

## **APPENDIX A**

### **SCOPING**

## Sub-Part 1

### Meeting Minutes

Figure Eight Island Shoreline Protection Project  
Scoping Meeting  
Figure Eight Island, North Carolina

1. The initial scoping meeting for the Figure Eight Island Shoreline Protection Project was held on the evening of March 1, 2007 at Eaton Elementary School in Wilmington, North Carolina. The meeting was attended by individuals including elected officials, local residents, resource agencies, and representatives of the Figure Eight Island Homeowners Association (including its consultant, Coastal Planning and Engineering, CPE). Several members of the PDT also attended.

2. Attendees.

The meeting attendees that signed in at the meeting are listed below:

1. Ken Willson
2. Diane Sanders
3. Bill Raney
4. Earl Johnson
5. Steve Everhart
6. Walker Golder
7. Craig J. Kruempel
8. Vickie Savage
9. Frank Daniels
10. Patricia Roseman
11. David Webster
12. Bob Parr
13. Margo O'Mahoney
14. Frank Folger
15. Gray Sneider
16. Matthew Stokley

3. Scoping Issues.

Following the presentation of the proposed project, the meeting attendees were divided into three groups and each group asked to provide a list of project issues.

Group 1

- How will this project affect navigation through the inlet?
- How will this project affect:
  - Primary Nursery Areas and shellfish areas (and SAVs)
  - Shorebirds (foraging habitat, ebb tide delta), piping plover critical habitat
  - Sea turtle habitat
- How will the project affect recreational boaters- during construction of the project?
- How will affect SAVs?

- Who owns the new uplands created by the project (Hutaff Island)?
- Are there hard bottoms in the vicinity of the project- if so will they be impacted?
- What are the benefits to navigation/economics of the proposed project (commercial and recreational use)?
- Inlet maintenance: How often? How will it be done? Who is responsible? Will mitigation be required?
- How will this project affect maintenance of the AIWW?- and who will pay?
- How will the new connections (inlet) to Greens Channel and Nixon Channel be determined?

## Group 2

- Effects on biological destruction, ecosystem degradation, Public Trust Waters and Primary Nursery Areas
- Effects on New Hanover County-limited resources- development
- Public resources lost vs. private gain, both from a recreational and biological standpoint
- Public effect on shorebirds (nesting)
- Explore all alternatives for sand source (offshore, spoil islands, move homes, homes fall in- no action alternative)
- Cost to general public, cultural impact
- Benefits of deeper water and safety
- Boating impacts on inlet
- Storm surge impacts (hurricanes and nor'easters)
- Environmental effects on Hutaff Island.
- Impacts on channelization to meanders. Keep meanders in project inlets and channel
- Duration/frequency of maintenance dredging
- Address affects on recreational fishing and pleasure craft. Pre-vs post project, types of boats, quantify people
- Impacts to Futch Creek
  - What is scope of project
  - Extend scope of project to reach Futch Creek
  - Don't narrow scope of analysis too much
- Address potential benefits to water quality by flushing of waterway from estuarine creeks to waterway
- Extend the prestudy period
- Extend monitoring with maintenance dredging
- Look at having the channel in optimal location
- Address benthic, larval fish, SAV and intertidal areas in EIS. Wants to know is there impacts to endangered species other than sea turtles
- Would like to see holistic approach of entire project. Baseline data established for benthic, larval fish, SAV, and intertidal areas. Pre-construction vs. post construction to analyze impacts of baseline data. Secure data collection.
- Include biological recovery time
- Navigation of channel. Public use and deep water access. EIS- include economic base for recreation. Economic impact of protecting tax base.

### Group 3

- Address the quality of beach fill material
- Long term management plan – (address)
- Short timeframe- completion of EIS
- Assessment of impacts on Wrightsville Beach and Huttaff Island
- Address changes to mapped tidal wetlands and intertidal mudflats
- Upland borrow sources?
- Use public funds?
- Duration of permit?
- Project performance- Identify renourishment cycle and project life.
- What happens if 50cy/ft is not sufficient?
- EIS- address cumulative impacts to include shoreline to Cape Lookout (shoreline, inlet, inlet complexes) wildlife, EFH, fisheries, etc.
- Impacts of adjacent inlets- Masons Inlet and Rich Inlet?
- Can you use public sand on Figure 8 Island?
- EIS should address alternatives that does not include Rich Inlet or are there other alternatives that meet the purpose and need without relocating Rich Inlet ( i.e. shoreline protection to North End)
- Who is responsible (pay for) any long term monitoring that may be required.

**Minutes**  
**3 May 2007 PDT**  
**Figure Eight Island Yacht Club**

**The first meeting of the Rich Inlet Project Delivery Team was held on Thursday, May 3, 2007 at the Figure Eight Island Yacht Club. Mickey Suggs** of the US Army Corps of Engineers called the meeting to order at 10:00 a.m.

**Mickey** explained that the US Army Corps of Engineers (USACE) has received notice from Figure “8” Beach Homeowners’ Association, Inc. of their intent to prepare a draft Environmental Impact Statement for the purpose of developing and implementing an Inlet Management Plan, repositioning the main ebb channel of Rich Inlet, and for the nourishment of the ocean beach along the northernmost three miles of shoreline on Figure Eight Island in New Hanover County, NC.

**Mickey** further explained that when the USACE receives a proposal for any project, the Corps must follow a standard project development process to determine if there is a significant impact or effect on the quality of the human environment. The USACE relies on resource agencies and people who use the channel to provide public interest issues and impact concerns that should be addressed during the development, planning and implementation processes for the Environmental Impact Study (EIS). **Mickey** noted that it had been discussed with Figure 8 that based on the unknown factors and sensitive inlet topic; it was posed that the EIS process would be a shorter time frame. **Howard Hall** asked if the timeframe of the project was 30 years and **Mickey** responded that it has not been decided yet.

The Rich Inlet Project Delivery Team (PDT) includes a diverse group of federal and state resource and non-profit agency representatives chosen by the USACE to effectively develop and provide input for the project. **Mickey** noted that the PDT body is not a decision-making body; agencies will provide input on issues to be addressed in the Rich Inlet EIS but will not make permit decisions.

**David Kellam**, Administrator of Figure “8” Beach Homeowners’ Association, welcomed members of the Project Delivery Team and invited introductions. Participation list is included at the end of the meeting minutes.

**Tom Jarrett** of Coastal Planning & Engineering, Inc. (CPE) welcomed all in attendance. He stated that the PDT meeting format is informal and open discussion is encouraged while presenters are delivering their reports. A site walk and orientation at the Rich Inlet project site will be conducted at the meeting’s conclusion. **Tom** noted that Dr. Bill Cleary will be presenting affects of Rich Inlet on adjacent shorelines and inlet morphology based on extensive studies completed by him. Inlet morphology will be updated with present time studies in which CPE will be developing relationships between the morphology and inlet/shoreline responses due to channel modifications.

**Tom** explained that the proposed Rich Inlet project would offer modifications to the channel to hopefully offer more favorable impacts to Figure Eight Island and Hutaff Island. Material from

this project would allow for nourishment of the ocean beach along the northernmost three miles of Figure Eight Island shoreline. **Mickey** commented if a project modification is deemed necessary to extend the area for nourishment from the initial three mile area to the entire ocean beach, another Notice of Intent would have to be sent out. **Tom** suggested to David to include the entire oceanfront of Figure Eight Island, which would include an additional 1<sup>1/2</sup> mile.

A concern was raised that if the project was extended past the initial proposed three mile nourishment area, it would run into areas of the beach that already receive nourishment from Mason Inlet projects. **David Kellam** stated that the 2002 Mason Inlet project yielded nourishment to approximately one-half of the Island. More recent nourishment projects included pumping sand from a mitigation island near the AIWW to Figure Eight in 2003 and a truck haul project for the New Hanover County Mason Inlet permit in 2005. **Tom** said there may be some overlap of nourishment projects.

A NC historical ship wreck site, Wild Dayrell, has been surveyed by Tide Atlantic Research (TAR) and well documented in Rich Inlet. A buffer area around the wreck has been developed to protect and prevent impacts to the wreck. **Mickey** asked if the buffer area includes erosion buffer to the site after project completion. **Tom** answered by stating that the wreck has been exposed and covered up with the migration of Rich Inlet naturally over time and the wreck is a major constraint on where to align and reposition channel. **Tom** stated that the wreck site will be properly addressed in the EIS and Engineering design. The buffer information was coordinated with the underwater Archeological section of North Carolina State Government.

**Tom** discussed sand placement and estimated that 1.5 to 3 million cubic yards of material will be realized from this project. Careful design will go into connecting the new channel to Nixon Channel and the mouth of Green Channel. **Tom** explained that the ultimate goal of project is to optimize and develop a stable channel like Bogue Inlet.

**Tom** presented a slide overview of past Figure Eight Island projects since 1972. He showed that through these projects, the entire island has received renourishment at some point in time. Most disposal and/or nourishment have been directed to the extreme north and south ends. **Tom** also pointed out that at least 4 dredge projects have taken place in Nixon Channel.

The meeting was then turned over to Dr. Bill Cleary of the University of North Carolina at Wilmington. **Dr. Cleary** has conducted a number of studies since 1979 to identify the causes of erosion to Figure Eight Island. He stated while the causes of erosion are complex, he believes they are basically related to the changes in the adjacent inlets and the impact of recent storms.

**Dr. Cleary** presented a slide of the historic ebb channel location and reported that Rich Inlet is a relatively stable inlet. The channel does however move within a 1,500 foot wide corridor. Rich Inlet is a flood dominant inlet with more sediment being carried into the inlet system than is carried out. Sand accumulation in this area may cause inlet closure in the area. Placement of the channel influences both Figure Eight Island and Hutaff Island.

With the current placement of Rich Inlet and impact from numerous nor'easters and hurricanes, the north end of Figure Eight Island has become an erosion hot zone. Dramatic erosion along the

northern end of Figure Eight Island has left many homes with virtually no significant storm protection in the form of a dune and beach during high tide conditions. Currently 18 homes on Figure Eight Island have artificially restored dunes formed by sandbags but the erosion spreads far south from this location. Beach nourishment only is not a viable option in the erosion hot zone areas. **Dr. Cleary** noted that the inlet hazard zones extend well beyond the inlet shoreline.

**Jim Bushardt** stated that Hutaff Island has significant wash over areas that occurred in the late '90's and asked if the erosion rate of Hutaff Island is impacted by the relative location of Figure Eight Island and Rich Inlet. **Dr. Cleary** explained that storm impacts and the relative location of Rich Inlet to Hutaff Island or Figure Eight Island affects erosion or accretion rates. The increase erosion on Figure Eight is due to the rapid northeasterly movement of the main channel. The repositioning and realignment of the channel has led to dramatic changes in the position of the offshore shoals and once nourished northern end of Figure Eight Island. Erosion along this shoreline segment will continue until the main channel is realigned naturally or by dredging activities.

**Dr. Cleary** explained that it is important to ascertain the link between oceanfront shoreline changes and the morphologic changes in the inlet system. With slides, he detailed the morphology of Ebb-Tidal Deltas including Main Ebb Channels, Marginal Flood Channels, Swash Bars and Terminal Groins; Swash Bar Attachment Locations and Channel Orientations; Rich Inlet Shoulder Changes; Downdrift Erosion areas; Erosion Hot Spot Shoreline Positions (1938-2003); Nixon Channel Shore with Chronic Erosion since 1993 and Channel Encroachment (March 2001); Bar Build Up and Potential Breach Site; Estuarine Shorelines; and Apex of Ebb Tidal Delta Shifts.

**Mickey** reaffirmed that the hot spots began eroding in 2000 and the channel was located adjacent to Hutaff Island. **Dr. Cleary** explained that there is a lag effect once a channel is modified or migrates due to the amount of sand present in the system. The larger the amount of sand is present in the system, the greater effect on adjacent shorelines. **Dr. Cleary** stated that the take away point is the position and orientation of the channel controls the shape and symmetry of the ebb tidal delta which functions to control the accretion and erosion of the adjacent shorelines. He restated that in his opinion nourishment is simply not an option based on the results of his studies.

**Dr. Cleary** stated that chronic erosion of the estuarine shoreline on the north end of Figure Eight Island has occurred since 1983. He confirmed with David that 2 to 3 lots are located in the area of erosion. Approximately 96 meters of estuarine shoreline erosion (marsh peat) has occurred due to a seaward shift of Nixon Channel.

**Steve Everhart** questioned if the permit would be a 20-year permit. **Tom** explained that the answer to this question would be determined in the permitting process after the EIS is complete. **Jim Iannucci** asked if the channel will become a fill channel like Bogue Inlet. **Tom** responded that filling the channel may be a recommendation based on the engineering design for the project.



**Ken Willson** provided an update on geotechnical investigations that have been completed by CPE within Rich Inlet. He mentioned that the preliminary investigations in February included using jet probes to look for relict flood channels. Vibracores were then collected in March in which the sediment is currently being analyzed. Portions of the native beach sand samples have been collected based on the NC Sediment Criteria Rules. Due to numerous nourishment projects on Figure Eight Island, native beach material is not present and therefore, along with coordination of the State (Jeff Warren), two transect profiles have been set-up on the southern half of Hutaff Island. **Mickey** asked what depth the vibracores were collected and **Ken** responded that the average depth of the cores was -20.6 feet NAVD. Ken reviewed the NC State Sediment Technical Standards. **Tom** mentioned that the native beach material collected on Hutaff will result in similar sized material to Figure Eight Island. Ken concluded the presentation by noting that the vibracores sediment analysis will be completed by the next PDT meeting.

**Tom** discussed design considerations and project evaluations being developed by CPE. The channel realignment project aims at reversing the most recent erosion trend by moving the main ebb channel approximately 1,500 feet. The morphology of the system provides a real world example of how the system would be affected by a project. A feasible design approach may include digging along the alignment to help capture the flow and help the inlet to become more stable; closure of the existing channel dike; look at variable channel widths; and connecting to the mouth of Green Channel. He noted that the three areas that will be focused on during the modeling analysis is the north end of Figure Eight Island, the areas behind Hutaff Island, and the estuarine shoreline within Rich's Inlet.

**Tom** stated that the key element of the design process is Dr. Cleary's analysis of the morphology of the inlet and how has the system behaved with various channel configurations. The Delft3D modeling methodology is similar to what was developed for Bogue Inlet. **Tom** explained that an alternative includes closure of the existing channel through the construction of a dike. The dike could be connected to Hutaff Island although construction would be difficult.

**Fritz Rohde** asked about the depth of the existing channel. **Dr. Cleary** stated that portions of the current channel may be as deep as 30-35 feet with shallower areas near the ocean. The project could yield 1.5 to 3 million cubic yards of material. Figure "8" Beach Homeowners' Association wishes to keep from placing too much material on the beach so alternatives were discussed. Fill could be placed near the shore to help build up the south side ebb delta to hasten migration on to the island and to keep it from carrying sand back in the inlet.

**Michelle Duval** asked if the dike was a critical element for the success of this project like in Bogue Inlet. **Tom** declared this is a good question and if the dike is deemed a critical part of this project, it could raise some concerns. This channel project is different from Bogue Inlet in that the flow out of Green Channel is smaller than at Bogue. Engineering designs will have to address this question.

**Fritz Rohde** wanted to know if the inlet was a flood driven system, could Green Channel completely close off. **Dr. Cleary** responded with the fact that Green Channel has always stayed

open as nature has moved the inlet naturally and that it is his belief that the channel would not close off but would more likely produce the reverse effect. The realigned channel should shunt water in the channels behind Figure Eight Island better than it does in the existing location. Currently Green Channel is closing. **Dr. Cleary** asked if the Delft3D model showed infilling of Green Channel and **Tom** responded that it did not. Tom stated that based on the intent of Figure Eight Island, the inlet would be maintained on a regular timeline. Doug confirmed that the State permit recognize periodic maintenance but the original permit issued will be for a one-time only dredging and engineering event and all subsequent activities will be included as a major permit modification. Dr. Cleary added that the placement of sand in the offshore area is critical to the project and would accelerate the success and decrease the lag time of effects.

**Dawn York** stated that she is currently in the preliminary stages of collecting historic baseline biological resource data for the area identified within the inlet complex and adjacent shoreline habitats. She stated that she is coordinating with several PDT and agency representatives to collect accurate data. **Dawn** has been in contact with Dr. David Webster of UNC-W on endangered species monitoring for Figure Eight Island. Dr. Webster's monitoring studies include sea turtles, birds, and seabeach amaranth. He also monitors piping plovers with the assistance of Sue Campbell of NCWRC. Other biological resources to be investigated will include water quality, shellfish resources, SAV, hardbottom, and wetlands. **Dawn** noted that a Draft EFH has been developed and a Biological Assessment is in draft form.

**Michelle Duval** asked if a CD of the presentation and biological resources table could be made available to members of the PDT. **Tom** stated that the information will be adequately distributed to PDT members. *(As requested, a pdf of each presentation and biological resource table is provided with the meeting minutes)*

**Mickey** stated that the next PDT meeting may be scheduled for the end of July 2007. Members will be given a 30-day advance notice prior to future PDT meetings.

As confirmed by **David**, the Figure "8" Beach Homeowners' Association would like to start the project in the winter of 2009-2010.

At the conclusion of this meeting, Attendees recessed for lunch before gathering on the north end of Figure Eight Island for a site walk and orientation within the project zone. Areas visited on the northern end of the island included Rich, Green and Nixon Channels and erosion hot zones with sandbagged artificial dunes.

List of PDT Participants  
3 May 2007

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**Minutes**  
**18 September 2007 PDT**  
**Figure Eight Island Yacht Club**

**The second meeting of the Figure Eight Island Shoreline and Inlet Management Project Delivery Team was held on September 18, 2007 at the Figure Eight Island Yacht Club.**

**Mickey Suggs** of the US Army Corps of Engineers called the meeting to order at 10:00 a.m. Introductions by all meeting attendees were made. It was noted that **Tom Jarrett** was absent. **Mickey** indicated that the majority of the meeting would include a PowerPoint presentation by **Chris Day** of Coastal Planning & Engineering (CPE) which will describe the modeling results for the proposed modification eroded areas on Figure Eight Island and Rich Inlet.

**Chris** began his presentation by outlining his talk into five main parts: 1) general background on why the project is necessary and goals and objectives of the project; 2) an introduction to the conceptual designs; 3) Delft 3D model; 4) a review of the various alternatives including the preferred alternative; and 5) a description of the remaining engineering tasks that need to be accomplished.

**Chris** described that two hotspots of erosion have been identified on the north end of Figure Eight Island. One area of concern is on the oceanfront shoreline at the northeast end, near Rich Inlet. The second area is on the northwestern (lee) side of Figure Eight Island. The likely cause of the high retreat rates near Rich Inlet is due to the northward migration and orientation of the ebb shoal of the inlet. As the ebb shoal relocates, there is greater likelihood of erosion on the northern portion of Figure Eight Island due to wave energy. **Bill Cleary** noted that the erosion hotspot on the leeward side of Figure Eight Island has developed due to the migration of the scour hole in Nixon Channel. To alleviate the ocean shoreline hotspot, it has been recommended by **Bill Cleary** that a new ebb channel should be formed perpendicular to the island. The erosion hotspot adjacent to Nixon Channel should be resolved by connecting the newly formed ebb channel to Nixon and Green Channel.

It was asked by the PDT when the erosion began and how long will it continue at its current rate of erosion. **Chris Day** responded that erosion has been occurring for approximately 14 years. It was noted that the channel could shift to its original orientation naturally, however if this did occur it could take another 15 years and, as a result the adjacent homes may be comprised during this time.

**Chris Day** continued to describe the technical aspects of the modeling effort. The model, Delft 3D, is produced by Delft Hydraulics Laboratory in the Netherlands. It is a wave transformation model coupled with a flow model. The major inputs for this model include wave height, bathymetry, refraction and bottom friction. The flow model simulates currents, flow rates, wind stress and sediment transport. For this project, existing wave data was used as an input for the model (new data was not collected).

A total of four alternatives were developed, three of which were incorporated into the Delft 3D model. **Alternative 1** entails extending the ebb channel to the interior salt marsh. Due to the large volume dredged, this was determined not to be economically feasible and therefore was not entered into the model.

**Alternative 2** is comprised of two variations, 2a and 2b, both of which extend the dredged channel into Nixon and Green channels. **Alternative 2A** involves dredging a 17-foot deep channel approximately 0.75 miles into Nixon Channel and 0.5 miles into Green Channel. In **Alternative 2B**, the cut in Nixon Channel would be shorter- less than 0.5 miles. **Bill Cleary** expressed that Alternative 2A would provide the most stable ebb tide channel. There was concern that 2A could cut off part of Hutaff Island, but **Chris** explained that this would not be the case because the water is deeper than it appears in the presentation graphic. Alternative 2A was mentioned to be the recommended alternative at this time. There was discussion regarding channel depth in which the ebb channel would be dredged to -17 feet NAVD; the depth of Green Channel would be -14 feet below mean high water.

**Alternative 3** does not include dredging into Green Channel and therefore would not provide better navigation through Green Channel. There was also discussion regarding possible environmental impacts due to flow and sand deposition. This alternative does not meet the project objects and therefore was not entered into the Delft3D model. *(Note: Since the meeting, as requested by the PDT, this alternative has been modeled without waves.)*

**Alternative 4** includes Dr. Cleary's ebb channel with 2 connections – one to Nixon Channel and one towards the salt marsh. Access to Green Channel would be established via the connection that extends towards the salt marsh and an existing back channel. Alternative 4 was also split into two alternatives – 4A and 4B. The difference between the two alternatives is the length of the connection into Nixon Channel. Like Alternative 2, a question to be resolved by the model was whether a shorter connection into Nixon Channel would still provide the needed shoreline protection for the Figure 8 Island's residents.

With each of these options, a temporary diversion dike would be constructed simultaneously to cut off the existing ebb channel. Over time, this sand dike will equilibrate naturally through wave and tide dynamics following construction of the new channel. **Stuart Mossman** asked if these scenarios have been modeled without the use of the dike. **Chris Day** responded that they have not. **Stuart Mossman** responded by mentioning that we therefore may end up with two channels. A question was asked if it would be plausible to place a sheet pile structure in place rather than a sand dike. A temporary structure would not be permissible under the current legislation.

The final alternative was the "No Action" scenario. This alternative examined present conditions and three years into the future. The model results demonstrated the continuation of scouring in Nixon Channel and would cause the formation of a secondary ebb channel near Figure Eight Island.

The selected alternative includes a 500 ft wide ebb channel with an -17 ft NAVD depth (Alternative 2A). Nixon Channel would be dredged 3,800 ft long and 275 ft wide with a depth of -17' NAVD (Alternative 2A). Green Channel would be dredged 1,425 ft long and 225 ft wide with a depth of -17 ft NAVD (Alternative 2B). The closure dike would be constructed to a height +6 ft NAVD and either 100 ft or 200 ft wide, depending on further investigation.

**Chris Day** closed his presentation with a review of the remaining tasks to be completed. This includes the investigation for the optimum size of the closure dike. He will also perform a 5-year simulation of the recommended alternative using wave data. He will then also compare the results of the 5-year "No Action" scenario with waves to a number of parameters including erosion and deposition patterns, ebb shoal, tidal prism, and the impacted area. A final report detailing these results will be generated.

**Bill Cleary** expressed his concern that there has not been enough investigation into dredging longer into Green Channel. He noted that the ebb and flood flows would be restricted without opening up the channel more and the channel would eventually fill in. He referred to experiences in Masons Inlet.

Following lunch, participants engaged in open discussion. It was brought up that there has been some changes to the State Sediment Criteria rules enacted in February 2007 (adopted by the RRC- 15A NCAC 07H.0312). These rules state that a geophysical survey would be required in the borrow area. Due to the shallow depth it was discussed that rather than conducting a geophysical survey there may be legal room to collect tighter spaced vibracores (500 ft space rather than 1000 ft). Some geophysical survey work may be completed in deeper areas. It was also noted that beach profiles will be collected on Figure Eight Island (5 to 6 profiles) and Hutaff Island (2 to 3 profiles).

**Erin Hague** asked if hardbottom resources have been identified near the oceanside of the proposed channel limits and the implications it may have on the design due to an associated 500 meter buffer. **Bill Cleary** confirmed that there are ephemeral low-relief hardbottom resources within the area, however they are further seaward than the base of the ebb shoal. **Bill Cleary** and **Erin Hague** asked can these areas be mapped if they are ephemeral. It was proposed by **Mickey Sugg** to run side scan sonar surveys within the proximity of the inlet and along the entire oceanfront shoreline (nearshore). **Ken Willson** noted that it would cost approximately \$25,000 for a side scan survey of the whole island, versus approximately \$13,000 for the northern 2 miles of the island. It was also suggested by the PDT to superimpose up-to-date bathymetry and photos to help determine where these areas may be located. The PDT noted that if there are in fact resources within the buffer, there would need to be additional discussions with the agencies to determine a course of action. **Bill Cleary** asked if these resources are significant if they are covered. Because it is ephemeral, **Mickey Suggs** asked how it can be determined significant if it cannot be seen. **Dawn York** mentioned that the EIS process would resolve these issues. **Doug Huggett** stated that the regulatory agencies would need some action taken to attempt to locate these resources. **Erin Hague** asked if hardbottom resources were not found as a result of a one-

time nearshore sidescan investigation, would the agencies be satisfied with the effort. **Fritz Rohde** and others felt that would be satisfactory. **Erin Hague** then suggested establishing the 500 meter buffer and run side scan sonar in the nearshore. If any resources are potentially found, divers would be deployed to confirm. **David Kellam** asked if the entire island should be surveyed for hardbottom. **Mickey Suggs** mentioned the effort involved may be costly. **Ron Sechler** added that doing the entire area would add consistency with other ongoing projects. **Doug Huggett** agreed. **Mickey Suggs** suggested surveying the entire island now so there would be data for subsequent projects. **Erin Hague** suggested using the standard surveying techniques that is currently used in Florida and in North Topsail Beach.

**Mickey Suggs** concluded the discussion by stating that an aerial interpretation of habitats utilizing 2007 photos along with a nearshore side scan survey with hardbottom confirmation would be beneficial for the overall management of the island. **Ron Sechler** reiterated that the inlet environment contains Essential Fish Habitat.

**Erin Hague** stated that the general purpose of the project is to reduce the erosion rate on the oceanfront shoreline of the island. **Chris Day** added that approximately 70 acres of inlet habitat would be impacted by the footprint of the recommended channel alternative. **Ron Sechler** asked if alternative shoreline stabilization techniques could be utilized on the backside of the island. **Doug Huggett** answered that this would not be a likely solution due to the Ocean Hazard Area; however the backside could be nourished if necessary. **Erin Hague** stated that nourishing the backside is a short-term solution as shown by modeling results. Environmentally, it would not be a sound solution as opposed to a hardened structure. Many participants agreed that the primary purpose of the channel is for erosion control, not navigation.

**Ron Sechler** asked what the maintenance frequency would be for the channel. **David Kellam** answered that it would be less frequent than the schedule at Masons Inlet.

**Sue Cameron** asked if the project will cause erosion to the south end of Hutaff Island. The PDT noted that the stabilization of the ebb channel would equalize the beach on both islands.

The meeting was adjourned by Mickey Suggs.

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**Figure Eight Island Shoreline and Inlet Management Project**  
**March 19, 2008 PDT Meeting Minutes**  
**Figure Eight Island Yacht Club**

**The third meeting of the Figure Eight Island Shoreline and Inlet Management Project Delivery Team was held on March 19, 2008 at the Figure Eight Island Yacht Club.**

**Mickey Sugg** of the US Army Corps of Engineers called the meeting to order at 10 am. Introductions of PDT attendees were made. **Dr. Bill Cleary** gave a presentation on updated findings on shoreline change for Figure Eight and Hutaft Islands, and estuarine shoreline change for Nixon and Green Channels between 1938 and 2007. Rich Inlet is presented as a relatively stable inlet over time, however fluctuations in the ebb-channel since 1998 has caused erosion along Figure Eight Island. Rich Inlet has been open since about 1733. A historic inlet, Nixon Inlet, was once open in the northern portion of Figure Eight Island (around 4,000 ft south of the current Rich Inlet), and closed in the late 1800's. When Nixon Inlet closed, the island lengthened to the north causing erosion along the portion of the island in the area of the closed inlet. This indicates how important inlets are in controlling erosion and accretion along adjacent shorelines.

Fluctuations of the ebb-channel of Rich Inlet to the north since the late 1990's have caused increased erosion along the north end of Figure Eight Island. Sandbags have been placed in front of 20 homes to mitigate for this erosion. **Dr. Cleary** has been tasked with developing a predictive relationship between inlet conditions and response of the oceanfront shorelines, and determining historic changes along estuarine shorelines within the area. He describes that as the main ebb-channel moves toward Figure Eight Island and the ebb-delta moves with it, the delta provides protection from waves to the island and the portion of the island close to the inlet accretes. As the ebb-channel migrates away from Figure Eight, so does the ebb-delta leaving the northern portion of Figure Eight Island exposed to direct waves which leads to erosion. **Dr. Cleary** describes three (3) distinct periods of erosion within the inlet hazard zone on Figure Eight Island: 1938-1945; 1980-1984; and 1998-present. Erosion from 1938-1945 was caused by flood channels along Rich Inlet. Erosion from 1980-1984 was also associated with flood channels adjacent to Rich Inlet. During the most recent erosion event, erosion was associated with the northward migration of the ebb-channel. **Dr. Cleary** stressed that there is a lag between when channel migration occurs and subsequent erosion/accretion of the adjacent shorelines.

**Mickey** asked if CPE has projected maintenance events for the project based on sediment bypassing after channel relocation. **Tom Jarrett** stated that maintenance intervals have not yet been determined for this project. **Dr. Cleary** then described recent ebb-delta breaching events and resultant sand bypassing, and stated the inlet system has remained in the same relative configuration from 2004-2007. He stated erosion along inlet shorelines can be expected with or without a channel relocation project. **Dr. Cleary** discussed end point erosion rates for Figure Eight and Hutaft Island (1938-2007). Because previous nourishment events along Figure Eight Island haven't lasted very long, he believes nourishment alone will not solve erosion issues on Figure Eight. Shoreline change along the interior marshes of Rich Inlet was also discussed. As

sandbars have migrated into Rich Inlet, and the interior channels have begun to clog, the inlet channel has been pushed towards Figure Eight Island and the Keenan home, causing erosion along the estuarine shoreline (>400 ft) which has led the homeowner to place sandbags along the shoreline. **Dr. Cleary** did not see evidence that dredging of Nixon Channel had an impact on erosion along this shoreline since erosion was relatively constant over time. He suggested that in order to best mitigate erosion along Figure Eight Island, the main ebb-channel should be relocated to the south which would move the apex of the ebb-delta to the south. This would create a breakwater effect for the front of Figure Eight Island, inducing natural accretion along the north end. Historical evidence suggests that when the ebb-channel has moved south, accretion has occurred subsequently along the north end of Figure Eight Island after a lag of several years. This is a natural process that CPE intends to mimic with the proposed channel relocation project. **Tom Jarrett** agreed that CPE was designing the channel relocation project to mimic this natural occurrence. **Dr. Cleary** said the inlet channel relocation will lead to some erosion along Hutaff Island. **Jim Bushardt** asked who would be responsible for mitigation costs associated with erosion along Hutaff Island. **Dr. Cleary** stated he did not know. **Don Ellson** asked if erosion and accretion within the interior channels were occurring independently of ebb-channel fluctuations. **Dr. Cleary** agreed that there didn't seem to be a linkage between the two events from his studies. **Howard Hall** asked if sand moving into the inlet and the lowering of Hutaff Island is related to sea level rise. **Dr. Cleary** stated that these changes were more closely related to storms and inlet closure. **Tom Campbell** stated CPE had conducted studies in Florida that indicated storms were more responsible for shoreline erosion than potential erosion due to sea-level rise. **Stuart Mossman** asked what effect moving the inlet channel would have on erosion on Nixon Channel. **Dr. Cleary** stated he didn't think there would be an effect. **Tom** indicated that moving the interior channel away from Figure Eight Island would relieve some of that erosion along Nixon Channel. **Dawn York** asked why there wasn't accretion in interior marshes as sand moved into the inlet. **Bill** stated that the sandbars in the channel are ephemeral and accretion of marshes has not been significant over the time period he studied. **Bob Parr** asked if Green or Nixon Channel would take over as the dominant channel. **Bill** said he couldn't predict that. **Chris Day** said modeling suggests that if no action is taken over next 5 years, the tidal prism in Green Channel would decrease. **Bill** agreed and concluded his presentation.

**Dawn York** began her presentation discussing baseline environmental data collected to date. Habitats within the vicinity of the project area include salt marsh, submerged aquatic vegetation (SAV), shellfish and bird and turtle nesting areas. The proposed resource investigation plan will provide data for determining potential project impacts. **Dawn** discussed specific resource data that has been collected to date from several sources – aerial photos, shellfish maps, SAV interpretation maps, water quality data, turtle nesting data, seabeach amaranth. **Mickey Sugg** asked if data interpreted from aerial photos would be groundtruthed by CPE, and if so, when that would occur. **Dawn** said these areas would be groundtruthed but did not have a date for field operations. Additional data needs to be collected including groundtruthing of shellfish habitat, saltmarsh areas, SAV, seabeach amaranth, and other biotic communities. **Dawn** discussed CPE's delineation of the proposed Permit Area based on primary and secondary impacts of the proposed project determined through modeling efforts. **Mickey** clarified why a Permit Area needs to be identified as a part of the NEPA process. **Dawn** stated that the Permit Area includes all alternatives identified, Nixon and Green Channels, and the extent of the toe of proposed fill. It was asked by the PDT what was meant by the "toe of fill." **Chris D** explained that when

beach fill is placed, waves naturally rework the sediment and move some of it offshore as far as approximately -24 ft NAVD. **Howard Hall** stated that all of Hutaff Island and the north end of Figure Eight Island are critical piping plover nesting habitats. **Anne Deaton** asked where CPE would be looking for SAV. **Dawn** replied that CPE would groundtruth those areas preliminarily identified by Don Fields of NOAA through aerial photo interpretation. **Anne** asked if NOAA had mapped SAV in this area. **Dawn** said she was not aware of SAV mapped in this area. **Anne** stated most SAV areas she was aware of occurred along the AIWW. **Dawn** said that groundtruthing of SAV would be conducted in the AIWW if the Permit Area includes those areas. **Bill Cleary** asked if SAV is present in all channels or if they are located in pockets. **Dawn** stated that SAV is not pervasive in all channels. **Dawn** requested feedback from the PDT attendees for CPE's resource investigation. **Mickey** asked if attendees could receive a report with what has been collected to date. **Dawn** stated she would forward an updated summary report to the PDT for their review. **Doug Huggett** asked if the Topsail Project Permit area overlapped with the Permit area for this project. **Dawn** stated there was some overlap on Hutaff Island. **Ron Sechler** asked if waters within the permit area were outstanding resource waters. **Dawn** said that was correct including Futch Creek. **Ron** asked if CPE was including Futch Creek. **Dawn** stated the modeling results do not indicate impacts to Futch Creek leading to its exclusion from the Permit Area. **Dawn** concluded her presentation and the PDT broke for lunch.

**Chris Day** began the presentation on the continuing modeling effort for the project, a summary of the preferred alternative including channel design and beach fill. **Chris** explained the usefulness of the Delft3D model used as well as erosion and deposition patterns observed in model output for the project. Wave data used to drive the model was taken from a wave gauge off of Masonboro Island with a 3 year record. Tidal measurements were taken from a gauge at Johnny Mercer's Pier. Bathymetry used for the model was surveyed by Gahagan and Bryant (GBA) in 2006. **Chris** discussed 5 year results of the model *without* any project. The model predicts flood channels developing and causing erosion along the saltmarsh behind Rich Inlet similar to Dr. Cleary's predictions. **Chris** was comfortable with calibration of the model based on these results. **Chris** then discusses how CPE modeled performance of beach fill taken from Rich Inlet and placed along the oceanfront beach of Figure Eight Island. This study was conducted using a storm-induced beach change model (SBEACH). The model was calibrated based on data from Hurricane Ophelia. Results from the SBEACH model sufficiently predicted changes in the beach measured by GBA, especially in the dry beach. **Chris** then discussed CPE's analysis of alternatives, and stated wave prediction modeling would be completed for the identified preferred alternative. Alternative #1 includes 3 cuts – an ebb-channel cut similar to that suggested by Dr. Cleary, a connection cut to Green Channel, and a connecting cut to Nixon Channel. This alternative was not chosen because it did not address erosion concerns. Alternative 2a has longer connecting cuts into Green and Nixon Channels. The preferred alternative for Nixon Channel is 2a. The preferred alternative for Green Channel is 2b which does not include the extension because the model showed it didn't significantly increase performance. Modeling results showed that if no action was taken, scour holes would develop close to properties at the northern end of Beach Rd on Figure Eight Island. Alternative 2a would move these scour holes away from the properties. Modeling results for Alternative 2b indicate scour holes would exist close to properties similar to the no action alternative. Alternative #3 includes dredging of the main ebb-channel and Nixon Channel. This alternative does not address clogging in Green Channel and thus was dropped. Alternative #4 includes dredging Nixon

Channel, but was deemed not to be a hydraulically efficient alternative and could increase erosion of interior salt marshes. The preferred design depth of the channel was lowered to -19 ft to open up the bid process to more contractors. Because the channel was deepened, it was also narrowed at the bottom. Closure of the old channel would be accomplished with a closure dike to +6 ft NAVD. Approximately 1.7 million cubic yards would be dredged from all of the channels combined with the majority coming from the main ebb channel. Dredging in Nixon Channel would move the thalweg further away from private properties as recommended by Figure Eight Island Management. The proposed cross sectional area of the inlet (with the dike constructed) was designed to be the same as the existing cross-sectional area to maintain the existing tidal prism. Approximately 1.1 million cubic yards will be available for placement on Figure Eight Island. Material was designed to be placed with a dredge instead of dump trucks due to cost.

**Chris** then discussed beach fill options. The first includes placement of fill on the northern portion of the island from Bayberry Place to Rich Inlet. The second option includes placement along the entire length of Figure Eight Island. The second option would require the use of a booster pump or trucks to transport the fill, or use of a hopper dredge which could be cost prohibitive. Fill options were analyzed based on erosion from 1999 to 2007. Erosion rates on the north end of the island were highest, reach ~ 28 ft/year. Near the middle of the island, erosion rates are ~ 13 ft per year. Rates to the south are even lower. Beach fill option 1 includes fill placement between 90 and 190 cubic yards per linear foot. Option 2 includes 30 to 167 cubic yards per foot, due to the longer area to be filled. Larger volumes would be placed in areas with higher erosion rates. The equilibrium toe of fill is estimated to be -24 ft based on reworking by wave processes. This process will also decrease the width of the constructed berm. The berm was designed to be wider closer to Rich Inlet.

**Chris** then discussed modeling results of the performance of the channel with beach fill option 1, and channel options 2a and 2b. Model results after 2 years show the flood channel decreasing in flow (and moving farther away from private properties) and the ebb-delta moving south to align with the ebb-channel. **Chris** stated there would be a lag in transport of ebb-delta material similar to descriptions by Dr. Cleary. **Chris** also stated that 5-year model runs to predict impacts will be completed by CPE in the future. **Mickey** asked where material to fill the old channel would come from. **Chris** said some of that would come from the dike but that the dike design should perform better than the one designed at Bogue Inlet. **Tom J** stated some of that material may come from re-distribution of the ebb-delta. **Dr. Cleary** asked if the modeling data included predictions for Hutaff Island. **Chris** stated those results have not been modeled yet. **Doug Huggett** asked if a closure dike would be allowable if permission was not granted to place any construction material on Hutaff and encouraged close cooperation with Hutaff in this process. **Chris** said the closure dike would be required to make this work. **Chris** described primary impacts (channel, dike and beach fill) totaling 235 acres of direct impact. Future impacts were calculated by comparing modeled results without a project to modeled results with the project. Areas showing greater than a 0.5 foot difference were included within the Permit Area for the project described by Dawn. Option 2 has a larger impact area due to the greater distance of fill. Storm events were modeled for each beach fill option and with no project. Both beach fill options would provide protection to the dune system. A series of severe storms could significantly reduce beach fill. A 5-year model without a project indicated the berm could retreat

landward significantly and intersect with current homes, causing the need for more sandbags. Five-year models with beach fill indicate the present location of the berm could be held even after a 10-year storm. **Mickey** asked how a 10-year storm is modeled. **Chris** explained that the USACE has published extreme wave heights for 10-year storms. CPE also considers 10-year storm surges based on data gathered from FEMA. These conditions then are entered into the model. Model results from beach fill Option 2 were not presented, but **Chris** stated the results were similar for a 10-year storm with Option 1. **Chris** stated that beach fill would provide protection from storm damage over the design life of the project. **Chris** then discussed fine adjustments to the designs that could be implemented to increase performance of the project including increasing dredging in Green Channel to mitigate clogging. Another adjustment includes lengthening the wider portion of beach fill to the south for Option 1. **Chris** then summarized the modeling results and suggested making further adjustments to the beach fill layout and perform 5-year modeling for the preferred alternatives.

**Dr. Cleary** asked if CPE had consulted the island managers or regulators concerning exceeding the 50 cy/linear foot fill limit. **Tom J** indicated the 50 cy/linear foot trigger has been removed from the regulations, and now any fill project over 300,000 cy is considered a large fill project which would freeze the static vegetation line. **Dr. Cleary** then asked if more fill was going to be placed at the northern end of the Island and **Chris** said that was correct. **Mickey** said that if Option 2 was chosen, cumulative impacts on the southern end of the island would have to be discussed because of fill from Mason's Inlet. He suggested an island-wide management plan be created for Figure Eight Island. **Chris** said it would be up to the homeowners to decide where the fill is placed. **Mickey** also stated that there may be need to place material on Hutaff if impacts to those resources are anticipated. **David Kellam** said that he hoped the management plan for the Mason Inlet project and the one created for the Rich Inlet Project could serve as an island wide management plan. **Chris** indicated this would be considered during the permitting process. **Stuart Mossman** suggested that Hutaff Island may like to have some beach fill if the project proposes to tie into the island with a dike. **Tom J** indicated that Hutaff Island contained piping plover habitat which may disallow fill from being placed, but monitoring would be planned to mitigate potential erosion along Hutaff Island. **Mickey** stated Hutaff Island's attorney was a part of the PDT team and is provided information. **Howard Hall** asked if the project included future placement of fill. **Chris** stated that future maintenance events had not been planned for the project, but that is something that will be considered. **Tom J** indicated the intent is to periodically maintain the alignment of the channel. **Howard** asked if a fixed interval was planned for this project. **Tom J** indicated that future events may need to be permitted on an event basis. **Doug Huggett** stated if future work was needed that a Major CAMA modification would be required as well as cumulative impacts considered. **Tom J** said that the intent is to manage the Rich Inlet channel primarily but would make estimates about future maintenance. **Jim Bushardt** asked if modeling results for the Futch Creek and ICW areas had been conducted. **Tom J** said this information would be included as a part of the engineering report. **Chris** indicated modeling does not show impacts to this area. **Doug Huggett** stated modeling done for Mason's Inlet did not accurately predict changes to interior channels. **Tom J** said the model used for this project was different and could better predict impacts. **It was** asked by the PDT if CPE was modeling salinity encroachment into Futch Creek. **Tom J.** indicated that since the tidal prism was the same there shouldn't be a change to the salinity. It was stated that dredging such a large amount of sediment from the interior channels would likely allow saltwater to intrude

further into the creeks. **Tom** stated that since the cross-sectional area was designed to be the same as the existing inlet, tidal prism would not increase. **Ron** asked if estimates had been made concerning impacts to essential fish habitat areas (gain/loss), and if impacts were expected, what mitigation was planned. **He** also asked if aerial photography could be used to study existing essential fish habitat. **Ken** asked that if the cross-sectional area of the new inlet was the same of that of the old inlet, then would the habitats be the same before and after the project. **Chris** said the model being used could predict changes in water depths within the study area. **Dawn** stated it would be effective to study EFH through aerial photography before and after the project. **Tom J** said CPE expected to study impacts to EFH. **Dawn** explained some of the monitoring CPE has conducted for other projects concerning EFH. **Tom J.** suggested that the PDT has assisted in coming up with standards and guidance for characterization of EFH. **Mickey** asked whether Alternative 3 excluding Green Channel was modeled to show that it is not practical from an engineering standpoint. He said that Green Channel is an environmentally sensitive area and that dredging in this channel may not be approved by regulators unless CPE shows that the project will not work without dredging Green Channel. **Chris** said that if the channel is not dredged, the tidal prism within the channel would decrease over the next 5 years, and a cut at the mouth of the channel would facilitate some flow. **Mickey** said that analysis should be included in the body of the EIS document within the alternatives section because dredging in the vicinity of Green Channel could be a concern to regulators. **Tom J** said that the channel cuts were designed to replicate existing flow distribution into Green and Nixon Channels. **Dr. Cleary** asked that if Green Channel shoals over time (including from the AIWW), does that restrict access for larvae to get into these areas, and suggested if this area is not dredged at all, it may shut down. **Dr. Cleary** said many channels similar to this in the area are shoaling. **Anne** said that some channels have opened when others have closed. **Dr. Cleary** disagreed. **Anne** suggested that flow to Green Channel is retained through the project for ecological concerns. **Tom J** said that dredging Green Channel does not have an influence in reducing erosion on Figure Eight Island but said that the project should also be designed to maintain ecological considerations. **Dr. Cleary** said that fluctuations of the ebb-channel for Rich Inlet to the north could be associated with Nixon Channel gaining dominance over Green Channel due to shoaling. **Mickey** asked if modeling has been conducted without the proposed dike. **Chris** said they had not although the project had been modeled with a small dike which disappeared after a couple years leaving 2 channels. One of these would supply Nixon Channel and the other would supply Green Channel. **Chris** suggested it would be better to have one main ebb-channel supplying flow to both interior channels. **Mickey** and **Dawn** discussed the date for the next PDT meeting in which further discussion of the alternatives would take place.

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**Figure Eight Island Inlet and Shoreline Management Project**  
**June 10, 2008 PDT Meeting Minutes**  
**Figure Eight Island Yacht Club**

The meeting was called to order by **Mickey Sugg**. Introductions were made. Mickey stated that the agenda for the meeting would focus on discussing the alternatives for the Inlet and Shoreline Management Project followed by a presentation by CPE's coastal engineer, **Chris Day**, detailing the engineering analysis related to the Applicants Preferred Alternative. Mickey followed with a brief overview of the NEPA process and the format of the EIS document. This document will include the following sections:

1. Purpose and Needs
2. Scoping Issues
3. Alternatives
4. Effected Environment
5. Environmental Consequences
6. Cumulative Impacts

**Doug Huggett** stated that the EIS document will also go through state review to satisfy SEPA criteria. **Don Ellson** asked who is tasked with drafting the EIS. **Mickey** stated that CPE will write the document and will include input from the PDT.

Starting the discussion on the project alternatives, **Mickey** explained that all reasonable alternatives will be evaluated in terms of economics and technology. Each alternative will be rigorously explored and evaluated in Section 3 of the EIS. **Tom Jarrett** asked how the format of the Environmental Consequences section of the document will be developed. **Mickey** responded that it could be written by evaluating the potential impacts to various resources in response to the alternatives or by evaluating each alternative and describe the potential impacts to the resources in response. **Tom** felt that approaching it by alternatives may be best. **Mickey** stated this could be discussed further at a later time. **Stuart Mossman** asked who, aside from Figure Eight Island Homeowners Association, would be financially responsible for the evaluation of alternatives if they go beyond the immediate scope of the project. **Mickey** responded that costs for each alternative will be developed and evaluated. Specifically, **Stuart** expressed concern regarding Green Channel and stated that the water quality could be significantly affected by the project. **Mickey** added that these concerns will be addressed later as the PDT reviews each alternative.

**Mickey** continued by explaining that the NEPA process allows for the evaluation of all potential alternatives, including those which may have a conflict with state or federal law (i.e. terminal groin). Often, these alternatives are eliminated through the evaluation process, but they are still



fully assessed for their economics, technology, etc. Furthermore, the EIS document will include the evaluation of the “Applicants Preferred alternative”. **Tom** stated that CPE has developed a “recommended preferred alternative” which will be submitted to the Figure Eight Island Homeowners Association for their review.

**Stuart Mossman** asked a procedural question regarding how the PDT will be presented the alternatives. **Mickey** replied that Chris Day will summarize the modeling results based on the various alternatives. **Tom** explained that CPE’s presentation will actually focus on the engineered design of the preferred alternative; therefore it would be prudent to review all current alternatives prior to the presentation.

**Mickey** reiterated that all alternatives will be evaluated based on the project purpose and needs. Furthermore, the applicant (with input from the contractor) determines the purpose and needs of the project. **Stuart** asked if the various purposes and needs could be listed prior to the discussions on the alternatives. **Dawn** stated that they are listed in the baseline assessment handout that was provided at the beginning of the meeting. **Mickey** asked **Tom** to list the purpose and needs. **Tom** stated that currently the purpose and needs primarily address the ocean shoreline but it has become clear that there are needs for the backside of the island as well. **David Kellam** stated that with regard to threatened buildings, there are 21 total properties imminently threatened. From Surf Court north, there are approximately 60 to 70 structures that will become threatened within the next 10 years. Along with protecting infrastructure, the purpose and needs of the project address environmental needs and other issues. **Stuart** stated that maintaining navigation through Green Channel and Nixon Channel is an important purpose of the project. **Mickey** mentioned that navigation will be evaluated as a public interest factor. **Tom** added that if navigation was defined as a specific purpose for the project, then specific dimensions of the relocated Rich Inlet will need to be established. **Cleary** asked what constitutes as “navigable” waterways. **Mickey** responded that it is defined as what is navigable in present time. **Doug** reiterated that the definition of “navigable” is vague. **Tom** added that while this project will hopefully not negatively impact navigation, improving the navigability of the waterways in proximity to the project is not a purpose of the project. **Doug** mentioned that it is important to discuss potential environmental issues regarding Hutaff Island as well. **David** stated that the Figure Eight Homeowners Association is concerned about maintaining the vitality of the marsh and other environmental aspects which could potentially be impacted by the project. **David** continue to state that he hopes that the project will enhance various resources and potentially improve the navigability of the local waterways. **Cleary** inquired as to who determines what constitutes the impacts of navigation or any issue. **Mickey** stated that the existing depth of the channel would need to be determined and subsequently reviewed following the completion of project. **Tom** stated that the Delft3D model can predict these potential changes.

Following the initial discussions regarding issues related to the project alternatives; **Mickey** introduced the first proposed alternative as “No Action”. **Mickey** said that this alternative should refer to the future extrapolation of the conditions and maintenance activities which exist today. **Tom** mentioned that the No Action simply refers to conditions without future federal permits. **Mickey** mentioned that this is not the case for this project. **Doug** supported **Mickey’s** interpretation. **Bill Raney** asked how the removal of sandbags is taken into account for this alternative. **Mickey** answered that it would no longer be allowed and therefore would not be incorporated into the evaluation. **Doug** stated that it would not eliminate beach scraping and ICWW maintenance. **Stuart** added that the No Action alternative would cause the shoaling of Green Channel. **Tom** stated that modeling results demonstrate this assessment over the next five (5) years. **Cleary** asked if these modeling results assume the maintenance of the current inlet throat position. **Chris** stated that it appears that the inlet throat will maintain a similar position. **Cleary** responded that there is so much uncertainty and does not agree that you can put a lot of faith in the model over five (5) years. **Chris** added that a storm could alter the modeling results as well. **Mickey** stated direct, indirect, and cumulative effects will be incorporated into the evaluation. **David** noted that historically there has never been marsh grass in the middle of Green Channel, but it is present now which leads him to believe it has filled in recently. **Stuart** asked what the role of the PDT is regarding Alternatives. **Mickey** stated that it is the PDT’s role to bring up any issues they have with the presented alternatives or bring up additional alternatives. **Stuart** personally does not know all the consequences of the No Action alternative and inquired if it is the PDT’s role to comment on it. **Mickey** informed Stuart that the PDT needs to recommend what the No Action alternative includes and suggested it should include the continuation of sporadic maintenance events within Masons Inlet, Banks Channel, and Nixon Channel. The No Action alternative should also include future beach scraping, bulldozing, and the removal of sand bags. **Tom** agreed.

**Mickey** then introduced the second alternative which will be Abandon/Relocate. This alternative would not include any existing maintenance projects described above. **Tom** stated that the relocation of homes is not a viable option because there is a paucity of available lots which would need to be sold to the oceanfront homeowners. **Doug** felt that if relocation is not a viable alternative it needs to be justified and stated as such in the EIS document. **Bill** added that it may be more economically feasible to let the houses fall in the ocean rather than attempt to relocate. **Mickey** recommended that the Abandon/Relocate alternative be split into two: a) Abandon, b) Relocate. **Tom** explained again that there are not enough available lots on Figure Eight Island to accommodate the number of homes which would need to be relocated. He stated that the only reasonable alternative is abandon and demolish. **Mickey** said to include both Abandon and Relocate as one alternative but will be separated in the description. **Tom** expressed that he could develop a theoretical cost for the relocation effort, but in actuality, there

is nowhere to move these homes to on the island. **Doug** and **Mickey** stated that the issue should be added to the discussion. **Don** asked if there is an option to create new land for these homes in the middle of the island. **Doug** stated that because that land is in state ownership, that option would not move forward.

The third alternative discussed was Beach Nourishment using “other sand sources”. **Mickey** stated that these sand sources would include any borrow areas other than Rich Inlet, Nixon Channel, and Green Channel. These borrow areas would include offshore borrow areas, material from Mason’s Inlet, dredge islands, and other locations to provide sand for beach nourishment. **Bill** asked if we should call this alternative “Beach Nourishment without Inlet Relocation” to discern it from the No Action alternative. **Mickey** said that in the No Action alternative, the Nixon Channel maintenance events may not be addressed because it has only been dredged a handful of times- he feels that we should address Nixon Channel in this alternative. **Tom** mentioned that it has in fact been dredged 4 or 5 times in the past. It was discussed that the material placed along the north end of Figure Eight Island via routine maintenance events does not stay in place which will bolster the need for long term protection. **David** explained that the material on nearby dredge spoil islands have acceptable but not preferred sand quality. **Tom** asked if we have technical sand quality information to address compatibility. **Bill** asked if we can include ebb shoals as a potential additional sand source. **Tom** stated that although it has been done in Florida, it is not recommended. **Mickey** said that it could be evaluated though. **Stuart** mentioned that there needs to be line drawn to decide when certain potential alternatives should not be considered. **Mickey** stated that even seemingly unfeasible alternatives can be quickly refuted in a few sentences within the EIS document. **Doug** added that the State needs to legally consider everything the public raises as a concern or a suggestion. **Dawn** asked if upland sand sources should be involved. **Chris Day** said that anything less than 150,000 cubic yards is not a feasible alternative due to problems associated with trucking in the material and the potential destruction to the roadbeds. **Mickey** was initially thinking of upland sand sources as a separate alternative, but it could be lumped in with this alternative as well. **Doug** feels that it can be lumped.

The fourth alternative discussed was the Terminal Groin. **Stuart** asked if there is an illustration depicting where specifically the terminal groin would be placed. **Tom** mentioned that there has only been preliminary work conducted on the Terminal Groin alternative and no such figure is available. **Mickey** said that the evaluation of this alternative would include a review of the various materials and construction types possible for the Terminal Groin. With regard to the wording of the proposed legislation stating that the Terminal Groin must be a temporary structure, **Tom** asked if the construction types or materials addressed in the document should reflect a temporary structure. **Mickey** stated that at this point since nothing has been passed through the legislation, all types of material for the terminal groin will be evaluated (rock,

geotubes, sheetpile, etc) and environmental impacts examined. **Stuart** asked why terminal groins would be evaluated since they are not proven to function. **Chris** answered that modeling exists that can predict the functionality of terminal groins. **Tom** explained that there are several functioning terminal groins here in North Carolina alone. He went on to explain how terminal groins function and highlighted the ones at Pea Island and Fort Macon. **Mickey** asked if any environmental studies have been conducted in response to the Pea Island terminal groin. **Doug** said that Fish and Wildlife may have. **David** stated that the legislative issue may be resolved within 30 to 40 days. **Mickey** asked if the Terminal Groin alternative will require sand placement on the beach. **Tom** replied yes. The terminal groin would affect the northern most 2,000 feet of the shoreline (the fillet), therefore beach nourishment would still be needed to provide protection to the remaining portions of Figure Eight Island. **David** added that the size and magnitude of the terminal groin will dictate the effect of the terminal groin on the extent of beach protection. **Ron Sechler** asked why a terminal groin is being considering at this site. It was answered that it is being considered due to the potential legislation. **Doug** noted that it is currently illegal. **Tom** added that at this point, the engineering work that has been done for the Terminal Groin alternative has been conceptual; there has been no detailed engineering work at this point. **Ron** added that there is a large group of scientists that have concerns and would be opposed and that there would be a high level of attention on this project. **Cleary** stated that the terminal groin would only be placed in proximity to an inlet, which has not been made clear to the public. **Dawn** asked if at this point in time we should include the Terminal Groin alternative in the environmental consequences section due to scheduling. **Mickey** stated that the Terminal Groin alternative could be addressed as two sub-alternatives including a) Terminal Groin with Inlet Material for Beach Nourishment and b) Terminal Groin with Other Sand Sources for Beach Nourishment. **Doug** agreed. **Tom** added that if the legislation passes, the EIS schedule will need to be adjusted to allow for detailed analysis of this alternative. **Martina McPherson** asked if the channel will be modified as well in association with the Terminal Groin alternative. **Tom** answered that it most likely would be.

Following a lunch break, **Chris** gave a presentation regarding the Applicant's proposed preferred alternative which includes the relocation of Rich Inlet, the dredging of portions of Nixon Channel and a small portion of Green Channel followed by beach fill along Figure Eight Island. The presentation included a review of the erosion problems on Figure Eight Island, the project description, project performance, and project cost. **Chris** described the project design and how it will address erosion on the northern portion of the island, particularly two erosion hotspots: one on the oceanfront shoreline and the other on the estuarine shoreline.

*(The presentation is available to download from CPE's FTP site. <ftp://ftp.coastalplanning.net>; user name: ftpguest; password: cpeguest. See folder Figure 8 Island folder, then PDT folder)*

**Doug** asked what the equilibrium toe of fill represents. **Chris** responded by stating that it represents the depth of which the fill will slope offshore as it stabilizes. **Mickey** asked if the material placed on the backside closest to Nixon Channel will remain in place. **Chris** answered that it will spread out east and west as well as slumping off the shore to an extent. **Mickey** asked if the cuts created in Nixon Channel, Green Channel, and the entrance channel would be performed with the intent to improve navigation. **Tom** answered that the purpose would not be for navigation; however navigation would be improved most likely as a secondary result. Maintenance events would most likely occur five (5) years post-construction. **Mickey** asked where the sand goes as it erodes from the shoreline. **Chris** answered that some of the material is bypassed into Rich Inlet. **Tom** stated that some of the material also gets transported into Banks Channel. **Cleary** said that this migration pattern can be viewed by looking at historic aerial photos. **Tom** also said that the ebb tide delta can store and release sediment as well, so some of the material can migrate into the ebb tide delta. **Mickey** stated that it will need to be explained in the EIS that the inlet is not being dredged as a simple sand source for beach fill; rather the inlet is being relocated to help control the erosion rate on the northern end of Figure Eight Island. Subsequently the dredged material will be placed on the beach as fill. **Don** asked if the dike would disperse within five (5) years. **Chris** explained that it will ultimately spread and blend into the natural environment. **Stuart** asked if the dike could be constructed utilizing geotubes. **Chris** said that geotubes would not work so close to the channel because it is too deep. **Tom** said that the new channel would be opened prior to the construction of the dike. Some of the material dredged from the new inlet would then be used to build the dike in the existing channel.

Following **Chris**'s presentation, **Mickey** asked the PDT if they have any suggestions regarding the Applicants Preferred alternative. **David** stated that Green Channel has never been dredged and **Cleary** agreed. **Mickey** asked if we should separate this alternative into a) with dike and b) without dike due to the varying levels of environmental impacts anticipated. **Chris** felt that was an adequate statement. **Tom** agreed. **David** asked if there are environmentally beneficial construction techniques. **Mickey** answered by mentioning that this will be addressed as mitigation and minimization measures are discussed further in the process and EIS.

Following the discussions regarding the alternative, **Dawn** addressed the group and reviewed the baseline summary report and investigation plan. **Fritz** asked if we would only assess the areas that would potentially be dredged. **Dawn** stated that this effort would give a broad assessment of what biological resources currently exist within the Permit Area. **Dawn** went on and asked **Fritz** if the Division of Marine Fisheries has conducted recent research or monitoring within the Oyster Management Areas. **Fritz** responded that oyster spat counts are routinely conducted. **Dawn** mentioned that hardbottom resources will be investigated via sidescan in the nearshore environment out to the toe of fill in front of the beach fill area. **Cleary** asked how olive green siltstone would be groundtruthed. **Tom** mentioned that CPE will follow up with this issue.

**Mickey** stated that the resource agency representatives need to review the baseline assessment plan and comment on this document and recommend any additional data or groundtruthing needs. **Mickey** adjourned the meeting at 3:00 pm.

#### ATTENDEES

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**Figure Eight Island Inlet and Shoreline Management Project**  
**May 20, 2009 PDT Meeting Minutes**  
**USACE - Wilmington District Office**

The meeting was called to order at 10 am by **Mickey Sugg** of the USACE. Introductions were made. Mickey discussed the agenda for the meeting in which it would focus on updated baseline biological data as well as a review of project alternatives for the Figure Eight Island Inlet and Shoreline Management Project (Project). Open dialog from the attendees was encouraged. (*A list of attendees is provided at the end of the minutes.*)

*Biological Resources*

Dr. David Webster of UNCW prepared a presentation regarding the long-term biological monitoring results of rare, threatened, and endangered species identified on Figure Eight Island. Species include the seabeach amaranth, sea turtles, Carolina Diamondback terrapin, colonial nesting waterbirds, shorebirds, and marine mammals. Dr. Webster was unable to attend the meeting; therefore **Brad Rosov** of Coastal Planning & Engineering of North Carolina (CPE-NC) delivered the presentation. **Brad** explained that Dr. Webster's research and monitoring began primarily in 2001 along Figure Eight Island.

Since 2001, seabeach amaranth occurrences have varied greatly along the island ranging from over 700 individual plants in 2006 to 0 plants in 2008. This trend is typical of this ephemeral species. **Brad** discussed the results from the island-wide sea turtle monitoring program in which loggerhead turtles have been the only species to nest along Figure Eight Island. Since 2001, the numbers of loggerhead nests have ranged between 5 and 31. **Brad** confirmed the coordinates of these nests have been integrated into a Project GIS database, coordinated by CPE-NC, and have depicted the occurrence of these nests along the entire length of the island. **Brad** noted that while no known data was available regarding Carolina Diamondback terrapins, Dr. Webster is aware of a UNCW student investigating the terrapin's mortality associated with abandoned crab pots. The results of the long-term colonial waterbird nest monitoring included species such as: black skimmers, least terns, and common terns. These species successfully nested in 2001, however in subsequent years only least terns nested on Figure Eight Island and in more recent years no colonial waterbirds successfully nested. **Brad** then discussed the results from the long-term shorebird monitoring in which piping plovers have been documented as migrating through Figure Eight Island. Fall migration for piping plovers typically began in August and peaked in September. Some piping plovers were noted to winter over in the area, particularly near Mason Inlet on the south end of Figure Eight Island. Spring migration began in March and continued into May of each year. No piping plover nests were documented on Figure Eight Island since 2001. **Howard Hall** (USFWS) asked if the shorebird surveys included observations of banded birds to determine which populations of migrating piping plovers are utilizing Figure Eight Island. **Dawn York** (CPE-NC) and **David Kellam** (F8 Homeowners Association) concurred that bands have been identified and reported to the appropriate organizations, however, not many banded piping plovers have been recently observed. **Brad** also explained that the geographic scope of the data gathered in support of the Figure Eight Island Inlet and Shoreline Management Project includes areas along Hutaff Island, Figure Eight Island and the saltmarsh community behind both islands toward the Intracoastal Waterway. **Mickey** asked if Dr. Webster's monitoring effort was established as a permit condition of the Mason Inlet relocation project.

**David** stated the permit conditions from the Mason Inlet relocation project tied into the established biological monitoring program. **Chris Gibson** (GBA) mentioned that the long-term biological monitoring program actually goes over and above the permit conditions for the Mason Inlet relocation project. **Brad** continued to describe the nesting results for Wilson's plovers, American oystercatchers, and willets. Generally, these shorebird species do nest on the island with limited success. In addition to nesting data, Dr. Webster also assisted in the coordination and collection of marine mammal stranding data on Figure Eight Island, as reported by the UNCW Marine Mammal Stranding Network. Stranded species include several bottlenosed dolphins, two long-finned pilot whales, and two pygmy sperm whales.

The biological resource presentation continued as **Brad** discussed beach vitex, monitored by Dr. Webster. Since 2006, an eradication effort of this invasive species has been established. In summary, **Brad** stated that the recent human and natural changes to both Mason Inlet and Rich Inlet have dictated the locations of nesting colonial waterbirds and shorebirds and confirmed the north end of Wrightsville Beach is heavily used by nesting birds. **Dawn** asked David Kellam how long Dr. Webster will continue these monitoring efforts. **David** responded that he does not anticipate that it will end anytime soon. **Mickey** asked if this was a long-term contract. **David** answered that it is a yearly agreement with UNCW. **Howard** noted that the proposed Figure Eight Island Inlet and Shoreline Management Project should include biological monitoring such as the studies described above. *(Dr. Webster's presentation is available and will be distributed with these minutes)*

**Brad** then presented baseline data collected by CPE-NC to help establish a robust database of baseline conditions for a wide range of biological resources located within the Permit Area of the proposed project. His presentation focused on the findings from field investigations conducted in 2008 on submerged aquatic vegetation (SAV), shellfish, and marsh and fringing terrestrial habitats. **Brad** described the development of the proposed Permit Area and the smaller field investigation area used for these groundtruthing efforts. Two datasets of potential SAV occurrences were obtained by CPE-NC from Don Field (NOAA) and Dr. Wilson Freshwater (UNCW). **Mickey** asked if these were the same datasets presented in a earlier PDT meeting and **Dawn** replied yes. Of the 47 potential SAV sites groundtruthed, 3 contained SAV beds *(For the purpose of this study, an SAV bed was defined as a subtidal or intertidal area of submerged aquatic vegetation with one or more species of submergent vegetation. The bed may occur in isolated patches or cover extensive areas with the presence of above-ground leaves)*. Using high resolution 2008 aerial photography, an additional 17 SAV occurrences were delineated yielding a total of 6.9 acres of SAV within the Permit Area.

Utilizing NC DMF's historical shellfish habitat maps (1989-1991), CPE-NC identified the central location of the polygons described as "strata W", defined as "hard non-vegetated with shell". Twenty-three sites were groundtruthed and of these sites, nine (9) contained living shellfish, however none were discrete shellfish beds or oyster reefs. One (1) shellfish bed was opportunistically located during groundtruthing activities. Three (3) additional shellfish beds were then identified using high resolution 2008 aerial photography totaling 0.1 acres of shellfish beds within the Permit Area. A participant asked if CPE-NC had looked at the clam leases behind Hutaff Island. **Chris Gibson** noted that the clam leases were located outside the Permit Area, however he suggested that we confer with Sammy Corbett, a local commercial fisherman,



to determine additional shellfish locations. **Rich Carpenter** (NCDMF) asked if other shellfish strata were explored. **Dawn** replied that CPE-NC has duplicated the field investigation methodology required for the Bogue Inlet Channel Erosion Response Project and have delineated the low marsh area, which essentially is the “V” strata. **Rich** noted that the majority of oysters are located in this habitat type. **Don Ellson** commented that all of the CPE slides to that point had been island-specific, and I asked whether the studies being presented included areas beyond simply Figure 8 Island itself, since previous data had covered a much wider area. **Brad** answered that the DEIS does include data obtained from within the entire Permit Area including Hutaff Island.

**Brad** then described CPE-NC’s effort to determine the acreages of various marsh and fringing terrestrial community types. These biotic communities were hand-digitized and delineated using high resolution aerial photography and ArcView GIS. These results will be used as baseline acreages within the Permit Area. (*Acreages of biotic communities were presented and can be reviewed in the presentation distributed with these minutes.*)

**Ken Willson** (CPE-NC) then reviewed the results of a recent sidescan sonar survey targeting potential hardbottom resources offshore of Figure Eight Island and Rich Inlet. Two (2) potential hardbottom communities had been previously identified by Dr. William Cleary (UNCW) offshore from Figure Eight Island. The recent sidescan survey included portions of one of these areas based on a 500-m buffer applied to Alternative 3 – Channel Relocation with Beach Nourishment. **Ken** explained that the results did not reveal any obvious high-relief hardbottom resources, however some areas were identified as “ripple scour” features which typically prove to contain unconsolidated material composed of shell hash and broken shells with a sand fraction. These features will be groundtruthed via SCUBA diving to ensure that no hardbottom resources exist within the surveyed area. **Dr. Cleary** suggested that some sporadic gorgonian stands may be located within the nearshore area and due to the ephemeral nature of these communities sidescan survey would have to be repeated. **Ken** responded that the sidescan and groundtruthing efforts should suffice as verification. **Mike Giles** (NCCF) asked **Ken** to describe the rationale for the 500-m buffer around the borrow area and asked if a the proposed dike should also contain a buffer area. **Ken** explained, according to the State rules only the areas to be dredged would need to include a buffer, not areas of disposal.

(*For reference, the NC State rule describing the 500-m buffer can be found at: <http://ncrules.state.nc.us/ncac/title%2015a%20%20environment%20and%20natural%20resources/chapter%2007%20%20coastal%20management/subchapter%20h/15a%20ncac%2007h%20.0208.pdf>*)

**Ken** continued to discuss the recent sidescan survey investigation and noted that the Wild Dayrell wreck was sidescanned and was then incorporated into the Project GIS database. The sidescan image of the wreck overlaid with the magnetic anomalies identified in the cultural resource investigation in 2006, indicating the wreck has not moved in three (3) years.

**Molly Ellwood** (NC WRC) asked if any benthic sampling has been conducted. **Mickey** stated that permit conditions could include pre- and post- construction monitoring for benthics. **Chris** stated that benthic infauna data has been collected along the southern portion of Figure Eight Island in response to the Mason Inlet relocation project. CPE-NC will coordinate with New

Hanover County and Jim Iannucci to acquire this data. **Jack Spruill** (PenderWatch) asked if there was a concern with box crabs, however, **Molly** indicated that this species was not a concern. **Rich** mentioned that some live bottom had been identified within Rich and Green Channel, however this was anecdotal and data does not exist. **Rich** also indicated that NCDMF has not updated shellfish maps for Rich Inlet and the data used by CPE-NC during the field investigation is the most recent. **Mickey** mentioned that due to the dredge events in Nixon Channel, these resources may no longer be present. **Chris** agreed and said that no live bottom has ever been recovered during dredging events in Nixon Channel. **Rich** also suggested that CPE-NC explore the marsh fringe for oyster habitat. **Dawn** reiterated that CPE-NC's mapping of the low marsh should suffice to determine the extent of this shellfish habitat type.

**Mickey** then reviewed the project alternatives. These include 1) No Action, 2) Abandon/Retreat, 3) Channel Relocation with Beach Nourishment (with or without the dike), 4) Beach Nourishment with Alternate Sources of Material (offshore borrow sites and other borrow sites), and 5) Terminal Groin with Beach Nourishment (with maintenance from various sources and without maintenance). **Mickey** reiterated that the applicant identifies the preferred alternative, not the Corps. If the applicant states that the terminal groin is their preferred alternative in the EIS and if the State denies the use of a terminal groin, the applicant may have to reapply using another preferred alternative. **Mike Giles** asked if this project was going to go to construction this upcoming winter. **David** responded that it certainly would not. Rather, the targeted timeline is the next two or three years. **Mike** asked if another PDT meeting will be held to discuss the alternatives, specifically the terminal groin alternative. **Mickey** replied that yes, more than likely another PDT meeting will be held to discuss issues and concerns. He continued by reiterating that Figure Eight Island approached the Corps on their intent to complete research on the terminal groin and since there is a push in the legislation this alternative will be evaluated more thoroughly than other projects have done in the past.

**Tom Jarrett** (CPE-NC) then presented detailed information regarding the project alternatives. He first discussed Alternative 4 which includes other sources of beach fill aside from material from Rich Inlet and Nixon Channel. **Tom** described that the offshore borrow areas described by Dr. Cleary appear to be impractical due to the cost of hauling the material from these locations (3-4 miles offshore). Furthermore, the characteristics of the material has not been determined. The other areas considered include material from Mason Inlet. The majority of this material is placed along the southern half of Figure Eight Island. Three (3) upland disposal sites along the Intracoastal Waterway were also investigated. The quality of this material is a bit finer than what is found on the native beach and the volume is inadequate (approx. 500,000 cubic yards) and therefore has been determined to be impractical as well. Upland sites (sand pits near Wallace, NC) were also explored. The cost of transporting the material via truck haul and the potential for damage to the bridge at Figure Eight Island would make this sand source impractical. **Molly** asked if a barge could be utilized to transport the upland material, thereby avoiding utilizing the bridge. **Chris** stated that inadequate draft of Nixon Channel would make that option impractical. **Chris** then asked if a similar truck haul methodology used for Mason Inlet could be used for the north end of Figure Eight Island. **Tom** stated that due to environmental concerns that would be an impracticable methodology. **Howard** stated that Rich Inlet and the northern 1/3 mile of Figure Eight Island is designated as Critical Wintering Habitat for Piping Plover. Referring back to the feasibility of utilizing the offshore borrow areas, **Ken**

noted that simply placing material on the beach without alleviating the erosion problem via channel relocation or a terminal groin would be futile due to the high erosion rates. **Tom** stated that the vast majority of recent nourishment efforts have been unsuccessful as the material erodes at a rate of 300,000 or 400,000 cy per year.

**Tom** briefly discussed the location of the two erosion hot spots on Figure Eight Island. One is located on the back side of the northern portion of the island along the Nixon Channel shoreline. The other is located on the northern oceanfront shoreline. **Tom** then described the various channel modification options including the various channel alignments proposed as well as the inclusion of a dike. The preferred option for Alternative 3 includes a short connection into Green Channel and Nixon Channel along with a dike. A dike is needed to ensure that the new channel becomes established within a short time period. Modeling results suggested that without the dike, the two channels would compete for flow and would take up to 4-5 years to merge into the new channel. **Molly** asked if the height of the dike was explored. **Tom** answered that it has been and following experience with the dike utilized at Bogue Inlet led to this design. Access onto the privately owned Hutaff Island was also discussed. **David** mentioned that the representatives from the Hutaff family are aware of the proposed project and mentioned that the dike could theoretically be built without accessing the island. **Steve Everhart** (NC DCM) mentioned that during the permitting phase, adjacent property owners must be notified of the proposed project and are given an opportunity to comment. **David** stated that the representatives of the Hutaff family are on the PDT, although they have not attended any of the meetings to date. **Dr. Cleary** stated that the Hutaff family should be happy with the project due to extensive erosion on the south end of Hutaff Island. **Molly** asked if the proposed channel alignment would increase shoaling into Green Channel. **Tom** replied that the connector would actually increase flow into Green Channel, thereby reducing shoaling. **Molly** asked if Green Channel was a Primary Nursery Area (PNA) and **Rich** replied that it was not. **Steve** mentioned that sand bags protecting the homes along the north end of the island must be removed rather than buried during construction. **Tom** asked if they could be buried and planted with vegetation. **Steve** confirmed that would not be permissible. **David** added that Figure Eight Island's goal would be to remove the sandbags regardless. **Mickey** stated that no fill was placed on sandbags during the construction of the Bogue Inlet project and the sand spit has naturally filled in around the bags.

**Tom** then asked the PDT "what do you think a terminal groin is?" **Howard** answered "a small jetty". **Jim Bushardt** (New Hanover Conservancy) stated that a terminal groin is "a low groin that ends just at the ebb on the ocean side". **Mickey** stated that in his opinion, the biggest concern with the terminal groin alternative includes a hard structure on the beach and this could potentially open the door for other structures at other locations. **Tom** responded by stating that the legislation does not allow for a proliferation of hard structures up and down the coast and as a representative of NCBIWA, would not recommend that. **Ken** added that for the purposes of this PDT meeting, the legislation should not be the focus of the discussions. Rather, we are seeking specific concerns regarding impacts to the environment and the biological resources. **Mike** asked why the term "terminal" was applied to the nomenclature of a terminal groin. **Tom** explained that it is due to the position of the groin at the terminal end of a littoral cell. In this case, the end is Rich Inlet. **Brad** then distributed a handout with a list of publications containing information regarding impacts to biological resources with respect to groins, terminal groins, and rubble structures. He encouraged the PDT to review this and submit any additional citations so

this information can be included in the DEIS and other associated documents. **Howard** stated that nesting habitats on either side of the inlet should be evaluated in the DEIS. **David** stressed that he would also encourage the PDT to raise their concerns over the terminal groin alternative so that they can be addressed in full in the DEIS. He reiterated that Figure 8 Homeowners Association wants a thorough review of all alternatives and will rely on the evaluation of the ecological impacts to determine the appropriate course of action. **David** gave a brief summary of the language of the terminal groin legislation, but interjected that the focus of this meeting should not revolve around the legal issues regarding the legislation. **Howard** asked if the structure could be a navigation concern in which he then referenced boating accidents in SC due to the presence of jetties. **Mickey** said yes it could be, it is a public interest factor that would be evaluated. **Rich** asked what the size of the groin will be in which **Tom** replied we will get to that further in the presentation. **Ken** requested for all PDT members to please submit their concerns regarding the terminal groin soon so that they can be incorporated into the DEIS. **Molly** asked if the power point presentations would be made available. **Mickey** said yes.

**Howard** asked Tom to define the technical difference between a groin and a groin field. **Tom** showed a photo of South Beach on Bald Head Island as an example of a groin field. **David** stated that a groin field is not proposed. **Tom** explained that both tidal and wave induced currents facilitate the transport of sand into Rich Inlet which causes the high rates of erosion on the north end of Figure Eight Island. Furthermore, there is a nodal point along the stretch of beach where the sandbags are located causing erosion as well. He explained that the proposed terminal groin is not intended to manage the entire beach fill area; only the northern 3,000 feet of the island. Additionally, it does not remove the need for beach nourishment. Rather, it facilitates the feasibility for material to remain on the beach within the accretion fillet. **Mickey** asked if nourishment would only occur south of the nodal zone. **Tom** stated that it could, but in this case, the proposed plan includes material placed within the accretion fillet. Once the accretion fillet is formed, no additional accumulation of transported sand will occur. The rate of transportation would occur at its current rate. **Dawn** asked **Tom** to define what an accretion fillet is for the sake of the PDT. **Tom** then showed the Pea Island terminal groin and described where the accretion fillet is located and described its function. **Mickey** added that the size and extent of the accretion fillet is generally controlled by the length of the groin. **Tom** further described the history of the terminal groin at Pea Island and explained how it has performed. **Ken** asked if it is possible to quantify if the erosion occurring 6 miles down the coast from Pea Island is in response to the terminal groin. **Tom** answered that the erosion in that area is unrelated to the terminal groin.

**Tom** proceeded to show the PDT the options currently under development regarding the terminal groin alternative. The relative scale of the proposed terminal groin was shown with respect to the jetties located at Masonboro Island. The proposed terminal groin would extend approximately 330 feet seaward from mean high water. A longer terminal groin has also been considered, however, at this time, the shorter groin will suffice. Construction material would initially be sheet pile, however, if deemed to be successful and is to be made permanent, it would be buried with rock rubble. **Molly** asked what the height of the groin would be. **Tom** answered that it would be +6 NAVD, which is the natural berm elevation. It was asked if a wooden pier would be used during the construction phase of the groin. **Tom** responded by stating that typically a construction trestle would be utilized. The groin was also described to include a

phased shoreline anchoring feature extending along the Nixon shoreline. This would be constructed only if the dredging in Nixon Channel and the inlet gorge failed to alleviate the erosion along the Nixon Channel shoreline. **Mickey** stated that the perpendicular feature would not be a groin, rather a seawall. **Chris** stated that it was an integral feature of the terminal groin to ensure its integrity. **Tom** explained the anchor structure was only a concept and would not necessarily be included in the alternative. **Molly** asked if there were two groins proposed, referring to the figure shown. **Tom** ensured that they were only the two options and the plan would only call for the construction of one groin. **Dawn** asked if the terminal groin did not include the shoreline anchoring portion, would the integrity of the terminal groin be held. **Tom** agreed that it would, however some scouring could potentially occur along Nixon Channel shoreline. **David** confirmed that the alternative includes placing material along this portion of the Nixon shoreline as well.

The channel dredging options for the terminal groin were discussed next. **Tom** described the three options which included three different dredging footprints within Nixon Channel extending into the inlet gorge. The purpose of this would be to remove the erosion pressure along the Nixon Channel shoreline. The three (3) dredging options varied in volume ranging from a bit over 1 million cubic yards to approximately 785,000 cy. **Howard** asked if the sheet pile in the shoreline anchoring portion of the terminal groin would extend above mean high water. **Tom** confirmed that it would, however, upon further consideration; this feature of the terminal groin may not be included in the alternative. **Howard** mentioned that section of shoreline is designated as critical habitat for piping plovers. **Tom** reviewed modeling results and suggested that option 2, the medium sized footprint, would probably be the recommended option for the terminal groin alternative. **Dr. Cleary** asked if the modeling included the impact of storms. **Tom** answered by stating that the modeling does include 5 years of various wave conditions. **Ken** mentioned that an elevated wave condition was placed into the model simulating a 20-year storm. **Tom** stated that he would confirm this. **Tom** asked Mickey if it would be best for the applicant to include the dimensions of the longest terminal groin option in the permit application. **Mickey** stated that the longest option should be included in the permit.

**Mickey** asked what additional modeling work needs to be done to design the terminal groin alternative. **Tom** responded the modeling has been completed. **Molly** asked if the terminal groin could cause increased erosion in response to a storm event due to reflective energy. **Tom** answered that the exposed area of the terminal groin could allow for additional reflective energy on the inlet side, but not on the south side. If the structure proves to be effective, it will be buried under stones which will have permeability. **David** interjected that the fillet would be filled simultaneously as the terminal groin was constructed. **Tom** suggested that there may be a delay of several months. It was added that the Pea Island accretion fillet filled in within 9 months to a year naturally. **Howard** reiterated that a biological monitoring program would be strongly recommended in response to this project and may need to go into formal consultation with USFWS. **David** replied that the Corps and the State would require this sort of monitoring in the permit conditions. **Howard** added that the biotic community mapping using aerial photography would be a good tool to assess change. **Rich** commented that there may be a concern with larval transport into the inlet due to the terminal groin, however he noted that he did not think it would be a major problem due to the relative small size of the structure. **Tom** confirmed with Ron Sechler (NMFS) that there were studies regarding larval transport in

proximity to the terminal groin in Beaufort Inlet. A participant asked if the terminal groin would lessen the requirement for nourishment along Figure Eight Island. **Tom** confirmed that the terminal groin alternative would require roughly half as much renourishment as the channel alignment alternative.

**Mickey** stated that the meeting minutes would be distributed soon and the presentations would be made available as well. **David** requested that any additional data or information should be submitted to **Mickey**, while **David** would be happy to discuss any legislative issues with any participants. **Mickey** then adjourned the meeting at 2 pm.

#### ATTENDEES

NAME	REPRESENTING	CONTACT INFORMATION
Brad Rosov	CPE-NC	<a href="mailto:brosov@coastalplanning.net">brosov@coastalplanning.net</a>
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Jim Iannucci	New Hanover County	<a href="mailto:jiannucci@nhcgov.com">jiannucci@nhcgov.com</a>
Jim Milne	Pender Watch	<a href="mailto:milnejim@elive.com">milnejim@elive.com</a>

## Sub-Part 2

### Pertinent Correspondence

**From:** [MANGIAMELI, Angela](#)  
**To:** [Dawn York;](#)  
**cc:** [Brad Rosov;](#)  
**Subject:** Topsail/Lea Islands  
**Date:** Tuesday, February 05, 2008 9:48:38 AM  
**Attachments:** [sea turtle crawls.xls](#)  
[Good\\_nests\\_2007\\_L-H.xls](#)  
[seabeach amaranthus.xls](#)

---

Hi Dawn,

I have compiled all the GPS for shorebird nests and seabeach amaranthus for 2007, I also made a note of nesting least terns on Lea but I don't have GPS for each nest. I have also included sea turtle nests for 2006, I don't have any data for 2007 as I think it was a slower year and their numbers sometimes cycle so we'll see what is out there in 2008. Just some background Lea and Hutaff Islands are monitored daily to every other day from May-August-early September for Piping Plovers (this Island represents the southern most point of their breeding range), American Oystercatchers and Wilson's Plovers. In addition piping plover, Wilson's plover along with least, and common terns and black skimmers nest on the southern point of Topsail Island (Sue Cameron may have that data).

Weekly shorebird surveys are conducted at 2 inlets sites: Rich Inlet and the southern portions of Hutaff Island, and Topsail Inlet and the northern portion of Lea Island and the southern portion of Topsail Island. On both ends the entire inlet system including all the shoals are surveyed and used by migrating and wintering shorebirds, especially wintering piping plover. Topsail Inlet has likely the highest concentration of wintering piping plovers in one location ~15. In addition banded birds (PIPL) are resighted throughout fall/spring migration and all of winter. Several individuals remain and winter here and use that system. Banding data is critical to understanding where these birds go and for how long they stay at which habitats and therefore to understand what habitat they require that should be protected. The shoals in the inlet and on the sound side of Topsail Island provide valuable feeding grounds while the Island itself is crucial for roosting periods. These surveys are conducted from mid-August through mid-May but not during the peak breeding season as all focus is turned towards the nesting shorebirds.

I hope this information helps please let me know if I can be of anymore assistance.

Thanks,  
Angela

Angela Mangiameli  
Conservation Biologist  
Audubon North Carolina



7741 Market Street, Unit D  
Wilmington, NC 28411-9444  
Tel: 910-686-7527  
Fax: 910-686-7587

[amangiameli@audubon.org](mailto:amangiameli@audubon.org)

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**From:** [Stephen Taylor](#)  
**To:** [Brad Rosov](#);  
**cc:** [jim.m.kelley@ncmail.net](mailto:jim.m.kelley@ncmail.net);  
**Subject:** Re: GIS data set  
**Date:** Monday, May 05, 2008 10:05:21 AM  
**Attachments:** [Stephen\\_Taylor.vcf](#)

---

Brad,

Below is definition of a Oyster (Shellfish) and Seed Management area directly from our Rule Book. I use the words Shellfish and Oyster interchangeably in talking about Shellfish Management areas or Oyster Management areas. We only have one or two Seed Management areas in our district and they are located near Virginia Creek in Pender County. The text below was taken from our website: [www.ncdmf.net](http://www.ncdmf.net) under our Enforcement section, under downloads. I believe it started on page 39.

I am copying our Marine Patrol Captain, just in case you have any other "official" questions. I'm sure Officer Kelly would be more than happy to answer any questions pertaining to these areas.

If I can be of any more assistance, please don't hesitate to call or email me. Have a good day.

Regards,  
stephen

*North Carolina  
Administrative Code  
Title 15A  
Department of Environment  
and Natural Resources  
Chapter 3 Marine  
Fisheries  
Subchapter 3K - Oysters,  
clams, scallops and mussels  
Section .0100 - Shellfish,  
General*

*.0103 SHELLFISH OR SEED  
MANAGEMENT AREAS*

*(a) The Fisheries Director  
may, by proclamation,  
designate Shellfish  
Management Areas which  
meet any of the following  
criteria. The area has:*

*(1) Conditions of bottom  
type, salinity, currents,  
cover or cultch  
necessary for  
shellfish growth;*

*(2) Shellfish populations  
or shellfish enhancement  
projects which may  
produce commercial  
quantities of shellfish at  
ten bushels or more per  
acre;*

*Page 40 3K .0103 - .0104*

*(3) Shellfish populations  
or shellfish enhancement  
projects which may  
produce shellfish suitable  
for transplanting as seed  
or for relaying from  
prohibited (polluted) areas.*

*(b) It is unlawful to use a trawl net, long haul seine, or swipe net in any designated Shellfish or Seed Management area. These areas shall be marked with signs or buoys.*

*Unmarked and undesignated tributaries shall be the same designation as the designated waters to which they connect or into which they flow. No unauthorized removal or relocation of any such marker shall have the effect of changing the designation of any such body of water or portion thereof, nor shall any such unauthorized removal or relocation or the absence of any marker affect the applicability of any rule pertaining to any such body of water or portion thereof.*

*(c) It is unlawful to take oysters or clams from any Shellfish Management Area which has been closed and posted, except that the Fisheries Director may, by proclamation, open specific areas to allow the taking of oysters or clams and may designate time, place, character, or dimensions of any method or equipment that may be employed.*

*(d) It is unlawful to take oysters from Seed Management Areas for planting on shellfish leases or franchises without first obtaining a Permit to Transplant Oysters from Seed Management Areas from the Fisheries Director. The procedures and requirements for obtaining permits are found in 15A NCAC*

03O .0500.

*History Note: Authority G.*

*S. 113-134; 113-182;*

*113-221; 143B-289.52;*

*Eff. January 1, 1991;*

*Amended Eff. March 1, 1994;*

*Temporary Amendment Eff.*

*October 1, 2001;*

*Amended Eff. April 1, 2003.*

**.0104 PERMITS FOR PLANTING  
SHELLFISH FROM PROHIBITED/  
POLLUTED  
AREAS**

*(a) It is unlawful to take  
oysters or clams from  
prohibited (polluted)  
public waters for planting on  
leases and franchises except  
as authorized by G.S. 113-  
203. Lease and  
franchise holders shall  
first obtain a permit from  
the Fisheries Director  
setting forth the  
time, area, and method by  
which*

*such shellfish may be taken.*

*The procedures and  
requirements for  
obtaining permits are found  
in 15A NCAC 03O .0500.*

*(b) The season for relaying  
clams shall be between April  
1 and May 15*

*and the season for  
relaying oysters shall be  
for a specified six week  
period between the  
date of the statewide  
closure of oyster season and  
June 30, as determined by  
the Fisheries*

*Director based on the  
status of oyster resources  
available for harvest from  
public bottom and  
market factors affecting  
sale of oysters from public  
bottom which will assist in  
determining the  
statewide closure date and  
manpower available to  
monitor the relaying  
activity.*

*(c) For areas designated by  
the Fisheries Director as  
sites where  
shellfish would otherwise be*

*destroyed in maintenance  
dredging operations, the  
season as set out in  
Paragraph (b) of this  
Rule shall not apply.  
(d) The Fisheries Director,  
acting upon recommendations  
of the Division  
of Environmental  
Health, shall close and  
reopen by proclamation any  
private shellfish  
beds for which the owner  
has obtained a permit to  
relay oysters and clams from  
prohibited  
(polluted) public waters.  
History Note: Authority G.  
S. 113-134; 113-182;  
113-203; 113-221;  
143B-289.52;  
Eff. January 1, 1991;  
Amended Eff. March 1,  
1996; September 1, 1991;  
Temporary Amendment Eff.  
October 1, 2001;  
Amended Eff. April 1, 2003.*

Brad Rosov wrote:

Stephen,

Actually, I do have a request for you- I have a general understanding of what these OMA's represent, however I am curious if there is either a document or an "official" description of these sites and how they were determined and what their designation means? Even if you are able to write me a paragraph or two it would be helpful as I would like to be as accurate as possible as we incorporate this information into the our EIS.

Thanks again for your help with this!

Regards,  
Brad

**From:** Stephen Taylor [<mailto:Stephen.Taylor@ncmail.net>]  
**Sent:** Monday, May 05, 2008 8:35 AM  
**To:** Brad Rosov; Mark Voss  
**Subject:** Re: GIS data set

Thanks Mark for getting this to Brad. If I can do anything for clarification, please let me know.  
stephen

Brad Rosov wrote:

I've passed this off to our GIS folks- I'll be in touch if we have any questions. Thanks again for your help...

Regards,

Brad

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

From: Mark Voss [<mailto:Mark.Voss@ncmail.net>]

Sent: Friday, May 02, 2008 2:11 PM

To: Brad Rosov

Cc: Stephen Taylor

Subject: Re: GIS data set

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

From: Mark Voss [<mailto:Mark.Voss@ncmail.net>]

Sent: Friday, May 02, 2008 2:11 PM

To: Brad Rosov

Cc: Stephen Taylor

Subject: Re: GIS data set

Mr. Rosov,

Attached is a ESRI shapefile of the 4 locations around the inlet. The GIS file is polygon, and has a NC State Plane projection, NAD83 datum, and meters for units. The attribute file id's more information about the data. If you have any questions, please contact me.

Have a good day,  
Mark

Mark Voss  
GIS Program  
NC Marine Fisheries  
1-800-682-2632  
[mark.voss@ncmail.net](mailto:mark.voss@ncmail.net)

Brad Rosov wrote:

Hi Mark,

Thanks for getting in contact with me. Ideally, the polygons of the areas will suit us best. I do not think we will have a problem accepting a zipped version of the ArcView files, but I'm not the most savvy computer guy. Please give it a try and if it bounces back we can look into other methods (i.e. we have an ftp site).

Thanks again for your help,

Brad Rosov  
Marine Scientist  
Coastal Planning & Engineering of North Carolina, Inc.  
Marine Science & Biological Research Dept.  
330 Shipyard Blvd.  
Wilmington, NC 28412  
910.791.9494 (O)  
910.791.4129 (F)  
[www.coastalplanning.net](http://www.coastalplanning.net)

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

From: Mark Voss [<mailto:Mark.Voss@ncmail.net>]

Sent: Friday, May 02, 2008 1:26 PM  
To: Brad Rosov; Stephen Taylor  
Subject: GIS data set

Mr. Rosov,

I was asked by Stephen Taylor to get a GIS shape file for you.

1. do you want the polygons of areas, or lat/longs in a point file?
2. Are you able to accept ArcView shape files in a .zip format? I know

some systems are not allowed to receive some attachments with certain  
file extensions.

Mark Voss  
GIS Program  
NC Marine Fisheries  
1-800-682-2632  
[mark.voss@ncmail.net](mailto:mark.voss@ncmail.net)

**From:**

John Gerwin

**To:**

Brad Rosov;

**cc:**

Megan Demers-Schaefer; walker Golder; StaceyAnn Roach;

**Subject:**

Re: mason inlet

**Date:**

Sunday, May 18, 2008 6:19:44 PM

Brad, I'm headed to the field for a couple weeks. I'm cc'ing folks here who might be able to pinpoint these sites. Walker/Audubon NC manages Lea/Hutaff and they keep records for the most part, for that property. Figure Eight is known to have had PABU, and I presume still does. Megan can check to see if we've had any reports from that locality. As best I recall, Derb Carter/family have property on that island, and he's told me about PABU there. As for the general county references, again Megan can check. If there are particular "towns", let her know, although I guess we're looking at Wrightsville up to ~Annandale/south Topsail Island. The birds are known to occupy the ICW "shrub/scrub" habitat from Wilmington on up to Morehead City. To what extent we don't know. If there are some particular spots you want checked, let us know. I'm also cc'ing Stacey Roach here; she is doing PABU surveys for us this spring. She is planning on doing some ICW work but from Wrightsville south. Perhaps they could foray north a bit ("they" = her plus a biologist with Audubon NC via Walker). best, John  
Brad Rosov wrote:

John,

I am writing to you in search of additional data regarding the painted bunting. We are now interested if any observations have been made in the proximity of Rich Inlet- either on Figure Eight Island or Lea/Hutaff Island in recent years. Really, any observations along the coast within the northern part of New Hanover County or southern Pender County would be helpful. Any ideas?



Thanks,  
Brad Rosov  
Marine Scientist  
Coastal Planning & Engineering of North Carolina, Inc.  
330 Shipyard Blvd.  
Wilmington, NC 28409  
(910) 791-9494  
[brosov@coastalplanning.net](mailto:brosov@coastalplanning.net)

**From:** [Harry LeGrand, Jr.](#)  
**To:** [Brad Rosov;](#)  
**Subject:** Re: Diamondback terrapin  
**Date:** Friday, May 23, 2008 9:11:19 AM  
**Attachments:** [terrapin-lea-hutaff.pdf](#)

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Brad:

We have a lot of records for coastal New Hanover, but from Wrightsville Beach southward. There is an older, non-specific report from Lea-Hutaff, which I have attached.

As the species is reasonably widespread in coastal waters, and really isn't that rare, you should assume it is present in the project area.

Harry

Brad Rosov wrote:

>  
> Hello Harry,  
>  
>  
>  
> I am working on compiling data for an EIS being developed for the  
> Figure Eight Island Shoreline and Inlet Management Project. I was  
> wondering if you know of any occurrences of the Carolina Diamondback  
> Terrapin recorded within the project vicinity, which basically  
> encompasses the majority of Figure Eight Island and Lea/Hutaff Island  
> and many of the tidal creeks and marshlands behind these islands.  
>  
>  
>  
> Thanks for your help,  
>  
>  
>  
> Brad Rosov  
>  
> Marine Scientist  
>  
> Coastal Planning & Engineering of North Carolina, Inc.  
>  
> 330 Shipyard Blvd.  
>

> Wilmington, NC 28409  
>  
> (910) 791-9494  
>  
> brosov@coastalplanning.net  
>  
>  
>

**From:** [Kelley, Roger](#)  
**To:** [Brad Rosov;](#)  
**Subject:** Figure 8 Island  
**Date:** Friday, July 11, 2008 12:59:00 PM

---

Brad,

I was given your fax where you were asking for the cumulative tax value of all homes and vacant lots on Figure 8. Below is that number:

\$1,189,810,926

This is just the TAXABLE value out there.

If I you need any further info feel free to contact me.

R oger L K elley

Tax Administrator  
New Hanover County  
230 Government Center Drive Suite 190  
Wilmington, NC 28403  
(910) 798-7368  
(910) 798-7310 Fax  
rkelly@nhcgov.com

**From:** Sugg, Mickey T SAW [Mickey.T.Sugg@saw02.usace.army.mil]  
**Sent:** Monday, September 08, 2008 9:16 AM  
**To:** Fritz Rohde; Ron Sechler; Howard\_Hall@fws.gov; Doug Huggett; Molly Ellwood  
**Cc:** Ken Willson; Dawn York; David Kellam  
**Subject:** FW: Hardbottoms off Figure Eight

**Attachments:** Review of Cleary Data.pdf

Morning all-

CP&E has provided historic data depicting presence of HB in proximity to Figure Eight & Rich Inlet. Two PDT meetings ago, we briefly discussed the need to conduct side scan sonar for HB. At the time, I stated that they had to side scan around the inlet, but only recommended them to survey the entire ocean shoreline (since this would aid in all future island projects). Apparently, there is a big financial difference between just surveying the inlet and surveying the entire shoreline. Figure 8 is at a point in their planning schedule where they need to run the side scan and need to know where and how much.

Please note that the attachment depicts the channel relocation alternative only, and not a potential terminal groin. I am presuming that the permit area will not change if a groin becomes the preferred, but for any reason the groin does change the footprint of the permit area, we will reconsider if additional side scan is required. Not knowing the construction dimensions and overall effects of the groin, I don't think we can make that decision at this time (Ken, correct me if I am wrong).

I remain committed in requiring the inlet sonar, but at this time, I need feedback from you if they will be required to scan the ocean shoreline. If you would think about this and let me know one way or the other, then I'll pass it on to Figure 8 so they can finalize their plan.

Thanks for your time,  
-Mickey

---

**From:** Ken Willson [mailto:Kwillson@coastalplanning.net]  
**Sent:** Friday, September 05, 2008 11:10 AM  
**To:** Sugg, Mickey T SAW  
**Cc:** Dawn York  
**Subject:** Hardbottoms off Figure Eight

Good morning Mickey,

Looks like we might get some wind and rain here? Please find attached a map that we have created which depicts the offshore areas identified by Dr. Cleary as historic "hardbottom". What he is referring to are areas that were identified with sidescan sonar and ground truthed by geologist. Dives confirmed the presence of exposed rock outcrops. The rock offshore Figure Eight Island was mapped as Limestone, where the rock located offshore of Rich Inlet was said to be siltstone. The siltstone is much less resistant to erosion (erodes faster) suggesting it may not be as stable a habitat for colonization as limestone.

For display purposes we have added a 500 m buffer around these rock outcrops. We have also included on the maps, the Equilibrium Toe of Fill (point to which the sand would equilibrate out to), and the boundary of the permit area as currently drawn.

Please pass this info along to interested parties as we are waiting for you to make a determination as to whether or not additional sidescan data should be collected along the shoreline within the project area and in the vicinity of the ebb tidal delta off Rich Inlet.

If you have any questions on the data please feel free to call me. I have spoken with Dr. Cleary at length about the data and actually helped him collect some of it.

Regards,

**Ken Willson**

Project Manager / Coastal Geologist

Coastal Planning & Engineering of North Carolina

[www.coastalplanning.net](http://www.coastalplanning.net)

4038 Masonboro Loop Rd.

Wilmington, NC 28409

Phone (910) 791-9494

Mobile (910) 443-4471

Fax (910) 791-4129

## Dawn York

---

**From:** Tom Jarrett  
**Sent:** Tuesday, September 09, 2008 11:08 AM  
**To:** Sugg, Mickey T SAW; Ken Willson; Dawn York; David Kellam  
**Subject:** RE: PDT Meeting  
**Attachments:** Inlet response to new channel.doc

Mickey,

The purpose of the channel relocation is to create a new ebb tide delta configuration that is comparable to the 1993 inlet configuration, i.e., the rebuilding of the south portion of the delta to provide wave protection to the north end. The figure in the attached shows the predicted inlet reconfiguration after 5-years following the channel realignment. The white outline is the configuration of the inlet in March 1993, which is basically the target configuration associated with the channel realignment.

The equilibrium toe of fill follows the -24-foot NAVD depth contour and represents the theoretical seaward limit of cross-shore profile adjustments with the fill assuming the fill material has the same size characteristics as the native. Obviously, the -24-foot contour protrudes seaward at the north end due to the existing ebb tide delta. In any event, the seaward protrusion of the -24-foot contour and the assumption some of the fill material may migrate to this depth would only contribute to and possibly hasten the reconfiguration of the ebb tide delta toward the target.

Our preliminary assessment of the material in Rich Inlet indicates it is coarser than the native (0.18 mm for Fig 8, 0.24 mm for Rich Inlet). Therefore, the theoretical toe of fill with the Rich Inlet material will fall short of the -24-foot depth contour. Once we have the final inlet composite characteristics, we will re-do the equilibrium toe on the drawings.

Hope this helps clarify. Pass along to Ron and Fritz if you want.

Tom

---

**From:** Sugg, Mickey T SAW [mailto:Mickey.T.Sugg@saw02.usace.army.mil]  
**Sent:** Tue 9/9/2008 10:57 AM  
**To:** Ken Willson; Dawn York; David Kellam; Tom Jarrett  
**Subject:** RE: PDT Meeting

My direction is to survey the shoreline within the Permit Area. Ron was probably assuming that the entire oceanfront was being affected. But, I will add that if any aspect of the project changes, or any additional information demonstrates the need to expand the permit area along the oceanfront, then the surveying will need to encompass the expansion. This also includes any future maintenance adjustments that would affect additional shoreline.

In Ron's e-mail, he brought up an interesting point regarding the toe of equilibrium. Does it go out that far, or is that just a conceptional depiction that is not to scale?

-Mickey

---

**From:** Ken Willson [mailto:Kwillson@coastalplanning.net]  
**Sent:** Tuesday, September 09, 2008 10:28 AM  
**To:** Sugg, Mickey T SAW  
**Cc:** Dawn York; Tom Jarrett  
**Subject:** RE: PDT Meeting

So Ron says do the entire Island and Fritz says the permit area which is the north half of the island. We were

9/9/2008

basically proposing to Figure Eight to do the northern nearshore section and the Inlet (Permit Area). Are you good with that? If so we will move forward with Figure Eight to complete this work.

## **Ken Willson**

Project Manager / Coastal Geologist

Coastal Planning & Engineering of North Carolina

[www.coastalplanning.net](http://www.coastalplanning.net)

4038 Masonboro Loop Rd.

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Phone (910) 791-9494

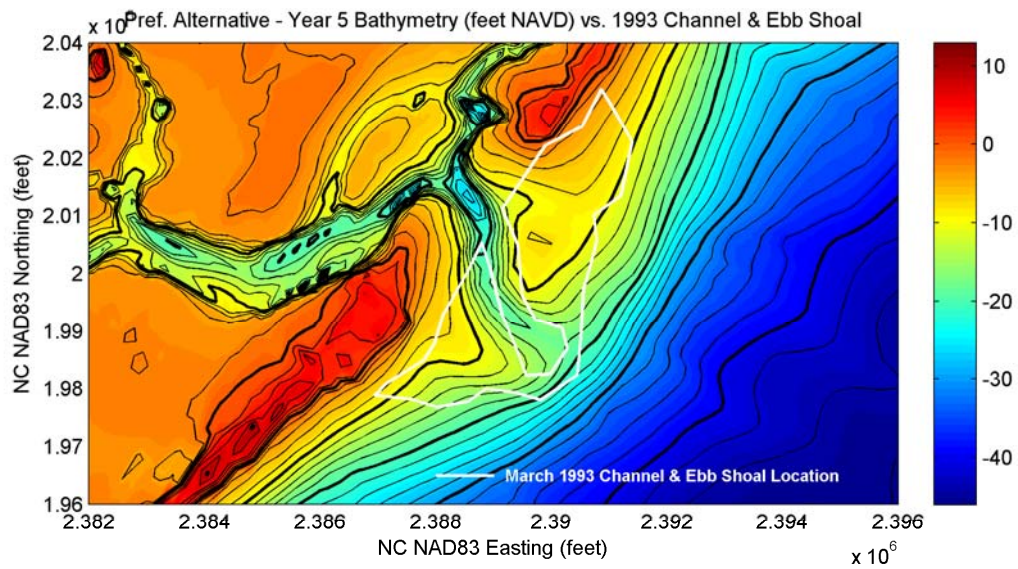
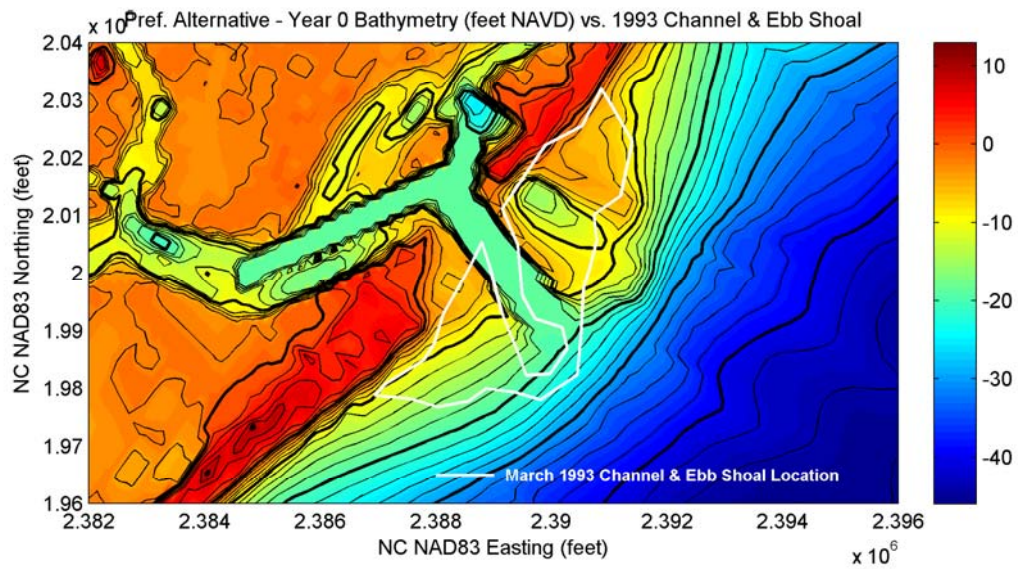
Mobile (910) 443-4471

Fax (910) 791-4129

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<http://www.nmgi.com/doublecheck/>





## Dawn York

---

**From:** Sugg, Mickey T SAW [Mickey.T.Sugg@saw02.usace.army.mil]  
**Sent:** Tuesday, September 09, 2008 10:58 AM  
**To:** Ken Willson; Dawn York; David Kellam; Tom Jarrett  
**Subject:** RE: PDT Meeting

My direction is to survey the shoreline within the Permit Area. Ron was probably assuming that the entire oceanfront was being affected. But, I will add that if any aspect of the project changes, or any additional information demonstrates the need to expand the permit area along the oceanfront, then the surveying will need to encompass the expansion. This also includes any future maintenance adjustments that would affect additional shoreline.

In Ron's e-mail, he brought up an interesting point regarding the toe of equilibrium. Does it go out that far, or is that just a conceptional depiction that is not to scale?

-Mickey

---

**From:** Ken Willson [mailto:Kwillson@coastalplanning.net]  
**Sent:** Tuesday, September 09, 2008 10:28 AM  
**To:** Sugg, Mickey T SAW  
**Cc:** Dawn York; Tom Jarrett  
**Subject:** RE: PDT Meeting

So Ron says do the entire Island and Fritz says the permit area which is the north half of the island. We were basically proposing to Figure Eight to do the northern nearshore section and the Inlet (Permit Area). Are you good with that? If so we will move forward with Figure Eight to complete this work.

## Ken Willson

Project Manager / Coastal Geologist

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---

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**From:** Margo O'Mahoney [momahoney@bizec.rr.com]  
**Sent:** Thursday, July 02, 2009 3:32 PM  
**To:** Brad Rosov  
**Subject:** RE: Question for EIS

ok, the HOA classifies 97 lots as undeveloped.

this means that there is not a house on the lot. But, although this sounds odd, 4 lots of those 97 undeveloped lots actually have a house upon them.

that is because 4 of the houses are particularly large, and are centered on 2 adjacent lots. For HOA purposes, we count one of those lots as developed, and one as undeveloped for our annual assessment purposes....

So, to answer how many of our platted lots are "vacant", I would say there are 93.

As far as "available" lots, not many are available, folks like to sit on them..... I just checked with our real estate broker down the hall. Of the 93 undeveloped lots, there are 16 for sale, listed either with her or with other realtors.

Of the 16 listed lots, please keep in mind that some are on the ocean, some on the sound side, some are buildable, some are not...so values range considerably... The lowest "listed" price is \$800,000 and the highest is \$2,400,000.

I get a mean price of \$1,560,812 - based on listing price, which is a bit low right now due to the market.... also, this is not tax value.....

let me know if you need anything else...Margo

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

**From:** Brad Rosov [mailto:Brosov@coastalplanning.net]

**Sent:** 7-02-09 2:13 PM

**To:** Margo O'Mahoney

**Subject:** Question for EIS

Hello Margo,

I was wondering if you may be able to provide me with a bit of information I'd like to incorporate into the Environmental Impact Statement we are developing for your beach nourishment project. I am seeking the number of available vacant lots on the island as well as their mean value. Does the F8 HOA track these figures? If not, I'll get in contact with the County...

Thanks so much- have a terrific holiday weekend!

Brad Rosov  
Marine Scientist

Coastal Planning & Engineering of North Carolina, Inc.  
4038 Masonboro Loop Road  
Wilmington, NC 28409  
(910) 791-9494  
[brosov@coastalplanning.net](mailto:brosov@coastalplanning.net)

**From:** Lawrence, Richard [mailto:richard.lawrence@ncdcr.gov]  
**Sent:** Tuesday, September 15, 2009 11:20 AM  
**To:** Ken Willson  
**Cc:** iimr@coastalnet.com; Henry, Nathan  
**Subject:** RE: Proposed Cultural Resource Survey at Rich Inlet

Ken,

Nathan and I have looked over your plans and we feel that a cultural resource survey is warranted for the designated terminal groin area, both in the water and the upland area. We concur that a magnetometer survey would be the best way to examine the upland area. We base this recommendation on documented vessel losses in and around Rich Inlet and the fact that changes in the inlet may have resulted in vessel remains being buried beneath the upland areas.

Let me know if you have questions.

Richard

Richard W. Lawrence, Branch Head  
Underwater Archaeology Branch  
1528 Fort Fisher Blvd. South  
Kure Beach, NC 28449  
Phone: (910) 458-9042 ext. 204  
Fax: (910) 458-4093

Please be aware that my new e-mail address is: [richard.lawrence@ncdcr.gov](mailto:richard.lawrence@ncdcr.gov)

NOTE: This communication may not reflect or represent the views of the Department of Cultural Resources. E-mail to and from me, in connection with the transaction of public business, is subject to the North Carolina Public Records Law and may be disclosed to third parties.

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**From:** Ken Willson [mailto:kwillson@coastalplanning.net]  
**Sent:** Thursday, September 10, 2009 1:13 PM  
**To:** Lawrence, Richard  
**Cc:** iimr@coastalnet.com  
**Subject:** Proposed Cultural Resource Survey at Rich Inlet

Richard,

It has been a few months since last we spoke about some questions regarding a beach nourishment project at Topsail Beach. CPENC is currently working with Gordon at TAR to plan a submerged cultural resource survey in the vicinity of Rich Inlet for a dredge and fill project. One of the questions that has arisen in our planning has to do with a proposed Terminal Groin at the north end of Figure Eight Island. The proposed design would drive steel sheet pile down to a depth of -27 ft. NAVD88 along the landward anchor section of the structure and down to -48 ft. NAVD88 along the seaward section. We were not sure of the requirements for Cultural Resource surveys for this proposed design. In the attached figure you will see the current proposed position of the structure (shown in black). We have not determined its exact placement and or length, which is why we have highlighted a corridor (orange outline) in which the final design will be confined. Our questions are whether or not a CR survey is required for the area where the structure is proposed, and specifically on the upland portion of the design? Gordon mentioned that he thought the only thing required on the terrestrial portion, if anything, would be a magnetometer survey. Please confirm if we are in the ballpark with our assumptions.

Sincere Regards,

**Ken Willson**

Project Manager / Coastal Geologist

Coastal Planning & Engineering of North Carolina, Inc.

4038 Masonboro Loop Rd

Wilmington, NC 28409

Office: (910) 791-9494

Cell: (910) 443-4471

Fax: (910) 791-4129

**From:** Lawrence, Richard [mailto:richard.lawrence@ncdcr.gov]  
**Sent:** Wednesday, January 20, 2010 9:24 AM  
**To:** Gordon Watts  
**Cc:** Ken Willson  
**Subject:** RE: Rich Inlet

Gordon,

This sounds like a reasonable approach to me and would satisfy our needs.

Richard

Richard W. Lawrence  
Deputy State Archaeologist - Underwater

Office of State Archaeology  
Underwater Archaeology Branch  
1528 Fort Fisher Blvd. South  
Kure Beach, NC 28449  
Phone: (910) 458-9042 ext. 204  
Fax: (910) 458-4093

Please be aware that my new e-mail address is: [richard.lawrence@ncdcr.gov](mailto:richard.lawrence@ncdcr.gov)

NOTE: This communication may not reflect or represent the views of the Department of Cultural Resources. E-mail to and from me, in connection with the transaction of public business, is subject to the North Carolina Public Records Law and may be disclosed to third parties.

---

**From:** Gordon Watts [mailto:iimr@coastalnet.com]  
**Sent:** Monday, January 18, 2010 3:54 PM  
**To:** Lawrence, Richard  
**Cc:** Kenneth Willson  
**Subject:** Rich Inlet

Richard,

we have been trying to find a weather/tidal window to survey Rich Inlet and the adjacent end of Figure Eight Island for Coastal Planning and Engineering (CPE). While we have carried out a mag survey of the end of Figure Eight Island getting across the bars associated with the inlet has proven to be difficult. I have attached a Hypack border file over a georeferenced aerial to show the location of Wild Dayrell, the mag survey coverage on Figure Eight and the shoals in the survey area.

After more than six weeks of waiting we have had no luck. I have attached an aerial photograph of the inlet with the proposed dredging limits identified. I would like to find out if we are able to survey what we can from the boat and walk the shoal areas with a hand held mag to identify targets and a hand held GPS to locate them, would that satisfy your requirements. We would not be able to contour the data but, we would be able to determine if there is anything that generates

a magnetic anomaly in the area and define its location. We would also be able to plot our tracks across the shoals. We will continue to wait on weather and tides but if push comes to shove will this approach suffice?

Thanks for considering the approach.

Gordon



From: Webster, David [webste@uncw.edu]  
Sent: Friday, January 29, 2010 9:57 AM  
To: Brad Rosov  
Cc: Kellam, David  
Subject: RE: Figure Eight Island monitoring

Hi Brad,

Thanks for the email. I am indeed still conducting the endangered species monitoring on Figure Eight Island. This includes sea turtles on the ocean-facing beaches from 1 May until the last hatch each summer; piping plover (and other RTE colonial waterbird and shorebird species) throughout the year, focusing on the inlet areas, but also including the beaches (knot migrations for example); amaranth surveys during the summer months; and beach vitex, too. I'm hopeful that Figure Eight will keep me on the project in perpetuity, but that's not my call. They certainly understand the value of monitoring the RTE species, and we're happy to help them out.

Audubon does Hutaff Island. Contact Walker Golder (686-7527) if you need information from that side of the inlet. I believe they focus more on Piping Plovers, which nest on Hutaff (the southernmost nesting beach on the East Coast), and also other coastal bird species. I think they collect sea turtle and amaranth data, too.

Let me know if you need other information. Best, David

Wm. David Webster, Ph.D.  
Associate Dean  
College of Arts and Sciences  
University of North Carolina Wilmington  
Wilmington, NC 28403-5912  
webste@uncw.edu (email)  
(910) 962-3756 (phone)  
(910) 962-3114 (FAX)  
webste@uncw.edu/people/webste

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From: Brad Rosov [mailto:Brosov@coastalplanning.net]  
Sent: Friday, January 29, 2010 9:31 AM  
To: Webster, David  
Subject: Figure Eight Island monitoring

Hello Dr. Webster,

I am currently working on developed the EIS for the proposed Figure Eight Island Shoreline Management Plan and was wondering about the state of your long-term monitoring efforts on the island. Are you still engaged in turtle, seabeach amaranth, and bird monitoring? How long do you foresee this to continue? Finally, where, geographically do you monitor (i.e. the entire shoreline or only portions of the island... or even on Hutaff?)?

Thanks for your help!

Brad Rosov  
Marine Scientist  
Coastal Planning & Engineering of North Carolina, Inc.

4038 Masonboro Loop Road  
Wilmington, NC 28409  
(910) 791-9494  
brosov@coastalplanning.net

From: Godfrey, Matthew H [matt.godfrey@ncwildlife.org]  
Sent: Friday, January 29, 2010 12:23 PM  
To: Brad Rosov  
Subject: RE: turtle nest monitoring on Figure Eight and Hutaff

Hi Brad,  
That's correct. Audubon does not do daily monitoring on Lea/Hutaff, but Webster and his group are doing daily monitoring on Figure Eight.  
Matthew

From: Brad Rosov [mailto:Brosov@coastalplanning.net]  
Sent: Friday, January 29, 2010 12:20 PM  
To: Godfrey, Matthew H  
Subject: turtle nest monitoring on Figure Eight and Hutaff

Hello Dr. Godfrey,

I am working to develop the EIS pertaining to the Figure Eight Island Shoreline Management Project and am seeking information regarding the current sea turtle nesting monitoring effort along the beaches of Figure Eight and Hutaff Islands. Am I correct in understanding that UNCW (under Dr. David Webster's direction) performs regular monitoring on Figure Eight and the Audubon Society conducts monitoring on Hutaff? Any other efforts in place?

Thanks!

Brad Rosov  
Marine Scientist  
Coastal Planning & Engineering of North Carolina, Inc.  
4038 Masonboro Loop Road  
Wilmington, NC 28409  
(910) 791-9494  
brosov@coastalplanning.net

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From: Tom Jarrett  
Sent: Thursday, February 11, 2010 12:07 PM  
To: Brad Rosov  
Subject: FW: Seabeach amaranth, Figure 8, 2009

FYI

From: David Kellam  
Sent: Thu 2/11/2010 11:57 AM  
To: Tom Jarrett  
Subject: FW: Seabeach amaranth, Figure 8, 2009  
Just for your EIS notes.

David K.

From: Webster, David [mailto:webste@uncw.edu]  
Sent: Thursday, February 11, 2010 11:37 AM  
To: 'Dale\_Suiter@fws.gov'  
Cc: 'David Kellam'  
Subject: RE: Seabeach amaranth, Figure 8, 2009

Hi Dale,

We had no *Amaranthus* on Figure Eight Island this year. Maybe next year will be the charm. Best,  
David

Wm. David Webster, Ph.D.  
Associate Dean  
College of Arts and Sciences  
University of North Carolina Wilmington  
Wilmington, NC 28403-5912  
webste@uncw.edu (email)  
(910) 962-3756 (phone)  
(910) 962-3114 (FAX)  
webste@uncw.edu/people/webste

NOTICE: Emails sent and received in the course of university business are subject to the North Carolina Public Records Act (N.C.G.S. §132-1 et seq.) and may be released to the public unless an exception applies.

From: Dale\_Suiter@fws.gov [mailto:Dale\_Suiter@fws.gov]  
Sent: Thursday, February 11, 2010 11:05 AM  
To: Webster, David  
Subject: Seabeach amaranth, Figure 8, 2009

Hi Dr. Webster

I hope all is going well at the coast.

I'm just updating my Seabeach Amaranth spreadsheet for 2009 and noticed that I don't have any

numbers for you. If you sent them in and I'm misplaced them, please forgive me. If not, just let me know how many plants you had. There is no rush, just send this in whenever you have time.

Thanks,  
Dale

Dale Suiter  
Endangered Species Biologist  
U.S. Fish and Wildlife Service  
P.O. Box 33726  
Raleigh, NC 27636-3726

phone - 919-856-4520 ext. 18  
fax - 919-856-4556  
email - Dale\_Suiter@fws.gov

From: Miller, Tancred [tancred.miller@ncdenr.gov]  
Sent: Monday, February 22, 2010 4:08 PM  
To: Brad Rosov  
Subject: RE: Sea level rise

Correct. 4.27 is the current rate and is expected to accelerate, but we did not attempt to quantify the acceleration rate. Our projected range is 0.4m-1.4m, and we'll be planning for 1m. The Science Panel will review the numbers every 5 years, or as necessary.

From: Brad Rosov [mailto:Brosov@coastalplanning.net]  
Sent: Monday, February 22, 2010 4:01 PM  
To: Miller, Tancred  
Subject: RE: Sea level rise

Thanks, Tancred. So, to clarify, will the 4.27mm/yr rate be amended to reflect the 1m rise by 2100?

-Brad

From: Miller, Tancred [mailto:tancred.miller@ncdenr.gov]  
Sent: Monday, February 22, 2010 3:52 PM  
To: Brad Rosov  
Subject: RE: Sea level rise

Hi Brad,

Sorry for the delay. Yes, the CRC was advised by their Science Panel to plan for 1 meter of rise by 2100. The current rate of rise we're using is 4.27 mm/yr. Let me know if you need more detail.

Thanks,  
Tancred

From: Brad Rosov [mailto:Brosov@coastalplanning.net]  
Sent: Monday, February 15, 2010 10:17 AM  
To: Miller, Tancred  
Subject: Sea level rise

Hi Tancred,

We've met a few times up in Beaufort- I'm an old friend of John Hackney's and I've also ran into you at a few conferences over the past few years. I know that you recently convened the NC Sea Level Rise workshop and was interested in the outcome. Is the state now endorsing a position on SLR (a specific rate, etc.)? I'm drafting an EIS for Figure Eight Island and would like to incorporate SLR into the document and figured you may have some input...

Thanks a bunch,

Brad Rosov  
Marine Scientist  
Coastal Planning & Engineering of North Carolina, Inc.  
4038 Masonboro Loop Road  
Wilmington, NC 28409

(910) 791-9494  
brosov@coastalplanning.net

## Brad Rosov

---

**From:** Godfrey, Matthew H [matt.godfrey@ncwildlife.org]  
**Sent:** Monday, May 10, 2010 4:51 PM  
**To:** Brad Rosov  
**Subject:** RE: Sea Turtles- Figure Eight Island

Hi Brad,

Sorry for the delay – in brief, there have not been any observed nests laid by the three species listed below on Figure Eight Island in the past five years.

Best,

Matthew

---

**From:** Brad Rosov [mailto:Brosov@coastalplanning.net]  
**Sent:** Tuesday, May 04, 2010 4:55 PM  
**To:** Matthew H. Godfrey; Godfrey, Matthew H  
**Subject:** Sea Turtles- Figure Eight Island

Hello Dr. Godfrey,

I am working to update some information you provided us a few years ago regarding sea turtle nesting in proximity to Figure Eight Island. I currently state that there have not been any Kemp's ridley, leatherback, or hawksbill nests observed within at least the past decade, however, this was a personal communication you provided us a few years ago. Do you know if there have been any confirmed nests from these along Figure Eight or Huttaff since that time?

Thanks,

Brad Rosov  
Marine Scientist  
Coastal Planning & Engineering of North Carolina, Inc.  
4038 Masonboro Loop Road  
Wilmington, NC 28409  
(910) 791-9494  
[brosov@coastalplanning.net](mailto:brosov@coastalplanning.net)

---

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**From:** [Sugg, Mickey T SAW](#)  
**To:** [Brad Rosov](#)  
**Cc:** [Tom Jarrett](#); [Ken Willson](#)  
**Subject:** RE: Figure Eight Permit Area  
**Date:** Thursday, June 24, 2010 2:27:31 PM

---

I don't see this as an issue. I'm assuming the initial permit area included what you thought fell within the boundaries of the modeling. Does this change have anything to do with not dredging into Green Channel as original proposed?  
-mick

Mickey Sugg, Project Manager  
US Army Corps of Engineers  
69 Darlington Avenue  
Wilmington NC 28403-1343  
(910) 251-4811 (o)  
(910) 251-4025 (fax)

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

From: Brad Rosov [<mailto:Brosov@coastalplanning.net>]  
Sent: Tuesday, June 15, 2010 12:05 PM  
To: Sugg, Mickey T SAW  
Cc: Tom Jarrett; Ken Willson  
Subject: Figure Eight Permit Area

Hello Mickey,

As we recently moved forward and completed our updated model runs, it became evident that we had a small discrepancy between the area which was modeled and the proposed Permit Area developed some time ago. I'm writing this to you to see if we can modify the Permit Area with respect to this discrepancy.

The spatial domain included within our model runs cover the area affected by Rich Inlet. This extends from Bridge Road to the midpoint between the Topsail Inlet and Rich Inlet, that applies for both the beach area and the marsh areas along the Intracoastal Waterway. The revised model was extended towards the south along the beach to Mason Inlet to cover the entire fill area and the longshore spreading zone (see the attached figure). Our proposed Permit Area was developed in coordination with you some time ago utilizing aerial photos to help "best-guess" the extent of the Permit Area in respect to areas which could be potentially impacted by the project. Looking at the attached figure, you will see that the domain of the modeled area and the permit area do not completely overlap due to a small area (64 acres) to the NE of the Permit Area not covered by the modeled area. Because this area is rather small and seemingly out of the influence of potential

impacts, I was hoping that we could modify our permit area so it is 100% contained within the area which was modeled. This would simply mean clipping that 64 acre area from the Permit Area. It will be helpful because the modeling results will be used to determine the amount of acres of various habitats within the Permit Area- something that will be impossible to do if the Permit Area includes areas not modeled!

Please let me know if this is amenable from your end.

Thanks,

Brad Rosov

Marine Scientist

Coastal Planning & Engineering of North Carolina, Inc.

4038 Masonboro Loop Rd.

Wilmington, NC 28409

910 791-9494

--

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\*\*\* More options: <http://mx1.coastalplanning.net/md?k=1OP1DawwZJTq>

From: Brad Rosov <Brosov@coastalplanning.net>  
Sent: Friday, July 29, 2011 8:37 AM  
To: Rosov, Brad  
Subject: FW: biological resource data from Figure Eight  
Attachments: turtles 2008.doc; turtles 2009.docx; turtles 2010.docx

From: Webster, David [webste@uncw.edu]  
Sent: Tuesday, July 05, 2011 12:06 PM  
To: Brad Rosov  
Cc: 'David Kellam'  
Subject: RE: biological resource data from Figure Eight  
Hello Brad,

Thanks for your email. I have appended three files with information pertaining to nesting sea turtles for the years 2008-2010. I have not included this summer since we are still in the middle of everything (14 nests so far, and we're only half-way through the nesting season). I'll send you the final figures for 2011 in late August, unless you need the hatching success data (which isn't completed until mid-November).

As for seabeach amaranth, there are 17 plants on the north end of Figure Eight this summer but none anywhere else. I still have one more amaranth survey to conduct (I do three surveys each summer), so I'll let you know if I find more plants. Amaranth was not found in 2008, 2009, or 2010.

I also have colonial waterbird and shorebird weekly inventory data and nesting data, but I need to condense these for easy interpretation. I will send these data to you in a couple of weeks. Best, David

Wm. David Webster, Ph.D.  
Associate Dean  
College of Arts and Sciences  
University of North Carolina Wilmington  
Wilmington, NC 28403-5912  
webste@uncw.edu (email)  
(910) 962-3756 (phone)  
(910) 962-3114 (FAX)  
webste@uncw.edu/people/webste

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From: Brad Rosov [mailto:Brosov@coastalplanning.net]  
Sent: Thursday, June 23, 2011 3:35 PM

To: Webster, David  
Subject: biological resource data from Figure Eight

Hello Dr. Webster,  
I am looking to update some information I have compiled regarding sea turtle nests and seabeach amaranth numbers in support of Figure Eight Island's EIS for beach nourishment. Specifically, I was hoping you might be willing to share the monitoring data you have for these critters from Figure Eight Island from 2008 til present. Also, do you have any bird data... or is that still left to Audubon?

I appreciate your help with this!

Regards,

Brad Rosov  
Marine Biologist  
Coastal Planning & Engineering, Inc.  
A Shaw Group Company  
4038 Masonboro Loop Rd.  
Wilmington, NC 28409  
910 791-9494 direct  
910 352-1555cellular  
910 791-4129 fax  
brad.rosov@shawgrp.com  
www.coastalplanning.net

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---

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<http://www.coastalplanning.net>

## Rosov, Brad

---

**From:** Godfrey, Matthew H <matt.godfrey@ncwildlife.org>  
**Sent:** Monday, August 08, 2011 6:17 AM  
**To:** Rosov, Brad  
**Subject:** RE: sea turtle nesting data request  
**Attachments:** Rosov.xls

Hi Brad,

Sorry for the delay – see attached sheet. Two qualifications:

1. The monitoring at Lea-Hutaff Island for sea turtle nesting activities is limited to a few times a week, so the observed nest numbers likely underestimate the total sea turtle nesting activity on the island.
2. I don't have an electronic version of 2009 Figure Eight data, so I need to get the hard copy from storage, which will take a few more days. I think you already have received data from David Webster and/or Charlie Baker for Figure Eight, so I wanted to send you what I have now, so you can work off that.

Let me know if need anything else.

Matthew

---

**From:** Rosov, Brad [mailto:Brad.Rosov@shawgrp.com]  
**Sent:** Monday, August 01, 2011 9:59 AM  
**To:** Godfrey, Matthew H  
**Subject:** sea turtle nesting data request

Hello Matthew,

Thanks for getting back to me earlier this morning. Again, we are looking for sea turtle nesting data from 2008-2010 for both Figure Eight Island and Hutaff Island. I appreciate your assistance with this.

Regards,

Brad Rosov  
Marine Scientist  
Coastal Planning & Engineering of North Carolina, Inc  
4038 Masonboro Loop Rd.  
Wilmington, NC 28409  
910 791-9494 (office)  
910 352-1152 (cell)  
910 791-4129 (fax)

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### Sub-Part 3

#### Public Notices

DEPARTMENT OF DEFENSE

Department of the Army; Corps of Engineers

Intent To Prepare a Draft Environmental Impact Statement (DEIS)  
for the Development of an Inlet Management Plan That Includes the  
Repositioning and Realignment of the Main Ebb Channel of Rich Inlet and  
To Use the Material To Nourish Figure Eight Island, North of  
Wilmington, New Hanover County, NC

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DoD.

ACTION: Notice of intent.

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SUMMARY: The U.S. Army Corps of Engineers (COE), Wilmington District, Wilmington Regulatory Field Office has received a request for Department of the Army authorization, pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbor Act, from Figure ``8'' Beach Homeowners Association to develop a management plan for Rich Inlet that would mitigate chronic erosion on the northern portion of Figure Eight Island so as to preserve the integrity of its infrastructure, provide protection to existing development, and ensure the continued use of the oceanfront beach along the northernmost three miles of its oceanfront shoreline. Figure Eight Island is an unincorporated privately developed island located on the southeast coast of North Carolina, approximately eight miles north of Wilmington. The island is bordered to the south by Mason Inlet and Wrightsville Beach; and to the north by Rich Inlet and Lea-Hutaff Island, an undeveloped, privately-owned island.

The inlet management plan would involve the repositioning and realignment of the main ebb channel of Rich Inlet to a location closer to the north end of Figure Eight Island. The intended alignment is to be essentially perpendicular to the oceanfront shorelines of the adjacent islands. The new channel position would be periodically maintained with maintenance episodes dictated by natural shifts in the channel position that produce unfavorable shoreline responses on the north end of Figure Eight Island. While the main focus of the project is to relocate the main ebb bar channel, consideration will also be given to possible alterations in Nixon Channel and Green Channel to determine if such modification would enhance the stability of the new channel. Nixon Channel meanders along a southwesterly path on the landward

[[Page 8360]]

side of the north end of Figure Eight Island; connecting to the



Atlantic Intracoastal Waterway (AIWW) at a point approximately two miles west of the Rich Inlet throat. Green Channel meanders to the northeast on the landward side of Lea-Hutaff Island and intersects with the AIWW approximately 1.75 miles north of the Rich Inlet throat.

Material dredged from the inlet and channels will be placed along the central and northern portions of Figure Eight Island and, if needed, along portions of Lea-Hutaff Island. The objective of the placement of beach fill along the Figure Eight Island's shoreline is to keep the design fill density less than 50 cubic yards/foot, to avoid the placement of a permanent static vegetation line. This beach fill would be maintained through a program of periodic beach nourishment events with the material extracted from the dredging of Rich Inlet to maintain the inlet in an optimum location.

DATES: A public scoping meeting for the Draft EIS will be held at Eaton Elementary School, located at 6701 Gordon Road, on March 1, 2007 at 6 p.m. Written comments will be received until March 29, 2007.

ADDRESSES: Copies of comments and questions regarding scoping for the Draft EIS may be addressed to: U.S. Army Corps of Engineers, Wilmington District, Regulatory Division. ATTN: File Number 2006-41158-067, Post Office Box 1890, Wilmington, NC 28402-1890.

FOR FURTHER INFORMATION CONTACT: Questions about the proposed action and DEIS can be directed to Mr. Mickey Sugg, Wilmington Regulatory Field Office, telephone: (910) 251-4811.

#### SUPPLEMENTARY INFORMATION:

1. Project Description. The Figure Eight Beach Homeowners Association proposes to develop an inlet management plan for Rich Inlet that will produce semi-permanent positive shoreline impacts on the extreme north end of Figure Eight Island. Through a variety of investigations, it has been determined that chronic erosion problems along the northern sections of Figure Eight Island have been directly linked to changes in the orientation and position of the main ebb channel through Rich Inlet. When the main ebb channel of the inlet is oriented toward the southeast or in the direction of Figure Eight Island, and positioned close to the north end of the island, the shoreline immediately south of the inlet tends to accrete. The accretion is associated with the wave sheltering ('`breakwater effect'') provided by the south side of the ebb tide delta which also moves with the channel. During periods in which the main bar channel migrates to the north toward Lea-Hutaff Island and is oriented in a southeasterly direction, the north end of Figure Eight Island erodes. The northward movement of the main ebb channel is accompanied by the northward shift of the south side of the ebb tide delta away from the north end of Figure Eight Island, thus removing the ``breakwater effect'' afforded by the south side of the ebb tide delta.

A geomorphic analysis of Rich Inlet will be performed utilizing historical aerial photographs of Rich Inlet and the adjacent shorelines. The geomorphic analysis will be used to develop alternative channel positions and alignments that will assist in determining the desired changes on the north end of Figure Eight Island. The analysis will also assist in identifying any positive and/or negative impacts associated with Lea-Hutaff Island. The position and alignment of the main ebb channel design and design alternatives will be evaluated to determine the potential effects on the adjacent shorelines and natural

resources located within the study area.

2. Proposed Action. The scope of activities for the formulation of the management plan for Rich Inlet will include the following engineering and geological investigations: (1) Detailed geomorphic studies of the inlet and its impacts on the shorelines of Figure Eight Island and Lea-Hataff Island; (2) numerical model simulations of various channel alternatives including possible modifications of Nixon and Green channels; (3) geotechnical investigations to determine sediment quality in the inlet and connecting channels; (4) compatibility analysis of the inlet material with the native beach material; and (5) analysis of the physical impacts of the project on the inlet complex (including the adjacent marshes and connecting channels) and on Figure Eight Island and Lea-Hutaff Island.

The Figure Eight Island beach fill design will consist of the disposal material from Rich Inlet channel along the island shoreline in a general template of a horizontal berm constructed to an elevation of +6.0 feet NAVD (National Geodetic Vertical Datum) with a 1V:15H seaward slope. The width of the berm, which would begin near the seaward toe of the existing dune system, will depend on the volume of material removed from Rich Inlet to construct the new channel and the slope the material assumed during placement. Another design objective is to keep the design fill density less than 50 cubic yards/foot, to avoid the placement of a permanent static vegetation line. The volume of material that would be removed to construct the new channel will depend on the final design of the channel but could range between 500,000 cubic yards and 2,000,000 cubic yards. Some of the channel material may be used to construct or maintain the dune system on portions of Figure Eight Island. Existing profiles will be analyzed to identify the range of natural beach and dune elevations, widths, and slopes. The beach fill design will include beach fill construction templates and equilibrium cross-sections to estimate the seaward limit of cross-shore spreading over the project life and the reduction in beach width due to changes in profile shape following construction.

Beach planform performance will be evaluated based on the numerical modeling for the proposed projects. The numerical model evaluation of various channel alternatives will employ a process-based numerical model known as Delft3D developed by WL Delft Hydraulics (WL Delft Hydraulics, 2005). Delft3D is an advanced 2D/3D hydrodynamic model that can simulate water level changes, currents, wave transformation, sediment transport, and bathymetric (morphological) changes in coastal environments. The model evaluations will consider short-term changes (i.e., tidal cycles and storms) to the inlet's flow pattern and morphology; as well as long-term (one to five years) changes in flow patterns and inlet morphology associated with various inlet channel alternatives. The model simulations will also be used to evaluate the importance of modifications of Nixon and/or Green Channels on the overall stability and associated impacts of the new channel.

Comprehensive geotechnical investigations of the Rich Inlet system including the inlet throat, flood tidal delta, ebb tidal delta, and feeder channels Nixon and Green Channel will be used to identify and map sand quality and quantity to be placed on the shoreline of Figure Eight Island or elsewhere as the study dictates. The proposed sand search will be completed in two phases: (1) Research and planning, and (2) jet probes and vibrocore collection and analysis. Sand resources in the study area will be evaluated for compatibility with native beach sand. This evaluation is necessary to determine the potential performance of sand on the beach since the performance is highly

dependent on similar sediment characteristics including mean grain size, sorting, and

[[Page 8361]]

composition of borrow sands and native sands.

The research and planning phase includes a comprehensive analysis of historical geophysical data, hydrographic survey data, and aerial photographs of the inlet to determine potential channel shall lag deposit sites and historic preferred channel alignment. The jet probe survey will provide preliminary qualitative information of the sediment contained in the feeder channels and the ebb tide delta of Rich inlet. Areas suspected of containing the best quality and quantity of sand resources within the preferred channel realignment corridor will be targeted for vibracore investigation.

A magnetometer survey was performed on September 3, 2006 on the wreck site of the Wild Dayrell. The Wild Dayrell is a side-wheel steamer which ran aground near in the Rich Inlet complex on February 3, 1864. The location of the Wild Dayrell and its debris field will play a major role in options associated with the location of the new inlet channel. In addition, a cultural resource study of the final borrow area and channel design will be performed using a magnetometer survey controlled by differential global positioning. Cartographic and historical research will be conducted to collect available historical data.

Natural resource studies and investigations which may be conducted in support of the plan formulation might include: (1) Identification and biological characterization of estuarine habitat types (salt march, shelfish, submerged aquatic vegetation) in a defined project area using aerial mapping and/or groundtruth investigations; (2) pre-project monitoring of threatened and endangered species and their associated habitats as determined through coordination with project stakeholders; and (3) development and/or implementation of project monitoring and mitigation plans based on the project impact assessment.

3. Issues. There are several potential environmental issues that will be addressed in the EIS. Additional issues may be identified during the scoping process. Issues initially identified as potentially significant include:

- a. Potential impacts to marine biological resources (benthic organisms, passageway for fish and other marine life) and Essential Fish Habitat, particularly within Green Channel.
- b. Potential impacts to threatened and endangered marine mammals, birds, fish, and plants.
- c. Potential impacts to water quality.
- d. Potential increase in erosion rates to adjacent Lea-Hutaff.
- e. Potential impacts to Navigation, commercial and recreational.
- f. Potential impacts to the long-term-management of Rich Inlet.
- g. Potential impacts to private and public property.
- h. Cumulative impacts of Inlet and Inlet channel relocations throughout North Carolina.
- i. Cumulative impacts for using inlets as sand source in nourishment projects.
- j. Potential impacts on public health and safety.
- k. Potential impacts to recreational and commercial fishing.
- l. The compatibility of the material for nourishment.
- m. Potential impacts to cultural resources, particularly the Wild Dayrell shipwreck.

4. Alternatives. Several alternatives are being considered for the proposed project. These alternatives will be further formulated and developed during the scoping process, and an appropriate range of alternatives, including the no federal action alternative, will be considered in the EIS.

5. Scoping Process. A public scoping meeting (see DATES) will be held to receive public comment and assess public concerns regarding the appropriate scope and preparation of the Draft EIS. Participation in the public meeting by federal, state, and local agencies and other interested organizations and persons is encouraged.

The COE will also be consulting with the U.S. Fish and Wildlife Service under the Endangered Species Act and the Fish and Wildlife Coordination Act; with the National Marine Fisheries Service under the Magnuson-Stevens Act and Endangered Species Act; and with the North Carolina State Historic Preservation Office under the National Historic Preservation Act. Additionally, the EIS will assess the potential water quality impacts pursuant to Section 401 of the Clean Water Act, and will be coordinated with the North Carolina Division of Coastal Management (DCM) to determine the project's consistency with the Coastal Zone Management Act. The COE will closely work with DCM through the EIS to ensure the process complies with all State Environmental Policy Act (SEPA) requirements. It is the COE and DCM's intentions to consolidate both NEPA and SEPA processes to eliminate duplications.

6. Availability of the Draft EIS. The Draft EIS is expected to be published and circulated sometime in 2008, and a public hearing will be held after the publication of the Draft EIS.

Dated: February 12, 2007.

John E. Pulliam, Jr.,  
Colonel, U.S. Army District Commander.  
[FR Doc. 07-848 Filed 2-23-07; 8:45 am]

BILLING CODE 3710-GN-M



US Army Corps  
Of Engineers  
Wilmington District

# PUBLIC NOTICE

Issue Date: February 22, 2007  
Comment Deadline: March 29, 2007  
Corps Action ID #: 2006-41158-065

All interested parties are hereby advised that the Wilmington District, Corps of Engineers (Corps) is holding a scoping meeting for work within jurisdictional waters of the United States that is proposed by the Figure "8" Beach Homeowners Association, Inc. Specific plans and location information are described below and shown on the attached plans. This Public Notice and all attached plans are also available on the Wilmington District Web Site at [www.saw.usace.army.mil/wetlands](http://www.saw.usace.army.mil/wetlands)

**Applicant:** Figure "8" Beach Homeowners Association, Inc.  
C/o: Mr. David Kellum (Administrator)  
15 Bridge Road  
Wilmington, North Carolina 28411

**AGENT (if applicable):** Coastal Planning & Engineering, Inc.  
C/o: Mr. Craig Kruempel  
2481 N.W. Boca Raton Boulevard  
Boca Raton, Florida 33431

## Authority

The Corps will evaluate this project pursuant to applicable procedures to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbor.

## Location

The project site is located at 34-17.27, 77-43.39, within the Rich Inlet Complex (including Nixon and Green Channel) that is positioned between Figure Eight Island and Lea-Hutaff Island, and will encompass approximately 3.0 miles, or 15,840 linear feet, of ocean shoreline along the central and northern portion of Figure Eight Island, north of Wilmington, New Hanover County, North Carolina.

## Existing Site Conditions

Figure Eight Island is an unincorporated privately developed island just north of Wrightsville Beach. It is bordered to the south by Mason Inlet and to the north by Rich Inlet, to the west by the Intracoastal Waterway, and to the east by the Atlantic Ocean.

Rich Inlet and Nixon Channel is the established county boundary of New Hanover and Pender. The island is a typical barrier island that has undergone a variety of natural and anthropogenic changes. The majority of the residential island has been developed; and over two decades, authorization has been granted to Figure “8” Beach Homeowners Association and to separate individual property owners to conduct various activities, such as dredging, beach bulldozing, and shoreline nourishment, within waters of the U.S.

### **Applicant’s Stated Purpose**

The stated purpose of the project is to develop a management plan for Rich Inlet that would mitigate chronic erosion on the northern portion of Figure Eight Island so as to preserve the integrity of its infrastructure, provide protection to existing development, and ensure the continued use of the oceanfront beach along the northernmost three miles of its oceanfront shoreline.

### **Project Description**

Figure “8” Beach Homeowners Association’s proposal to implement an inlet management plan would involve the repositioning and realignment of the main ebb channel of Rich Inlet to a location closer to the north end of Figure Eight Island. The intended alignment is to be essentially perpendicular to the oceanfront shorelines of the adjacent islands. The new channel position would be periodically maintained with maintenance episodes dictated by natural shifts in the channel position that produce unfavorable shoreline responses on the north end of Figure Eight Island. While the main focus of the project is to relocate the main ebb bar channel, consideration will also be given to possible alterations in Nixon Channel and Green Channel to determine if such modification would enhance the stability of the new channel. Nixon Channel meanders along a southwesterly path on the landward side of the north end of Figure Eight Island; connecting to the Atlantic Intracoastal Waterway (AIWW) at a point approximately two miles west of the Rich Inlet throat. Green Channel meanders to the northeast on the landward side of Lea-Hutaff Island and intersects with the AIWW approximately 1.75 miles north of the Rich Inlet throat.

Material dredged from the inlet and channels will be placed along the central and northern portions of Figure Eight Island and, if needed, along portions of Lea-Hutaff Island. The objective of the placement of beach fill along the Figure Eight Island’s shoreline is to keep the design fill density less than 50 cubic yards/foot, to avoid the placement of a permanent static vegetation line. This beach fill would be maintained through a program of periodic beach nourishment events with the material extracted from the dredging of Rich Inlet to maintain the inlet in an optimum location.

This notice is to inform interested parties that our Notice of Intent to prepare an Environmental Impact Statement (EIS) for this project will be published in the Federal Register on February 26, 2007 and once published, can be found on the Federal Register website, [www.archives.gov/federal-register/](http://www.archives.gov/federal-register/). After connecting with the website, click on Today's Federal Register, and go to the bottom of the page. Click on 2007, and then click February 26, 2007. The subject document is located under Engineers Corps. Additionally, a scheduled scoping meeting for drafting the EIS will be held at Eaton Elementary School (in the school gym), at # 6701 Gordon Road, in Wilmington (near Ogden), on March 1, 2007 at 6:00 P.M. The scoping meeting is designed to solicit comments from the public; Federal, State and local agencies and officials; and other interested parties to incorporate in the Draft EIS document. The purpose of these comments concerning public interest factors, ranging from navigation to biological resources to private and public lands, will identify issues to be addressed in the Draft EIS.

As disclosed in the Notice of Intent, any written comments pertinent to the proposed work, as outlined above, must be submitted to this office, Attention: Mickey T. Sugg, until 4:15 p.m., March 26, 2007. Question can be directed to Mr. Sugg at telephone (910) 251-4811, Wilmington Regulatory Field Office.

**Distribution:**

No. Cys.    Mailed To

1     Mr. David Kellum, Figure "8" Beach Homeowners' Association, Inc., 15 Bridge Road, Wilmington NC 28411

1     Mr. David Ward, Ward and Smith, Post Office Box 867, New Bern NC 28563

58    Lists of addresses that requested All NC Public Notices and Addresses receiving Notices for Wilmington Field office

1     US Representative Mike McIntyre, 1605 Longworth House Office Building, Washington, DC 20515

1     Postmaster, Wilmington, NC 28401

1     Postmaster, Wilmington, NC 28405

1     Postmaster, Wilmington, NC 28409

1     Postmaster, Wilmington, NC 28411

1     Postmaster, Wrightsville Beach, NC 28480

1     Postmaster, Hampstead, NC 28443

1     Postmaster, Sneads Ferry, NC 28460

1     Postmaster, Holly Ridge, NC 28445

1     Postmaster, Surf City, NC 28445

1     Mr. Doug Huggett, DCM, NCDENR

2     Mr. Tom Mikulak, EPA, Atlanta, GA

1     Mr. Tom Jarrett, Coastal Planning & Engineering, 204 Dorchester Place, Wilmington NC 28412

1     Ms. Erin Hague, Coastal Planning & Engineering, 2481 NW Boca Raton Blvd., Boca Raton, FL 33431

1      CESAWAREG-L/ Mickey Sugg

---

76      TOTAL



Mr. Doug Huggett  
Division of Coastal Management  
North Carolina Department of  
Environment and Natural Resources  
400 Commerce Avenue  
Morehead City, North Carolina 28557-3421

Mr. Jim Gregson  
Division of Coastal Management  
North Carolina Department of  
Environment and Natural Resources  
127 Cardinal Drive Ext.  
Wilmington, North Carolina 28405-3845

Ms. Cyndi Karoly  
Division of Water Quality  
North Carolina Department of Environment  
and Natural Resources  
2321 Crabtree Boulevard, Suite 250  
Raleigh, North Carolina 27609-2260