

ANNUAL SEA TURTLE MONITORING REPORT
JACKSONVILLE DISTRICT
FOR GULF of MEXICO PROJECTS
MAINTENANCE 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 "Dredging of the Gulf of Mexico Navigation Channels and Sand Mining ("Borrow") Area Using Hopper Dredges by COE Galveston, New Orleans, Mobile and Jacksonville Districts (Consultation Number F/SER/2000/01287) dated November 19, 2003 and revised June 24, 2005. 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. 9 – Dredge Take Reporting.

The following hopper dredging shore protection projects were started in FY 2006, but extended into FY 07.

- Tampa Harbor Entrance Channel O&M Aug 11, 2006 – November 26, 2006
- Navarre Beach Renourishment September 29, 2006 – November 12, 2006
- Walton County December 2, 2006 – June 24, 2007

The following hopper dredging shore protection projects were completed in FY 2007.

- Siesta Key Beach Renourishment December 18, 2006 – March 4, 2007

The use of hopper dredges to dredge these entrance channels and build these 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, Georgia – 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 Gulf 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 hurricane 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 Gulf of Mexico, 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 Gulf of Mexico 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 and the District's permit holders schedule hopper-dredging operations based on 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. Projects constructed under a regulatory permit issued by the Jacksonville District must also compete with the Corps for availability of dredges, as well as being limited by some of the same factors that influence equipment choices on Federal projects including costs, location of dredging site and time of year.

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 five different hopper dredges during FY2007. These were the *Bayport*, *Dodge Island*, *Liberty Island*, *R.N. Weeks* and *Eagle 1*. 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

Tampa Harbor Entrance Channel O&M

Eagle 1

On August 11, 2006 the contract hopper dredge *Eagle 1* began work on the Tampa Harbor Entrance Channel Operations and Maintenance dredging project. Project specifications required dredging an estimated 1.0 million CY of material to be placed on Egmont and Mullet Keys. Material was dredged from a borrow area approximately 3.5 miles offshore of the fill area.

Dredging began on August 11, 2006 and ended on November 25, 2006. *Eagle 1* dredged a total of 1,325,878 CYs.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved ESOs provided 24-hour/day monitoring of dragheads and screens for each load cycle. The ESOs were employed by East Coast Consulting, Inc. under a subcontract to the dredging contractor, Bean Stuyvesant LLC. During the performance of this dredging during FY 2007, two lethal takes were recorded.

The first lethal take occurred on October 15, 2006. An adult loggerhead turtle of unknown sex was found at 0915 hours in the aft starboard box of load #299. Surface water temperature at time of take was 78°F.

The second lethal take occurred on October 31, 2006. A loggerhead turtle of unknown sex and age was found at 0524 hours in the starboard draghead of load 364. Surface water temperature at the time of take was 70°F.

Due to the "borrowing" of loggerhead turtles under the GRBO from the Mobile District, the Jacksonville District agreed to require relocation trawling throughout the life of the Tampa O&M

project. Trawling was conducted on the commercial fishing vessel *Ellen Louise*. From August 11 – November 25 a total of 2,264 tows were completed and 38 turtles (32 loggerhead, 6 Kemp's ridley) were captured and relocated. This equals a catch per unit effort of 0.0168. This meant that 1.68% of the tows had a turtle in the net.

Detailed information, including the take reports can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at

<http://el.ercd.usace.army.mil/seaturtles/project.cfm?Id=456&Code=Project>

Navarre Beach Renourishment

RN Weeks

On September 29, 2006, the contract hopper dredge *RN Weeks* resumed work on the Navarre Beach Protection Project conducted under Department of the Army Permit # SAJ-2003-10496(IP-EPS). Project consists of restoration of over 3.6 miles of beach and dune from the eastern limit of the Gulf Islands National Seashore (500 ft E of R-192) eastward to Navarre Beach State Recreation Area (R-211), and revegetation of the created dunes. Fill material was obtained from a borrow area approximately four miles offshore.

For FY 2007, dredging began on September 29, 2006 and was completed on November 12, 2006. The project length was 167 days and the total number of loads for the entire project (including FY 06) was 1311 loads.

The dredge *RN Weeks* was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved ESOs provided 24-hour/day monitoring of dragheads and screens for each load cycle. The observers were employed by East Coast Observers under a subcontract to the dredging contractor, Weeks Marine. During the performance of dredging (September 29, 2006, to November 12, 2006) no take of a sea turtle was recorded.

Relocation trawling was conducted throughout the life of the beach nourishment project on the commercial fishing vessels *Jana Lin* (354 tows) and *Elvira* (325 tows). The total tows for both vessels were 861 and the sea surface temp was 20.5 C. Five (5) loggerhead turtles and one (1) leatherback were caught and relocated. This equals a catch per unit effort of 0.0070. This meant that 0.70% of the tows had a turtle in the net.

On October 23, 2006 at 1425 hours the trawler *Jana Lin* observed a leatherback 50 feet offbow while the dredge was approaching the borrow site. On October 24, 2006 a leatherback was

caught by the F/V *Elvira* on tow 227 and relocated.

Detailed information, including the take reports can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at

<http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=426&Code=Project>

Walton County

Dodge Island, Liberty Island

On December 2, 2006 the contract hopper dredge *Dodge Island* resumed work on the City of Destin/Walton County Beach Nourishment Project conducted under Department of the Army permit SAJ-2003-8314(IP-DEB). Project consists of renourishment of approximately 11,340 linear feet of beach and dune between R- monuments R-39 in Okaloosa County extending to R-23.91 in Walton County. Fill material was obtained from a 261-acre nearshore ebb shoal approximately 500 meters south of East Pass. The project area is located within Gulf sturgeon critical habitat unit 11. Two movement patterns occur in the project area: migration between freshwater spawning and marine/estuarine foraging.

The Walton County portion (R-1.0 to past R-23.0) which began on December 2, 2006 was completed as of January 19, 2007. This portion of the project placed sand along 6,284 linear feet of shoreline. The dredging was temporally halted on January 19, 2007, in accordance with a contractual agreement between the permittee and the dredging contractor. On May 4, 2007, the contract hopper dredge *Liberty Island* re-started dredging the Walton County/City of Destin beach renourishment project. This portion of the project consisted of renourishment of approximately 5,000 linear feet. The project was completed on June 24, 2007. The hopper dredge *Dodge Island* dredged for 48 days (between December 2, 2006 and January 19, 2007) and the *Liberty Island* dredged for 51 days (between May 4, 2007 and June 24, 2007) for a total of 99 days dredging days. Between December 2, 2006 and June 24, 2007 a total of 409 loads (approximately 1.4 million CYs) of beach quality (as defined by FLDEP) sand were collected and deposited on the permitted renourishment project template along 11,340 linear feet of beach.

The dredge was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved ESOs provided 24-hour/day monitoring of dragheads and screens for each load cycle. In addition to mitigate for Gulf sturgeon, dredging of each load did not exceed 6 hrs in duration; and total dredging in a 24-hr period did not exceed 12-hrs to maintain migratory pathways. The observers were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Great Lakes Dredge and Dock. During the performance of this dredging during FY 2007, three lethal takes of sea turtles were recorded.

The first lethal take occurred on December 2, 2006. A leather back turtle was found at 0207 (tow #19) after the nets were hung by metal debris which kept the turtle submerged for a long period of time; water temperature was 16.8 °C. Results of the necropsy proved the leatherback taken by the trawler was an immature female weighing almost 600 lbs.

The second lethal take occurred on January 10, 2007, by the *Dodge Island*. A male loggerhead turtle of unknown age was found at 2347 hours on the starboard draghead and starboard inflow screen of load #180. Surface water temperature at time of take was 15.5 °C.

The third lethal take occurred on May 13, 2007, by the *Liberty Island*. A loggerhead of unknown age and sex was found at 0740 hours in the discharge box in load #344. Surface water temperature at the time of take was 22.4 °C.

The Jacksonville District project permit was modified after the first lethal take in FY 06 to require relocation trawling throughout the remaining life of the Destin project in an effort to reduce the likelihood of additional sea turtle take. Relocation trawling efforts for FY 2007 began at 0927 hours December 1, 2006, using the commercial fishing vessel *Reva Rose* and concluded on June 24, 2007 at 1053 hours. A total of 35 turtles (25 loggerheads, 9 Kemps Ridley and 1 green) were relocated during the trawling efforts with 1312 tows. This results in a catch per unit effort of 0.0267. This meant that 2.67% of the tows had a turtle in the net.

Detailed information, including the take reports can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at

<http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=425&Code=Project>

Projects in FY 2007

Siesta Key Beach Renourishment

Bayport

On December 18, 2006, the contracted hopper dredge *Bayport* began work on The Siesta Key Beach Renourishment Project under Department of the Army Permit SAJ-2004-12003(IP-MN). The project consists of renourishment of approximately 10,910 liner feet of beach and dune 300 feet north of FDEP reference monument R-67 to 500 feet south of R-77. Approximately 924,896 CYs of material were dredged and approximately 922,300 CYs of beach quality sand was placed on the beach South Siesta Key in Sarasota County. Material was dredged from a borrow site 5.9 miles west of the project site.

Dredging began on December 18, 2006 and was completed on March 4, 2007. A total of 314 loads of beach quality (as defined by FLDEP) sand were collected during the 76 days of dredging and deposited on the federally authorized shore protection project.

The dredge *Bayport* was equipped with rigid draghead turtle deflectors, and 100% inflow screening with a 4-inch square mesh. NMFS-approved ESOs provided 24-hour/day monitoring of dragheads and screens for each load cycle. The ESOs were employed by Coastwise Consulting, Inc. under a subcontract to the dredging contractor, Manson Dredge Company. During the performance of this dredging one take of a sea turtle was recorded.

The take occurred on February 23, 2007 by the dredge *Bayport*. A juvenile green sea turtle (Lucky) was taken alive and sent to Mote Lab for rehabilitation. Lucky was successfully released back to the Gulf on March 29, 2007. One take (Lucky) has been reported for this project. Surface water temperatures ranged from 18 °C - 22 °C for the life of the project. You can find out more information at this related website:

http://www.mote.org/index.php?src=directory&srctype=display&id=658&view=STRH_detail&HPSESSID=5273cb0c123b2459cf2ee97cec2ebb58

Relocation trawling was conducted throughout the life of the beach nourishment project on the commercial fishing vessel *Riva Rose*. A total of 2106 tows were completed and 20 turtles (16 loggerhead, 3 Kemps Ridley and 1 green) were captured and relocated. This equals a catch per unit effort of 0.0095. This meant that 0.95% of the tows had a turtle in the net.

Detailed information, including the take reports can be accessed from the Corps' Sea Turtle Data Warehouse website – specifically at

<http://el.erdc.usace.army.mil/seaturtles/project.cfm?Id=425&Code=Project>

COSTS

The costs incurred in performing the turtle-monitoring program during FY2007 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 FY2007 for Federal and permitted dredging projects. 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 its permitting of private projects that utilize hopper dredges.

SUMMARY

During Fiscal Year 2007, three beach re-nourishment and one operations and maintenance projects were constructed using hopper dredges that were in the action area defined by the GRBO. Six turtles were taken by the projects conducted in FY2007, five lethally and one was successfully released after rehab at Mote Marine Laboratory. Table #1 summarizes some of the costs associated with implementation of the Terms and Conditions of the GRBO. Table #2 summarizes lethal turtle encounters. Relocation trawling conducted with these dredging projects completed 5,424 tows during FY 2007 and captured, tagged, and released a total of 72 turtles equaling a catch per unit effort of 0.0133. Table #3 summarizes the catch per unit effort for relocation trawling efforts associated with projects utilizing a hopper dredge.

**ANNUAL SEA TURTLE MONITORING REPORT
MAINTENANCE DREDGING
GULF COAST – Under GRBO
JACKSONVILLE DISTRICT
FISCAL YEAR 2007**

TABLE #1
 COSTS ASSOCIATED WITH PROTECTION OF SEA TURTLES
 DURING HOPPER DREDGING
 JACKSONVILLE DISTRICT
 MAINTENANCE DREDGING/BEACH RENOURISHMENT
 GULF COAST PROJECTS
 FY2007

| PROJECT | COST OF MONITORING | COST OF RELOCATION EFFORTS | COSTS OF INSPECTIONS |
|------------------|--------------------|----------------------------|----------------------|
| Navarre | NT | NT | \$0* |
| Tampa Harbor O&M | \$9,247 | \$231,000 | \$0* |
| Walton County | NT | NT | \$4,200 |
| Siesta Key | NT | NT | \$2,000 |
| Totals | \$9,247 | \$231,000 | \$6,200 |

NT = Not Tracked
 * *Inspected in FY06*

TABLE #2

INCIDENTAL TAKES OF SEA TURTLES
JACKSONVILLE DISTRICT
MAINTENANCE DREDGING/BEACH RENOURISHMENT
GULF OF MEXICO COAST PROJECTS

FY 2007

| Date Taken | Project | Dredge | Channel Reach/Borrow Area | Water Temp. (°C) | Species and Authorized Incidental Take per Fiscal Year | | | | |
|--------------------------|------------------|--------------------------|-------------------------------|------------------|--|---------------|----------|-------------|-------------|
| | | | | | Kemp's ridley 20 | Loggerhead 40 | Green 14 | Hawksbill 4 | Leatherback |
| 10/15/2006 | Tampa Harbor O&M | <i>Eagle 1</i> | Markers 11 & 12 | 25.1 | | 1 | | | |
| 10/31/2006 | Tampa Harbor O&M | <i>Eagle 1</i> | Egmont Key Channel #52600 | 21.1 | | 1 | | | |
| 12/2/2006 | Walton County | <i>Trawler Reva Rose</i> | N/A | 16.8 | | | | | 1* |
| 1/10/2007 | Walton County | <i>Dodge Island</i> | 30 22.40 N/ 86 30.50 W | 15.5 | | 1 | | | |
| 2/23/2007 | Siesta Key | <i>Bayport</i> | 27 12.40 N/ 82 37.10 W | 18.8 | | | 1^ | | |
| 5/13/2007 | Walton County | <i>Liberty Island</i> | 30 22.60 N/ 86' 86 31.60 W | 22.4 | | 1 | | | |
| TOTAL TAKE | | | | | 0 | 4 | 1 | 0 | 1* |
| ALLOWABLE TAKE REMAINING | | | | | 20 | 36 | 13 | 4 | 1* |

* - Turtle incidentally taken during relocation efforts is limited to two turtles of any species per fiscal year.

^ - Live take, rehabbed at Mote Maine Lab and released.

TABLE #3
 CATCH PER UNIT EFFORT – TRAWLING VS TURTLES
 JACKSONVILLE DISTRICT
 MAINTENANCE DREDGING/BEACH RENOURISHMENT
 GULF OF MEXICO COAST PROJECTS

FY 2007

| Project Name | Number of Tows | Number of Turtles Captured | Catch per Unit Effort |
|---------------------|-----------------------|-----------------------------------|------------------------------|
| Navarre | 861 | 6 | .0070 |
| Tampa O&M | 1145 | 11 | .0096 |
| Walton | 1312 | 35 | .0267 |
| Siesta Key | 2106 | 20 | .0095 |
| TOTALS | 5424 | 72 | .0133 |

* Numbers presented in this table are for FY2007 activities.