United States Department of the Interior

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

December 3, 2002

Mr. Ken Jolly, Chief
Regulatory Division, Wilmington District
U.S. Army Corps of Engineers
Post Office Box 1890
Wilmington, North Carolina 28402-1890

Attention: Mickey Sugg

Dear Mr. Jolly:

The U. S. Fish and Wildlife Service (Service) has enclosed an electronic version of our Draft Fish and Wildlife Coordination Act (FWCA) Report for the Bogue Banks Shore Protection Project, in Carteret and Onslow Counties, North Carolina. A hard copy of the report hs been submitted to Mr. Hugh Heine of the U.S. Army Corps of Engineers. This report discusses a potential beach nourishment project under study by the Wilmington District of the U.S. Army Corps of Engineers for the Bogue Banks barrier island. The report identifies fish and wildlife resources in the project area and their value, describes the various federal alternatives considered, and provides our assessment of potential project impacts on these resources. This draft provides our recommendations for avoiding or minimizing the potential adverse environmental impacts of the project. This report does not constitute the Service's final report in accordance with Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 - 667d) for the federal shore protection project nor any permits under review by the Regulatory Division.

We would appreciate any comments that you wish to make on this report. All comments received will be considered in drafting our Final FWCA Report. In order to adequately evaluate all comments, we request that they be received by April 1, 2003. Technical questions should be directed to the attention of Tracy Rice at this office. She may be reached at 919-856-4520, extension 12.

Sincerely,

Tom Augspurger

For Garland B. Pardue, Ph.D.
Ecological Services Supervisor

Enclosure

cc (with enclosure):

Craig Kruempel, Coastal Planning & Engineering, Inc. (Boca Raton, FL)
Frank Rush, Town Manager (Emerald Isle)

Michael F. Easley
Governor

William G. Ross, Jr., Secretary
Department of Environment and Natural Resources

Alan Klimek, Director
Division of Water Quality

RECEIVED
FEB 04 2003
REGULATORY
WILMINGTON FIELD OFFICE

Mickey Suggs
US Army Corps of Engineers
P.O. Box 1890
Wilmington, NC 27402-1890

1/29/03

Mr. Suggs:

RE Comments on Bogue Inlet Monitoring Proposal

Though you have already received most of these comments by email, here is a more official format for these comments

1. How do you plan to document marsh edge erosion? I believe at Mason's Inlet, surveying equipment was used.

2. Some method more quantitative than 'direct observation and indirect evidence' should be used to document invertebrates and wildlife in the marshes. Perhaps by using quadrats, between year observations would be more comparable.

3. On the topic of marsh invertebrate sampling, it was unclear why samples were to be collected from 150 ft into the marsh. It would seem that it would be more likely to pick up changes in the community due to the project if sampling occurred closer to the water. If this is not the case, please provide some supporting information.

4. A reference site for the infaunal samples is needed. One of the figures showed 4 sites beside the proposed new channel. One of the interior channel sites could be moved to an intertidal location South of Island #2 and ESE of your Bear Island Marsh Reference site. That way you could have a reference site without any additional costs. Also, all of the new channel sites are on the west side of the proposed channel. Either the northern or southern station should probably be moved to the east side of the proposed channel so someone can't come back and say there was deliberate avoidance on the east side.

5. The plan needs to specify what kind of sampling gear is being used. Ms Haight said a petite ponar would be used, however the plan suggested a PVC core would be the sampling device. While the petite ponar is not a bad choice for the intertidal area at less than slack tide, it is not appropriate in the middle of the marsh, where the Spartina stems and roots will probably keep the jaws from closing completely. Also, a petite ponar will

NCDENR

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1650 Mail Service Center; Raleigh, NC 27699-1650
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not bite 10 cm deep in either hard sand or root strewn marsh, so if a sample is to be taken to 10 cm depth, as the plan said, something besides a ponar will be needed. If using a core, please note the diameter of the core and the depth to which you will be collecting.

6. It is important when working in sloping areas, such as the three sites along the existing channel, that sampling occurs at the same relative depth (height above MLW) each time. Sampling a foot or two deeper occasionally will make the data significantly less comparable, with the subtidal community naturlly more diverse than the intertidal. If the plan is to show before and after similarity, throwing in questions of intertidal variability will confuse the issue. There may need to be a way to mark sites in addition to GPS to reduce this potential problem.

7. Why is one of the 4 replicates at each site essentially being throwing away by seiving it only for Donax and Emerita? It might as well be sent for complete invertebrate analysis, which would include these taxa. Besides, these animals are large enough that you will probably get 1 or 2 per ponar at most. To get a less inaccurate estimate of their density, more than just one core or a larger sampler than a petite ponar will be needed.

8.Currently, the monitoring plan calls for 1 year pre construction sampling and 2 years post construction. Please consider adding a third year post construction. DWQ currently requires 3 years post construction for their freshwater stream restoration monitoring, and the logic there - more chances to demonstrate success in a highly variable situation - applies here too.

9.Please consider in-field sample preservation as is proposed in the plan. When I talked with Ms. Haight, she indicated that the current plan was to bag the samples then transport them to Dr. Posey on ice, where he would preserve them. This is not a bad strategy in winter, but it becomes much more problematic in summer when ice could melt, a bag could leak or several other things could happen. Even if they didn't, you are leaving yourself open to someone saying later that your infaunal abundance values are not believable because there could have been some predation or decomposition in the bags.

10.Please consider epifaunal sampling at a few sites for a more complete description of the community, especially the crustaceans. I have sent Ms Haight a paper describing these methods under separate cover. Five minute intertidal sweeps at the flat edge, flat center and flat background would be adequate to characterize the epifauna near the proposed new channel, while two, 10-minute subtidal sweeps at the Marsh Main Channel and Marsh Background sites would be appropriate to look for shifts in the subtidal community. These would only need to be done about once per year (unless you really wanted to do them more frequently). The easiest way to collect these would be for me to go out with you on your Spring or Summer sampling (which ever season you want) and teach you the technique and collect these for you the first time.

11.You have many numeric methods to measure species diversity, evenness etc. without apparent reasoning why so many measures of approximately the same thing were

necessary. Maybe you should just select 2 or 3 of these metrics, then supplement these with some measures of functional feeding groups and or sensitivity.

Unfortunately these comments come too late for winter sampling, however maybe you can think about incorporating these into your spring and future sampling.

Please let me know if I can be of further assistance.

Sincerely,

Lawrence Eaton

Lawrence Eaton
DENR, Division of Water Quality
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2321 Crabtree Blvd. Suite 250
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(919) 733-9604

United States Department of the Interior

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

January 31, 2003

Mr. Ken Jolly
Chief, Regulatory Division
Wilmington District
U.S. Army Corps of Engineers
Post Office Box 1890
Wilmington, North Carolina 28402-1890

Attention: Mr. Mickey Sugg

Dear Mr. Jolly:

The U.S. Fish and Wildlife Service (Service) has reviewed your December 4, 2002 letter and October 2002 Biological Assessment (BA) for the proposed Bogue Inlet Channel Relocation Project. The proposed activities include relocating the ebb tide channel of Bogue Inlet, between Emerald Isle and Hammocks Beach State Park (Bear Island), approximately 4,000 feet west of its current location and depositing the dredged material on approximately 4.0 miles of the beaches of Emerald Isle, in Carteret County, North Carolina. The BA was prepared to evaluate the potential effects of the proposed actions on federally-listed threatened and endangered species. Our comments are submitted pursuant to, and in accordance with, provisions of section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

It is our intention to provide informative and usable comments to strengthen the BA and suggestions for measures to avoid impacts, to the greatest extent possible, to federally-protected species. We hope that through this process and cooperative effort we can avoid the need for a lengthy consultation. Our comments on the October 2002 BA are listed below by section.

Section 12 Environmental Studies and Coordination – The applicant has proposed to conduct the inlet relocation and dredging activities during the off-season months to avoid disruption of nesting and migration patterns of listed species. However, this period of time is not defined. The BA should include the period of time when the project will be conducted and any efforts taken to avoid or minimize potential impacts to federally-protected species. We recommend that dredge and disposal activities be conducted between November 16 and March 31 to avoid impacts to nesting sea turtles and the piping plover and other shorebirds, the growing season of seabeach amaranth, and the period of time manatees are likely to be present on North Carolina waters. Conducting activities during this period of time does not preclude the potential for impacts to all species (e.g., migrating and wintering piping plovers may be affected), but additional measures can be implemented to further reduce the potential for adverse impacts to these species during the winter period.

Section 14 Biological Monitoring Plan – The BA indicates that biological monitoring efforts will be conducted in the Fall (November/December) and Spring (February to April) and the monitoring program will be conducted one year prior to construction, during construction, and two years after project construction. We commend the inclusion of a pre-project monitoring program; however, the BA does not sufficiently describe the biological monitoring efforts to fully evaluate whether or not the proposed monitoring schedule will produce tangible and appropriate results. We recommend that the BA completely describe the monitoring programs that will be implemented and list any and all efforts taken to avoid or minimize the potential impacts to federally-protected species. Furthermore, we recommend monitoring efforts continue for a minimum of three years post-construction to allow for the proposed actions to approach equilibrium and more accurately assess the impacts of the actions on federally-listed species. Lastly, based on the information provided, we suspect that the proposed monitoring will be conducted semi-annually, rather than bi-annually as stated in the BA. If monitoring efforts are proposed bi-annually, then additional years of data collection following construction are necessary to evaluate the impacts from the proposed project.

Section 15 Listed Species and Critical Habitat That May Be Affected – The BA indicates that awned meadowbeauty (*Rhexia aristosa*), a federal species of concern, is found within the project area. Awned meadowbeauty is typically found in shallow ponds, Carolina bays, wet pine barrens, and savannahs that experience inundation/drydown cycles. This species has not been recorded in the project area, nor is its habitat found within the project area. Therefore, it should be removed from the BA. Dune bluecurls (*Trichostema* sp. 1) and an undescribed skipper (*Atrytonopsis* sp. 1), however, are both federal species of concern that are known to occur within the project area and should be included in the BA when determining the effects of the proposed actions.

In addition to the above comments for this section, we suggest making the following corrections: (1) change the scientific name of the hawksbill turtle in Table 7 to *Eretmochelys imbricata*; (2) change the scientific name of the eastern cougar to *Puma concolor couguar*; and, (3) change the scientific name of the American alligator to *Alligator mississippiensis*.

Section 16.1.1 Status and Natural History of Species in Project Area – With regard to paragraph three of this section, updated information is available on the nesting and nearshore occurrences of the leatherback (*Dermochelys coriacea*), hawksbill (*Eretmochelys imbricata*), and Kemp's ridley (*Lepidochelys kempii*) sea turtles in North Carolina. The BA should be changed to include updated information. We recommend contacting Dr. Matthew Godfrey, Sea Turtle Coordinator for the North Carolina Wildlife Resources Commission, at 252.728.1528 for specific information on these species and their occurrences in North Carolina.

The Carolina diamondback terrapin (*Malaclemys terrapin centrata*) is a subspecies listed as a State species of special concern, and is different from the subspecies *M. t. terrapin* that is a federal species of concern. If either of these species or their habitats is present within the proposed project area, then additional relevant information should be provided on the status and natural history of these subspecies, as well as an evaluation of the potential effects of the

proposed actions.

Section 16.1.2 Effect Determination – The BA must include specific information that supports and justifies the determination of effects on federally-protected species. This section fails to describe how the proposed project "is likely to adversely affect" sea turtles. Additional information is required before we can provide a concurrence or non-concurrence response.

Section 16.2.1 Status and Natural History of Species in Project Area – Manatees have been recorded in North Carolina waters nine months of the year, but are most likely to occur from June through October (e.g., Schwartz, 1995). This section should be revised to reflect this species' occurrence in North Carolina.

Section 16.2.2 Effect Determination – The BA must include specific information on the timing of the proposed actions and any measures to be employed to support your determination. We recommend using the guidelines (attached) to assist in avoiding and minimizing potential impacts to the manatee.

Section 16.5.2 Effect Determination – This section fails to consider the indirect effects that habitat disturbance associated with the proposed actions will have on the piping plover, including bird displacement, energy requirements/demands, and loss of foraging and roosting habitat. Additional information is required to support a "not likely to adversely affect" determination, including a thorough description of any measures proposed to reduce potential impacts.

Section 16.6.2 Effect Determination – This section provides important information supporting the determination and actions proposed to further minimize potential impacts to piping plover habitat. However, greater detail is needed in describing how the proposed project will affect the primary constituent elements of designated critical habitat and how the special management considerations will avoid, minimize, protect, and/or mitigate for the potential impacts. In addition, we recommend the proposed signage informing the public of critical habitat include information on the species and the importance of the habitat.

Section 16.8.2 Effect Determination – The BA indicates that because seabeach amaranth is "capable of producing thousands of seed during its growing season," the proposed project is not expected to adversely impact this species. The prolificacy of seed production is not sufficient evidence to support this determination. We suggest that the BA include additional information on the timing of the proposed action, the method of sediment placement, and pre-project monitoring results of the occurrence of this species to support the current determination. If such information is not available, then the effects determination may need to be revised accordingly.

Section 17 Efforts to Eliminate Potential Impacts to Listed Species – This section of the BA is intrinsic in evaluating the effects of the proposed actions and in justifying your determination of the effects on federally-listed species. Furthermore, the efforts described in this section will be considered part of the project (i.e., expected to occur) and evaluated as such in our concurrence or non-concurrence of your determinations. Therefore, we suggest this section be moved to be concurrent with the Biological Monitoring Plan section. In addition, we suggest the

efforts described in this section be numbered and sufficiently detailed to provide our agency the greatest understanding of the measures that will be employed to avoid, minimize, and/or mitigate potential impacts to federally-protected species and/or their habitats. For example, we suggest including a detailed description of the (1) timing of the project, (2) parameters established to determine the need for tilling, (3) protocols used for monitoring and/or relocating of federally-listed species, and (4) restrictions proposed to reduce impacts to federally-listed species and their habitats during or post construction.

Section 18 Summary Effect Determination – With regard to the effect determinations, the BA should completely assess and evaluate the direct, indirect, and cumulative impacts of the proposed actions on each federally-listed species potentially impacted by the proposed actions. The Service will provide a concurrence or non-concurrence response based on the information provided and our assessment of the potential impacts. Further, the Service will determine whether or not the proposed actions will jeopardize the continued existence of federally-protected species through the formal consultation process, if necessary, which will result in a Biological Opinion.

Thank you for your cooperation with our agency in protecting federally-listed species. We look forward to cooperating with your agency in the development of this project, and suggest that we meet to discuss the comments and suggestions provided in this letter. If you have any questions or comments, please contact Mr. David Rabon of this office at (919) 856-4520 extension 16, or via email at david_rabon@fws.gov.

Sincerely,

Garland B. Pardue

Dr. Garland B. Pardue
Ecological Services Supervisor

Encl.

cc: NCWRC, Kinston, NC (Bennet Wynne)
NCWRC, Beaufort, NC (Matthew Godfrey)
Town of Emerald Isle, 7500 Emerald Drive, Emerald Isle, NC 28594-9320 (Frank Rush)
Coastal Planning and Engineering, 204 Dorchester Place, Wilmington, NC (Tom Jarrett)

References

Schwartz, F. J. 1995. Florida manatees, *Trichechus manatus* (Sirenia: Trichechidae), in North Carolina 1919-1994. Brimleyana 22:53-60.

Precautionary Guidelines for General Construction in Areas Which May Be Used by the West Indian Manatee in North Carolina

1. The applicant will inform all personnel associated with the project that manatees may be present in the project area, primarily during the months June through October, and the need to avoid any harm to these endangered mammals. The applicant 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 applicant will advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Endangered Species Act of 1973, as amended, and the Marine Mammal Protection Act of 1972, as amended.

3. If a manatee is seen within 300 ft of the active daily construction/dredging operation or vessel movement, all appropriate precautions must be implemented to ensure protection of the manatee. The precautions must include the operation of all moving equipment no closer than 50 ft of a manatee. Operation of any equipment closer than 50 ft to a manatee must necessitate immediate shutdown of the equipment. Activities will not resume until the manatee has departed the project area on its own volition. Manatees should not be herded away or harassed into leaving.

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 and the North Carolina Wildlife Resources Commission immediately, and dredging should be postponed until cause of injury or mortality can be determined and a revised dredging and or monitoring plan is produced and approved by the Service.

5. A sign must 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 with 50 ft of operating equipment. A collision with and/or injury to a manatee will be reported immediately to the U.S. Fish and Wildlife Service and the North Carolina Wildlife Resources Commission.

6. The applicant/contractor will maintain a log detailing sightings, collisions, or injuries to manatees during project construction. After construction, the applicant/contractor will prepare a report which summarizes all information on manatees during construction. This report will be submitted to the U.S. Fish and Wildlife Service and the North Carolina Wildlife Resources Commission.

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 4 ft 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.

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

REPLY TO
ATTENTION OF:

February 7, 2003

Regulatory Division

Action ID. 200100632

RECEIVED
FEB 12 2003
BY: 4500.02
TC, CK, EH

Mr. Frank Rush, Manager
Town of Emerald Isle
7500 Emerald Isle Drive
Emerald Isle, North Carolina 28594-9320

Dear Mr. Rush:

This letter serves to provide the Town of Emerald Isle with U.S. Fish and Wildlife Service's (Service) comments on the Biological Assessment (BA) prepared by your agent, Coastal Planning & Engineering. The BA identifies the potential adverse affects on specific Threatened and Endangered species occurring within your proposal to relocate Bogue Inlet Channel and to nourish approximately 4.0 miles of Emerald Isle beach, Emerald Isle, Carteret County, North Carolina. Also, please reference our December 4, 2002 letter.

In response to our December letter to initiate consultation, the Service has provided our office with their comments in a letter dated January 31, 2003 (copies enclosed). It is strongly recommended that you incorporate these changes into the BA to ensure adequate review of the potential affects and to expedite the consultation process.

If you have questions or comments, please contact me at (910) 251-4811, Wilmington Regulatory Field Office, and I will assist you in coordinating with the Service.

Sincerely,

Mickey Sugg, Project Manager
Wilmington Regulatory Field Office

Enclosure

Copies Furnished (with enclosure):

Mr. Tom Jarrett
Coastal Planning & Engineering
204 Dorchester Place
Wilmington North Carolina 28412

Ms. Erin Haight
Coastal Planning & Engineering
2481 N.W. Boca Raton Boulevard
Boca Raton, Florida 33431

Mr. Caroline Bellis
Division of Coastal Management
North Carolina Department of Environment
and Natural Resources
1638 Mail Service Center
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Copies Furnished (without enclosure):

Mr. Garland Pardue
U.S. Fish and Wildlife Service
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mayor Art Schools
Town of Emerald Isle
7500 Emerald Drive
Emerald Isle, North Carolina 28594-9320

Ms. Tere Barrett
North Carolina Division
of Coastal Management
Hestron Plaza Two
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Morehead City, North Carolina 28557

Ms. Diane Long
North Carolina Department of Environment
and Natural Resources
1601 Mail Service Center
Raleigh, North Carolina 27699-1601

NCDENR

North Carolina Department of Environment and Natural Resources
Division of Parks and Recreation

Michael F. Easley, Governor William G. Ross, Jr., Secretary Philip K. McKnelly, Director

February 14, 2003

RECEIVED
FEB 24 2003
REGULATORY
WILMINGTON FIELD OFFICE

Mr. Mickey Sugg
US Army Corps of Engineers
Wilmington Regulatory Field Office
Post Office Box 1890
Wilmington, North Carolina 28402-1890

Dear Mr. Sugg:

I am writing in regards to the proposed Bogue Inlet channel relocation and beach nourishment project at Emerald Isle, North Carolina and the proposed monitoring plans submitted for review by Coastal Planning & Engineering of North Carolina, Inc. Staff with the North Carolina Division of Parks and Recreation (Division) would like to submit the following comments concerning the proposed monitoring plans.

The Division has expressed concerns associated with this project in previous comments (see letter from Strong to Sugg June 24, 2002). Previous comments have specifically requested that Emerald Isle propose some type of contingency plan if impacts to Hammocks Beach State Park are realized. Since, no monitoring plan for Bear Island, Cow Channel, or Huggins Island were included in the monitoring plans, there appears to be no quantitative method for determining if Hammocks Beach State Park will be impacted by the proposed channel relocation. The Division is disappointed that previous concerns have gone unheralded and no specific monitoring plan was developed for Bear Island, Huggins Island, or Cow Channel.

In conclusion, I would like to emphasize the uniqueness of Hammocks Beach State Park and the Divisions concerns that this project may impact this irreplaceable resource. If this project is undertaken, there needs to be some type of contingency plan if impacts to Hammocks Beach State Park are realized. Options for this type of contingency may mean a fund that is designated to mitigate or remediate any negative impacts associated with the project. The Division would not be agreeable to commencement of this project without some type of contingency plan. The Division appreciates this opportunity to comment on the proposed Bogue Inlet channel relocation and beach nourishment project. The Division requests that the US Army Corp of Engineers seriously considers these concerns in your review. If you have any further questions regarding these comments please call me at (919) 715-8711.

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Sincerely,

Brian L. Strong
Resource Management Specialist

cc: Paul Donnelly, Hammocks Beach State Park Superintendent
William Berry, East District Superintendent
Mr. Tom Jarrett, Coastal Planning & Engineering of North Carolina, Inc.