

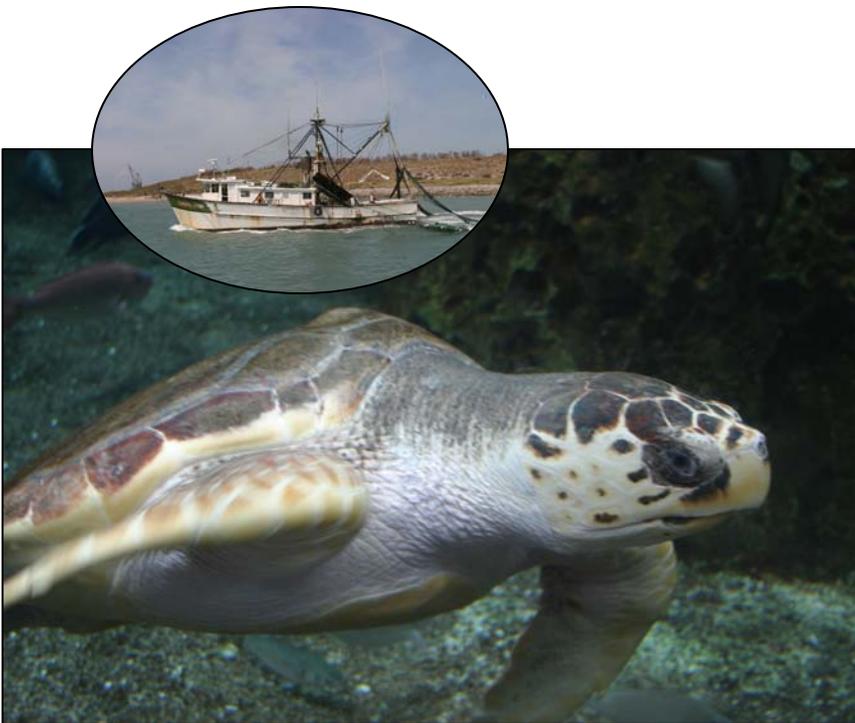
**USACE Hopper Dredging Interactions with Sea Turtles:
Fiscal Year 2010 Annual Summary Report
For the Northern Gulf of Mexico Region**

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FINAL REPORT



BACKGROUND

This report summarizes data collected for dredging interactions with sea turtles during USACE hopper dredging operations throughout the northern Gulf of Mexico in Fiscal Year (FY) 2010 (1 October 2009 through 31 September 2010). Data were collected by contracted observer companies as part of the Endangered Species Observer Program administered by the USACE Districts Galveston, New Orleans, Mobile, and Jacksonville as specified and mandated by the Gulf of Mexico Regional Biological Opinion (GRBO) (issued by the Southeast Region National Marine Fisheries Service (NMFS) on 19 November 2003 and revised 24 June 2005 (Revision 1) and 9 January 2007 (Revision 2) and the USACE GRBO Management Protocol (UGMP) (issued by the USACE South Atlantic Division on 29 December 2006). These data are for hopper (trailing-suction style) dredging projects only and do not include non-hopper (i.e. clamshell bucket, cutterhead) dredging projects. Non-hopper dredges are not monitored for sea turtle entrainments since the mechanical operation of these dredges has been identified as having minimal or no risk to sea turtles (GRBO). Hopper dredges were used instead of non-hopper dredges for the projects presented in this report due to factors related to crew/vessel safety, sea and weather conditions, project configurations, and productivity costs. This report fulfills the reporting requirements, as specified in both the GRBO and the UGMP, for an annual regional summary of hopper dredging-related incidental takes and trawling-related captures/relocations of sea turtles.

METHODS AND DATA SOURCES

Appendix A provides a map designating the 9 locations for the 10 USACE hopper dredging projects in the northern Gulf of Mexico during FY2010 by USACE District and geographic subregion. The USACE Districts Galveston, New Orleans, Mobile, and Jacksonville were responsible for implementing these hopper dredging projects and for complying with the environmental requirements designated by the GRBO and the UGMP (i.e., use of deflectors, 100% observer coverage, relocation trawling). Due to potential differences in habitat use by sea turtles and differences in dredging environments, the northern Gulf of Mexico region was divided into 4 subregions (West Gulf (WG), Northwest Gulf (NWG), Northeast Gulf (NEG), and East Gulf (EG)) for some data presented in this report. These subregions were defined using the 29° 00" latitude and Mississippi River outlet as boundaries. These subregions are consistent with those presented in Dickerson et al. 2007 to allow continuity in data comparisons.

Data summarized in this report were compiled from individual project summary reports and annual hopper dredging reports on sea turtle interactions for FY 2010 submitted by the USACE Districts Galveston, New Orleans, Mobile, and Jacksonville as well as the Endangered Species Observer Reports submitted by each of the contracted observer companies. Reports are electronically linked within the reference section of this document. These reports, along with individual data profiles for each documented sea turtle incidental take, protocols for mitigation efforts and data collection, and links to the GRBO and UGMP are archived for reference on the USACE Sea Turtle Data Warehouse website: (<http://el.erdc.usace.army.mil/seaturtles/>).

RESULTS

During FY 2010, 10 hopper dredging projects (7 civil works (CW) channel/harbor maintenance of and 3 regulatory (R) (beach renourishment, shore protection, LA berm creation after BP oil spill) were conducted along the northern Gulf of Mexico, with a total of 8 (2 CW; 6 R) dredging-related incidental takes of sea turtles. An additional 3 sea turtle takes were attributed to drowning during the trawling portion of the LA berm creation project (R). Capture trawling was performed during 4 of these hopper projects with 274 (9 CW; 265 R) trawler capture/relocated sea turtles. Five of these were oil spilled turtles which were sent to IMMS rehab facility where 1 was known to have died due to the oil but the outcome for the other 4 is unknown at time of this report. Non-capture sweep trawling was also performed throughout the BP oil spill project for almost the entire time as well. Two other Gulfport Hopper Projects (CW) took place in FY09 and FY11 but is mentioned here due to the fact that some of the trawling for these projects started at the end of the project in FY09 and carried over into FY10 with bed-leveling and the second project started with pre-dredge trawling at the end of FY10 which carried over into FY11 and so only trawling portion occurred for this project, no dredging. All summaries for these data are provided in the following appendices.

REFERENCES AND RESOURCES

USACE Sea Turtle Database Warehouse, (<http://el.erdc.usace.army.mil/seaturtles/>).

Dickerson, D., C. Theriot, M. Wolters, C. Slay, T. Bargo, W. Parks. (2007). "[Effectiveness of relocation trawling during hopper dredging for reducing incidental take of sea turtles](#)," *In: Proceedings of the World Dredging Congress XVIII, USACE ERDC Research Initiatives*. Central Dredging Association, 27 May-1 June 2007, Lake Buena Vista, Florida.

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[Gulf Regional Biological Opinion \(GRBO\). 2003.](#)

[Gulf Regional Biological Opinion \(GRBO\). 2005 revision.](#)

[Gulf Regional Biological Opinion \(GRBO\). 2007 revision.](#)

[USACE Gulf GRBO Management Protocol.](#)

FY 2010 USACE District Annual Reports for Sea Turtle Monitoring during Maintenance Dredging/Beach Nourishment Projects along the Gulf of Mexico Coast:
(Archived at: <http://el.erdc.usace.army.mil/seaturtles/>)

USACE Galveston District. FY 2010. [Annual Sea Turtle Monitoring Report](#)

USACE New Orleans District. FY 2010. [Annual Sea Turtle Monitoring Report](#)

USACE Mobile District. FY 2010. [Annual Sea Turtle Monitoring Report](#)

FY 2010 Project Sea Turtle/Dredging Data Submitted by Endangered Species Observer Companies and USACE Districts (Archived at: <http://el.erdc.usace.army.mil/seaturtles/>)

[USACE Galveston District \(FY 2010\)](#)

[Freeport Harbor \(Entrance & Jetty Channels\)](#) (Coastwise Consulting, Inc.)

[Houston Ship Channel](#) (Coastwise Consulting, Inc.)

[Galveston Jetty, Entrance, and Harbor & Channel](#) (Coastwise Consulting, Inc.)

[Corpus Christi Ship Channel-Entrance Channel](#) (Coastwise Consulting, Inc.)

[USACE New Orleans District \(FY 2010\)](#)

[Calcasieu Entrance Channel](#) (Coastwise Consulting, Inc.)

[Louisiana Coast – East Berm at Hewes Point](#) (Coastwise Consulting, Inc. dredge, ECO, Inc Trawling)

USACE Mobile District (FY 2010)

*Mobile Harbor and Bay Channel (Coastwise Consulting, Inc.)

Mobile Harbor - Bay Channels (Coastwise Consulting, Inc. & REMSA, Inc.)

USACE Jacksonville District (FY 2010)

Santa Rosa Island Range Complex – Eglin AFB (East Coast Observer, Inc.)

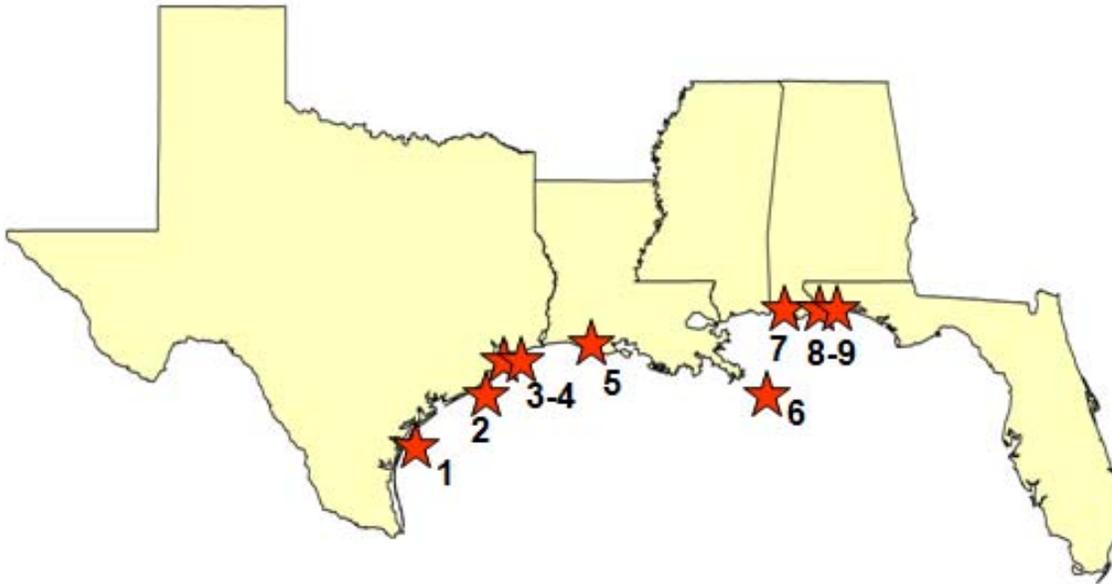
Holiday Isle Beach SPP-Destin, FL (REMSA, Inc.)

*Project started in FY09 but finished in January FY10.

APPENDICES

Appendix A.....	Map of FY10 Gulf of Mexico Hopper Dredging Projects
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APPENDIX A
FY10 Gulf of Mexico Hopper Dredging Projects



West Gulf (WG)

- 1. Corpus Christi(SWG)
- 2. Freeport Harbor (SWG)

Northwest Gulf (NWG)

- 3. Houston Ship Channel (SWG)
- 4. Galveston Channels (SWG)
- 5. Calcasieu Pass (MVN)
- 6. Louisiana Coast-Hewes Point (MVN)

Northeast Gulf (NEG)

- 7. Mobile Harbor/Bay/Bar (SAM)
- 8. Holiday Isle Beach SPP (SAJ)
- 9. Santa Rosa Island (SAJ)

East Gulf (EG)

Key

- SWG = USACE Galveston District
- MVN = USACE New Orleans District
- SAM = USACE Mobile District
- SAJ = USACE Jacksonville District

APPENDIX B-1
Incidental Take Limits Designated by the
Gulf of Mexico Region Biological Opinion

<i>FY10 Incidental Take Limits for Civil Works (CW) and Regulatory (R) Projects as defined by Revision 2 of the Gulf of Mexico Regional Biological Opinion (2007) for Hopper Dredges</i>									
Loggerhead <i>(Caretta caretta)</i>		Green <i>(Chelonia mydas)</i>		Kemp's ridley <i>(Lepidochelys kempii)</i>		Hawksbill <i>(Eretmochelys imbricata)</i>		Gulf Sturgeon <i>(Acipenser oxyrinchus desotoi)</i>	
CW	R	CW	R	CW	R	CW	R	CW	R
32	8	11	3	16	4	3	1	3	1

<i>FY10 Take Limits for Capture Relocation Trawling Operations as defined by Revision 2 of the Gulf of Mexico Regional Biological Opinion (2007)</i>			
Sea Turtle Relocations	Sea Turtle (any species) Relocation Takes (injured or killed)	Gulf Sturgeon Relocations	Gulf Sturgeon Relocation Takes (injured or killed)
300	2	8	1

APPENDIX B-2
FY 2010 Documented Incidental Takes
Designated by Civil Works (CW) vs. Regulatory (R) Projects

<i>FY10 Documented Incidental Takes for Gulf of Mexico Civil Works (CW) and Regulatory (R) Hopper Dredging Projects</i>									
Loggerhead <i>(Caretta caretta)</i>		Green <i>(Chelonia mydas)</i>		Kemp's ridley <i>(Lepidochelys kempii)</i>		Hawksbill <i>(Eretmochelys imbricata)</i>		Gulf Sturgeon <i>(Acipenser oxyrinchus desotoi)</i>	
CW	R	CW	R	CW	R	CW	R	CW	R
1	3	1	0	3	0	0	0	0	0

<i>FY10 Total Captured & Relocated Turtles and Sturgeon by Gulf of Mexico Civil Works and Regulatory Hopper Dredging Projects</i>							
Sea Turtle Relocations		Sea Turtle (any species) Relocation Takes (injured or killed)		Gulf Sturgeon Relocations		Gulf Sturgeon Relocation Takes (injured or killed)	
CW	R	CW	R	CW	R	CW	R
9	267	0	3	0	0	0	0

APPENDIX C
Dredging Project Summary Data
(FY10 Gulf of Mexico Hopper Dredging)

District	Sub-region	Project*	Project Type	Dredge	# Drag-heads	Dredge Dates**	Total Dredge Days**	Total Y ³ Dredged***	Total M ³ Dredged***	Observer Co.
SWG	WG	Freeport Harbor	M/C/OD	<i>Glenn Edwards/Bayport</i>	2	10/30/09-11/25/09; 1/18/10	27	2,413,255/ 7,500	1,845,066/ 5,734	CWC
SWG	WG	Houston Ship Channel	M/C/OD	<i>Glenn Edwards</i>	2	1/22/10 – 1/29/10	8	260,974	199,529	CWC
SWG	NWG	!Galveston Jetty, Entrance, and Harbor Channel	M/C/OD	<i>Glenn Edwards/Bayport</i>	2/2	10/1/09 – 10/30/09, 4/11/10 – 5/25/10; 10/1/09 - 10/22/09	75;22	2,066,661; 2,053,029	1,580,076; 1569653	CWC
SWG	NWG	Corpus Christi	M/C/OD	<i>Bayport</i>	2	12/28/09 – 1/17/10	21	910,000	695,745	CWC
SWG	NWG	Calcasieu Bar Channel	M/C/OD	<i>Bayport</i>	2	4/26/10 – 6/22/10	58	6,014,562	4,598,463	CWC
MVN	NWG	Louisiana Coast – East Berm at Hewes Point	ED/O/OD	<i>Terrapin Island/Liberty Island/Padre Island/Stuyvesant Bayport/ BE Lindholm</i>	2ea.	7/10/10 – 7/23/10	38	465,892	356,200	CWC
SAM	NEG	Mobile Harbor & Bar Channel	M/C/OD	<i>Newport</i>	2	10/1/09 – 11/3/09	34	641,116	490,168	CWC
SAM	NEG	!Mobile Harbor & Bay Channel	M/C/OD	<i>Glenn Edwards/Columbia/ Bayport</i>	2/2/2	11/29/09 - 7/19/10; 11/8/09 – 8/09/10; 7/3/10 – 7/12/10	95 272 10	1,607,528 2,899,453 60,398	1,229,043 2,216,791 46,178	CWC
SAJ	NEG	Santa Rosa Island Range Complex – Eglin AFB	O/BD	<i>RN Weeks</i>	2	4/8/10 – 6/24/10	78	?	?	ECO
SAJ	NEG	Holiday Isle Beach SPP-Destin, FL	O/BD	<i>BE Lindholm</i>	2	9/14/10 – 9/22/10	9	?	?	REM

M = Maintenance; ED = Emergency dredging; C = Channel sediment source; O = Offshore/non-channel sediment source; OD = Ocean disposal; BD = Beach disposal

Gray shaded = Regulatory project

ECO = East Coast Observers, Inc.; CWC = Coastwise Consultants, Inc.; REM = REMSA, Inc.

*Data includes projects that occurred in FY09. Red highlighted projects started in FY08 but finished FY09 and Blue highlighted projects started in FY09 but have carried over into FY10. In these cases cubic yards are estimated per FY if a none total is given.

** Project and dredge dates include non-dredging down time unless noted – span of projected listed above

*** Dredge quantities (provided by USACE Districts) may be estimates instead of actual amounts

Y³ = Total Cubic Yards dredged material; M³ = Total Cubic Meters dredged material

! Projects carried over two FY's. Galveston Harbor and Mobile Bay & Bar Channels started in FY09 and worked over into FY10.

? Never received observer reports or amounts of material moved for these two project.

APPENDIX D
Distribution of Sea Turtle Incidental Takes by Species
(FY10 Gulf of Mexico Hopper Dredging)

District	Sub-Region	Project	Dredge	Cc	Cm	Lk	Total Takes
SWG	WG	Freeport Harbor	<i>Glenn Edwards</i>	0	1	0	1
SWG	WG	Freeport Harbor	<i>Bayport</i>	0	0	0	0
SWG	WG	Houston Ship Channel	<i>Glenn Edwards</i>	0	0	0	0
SWG	NWG	!Galveston Jetty, Entrance, and Harbor Channel	<i>Glenn Edwards</i>	0	0	0	0
SWG	NWG	!Galveston Jetty, Entrance, and Harbor Channel	<i>Bayport</i>	1	0	0	1
SWG	NWG	Corpus Christi Ship Channel	<i>Bayport</i>	0	0	0	0
MVN	NWG	Calcasieu Entrance Channel	<i>Bayport</i>	0	0	3	3
MVN	NWG	Louisiana Coast – East Berm at Hewes Point	<i>Terrapin Island</i>	1	0	0	1
MVN	NWG	Louisiana Coast – East Berm at Hewes Point	<i>Liberty Island</i>	2	0	0	2
MVN	NWG	Louisiana Coast – East Berm at Hewes Point	<i>Padre Island</i>	0	0	0	0
MVN	NWG	Louisiana Coast – East Berm at Hewes Point	<i>Stuyvesant</i>	0	0	0	0
MVN	NWG	Louisiana Coast – East Berm at Hewes Point	<i>Bayport</i>	0	0	0	0
MVN	NWG	Louisiana Coast – East Berm at Hewes Point	<i>BE Lindholm</i>	0	0	0	0
SAM	NEG	Mobile Harbor & Bar Channel	<i>Newport</i>	0	0	0	0
SAM	NEG	!Mobile Harbor & Bay Channel	<i>Glenn Edwards</i>	0	0	0	0
SAM	NEG	!Mobile Harbor & Bay Channel	<i>Columbia</i>	0	0	0	0
SAM	NEG	!Mobile Harbor & Bay Channel	<i>Bayport</i>	0	0	0	0
SAM	NEG	Santa Rosa Island Range Complex – Eglin AFB	<i>RN Weeks</i>	0	0	0	0
SAJ	NEG	Holiday Isle Beach SPP-Destin, FL	<i>BE Lindholm</i>	0	0	0	0
TOTAL				4	1	3	8
Cc = Loggerhead (<i>Caretta caretta</i>); Cm = Green turtle (<i>Chelonia mydas</i>); Lk = Kemp's Ridley (<i>Lepidochelys kempii</i>)							
Gray shaded = Regulatory project							
! Projects carried over two FY's.							

APPENDIX E
Hopper Dredge/Capture Trawler-related Incidental Take Summary
(FY10 Gulf of Mexico Dredging)

District	Sub-region	Project	Species	Take Date	Dredge Load #	Time Recovered	Lat	Long	Water Temp*	SI used?	Trawling used?
SWG	WG	Freeport Harbor	Cm	11/10/009	92	2107	28' 56.11	95' 17.78	21.6	Yes	No
SWG	NWG	Galveston Jetty	Cc	10/22/09	516	0605	29' 18.19	94' 38.94	27.8	Yes	No
MVN	NWG	Calcasieu River Bar	LK	4/27/10	4	1530	29' 42.41	93' 20.16	21.7	Yes	No
			LK	5/15/10	85	0624	29' 42.28	93' 22.02	26.5	Yes	No
			LK	6/21/10	268	2025	29' 43.57	93' 20.30	28.5	Yes	No
MVN	NWG	Louisiana Coast - Hewes	Cc	7/16/10	71	0822	30' 04.63	88' 53.23	28.3	Yes	Yes
			Cc	7/20/10	89	2134	30' 63.60	88' 51.16	27.8	Yes	Yes
			Cc	7/21/10	82	0305	30' 03.56	88' 51.25	28.0	Yes	Yes
			Cc	7/10/10	Tow 29	1924	30' 04.96	88' 52.83	32.0	Yes	Yes
			Cc	7/21/10	Tow 248	2054	30' 04.15	88' 52.45	~31.1	Yes	Yes
			Cc	7/23/10	Tow 350	2142	30' 04.58	88' 53.25	31.1	Yes	Yes
Cc = Loggerhead (<i>Caretta caretta</i>); Cm = Green turtle (<i>Chelonia mydas</i>); Lk = Kemp's ridley (<i>Lepidochelys kempii</i>) N/A = Data not available; SI used? = Silent Inspector in use during dredging project? *Surface Temperature Observer's record lat/long of turtle takes either at the beginning, middle, or end of the load. Usually the beginning of the load (Chris Slay, Coastwise Consulting). ! Projects carried over two FY's. Trawling for Louisiana Coast – Hewes Point performed capture and non-capture trawling during the entire project. Gray shaded = Regulatory project											

APPENDIX F
Capture Relocation Trawling Summary Data
(FY10 Gulf of Mexico Hopper Dredging)

District	Sub-Region	Project	Trawl Vessel*	Trawl Dates	Total Trawl Days	Total Tows	Cc	Cm	Lk	Total Relocated	Avg. Tows/Day	Observer Co.
SWG	WG	Freeport Harbor	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SWG	WG	Houston Ship Channel	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SWG	NWG	!Galveston Jetty, Entrance, and Harbor Channel	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SWG	NWG	Corpus Christi	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SWG	NWG	Calcasieu Bar Channel	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MVN	NWG	Louisiana Coast – East Berm at Hewes Point	**Miss Adrienne; King Julian	7/9/10-7/23/10	27	584	185	1	8	194	21.63	ECO
SAM	NEG	Mobile Harbor & Bar Channel	Captain Wick; Lady Paige	9/29/09-10/13/09; 10/13/09-11/3/10	35	793	0	0	1	1	22.66	CWC
SAM	NEG	!Mobile Harbor & Bay Channel	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SAJ	NEG	Santa Rosa Island Range Complex – Eglin AFB	Miss Adrienne	4/6/10-6/24/10	80	2526	26	2	40	68	31.57	ECO
SAJ	NEG	Holiday Isle Beach SPP-Destin, FL	Open Sea	9/12/10-9/22/10	11	393	4	0	1	5	35.73	REMSA
SAM	NEG	***Gulfport Expansion Project	Captain Wick	9/28/10-9/30/10	3	56	5	0	0	5	18.67	CWC
SAM	NEG	***Gulfport Harbor-Bar Channel	Captain Wick	10/2/09-10/7/09	6	119	2	N/A	1	3	19.83	N/A

TOTAL TURTLES RELOCATED BY SPECIES

Cc = Loggerhead (*Caretta caretta*); Cm = Green turtle (*Chelonia mydas*); Lk = Kemp's ridley (*Lepidochelys kempi*)

N/A = Not Applicable since relocation did not occur during that project

ECO = East Coast Observers, Inc.; CWC = Coastwise Consultants, Inc.; REMSA

*Each trawlers worked 24 hours/2 crews during the project. **Two trawlers worked simultaneously.

***Both projects listed for Gulfport were prior to and after dredging operations. Expansion project was pre-dredge and Bar Channel was during bed-leveling.

Gray shaded = Regulatory project

! Projects carried over two FY's.

Louisiana Coast-Hewes Point project also conducted non-capture sweep trawling, 2-3 hours tows onboard King Julian (4days), Master Jimbo (10 days) and Cindy Marie (12 days).

APPENDIX G
Dredging Project Summary Data by Subregion and USACE District
(FY10 Gulf of Mexico Hopper Dredging)

Dredging Data Summary	Subregion				
	West Gulf	Northwest Gulf	Northeast Gulf	East Gulf	TOTAL
Total Dredge Projects	2	4	4	0	10
Total Turtle Takes	1	7	0	0	8
Total Dredge Days	49	201	498	0	748
Total Turtle Takes/Days Dredged	0.0204	0.03483	0.0000	0	0.0107
Total Cubic Yards	3,330,755	10,861,118	5,208,495	0	19,400,368
Total Cubic Meters	2,546,545	8,303,921	3,982,180	0	14,832,646
Total Turtle Takes/1000-y ³	0.00030	0.00064	0.00000	0	0.00041
Total Turtle Takes/1000-m ³	0.00039	0.00084	0.00000	0	0.00054

Dredging Summary Data	USACE District				
	Galveston	New Orleans	Mobile	Jacksonville	Total
Total Dredge Projects	4	2	2	2	10
Total Turtle Takes	2	6	0	0	8
Total Dredge Days	154	96	411	87	748
Total Turtle Takes/Days Dredged	0.0249	0.00893	0.00901	0	0.0107
Total Cubic Yards	7,711,419	6,480,454	5,208,495	0	19,400,368
Total Cubic Meters	5,895,803	4,954,663	3,982,180	0	14,832,646
Total Turtle Takes/1000-y ³	0.00026	0.00093	0.00000	0	0.00041
Total Turtle Takes/1000-m ³	0.00034	0.00121	0.00000	0	0.00054

Notes: Tables do not include 3 loggerheads taken by trawler during the Louisiana Coast-Hewes Point project. Also two of the 10 projects (NE Gulf, Jacksonville) had no cubic yards given.

APPENDIX H
Capture Relocation Trawling Summary Data by Subregion and USACE District
(FY10 Gulf of Mexico Hopper Dredging)

Relocation Trawling Summary Data	Subregion				
	West Gulf	Northwest Gulf	Northeast Gulf	East Gulf	TOTAL
Total Trawl Projects	N/A	1	5	N/A	6
Total Turtles Relocated	N/A	194	82	N/A	276
Total Trawl Days	N/A	27	135	N/A	162
Total Tows	N/A	584	3887	N/A	4,471
Total Turtles Trawled/Total Days	N/A	7.1852	0.6074	N/A	1.7037
Total Turtles Trawled/Total Tows	N/A	0.3322	0.0211	N/A	0.0617
Average Tows per day	N/A	21.63	28.79	N/A	27.60

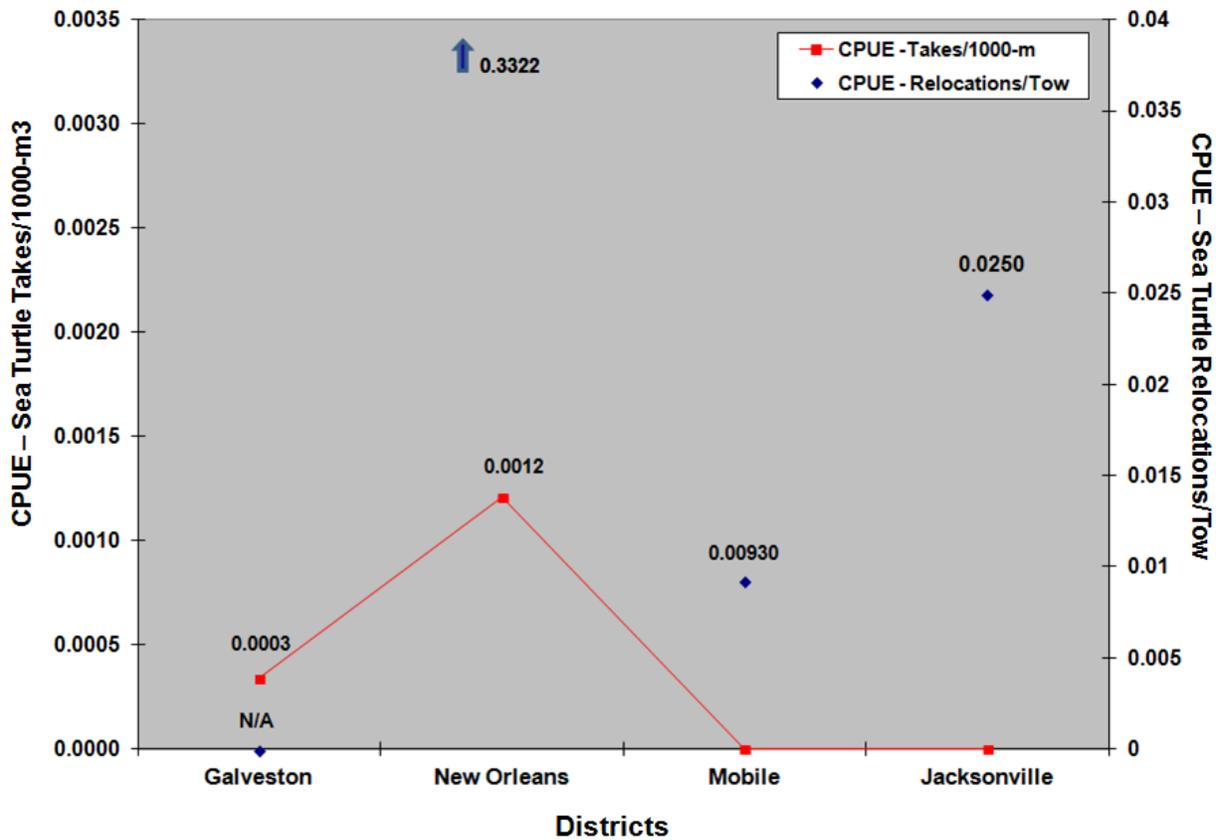
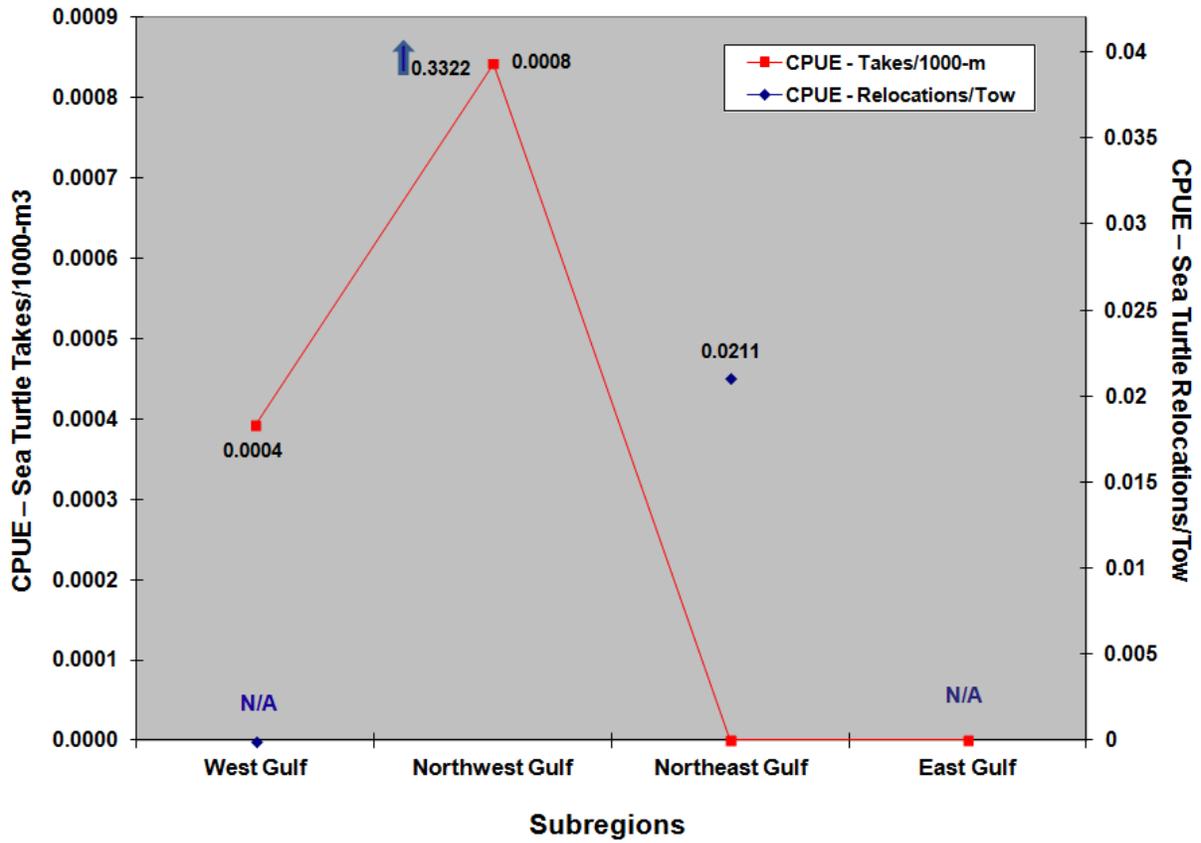
Relocation Trawling Summary Data	USACE District				
	Galveston	New Orleans	Mobile	Jacksonville	Total
Total Trawl Projects	N/A	1	3	2	6
Total Turtles Relocated	N/A	194	9	73	276
Total Trawl Days	N/A	27	44	91	162
Total Tows	N/A	584	968	2919	4,471
Total Turtles Trawled/Total Days	N/A	7.1852	0.2045	0.8022	1.7037
Total Turtles Trawled/Total Tows	N/A	0.3322	0.0093	0.0250	0.0617
Average Tows per day	N/A	21.63	22.00	32.08	27.60

N/A = No relocation trawling performed; Each trawler worked 24 hours/day with 2 crews during the project

Note: Non-capture trawling also performed during the Louisiana – Hewes Point project. Also table includes two Gulfport projects that performed trawling within FY10 but no dredging. One project was pre-dredge trawling and one was after the project supporting bed-leveling.

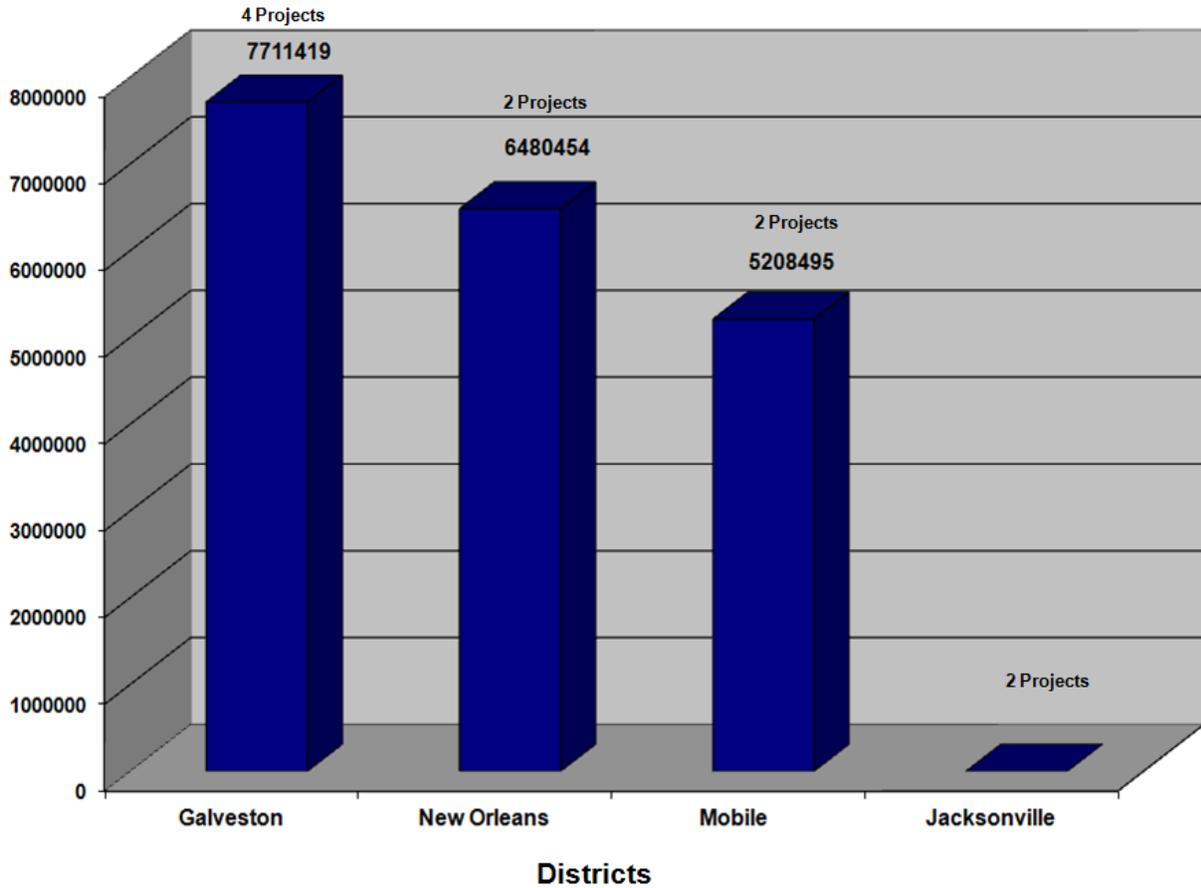
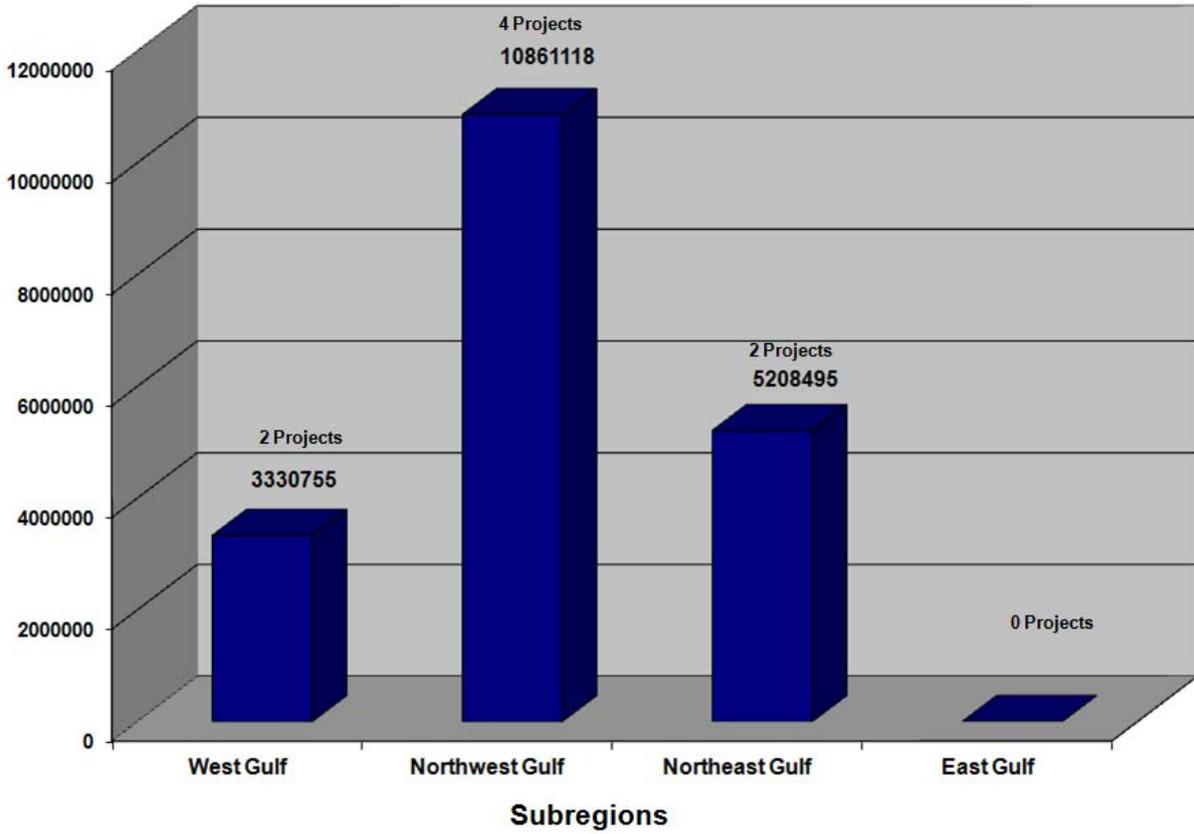
APPENDIX I

Catch per Unit Effort Comparisons for Sea Turtle Dredge Takes and Capture Trawl Relocations by Subregion and USACE District (FY10 Gulf of Mexico Hopper Dredging)



APPENDIX J

Distribution of Dredged Material Quantities (Cubic Yards) by Geographic Subregion and USACE Districts



APPENDIX K
Distribution of Sea Turtle Takes by Month
(FY10 Gulf of Mexico Hopper Dredging)

PROJECT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Freeport Harbor											1	
Houston Ship Channel												
Galveston Jetty, Entrance, and Harbor Channel										1		
Corpus Christi												
Calcasieu Bar Channel				1	1	1						
Louisiana Coast – East Berm at Hewes Point							3					
Mobile Harbor & Bar Channel												
Mobile Harbor & Bay Channel												
Santa Rosa Island Range Complex – Eglin AFB												
Holiday Isle Beach SPP-Destin, FL												
TOTAL LOGGERHEAD TAKES	0	0	0	0	0	0	3	0	0	1	0	0
TOTAL GREEN TURTLE TAKES	0	1	0									
TOTAL KEMP'S RIDLEY	0	0	0	1	1	1	0	0	0	0	0	0
TOTAL TURTLE TAKES BY MONTH	0	0	0	1	1	1	3	0	0	1	1	0
TOTAL PROJECTS BY MONTH	3	1	1	4	4	3	2	1	1	2	2	1

Shaded areas under the month = Project occurrence (projects under 5 days in one month not included)
Shaded areas under Project = Regulatory
! Projects carried over two FY's.
3 Loggerhead takes in July by trawler during the Louisiana Coast-Hewes Point project are not included in table.

APPENDIX L
Distribution of Project Dredge Days by Month
(FY10 Gulf of Mexico Hopper Dredging)

PROJECT	DREDGE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Freeport Harbor	<i>Glenn Edwards/Bayport</i>											25/0	
Houston Ship Channel	<i>Glenn Edwards</i>	8											
Galveston Jetty, Entrance, and Harbor Channel	<i>Glenn Edwards/Bayport</i>				20/0	25/0					30/22		
Corpus Christi	<i>Bayport</i>	17											
Calcasieu Bar Channel	<i>Bayport</i>				5	31	22						
Louisiana Coast – East Berm at Hewes Point	<i>Terrapin Island/Liberty Island/Padre Island/Stuyvesant/ Bayport/ BE Lindholm</i>							14/14/ 3/3/2/2					
Mobile Harbor & Bar Channel	<i>Newport</i>										31		
Mobile Harbor & Bay Channel	<i>Glenn Edwards/Columbia/Bayport</i>	15/0/0	0/28/0	7/31/0	9/30/0	0/31/0	10/30/0	19/31/10	0/9/0			0/23/0	31/31/0
Santa Rosa Island Range Complex – Eglin AFB	<i>RN Weeks</i>				23	31	24						
Holiday Isle Beach SPP-Destin, FL	<i>BE Lindholm</i>									9			
TOTAL DAYS DREDGED BY MONTH		40	28	38	87	118	86	98	9	9	83	47	62
TOTAL TURTLE TAKES BY MONTH		0	0	0	1	1	1	3	0	0	1	1	0
TURTLES TAKES PER DREDGE DAY BY MONTH		0	0	0	0.011	0.008	0.012	0.031	0	0	0.012	0.021	0

Shaded areas under the month = Project occurrence (projects under 5 days in one month not included)
Shaded areas under Project = Regulatory
! Projects carried over two FY's.
Number of dredge days does not reflect any down time during project
3 Loggerhead takes in July by trawler during the Louisiana Coast-Hewes Point project are not included in table.

APPENDIX M
Non-Sea Turtle Species Incidental Takes or Noted Occurrences
(FY10 Gulf of Mexico Hopper Dredging)

Species	Project	Observations/Remarks
Sturgeon	N/A	N/A
Whales/Manatees	N/A	N/A
Dolphin	All projects	-all projects had sightings.
Shark	Mobile Harbor & Bar	-report 1 unknown species of shark was taken – Mar 2010
Other Bycatch – Blue Crab	Houston Ship Channel Corpus Christi Galveston Jetty, Entrance and Harbor Calcasieu Mobile Harbor & Bar	-142 blue crab taken - many blue crabs mentioned as taken on daily report but no numbers. -some mentions of blue crab in Oct, 138+ noted to be taken in Apr-May. -blue crabs mentioned on about half the daily reports, no numbers -few daily reports small number of blue crabs, not much.
N/A = No known significant occurrences		

Note : No observer reports received from Santa Rosa Island, Holiday Isle Beach project.