ANNUAL SEA TURTLE MONITORING REPORT
JACKSONVILLE DISTRICT
FOR ATLANTIC COAST PROJECTS
MAINTENANCE DREDGING AND BEACH NOURISHMENT - 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 Jacksonville District, is submitted in compliance with reasonable and prudent measure No. 6 – Reporting found in the August 25, 1995 Opinion.

The following hopper maintenance dredging/shore protection projects were started in FY 2006, but extended into FY 2007.

Jupiter Island Beach Nourishment	11 November 2006 – 11 May 2007

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

Palm Beach Harbor	16 February 2007 – 20 April 20, 2007
Kings Bay Entrance Channel	06 February 2007 – 19 March 2007
Indian River County SPP	04 April 2007 – 04 May 2007
Key West Harbor	22 April 2007 – 08 August 2007
Ft. Pierce SPP	19 April 2007 – 04 June 2007

The use of hopper dredges to maintain these navigation and shore protection projects is necessary because of three factors: safety, weather conditions and productivity. These factors are closely interrelated; however, the emphasis is placed on safety. For instance at Kings Bay – due to the rough seas, all types of dredges, except for hopper dredges, have been forbidden to work in the area.

The dredges operating in navigation channels must be highly mobile to rapidly maneuver out of the way of other vessels. Pipeline cutterhead dredges are not self-propelled, and are held into position with spuds. Furthermore, the swing of the cutterhead is controlled by cables attached to the cutterhead arm. These cables are anchored along the outer limits of the channel to be dredged. Prior to moving the dredge, tenders must raise the anchors, and a towboat must be fastened to the dredge. These

characteristics prevent the pipeline dredge from quickly moving out of the channel when other vessels approach. From a practical standpoint, dredges are generally not relocated for normal ship traffic; rather, dredging may be interrupted, but the dredge remains a stationary obstruction in half of the channel. This situation is encountered in inland bays and waterways. The use of hopper dredges along the Atlantic coast avoids such a stationary obstruction.

Weather conditions also affect the safety of the dredge and crew. Pipeline dredges were not designed to operate in open-sea conditions, and most shore protection projects borrow areas require vessels that can operate in open-sea conditions. Due to the reasons stated above, these dredges cannot rapidly demobilize in harsh weather, for example, as a hurricanes approaches. The pipelines used to transport the dredged material to the placement sites would also be highly susceptible to breaking during rough weather. Even in relatively sheltered bays, cutterhead dredges often stop dredging in rough weather, and during frontal passages. During these periods, only water is pumped to keep tension on the pipelines to prevent breaking. In the open Atlantic Ocean, this precaution would not be effective, even if it were possible to leave the dredge offshore. During relatively calm weather conditions, only the largest cutterhead dredges would be able to operate efficiently. Sea swells make it difficult to control the depth of the cutterhead; consequently, this affects the dredging operation.

Productivity of the dredging operation is important because the purpose of dredging is to remove shoals and provide a safe depth for waterborne traffic. The use of pipeline dredges in the open Atlantic Ocean would result in frequent relocations, or other interruptions, due to weather and traffic conditions. Consequently, it would take longer to remove shoals, which present a hazard to safe navigation. The longer the time to remove the shoals, the longer a dredge must be on site to maintain the channel. The presence of the dredge and pipeline, themselves, present an obstruction to safe navigation. For these reasons, hopper dredges are used to maintain deep-draft entrance channels and construct many shore protection projects in the Jacksonville District.

The Jacksonville District schedules hopper-dredging operations during the required December 1 through April 15 window, for Kings Bay, Jacksonville (St. John's River and Mayport), St. Augustine and Ponce de Leon Inlet. However, it is impossible to schedule all hopper-dredging projects during this time frame, due to the availability of the hopper dredge fleet. Hopper dredging priorities for the Jacksonville District are developed in concert with other Corps of Engineers Districts that conduct these operations along the Atlantic and Gulf Coasts. The priorities are determined after considering the dredging needs and resident sea turtle populations within the various Districts.

PROTECTED SPECIES MONITORING PROGRAM

A result of the consultation process was the requirement to document endangered and threatened

species (sea turtles, sturgeon, etc) takes by dredges. In order to accomplish this task, before hopper dredging operations commenced, they were equipped such that all inflows and overflows would be screened. The configuration and location of the screens depends upon the construction of the dredge. The starting mesh size of this screening is 4-inches by 4-inches. Additionally, around-the-clock monitoring by NMFS-approved endangered species observers (ESO) was conducted to identify any turtles or sturgeon or parts that were caught on these screens (these are the species most likely to be taken by hopper dredges). Draghead deflectors were also deployed to deflect any turtles or sturgeon that may happen to be in, or near, the path of the draghead during excavation. The design of the deflectors is such that a sediment riffle is created ahead of the draghead, cushioning any contact with turtles or sturgeon thereby preventing injuries.

The ESOs inspected and cleaned all inflow and overflow screening at the end of each load. Dragheads and deflectors were also inspected immediately after each load, and dredge personnel were informed if repairs were necessary. Data sheets were completed daily, detailing all biological samples and debris found in the screening and dragheads. The ESOs also recorded 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 endangered or threatened species encounters or takes would be described on a separate incident report form. Additionally, all incidents would be photographed and diagrams would be made of the specimen and genetic samples collected of any sea turtles taken by the dredge. Once documentation has been collected, dead specimens are discarded by the ESO and disposed of either offshore at the ODMDS (thereby ensuring that these same samples would not wash ashore or be taken again by the dredge) or in a manner approved by the contracting officer's representative.

A bridge watch for sea turtles and marine mammals was maintained during all daylight hours, except when the observer was off the bridge, cleaning and inspecting the screens and dragheads. All sightings of marine mammals and sea turtles were recorded in a bridge watch logbook.

If a sea turtle is taken by a hopper dredge, a risk assessment will be undertaken in partnership between the District, the dredger and/or his engineering or environmental consultant, and the permittee and/or his engineering or environmental consultant (if applicable). The risk assessment may include a temporary cessation of the dredging operations, but will include a review of the mandatory Silent Inspector data, a review of the draghead functionality, and a review of District and Division-wide sea turtle lethal takes to date. Once the risk assessment is completed, dependent upon the findings, the project may be authorized to reinitiate dredging operations, recommendations for modifications to the dredge physical plant may be made, recommendations for modifications to the dredging process may be made, or dredging operations may be suspended for a specified period of time.

SCREEN CONFIGURATIONS

Turtle monitoring activities were conducted aboard six different hopper dredges during FY 2007. These were the *Atchafalaya*, *Liberty Island, Dodge Island, Bayport, Padre Island* and *Glenn Edwards.*. Each of these vessels was required to have rigid draghead deflectors, and 100% inflow screening or overflow screening with openings starting at 4" x 4."

PROJECTS

Projects Begun in FY2006 – Continuing into FY2007

Jupiter Island Beach Renourishment

Dodge Island, Liberty Island

On 11 November 2006, the contract dredge *Liberty Island* resumed dredging and beach placement on the Jupiter Island Beach Restoration in Martin County, Florida. The previous portion of the project, completed in 2006, placed sand between monuments R-78 to R-79 and R-89 to R-100, and the details were included in the FY2006 Annual Report. The remaining stretch of the project, between monuments R76A to R84 and R99 to R110 began dredging and placement on 11 November 2006 and finished dredging and placement on 11 May 2007. Material was dredged from two borrow areas located approximately two miles offshore from markers R-90 and R-102. and detailed in Department of the Army permit #SAJ-1992-1740 (IP-PLC). The contractor placed 815,000 cubic yards (CY) of beach quality sand (as defined by the Florida Department of Environmental Protection) on Jupiter Island. The project was dredged over four periods by the two dredges with periods of down time for repair and weather.

Liberty Island	11/13/06 – 01/08/07
Dodge Island	01/22/07 – 02/12/07
Dodge Island	03/25/07 – 04/28/07
Liberty Island	04/07/07 – 05/01/07

A total of 337 loads of dredged material were collected during 217 dredging days and deposited in the permitted beach template. Surface water temperatures ranged from 22.0 ^{o}C -26.0 ^{o}C for the life of the project.

The two contract dredges were equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Great Lakes Dock and Dredge Co. During the

performance of this dredging no lethal turtle takes occurred.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=465&Code=Project

Projects in FY 2007

Palm Beach Harbor

Atchafalaya

On February 16, 2007 the contract hopper dredge *Atchafalaya* began work on the maintenance dredging of Palm Beach Harbor. The contractor dredged approximately 120,000 CY of beach quality sand (as defined by the Florida Department of Environmental Protection) from the entrance channel, which was placed on the beach directly south of the south jetty. The required depth of dredging was 33 feet below Mean Low Water (MLW) with two feet of allowable overdepth dredging.

The dredge operated under a "rental contract". Instead of being paid by CY, the contractor is paid by the number of days it takes to complete the project. In this case, it took the dredge 51 days to remove the shoal material consisting of 294 loads.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, B+B Dredging. During the performance of this dredging, no lethal takes we observed. Surface water temperatures were between 23 and 25 ^{o}C for the life of the project.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=483&Code=Project.

Kings Bay Entrance Channel

Glenn Edwards, Bayport

On February 6, 2007 the contract hopper dredge *Glenn Edwards* began work on the Kings Bay/Fernandina Harbor Entrance Channel. The contractor dredged a total of 649,623 CY of shoal material. 578,311 CY were dredged from the Entrance Channel and placed in the EPA designated ODMDS and 71,312 CY of beach quality sand (as defined by the Florida Department of Environmental Protection) were placed on the beach at Ft. Clinch. The required depth of dredging was 49 feet below MLW with two feet of allowable overdepth dredging inside the Entrance Channel and 47 feet MLW with two feet of overdepth inside of the jetties.

Dredging began on February 6, 2007, and ceased on February 18, 2007 by the *Glenn Edwards* and begun again with the *Bayport* from 8 March, 2007 through March 19, 2007. A total of 84 loads of dredged material were collected during 15 dredging days.

The dredges were equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Manson Construction Company.

During the performance of this dredging, one lethal take was observed. The take occurred on 16 March 2007 and was an unknown age loggerhead turtle of unknown sex found 0033 hours in load #27. Surface water temperature at time of take was 17.4°C.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=477&Code=Project.

Ft. Pierce Shore Protection Project
Bayport

On 19 April 2007 the contract dredge *Bayport* began dredging and beach placement on the Ft. Pierce Shore Protection Project in St. Lucie County, Florida. Approximately 8,000 linear feet of beach (from DEP Monuments R-34 to R-41) was nourished with 460,130 CY of beach quality sand (as defined by the Florida Department of Environmental Protection) that was dredged from Capron Shoals, an offshore borrow area approx. 5.0 miles southeast of the project shoreline.

A total of 207 loads of dredged material were collected during 47 dredging days and deposited in the permitted beach template. Surface water temperatures were between 22 and 26 ^{o}C for the life of the project.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Mason Construction Company. During the performance of this dredging, no lethal takes we observed.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=492&Code=Project

Indian River County Shore Protection Project
Dodge Island, Padre Island

On 10 April 2007 the contract dredges *Dodge Island* and *Padre Island* began dredging and beach placement on Sector 7 of the Indian River County Shore Protection Project in Indian River County, Florida. 11,730 linear feet of beach (from DEP Monuments R-97 to R-108) was nourished from this first-time project with 340,019 CY of beach quality sand (as defined by the Florida Department of Environmental Protection) that was dredged from an offshore borrow area approx. 2.5 miles southeast of the project shoreline and detailed in Department of the Army permit #SAJ-2003-6106 (IP-IFS). The project was dredged by two dredges with substantial overlap between them.

Dodge Island - 4/10/07 - 5/4/07
Padre Island - 4/10/07 - 5/1/07

A total of 159 loads of dredged material were collected during 42 dredging days and deposited in the permitted beach template. Surface water temperatures were between 22 and 25 ^{o}C for the life of the project.

The dredges were equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Great Lake Dock and Dredge, Inc. During the performance of this dredging, no lethal takes we observed.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=482&Code=Project

Key West Harbor O&M
Atchafalaya

On April 22, 2007 the contract hopper dredge *Atchafalaya* began work on the Key West Entrance Channel Operations and Maintenance Dredging project. Contract specifications required dredging an estimated 92,102 CY of shoal material. The required depth of dredging was 34 feet below Mean Low Water (MLW, Corps of Engineers Datum), with 2 feet of allowable advanced maintenance dredging inside the Entrance Channel. Project details can be obtained at http://www.keywestharbordredging.com/default.asp.

Dredging began on April 22, 2007 and was completed on August 7, 2007. A total of 79 days of hopper dredging were conducted and 225 loads of dredged material were collected and deposited in the EPA designated ODMDS.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved turtle observers provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, B+B Dredging. During the performance of this dredging, no lethal takes were observed.

Detailed information for this project can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=495&Code=Project

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 and relocation trawling. In addition to the direct costs are District costs for administration and oversight. Table #1 depicting the costs of monitoring, relocation trawling and dredge inspection for FY 2007. However, this table does not include costs of administration and oversight activities conducted by SAJ staff, or the 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. The Corps also does not capture the costs beyond the cost of inspections associated with projects permitted by the Corps' Regulatory Division in it's permitting of private projects that utilize hopper dredges.

SUMMARY

During Fiscal Year 2007, six maintenance-dredging or beach re-nourishment projects were constructed using hopper dredges. One turtle was taken lethally by the projects conducted in FY2007. Table #2 summarizes lethal turtle encounters. No relocation trawling was performed in association with any hopper dredging project on the Atlantic coast of Florida in FY2007.

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MAINTENANCE DREDGING/BEACH NOURISHMENT
ATLANTIC COAST – Under SA RBO
JACKSONVILLE DISTRICT
FISCAL YEAR 2007

TABLE #1

COSTS ASSOCIATED WITH PROTECTION OF SEA TURTLES

DURING HOPPER DREDGING

JACKSONVILLE DISTRICT – ATLANTIC COAST PROJECTS

MAINTENANCE DREDGING/BEACH RENOURISHMENT

FY2007

PROJECT	COST OF MONITORING	COST OF RELOCATION EFFORTS	COSTS OF INSPECTIONS
Palm Beach Harbor	$31,350	NA	$1,400
Kings Bay Entrance Channel	$15,000	NA	$1,100
Jupiter Island Beach Renourishment Project	NT	NA	$500
Indian River County SPP	NT	NA	$500
Key West Harbor O&M	$25,000	NA	$1,040
Fort Pierce Shore Protection Project	$23,500	NA	$800
TOTAL	$94,850	$0.00	$5,340

TABLE #2

INCIDENTAL TAKES OF SEA TURTLES

JACKSONVILLE DISTRICT – ATLANTIC COAST PROJECTS
MAINTENANCE DREDGING/BEACH NOURISHMENT
FY 2007

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
16 March 2007	Kings Bay	*Bayport*	Section 6/ 30 42.60N 81 23.20W	17.4		1		
TOTAL TAKE					0	1	0	0
ALLOWABLE TAKE REMAINING					7	34	7	1