United States Department of the Interior

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

June 28, 2002

Colonel Charles R. Alexander
District Engineer, Wilmington District
U.S. Army Corps of Engineers
Post Office Box 1890
Wilmington, North Carolina 28402-1890

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CM

Attn: Mickey Sugg, Regulatory Division

Dear Colonel Alexander:

The U.S. Fish and Wildlife Service (Service) recently attended the scoping meeting on May 29, 2002, for a proposed project to realign the dominant tidal and navigational channel within Bogue Inlet in Carteret and Onslow counties, North Carolina. Sediment would be mined from the inlet with the goal of redirecting erosive tidal flows away from development at The Pointe in western Emerald Isle. The dredged material would be placed along the oceanfront beaches of Emerald Isle within the project area authorized by U.S. Army Corps of Engineers (Corps) Permit No. 200000362 for beach fill projects on Bogue Banks.

These comments are submitted pursuant to, and in accordance with, provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

The fish and wildlife resources in the proposed project area are abundant and diverse. Sandy, tidal inlets in North Carolina provide valuable habitat to migratory shorebirds, colonial waterbirds, marine mammals and reptiles, anadromous fish, and estuarine and marine fisheries. The inlets also serve as a hydrologic pathway connecting marine and estuarine resources including wetlands, saltwater marsh, submerged aquatic vegetation (SAV), fish nursery areas, freshwater fishery rearing and marine fishery spawning areas. Many marine-estuarine fishery resources have pelagic early life stages that rely upon tidal currents at inlets to passively transport larvae from spawning to juvenile development areas.

Several federally-protected species are present in the Bogue Inlet area depending on the season. Federally-threatened and endangered sea turtles use the inlet as a pathway to estuarine foraging areas and nest on project area beaches. The West Indian manatee (*Trichechus manatus*), a federally-endangered species, may be present in or around the inlet from June to October, foraging in estuarine areas. The federally-threatened piping plover (*Charadrius melodus*) may be present in the proposed project area year-round for nesting, migration or overwintering.

Complete lists of federally-threatened and endangered species for Carteret and Onslow counties can be found on our website at http://nc-es.fws.gov/es/countyfr.html.

The project area has been designated with numerous management characterizations reflecting its high resource value. The waters to the east and west of the navigational channel have been designated as Outstanding Resource Waters (ORW) by the North Carolina Division of Water Quality (NCDWQ). The Natural Heritage Program has delineated several Significant Natural Heritage Areas within the project area, including Huggins and Dudley Islands, West End Beach on Emerald Isle, Hammocks Beach State Park to the west of the inlet, extensive areas within Bogue Inlet and Bogue Sound as bird islands, Hawkins Island to the northwest, and Jones Island and Cedar Point Marshes in the White Oak River to the north of the inlet. Tidal inlets have also been designated as Habitat Areas of Particular Concern (HAPC) for red drum (*Sciaenops ocellatus*), penaeid shrimp and the snapper-grouper complex by the South Atlantic Fishery Management Council (SAFMC). The Service has designated critical habitat for overwintering piping plovers at Bogue Inlet. The United States Congress has designated most of Bogue Inlet as Otherwise Protected Area (OPA) NC-06P under the Coastal Barrier Resources Act, coincident with the boundaries of Hammocks Beach State Park.

The White Oak River that drains into Bogue Inlet contains anadromous and catadromous fish rearing and spawning areas from north of the North Carolina Route 24 bridge to Maysville. Catadromous fish that use these areas include alewife (*Alosa psuedoharengus*), striped bass (*Morone saxatilis*), blueback herring (*Alosa aestivalis*), American shad (*Alosa sapidissima*), hickory shad (*Alosa mediocris*), Atlantic sturgeon (*Acipenser oxyrinchus*) and American eel (*Anguilla rostrata*). Designated nursery areas for fishery resources occur within the tidal influence of Bogue Inlet including Queens Creek, Parrots Swamp, and Dicks Creek to the northwest and Pettiford Creek to the northeast (all tributaries to Bogue Inlet).

Commercial fishery landings harvested from the White Oak River/Bogue Inlet area average 241,971 lbs and for an annual value of $ 390,900. Up to 39 fishery species have been commercially harvested each year from this system. Blue crab (*Callinectes sapidus*), shrimp (*Penaeus* sp.), hard clams (*Mercenaria mercenaria*), spot (*Leiostomus xanthurus*), mullet (*Mugilidae* sp.), and southern flounder (*Paralichthys lethostigma*) are the largest annual catches by weight from the White Oak River and Bogue Inlet (NC DMF, unpublished data).

The tidal shoal system within Bogue Inlet provides spawning and rearing habitat for blue crab and red drum. Shoals that are subaerial during low tides are foraging and roosting habitat for migratory shorebirds and colonial waterbirds. Some of these shoals are supratidal even at high tide and provide additional habitat to avian species such as brown pelican (*Pelecanus occidentalis*), cormorant (*Phalacrocorax* sp.), black skimmer (*Rynchops niger*), American oystercatcher (*Haematopus palliatus*), and numerous egret, plover, gull and tern species. The North Carolina Wildlife Resources Commission (NC WRC) manages several of these supratidal shoals for their avifaunal use, most of which are owned by the state. The invertebrate communities within the sandy shoals are likely dominated by amphipods and polychaete worms.

In 1998, these shoal areas encompassed approximately 250 acres. This was the third largest intertidal shoal system in North Carolina and the largest south of Cape Lookout. Overall, Bogue Inlet provided the seventh largest inlet complex in terms of habitat available to avifauna in 1998 for North Carolina.

The inlet shorelines on both Bogue Banks and Hammocks Beach State Park have consistently supported bird nesting habitat. Black skimmers, least terns (*Sterna antillarum*), and Wilson's plovers (*Charadrius wilsonia*) are nesting on bare sandy flats adjacent to the inlet on both shoulders this year (D. Allen, pers. comm.). Historically, piping plovers, common terns (*Sterna hirundo*), willets (*Catoptrophorus semipalmatus*) and American oystercatchers also have nested in these areas. During migratory periods, Bogue Inlet hosts stopover and staging habitat for countless species of colonial waterbirds and shorebirds. Piping plover, Wilson's plover, semipalmated plover (*Charadrius semipalmatus*), red knot (*Calidris canutus*), sandwich tern (*Sterna sandvicensis*), Forster's tern (*Sterna forsteri*), Royal tern (*Sterna maxima*), least tern, gull-billed tern (*Sterna nilotica*), common tern, black tern (*Chlidonias niger*), Caspian tern (*Sterna caspia*), herons, egrets, marbled godwit (*Limosa fedoa*), laughing gull (*Larus atricilla*), and cormorant are commonly found in and around the inlet during spring and fall periods. Overwintering bird species include piping plover, brown pelican, cormorant, Forster's tern, Royal tern, dunlin (*Calidris alpina*), and various gull species (Fussell 1985).

As a result of this high abundance and diversity of fish and wildlife resources in the proposed project area, the Service has concerns that the project may adversely impact these resources. The inlet dredging should be designed to avoid the most important of these areas (e.g., the small islands managed by the NCWRC, important fishery nursery areas, Hammocks Beach State Park) and be sized at the minimum depth and width necessary to achieve the project goals in order to minimize environmental impacts. The proposed work schedule should avoid periods of high biological productivity to minimize impacts to fish and wildlife resources. Avoidance of disruption to estuarine dependent fishery resources of various life stages is essential. The high ecological value of the proposed action area and the potential ecological impacts warrant an Environmental Impact Statement (EIS) be prepared by the applicant.

The project plan should fully evaluate the indirect impacts the project may induce. One such impact is increased storm surge volumes and velocities to backbarrier and mainland areas by deepening and widening the channels within Bogue Inlet. The deeper and wider channel may also modify the salinity profile of adjacent estuaries, increasing the salinity at Dudley Island, Huggins Island, the White Oak River, Bogue Sound and the tidal marshes north of Hammocks Beach. Long-term alterations to salinity levels may also cause saltwater intrusion of the local aquifers in western Emerald Isle, Swansboro and Cape Carteret.

Another indirect impact resulting from large-scale mining of the shoals in Bogue Inlet to realign the tidal channels is the decreased stability of remaining inlet shoals and shorelines. The project aims to protect private property at The Pointe on Emerald Isle, but no fill will be placed within a mile of these properties. The new channel is likely to become a sediment sink, diverting

longshore transport of sediments that would otherwise feed the beaches of The Pointe and Hammocks Beach . As the Town of Emerald Isle's Project Manager Tom Jarrett stated during the scoping meeting, the inlet influences the oceanfront shoreline at least one mile to the east and west of the inlet. The potential to destabilize the inlet and increase erosion in this zone of influence should be carefully evaluated, with appropriate liabilities agreed to prior to permit issuance.

Finally, the direct loss of intertidal and supratidal shoal habitat should be mitigated for with mitigation ratios agreed to by the resource agencies and the Corps. Indirect losses of these habitats due to increased erosion rates resulting from the mining should also be mitigated, with appropriate ratios supported by thorough physical, hydrologic and biological monitoring of the resources at least one year prior to construction (and during all biological seasons). A management plan to enhance fishery and avifaunal use of the project area post-dredging may also be warranted depending on the scale of the final project design.

The Service can only support a project if it (1) is ecologically sound; (2) is the least environmentally damaging alternative; (3) has avoided and minimized damage or loss of fish and wildlife resources and uses; (4) has adopted, with guaranteed implementation, all important recommended conservation measures to satisfactorily compensate for unavoidable damage or loss to fish and wildlife resources; and, (5) is clearly a water dependent activity with a demonstrated public need, if there are wetland or shallow water habitats in the project area (January 23, 1981, Federal Register v. 46, n. 15, p. 7659).

We appreciate the opportunity to comment on this proposal. Please contact Tracy Rice or John Ellis of my staff at (919) 856-4520, extensions 12 and 26, respectively, if you have any questions or comments.

Sincerely,

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

References

Fussell, John O., 1985. *Finding Birds in Carteret County.* 96 p.

cc: Cheryl Miller, Coastal Planning & Engineering, Inc. (Boca Raton, FL)
Tom Jarrett, Coastal Planning & Engineering, Inc. (Wilmington)
Frank Rush, Emerald Isle Town Manager (Emerald Isle)
David Allen, NC WRC (Trenton)
Dave McHenry, NC WRC (Washington)
John Dorney, NC DWQ (Raleigh)
Ted Tyndall, NC DCM (Morehead City)
Preston Pate, NC DMF (Morehead City)
Ron Sechler, NMFS (Beaufort)
Kathy Matthews, EPA (Athens, GA)

Sugg, Mickey T SAW

From: Jim Stephenson [jims@nccoast.org]
Sent: Monday, July 01, 2002 3:22 PM
To: Mickey Sugg
Subject: Bogue Inlet

Mickey,

As you requested, we are providing some preliminary comments on Emerald Isle's plans to realign the channel in Bogue Inlet and utilize some of the sand resources to renourish an undetermined section of the beach on the western end of Emerald Isle. We have two general comments and a number of specific comments.

First we would like to remind you that the Corps of Engineers has jurisdiction under the Rivers and Harbors Act to determine the location of navigational channels and to dredge channels within inlets as necessary for navigation. Under Section 10, any work to navigable waters must be recommended by the Chief of Engineers and authorized by the Secretary of War. While we appreciate the concerns within Emerald Isle that have led to consideration of a plan to realign the channel, we also recognize that the Corps has statutory authority that would be relinquished if the channel were to be moved by anyone other than the Corps.

We would also like to state that it is our understanding that the Division of Coastal Management rules prohibit erosion control projects within inlet hazard areas. Ocean Hazard categories are listed in 7H.0301 to include: beaches, frontal dunes, inlet lands, etc. Two specific AEC's within Ocean Hazard Areas include the ocean erodible area and inlet hazard area. Ocean erodible areas are mapped (7H.0304 (a)) on the "Long Term Annual Shoreline Change Rate" maps. These maps stop on the oceanfront side of the barrier islands, and do not include the inlet shorelines. The regulations group all specific use standards for erosion control activities under the headings "**Ocean Shoreline**" in 7H.0308(a). The first use standard requires that **all oceanfront erosion** response activities be consistent with the general policy statements in 7M .0200. Thus, the rules provide a clear distinction between "ocean shoreline" and "inlet hazard areas" providing a different set of rules for these two distinct areas. These distinctions are clear in the inlet hazard area rules (7H.0310). They provide specific use standards for inlet hazard areas, including the blanket prohibition on "all development in the inlet hazard area" seaward of the first line of stable vegetation. 7H.0310(c) always for a few specific exceptions from the inlet hazard area rules, including "small scale" erosion control measures that do not interfere with natural inlet movement within the estuarine portion of the inlet hazard area. This wording seems to imply that the intent of the rules is to allow for natural inlet movement and that erosion control measures (other than small scale) are clearly prohibited within the inlet hazard area. The rules also establish setbacks based upon what is required in the adjacent ocean hazard area AEC, once again clearly distinguishing the inlet hazard AEC from the ocean shoreline. It should not be assumed that just because erosion control activities are allowed within the ocean beach area, that they are permissible within inlet hazard areas as well. That same logic was followed by DCM or the CRC when it came to piers, bulkheads, etc. that are allowed within the Estuarine Shoreline AEC. To permit those specific activities, the inlet hazard area rules were amended after the Bird Island declaratory ruling. CAMA permits are issued for projects that are determined to constitute "development." Thus, any projects requiring a CAMA permit must be for "development." Therefore, the Mason Inlet "development" project was clearly inconsistent with this rule in that it involved authorizing activities seaward of the first line of stable vegetation within the inlet hazard area. In addition, mining sand from Bogue Inlet (if the mining is to remove shoals and islands

that are exposed at mean low water) would also clearly run counter to this rule. There are no specific use standards to permit these types of development in the rules--and they constitute development that is seaward of the first line of stable vegetation. The proposal at Tubbs Inlet to place sand on the inlet shoreline within the inlet hazard area AEC (above mean low water) would also appear to violate the prohibition. On the other hand, channel dredging below mean low water is not within the inlet hazard area and is not impacted by these standards.

Regarding the document entitled "Description of Proposed Bogue Inlet Channel Relocation and Beach Nourishment Project, Emerald Isle, North Carolina"; we would offer the following comments.

Tidal inlets are among nature's most dynamic coastal environments, opening and closing in response to storms and, in some cases, migrating long distances along barrier shorelines. Because they serve as conduits for exchange of water, sediment and marine life, inlets are important linkages between the ocean and the sound. It is well documented that inlets have wide zones of influence, and that some of the highest ocean erosion rates in North Carolina are associated with natural processes of inlet movement.

Most inlets contain large reservoirs of sand, derived from the littoral transport system, and are therefore intimately tied to the adjacent barrier islands. These distinctive shoals of impounded sand, which occur on both the ocean side and the sound side of the inlet, are referred to, respectively, as ebb tidal deltas and flood tidal deltas. Shoals of the ebb tidal delta, which are exposed to ocean waves and strong currents, are in constant motion, exchanging and redistributing their sediments so as to impact the behavior of nearby beaches. Adjacent beaches can receive sands that are released from the ebb tidal delta, but can also lose sands that are transported offshore to the ebb tidal delta.

Many of North Carolina's 22 tidal inlets have been dredged to meet navigational needs and, most recently, to save coastal property. However, dredging can disrupt the longshore sand-sharing system by trapping sand in deep, recently dredged channels. Dredging can also change the symmetry of an inlet, influence the pattern of incoming waves, and alter the natural "breakwater effect" of the ebb tidal delta. Dredging must proceed only after careful study and with extreme caution.

Given the dynamic and variable nature of inlets, we view that it will be imperative for the U.S. Army Corps of Engineers to require an Environmental Impact Statement to fully define the project, alternatives to the preferred project, and potential impacts of all of the alternatives. In particular, we request that all cumulative impacts of inlet dredging be addressed in the EIS, including those that could affect offshore fisheries resources, onshore and offshore endangered species, and the sediment budget on adjacent islands.

We question the need and wisdom of realigning the new inlet to a depth of 14 to 18 feet below mean low water and/or a width of 600 feet. There is no justification for dredging a realigned channel to this depth and width, other than to renourish the beaches of Emerald Isle. Clearly there are offshore sand sources that are available for renourishing Emerald Isle. An EIS would need to demonstrate that offshore sand sources are not suitable for placement on Emerald Isle beaches or that accessing offshore sand sources are cost prohibitive.

Several alternatives should be studied by an EIS, including one that examines the impact of realigning the new channel to the approximate depth and width of the current channel and utilizing the dredged material to fill in the current channel. This alternative should fully examine the impact of limiting the depth and width of the new channel to the minimum necessary to allow the Corps of Engineers to maintain it. This alternative should also seek to retain as much sand as necessary in the inlet system (by filling in the current channel) in order to limit the environmental impacts on the ebb

tidal delta, the islands and marshes in the flood tidal delta and the adjacent shoreline on Bear Island. While the sand found in Bogue Inlet may be suitable for application on the beach, it is important to note that the sand already performs an important function in stabilizing the inlet as a whole.

[All of the alternatives selected for review must examine the relative environmental impacts on the ebb tidal delta, the islands and marshes in the flood tidal delta and the adjacent shoreline on Bear Island. The EIS should determine how the project will avoid environmental impacts, or if it cannot, how it will minimize environmental impacts. As a last resort, the project should indicate how it would mitigate all potential negative environmental impacts. Specifically, the EIS should examine the following:

- The impact of this project on the intertidal flats, including the impact to feeding and roosting habitats of piping plovers and colonial seabirds.
- The impact of this project on the marsh, including the potential change in tidal range in the estuary and lagoon behind Bogue Inlet.
- The impact of this project on the important habitats for crab spawning and red drum, striped mullet, spotted sea trout, southern flounder and shrimp, along with other fish species.
- All site-specific deficiencies in our understanding of the implications of inlet dredging, especially those that are related to wave refraction and "drawdown" of the ebb tidal delta.
- The impact of this project on the position, orientation, shape and area of the ebb tidal delta as the result of channel realignment.
- The impact of this project on the Dudley Island, Island #2 (NC Wildlife Resources Commission), spits, shoals, flats, marsh and other parts of the flood tidal delta. The EIS should examine the secondary impacts of changes in salinity on flora and fauna in the estuarine system influenced by Bogue Inlet.
- Seasonal pre-project monitoring data for biological resources influenced by Bogue Inlet. Independent experts in biological, physical and geological sciences should be called upon to help develop the monitoring data for all distinct ecosystems with a connection to Bogue Inlet. Monitoring data is a critical and necessary component of an EIS.
- A plan for allowing public access to the renourished beach as required by CAMA rules.
- How and when sand bags would be removed from the inlet hazard area on Emerald Isle.
- What will happen if both the current and the realigned channel close as the result of a hurricane or other storm events. Who will be responsible for the financial burden of reopening the channel?
- How Emerald Isle will restrict additional development near Bogue Inlet. Changes in inlets are often accompanied by increases or decreases in development adjacent to the inlet. Since Bogue Inlet has a well-documented history of "wagging" east and west, it is very possible that the channel will migrate back towards Emerald Isle within the not so distant future.
- The compatibility of sand sources from the inlet for placement on Emerald Isle, including the compatibility for sea turtle nesting. Also need to check for contamination of the sediment before placement on Emerald Isle.
- Meeting of North Carolina's turbidity standard of 25 NTUs.
- A reclamation plan as required by the NC Mining Act.

Thank you for the opportunity of submitting comments on the Emerald Isle's plan to realign Bogue Inlet.

Sincerely,

Jim Stephenson
Policy Analyst
North Carolina Coastal Federation

Sugg, Mickey T SAW

From: Michelle Duval [mduval@environmentaldefense.org]
Sent: Monday, July 01, 2002 12:43 PM
To: mickey.t.sugg@saw02.usace.army.mil
Subject: Comments RE: Bogue Inlet Relocation

BogueInletReloc070 2.doc

Dear Mr. Sugg,

Please accept the attached letter (Word doc) as comments from Environmental Defense regarding the Bogue Inlet relocation and performance of an EIS vs. an EA. Please let me know if you have any problems opening the attachment, or if you would like me to fax you a copy -- it is not on letterhead, but my information is included on the letter. Many thanks,

Michelle Duval

(See attached file: BogueInletReloc0702.doc)

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July 1, 2002

Mr. Mickey T. Sugg
US AED, Wilmington
P.O. Box 1890
Wilmington, NC 28402-1890.

RE: Proposed Bogue Inlet Channel Relocation and Beach Nourishment Project

Dear Mr. Sugg,

Please accept these comments on behalf of Environmental Defense and our 8,000 members within North Carolina. Environmental Defense is a national, non-profit, non-governmental organization dedicated to solving environmental problems though the use of sound science, economics and policy.

It is our understanding that the town of Emerald Isle is proposing relocation and mining of the Bogue Inlet channel, and has requested that the COE Wilmington District conducted an Environmental Impact Statement (EIS). We urge the District in the strongest possible terms to conduct an EIS for this project. It is clear that an engineering endeavor of this magnitude in such a dynamic environment is highly likely to have unforseen environmental impacts that would not be planned or mitigated for in an Environmental Assessment.

We have several specific concerns regarding this project beyond the obvious need for an EIS. First, we strongly believe that the project is being driven forward for the wrong reasons. Relocation of an inlet channel should only be considered if navigational difficulties are an issue, and this is clearly not the case at Bogue Inlet. Second, the proposed channel dimensions (300-600ft wide, 14-18ft mlw depth) are excessive even if navigational changes were necessary; these are practically the authorized dimensions of the Oregon Inlet channel. Finally, mining of the tidal delta is a risky undertaking, with unpredictable consequences; changing the shape of the tidal delta can significantly alter erosion and depositional patterns both up and downdrift of the inlet, as has been demonstrated at Folly Beach, SC.

Given the above concerns, we strongly feel that an EIS warranted. Thank you for your consideration of our comments and please don't hesitate contact me at 919-881-2601 or mduval@environmentaldefense.org.

Sincerely,

Michelle Duval, Ph.D.
Scientist
Environmental Defense, Raleigh, NC
919-881-2601
919-881-2607 (fax)

Sugg, Mickey T SAW

From: Bennett Wynne [wynnemb@coastalnet.com]
Sent: Tuesday, July 09, 2002 5:41 PM
To: 'Sugg, Mickey T SAW'
Cc: 'Allen, David'; 'Eaton, Larry'; 'McHenry, David'
Subject: RE: comments for Bogue Inlet Channel Relocation

Sorry I'm late, Mickey. Had a little hernia surgery. I'll just reiterate what I said at the meeting. More baseline data is needed for flood and ebb tide infauna (food items for birds & fish). At least 1 yr. of pre-treatment data should be collected on at least a seasonal (quarterly) frequency. Post-treatment infauna collections should last at least 3 yrs., again at seasonal frequency.

thanks,
Bennett

-----Original Message-----
From: Sugg, Mickey T SAW [SMTP:Mickey.T.Sugg@saw02.usace.army.mil]
Sent: Monday, June 03, 2002 2:34 PM
To: Bennett Wynne (E-mail); David Allen (E-mail); Dale Suiter (E-mail); David Rabon (E-mail 2); Joanne Steenhuis (E-mail); John Dorney (E-mail); John Ellis (E-mail); Kathy Matthews (E-mail); Sechler, Ron SAW; Tere Barrett (E-mail); Tracy Rice (E-mail); Rick Monaghan (E-mail); Matthew Godfrey (E-mail); Todd Miller (E-mail); Jim Stephenson (E-mail)
Cc: Frank Rush (E-mail); Greg "Rudi" Rudolph (E-mail)
Subject: comments for Bogue Inlet Channel Relocation

Just a follow-up from the May 29 meeting in Emerald Isle. As discussed, please provide your written comments to our office by July 1 (Monday), June 30 is on Sunday. You can e-mail your comments, fax, or send by mail. At this stage, it does not have to be signed letterhead.

If you have questions, call me at (910) 251-4811.
-Mickey
<< File: ATT00019.htm >>