# ANNUAL SEA TURTLE MONITORING REPORT
# JACKSONVILLE DISTRICT
# FOR ATLANTIC PROJECTS
# MAINTENANCE DREDGING - FISCAL YEAR 2004

## 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) 2004 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 projects (or the portion of the project that used a hopper dredge) were completed in FY 2004.

| | |
|---|---|
| Kings Bay Entrance Channel | January 24, 2004 – March 18, 2004 |
| Key West Entrance Channel | March 12, 2004 – April 15, 2004 |
| Palm Beach Harbor | May 17, 2004 – May 24, 2004 |

The following hopper maintenance dredging projects were started in FY 2004, but extends into FY 05.

| | |
|---|---|
| St. John's River – Jacksonville Harbor | August 20, 2004 – November 9, 2004 |
| Palm Beach Harbor - Emergency | September 16, 2004 – October 14, 2004 |
| Canaveral Entrance Channel – Emergency | September 12, 2004 – October 6, 2004 |

The use of hopper dredges to maintain these navigation 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 these channels must be highly mobile to rapidly maneuver out of the way of other vessels. Pipeline cutterhead and clamshell dredges are not self-propelled, and are held into position with spuds or anchors. 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. Due to the reasons stated above, these dredges cannot rapidly demobilize in harsh weather, for example, as a hurricane or tropical storm 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 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 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.

TURTLE MONITORING PROGRAM

A result of the consultation process was the requirement to document turtle takes by the 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 turtle inspectors was conducted to identify any turtles or turtle parts that were caught on these screens. Draghead deflectors were 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 a sediment riffle is created ahead of the draghead, cushioning any contact with turtles thereby preventing injuries.

The observers 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 observers 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 sea turtle 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 sampled. Once documentation has been collected, dead specimens are discarded by the NMFS-approved observer and disposed of at the dredged material placement site, thereby ensuring that these same samples would not wash ashore or be taken again by the dredge.

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 cetaceans and sea turtles were recorded in a bridge watch logbook.

SCREEN CONFIGURATIONS

Turtle monitoring activities were conducted aboard seven different hopper dredges during FY 2004. These were the *Padre Island, Atchafalaya*, *Bayport, Eagle I, Liberty Island, Columbia* and *Manhattan Island*. 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

**Kings Bay Entrance Channel**
*Liberty Island, Padre Island, Manhattan Island*

On January 24, 2004 the contract hopper dredge *Liberty Island* began work on the Kings Bay/Fernandina Harbor Entrance Channel. Contract specifications required dredging an estimated 1,226,462 cubic yards (CY) of shoal material. The required depth of dredging was 49 feet below Mean Low Water (MLW, Corps of Engineers Datum), with 2 feet of allowable overdepth dredging inside the Entrance Channel and 47 feet MLT with 2 feet of overdepth inside of the jetties.

Dredging began on January 24, 2004, and was completed on March 18, 2004. Three dredges were used to complete the project. The *Liberty Island* dredged from January 24, 2004 – March 18, 2004; the *Padre Island* dredged from January 26, 2004 – February 5, 2004 and the *Manhattan Island* dredged from February 26, 2004 – March 7, 2004. A total of 249 loads of dredged material were collected and deposited either on the beach downdrift of the channel, if the material was beach quality or in the EPA designated Ocean Dredge Material Disposal Site (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, Great Lakes Dock and Dredge Co. Surface water temperatures ranged from 12.7$^{o}$C – 17.0$^{o}$C for the life of the project.

Relocation trawling was conducted by the trawler *Winds of Fortune* on a 12-hour daily basis for 30-day during dredging operations following a single take of a loggerhead (*Caretta caretta*) on February 15, 2004 . The trawler made 544 30-minute tows. No sea turtles were captured during relocation trawling, and the primary bycatch was cannonball jellies, sting rays

and crabs.

During the performance of this dredging, two lethal turtle takes occurred. The first was taken in load #72 on February 15, 2004 by the *Liberty Island* and was an unknown age and sex loggerhead found at 2035 hours. The take was located in the aft overflow screen. Surface water temperature at time of take was 11°C. The second take occurred on March 7, 2004 in load #43 by the *Manhattan Island*. The animal was identified as an unknown sex sub-adult loggerhead and was found at 1649 hours. Surface water temperature at the time of take was 17°C.

**Key West Entrance Channel**
*Eagle I*

On March 12, 2004 the contract hopper dredge *Eagle I* began work on the Key West Entrance Channel Operations and Maintenance Dredging project. Contract specifications required dredging an estimated 102,000 cubic yards (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 March 18, 2004 and was completed on April 15, 2004. The total project is still being dredged, but the use of a hopper dredge as a construction method is complete. A total of 33 days of hopper dredging were conducted and 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 REMSA, Inc. under a subcontract to the dredging contractor, Bean Stuyvesant, LLC.

During the performance of this dredging, no lethal takes were observed.

**Palm Beach Harbor O&M**
*Atchafalya*

On May 17, 2004 the contract hopper dredge *Atchafalya* began work on the Palm Beach Harbor Operations and Maintenance Dredging project. Contract specifications required dredging an estimated 41,763 cubic yards (CY) of shoal material. The required depth of dredging was 35

feet below Mean Low Water (MLW, Corps of Engineers Datum), with 2 feet of allowable overdepth dredging inside the Entrance Channel.

Dredging began on May 17, 2004 and was completed on May 24, 2005. The dredge operated under a "rental contract". Instead of being paid by CY, the contractor is paid by the number of hours it takes to complete the project. In this case, it took the dredge 168 hours (7 days) to remove the shoal. The material dredged was placed in an "In Channel placement" disposal area.

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. Surface water temperatures ranged between 25.5$^{o}$C – 26.6$^{o}$C.

**St. John's River – Jacksonville Harbor**
*Columbia*

Per an agreement between NMFS and SAJ hopper dredging in the St. John's River, above River Mile 6 is not required to abide by the seasonal window for sea turtles of the SARBO due to the low salinity of the river. However, the Jacksonville District has agreed to maintain the current requirements for observers and screening in the SARBO.

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. Surface water temperatures ranged between 20.0$^{o}$C – 32.0$^{o}$C.

**Emergency Dredging Operations in Response to Hurricanes Frances and Jeanne**

During 2004, four hurricanes struck Florida, two hitting the east coast very close to Port Canaveral. Hurricane Frances, a category 2 storm made landfall over the southern end of

Hutchison Island, Florida on September 5, 2004. Hurricane Jeanne, a category 3 storm made landfall on September 26, 2004, also over the southern end of Hutchinson Island, Florida.

**Port Canaveral Ship Channel – Emergency Dredging**
*Padre Island*

Under the 1997 and 1995 South Atlantic Regional Biological opinions, the Corps is restricted from using a hopper dredge at Port Canaveral due to the high numbers of sea turtles unless under emergency circumstances and after consultation with NMFS. Due to the landfall of Hurricane Frances with a near direct strike on Port Canaveral, the Coast Guard closed the port to deep-draft navigation vessels (those with a draft of 14' or greater), including the large cruise vessels that are the focus of this port. Those cruise vessels and their income are extremely important to the Port. All of the cruise vessels were forced to relocate to either the Port of Miami or Port Everglades as a result of this closure. The Corps contacted NMFS to initiate consultation on the use of a hopper dredge at Port Canaveral due to the speed needed to reopen the port to deep draft navigation vessels. Consultation was conducted between Daniel Small – COE-SAD; Paul Stodola – COE-SAJ and Eric Hawk – NMFS. The Corps committed to dredging the channel with a hopper and having 24-hour coverage of the dredge with two trawlers. A copy of the relocation reports for all turtles relocated during this emergency event are attached to this report for your files.

On September 12, 2004 the contract hopper dredge *Padre Island* began work on the Canaveral Harbor Emergency Operations and Maintenance Dredging project. Dredging continued through 24 September 2004 at which time, it stopped to prepare for the arrival of Hurricane Jeanne on 26 September 2004. Dredging operations resumed on 28 September 2004 and were completed on 6 October 2004. The dredge operated under a "rental contract". Instead of being paid by CY, the contractor is paid by the number of hours it takes to complete the project. In this case, it took the dredge 456 hours (19 working (not calendar) days) to remove the shoal material deposited by two hurricanes in three weeks, a total of 197,730 CY. The required depth of dredging was 37 feet below Mean Low Water (MLW, Corps of Engineers Datum), with 2 feet of allowable overdepth dredging inside the Entrance Channel. The majority of the material dredged from Canaveral harbor (90%) was placed in the EPA approved ODMDS, while the remaining 10% was placed in a nearshore disposal location.

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

REMSA, Inc under a subcontract to the dredging contractor, Great Lakes Dock and Dredge Co.

During the performance of this dredging, four lethal turtle takes occurred, three onboard the dredge and one onboard the relocation trawler *F/V Ashlee Michelle*. The first was taken in load #4 on September 13, 2004 by the *Padre Island* and was a juvenile green of unknown sex found at 2330 hours. The turtle was located in the starboard draghead and was alive, but injured. The turtle was taken to the Volusia County Turtle project on the morning of September 14, 2004 for rehabilitation. The animal, subsequently named "Hermine" died on September 17, 2004. A necropsy was performed by Michelle Bauer of the Volusia County Turtle project. Cause of death was not reported in the gross findings made available to the Corps, but the necropsy report notes that the animal suffered extensive lacerations and bruising all over the body. Surface water temperature at time of take was 28.5°C.

The second take occurred on September 16, 2004 by the *F/V Ashlee Michelle* in tow #66 at 0632 hours. The juvenile green of unknown sex was found with its head in the mesh of the trawl and was unresponsive. Resuscitation was attempted, but was unsuccessful. The animal was given to the Volusia County Turtle project and a necropsy was conducted by Michelle Bauer. Cause of death was determined to be strangulation. Surface water temperature at the time of take was 27.5°C.

The third take occurred on September 21, 2004 by the *Padre Island* during load #35 at 1208 hours. The juvenile green of unknown sex was recovered in the starboard skimmer and was whole. Surface water temperature at the time of take was 26°C.

The fourth take occurred on September 28, 2004 by the *Padre Island* during load #49 at 1730 hours. The juvenile green of unknown sex was recovered live in the port forward box and died approximately 20-minutes after discovery. Surface water temperature at the time of take was 26.7°C.

**Palm Beach Harbor O&M – Emergency Dredging**
*Bayport*

Although the Palm Beach Harbor entrance channel dredging had been completed on May 24, 2004, the landfall of hurricanes Frances and Jeanne deposited a tremendous amount of sediment in the entrance channel and required an emergency dredging event to re-open the channel to commercial traffic. On September 16, 2004 the contract hopper dredge *Atchafalya* began work on the Palm Beach Harbor Operations and Maintenance Dredging project. The

required depth of dredging was 35 feet below Mean Low Water (MLW, Corps of Engineers Datum), with 2 feet of allowable overdepth dredging inside the Entrance Channel. The contractor estimated that a total of 302,007 CY was removed from the entrance channel during dredging operations.

Dredging began on September 16, 2004 and was completed on October 14, 2004. The dredge operated under a "rental contract". Instead of being paid by CY, the contractor is paid by the number of hours it takes to complete the project. In this case, it took the dredge 503 hours (21 working (not calendar) days) to remove the shoal. 158,707 CY of the material dredged was placed in a former borrow area three miles N.NE from the center point of Mid-town Beach, located south of the Palm Beach Harbor entrance channel; and 143,300 CY was placed in the nearshore in less than 17 feet of water.

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, one lethal take occurred on October 8, 2004, but since that take occurred in FY 2005, it will be reviewed in the upcoming FY 2005 Hopper Dredge annual report. Surface water temperatures ranged from 27.7$^{o}$C – 28.3$^{o}$C.

COSTS

The costs incurred in performing the turtle-monitoring program during FY 2004 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. Below is a table depicting the costs of monitoring and relocation trawling for FY 2004. 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.

| PROJECT | COST OF MONITORING | COST OF RELOCATION EFFORTS |
|---|---|---|

| | | |
|---|---|---|
| Kings Bay Entrance Channel | $25,106 | $53,900 |
| Key West O&M | $25,000 | n/a |
| Palm Beach Harbor O&M | $8,528 | n/a |
| Jacksonville Harbor | $34, 309 | n/a |
| Canaveral Ship Channel – Emergency | $12,450 | $199,691 |
| Palm Beach Harbor O&M - Emergency | $9,450 | n/a |
| TOTAL | $89,868 | $252,591 |

SUMMARY

During Fiscal Year 2004, six maintenance-dredging projects were completed by hopper dredges. Six turtles were taken lethally by the projects conducted in FY2004. Below is a table summarizing lethal turtle encounters.

Relocation trawling conducted with these dredging projects captured, tagged, and released a total of 120 turtles with four recaptures.

INCIDENTAL TAKES OF SEA TURTLES

JACKSONVILLE DISTRICT
MAINTENANCE DREDGING

FY 2004

| Date Taken | Project | Dredge | Channel Reach | Water Temp. (°C) | Species and Authorized Incidental Take per Fiscal Year | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Kemp's ridley 7 | Loggerhead 35 | Green 7 | Hawksbill 1 |
| 15 Feb 04 | KBEC | *Liberty Island* | 30°42.722' N, 80°42.613' W | 11 | | 1 | | |
| 7 March 04 | KBEC | *Manhattan Island* | 30°42.6' N, 81°22.5' W | 17 | | 1 | | |
| 13 Sept 2004 | CCS | *Padre Island* | 28°24' N, 80°34' W | 28 | | | 1 | |
| 16 Sept 2004 | CCS | *F/V Ashlee Michelle* | 28°24.587' N, 80°35.704' W | 27.5 | | | 1 | |
| 21 Sept 2004 | CCS | *Padre Island* | 28°24.54' N, 80°34.69' W | 26 | | | 1 | |
| 28 Sept 2004 | CCS | *Padre Island* | 28°24' N, 80°35' W | 26.7 | | | 1 | |
| TOTAL TAKE | | | | | | 2 | 4 | 0 |
| ALLOWABLE TAKE REMAINING | | | | | 7 | 33 | 3 | 1 |

# ANNUAL SEA TURTLE MONITORING REPORT
# MAINTENANCE DREDGING
# ATLANTIC COAST – Under SA RBO
# JACKSONVILLE DISTRICT
# FISCAL YEAR 2004