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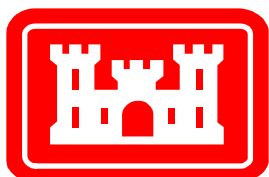
**FINAL  
INTEGRATED  
FEASIBILITY REPORT  
AND  
ENVIRONMENTAL IMPACT STATEMENT  
COASTAL STORM DAMAGE REDUCTION**

**BOGUE BANKS, CARTERET COUNTY**

**NORTH CAROLINA**

**APPENDIX K  
US FISH AND WILDLIFE SERVICE  
FINAL  
COORDINATION ACT REPORT**

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**US Army Corps  
of Engineers  
Wilmington District**



## United States Department of the Interior

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

March 10, 2014

Mr. Eric Gasch  
U. S. Army Corps of Engineers  
Wilmington Regulatory Field Office  
69 Darlington Avenue  
Wilmington, North Carolina 28403

Subject: Final Fish and Wildlife Coordination Act Report  
Bogue Banks Shore Protection Project

Dear Mr. Gasch:

This letter finalizes the U. S. Fish and Wildlife Service's (Service) Fish and Wildlife Coordination Act (FWCA) Report for the U.S. Army Corps of Engineer's Bogue Banks Shore Protection Project. In November 2002, Howard Hall of our office submitted a draft FWCA report for this project. The draft included a description of the study area, a discussion of fish and wildlife concerns and planning objectives, a discussion of evaluation methods, discussions of existing fish and wildlife resources, a discussion of the alternatives, a comparison of impacts, conservation measures and recommendations, and the position of the Service. The general information concerning fish and wildlife resources in the draft FWCA report remains valid up to that date. Due to the very short timeframe in which this final FWCA report was requested, the Service has not updated all of the data for fish and wildlife and other resources discussed in the report. Attached to this letter is an updated Table 8, which lists the species of colonial waterbirds known to nest on islands within Bogue Sound, Bogue Inlet, and Beaufort Inlet. We are also including a new table (Table 14), which provides shorebird numbers in the project area for the years 2005 through 2013. Updated sea turtle nesting data is provided in Table 3 of the August 2013 draft Biological Assessment (BA).

In addition to the draft FWCA Report, the Service transmitted comments to the Corps by letter on January 8, 2004, and indicated that the Corps did not need to respond to all of the Conservation Measures and Recommendations in Section 10 of the Draft FWCA report. Instead, the 2004 letter recommended that the Corps focus on a subset of measures from that report.

Currently, the Service believes that all of the Conservation Measures and Recommendations in Section 10 (pages 106 through 113) of the draft FWCA report remain worthy of consideration.

However, we wish to highlight several which we believe are especially important. Many of these have been reiterated somewhat in our recent comments to the Draft EIS and the draft Biological Assessment. The background material for these recommendations can be found in the draft FWCA report.

1. The beach fill template should concentrate on areas more than approximately one mile from Bogue and Beaufort Inlets. As stated in the Draft FWCA report, the preliminary findings of the North Carolina Coastal Resources Commission Science Panel on Coastal Hazards are that NC Inlets tend to influence oceanfront erosion and accretion for a mile or more on either side of the inlet. Beach fill placed in these areas is likely to be lost more quickly than in other areas and to alter the tidal currents and shoals in the adjacent inlet. While additional shoaling in some inlets may be beneficial to avian and fishery resources using the inlet, the subsequent increase in maintenance dredging and disposal may harm those resources more frequently and persistently.
2. Direct impacts to fishery and avian resources can be avoided if no sediment dredging occurs within the natural habitats within Bogue Sound and Bogue Inlet. The integrity of the Bogue Inlet complex for migratory birds and larval fishery resources would be preserved if Bogue Inlet and natural areas within Bogue Sound are not used as a sediment source.
3. The Corps should attempt to coordinate multiple dredging and sand disposal activities in the Bogue Banks area in order to avoid and minimize impacts to the extent practicable. The draft FWCA report recommended, for example, that dredged material disposal already occurring on the oceanfront beaches of Atlantic Beach should be modified to conform to the preferred design template instead of construction and maintenance of two separate projects in this area. The Service continues to recommend that the Corps coordinate the beneficial placement of beach fill from maintenance dredging of the Morehead City Harbor navigation project with this project, in order to minimize the amount of new dredging needed, and also to minimize the cumulative impacts from nourishing the same stretch of beach more often than every 3 to 5 years. According to page 7 of the DEIS, since 2004, approximately 3.2 million cubic yards (cy) of maintenance material dredged from Morehead City Harbor has been placed in various locations in Bogue Banks as part of the Section 933 project. Additionally, a Dredged Material Management Plan (DMMP) that is currently being developed for the area anticipates regular placement of material on Atlantic Beach in the future.
4. Sediment dredged for placement on the beach should be compatible with the native sediments of Bogue Banks.
5. Beach segments adjacent to each other should not be constructed consecutively, allowing for the quicker recovery of beach fauna because adjacent, undisturbed areas would be available for recruitment to the new fill. The 24-mile long Bogue Banks oceanfront shoreline could be divided into four sections that are constructed on a rotating schedule

- with adjacent sections constructed non-consecutively.
6. The maintenance construction, or renourishment interval, should be greater than three years. We note that although the Corps determined that a 3-year renourishment cycle provided the greatest net economic benefits, the Draft EIS states (on page 75) that “it is highly unlikely that the full project length would actually require renourishment every three years.” The Service recognizes that a 3-year beach nourishment cycle may be needed for some portions of the project area. However, studies have shown that intertidal macrofauna can take one or two years to recolonize a nourished area. This is a concern of the Service, because as soon as the macrofauna are recovered (by the end of the second season), the proposed nourishment schedule would provide for beach disposal the very next season. The Service is concerned with the long-term impacts from frequent beach nourishment. The schedule of nourishing every three years or so results in a healthy macrofauna population for as little as one year out of every three. This, in turn, has a negative impact on shorebirds and surf fishes.
  8. The ODMDS and nearshore disposal sites should be targeted for dredging before undisturbed marine areas, provided that the material is free of toxicants and is ecologically compatible with the native sediments of Bogue Banks’ beaches.
  9. The potential mitigative measures listed on pages 111 through 113 should be considered by the Corps and/or by the local sponsors, particularly those that may lead to improved foraging or nesting habitat for shorebirds and sea turtles. These types of measures have been requested over the years for various projects, but several of the research or study-type measures have never been implemented. The measures include:
    - a. restoration of dredged material islands within or adjacent to the inlet complex.
    - b. monitoring to determine if benthic intertidal invertebrates can be successfully collected ahead of the dredge pipeline and placed on new fill material after the material has been graded. This study would be fit nicely with the work being funded by Emerald Isle and North Topsail Beach and conducted by Carteret Community College on the potential to spawn *Donax* in an aquaculture lab and recolonize beaches with *Donax* spat.
    - c. Determining if the introduction of higher carbonate content within fill material significantly delays recovery of the beach by invertebrates, birds, and fish as compared to beach fill without an increase in carbonate content.
    - d. Determining the rate of bleaching of darker fill sediments on North Carolina beaches, and how deep the bleaching occurs within the substrate.
    - e. Determining if nutrient cycling within the beach sediments is significant to filter-feeding benthos, and if so, how a beach fill project may alter the nutrient cycle.
    - f. Investigating the water depth and burial depth at which *Donax* and *Emerita* overwinter in offshore waters.
    - g. Determining if the foraging efficiency of shorebirds is affected following a beach project, and if so, for how long.

## **Final Summary and Position of the Service**

As the Planning Objectives on pages 6 and 7 of the draft FWCA Report states, the Service's Mitigation Policy (January 23, 1981, FR 46:15 7644-7663) allows the Service to support a proposed project if the following criteria are met:

1. The project is ecologically sound;
2. The least environmentally damaging alternative is selected;
3. Every reasonable effort has been made to avoid or minimize damage or loss of fish and wildlife resources and uses;
4. All important recommended means and measures have been adopted with guaranteed implementation to satisfactorily compensate for unavoidable damage or loss consistent with the appropriate mitigation goal; and
5. For wetlands and shallow water habitats, the proposed activity is clearly water dependent and there is a demonstrated public need.

The Service uses these five criteria as planning objectives in the draft and final FWCA reports, and will support a project if it meets these five criteria. Currently, the Service is unsure whether the project as proposed meets the criteria listed above. Incorporation of the recommendations contained herein would greatly improve/clarify the environmental impacts and benefits of 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 >.

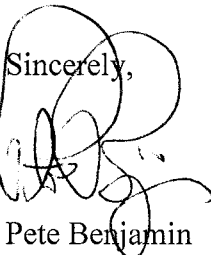
Sincerely,  
  
Pete Benjamin  
Field Supervisor

Table 8. Species of colonial waterbirds known to nest on islands within Bogue Sound, Bogue Inlet, and Beaufort Inlet; the most recent year to record nesting, and the size range of the colonies. Data from 1975 to 2013. Data from the NC WRC.

Waterbird Species	Recent Nesting Years	Colony Size Range (number of nests in any colony)
Common tern <i>Sterna hirundo</i>	1977 - 2007	1 - 576
Least tern <i>Sterna antillarum</i>	1977 - 2011	1 - 296
Gull-billed tern <i>Sterna nilotica</i>	1977 - 1993	2 - 175
Forster's tern <i>Sterna forsteri</i>	1995 - 2007	5 - 17
Black Skimmer <i>Rynchops niger</i>	1997 - 2007	1 - 182
Black-crowned night heron <i>Nycticorax nycticorax</i>	1976 - 2011	1 - 72
Cattle egret <i>Bubulcus ibis</i>	1975 - 2011	8 - 689
Great egret <i>Casmerodius albus</i>	1975 - 2011	1 - 345
Green heron <i>Butorides striatus</i>	1975 - 1995	1 - 28
Little blue heron <i>Egretta caerulea</i>	1975 - 2011	8 - 362
Snowy egret <i>Egretta thula</i>	1975 - 2011	4 - 247
Tricolored heron <i>Egretta tricolor</i>	1975 - 2011	8 - 920
Great blue heron <i>Ardea herodias</i>	1977	1
Glossy ibis <i>Plegadis falcinellus</i>	1989 - 1995	4 - 5
White ibis <i>Eudocimus albus</i>	1989 - 2011	14 - 246

Table 14. Species of shorebirds recorded within Bogue Sound, Bogue Inlet, and Beaufort Inlet, by location. Data from 2005 to 2013. Data from the NC WRC.

Shorebird species	General Location	Number of birds sited at one time (Range)	Number of Breeding Pairs sited at one time (Range)
American Oystercatcher <i>Haematopus palliatus</i>	Bogue Banks Beaches	2	1
	Bogue Inlet	2 – 6	1 - 3
	Bogue Sound	2 – 10	1 – 5
	Beaufort Inlet	1 – 78	1
Piping plover <i>Charadrius melodus</i>	Bogue Banks Beaches	1 – 5	--
	Bogue Inlet	1 – 18	--
	Bogue Sound	--	--
	Beaufort Inlet	2 – 19	--
Red knot <i>Calidris canutus rufa</i>	Bogue Banks Beaches	1 - 230	--
	Bogue Inlet	4 - 27	--
	Bogue Sound	--	--
	Beaufort Inlet	40	--

Shorebird species	General Location	Number of birds sited at one time (Range)	Number of Breeding Pairs sited at one time (Range)
Willet <i>Tringa semipalmata</i>	Bogue Banks Beaches	--	--
	Bogue Inlet	4	2
	Bogue Sound	4	--
	Beaufort Inlet	--	--
Wilson's plover <i>Charadrius wilsonia</i>	Bogue Banks Beaches	1 - 4	0 - 2
	Bogue Inlet	6	3
	Bogue Sound	4	2
	Beaufort Inlet	1 - 13	0 - 10