

ANNUAL SEA TURTLE MONITORING REPORT  
SAVANNAH DISTRICT  
MAINTENANCE DREDGING - FISCAL YEAR 2008

## 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 Savannah 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 2008 under contract W912HN-08-C-0007.

<b>Brunswick Harbor Bar Channel</b>	19 Jan 08 to 6 Mar 08
<b>Savannah Harbor Bar Channel</b>	19 Feb 08 to 10 Mar 08

The Savannah District schedules hopper-dredging operations during the winter months (1 December through 31 March), as recommended by SAD, when water temperatures are cool and the risk of taking sea turtles is low.

## TURTLE MONITORING PROGRAM

As result of the consultation process, the requirement to document turtle takes by the dredges was devised. In order to accomplish this task, before hopper dredging operations commenced, they are equipped such that all inflows and 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. 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 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 Savannah 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.

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 aboard the Liberty Island, Dodge Island, and Padre Island during FY 2008. These vessels were required to have rigid draghead deflectors, and 100% inflow screening or overflow screening with openings starting at 4" x 4."

## PROJECTS

### ***Brunswick Harbor Channel, Glynn County, GA***

Contract #W912HN-08-C-0007 included maintenance dredging for both Brunswick and Savannah Bar Channels. The contract was awarded to Great Lakes Dredge and Dock Company on 3 Jan 2008 and NTP was issued on 11 Jan 2008. The Brunswick work included only bar channel work from Stations -19+000 to -38+000. This work was performed by the Liberty Island from 19 Jan 08 to 6 March 08. In addition, the Dodge Island worked Stations -14+000 to -29+000 from 2 Mar to 5 Mar 08. A total of 5 takes of sea turtles occurred during the work. The dredges encountered a total of 32 Right Whale related slow bell nights.

The work was conducted primarily by the Liberty Island, but the Dodge Island was brought in for a few days while the Liberty Island was down for repairs.

Dredge working days:

Liberty Island: 1/19 to 2/26, 2/28 to 2/29, 3/5 to 3/6.

Dodge Island: 3/2 to 3/5.

Dredged material was placed in both feeder berm F and the Brunswick ODMDS.

Turtle Takes:

2/13 loggerhead unk age, load #56 Liberty Island

2/26 loggerhead unk age, load #101 Liberty Island

2/26 Kemp's unk age, load #101 Liberty Island  
3/6 Kemp's sub ad, load #107 Liberty Island  
3/6 loggerhead, unk age, load #107 Liberty Island

In accordance with its pre-dredge risk assessment, the District told the contractor he must begin relocation trawling prior to commencing work. Relocation trawling began on 1/14/08. A Kemp's and a loggerhead were relocated on the second day of trawling. Dredging began on 1/19/08. Since no other turtles were relocated, the District allowed trawling to cease on 1/27 with the water temperature at 10.7 degrees C.

After two turtles are taken on 2/26 with the water temperature at 14 degrees C, work was stopped while the district reassessed the amount of required work remaining, reviewed SI data and sent data to ERDC for review, and assessed the potential for continued take of sea turtles. No significant operational problems were indicated in the SI data. District determined that risk of sea turtle take could be minimized by reinstating relocation trawling and received concurrence from SAD to continue dredging.

The trawler relocated three Kemp's and two loggerheads during late February through the first few days of March, during which time the Liberty Island went in for repairs and dredging was continued by the Dodge Island. The Liberty Island returned to work on 3/5 and on 3/6 stopped work again after it took a Kemp's and loggerhead in the same load, with the water temperature now at 16.1 degrees C. During the same period, the trawler relocated two Kemp's and a loggerhead.

During continual inspections of the work the District found no evidence of operational problems with the dredge that increased risk of turtle take. The fact that the dredge caught two turtles in the same load while the trawler relocated three additional turtles, was viewed by the District as strong evidence that turtles were moving into the channel. The District determined that the risk of taking additional sea turtles, especially the endangered Kemp's, was too great to continue dredging. On the morning of 3/6 the contractor was told that hopper dredging of the Brunswick channel was over.

#### Time Line:

12/20/07. District conducts pre-dredge risk assessment and determines that relocation trawling should begin before dredging if the water temperature is above 55 degrees F (12.8 degrees C).

1/11. On about this day the District directs contractor to begin relocation trawling prior to start of hopper dredging because water elevated water temperature.

1/14. Relocation trawler begins, surface water temperature at 14.2 C. (12 hr days after first day).

1/15. Kemp's relocated on tow #32 and loggerhead relocated on tow #37.

1/16. Trawler directed to do 24-hr trawling because two turtles relocated in one day. Water temperature at 13.6 C.

1/19. Liberty Island began work.

1/22. Trawler directed to lower effort to 12-hr trawling because no turtles captured recently.

1/27. Relocation trawling stopped at 1600. Trawler did 279 tows and relocated two sea turtles and 8 Atlantic sturgeon. Water temp at 10.7 C.

2/13. Liberty Island takes loggerhead of unk age in load #56 ending 1206, water temp at 13.3 C.

2/26. Liberty Island takes two sea turtles in load #101 ending 2118, one Kemp's, one loggerhead, ages unk.

2/26. Work stopped after load#101 until relocation trawler can begin again.

2/28. Relocation trawler begins 24-hr trawling at 1013. Water temp 14 C.

2/28. Kemp's relocated on tow #6.

2/28 Liberty Island recommences work at about 2215.

2/29. Two Kemp's relocated on tow #14.

3/1. Loggerhead relocated tow #99.

3/5. Loggerhead relocated tow #137.

3/5. Loggerhead relocated tow #140.

3/6. Kemp's relocated tow #147, water temp 16.3 C.

3/6. Liberty Island takes two turtles, one Kemp's and one loggerhead, in load #107, ending just after midnight.

3/6. Contractor informed just after 0800 that hopper dredging of the Brunswick entrance channel is over.

### Brunswick Harbor Dredging Summary

Start	Stop	Dredge	Loads	Dredging Days	Dredging Hrs	Whale Slow Days*
19 Jan 08	6 Mar 08	Liberty Island	107	35	395	
2 Mar 08	5 Mar 08	Dodge Island	19	4	29.4	
Totals			126	39	550.5	32

\* 16 Slow days due to whales and 16 due to weather

### Brunswick Harbor Dredged Material Placement Summary

Dredge	Loads in ODMDS	Loads in F
Liberty Island	81	26
Dodge Island	0	19
Totals	81	45

### Yardage Reported by Contractor

Dredge	ODMDS	Area F	Total
Liberty Island	306,033	95,930	401,963
Dodge Island		42,827	42,827
Total	306,033	138,757	444,790

### Estimated Placed Yardage

Area	Placed Yardage
ODMDS	306,033
F	138,757
Total	444,790

Placement was as follows:

ODMDS: Liberty Island loads 1-10, 12, 14-19, 36, 39, 43-49, 51-52, 54-63, 65-107 (total of 81).

Feeder Berm F: Liberty Island loads 11, 13, 20-35, 37-38, 40-42, 50, 53, 64 (total of 26 loads).

Feeder Berm F: Dodge Island loads 1-19.

Pay Volume = 960,022 + 11.71 contingency days

Total Removed = 1,337,022 cu yds

Placement = ODMDS and Nearshore area F.

A sea turtle compliance inspection was performed in accordance with the “COE Sea Turtle Inspection Checklist for Hopper Dredges (Attachment 3).” The dredges’ dragarms were equipped with a rigid draghead turtle deflector. Inflow screening was in place and, during normal flow conditions, was 100%. NMFS-approved turtle observers, Coastwise Consulting, provided 24-hour/day monitoring of dragheads and screens for each load cycle.

Copies of the observer reports are being provided to Craig Theriot, a CSC contractor at the U.S. Army Engineer Research and Development Center (ERDC).

Summary of sea turtle takes at Brunswick Harbor FY08. All dredging took place in center half of channel.

Turtle Take	Species	date	load #	Surface Temp C	dredge
1	Log	2/13/2008	56	13.3	Liberty I.
2	Log	2/26/2008	101	16	Liberty I.
3	Kemp's	2/26/2008	101	16	Liberty I.
4	Kemp's	3/6/2008	107	16.1	Liberty I.
5	Log	3/6/2008	107	16.1	Liberty I.

Load#	Dredge Start	Dredge Stop	Upstream Boundary N	Upstream Boundary E	Downstream Boundary N	Downstream Boundary E
56	813	1206	912575.8	403942.4	932082.1	391233.5
101	1811	2118	922776.5	397430.4	932141.8	391393.3
107	2158	0005	922378.1	397739.4	931422.6	391817.6

Relocation Trawling by the Reilly Morgan 14 Jan 2008 to 27 Jan 2008 with Coastwise Consulting

Trawling Days = 13 days, 233 hrs

Number of Tows = 279

Number of Relocated Turtles = 1 loggerhead, 1 Kemp’s Ridley, plus 10 Atlantic Sturgeon captured

Relocation Trawling by the Catina Renea 29 Feb 08 to 6 Mar 08

Trawling Days = 8 days, 139.26 hrs

Number of Tows = 150

Number of Relocated Turtles = 4 loggerhead, 4 Kemp’s Ridley

Take 1.

Date: 2/13/2008  
Time Recovered:1521  
Load Number: 56  
Dredging time for load: 0813 - 1206  
Recovery and Location: head recovered in mid –inflow box  
Dredge: Liberty Island  
Stations Dredging Load: Brunswick Harbor -17+000 to -40+250  
Species: loggerhead  
Age: SA  
Surface Temp: 13.3 C  
Column Temp:  
Other Take:  
Other organisms in load:

Take 2.

Date: 2/26/2008  
Time Recovered:2226  
Load Number: 101  
Dredging time for load:1811-2118  
Recovery and Location: 4 pieces in aft skimmer and inflow box,:rear flippers, parts of carapace and plastron  
Dredge: Liberty Island  
Stations for Dredging Load: Brunswick Harbor –29+000 to -40+250  
Species: loggerhead  
Age: unk  
Surface Temp: 16 C  
Column Temp:  
Other Take:  
Other organisms in load:40 horseshoe crabs, sea pork

Take 3.

Date: 2/26/2008  
Time Recovered:2226  
Load Number: 101  
Dredging time for load: 1811-2118  
Recovery and Location: front flippers and carapace in mid inflow box  
Dredge: Liberty Island  
Stations for Dredging Load: Brunswick Harbor –29+000 to -40+250  
Species: Kemp's ridley  
Age: unk  
Surface Temp: 16 C  
Column Temp:

Other Take:

Other organisms in load:40 horseshoe crabs, sea pork

Take 4.

Date: 3/6/2008

Time Recovered:0235

Load Number: 107

Dredging time for load: 2158-0005

Recovery and Location: intact but cracked and lacerated, mid-inflow screen

Dredge: Liberty Island

Stations for Dredging Load: Brunswick Harbor -28+500 to -39+500

Species: Kemp's ridley

Age: SA

Surface Temp: 16.1

Column Temp:

Other Take:

Other organisms in load:1 stingray, 14 horseshoe crabs, wood and plastic

Take 5.

Date: 3/6/2008

Time Recovered: 0235

Load Number: 107

Dredging time for load: 2158-0005

Recovery and Location: front flippers, parts of shoulder and head

Dredge: Liberty Island

Stations for Dredging Load: Brunswick Harbor -28+500 to -39+500

Species: loggerhead

Age: SA

Surface Temp:16.1 C

Column Temp:

Other Take:

Other organisms in load: 1 stingray, 14 horseshoe crabs, wood and plastic

***Savannah Harbor Bar Channel, Chatham County, GA***

The Savannah Harbor bar channel was dredged from 19 Feb 2008 through 10 March 2008. Dredged ranges included Stations -13+000 to -19+000 and Stations -33+000 to -39+000. No trawling or sea turtle takes occurred. The dredges encountered 12 Right Whale Related slow bell nights.

Start	Stop	Dredge	Loads	Dredging Days	Dredging Hrs	Whale Slow Days*
3/6/2008	3/10/2008	Dodge Island	31	5	49.7	3
2/19/2008	3/10/2008	Padre Island	136	20	209.5	9

The three Dodge Island slow days were because there were no aerial surveys due to weather. Eight of the 9 Padre Island slow days were because there were no aerial surveys due to weather.

Dredge	Loads in ODMDS	Loads in #5	Loads in #6
Padre Island	42	48	46
Dodge Island	0	0	31
Totals	42	48	77

**Dredging Volumes Reported by Contractor**

Dredge	CuYds in ODMDS	CuYds in #5	CuYds in #6	Total CuYds
Padre Island	94559	108234	110516	313309
Dodge Island			71192	71192
Totals	94559	108234	181708	384501

**Estimated Total Placed Volumes**

Area	Yardage
#5	136,413
#6	229,016
ODMDS	119,178

Padre Island loads to ODMDS: 57, 59-60, 63, 66-68, 70, 74, 78-79, 82, 86-87, 91-92, 96-97, 99-101, 103-104, 110, 114, 117, 120-121, 123-136.

Padre Island loads to Feeder Berm #5: 8-13, 17-25, 27-34, 36-38, 40-44, 46-51, 53, 80, 83-85, 88, 105-109.

Padre Island loads to Feeder Berm #6: 1-7, 14-16, 26, 35, 39, 45, 52, 54-56, 58, 61-62, 64-65, 69, 71-73, 75-77, 81, 89-90, 93-95, 98, 102, 111-113, 115-116, 118-119, 122.

Loads Missing Target Area:

Padre Island. A number of SI disposal plots show tracts extending slightly outside area boundaries, but dumps appear to have occurred within the areas. The following five loads have disposal plots and displacement changes indicating that portions of those loads were placed slightly outside target areas.

Load 35. appears to have been dumped partially west of Area 6.

Load 39. appears to have been dumped partially west of Area 6.

Load 53. Appears to have been dumped partially east of Area 5.

Load 119. Appears to have been dumped partially west of Area 6.

Load 122. Appears to have been dumped partially west of Area 6.

Pay Volume = 444,520 cu yds.

Total Removed = 484,607 cu yds.

Estimated Volume in Savannah ODMDS=119,178.

Copies of the observer reports are being provided to the U.S. Army Engineer Research and Development Center (ERDC) for uploading to the "Sea Turtle Data Warehouse."

## COSTS

The costs incurred in performing the turtle-monitoring program during FY 2008 include the costs for equipping and maintaining screens and draghead deflectors on contractor-owned dredges, as well as providing NMFS-approved observers. In addition to the direct costs are District costs for administration and oversight. Table #1 depicts the costs of monitoring and dredge inspection for FY 2008. However, this table does not include the costs for equipping and maintaining screens and draghead deflectors, 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.

TABLE #2  
INCIDENTAL TAKES OF SEA TURTLES  
BRUNSWICK HARBOR MAINTENANCE DREDGING FY08

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 2
2/13/08	Brunswick Harbor Bar	Liberty Island	-19+000B to -29+000B	13.3		1		
2/26/08	Brunswick Harbor Bar	Liberty Island	-29+000B to -38+000B	14.0		1		
2/26/08	Brunswick Harbor Bar	Liberty Island	-19+000B to -29+000B	14.0	1			
3/6/08	Brunswick Harbor Bar	Liberty Island	-29+000B to -40+000B	16.1	1			
3/6/08	Brunswick Harbor Bar	Liberty Island	-19+000B to -40+000B	16.1		1		
TOTAL TAKE					2	3	0	0

**Atlantic Sturgeon Captures by Reilly Morgan**

<b>Capture Date</b>	<b>Tow</b>	<b>Start</b>	<b>End</b>	<b>Capture Lat</b>	<b>Capture Long</b>	<b>H2O Temp</b>	<b>Tot Length</b>	<b>Fork Length</b>
1/14/2008	1	1212	1252	31°05.884	81°19.813	14.2	101.8	89.7cm
1/14/2008	2	1303	1343	31°06.900	81°21.606	14.2	92.1	83.5cm
1/15/2008	36	1845	1925	31°05.300	81°18.767	14.2	86.9	77.3cm
1/17/2008	77	1108	1119	31°06.499	81°20.879	13.5	103.7	90.8cm
1/18/2008	103	940	1005	31°05.923	81°19.890	13	91.2	81.4cm
1/18/2008	106	1147	1227	31°06.209	81°20.348	13	92.1	79.9cm
1/18/2008	110	1501	1541	31°06.969	81°21.257	13	81.7	72.6cm
1/18/2008	110	1501	1541	31°06.969	81°21.257	13	94.9	86.3cm f
1/20/2008	165	1321	1404	31°06.190	81°20.551	12.4	96.1	83.5cm
1/24/2008	229	1442	1522	31°04.862	81°17.961	12.3	66.1	59.4cm

**Brunswick Trawling Turtle Captures 1/14 to 1/27/08 by Trawler Reilly Morgan**

<b>Date</b>	<b>Tow</b>	<b>Start</b>	<b>End</b>	<b>Capture Lat</b>	<b>Capture Long</b>	<b>Release Lat</b>	<b>Release Long</b>	<b>H2O Temp</b>	<b>Sp.</b>	<b>Est SCL</b>	<b>Tag</b>
1/15	32	1338	1357	31°06.378	81°20.663	31°02.090	81°13.767	14.2	L. k	26.4	TTX 099
1/15	37	1947	2027	31°05.839	81°19.722	31°01.862	81°15.833	14	C. c	46.1	TTX 100

Brunswick Trawling Turtle Captures 2/29 to 3/6/2008 by Catina Renea

Date	Tow	Start	End	Capture Lat	Capture Long	Release Lat	Release Long	H2O Temp	Sp.	Est SCL	Tag
2/28	6	1755	1835	31°06.516	81°20.870	31°02.804	81°16.941	14	C. c.	45	TTN 853
2/29	14	242	321	31°06.167	81°20.303	31°02.777	81°17.253	13.8	L. k.	38	TTN 854
2/29	14	242	321	31°06.167	81°20.303	31°02.777	81°17.253	13.8	L. k.	34	TTN 855
3/1	57	1840	1920	31°06.509	81°20.928	30°59.528	81°18.566	14.3	C. c.	61.5	TTN 856
3/3	99	1102	1142	31°06.098	81°19.993	31°06.000	81°15.706	15.3	C. c.	69	TTN 857
3/5	137	1448	1450	31°05.633	81°19.505	31°06.948	81°14.642	16.1	L. k.	41.5	TTN 858
3/5	140	1847	1927	31°04.550	81°17.800	31°06.948	81°14.642	16.1	C. c.	64.6	TTN 859
3/6	147	326	406	31°05.272	81°18.718	31°06.844	81°14.346	16.1	L. k.	45.2	TTN 861

Atlantic Sturgeon captures by Brunswick Trawler Reilly Morgan

#	Capture Date	Tow	Start	End	Capture Lat	Capture Long	H2O	Tot Length	Fork Length
1	1/14/2008	1	1212	1252	31°05.884	81°19.813	14.2	101.8	89.7cm
2	1/14/2008	2	1303	1343	31°06.900	81°21.606	14.2	92.1	83.5cm
4	1/15/2008	36	1845	1925	31°05.300	81°18.767	14.2	86.9	77.3cm
6	1/17/2008	77	1108	1119	31°06.499	81°20.879	13.5	103.7	90.8cm
7	1/18/2008	103	940	1005	31°05.923	81°19.890	13	91.2	81.4cm
8	1/18/2008	106	1147	1227	31°06.209	81°20.348	13	92.1	79.9cm
9	1/18/2008	110	1501	1541	31°06.969	81°21.257	13	81.7	72.6cm
10	1/18/2008	110	1501	1541	31°06.969	81°21.257	13	94.9	86.3cm f
11	1/20/2008	165	1321	1404	31°06.190	81°20.551	12.4	96.1	83.5cm
12	1/24/2008	229	1442	1522	31°04.862	81°17.961	12.3	66.1	59.4cm