ANNUAL SEA TURTLE MONITORING REPORT
WILMINGTON DISTRICT
HOPPER DREDGING - FISCAL YEAR 2007

INTRODUCTION

This report is submitted in fulfillment of requirements of the Endangered Species Act and the Section 7 Consultation - Biological Opinion for the "Continued use of hopper dredging of channels and borrow areas in the southeastern United States" (No Consultation Number provided) dated September 25, 1997 (that incorporates the August 25, 1995 Biological Opinion for these activities). Specifically this report, summarizing hopper dredging operations in Fiscal Year (FY) 2007 within the Wilmington District, is submitted in compliance with reasonable and prudent measure No. 6 – Reporting found in the August 25, 1995 Opinion.

The following hopper dredging projects (or the portion of the project that used a hopper dredge) were completed in FY 2007.

Wilmington Harbor Ocean Bar	09 December 2006 – 11 January 2007
Morehead City Harbor Ocean Bar	05 January 2007 – 26 March 2007
Hurricane Ophelia – FEMA Sand Replacement	10 January 2007 – 29 March 2007

The Wilmington District schedules hopper-dredging operations during the winter months (1 December through 31 March), as recommended by the South Atlantic Division (SAD) hopper dredging protocol, when water temperatures are cool and the risk of taking sea turtles is low. A risk assessment developed by the Wilmington District for hopper dredging activities at Morehead City Harbor recommends a more stringent dredging window from 1 January through 31 March when the risk of taking sea turtles with a hopper dredge is low (Attachment 1). This more stringent Wilmington District recommended window is based on the concern that warm water rings spin off of the Gulf Stream during otherwise cool water months resulting in un-expected sea turtle take during the month of December. In order to maintain consistency among dredging projects within the Corps' Civil Works and Regulatory programs and to reduce overall incidental take numbers for the South Atlantic region, the 1 January to 31 March dredging window was incorporated as a permit condition for the Regulatory Hurricane Ophelia - FEMA Sand Replacement Project in which dredging occurred in the Morehead City, NC ODMDS. Considering that sea state conditions are not excessive and there are no site specific thermal dynamic concerns relative to the Gulf stream, the hopper dredging window for the Wilmington Harbor vicinity is consistent with the SAD recommended 1 December through 31 March timeframe.

TURTLE MONITORING PROGRAM

As result of the Section 7 consultation process, the requirement to document turtle takes by the hopper dredges was devised. In order to accomplish this task, before hopper dredging operations commence, they are equipped such that all inflows and, if possible, overflows are 100% screened with a 4" X 4" mesh size. The configuration and location of the screens depends upon the construction of the dredge. Additionally, 24-hour monitoring by NMFS-approved turtle observers is conducted to identify any turtles or turtle parts that may be caught on these screens during each load cycle. Draghead deflectors are also deployed to deflect any turtles that may happen to be in, or near, the path of the draghead during excavation. The design of the deflectors is such that, when plowing at approximately a 6" depth, a sediment wave is created ahead of the draghead cushioning any contact with benthic-oriented turtles and thereby preventing injuries. As a component of the project specifications, the contractor is required to submit drawings of the turtle deflector attachment to the draghead as well as the approach angles that are necessary to attain the required 6" plowing depth for the given project depths. These submittals are reviewed and the dredge is inspected prior to commencement of hopper dredging projects.

The observers inspect and clean all inflow and overflow screening at the end of each load. Dragheads and deflectors are also inspected immediately after each load, and dredge personnel are informed of any necessary repairs. Data sheets are completed daily, detailing all biological samples and debris found in the screening and dragheads. The observers also record the start, end, and discharge times for each load, the specific location of the dredging area, the type of material being dredged, weather, tide and water temperature data, the condition of the screening, and any other pertinent information. Any sea turtle encounters or takes are described on a separate incident report form. Additionally, all incidents are photographed and diagrams are made of the specimen sampled. Once documentation has been collected, observers coordinate with the Wilmington District office in order share the specimens with the North Carolina Wildlife Commission and the National Marine Fisheries Service lab in Beaufort, NC to be used for scientific purposes. Observer reports for all projects have been compiled and entered into the USACE Sea Turtle Data Warehouse at the following links:

Wilmington Harbor Ocean Bar)
http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=489&Code=Project

Morehead City Ocean Bar
http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=487&Code=Project

Hurricane Ophelia – FEMA Sand Replacement
http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=488&Code=Project

A bridge watch for sea turtles and marine mammals is maintained during all daylight hours, except when the observer is off the bridge, cleaning and inspecting the screens and dragheads. All sightings of cetaceans and sea turtles were recorded in a bridge watch logbook. Specific sightings of right whales are reported separately and forms are sent to the District office for reporting purposes.

SCREEN CONFIGURATIONS

Turtle monitoring activities were conducted by Coastwise Consulting and East Coast Observers (ECO). Coastwise observers were aboard the *Glenn Edwards* for the Wilmington Harbor Ocean Bar project and aboard the *Dodge Island and Liberty Island* for the Hurricane Ophelia – FEMA Sand Replacement Project. ECO observers were aboard the *BE Lindholm and RN Weeks* for the Morehead City Ocean Bar project. Each of these vessels was required to have rigid draghead deflectors, and 100% inflow screening and, if possible, overflow screening with openings starting at 4” x 4.”

HOPPER DREDGE SEA TURTLE INSPECTION

In order to assure contractor compliance with sea turtle protection measures outlined in the contract specifications, a pre-project inspection of the hopper dredges was performed by the CESAW sea turtle coordinator in accordance with the “COE Sea Turtle Inspection Checklist for Hopper Dredges (Attachment 2).” Prior to the physical inspection, Contractor submittals were reviewed to assure appropriate design and approach angle calculations of turtle deflecting dragheads for the dredging depths of each project. On site inspections were performed to confirm that the equipment on board was configured in accordance with the Contractor’s submittals as well as assuring that all sea turtle compliance measures were implemented. Furthermore, paint tests were performed on all dredges prior to commencement to assure that efficient turtle deflector plowing depths were achieved in accordance with contract specifications. An additional inspection was performed to assure that sea turtle compliance measures were in place when the sea turtle take occurred.

PROJECTS

Wilmington Harbor Ocean Bar

Glenn Edwards

Contract #W912PM-07-C-0004 included maintenance dredging for the Wilmington Harbor Ocean Bar. The contractor Manson Construction performed the work using the Glenn Edwards from 12/09/06 through 01/11/07 for a total of 22 days (217.24 hours) of dredging time. A total of 112 loads were performed and approximately 750,617 cubic yards of material (silt, clay, sand, mud, rock and wood) was excavated from the channel and disposed in the designated Offshore Dredged Material Disposal Site (ODMDS).

In accordance with the NMFS 1997 SARBO, COE hopper dredges are required to have 100% inflow screening and observer coverage on all hopper dredging jobs. Overflow screening is required if the dredge is capable of fitting screens to the overflow or wiers. Historically, wood debris accumulation within the Wilmington Harbor Ocean Bar has resulted in difficulties with 100% inflow screening as well as safety concerns with clogging of the wiers with the implementation of overflow screening on several different hopper dredges. The Wilmington District has worked with the Contractors in the past to maximize, to the maximum extent practicable, inflow screening of the dredged material, understanding the plugging concerns. This may entail flushing the boxes more frequently or partially opening the screening. The Glenn Edwards dredged the Wilmington Ocean Bar in FY07 and, considering the large size of the dredge, the concerns with wood debris accumulation were exacerbated. Particularly, the high output of the dredge means that in any situation, observers will be called upon to monitor several times more material than with a smaller dredge and accumulation of debris is much more significant. When inflow screening is lifted to flush the lines, wood debris then floats and accumulates on top of the overflow screening of the weir resulting in vessel safety concerns. Therefore, until the accumulation of wood debris was reduced, overflow screening was not required. However, considering that NFMS RBO requires 100% inflow screening, the maximum inflow screening and observer coverage possible was enforced and entailed 100% inflow screening of all material. After each load observers were required to observe each inflow box, to the maximum extent practicable, for any incidental takes. This entailed using a hose or other tools to get better access and better visual of the material understanding the difficulties given the severity of plugging on some boxes. Once the best coverage possible is obtained, the tender was allowed to flush the material out of the boxes with the dragheads on bottom to avoid turtle takes, unless the dredge had alternative inflow ports and is capable of pumping water to the boxes without the potential for sucking turtles through the draghead. While the material in the box was being flushed, observers observed material falling out into the hopper for sea turtle parts. Once the debris in the box was cleared, the screens were closed and the process repeated. In order to prevent excessive clogging of the boxes prior to observer coverage, the captain and tender were required to minimize the amount of time for each load so that plugging of the screens was not as significant during observer coverage. By minimizing the time between each flushing, the observers had an easier time getting 100% coverage for incidental take prior to flushing of the inflow boxes. All of the recommendations outlined above were only performed during times when wood debris posed a significant concern and was re-evaluated on a daily basis. If wood debris was no longer considered a concern, standard 100% inflow and overlow requirements along with 100% observer coverage was required..

Morehead City Harbor Ocean Bar

Contract #W912HN-07-C-0005 included dredging of maintenance material from Range A and the Cutoff of the Morehead City Ocean Bar with placement of material to the beach under the Section 933 Authority. Material was also placed in the ODMDS if the sea state conditions were too rough for hookup to pump material to the beach. Also, incompatible material was taken to the ODMDS. The contractor Weeks Marine performed the work at Morehead City using the BE Lindholm from 01/05/07 through 03/26/07 (61 days) and the RN Weeks from 02/04/07 through 03/06/07 (30 days). No sea turtle abundance or relocation trawling was implemented during this contract for both dredges. Copies of the observer reports were provided to the U.S. Army Engineer Research and Development Center (ERDC) for uploading to the "Sea Turtle Data Warehouse."

RN Weeks

A total of 133 loads were performed and approximately 330,615 cubic yards of sandy material was excavated from Range A and the cutoff and placed on the beach or in the ODMDS. There was one documented incidental juvenile loggerhead sea turtle take recovered on the starboard draghead of the RN Weeks on 24 March 2007 during load 323 (Attachment 3). The sea surface water temperature at the time the take occurred was 56 degrees Celsius. A post sea turtle take compliance inspection was performed and the Silent Inspector was analyzed; however, no direct correlation could be made between the take and specific hopper dredge operating conditions. The specimen was later transported to the NMFS Beaufort, NC lab for additional scientific uses.

BE Lindholm

A total of 336 loads were performed and approximately 779,523 cubic yards of sandy material was excavated from Range A and the cutoff and placed on the beach or in the ODMDS. There were no documented incidental sea turtle takes.

While dredging the outer portions of Range A, the Lindholm encountered significant amounts of large debris. In order to minimize plugging of the overflow wiers, 1/3 of the screening was removed; however, 100% inflow screening was still maintained. Observers on board were required to report any change in conditions. 100% overflow screening was restored when conditions improved.

Hurricane Ophelia – FEMA Sand Replacement

Department of the Army permit # SAW-2006-32753-016 included dredging approximately 1,107,000 CY sandy material from the Morehead City ODMDS with placement of sediment to Emerald Isle, Indian beach, and Pine Knoll Shores, North Carolina. The contractor Great Lakes performed the work using the Dodge Island from 02/15/07 through 03/23/07 (37 days) and the Liberty Island from 01/10/07 through 03/29/07 (51 days). Sea turtle relocation trawling was implemented by REMSA from 27-28 March 2007 using the vessel "Cheryl Lyn" after a turtle was incidentally taken by the BE Lindholm while dredging the federal channel on 03/24/07. A total of 41 tows were performed with no sea turtles relocated (Attachment 4).

Dodge Island

A total of 113 loads were performed from 02/15/07 to 03/23/07 with no incidental sea turtle takes.

Liberty Island

A total of 215 loads were performed from 01/10/07 to 03/29/07 with no incidental sea turtle takes.

COSTS

The costs incurred in performing the turtle-monitoring program during FY 2007 include the costs for equipping and maintaining screens and draghead deflectors on contractor-owned dredges, as well as providing NMFS-approved observers, implementing Silent Inspector, contractor compliance oversight, and trawling. In addition to the direct contract costs are District costs for administration and oversight. Table #1 depicts the costs of monitoring, trawling, oversight, and dredge inspection for FY 2007. However, this table does not include unquantifiable costs associated with decreased dredging efficiency which may result from the use of the draghead deflectors, and downtime experienced during cleaning of excessively fouled screens. Estimates of these increased costs are anticipated by the potential contractors during the preparation of bids, and there is no way to determine the actual value of these costs.

SUMMARY\

During Fiscal Year 2007, two maintenance dredging projects and one FEMA permitted project were performed using hopper dredges. One turtle was taken lethally by the BE Lindholm while working the Morehead City Ocean Bar project on 24 March 2007. Table #2 summarizes lethal turtle encounters. Relocation trawling was performed in association with the Hurricane Ophelia FEMA shore protection project.

TABLE #1
COSTS ASSOCIATED WITH PROTECTION OF SEA TURTLES
DURING HOPPER DREDGING
WILMINGTON DISTRICT
MAINTENANCE DREDGING
FY2006

PROJECT	COST OF MONITORING ($500/day)	COST OF TRAWLING EFFORTS	COST OF SPEC DEVELOPMENT AND OVERSIGHT	COSTS OF INSPECTIONS	TOTAL
Wilmington Harbor Ocean Bar	$11,000	NA	$3,000	$2,000	**$16,000**
Morehead City Harbor	$45,500	NA	$3,000	$3,000	**$51,500**
Hurrican Ophelia – FEMA Sand Replacement	$18,500	$10,000	$5,000	$2,000	**$35,500**
TOTAL	$75,000	$10,000	$11,000	$7,000	**$103,000**

TABLE #2

INCIDENTAL TAKES OF SEA TURTLES

WILMINGTON DISTRICT

MAINTENANCE DREDGING

FY 2006

Date Taken	Project	Dredge	Channel Reach/ Borrow Area	Water Temp. (°C)	Species and Authorized Incidental Take per Fiscal Year			
					Kemp's ridley 7	Loggerhead 35	Green 7	Hawksbill 1
24 Mar 2007	Morehead City Ocean Bar	BE Lindholm	34' 40.125N 76' 40.271W	13		1		
TOTAL TAKE						1	0	0