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**USACE Hopper Dredging Interactions with Sea Turtles:
Fiscal Year 2012 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) 2012 (1 October 2011 through 31 September 2012). 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 8 locations for the 11 USACE hopper dredging projects in the northern Gulf of Mexico during FY2011 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 2012 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 2012, 11 hopper dredging projects (10 civil works (CW) channel/harbor maintenance and 1 CW beach re-nourishment project) were conducted along the northern Gulf of Mexico, with a total of 7 (7 CW; 0 R) dredging-related incidental takes of sea turtles. Capture trawling was performed during 1 of these hopper projects with 8 (8 CW; 0 R) trawler capture/relocated sea turtles during dredging as well as non-capture sweep trawling. A person from NOAA Pascagoula Research laboratory boarded the trawler on 11/1/11 to install cameras in the non-capture, sweep trawling nets. "The hope of the cameras is to record the passage of the bottom lines of the nets over the bottom and to detect any turtles passing through the mouth of the nets. The cameras were activated each day during the period when the sun provides maximum light penetration into the water and thus visibility is optimal. Cameras recorded 2 hours in the morning and 2 hours in the early afternoon given the parameters of battery life and memory card capacity...", Chris Slay Coastwise Consulting, Inc. Also two kemp's ridley's were taken by the dredge alive during the Panama City Beach Restoration project and sent to Gulf World Marine Par for rehabilitation.

REFERENCES AND RESOURCES

USACE Sea Turtle Database Warehouse, (<http://el.erd.c.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.

Dickerson, D. D., M. S. Wolters, C. T. Theriot, C. Slay. (2005). "[Dredging impacts on sea turtles in the Southeastern USA: A historical review of protection](#)," *In: Proceedings of the World Dredging Conference XVII, Dredging in a Sensitive Environment*. Central Dredging Association, 27 September-1 October 2004, Hamburg, Germany.

[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.erd.c.usace.army.mil/seaturtles/>)

USACE Galveston District. FY 2012. [Annual Sea Turtle Monitoring Report](#)

USACE New Orleans District. FY 2012. [Annual Sea Turtle Monitoring Report](#)

USACE Mobile District. FY 2012. [Annual Sea Turtle Monitoring Report](#)

FY 2012 Project Sea Turtle/Dredging Data Submitted by Endangered Species Observer Companies and USACE Districts (Archived at: <http://el.erd.c.usace.army.mil/seaturtles/>)

[USACE Galveston District \(FY 2012\)](#)

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

Freeport Entrance Channel (East Coast Observer Company, Inc.)

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

Galveston Harbor Entrance Channel (Coastwise Consulting, Inc.)

Matagorda Ship Channel (East Coast Observer Company, Inc.)

Sabine Pass Outer Bar & Bank Channel (Coastwise Consulting, Inc.)

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USACE New Orleans District (FY 2012)

Calcasieu River Bar Channel (Coastwise Consulting, Inc.)

USACE Mobile District (FY 2012)

Mobile Harbor Part I (REMSA, Inc. & Coastwise Consulting, Inc.)

Mobile Harbor Part II (Coastwise Consulting, Inc.)

Mobile Harbor Part III (Coastwise Consulting, Inc.)

Panama City Beach Restoration (Coastwise Consulting, Inc.)

USACE Jacksonville District (FY 2012)

NONE

Note: See FY11 summary which includes a Gulfport Harbor project that actually worked 7 days into FY12 .

APPENDICES

Appendix A.....Map of FY12 Gulf of Mexico Hopper Dredging Projects

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

Appendix B-2.....Incidental Takes Designated by Civil Works Versus Regulatory Projects

Appendix C.....Dredging Project Summary Data

Appendix D.....Distribution of Sea Turtle Incidental Takes by Species

Appendix E.....Hopper Dredge/Capture Trawler Related Sea Turtle Incidental Take Summary

Appendix F.....Capture Relocation Trawling Summary Data

Appendix G.....Dredging Project Summary Data by Subregion and USACE District

Appendix H.....Capture Relocation Trawling Summary Data by Subregion and USACE District

Appendix I.....CPUE Comparisons for Sea Turtle Dredge Takes and Capture Trawl Relocations

Appendix J.....Distribution of Dredged Material Quantities by Geographic Subregion and USACE Districts

Appendix K.....Distribution of Sea Turtle Takes by Month

Appendix L.....Distribution of Dredge Days by Month

Appendix M.....Non-Sea Turtle Species Incidental Takes or Noted Occurrences

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APPENDIX A
FY12 Gulf of Mexico Hopper Dredging Projects

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

<i>FY12 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>FY12 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

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APPENDIX C

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Dredging Project Summary Data
(FY12 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 Entrance Channel	M/C/OD	Bayport Glenn Edwards	2/2	12/26/11 – 1/17/12 1/10/12 – 1/15/12		910,066 174,468		CWC
SWG	WG	!Freeport Entrance Channel	M/C/OD	<i>BE Lindholm</i>	2	9/12/12 – 9/30/12				ECO
SWG	WG	Matagorda	M/C/OD	<i>BE Lindholm</i>	2	8/30/12 – 9/10/12		484,854		ECO
SWG	NWG	Houston Ship Channel	M/C/OD	<i>Glenn Edwards</i>	2	1/16/12 – 1/23/12		314,444		CWC
SWG	NWG	!Galveston Harbor	M/C/OD	<i>Bayport Glenn Edwards</i>	2	10/1/11 – 11/2/12 10/6/11 – 10/18/11; 1/24/12 – 4/21/12		1,734,526 2,097,474		CWC
SWG	NWG	!Sabine Pass Outer Bar & Bank Channel	M/C/OD	Glenn Edwards Bayport	2/2	6/28/12 – 9/30/12 9/10/12 – 9/30/12				CWC
SAM	NWG	Calcasieu River Bar Channel	M/C/OD	Bayport Glenn Edwards	2/2	4/2/12 – 5/7/12 4/25/12 – 5/14/12		6,792,670 3,852,955		CWC
SAM	NEG	Mobile Harbor & Bay Channel I	M/C/OD	<i>Columbia Stuyvesant Glenn Edwards</i>	2/2/2	10/1/11 – 1/19/12 1/16/12 – 1/19/12 1/1/12 – 1/25/12		988,125 68,400 381,530		CWC & REMSA
SAM	NEG	Mobile Harbor/ Bay Channel II	M/C/OD	<i>Columbia</i>	2	3/5/12 – 4/21/12		310,204		CWC
SAM	NEG	Mobile Harbor Bar Channel III	M/C/OD	<i>Newport</i>	2	9/13/12 – 9/30/12		484,509		CWC
SAM	NEG	Panama City Beach Restoration	O/BD	<i>Liberty Island</i>	2	10/1/11 – 12/31/11		1,557,019		CWC

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. Cubic yards shown for Longboat Key are amounts reported to have been placed on beach.

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

*Data includes projects that occurred in FY12.

** 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. Freeport Harbor ,Sabine-Neches began in FY12 and worked over into FY12. Galveston Harbor started in FY11 but finished in FY12.

Note: Projects that worked less than 5 days in a month and started/ended in one FY was reported in the FY that had the most days worked unless cubic yards moved could not be separated into separate FYs (i.e. Gulfport finished in FY12 but included those 7 days in FY 11 since it was not separated out-see last FY11 summary report).

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APPENDIX D
Distribution of Sea Turtle Incidental Takes by Species
(FY12 Gulf of Mexico Hopper Dredging)

District	Sub-Region	Project	Dredge	Cc	Cm	Lk	Total Takes
SWG	WG	Freeport Harbor Entrance Channel	<i>Bayport</i>	0	1	0	1
SWG	WG	Freeport Harbor Entrance Channel	<i>Glenn Edwards</i>	0	0	0	0
SWG	WG	!Freeport Entrance Channel	<i>BE Lindholm</i>	0	0	0	0
SWG	WG	Matagorda Ship Channel	<i>BE Lindholm</i>	1	1	0	2
SWG	NWG	Houston Ship Channel	<i>Glenn Edwards</i>	0	0	0	0
SWG	NWG	!Galveston Harbor Entrance Channel	<i>Bayport</i>	1	0	0	1
SWG	NWG	Galveston Harbor Entrance Channel	<i>Glenn Edwards</i>	0	0	0	0
MVN	NWG	!Sabine Pass Outer Bar & Bank Channel	<i>Glenn Edwards</i>	0	0	1	1
MVN	NWG	!Sabine Pass Outer Bar & Bank Channel	<i>Bayport</i>	0	0	0	0
MVN	NWG	Calcasieu River Bar Channel	<i>Bayport</i>	0	0	0	0
MVN	NWG	Calcasieu River Bar Channel	<i>Glenn Edwards</i>	0	0	0	0
SAM	NEG	Mobile Harbor & Bay Channel I	<i>Columbia</i>	0	0	0	0
SAM	NEG	Mobile Harbor & Bay Channel I	<i>Stuyvesant</i>	0	0	0	0
SAM	NEG	Mobile Harbor & Bay Channel I	<i>Glenn Edwards</i>	0	0	0	0
SAM	NEG	Mobile Harbor/ Bay Channel II	<i>Columbia</i>	0	0	0	0
SAM	NEG	Mobile Harbor Bar Channel III	<i>Newport</i>	0	0	0	0
SAM	NEG	Panama City Beach Restoration	<i>Liberty Island</i>	0	0	2	2
TOTAL				2	2	3	7
Cc = Loggerhead (<i>Caretta caretta</i>); Cm = Green turtle (<i>Chelonia mydas</i>); Lk = Kemp's Ridley (<i>Lepidochelys kempii</i>)							
! Projects carried over two FY's.							
Note: Both takes during the Panama City Beach project were LIVE takes brought to Gulf World Marine Par for rehabilitation.							

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APPENDIX E
Hopper Dredge/Capture Trawler-related Incidental Take Summary
(FY12 Gulf of Mexico Dredging)

District	Sub-region	Project	Species	Take Date	Dredge Load #	Time Recovered	Lat	Long	Water Temp*	DQM used?	Trawling used?
SWG	WG	Freeport Harbor	Cm	12/28/11	18	0315	28' 55.96	95' 17.590	11.7	Yes	No
SWG	WG	Matagorda Ship Channel	Cc	9/8/12	154	0125	28' 23.30	96' 17.23	28.4	Yes	No
			Cm	8/31/12	13	0958	28' 32.82	96' 17.75	29.8	Yes	No
SWG	NWG	!Sabine Pass Outer Bar	Lk	7/4/12	56	1340	29' 37.27	93' 48.93	30.0	Yes	No
SWG	NWG	! Galveston Harbor Ent.	Cc	10/6/11	109	0254	29' 17.75	94' 36.62	24.7	Yes	No
SAM	NEG	Panama City Beach	LK	11/22/11	166	1015	30' 06.87	85' 48.97	18.8	Yes	Yes
			LK	12/6/11	213	1140	30' 07.24	85' 48.78	16.5	Yes	Yes
Cc = Loggerhead (<i>Caretta caretta</i>); Cm = Green turtle (<i>Chelonia mydas</i>); Lk = Kemp's ridley (<i>Lepidochelys kempi</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. Note: Both takes during the Panama City Beach project were LIVE takes brought to Gulf World Marine Par for rehabilitation.											

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APPENDIX G

**Dredging Project Summary Data by Subregion and USACE District
(FY12 Gulf of Mexico Hopper Dredging)**

Dredging Data Summary	Subregion				
	West Gulf	Northwest Gulf	Northeast Gulf	East Gulf	TOTAL
Total Dredge Projects					
Total Turtle Takes					
Total Dredge Days					
Total Turtle Takes/Days Dredged					
Total Cubic Yards					
Total Cubic Meters					
Total Turtle Takes/1000-y ³					
Total Turtle Takes/1000-m ³					

Dredging Summary Data	USACE District				
	Galveston	New Orleans	Mobile	Jacksonville	Total
Total Dredge Projects					
Total Turtle Takes					
Total Dredge Days					
Total Turtle Takes/Days Dredged					
Total Cubic Yards					
Total Cubic Meters					
Total Turtle Takes/1000-y ³					
Total Turtle Takes/1000-m ³					

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APPENDIX H

**Capture / Relocation Trawling Summary Data by Subregion and USACE District
(FY12 Gulf of Mexico Hopper Dredging)**

Relocation Trawling Summary Data	Subregion				
	West Gulf	Northwest Gulf	Northeast Gulf	East Gulf	TOTAL
Total Trawl Projects					
Total Turtles Relocated					
Total Trawl Days					
Total Tows					
Total Turtles Trawled/Total Days					
Total Turtles Trawled/Total Tows					
Average Tows per day					

Relocation Trawling Summary Data	USACE District				
	Galveston	New Orleans	Mobile	Jacksonville	Total
Total Trawl Projects					
Total Turtles Relocated					
Total Trawl Days					
Total Tows					
Total Turtles Trawled/Total Days					
Total Turtles Trawled/Total Tows					
Average Tows per day					

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

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APPENDIX I

**Catch per Unit Effort Comparisons for Sea Turtle Dredge Takes and
Capture Trawl Relocations by Subregion and USACE District
(FY12 Gulf of Mexico Hopper Dredging)**

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APPENDIX J

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

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APPENDIX M
Non-Sea Turtle Species Incidental Takes or Noted Occurrences
(FY12 Gulf of Mexico Hopper Dredging)

Species	Project	Observations/Remarks
Sturgeon		
Whales/Manatees		
Dolphin		
Shark		
Bycatch		
N/A = No known significant occurrences		