and the size of the openings on the dragheads (the largest opening is 5 by 8 inches), that the vast majority of both greens and Kemp's ridleys considered here could not and

would not be entrained by the dragheads. Both species are considerably smaller than the abundant loggerheads. While the possibility of entrainment of the smallest individuals of these two species cannot be ruled out, it is unlikely to occur.

Effects on Sturgeon

Aside from seasonal migrations to estuarine waters, shortnose sturgeon rarely occur in the marine environment. Shortnose sturgeon spawning habitat in the potential project areas should lie well upstream of the ocean inlet environments typically dredged by the small capacity, coastal hopper dredge CURRITUCK and the small sidecast dredges FRY, SCHWEIZER and MERRITT. Juvenile shortnose usually remain upstream of saline water until they reach about 45 cm (approximately 18 inches) in length.

Habitat conditions normally suitable for adults (shortnose greater than 45 cm in length) could occur in estuarine areas where these vessels might be required to work. Sturgeon habitat within the areas dredged would be temporarily disturbed during maintenance dredging. However, the dredges considered in this consultation restore navigation channels to their authorized dimensions to reestablish a previously existing condition (depth). Therefore, no new permanent modification of habitat will occur.

Maintenance dredging of Federal navigational channels can adversely affect sturgeon by entraining them in dredge dragarms and impeller pumps (NMFS 1998). Other dredging methods may also adversely affect sturgeon. Hastings (1983) reported anecdotal accounts of adult sturgeon being expelled from dredge spoil pipes while conducting a study on sturgeon on the Atlantic coast. Atlantic sturgeon were killed in both hydraulic pipeline and bucket-and-barge (clamshell dredge) operations in the Cape Fear River (M. Moser in NMFS 1998). NMFS observers documented the take of one Atlantic sturgeon in a hopper dredge operating in King's Bay, Georgia (C. Slay in NMFS 1998). Two shortnose sturgeon carcasses were discovered in a dredge spoil near Tullytown, Pennsylvania and apparently killed by a hydraulic pipeline dredge operating in the Delaware River in March 1996 (NMFS 1998). In early 1998, three shortnose sturgeon were killed by a hydraulic pipeline dredge operating in the Florence to Trenton section of the upper Delaware River (NMFS 1998).

Adult shortnose could occur in some of the areas that may be dredged by these vessels. Adults would be most likely to be encountered in the winter and spring, after spawning and their migrations to feeding areas in downstream and estuarine waters. However, because of their mobility, adult shortnose sturgeon should be able to avoid the slow moving dredge equipment if they move away when they detect the approaching draghead. Given their specialized sensory apparatus, they should be able to detect the vibrations of a slow moving, approaching draghead. Also, given the size of the shortnose sturgeon which would be expected to occupy the coastal inlets being dredged, i.e. greater than 45 cm, it is unlikely that they would be entrained by the slow moving, low suction dragheads. Entrained sturgeons passing through the suction pipelines could pass through unharmed, or they could be killed. Though the possibility of injury or death cannot be ruled out, as evidenced by the historic record, the likelihood is remote.

Effects on Whales

Right whales and humpback whales are vulnerable to small vessel and ship collisions when the whales make their annual migrations along the eastern seaboard. The sidecast dredges FRY, MERRITT and SCHWEIZER transit at approximately 7 to 10 knots from the inlet dredging sites to adjacent beach sites to dispose of dredged materials. The CURRITUCK travels at speeds of 5 to 8 knots to adjacent beaches or offshore disposal sites. Because of these slow speeds, these vessels should present a minimal threat to migrating whales – certainly less than that of normal, faster-moving commercial ship traffic and recreational boating. Adverse impacts to right whales and humpbacks from the dredges and dredging operations are not expected because 1) the dredges work in the throats and interior portions of inlets which are not used by whales, 2) the dredges travel at very low rates of speed during dredging operations, 3) the captains of the dredges will be provided daily information on the positions of the migrating right whales, and 4) the dredges will reduce their speed as necessary and maintain a proper lookout to avoid collisions with whales when transiting to disposal sites and right whales are in the area.


Conclusion

Based on our consideration of the best available information, we believe that the year-round operation of the hopper dredge CURRITUCK and the sidecast dredges FRY, MERRITT and SCHWEIZER to maintain coastal inlets on the eastern seaboard of the United States may affect, but is not likely to adversely affect the continued existence of listed species under NMFS purview. This consultation is valid as well for the operation by Wilmington District Corps of Engineers for channel maintenance dredging of up to 10 vessels of this or similar type and size class (under 500 gross tons), with similar dragheads (Brunswick, Brunswick County Type, Brunswick Adjustable, or equivalent), dredge pump horsepower (400 H.P. maximum), and suction and discharge pipe specifications (dredge suction pipes 10-14 inches in diameter, and combined discharge pipe 12-16 inches in diameter).

This concludes consultation responsibilities with NMFS under section 7 of the ESA. Consultation should also be reinitiated pursuant to 50 CFR 402.16 if there is new information that reveals effects of the action that may affect listed species or critical habitat (when designated) in a manner or to an extent not previously considered, if the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that has not been considered, or if a new species is listed or critical habitat is designated that may be affected by the identified action.

Please call Mr. Eric Hawk, Fishery Biologist, at 727/570-5312 if you have any questions regarding this consultation or if further coordination is necessary.

Sincerely,



Andrew J. Kemmerer
Regional Administrator

cc: F/PR3

References

- Caswell, H. *et al.* 1999. Proceedings of the National Academy of Science. In press.
- Dickerson, D.D., K.J. Reine, D.A. Nelson and C.E. Dickerson. 1994. Assessment of Sea Turtle Abundance in Six South Atlantic U.S. Channels. Report for the US Army Corps of Engineers, October, 1994.
- Hastings, R.W. 1983. A study of the shortnose sturgeon, *Acipenser brevirostrum*, population in the upper tidal Delaware River: assessment of impact of maintenance dredging. Final Report. 81 5670 USACE Shortnose Sturgeon-Delaware River (Hastings) DACW 61-81-C-0138. Center for Coastal and Environmental Studies for U.S. Army Corps of Engineers, Philadelphia District. 117pp.
- Kraus, S.D. 1990. Rates and potential causes of mortality in North Atlantic right whales (*Eubalaena glacialis*). Marine Mammal Science. 6(4):278-291.
- NMFS. 1991. Endangered Species Act section 7 consultation with U.S. Army Corps of Engineers, South Atlantic Division on hopper dredging of channels in the southeastern United States from North Carolina through Cape Canaveral, Florida. Biological Opinion, November 25.
- NMFS. 1991a. Recovery plan for the northern right whale (*Eubalaena glacialis*). Prepared by the Right Whale Recovery Team for the National Marine Fisheries Service, Silver Spring, Maryland. 86 pp.
- NMFS. 1991b. Recovery plan for the humpback whale (*Megaptera novaeangliae*). Prepared by the Humpback Whale Recovery Team for the NMFS, Silver Spring, Maryland. 105 pp.
- NMFS. 1995. Endangered Species Act section 7 consultation with U.S. Army Corps of Engineers, South Atlantic Division on hopper dredging of channels and borrow areas in the southeastern United States from North Carolina through Florida east coast. Biological Opinion, August 25. 25 pp.
- NMFS. 1997a. Endangered Species Act section 7 consultation with U.S. Army Corps of Engineers, South Atlantic Division on the continued hopper dredging of two channels and two borrow areas in the southeastern United States during 1997. Biological Opinion, April 9. 16 pp.
- NMFS. 1997b. Endangered Species Act section 7 consultation with U.S. Army Corps of Engineers, South Atlantic Division on the continued hopper dredging of channels and borrow areas in the southeastern United States. Biological Opinion, October 14. 16 pp.

APPENDIX E
USFWS Guidelines for Avoiding Impacts to the West Indian Manatee



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATEE

Precautionary Measures for Construction Activities in North Carolina Waters

The West Indian manatee (*Trichechus manatus*), also known as the Florida manatee, is a Federally-listed endangered aquatic mammal protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) and the Marine Mammal Protection Act of 1972, as amended (16 U.S.C. 1461 *et seq.*). The manatee is also listed as endangered under the North Carolina Endangered Species Act of 1987 (Article 25 of Chapter 113 of the General Statutes). The U.S. Fish and Wildlife Service (Service) is the lead Federal agency responsible for the protection and recovery of the West Indian manatee under the provisions of the Endangered Species Act.

Adult manatees average 10 feet long and weigh about 2,200 pounds, although some individuals have been recorded at lengths greater than 13 feet and weighing as much as 3,500 pounds. Manatees are commonly found in fresh, brackish, or marine water habitats, including shallow coastal bays, lagoons, estuaries, and inland rivers of varying salinity extremes. Manatees spend much of their time underwater or partly submerged, making them difficult to detect even in shallow water. While the manatee's principal stronghold in the United States is Florida, the species is considered a seasonal inhabitant of North Carolina with most occurrences reported from June through October.

To protect manatees in North Carolina, the Service's Raleigh Field Office has prepared precautionary measures for general construction activities in waters used by the species. Implementation of these measures will allow in-water projects which do not require blasting to proceed without adverse impacts to manatees. In addition, inclusion of these guidelines as conservation measures in a Biological Assessment or Biological Evaluation, or as part of the determination of impacts on the manatee in an environmental document prepared pursuant to the National Environmental Policy Act, will expedite the Service's review of the document for the fulfillment of requirements under Section 7 of the Endangered Species Act. These measures include:

1. The project manager and/or contractor will inform all personnel associated with the project that manatees may be present in the project area, and the need to avoid any harm to these endangered mammals. The project manager will ensure that all construction personnel know the general appearance of the species and their habit of moving about completely or partially submerged in shallow water. All construction personnel will be informed that they are responsible for observing water-related activities for the presence of manatees.
2. The project manager and/or the contractor will advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act and the Endangered Species Act.

3. If a manatee is seen within 100 yards of the active construction and/or dredging operation or vessel movement, all appropriate precautions will be implemented to ensure protection of the manatee. These precautions will include the immediate shutdown of moving equipment if a manatee comes within 50 feet of the operational area of the equipment. Activities will not resume until the manatee has departed the project area on its own volition (i.e., it may not be herded or harassed from the area).

4. Any collision with and/or injury to a manatee will be reported immediately. The report must be made to the U.S. Fish and Wildlife Service (ph. 919-856-4520), the National Marine Fisheries Service (ph. 252-728-8762), and the North Carolina Wildlife Resources Commission (ph. 252-448-1546).

5. A sign will be posted in all vessels associated with the project where it is clearly visible to the vessel operator. The sign should state:

CAUTION: The endangered manatee may occur in these waters during the warmer months, primarily from June through October. Idle speed is required if operating this vessel in shallow water during these months. All equipment must be shut down if a manatee comes within 50 feet of the vessel or operating equipment. A collision with and/or injury to the manatee must be reported immediately to the U.S. Fish and Wildlife Service (919-856-4520), the National Marine Fisheries Service (252-728-8762), and the North Carolina Wildlife Resources Commission (252-448-1546).

6. The contractor will maintain a log detailing sightings, collisions, and/or injuries to manatees during project activities. Upon completion of the action, the project manager will prepare a report which summarizes all information on manatees encountered and submit the report to the Service's Raleigh Field Office.

7. All vessels associated with the construction project will operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than a four foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

8. If siltation barriers must be placed in shallow water, these barriers will be: (a) made of material in which manatees cannot become entangled; (b) secured in a manner that they cannot break free and entangle manatees; and, (c) regularly monitored to ensure that manatees have not become entangled. Barriers will be placed in a manner to allow manatees entry to or exit from essential habitat.

Prepared by (rev. 02/2017):
U.S. Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726
919/856-4520

Figure 1. The whole body of the West Indian manatee may be visible in clear water; but in the dark and muddy waters of coastal North Carolina, one normally sees only a small part of the head when the manatee raises its nose to breathe.

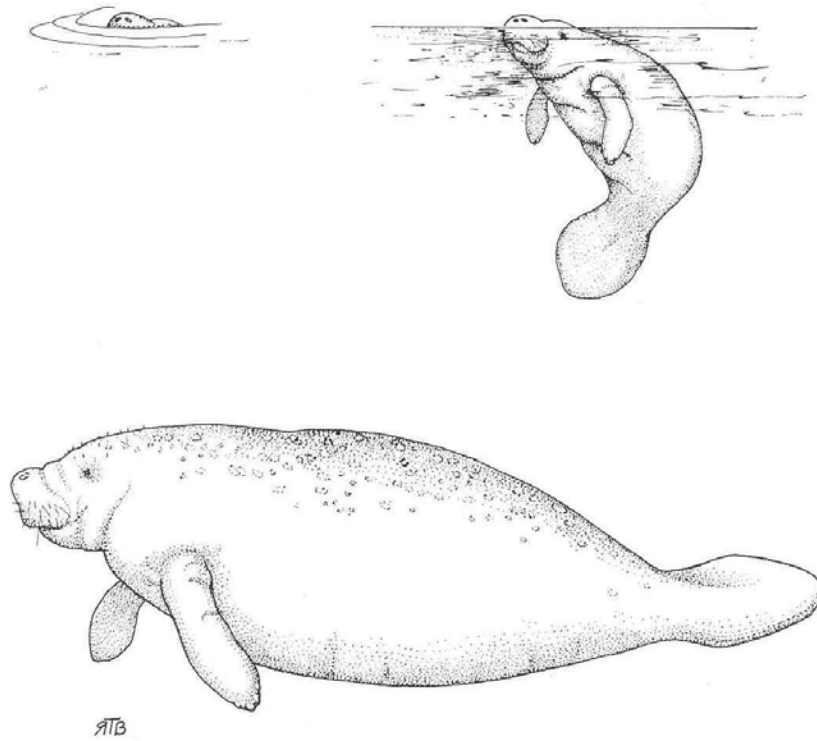


Illustration used with the permission of the North Carolina State Museum of Natural Sciences.

Source: Clark, M. K. 1987. Endangered, Threatened, and Rare Fauna of North Carolina: Part I. A re-evaluation of the mammals. Occasional Papers of the North Carolina Biological Survey 1987-3. North Carolina State Museum of Natural Sciences. Raleigh, NC. pp. 52.

APPENDIX F
NMFS Sea Turtle and Smalltooth Sawfish Construction Conditions



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

The permittee shall comply with the following protected species construction conditions:

- a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.
- b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.
- c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.
- d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.
- e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.
- f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.
- g. Any special construction conditions, required of your specific project, outside these general conditions, if applicable, will be addressed in the primary consultation.

Revised: March 23, 2006

O:\forms\Sea Turtle and Smalltooth Sawfish Construction Conditions.doc



APPENDIX G
Correspondence



**North Carolina Department of Natural and Cultural Resources
Natural Heritage Program**

Governor Roy Cooper

Secretary Susi H. Hamilton

NCNHDE-7108

September 27, 2018

Attn: Crystal Best
North Carolina Clearinghouse

RE: Clearinghouse 19-0062

Dear North Carolina Clearinghouse:

The North Carolina Natural Heritage Program (NCNHP) appreciates the opportunity to provide information about natural heritage resources for the project referenced above.

A query of the NCNHP database indicates that there are records for rare species, important natural communities, natural areas, and/or conservation/managed areas within the proposed project boundary. These results are presented in the attached 'Documented Occurrences' tables and map.

The attached 'Potential Occurrences' table summarizes rare species and natural communities that have been documented within a one-mile radius of the property boundary. The proximity of these records suggests that these natural heritage elements may potentially be present in the project area if suitable habitat exists. Tables of natural areas and conservation/managed areas within a one-mile radius of the project area, if any, are also included in this report.

If a Federally-listed species is documented within the project area or indicated within a one-mile radius of the project area, the NCNHP recommends contacting the US Fish and Wildlife Service (USFWS) for guidance. Contact information for USFWS offices in North Carolina is found here:
<https://www.fws.gov/offices/Directory/ListOffices.cfm?statecode=37>

Please note that natural heritage element data are maintained for the purposes of conservation planning, project review, and scientific research, and are not intended for use as the primary criteria for regulatory decisions. Information provided by the NCNHP database may not be published without prior written notification to the NCNHP, and the NCNHP must be credited as an information source in these publications. Maps of NCNHP data may not be redistributed without permission.

Also please note that the NC Natural Heritage Program may follow this letter with additional correspondence if a Dedicated Nature Preserve, Registered Heritage Area, Clean Water Management Trust Fund easement, or an occurrence of a Federally-listed species is documented near the project area.

If you have questions regarding the information provided in this letter or need additional assistance, please contact Rodney A. Butler at rodney.butler@ncdcr.gov or 919-707-8503.

Sincerely,
NC Natural Heritage Program

MAILING ADDRESS:
1651 Mail Service Center
Raleigh, NC 27699-1651

Telephone: (919) 707-8107
www.ncnhp.org

LOCATION:
121 West Jones Street
Raleigh, NC 27603

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Intersecting the Project Area
Clearinghouse 19-0062
September 27, 2018
NCNHDE-7108

Element Occurrences Documented Within Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Bird	6218	Charadrius wilsonia	Wilson's Plover	2007	A	3-Medium	---	Special Concern	G5	S2B
Butterfly	14658	Atrytonopsis quinteri	Crystal Skipper	2015-04-21	B?	2-High	---	Significantly Rare	G1Q	S1
Reptile	15254	Malaclemys terrapin	Diamondback Terrapin	2008-05-01	E	3-Medium	---	Special Concern	G4	S3

Natural Areas Documented Within Project Area

Site Name	Representational Rating	Collective Rating
Radio Island	R3 (High)	C4 (Moderate)

Managed Areas Documented Within Project Area*

Managed Area Name	Owner	Owner Type
Rachel Carson Component of the North Carolina National Estuarine Research Reserve Dedicated Nature Preserve	NC DEQ, Division of Coastal Management	State
Rachel Carson Component of the North Carolina National Estuarine Research Reserve	NC DEQ, Division of Coastal Management	State

*NOTE: If the proposed project intersects with a conservation/managed area, please contact the landowner directly for additional information. If the project intersects with a Dedicated Nature Preserve (DNP), Registered Natural Heritage Area (RHA), or Federally-listed species, NCNHP staff may provide additional correspondence regarding the project.

Definitions and an explanation of status designations and codes can be found at <https://ncnhdp.natureserve.org/content/help>. Data query generated on September 27, 2018; source: NCNHP, Q3 July 2018. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

Natural Heritage Element Occurrences, Natural Areas, and Managed Areas Within a One-mile Radius of the Project Area
Clearinghouse 19-0062
September 27, 2018
NCNHDE-7108

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Amphibian	37395	Anaxyrus quercicus	Oak Toad	No Date	H	4-Low	---	Significantly Rare	G5	S2
Animal Assemblage	18105	Waterbird Colony	---	1995-05-15	H	3-Medium	---	---	GNR	S3
Animal Assemblage	7770	Waterbird Colony	---	2004	D	3-Medium	---	---	GNR	S3
Animal Assemblage	6586	Waterbird Colony	---	1983-05-22	F	3-Medium	---	---	GNR	S3
Animal Assemblage	7771	Waterbird Colony	---	1988-05-30	X	3-Medium	---	---	GNR	S3
Animal Assemblage	4151	Waterbird Colony	---	1997-07-07	F	3-Medium	---	---	GNR	S3
Animal Assemblage	541	Waterbird Colony	---	1991-05-30	F	3-Medium	---	---	GNR	S3
Animal Assemblage	2551	Waterbird Colony	---	2011-05-31	D	3-Medium	---	---	GNR	S3
Bird	5705	Charadrius melodus melodus	Piping Plover - Atlantic Coast subspecies	1970-Summer	H?	3-Medium	Threatened	Threatened	G3T3	S1B,S1N
Bird	16486	Charadrius melodus melodus	Piping Plover - Atlantic Coast subspecies	2009	F	4-Low	Threatened	Threatened	G3T3	S1B,S1N
Bird	12064	Charadrius wilsonia	Wilson's Plover	2007	A	4-Low	---	Special Concern	G5	S2B
Bird	27197	Charadrius wilsonia	Wilson's Plover	2007	CD	4-Low	---	Special Concern	G5	S2B
Bird	6218	Charadrius wilsonia	Wilson's Plover	2007	A	3-Medium	---	Special Concern	G5	S2B
Bird	27206	Charadrius wilsonia	Wilson's Plover	2007	C?	3-Medium	---	Special Concern	G5	S2B
Bird	27210	Charadrius wilsonia	Wilson's Plover	2007	D	3-Medium	---	Special Concern	G5	S2B
Bird	14954	Egretta caerulea	Little Blue Heron	1991-05-16	F	3-Medium	---	Special Concern	G5	S3B,S3N

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Bird	15951	<i>Egretta thula</i>	Snowy Egret	1991-05-16	F	3-Medium	---	Special Concern	G5	S2S3B, S3N
Bird	16723	<i>Egretta tricolor</i>	Tricolored Heron	1991-05-16	F	3-Medium	---	Special Concern	G5	S3B,S3N
Bird	3795	<i>Gelochelidon nilotica</i>	Gull-billed Tern	1993-06-02	F	3-Medium	---	Threatened	G5	S1S2B
Bird	2416	<i>Gelochelidon nilotica</i>	Gull-billed Tern	1988	H	3-Medium	---	Threatened	G5	S1S2B
Bird	13662	<i>Gelochelidon nilotica</i>	Gull-billed Tern	1988-05-30	X	3-Medium	---	Threatened	G5	S1S2B
Bird	36411	<i>Gelochelidon nilotica</i>	Gull-billed Tern	1991-05-30	F	3-Medium	---	Threatened	G5	S1S2B
Bird	27240	<i>Haematopus palliatus</i>	American Oystercatcher	2007	AB	4-Low	---	Special Concern	G5	S2S3B, S3N
Bird	27228	<i>Haematopus palliatus</i>	American Oystercatcher	2007	BC	4-Low	---	Special Concern	G5	S2S3B, S3N
Bird	26023	<i>Haematopus palliatus</i>	American Oystercatcher	2007	D	3-Medium	---	Special Concern	G5	S2S3B, S3N
Bird	27342	<i>Haematopus palliatus</i>	American Oystercatcher	2007	B	3-Medium	---	Special Concern	G5	S2S3B, S3N
Bird	7119	<i>Himantopus mexicanus</i>	Black-necked Stilt	1983-07	F	4-Low	---	Significantly Rare	G5	S1B
Bird	36705	<i>Nyctanassa violacea</i>	Yellow-crowned Night-Heron	1978-07-16	D	6-Unknow n	---	Significantly Rare	G5	S2B
Bird	10588	<i>Passerina ciris</i>	Painted Bunting	2017-08-12	AB	3-Medium	---	Special Concern	G5	S2B
Bird	17588	<i>Rynchops niger</i>	Black Skimmer	1995-05-15	F	3-Medium	---	Special Concern	G5	S2B,S3N
Bird	16216	<i>Rynchops niger</i>	Black Skimmer	1988	H	3-Medium	---	Special Concern	G5	S2B,S3N
Bird	36408	<i>Rynchops niger</i>	Black Skimmer	2005-05-20	F	3-Medium	---	Special Concern	G5	S2B,S3N
Bird	5207	<i>Rynchops niger</i>	Black Skimmer	1988-05-30	X	3-Medium	---	Special Concern	G5	S2B,S3N
Bird	12917	<i>Rynchops niger</i>	Black Skimmer	1997-06-09	F	4-Low	---	Special Concern	G5	S2B,S3N
Bird	36412	<i>Rynchops niger</i>	Black Skimmer	1991-05-30	F	3-Medium	---	Special Concern	G5	S2B,S3N
Bird	23960	<i>Rynchops niger</i>	Black Skimmer	2004-06-22	F	3-Medium	---	Special Concern	G5	S2B,S3N

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Bird	36378	Sterna hirundo	Common Tern	1995-05-15	F	3-Medium	—	Endangered	G5	S2B
Bird	36409	Sterna hirundo	Common Tern	2007-05-22	F	3-Medium	—	Endangered	G5	S2B
Bird	36417	Sterna hirundo	Common Tern	1988-05-30	X	3-Medium	—	Endangered	G5	S2B
Bird	36413	Sterna hirundo	Common Tern	1991-05-30	F	3-Medium	—	Endangered	G5	S2B
Bird	23961	Sterna hirundo	Common Tern	2011-05-31	F	3-Medium	—	Endangered	G5	S2B
Bird	35776	Sternula antillarum	Least Tern	1993-06-02	F	3-Medium	—	Special Concern	G4	S3B
Bird	23765	Sternula antillarum	Least Tern	2004-06-22	D	4-Low	—	Special Concern	G4	S3B
Bird	35772	Sternula antillarum	Least Tern	1983-05-22	F	3-Medium	—	Special Concern	G4	S3B
Bird	35775	Sternula antillarum	Least Tern	2004-06-02	F	3-Medium	—	Special Concern	G4	S3B
Bird	23702	Sternula antillarum	Least Tern	1977	X	3-Medium	—	Special Concern	G4	S3B
Bird	35773	Sternula antillarum	Least Tern	1997-07-07	D	3-Medium	—	Special Concern	G4	S3B
Bird	35774	Sternula antillarum	Least Tern	1991-05-30	H	3-Medium	—	Special Concern	G4	S3B
Bird	35752	Sternula antillarum	Least Tern	1995-06-20	F	3-Medium	—	Special Concern	G4	S3B
Bird	17566	Sternula antillarum	Least Tern	1985-06-08	C	3-Medium	—	Special Concern	G4	S3B
Butterfly	14658	Atrytonopsis quinteri	Crystal Skipper	2015-04-21	B?	2-High	—	Significantly Rare	G1Q	S1
Butterfly	11496	Atrytonopsis quinteri	Crystal Skipper	2016-07-28	A	3-Medium	—	Significantly Rare	G1Q	S1
Butterfly	10143	Papilio cresphontes	Giant Swallowtail	2016-07-28	E	3-Medium	—	Significantly Rare	G5	S2S3
Dragonfly or Damselfly	32036	Coryphaeschna ingens	Regal Darner	2004-Pre	H?	5-Very Low	—	Significantly Rare	G5	S2?
Dragonfly or Damselfly	33787	Triacanthagyna trifida	Phantom Darner	2004-Pre	H?	5-Very Low	—	Significantly Rare	G5	S1?
Freshwater Fish	24086	Acipenser brevirostrum	Shortnose Sturgeon	1999-01-28	E	5-Very Low	Endangered	Endangered	G3	S1

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Freshwater Fish	32417	Acipenser oxyrinchus oxyrinchus	Atlantic Sturgeon	2012-04-04	E	4-Low	Endangered	Endangered	G3T3	S2
Grasshopper or Katydid	34586	Mermiria bivittata	Two-striped Mermiria	2004-09-10	E	2-High	—	Significantly Rare	G5	S2S3
Mammal	9806	Trichechus manatus	West Indian Manatee	2008-06-13	E	5-Very Low	Endangered	Endangered	G2	S1N
Moss	23678	Tortula plinthobia	A Chain-teeth Moss	1989-11-13	E	3-Medium	—	Significantly Rare Other	G4G5	S1?
Moth	34584	Dargida aleada	an Armyworm Moth	1996-07-21	E	2-High	—	Significantly Rare	GNR	S1S2
Moth	34585	Dargida rubripennis	Pink Streak	2006-09-10	E	2-High	—	Significantly Rare	G3G4	S2S3
Moth	34588	Zale declarans	Dixie Zale	2010-04-02	E	2-High	—	Significantly Rare	G5	S2S3
Natural Community	32942	Brackish Marsh (Salt Meadow Cordgrass Subtype)	---	2012-05-03	C	3-Medium	—	---	G4G5	S4
Natural Community	1542	Dune Grass (Bluestem Subtype)	---	1993-10-05	B	3-Medium	—	---	G3	S1
Natural Community	20085	Dune Grass (Southern Subtype)	---	2007-07-17	A	3-Medium	—	---	G3	S2
Natural Community	32940	Dune Grass (Southern Subtype)	---	2012-05-03	C	2-High	—	---	G3	S2
Natural Community	5281	Maritime Dry Grassland (Typic Subtype)	---	1978	NR	4-Low	—	---	G2G3	S2
Natural Community	16055	Maritime Shrub (Stunted Tree Subtype)	---	1993-10-05	C	4-Low	—	---	G3	S2
Natural Community	1066	Maritime Wet Grassland (Southern Hairgrass Subtype)	---	2007-07-19	C?	4-Low	—	---	G2	S2
Natural Community	16844	Salt Flat	---		NR	4-Low	—	---	G5	S4
Natural Community	32939	Salt Flat	---	2012-05-03	C	3-Medium	—	---	G5	S4
Natural Community	4733	Salt Marsh (Carolinian Subtype)	---	2012-05-03	C	2-High	—	---	G5	S4

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Natural Community	10811	Salt Marsh (Carolinian Subtype)	---		NR	4-Low	---	---	G5	S4
Natural Community	16404	Salt Shrub (Low Subtype)	---		NR	4-Low	---	---	G4	S4?
Natural Community	32943	Salt Shrub (Low Subtype)	---		NR	3-Medium	---	---	G4	S4?
Natural Community	20144	Upper Beach (Southern Subtype)	---	2012-05-13	C?	2-High	---	---	G3	S3
Reptile	8569	Alligator mississippiensis	American Alligator	2017-08-14	E	4-Low	Threatened Similar Appearance	Threatened	G5	S3
Reptile	4805	Caretta caretta	Loggerhead Seaturtle	2017-08-18	CD	3-Medium	Threatened	Threatened	G3	S3B,S3N
Reptile	34144	Chelonia mydas	Green Seaturtle	2016-09-22	E	4-Low	Threatened	Threatened	G3	S1B,SUN
Reptile	37965	Dermochelys coriacea	Leatherback Seaturtle	2005-05-27	E	3-Medium	Endangered	Endangered	G2	S1B,SUN
Reptile	37971	Lepidochelys kempii	Kemp's Ridley Seaturtle	2017-06-18	E	3-Medium	Endangered	Endangered	G1	S1B,SUN
Reptile	15254	Malaclemys terrapin	Diamondback Terrapin	2008-05-01	E	3-Medium	---	Special Concern	G4	S3
Reptile	13517	Malaclemys terrapin	Diamondback Terrapin	2013-04-11	E	3-Medium	---	Special Concern	G4	S3
Reptile	17411	Nerodia sipedon williamengelsi	Carolina Watersnake	1972-07	H?	4-Low	---	Special Concern	G5T3	S3
Reptile	37448	Ophisaurus attenuatus	Slender Glass Lizard	1950-07	H	3-Medium	---	Significantly Rare	G5	S2
Reptile	11301	Seminatrix pygaea paludis	Carolina Swamp Snake	1863	H	4-Low	---	Special Concern	G5T4	S2
Reptile	37850	Sistrurus miliarius miliarius	Carolina Pigmy Rattlesnake	1939-04	H	4-Low	---	Special Concern	G5T4T5	S3
Vascular Plant	278	Amaranthus pumilus	Seabeach Amaranth	2012-08-24	C	2-High	Threatened	Threatened	G2	S1
Vascular Plant	17109	Amaranthus pumilus	Seabeach Amaranth	2016-08-19	D	2-High	Threatened	Threatened	G2	S1
Vascular Plant	4359	Amaranthus pumilus	Seabeach Amaranth	1991-01-26	F	3-Medium	Threatened	Threatened	G2	S1
Vascular Plant	34582	Corydalis micrantha	Slender Corydalis	2005-04-27	E	2-High	---	Threatened	G5T4	S1
Vascular Plant	14038	Erythrina herbacea	Coralbean	1950-08-07	H	3-Medium	---	Endangered	G5	S2

Element Occurrences Documented Within a One-mile Radius of the Project Area

Taxonomic Group	EO ID	Scientific Name	Common Name	Last Observation Date	Element Occurrence Rank	Accuracy	Federal Status	State Status	Global Rank	State Rank
Vascular Plant	28781	Euphorbia bombensis	Southern Seaside Spurge	2006-08-15	E	2-High	---	Significantly Rare	G4G5	S2?
Vascular Plant	28271	Oplismenus setarius	Shortleaf Basket Grass	1964-09-16	H	4-Low	---	Throughout Significantly Rare Peripheral	G5T5	S1
Vascular Plant	7348	Parietaria praetermissa	Large-seed Pellitory	1962-05-06	H	4-Low	---	Special Concern	G3G4	S1
Vascular Plant	6466	Parietaria praetermissa	Large-seed Pellitory	1984-05-15	E	3-Medium	---	Vulnerable Special Concern	G3G4	S1
Vascular Plant	6446	Polygonum glaucum	Seabeach Knotweed	2014-08-18	A	3-Medium	---	Vulnerable Endangered	G3	S1
Vascular Plant	16095	Polygonum glaucum	Seabeach Knotweed	1967-07-29	H	3-Medium	---	Endangered	G3	S1
Vascular Plant	1995	Polygonum glaucum	Seabeach Knotweed	2007-09-15	D	3-Medium	---	Endangered	G3	S1
Vascular Plant	3880	Scleria verticillata	Savanna Nutrush	2007-07-16	A	4-Low	---	Significantly Rare Peripheral	G5	S2
Vascular Plant	35161	Sesuvium portulacastrum	Shoreline Sea-purslane	1993-07-16	E	4-Low	---	Significantly Rare Peripheral	G5	S1
Vascular Plant	22045	Sesuvium portulacastrum	Shoreline Sea-purslane	2014-08-18	A?	2-High	---	Significantly Rare Peripheral	G5	S1
Vascular Plant	37015	Trichostema sp. 1	Dune Bluecurls	2016-09-20	C	3-Medium	---	Significantly Rare Limited	G2	S2
Vascular Plant	23508	Yucca gloriosa	Moundlily Yucca	2005-03-26	E	3-Medium	---	Significantly Rare Peripheral	G4?	S2?

Natural Areas Documented Within a One-mile Radius of the Project Area

Site Name	Representational Rating	Collective Rating
Radio Island	R3 (High)	C4 (Moderate)
Shackleford Banks	R2 (Very High)	C1 (Exceptional)
Rachel Carson Estuarine Research Reserve	R2 (Very High)	C1 (Exceptional)
Phillips and Annex Islands	R5 (General)	C4 (Moderate)
Fort Macon State Park/Brandt Island	R1 (Exceptional)	C1 (Exceptional)

Managed Areas Documented Within a One-mile Radius of the Project Area

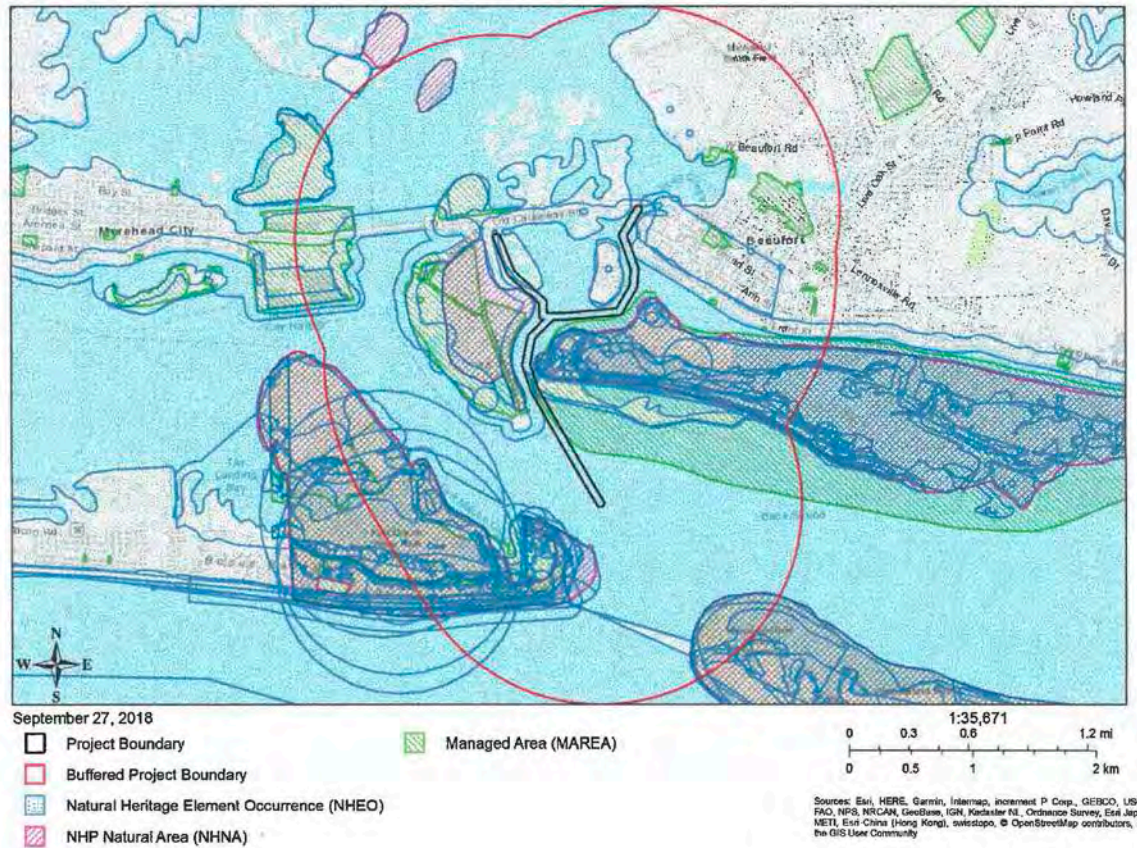
Managed Area Name	Owner	Owner Type
NC Department of Transportation Mitigation Site	NC Department of Transportation	State

Managed Areas Documented Within a One-mile Radius of the Project Area

Managed Area Name	Owner	Owner Type
Cape Lookout National Seashore	US National Park Service	Federal
Cape Lookout National Seashore/Shackleford Banks Registered Heritage Area	US National Park Service	Federal
Cape Lookout National Seashore - Shackleford Banks Wilderness	US National Park Service	Federal
Rachel Carson Component of the North Carolina National Estuarine Research Reserve Dedicated Nature Preserve	NC DEQ, Division of Coastal Management	State
Rachel Carson Component of the North Carolina National Estuarine Research Reserve	NC DEQ, Division of Coastal Management	State
Carteret County Open Space	Carteret County: multiple local government	Local Government
Port of Morehead City	NC State Ports Authority	State
Fort Macon State Park	NC DNCR, Division of Parks and Recreation	State
Fort Macon State Park Dedicated Nature Preserve	NC DNCR, Division of Parks and Recreation	State
Brant Island Registered Heritage Area	NC Wildlife Resources Commission	State
Coast Guard Station Fort Macon	US Department of Homeland Security	Federal

Definitions and an explanation of status designations and codes can be found at <https://ncnvh.naturereserve.org/content/ncnvh>. Data query generated on September 27, 2018; source: NCNHP, Q3 July 2018. Please resubmit your information request if more than one year elapses before project initiation as new information is continually added to the NCNHP database.

NCNHDE-7108: Clearinghouse 19-0062





STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

October 2, 2018

MEMORANDUM TO: North Carolina State Clearinghouse
Department of Administration
Intergovernmental Review

FROM: Catherine Bryant
NCDOT Transportation Planning Division

C.F.B.

SUBJECT: 19-E-0000-0062 NEPA Environmental Assessment – Dredging of Bulkhead
Channel and Morgan Creek with placement of material near Beaufort Inlet

Thank you for allowing the Transportation Planning Division to review this document. The most current transportation plan covering Carteret County is the 2014 Carteret County Comprehensive Transportation Plan (CTP).

The Carteret County CTP outlines the following within the vicinity of your project:

- Highway: Recommended boulevard (Gallant's Channel Bridge)
- Highway: Road improvements along US 70, NC 101, Turner St, Front St, and W Beaufort Rd
- Public Transportation: Recommended bus route along US 70 and E Fort Macon Rd
- Bicycle: Various recommended on-road and multi-use paths including along US 70 and NC 101
- Bicycle: Various on-road improvements including along US 70, NC 101, and E Fort Macon Rd
- Pedestrian: Various recommended sidewalks and multi-use paths including along US 70 and NC 101

The 2018-2027 Final State Transportation Improvement Program (STIP) lists the following projects as within the vicinity of your project:

- B-5938, SR 1182 (ATLANTIC BEACH CAUSEWAY): REHABILITATE BRIDGE 150068 OVER BOGUE SOUND.
- U-5876, US 70 (ARENDELL STREET): 4TH STREET TO SR 1175 (RADIO ISLAND ROAD). WIDEN TO MULTI-LANES.
- U-5740, US 70 (ARENDELL STREET): MOREHEAD CITY TO BEAUFORT CAUSEWAY. WIDEN AND IMPROVE NEWPORT RIVER BRIDGE.
- U-6058, US 70 (LIVE OAK STREET): NC 101. CONSTRUCT ONE LANE ROUNDABOUT.
- R-3307, US 70: GALLANT'S CHANNEL BRIDGE, FOUR LANES AT RADIO ISLAND TO US 70 NORTH OF BEAUFORT NEAR SR 1429 (OLGA ROAD). MULTI-LANES, PART ON NEW LOCATION.
- R-5816, NC 58 (WEST FORT MACON): ATLANTIC BEACH CAUSEWAY. ADD RIGHT TURN LANE.
- AV-5838, MICHAEL J. SMITH FIELD (MRH): STRENGTHEN RUNWAY TO ACCOMMODATE LARGER AIRCRAFT.
- AV-5746, MICHAEL J. SMITH FIELD (MRH): FULL PARALLEL TAXIWAY 8-26.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING DIVISION
1554 MAIL SERVICE CENTER
RALEIGH, NC 27699-1554

Telephone: (919) 707-0900
Fax: (919) 733-9794
Customer Service: 1-877-368-4968

Location:
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27601

Website: www.ncdot.gov

Page 1 of 2

For maps of recommended projects and a full list of State Transportation Improvement Program (STIP) projects in Carteret County, the Carteret County CTP and STIP can be found on the NCDOT website: <https://connect.ncdot.gov/projects/planning/Pages/default.aspx>

Please coordinate with the Division 2 office for any impacts to the right-of-way or flow of traffic during your project activities. They can be reached at (252) 775-6100. If you have any questions, please feel free to contact me at (919) 707-0979 or cbryant6@ncdot.gov.

cc: Preston Hunter, PE, NCDOT, Division Engineer
Mary Beth Houston, PE, NCDOT, District Engineer
Patrick Flanagan, Down East RPO Transportation Planner

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PLANNING DIVISION
1554 MAIL SERVICE CENTER
RALEIGH, NC 27699-1554

Telephone: (919) 707-0900
Fax: (919) 733-9794
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1 SOUTH WILMINGTON STREET
RALEIGH, NC 27601

Bashaw, Justin P CIV USARMY CESAW (US)

From: Clark, Maria <Clark.Maria@epa.gov>
Sent: Tuesday, October 16, 2018 8:36 AM
To: Bashaw, Justin P CIV USARMY CESAW (US)
Cc: Clark, Maria
Subject: [Non-DoD Source] RE: Scoping Letter for Bulkhead Channel and Morgan Creek Dredging Projects, NC.

Importance: High

Good morning Justin,

Thank you for contacting me! A colleague within my team was able to give me a hand and I believe that he sent you our comments back in September(?). Please let me know if you did receive them.

Just in case, I'm forwarding you his comments (in blue) below:

Justin,

We have completed our review of the above referenced EA and would like to offer the following comments below. It is our understanding that "[t]his Environmental Assessment (EA) addresses evaluates the environmental impacts associated with proposed changes to U. S. Army Corps of Engineers' (USACE) maintenance dredging practices for Bulkhead Channel and Morgan Creek, which are part of the Beaufort Harbor Federal Navigation Project, in Carteret County, North Carolina" (p. 1 of EA)

The EA provides an analysis of four alternatives:

1. No Action
2. Addition of Sidecast Dredging and Sidecast Placement of Dredged Material
3. Addition of Shallow Draft Hopper Dredging with Nearshore Placement of Dredged Material
4. (Proposed) Addition of Shallow Draft Hopper Dredging with Nearshore Placement and a 50-foot by 1,200 foot Advance Maintenance Widener in Bulkhead Channel Range 1

EPA Comments:

1) Geotechnical Boring Data – The EPA tried to access the Geotechnical Boring Data through the link provided in the draft EA. However, we discovered that the link does not work. The EPA recommends providing access to this information in the final EA.

2) Material Testing – It is stated on p. 15 of the draft EA that "Data associated with all borings featured in Figure 5 indicate that shoaled sediments in these areas are comprised of >90% sand." No other discussion of testing of material is provided in the draft EA. In the 404(b)(1) analysis under section 3 – Evaluation of Dredged or Fill Material, it is implied that testing has been conducted on material in the vicinity of the project and that this testing could be used to evaluate the possible contaminants in the dredged or fill material. If testing of material has been conducted, the EPA recommends that information be included in the final EA. If the USACE has reason to believe that the dredged material is not contaminated, then rational should be provided in the final EA.

3) Evaluation of Dredged Material Proposed For Discharge in Waters of the U.S. - Testing Manual - Inland Testing Manual – The EPA recommends that the USACE review the above testing manual and determine if the proposed activity complies with the evaluation required by 40 CFR 404(b)(1).

EPA appreciates the opportunity to review the subject EA. If you have any questions give me a call.

Dan Holliman
USEPA Region 4 | NEPA Program Office
61 Forsyth Street SW | Atlanta, GA 30303

tel 404.562.9531 | holliman.daniel@epa.gov

Maria R. Clark
NEPA Program Office - Region 4
U.S. Environmental Protection Agency
61 Forsyth, Street South West
Atlanta, GA 30303
404-562-9513

-----Original Message-----

From: Bashaw, Justin P CIV USARMY CESAW (US) [<mailto:Justin.P.Bashaw@usace.army.mil>]
Sent: Monday, October 15, 2018 1:46 PM
To: Clark, Maria <Clark.Maria@epa.gov>
Subject: RE: Scoping Letter for Bulkhead Channel and Morgan Creek Dredging Projects, NC.

Good afternoon Ms. Clark (Maria),

I was checking-up on the status of your review of the attached draft EA regarding Maintenance Dredging of Bulkhead Channel (With Advance Maintenance Widener) and Morgan Creek, Beaufort Harbor Navigation Project, Carteret County, NC. Also attached, for reference, is a public notice dated September 4th that was sent to your office.

Do you or your office have any comments to provide regarding the proposed project? Even if 'no comment', would you mind replying to this email so that I'd have a record of EPA Region 4's having reviewed the document?

Thanks in advance for your response, and take care.

Respectfully,
-Justin B

Justin Bashaw

Biologist, Cultural Resources Manager, Ocean Disposal Coordinator

Environmental Resources Section
U.S. Army Corps of Engineers, Wilmington District

- 69 Darlington Avenue
Wilmington, NC 28403-1343
- 910.251.4581 (telephone)
- 910.251.4744 (facsimile)
- justin.p.bashaw@usace.army.mil



UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5505
<http://sero.nmfs.noaa.gov>

October 17, 2018

F/SER47:TC/pw

(Sent via Electronic Mail)

Colonel Robert J. Clark, Commander
U.S. Army Corps of Engineers Wilmington District
69 Darlington Avenue
Wilmington, North Carolina 28403-1398

Attention: Justin Bashaw

Dear Colonel Clark:

NOAA's National Marine Fisheries Service (NMFS) reviewed the letter dated September 4, 2018, from the Wilmington District requesting consultation under the essential fish habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) for the maintenance of Bulkhead Channel and Morgan Creek, which are parts of the Beaufort Harbor Federal Navigation Project (Beaufort Harbor Project), Carteret County. The letter included a public notice for the project and the *Draft Environmental Assessment, Maintenance Dredging of Bulkhead Channel (With Advance Maintenance Widener) And Morgan Creek* (Draft EA), dated September 2018. In the letter, the Wilmington District notes it has concluded the proposed additional maintenance dredging practices for Bulkhead Channel and Morgan Creek are not likely to affect adversely EFH or federally managed fishery species. As the nation's federal trustee for the conservation and management of marine, estuarine, and anadromous fishery resources, the NMFS provides the following comments and recommendations pursuant to authorities of the Fish and Wildlife Coordination Act and the Magnuson-Stevens Act.

The Wilmington District and Carteret County are proposing to modify a portion of the Beaufort Harbor Project. Historically, the District used a small pipeline dredge with disposal in upland confined disposal sites to maintain Bulkhead Channel and Morgan Creek. If funding is available, the District dredges annually shoals from Bulkhead Channel. The District has dredged Morgan Creek twice since 1987, most recently in April 1999. The Draft EA examines four alternatives, including the no-action alternative, for maintaining safe navigation in these channels. Draft EA section 3.4 describes the proposed action, Alternative 4, which includes two additions to the current dredging practice. First, use of a small hopper dredge, capable of working in shallow-draft channels, with placement of dredged material in the nearshore placement areas to the east (Nearshore East) and west (Nearshore West) of Beaufort Inlet; these placement area were approved previously for other portions of the Beaufort Harbor Project. Second, dredging a widener, approximately 50 feet wide and 1,200 feet long, in an area of Range 1 of Bulkhead Channel that shoals frequently. The District believes these changes will increase its ability to accomplish the required maintenance dredging by providing more flexibility in how the dredging occurs. Based on a bathymetric survey from May 22, 2018, the District anticipates dredging less than 10,000 cubic yards and



8,000 cubic yards, respectively, from the identified sections of Bulkhead Channel and Morgan Creek.

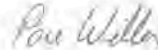
Draft EA Section 4.9 includes an EFH Assessment describing the federally managed fishery species present and their EFH. Those descriptions do not require amendment to complete this EFH consultation and are incorporated here by reference.

The Draft EA characterizes the adverse impacts to the environment (primarily the marine water column and soft bottom) from dredging and disposal as temporary and minor. The NMFS agrees with the Wilmington District's conclusion and offers no EFH conservation recommendations for the proposed changes to the maintenance dredging practices for Bulkhead Channel and Morgan Creek.

Please note these comments do not satisfy consultation responsibilities under section 7 of the Endangered Species Act of 1973, as amended. If an activity "may effect" listed species or critical habitat under the purview of the NMFS, please initiate consultation with the Protected Resources Division at the letterhead address.

Thank you for the opportunity to provide these comments. Please direct related questions or comments to the attention of Ms. Twyla Cheatwood at our Beaufort Field Office, 101 Pivers Island Road, Beaufort, North Carolina 28516-9722, or at (252) 728-8758.

Sincerely,



/ for

Virginia M. Fay
Assistant Regional Administrator
Habitat Conservation Division

cc: COE, Justin.P.Bashaw@usace.army.mil
USFWS, John_Ellis@fws.gov
NCDCM, Shane_Staples@ncdenr.gov
E/SER4, Twyla.Cheatwood@noaa.gov



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh ES Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

October 19, 2018

Mr. Justin Bashaw
Planning and Environmental Branch
Wilmington District, U.S. Army Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403

Subject: Draft Environmental Assessment for Maintenance Dredging of Bulkhead
Channel (with Advance Maintenance Widener) and Morgan Creek
Beaufort Harbor, Carteret County

Dear Mr. Bashaw:

This is in response to the U.S. Army Corps of Engineers' (Corps) September 2018 Draft Environmental Assessment (EA) for maintenance dredging of Bulkhead Channel and Morgan Creek. The U.S. Fish and Wildlife Service (Service) has reviewed the Draft EA. These comments are submitted in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

The project area is classified as SC (tidal salt waters protected for secondary recreation) and HQW (high quality waters). According to the Draft EA, the purpose of this study is to evaluate the environmental impacts associated with proposed changes to the Corps' maintenance dredging practices for Bulkhead Channel and Morgan Creek, which are part of the Beaufort Harbor Federal Navigation Project, in Carteret County, North Carolina. Historically, these channels have been maintained by a small pipeline dredge with disposal in approved upland confined disposal sites. The proposed changes include: 1) use of a small shallow draft hopper dredge, capable of working in shallow draft channels, with placement of dredged material in the approved nearshore placement areas to the east (Nearshore East) and west (Nearshore West) of Beaufort Inlet, and 2) dredging of a 50-foot wide by approximately 1,200-foot long advance maintenance widener in a frequently shoaled area of Range 1 in Bulkhead Channel.


Federally Protected Species

The Service has reviewed available information on federally-threatened or endangered species known to occur in Carteret County. Our review indicates that several species may occur in the general area of the project, including the West Indian manatee (*Trichechus manatus*), piping plover (*Charadrius melodus*), and the loggerhead (*Caretta caretta*), leatherback (*Dermochelys coriacea*), Kemp's Ridley (*Lepidochelys kempi*), Hawksbill (*Eretmochelys imbricata*), and green (*Chelonia mydas*) sea turtle. However, the ESA Section 7 evaluation can be limited to the West Indian manatee, the only species under the jurisdiction of the Service that may be present in the project work area.

In Section 4.11 of the EA, the Corps has made a determination of "May Affect, Not Likely to Adversely Affect" the West Indian manatee. The Corps has committed to implementing precautionary measures for avoiding impacts to manatees from vessels during construction activities, by following the Service's "Guidelines for Avoiding Impacts to the West Indian Manatee." The Service concurs with the Corps' determination for the West Indian manatee. We recommend that the Corps utilize the most recent version of the Manatee Guidelines, which are attached. We also emailed a copy of the most recent version to you on October 18, 2018.

The Service appreciates this opportunity to comment on the EA for this project. If you have questions regarding these comments, please contact Kathy Matthews at 919-856-4520, ext. 27 or by e-mail at <kathryn_matthews@fws.gov>.

Sincerely,


 For Pete Benjamin
 Field Supervisor

cc:

Twyla Cheatwood, NOAA Fisheries, Beaufort, NC
 Daniel Holliman, USEPA, Atlanta
 Maria Dunn, NC Wildlife Resources Commission, Wilmington
 Doug Huggett, NC Division of Coastal Management, Morehead City, NC



NORTH CAROLINA
Environmental Quality

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

BRAXTON C. DAVIS
Director

November 9, 2018

Justin Bashaw
Environmental Resources Section
U.S. Army Corps of Engineers
Wilmington District
69 Darlington Avenue
Wilmington, NC 28403-1343

SUBJECT: **CD18-033** Consistency Concurrence Concerning the U.S. Army Corps of Engineers (USACE) Proposed Maintenance Dredging of Bulkhead Channel and Morgan Creek (DCM#20180033)

Dear Mr. Bashaw:

We received your consistency submission on September 10, 2018, concerning the USACE proposed maintenance dredging of Bulkhead Channel and Morgan Creek using a shallow draft hopper dredge, with placement of dredge material in the approved nearshore placement areas. Bulkhead Channel and Morgan Creek are components of the Beaufort Harbor Navigation Project, Carteret County, North Carolina.

North Carolina's coastal zone management program consists of, but is not limited to, the Coastal Area Management Act, the State's Dredge and Fill Law, Chapter 7 of Title 15A of North Carolina's Administrative Code, and the land use plan of the County and/or local municipality in which the proposed project is located. It is the objective of the Division of Coastal Management (DCM) to manage the State's coastal resources to ensure that proposed federal activities would be compatible with safeguarding and perpetuating the biological, social, economic, and aesthetic values of the State's coastal waters.

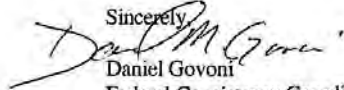
DCM has reviewed the submitted information pursuant to the management objectives and enforceable policies of Subchapters 7H and 7M of Chapter 7 in Title 15A of the North Carolina Administrative Code and concurs that the proposed Amendment is consistent with North Carolina's approved coastal management program.

Prior to the initiation of the activities described, the applicant should obtain any required State approvals or authorizations, including any authorizations required by the N.C. Division of Water Resources. Should the proposed action be modified further, a revised consistency determination could be necessary. This might take the form of either a supplemental consistency determination pursuant to 15 CFR 930.46, or a new consistency determination pursuant to 15 CFR 930.36. Likewise, if further project assessments reveal environmental effects not previously considered, a supplemental consistency certification may be



North Carolina Department of Environmental Quality | Division of Coastal Management
Morehead City Office | 400 Commerce Avenue | Morehead City, North Carolina 28557
252.808.2808

required. If you have any questions, please contact me at (252) 808-2808. Thank you for your consideration of the North Carolina Coastal Management Program.

Sincerely,

Daniel Govoni
Federal Consistency Coordinator

APPENDIX H
Public Review – Comments and Responses

**ENVIRONMENTAL ASSESSMENT
MAINTENANCE DREDGING OF BULKHEAD CHANNEL (WITH ADVANCE
MAINTENANCE WIDENER)
AND MORGAN CREEK**

Comments Received and USACE Responses

N.C. Natural Heritage Program – letter dated September 27, 2018

Comment 1: A query of the NCNHP database indicates that there are records for rare species, important natural communities, natural areas, and/or conservation/managed areas within the proposed project boundary ... The proximity of these records suggests that these natural heritage elements may potentially be present in the project area if suitable habitat exists ... If a Federally-listed species is documented within the project area or indicated within a one-mile radius of the project area, the NCNHP recommends contacting the US Fish and Wildlife Service (USFWS) for guidance. Contact information for USFWS offices in North Carolina is found here:
<https://www.fws.gov/offices/Directories/ListOffices.cfm?statecode=37>.

Response 1: Noted. Should a Federally-listed species be documented within the project area or indicated within a one-mile radius of the project area, the USFWS will be contacted for guidance.

Comment 2: Also please note that the NC Natural Heritage Program may follow this letter with additional correspondence if a Dedicated Nature Preserve, Registered Heritage Area, Clean Water Management Trust Fund easement, or an occurrence of a Federally-listed species is documented near the project area.

Response 2: Noted.

N.C. Department of Transportation – memorandum dated October 2, 2018

Comment 1: Please coordinate with the Division 2 office for any impacts to the right of way or flow of traffic during your project activities.

Response 1: Noted. NCDOT Division 2 will be contacted at (252) 775-6100 should USACE project-related activities impact the right of way or flow of traffic in the project area.

U.S. Environmental Protection Agency (EPA) Region 4 – email dated October 16, 2018

Comment 1: Geotechnical Boring Data – The EPA tried to access the Geotechnical Boring Data through the link provided in the draft EA. However, we discovered that the link does not work. The EPA recommends providing access to this information in the final EA.

Response 1: The geotechnical data are now accessible via the link in section 4.1 of the final EA. The results of all vibracore borings collected to date in the project area, including drilling logs and gradation testing are now available at
<http://www.saw.usace.army.mil/Missions/Navigation/Dredging/District-Plant-Dredging/>.

- Comment 2: Material Testing – It is stated on p. 15 of the draft EA that, “Data associated with all borings featured in Figure 5 indicate that shoaled sediments in these areas are comprised of $\geq 90\%$ sand.” No other discussion of testing of material is provided in the draft EA. In the 404(b)(1) analysis under section 3 – Evaluation of Dredged or Fill Material, it is implied that testing has been conducted on material in the vicinity of the project and that this testing could be used to evaluate the possible contaminants in the dredged or fill material. If testing of material has been conducted, the EPA recommends that information be included in the final EA. If the USACE has reason to believe that the dredged material is not contaminated, then rationale should be provided in the final EA.
- Response 2: Section 4.2 (Water Quality) of the EA has been revised to include the rationale for not testing the sediments that have been sampled and which are $\geq 90\%$ sand. Section 3 ‘Evaluation of Dredged or Fill Material’ of the 404(b)(1) analysis has also been revised to better address your concerns. It should be noted that only that material which is determined to be $\geq 90\%$ sand is proposed to be placed in the nearshore placement areas. If future sediment sampling encounters sediments that are $< 90\%$ sand, that material would be placed in previously approved upland confined disposal areas and would not be placed in the nearshore placement areas.
- Comment 3: Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual – Inland testing Manual – The EPA recommends that the USACE review the above testing manual and determine if the propose activity complies with the evaluation required by 40 CFR 404(b)(1).
- Response 3: The USACE acknowledges that the ‘Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual, Inland testing Manual’, also known as the Inland Testing Manual (ITM), is the document describing sediment testing and evaluation procedures regarding discharges in waters of the United States. Section 1.2.2.2 of the ITM describes *Reason to Believe* guidelines, which allow for the use of available information to make a preliminary determination concerning the need for testing of material proposed for dredging. Furthermore, the *Reason to Believe* that no testing is required is based on the type of material to be dredged and/or its potential to be contaminated. Given the results of geotechnical evaluations described in section 4.1 the EA ($\geq 90\%$ sand), the probable absence of hazardous, toxic, and radioactive wastes in the project areas as discussed in section 4.4 of the EA (which has been updated to include recent U.S. Coast Guard National Response Center records), and the project area itself being tidal and susceptible to strong currents (text regarding current velocities has been added to section 4.1 of the EA), all sediments proposed to be dredged by shallow draft hopper dredge and placed in existing nearshore placement areas do not require additional testing to be in compliance with Section 404 of the Clean Water Act. ‘Section 3 – Evaluation of Dredged or Fill Material’ of the 404(b)(1) analysis included in the EA as Appendix B has been updated with appropriate considerations and references, and EA text qualifying satisfaction of the ITM’s *Reason to Believe* guidelines has been added to Section 4.2 of the EA.

**National Oceanic and Atmospheric Administration, National Marine Fisheries Service,
Habitat Conservation Division – letter dated October 17, 2018**

Comment 1: Draft EA Section 4.9 includes an EFH Assessment describing the federally managed fishery species present and their EFH. Those descriptions do not require amendment to complete this EFH consultation and are incorporated here by reference.

Response 1: Noted.

Comment 2: Please note these comments do not satisfy consultation responsibilities under section 7 of the Endangered Species Act of 1973, as amended. If any activity “may effect” listed species or critical habitat under the purview of the NMFS, please initiate consultation with the Protected Resources Division at the letterhead address.

Response 2: Noted. Based on coordination with NMFS's Protected Resources Division regarding ESA Section 7 compliance on September 4th, 2018, the proposed action is covered under an existing BO for effects of government-conducted sidecast and hopper dredges used in maintaining shallow draft federal navigation channels.

U.S. Fish and Wildlife Service, Raleigh, NC Field Office – letter dated October 19, 2018

Comment 1: In Section 4.11 of the EA, the Corps has made a determination of “May Affect, Not Likely Adversely Affect” the West Indian manatee. The Corps has committed to implementing precautionary measures for avoiding impacts to manatees from vessels during construction activities, by following the Service’s “Guidelines for Avoiding Impacts for the West Indian Manatee.” The Service concurs with the Corps’ determination for the West Indian Manatee.

Response 1: Noted.

Comment 2: We recommend that the Corps utilize the most recent version of the Manatee Guidelines, which are attached.

Response 2: Concur. The most recent version of the Manatee Guidelines is included in Appendix E of the final EA.

N.C. Division of Coastal Management – letter dated November 9, 2018

Comment 1: DCM has reviewed the submitted information pursuant to the management objectives and enforceable policies of Subchapters 7H and 7M of Chapter 7 in Title 15A of the North Carolina Administrative Code and concurs that the proposed Amendment is consistent with North Carolina’s approved coastal management program.

Response 1: Noted.

Comment 2: Prior to the initiation of the activities described, the applicant should obtain any required State approvals or authorizations, including any authorizations required by the N.C. Division of Water Resources.

Response 2: Noted. Pursuant to Section 401 of the Clean Water Act, the placement of beach quality dredged material in the nearshore placement areas is authorized by General Water Quality Certification #4099 (GC # 4099). Although GC #4099 is titled “Emergency Activities on Ocean Beaches,” NCDWR has determined that this GC is applicable to the nearshore placement of beach quality dredged material. All conditions of GC #4099 will be met.

Comment 3: Should the proposed action be modified further, a revised consistency determination could be necessary. This might take the form of either a supplemental consistency determination pursuant to 15 CFR 930.46, or a new consistency determination pursuant to 15 CFR 930.36. Likewise, if further project assessments reveal environmental effects not previously considered, a supplemental consistency certification may be required.

Response 3: Noted.