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Serious Injury Determinations for Small Cetaceans off the Southeast U.S. Coast, 2007-2011

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Introduction and Methods

The Marine Mammal Protection Act (MMPA) requires NOAA's National Marine Fisheries Service (NMFS) to distinguish between injuries to marine mammals that are serious and not serious. During 2012 NMFS issued a policy directive and procedural directives to establish a process for distinguishing serious from non-serious injuries (NMFS 2012a, b). This document summarizes serious injury determinations for small cetaceans in southeast U.S. waters for the 5-year period 2007-2011.

The data included in this report came from various sources, including the NOAA National Marine Mammal Health and Stranding Response Database, the Marine Mammal Authorization Program (fisherman self-reports), incidental take reports (unauthorized research gear takes), fishery observer records (excluding the pelagic longline fishery), and opportunistic at-sea observations by NOAA and non-NOAA researchers, marine patrol, and private citizens. All instances in the data for which a small cetacean was released alive following a human interaction, such as an entanglement in fishing gear or marine debris or a hooking, or observed alive at-sea entangled in fishing gear or debris, hooked, or boat struck, were evaluated.

Serious injury determinations were made following NMFS 2012 policy and guidelines (NMFS 2012a, b). Initially the data were evaluated by two marine mammal researchers in the Southeast Fisheries Science Center. All differences were discussed to obtain agreement. Determinations were reviewed by NMFS Determination Staff Working Group members from the Northeast Fisheries Science Center, NMFS Southeast Regional Office members, and Atlantic Scientific Review Group members.

In some instances, NOAA, stranding network partners, or private citizens disentangled or de-hooked an animal post-interaction (i.e., at some time after the initial entanglement or hooking). In these instances where there was a mitigation effort, a post-mitigation serious injury determination was made in addition to the initial serious injury determination. Both the initial and post-mitigation serious injury determinations are presented in Table 1. Post-mitigation determinations do not apply to situations where commercial fishermen or fisheries researchers released animals from gear at the time of the interaction. For management purposes (i.e., classifying fisheries on the LOF and take reduction planning), the pre-mitigation determination is used. For tallying the number of serious injuries, post-mitigation determinations are used (in cases for which there was mitigation) for comparing serious injuries to PBR in the Stock Assessment Reports (SARs) and are presented in the results section. The NMFS 2012b procedural directive states: "For cases where the animal is determined to be seriously injured and NOAA and/or an authorized partner successfully disentangles or dehooks the animal and the animal is determined to have no or non-serious injuries when released, it will be recorded as a serious injury when classifying fisheries on the LOF and informing management (e.g., take reduction planning), but will be recorded as a non-serious injury when compared to PBR in the SARs."

Mortality and serious injury resulting from the U.S. Atlantic pelagic longline fishery are detailed annually in a separate report (e.g., Garrison and Stokes 2012) and are not included in this document. Observer records denoted as "menhaden purse seine" resulted from a pilot observer program for the Gulf of Mexico menhaden purse seine fishery during the 2011 fishing season. The goal of the pilot program was to characterize protected species bycatch, specifically sea turtles and bottlenose dolphins.

Type of fishery is given if information was available to attribute observed or collected gear to a specific fishery or type of gear. In some cases, gear was collected from stranded animals and sent to the NMFS Pascagoula Gear Repository. If gear experts could identify gear to a specific fishery, or identify gear as recreational versus commercial, the specific information is given in Table 1. If gear could not be identified as belonging to a specific fishery, a general category, such as trap/pot gear, may be listed. Information on the fishery is given in as much detail as was known at the time of report preparation. As gear continues to be analyzed by the Pascagoula Gear Repository, information on fishery/gear is subject to change in future SARs.

Results

Eighty-two small cetacean events from southeast U.S. waters during 2007-2011 for which a determination was made of serious versus non-serious injury are included in Table 1. In total, 36 bottlenose dolphins were considered seriously injured; 37 bottlenose dolphins were considered not seriously injured; and for 7 bottlenose dolphin cases, it could not be determined if the injury was serious or not. In addition, there were 2 cases of unidentified dolphins, which were also likely bottlenose dolphins, but for which little information was available and it could not be determined if the injuries were serious or not.

The Western North Atlantic (WNA) bottlenose dolphin stocks for which serious injuries were documented include the following: Offshore Stock; Central Florida Coastal Stock; Northern North Carolina Estuarine System (NNCES) Stock; Charleston Estuarine System (CES) Stock; Northern Georgia/Southern South Carolina Estuarine System (NGSSCES) Stock; Jacksonville Estuarine System (JES) Stock; Indian River Lagoon Estuarine System (IRLES) Stock; and Florida Bay Stock

The Gulf of Mexico (GOM) bottlenose dolphin stocks for which serious injuries were documented include the following: Continental Shelf Stock; Eastern Coastal Stock; Caloosahatchee River Stock; Pine Island Sound, Charlotte Harbor, Gasparilla Sound, Lemon Bay Stock; Sarasota Bay, Little Sarasota Bay Stock; Tampa Bay Stock; St. Joseph Sound, Clearwater Harbor Stock; Choctawhatchee Bay Stock; Pensacola Bay, East Bay Stock; Mobile Bay, Bonsecour Bay Stock; Barataria Bay Estuarine System Stock; and Copano Bay, Aransas Bay, San Antonio Bay, Redfish Bay, Espiritu Santo Bay Stock.

The largest number of records was from the NOAA National Marine Mammal Health and Stranding Response Database. Nearly all of the stranding records were cases of bottlenose dolphins entangled in either crab trap/pot gear or hook and line fishing gear. Entanglements in unidentified fishing gear or marine debris comprised the remaining few stranding records. At-sea observations comprised the second highest number of records, and most of the observations consisted of animals entangled in, and often trailing, monofilament line or other fishing gear. In addition, there were a small number of observer program records that came from the following three fisheries: menhaden purse seine (pilot observer program), shrimp trawl, and snapper-grouper and other reef fish bottom longline/hook-and-line. There were also records of incidental takes involving research gillnet gear (unauthorized research gear takes). Finally, there was a record from the Marine Mammal Authorization Program (a fisherman self-report).

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Literature Cited

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Table 1. Serious injury (SI) determinations for cetaceans taken in SE U.S. waters during 2007-2011 using criteria in "Process for distinguishing serious from non-serious injury of marine mammals: Process for injury determinations" (NMFS 2012b; see Appendix I for details of injury categories and criteria). STR = stranding from NOAA National Marine Mammal Health and Stranding Response Database; MMAP = Marine Mammal Authorization Program; OBS = observer record; At-Sea = Opportunistic at-sea sightings; ITR = incidental take report, unauthorized research gear take; Tt = *Tursiops truncatus*; ATL = Atlantic Ocean; GOM = Gulf of Mexico; CES = Charleston Estuarine System; IRLES = Indian River Lagoon Estuarine System; JES = Jacksonville Estuarine System; NNCES = Northern North Carolina Estuarine System; NGSSCES = Northern Georgia/Southern South Carolina Estuarine System; CGES = Central Georgia Estuarine System.

Source of Data/Fishery Type	Animal ID	Species	Area (ATL, GOM, CAR)/ Stock Name (if known)	Date of Take or Report	Recorded Animal Condition	Initial SI Determination	NMFS 2012 SI Policy Criteria (for Small Cetaceans)	Injury Determination Criteria/Comments	Post-Mitigation SI Determination (for cases with mitigation; N/A is noted for cases without mitigation)	NMFS 2012 SI Policy Criteria (for Small Cetaceans)	Post-Mitigation Injury Determination Criteria/Comments
OBS; menhaden purse seine		Tt	GOM/Western Coastal Stock	1-Aug-2011	Alive, uninjured	Not Serious	S7b	animal trapped within purse seine; short duration of entrapment; swam away normally	N/A		
OBS; menhaden purse seine		Tt	GOM/Western Coastal Stock	1-Aug-2011	Alive, uninjured	Not serious	S7b	animal trapped within purse seine; short duration of entrapment; swam away normally	N/A		
OBS; menhaden purse seine		Tt	GOM/Mississippi Sound, Lake Borgne, Bay Boudreau Stock	17-Aug-2011	Alive, uninjured	Not serious	S7b	animal trapped within purse seine; short duration of entrapment; swam away normally	N/A		
MMAP; hook and line targeting tuna		Tt	ATL/Offshore Stock	7-Jan-2010	Alive, injured	Serious	S6	hooked in pectoral fin; trailing gear; prolonged restraint	N/A		
OBS; shrimp trawl		Tt	GOM/Western Coastal Stock or Continental Shelf Stock	13-May-2009	Alive, uninjured	Not serious	S7b	entangled in lazy line of a shrimp trawl; the line was cut; animal appeared to be in good condition	N/A		
OBS; snapper-grouper and other reef fish bottom longline		Tt	GOM/Continental Shelf Stock	15-Jun-2010	Alive, injured	Serious	S5a	hooked on outside of mouth; line wrapped around mouth; line was cut off and dolphin swam away	N/A		
At-Sea	Row 9	Tt	ATL/CES Stock	8-Apr-2007	Alive, uninjured	Serious	S8a	calf with strap around head behind blowhole	N/A		
At-Sea	Row 10	Tt	GOM/Tampa Bay Stock	26-May-2007	Alive, injured	Serious	S6	gear trailing from flukes of free-swimming animal	N/A		
At-Sea	Row 11	Tt	GOM/Tampa Bay Stock	27-Jun-2007	Alive, injured	Serious	S6	animal hooked somewhere on body and trailing ~75ft of fishing line	N/A		
At-Sea	Row 12	Tt	GOM/Tampa	6-Jul-2007	Alive,	Serious	S6	gear trailing from flukes of	N/A		

			Bay Stock		uninjured			free-swimming animal			
At-Sea	Row 13	Tt	GOM/Sarasota Bay, Little Sarasota Bay Stock	6-Jul-2007	Alive	Serious	S6	entangled in monofilament around dorsal fin and right fluke; gear may be constricting, and has potential to accumulate drag or become snagged	Not serious	S7b	line removed from dorsal fin via long-handled cutting tool; line eventually came off right fluke on its own; well-known resident dolphin survived for 8 years post-entanglement (pers. comm., R. Wells)
At-Sea	Row 14	Tt	GOM/Tampa Bay Stock	14-Dec-2007	Alive, injured	Serious	S6	gear embedded and trailing from flukes of free-swimming animal	N/A		
At-Sea	Row 15	Tt	ATL/IRLES Stock	25-Jun-2008	Alive	Serious	S8a	calf with gear wrapped around its head (behind blowhole)	N/A		
At-Sea	Row 16	Tt	ATL/JES Stock	25-Jun-2008	Alive	Serious	S6	gear consistent with crab trap/pot gear attached to free-swimming animal	N/A		
At-Sea	Row 17	Tt	GOM/Tampa Bay Stock	6-Aug-2008	Alive, injured	Serious	S6, S8a	gear wrapped around dorsal fin and trailing; animal's dorsal fin is sliced where gear is entangled	N/A		
At-Sea	Row 18	Tt	ATL/NNCES Stock	16-Jul-2008	Alive, injured	Serious	S8a	constricting gear wrapped around free-swimming animal	N/A		
At-Sea	Row 19	Tt	GOM/Tampa Bay Stock	10-Nov-2008	Alive, uninjured	Not serious	S7b	animal was entangled in monofilament but shed gear on its own	N/A		
At-Sea	Row 20	Tt	ATL/NGSSCES Stock	22-May-2009	Alive	Serious	S6, S1	crab trap/pot buoy and line trailing from flukes of free-swimming animal; animal's condition noted as "deteriorating"	N/A		
At-Sea	Row 22	Tt	GOM/Waccassa Bay, Withlacoochee Bay, Crystal Bay Stock	12-Aug-2009	Alive	CBD		calf possibly entangled with monofilament and rats nests; little information available	N/A		
At-Sea	Row 23	Tt	GOM/St. Andrew Bay Stock	7-Aug-2009	Alive	Not Serious	S5b	hooked in lip with a small hook and trailing monofilament and an additional hook; animal expected to shed gear on its own	N/A		
At-Sea	Row 25	Tt	GOM/Tampa Bay Stock	21-Sep-2009	Alive, injured	Serious	S13a	dorsal fin entanglement of unknown type; dorsal fin has been cut 1/3 way through	N/A		
At-Sea	Row 26	Tt	GOM/St. Joseph Sound, Clearwater Harbor Stock	17-Aug-2009	Alive	Serious	S6	calf entangled in gear (perhaps monofilament) around peduncle and possibly pectoral fins; gear trailing behind flukes	N/A		
At-Sea	Row 27	Tt	GOM/Pine Island Sound, Charlotte Harbor,	23-Sep-2009	Alive	Serious	S6	animal seen with line coming from inside mouth and trailing gear from mouth, including fish stringer	N/A		

			Gasparilla Sound, Lemon Bay Stock						
At-Sea	Row 28	Tt	ATL/IRLES Stock	24-Jun-2010	Alive	Serious	S6, S8a	calf entangled in monofilament with rat's nest; gear appears to be wrapped around animal from front (head/mouth perhaps) to back (behind dorsal fin where rat's nest is)	N/A
At-Sea	Row 29	Tt	GOM/Mobile Bay, Bonsecour Bay Stock	26-Jun-2010	Alive	Serious	S6	entangled with black rope or line near the animal's rostrum/jaw	N/A
At-Sea	Row 30	Tt	ATL/undefined northern FL estuarine stock	3-Sep-2010	Alive	Not Serious	S8b	entangled in monofilament; line wrapped around anterior part of dorsal fin base and trailing from both sides of dorsal fin; does not appear to circumferentially wrap around dorsal fin	N/A
At-Sea	Row 31	Tt	GOM/Eastern Coastal Stock	7-Mar-2011	Alive	Serious	S6	entangled in crab-pot type line, wrapped 3 times around animal with 1 foot of line trailing	N/A
At-Sea	Row 32	Tt	ATL/Florida Bay Stock	1-Apr-2011	Alive, injured	Serious	S6, S13a	entangled in monofilament and algae cutting off nearly half of dorsal fin; gear trailing behind dorsal fin	N/A
At-Sea	Row 34	Tt	GOM/Barataria Bay Estuarine System Stock	13-Jun-2011	Alive	Serious	S8a	calf with 3-4 wraps of monofilament and a bobber around its trunk anterior to dorsal fin	N/A
At-Sea	Row 36	Tt	GOM/Continental Shelf Stock	12-Sep-2010	Alive	Serious	S8a, S6	calf entangled with heavy test monofilament with hooks; circumferential wraps around pectoral fins and dorsal fin	N/A
At-Sea	Row 37	Tt	GOM/Copano Bay, ...Espiritu Santo Bay Stock	28-Apr-2011	Alive	Serious	S6	entangled in crab trap/pot gear with line and buoy trailing; line wrapped circumferentially around animal's body anterior to dorsal fin	N/A
At-Sea	Row 38	Tt	GOM/Terrebonne Bay, Timbalier Bay Stock	9-Jul-2010	Alive	CBD		animal entangled with rope and buoy; little information available	N/A
At-Sea	Row 39	Tt	GOM/Tampa Bay Stock	11-Sep-2011	Alive	CBD		entangled in fishing line near/around dorsal fin; line and knots trailing from dorsal fin; little details available	N/A
At-Sea	Row 40	Tt	ATL/undefined northern FL estuarine stock	20-Oct-2011	Alive	Not serious	S7b	animal with crab trap/pot line around peduncle; shed gear on its own	N/A
At-Sea	Row 41	Tt	ATL/NNCES Stock	10-Jul-2011	Alive	Serious	S6	entangled with line and black float around peduncle	N/A

At-Sea	Row 42	Tt	GOM/Pensacola Bay, East Bay Stock	20-Nov-2011	Alive	Serious	S6	monofilament around dorsal fin; upper half of dorsal fin is nearly severed due to the entanglement; line trailing a rat's nest of gear	N/A		
ITR; research gillnet		Tt	GOM/Matagorda Bay, Tres Palacios Bay, Lavaca Bay Stock	30-Sep-2008	Alive	Not serious	S7b	float line from gillnet was wrapped around the animal's tail, but it came loose as the net was being retrieved; animal appeared to be in good condition as it swam away	N/A		
ITR & STR; research gillnet	SER10-0851	Tt	GOM/Copano Bay, ...Espiritu Santo Bay Stock	11-May-2010	Alive	CBD		dolphin entangled in research gillnet; released; little info available	N/A		
ITR & STR; research gillnet	SER10-0852	Tt	GOM/Copano Bay, ...Espiritu Santo Bay Stock	13-Sep-2010	Alive	Not serious	S7b	dolphin entangled in research gillnet; dolphin active; released unharmed; swam away without noticeable disorientation or hesitation	N/A		
ITR & STR; research gillnet	SER11-2538	Tt	GOM/Copano Bay, ...Espiritu Santo Bay Stock	27-Sep-2011	Alive, uninjured	Not serious	S7b	animal entangled in gillnet; released and swam away vigorously	N/A		
STR; probable trap/pot gear	SER07-478	Tt	ATL/Central FL Coastal Stock	3-Aug-2007	Alive	Serious	S6	entangled in thick white rope that went around the animal's head and behind the dorsal fin with an orange buoy trailing the rope	N/A		
STR; debris entanglement	SER07-273	Tt	ATL/IRLES Stock	1-May-2007	Alive, injured	Serious	S8a	calf entangled in piece of black rubber; rubber is constricting and wrapped around animal's head	Not serious	S7b	disentanglement effort took place on 10-May-2007; animal was captured, disentangled, and released; animal lived for over 3 years afterwards, documented by local researchers (pers. comm., S. Burton and S. McCulloch)
STR; commercial blue crab trap/pot gear	SER08-0457	Tt	ATL/NGSSCES Stock	6-Apr-2008	Alive, injured	Serious	S8a	entangled by large, black rubber band encircling animal's neck (analyzed as blue crab pot cord); depression marks and lesions present	Not serious	S7b	disentangled on 1-Jul-2008; follow-up monitoring resighted animal multiple times in apparent good health
STR; crab trap/pot gear	SER08-0695	Unid. dolphin	GOM	12-Dec-2008	Alive	CBD		fishermen disentangled a dolphin from trap/pot gear; uncertain if all gear was removed; little info available	N/A		
STR; probable trap/pot gear	SER08-0670	Tt	GOM/Western Coastal Stock	30-Dec-2008	Alive, unable to free swim	Serious	S7a	tail entangled in buoy line of crab trap/pot; animal cannot free swim but able to surface to breathe	Not serious	S7b	disentangled and released; no external injuries noted
STR; crab	SER08-	Tt	GOM/Eastern	17-Feb-	Alive,	Serious	S7a	entangled in trap/pot line with	Not serious	S7b	disentangled; swam

trap/pot gear	0066		Coastal Stock	2008	uninjured			buoy and support for swimming area net			away normally with no gear and no visible injury
STR; probable trap/pot gear	SER08-0071	Tt	ATL/IRLES Stock	23-Feb-2008	Alive	Serious	S6	entangled in crab trap/pot line around base of flukes; animal is swimming and dragging gear	Not serious	S7b	disentangled; swam away normally with no gear and no visible injury
STR; debris entanglement	SER08-0465	Tt	ATL/IRLES Stock	03-Jun-2008	Alive, uninjured	Serious	S6	animal entangled in engine belt (small belt likely used in small generator or small hp motor)	Not serious	S7b	disentangled on 19-Jun-2008; considered healthy upon release
STR; hook and line gear	SER08-0432	Tt	GOM/Chocta whatchee Bay Stock	11-Jun-2008	Alive, injured	Serious	S5a	animal entangled in fishing line with several hooks in mouth	Serious	S5a	some of the line was removed by a member of the public before the veterinarian and stranding team arrived, allowing animal to swim into deeper water; stranding team was unable to capture for examination and disentanglement; hooks and line remained on animal
STR; hook and line gear	SER08-0609 [Rio]	Tt	ATL/IRLES Stock	3-Nov-2008	Alive, injured	Serious	S5c, S6	entangled in monofilament line and hook that was embedded in dorsal fin, and braided green netting material; 3 deep slices present on dorsal fin likely related to entanglement but could be related to prior propeller wounds	Not serious	S5c, S7b	disentanglement occurred on 20-Nov-2008; follow-up monitoring showed animal to be doing well
STR; probable trap/pot gear	SER08-0690	Tt	GOM/Caloosa hatchee River Stock	9-Nov-2008	Alive	Serious	S6	entangled with two pot line wraps cranial to the dorsal fin; no pot buoy present; gear remained on animal	N/A		
STR; probable trap/pot gear	SER08-0611	Tt	ATL/Central FL Coastal Stock	26-Nov-2008	Alive	CBD		calf entangled in probable trap/pot gear; little info available	CBD		calf was disentangled from probable trap/pot gear by member of the public; little info available
STR; probable trap/pot gear	SER08-0703	Unid. dolphin	ATL	13-Oct-2008	Alive	CBD		entangled in probable trap/pot gear; little info available	CBD		disentangled from probable trap/pot gear by local fisherman; little info available
STR; trap/pot gear	SER09-0044	Tt	ATL/Central FL Coastal Stock	12-Jan-2009	Alive, injured	Serious	S7a, S8a	animal entangled in trap/pot line with float attached; line wrapped around peduncle at flukes many times and constricting;	Serious	S7b	disentangled; animal had abrasions and wounds of unknown severity and was weak/exhausted; did not swim away after disentanglement, just floated away but did surface to breathe
STR; hook and line gear	SER09-0420	Tt	GOM/Laguna Madre Stock	30-Jul-2009	Alive	Serious	S6	yearling entangled in monofilament line in mouth	Not serious	S7b	yearling captured, disentangled, and

								and encircling mid-section of body			released immediately; follow-up monitoring indicates animal was not seriously injured
STR; recreational trap/pot gear	SER09-0221	Tt	ATL/NGSSCES Stock	2-Jun-2009	Alive	Serious	S6, S15	yearling entangled in trap/pot gear; line is wrapped around the peduncle many times	Serious	S6, S15	yearling partially disentangled by member of the public; at least 3-5 wraps of line remaining
STR; hook and line gear	SER09-0537 [Rio]	Tt	ATL/IRLES Stock	21-Nov-2009	Alive, injured	Serious	S6, S8a	monofilament line cutting through the dorsal fin with extensive biofouling on the gear; animal was monitored for months but did not shed gear on its own, and gear continued to cut the dorsal fin	Not serious	S7b	disentangled on 17-Feb-2009; follow-up monitoring indicated the animal recovered
STR; hook and line gear	SER09-0525	Tt	GOM/Copano Bay, ...Espiritu Santo Bay Stock	5-Sep-2009	Alive, injured	Serious	S6	animal entangled in monofilament line, steal leader, swivels, and hooks; primarily entangled around flukes	Not serious	S7b	disentangled after over 1 mos. observation in which it was determined to be compromised and losing weight; subsequently sighted for ~ 3 mos. post-disentanglement; appeared to be gaining weight (pers. comm., H. Whitehead)
STR; hook and line gear	SER10-0615	Tt	GOM/Copano Bay, ...Espiritu Santo Bay Stock	17-Aug-2010	Alive, injured	Serious	S13a, S6, S8a	calf entangled in mass of monofilament line, lead, swivels and hooks; majority of dorsal fin severed and now angled perpendicular to body; tail fluke and left pectoral fin also injured	Serious	S13a, S7b	disentangled and released; animal not sighted during follow-up monitoring
STR; unknown fishing gear	SER10-0595	Tt	ATL/CES Stock	21-Aug-2010	Alive, injured	Serious	S8a, S13b	animal had 2 wraps of cotton double braid rope around base of flukes that cut almost to bone; emaciated	Serious	S13b	animal was captured, disentangled, and released
STR; commercial trap/pot gear, likely crab pot	SER10-0619	Tt	ATL/JES Stock	29-Aug-2010	Alive	Not serious	S7b	animal entangled in braided nylon line around the peduncle with 2 styrofoam floats attached, and ~5 ft. of line trailing behind the dolphin; animal shed gear on its own	N/A		
STR; recreational gear	SER10-0054	Tt	GOM/Sarasota Bay, Little Sarasota Bay Stock	19-Feb-2010	Alive, injured	Serious	S8a	calf entangled in plastic twine with metal hook constricting around its body between blowhole and pectoral fins, becoming embedded in tissue	Not serious	S7b	disentangled and released; follow-up monitoring (through 2015) indicated the animal recovered (pers. comm., R. Wells)
STR; stone crab trap/pot gear	SER10-0007	Tt	GOM/Eastern Coastal Stock	21-Jan-2010	Alive	CBD		entangled in stone crab trap/pot gear with 2 styrofoam buoys; 2 lines wrapped around animal's peduncle; reported by member of the public	CBD		disentangled and released by member of the public; animal's condition unknown

STR; trap/pot gear	SER10-0827	Tt	GOM/Copano Bay, ...Espiritu Santo Bay Stock	20-Jul-2010	Alive	Serious	S7a	calf entangled in crab trap/pot line around peduncle and having difficulty surfacing to breathe; responders reported animal appeared to be panicking	Serious	S15	animal was disentangled; swam away after disentanglement; responders did not think line had abraded skin; dependent animal released but unknown if it re-united with mother
STR; entrapped between oil booms	SER10-0432	Tt	GOM/Perdido Bay Stock	17-Jun-2010	Alive, uninjured	Serious	S7a	yearling entrapped between oil booms that were stretched across a canal	Not serious	S7b	seaward boom was opened and animal swam out of canal into open water and toward other dolphins
STR; hook and line gear; anchor line	SER10-0549	Tt	GOM/Eastern Coastal Stock	17-Jun-2010	Alive	Serious	S6, S7a, S13d	initially entangled in braided monofilament line and lead weight; became further entangled in anchor line of fishing vessel; dolphin's right pectoral fin is partially severed and disfigured	Serious	S6, S13d	anchor line was removed and large portion of previous entanglement was removed; dolphin's right pectoral fin is partially severed and disfigured; dolphin swam away quickly upon release; deemed likely to become entangled again
STR; commercial stone crab trap/pot gear	SER10-0755	Tt	GOM/Eastern Coastal Stock	17-Nov-2010	Alive	Serious	S6	entangled around fluke and peduncle with 1/4 inch braided poly line and styrofoam float; line was not embedded and it appeared the animal had not been entangled for long	Not serious	S7b	disentangled and quickly swam away after release; duration of entanglement believed to be short; no apparent injuries
STR; commercial blue crab trap/pot gear	SER10-0703	Tt	ATL/IRLES Stock	13-Sep-2010	Alive, injured	Not serious	S7b	entangled in crab trap/pot line with buoy attached; responders maneuvered to attempt disentanglement, but animal wiggled out of the gear on its own; animal appeared healthy with slight bleeding at base of peduncle; it appeared that animal had become entangled recently and gear was relatively loosely wrapped, so gear was easy to remove and damage to the body appeared very minimal	N/A		
STR; unknown material/gear	SER11-2390 [Spartacus]	Tt	ATL/JES Stock	1-Jun-2011	Alive	Not serious	S6	animal entangled around peduncle and flukes in unknown material/gear; gear is trailing 1 ft. behind the animal's flukes; still alive as of 20-Sep-2012; resighted in 2014 gear-free and behaving normally	N/A		
STR; commercial	SER11-2104	Tt	ATL/CGES Stock	19-Jun-2011	Alive, uninjure	Serious	S7a, S8a	animal entangled in crab trap/pot gear; the buoy line	Not serious	S7b	line was cut and animal swam away normally,

crab trap/pot gear					d			was wrapped and twisted tightly around the dolphin's peduncle; it was able to lift only the tip of its head out of the water and move short distances			breached, and joined other dolphins; did not appear injured
STR; recreational gear; hook and line gear	SER11-1502 [Rio]	Tt	ATL/IRLES Stock	24-Feb-2011	Alive, injured	Serious	S8a, S13a	thick "fly line" was wrapped around the dorsal fin at least 16 times and was cutting through the fin; monofilament line was present below "fly line"; lesions present on animal	Serious	S7b, S13a	this marks the animal's 3rd disentanglement event; disentangled and released on 4 May 2011; (animal stranded dead in early September 2011 following a subsequent entanglement to flukes and dorsal fin. 8 entanglements were documented and 3 disentanglement interventions were made)
STR; crab trap/pot gear	SER11-1622	Tt	ATL/CES Stock	13-May-2011	Alive, uninjured	Serious	S7a	animal entangled by crab trap/pot gear loosely wrapped around the flukes	Not serious	S7b	line was cut and animal swam away quickly
STR; hook and line gear	SER11-2102	Tt	GOM/Sarasota Bay, Little Sarasota Bay Stock	18-Mar-2011	Alive, injured	Serious	S1, S5a, S6	calf hooked in mouth multiple times and entangled in line, weights, and lures for 3 months; animal accumulated additional gear over time (5 different entanglements); body condition deteriorated markedly prior to disentanglement	Serious	S1, S5a, S7b	On 17-Jun-2011 responders were able to disentangle this animal after many unsuccessful attempts; all gear was removed from its mouth and body, however the animal was in extremely poor body condition; no longer seen with mother 5 days after disentanglement; presumed dead
STR; commercial crab trap/pot gear, likely blue crab	SER11-2415	Tt	ATL/IRLES Stock	18-Aug-2011	Alive, uninjured	Serious	S7a	animal entangled by crab trap/pot gear wrapped around half of flukes	Not serious	S7b	line was cut and animal appeared to be gear free and swimming normally
STR; hook and line gear	SER11-2388	Tt	GOM/Barataria Bay Estuarine System Stock	8-Aug-2011	Alive, injured	Serious	S8a	monofilament line and leader wrapped around the dorsal fin and appeared to be cutting through the skin; entanglement occurred in area of old propeller strike wound	Not serious	S7b	all gear removed; animal examined by veterinarians during NRDA health assessment
STR; crab trap/pot gear	SER11-2362	Tt	GOM/Galveston Bay, East Bay, Trinity Bay Stock	13-Jul-2011	Alive, injured	CBD		animal entangled by crab trap/pot gear wrapped tightly around peduncle and flukes; superficial cuts reported; animal floating stationary; reported by member of the public	CBD		animal floating stationary and did not struggle during disentanglement by members of the public; reported to swim away after disentanglement
STR; hook and line gear	SER11-2517	Tt	ATL/undefined northern FL	16-Dec-2011	Alive, injured	Serious	S8a	calf with monofilament line wrapped around the body and	Not serious	S7b	disentangled; follow-up monitoring shows

			estuarine stock					cutting into and circumscribing the head; line also cutting into leading edge of dorsal fin and right pectoral flipper			animal is doing well; still alive as of 4-Oct-2012 (pers. comm., W. Noke Durden)
STR; hook and line gear	SER11-2436	Tt	GOM/Tampa Bay Stock	2-Jul-2011	Alive, injured	Serious	S8a	animal entangled in monofilament line; line cutting through the jaw and cheeks, deeply into the right flipper, and several inches into the leading edge of dorsal fin	Not serious	S7b	calf disentangled from monofilament line; follow-up monitoring shows animal is healing; still alive as of 2015 (pers. comm., A. Weaver)
STR; hook and line gear	SER11-2139 [Mono]	Tt	ATL/IRLES Stock	21-Jan-2011	Alive, uninjured	Serious	S6	calf entangled in monofilament line and hooks	Not serious	S7b	calf disentangled from monofilament line and hooks; follow-up monitoring showed animal alive and with mother
STR; hook and line gear	SER11-2564 [Mono]	Tt	ATL/IRLES Stock	5-May-2011	Alive, injured	Serious	S5c, S6	calf hooked in mouth multiple times (soft palate) and trailing fishing line	Not serious	S5c, S7b	all gear removed during disentanglement effort; follow-up monitoring indicated the animal recovered
STR; unidentified gear or debris	SER11-2565 [Mono]	Tt	ATL/IRLES Stock	27-Jul-2011	Alive, injured	Serious	S8a	calf with circumferential wrap of lanyard-style cord	Serious	S1, S7b	all gear removed during disentanglement effort; observed to be in lean/poor body condition during follow-up monitoring (8 Sep 2011)
STR; hook and line gear	SER11-2421 [Fily]	Tt	ATL/IRLES Stock	27-Sep-2011	Alive, injured	Serious	S7b	calf entangled in monofilament line; injured left pectoral fin and tail stock and in poor body condition	Not serious	S7b	disentangled and released; follow-up monitoring indicated the animal recovered (captured in June 2012 during health assessment and sighted in August 2012; pers. comm., S. Burton and S. McCulloch)

Appendix I. Table 2 taken from NMFS 2012b.

TABLE 2: Summary of Small Cetacean[1] Injury Categories and Criteria

Instructions: Each small cetacean injury event is recorded to the appropriate injury/information category using all available information and scientific judgment, as described in the Procedural Directive. For a single injury event to which several categories apply, the injury determination with the highest level of severity is assigned. More detailed information or extended observation on an individual case/animal may justify a determination differing from the guidance of this table. Any injury leading to apparent significant health decline (e.g., skin discoloration, fat loss) is a serious injury.

Category	Injury/Information	Injury Determination[2]	Additional factors for evaluating whether "case specific" injuries are serious or non-serious (additional factors at end of table) *
S1	A free-swimming animal observed at a date later than its human interaction, exhibiting signs of declining health believed to be resulting from initial injury (e.g., a marked skin discoloration, fat loss)	SI[3]	
S2	Ingested gear[4] or hook(s)	SI	
S3	Visible blood loss	Case specific[5]	Amount of blood, location of the bleeding injury, duration of bleeding
S4	Animal brought on vessel deck following entanglement/entrapment (excluding scientific research targeting marine mammals and authorized as such under a NMFS scientific research permit, where the animal is brought on and placed on the vessel deck in a controlled manner)	SI	
S5a	Hook(s) in head (excluding criterion S5b), regardless of the presence of gear	SI	
S5b	Hook(s) confirmed in lip only, external tissue outside of teeth, no trailing gear	Case specific	Prolonged restraint or struggle that could lead to capture myopathy, size of hook, depth of hooking, impairing ability to feed, presence of other injuries
S5c	Hook(s) in any body part, but hook(s) is removed or pulls out	Case specific	Prolonged restraint or struggle that could lead to capture myopathy, depth of hook, hook pulls out cleanly vs. causes further injury during dehooking, method used to remove hook, length of time hooked
S5d	Hook(s) in appendage or body (excluding criterion S5a), without trailing gear or with trailing gear that does not have the potential[6] to: 1) become a constricting wrap on animal; 2) be ingested; 3) accumulate drag; or 4) become snagged on something in the environment, anchoring the animal	Case specific	Prolonged restraint or struggle that could lead to capture myopathy, depth and location of hook, type and amount of gear attached

[1] For the purposes of this table, small cetaceans include all odontocetes except sperm whales.

[2] This table includes on only those criteria determined to be serious injuries or case specific based on expert opinion at the 2007 Workshop (Andersen *et al.*, 2008) and by small cetacean experts on the NMFS Determination Staff working group. For the purposes of streamlining the information for the reader, criteria determined to be non-serious injuries are not included in this table.

[3] SI = serious injury.

[4] For the purposes of this table, gear is defined as any portion of fishing gear excluding the hook, which is considered separately. Lures are considered gear. Gear also generally refers to any type of debris entangling or attached to the animal.

[5] Case specific = Could be a serious or non-serious injury, but either 1) there is insufficient information about the impact of a particular injury, or 2) additional factors must be considered on a case-by-case basis to determine the severity

[6] For the purposes of this table, "potential" as it relates criterion S5d indicates that the trailing gear IS NOT capable of leading to any of the situations listed.

S6	Gear attached to free-swimming animal with potential[7] to: 1) become a constricting wrap on animal; 2) be ingested; 3) accumulate drag; or 4) become snagged on something in the environment, anchoring the animal	SI	
S7a	Anchored, immobilized, or entrapped and not freed	SI	
S7b	Anchored, immobilized, entangled, or entrapped before being freed without gear attached	Case specific	Duration of entanglement/entrapment, prolonged restraint or struggle that could lead to capture myopathy, gear type, where/how gear is attached to animal, associated injury (i.e., where directly or indirectly caused by initial entanglement), response of individual animal, method used by human to remove gear from animal
S8a	Gear wrapped and constricting on any body part or is likely to become constricting as the animal moves or grows	SI	
S8b	Gear wrapped and loose on any body part	Case specific	Gear type, amount of gear, potential for snag, potential to lead to criterion S8a, animal body size relative to gear (e.g., because of species or age), effect on animal movement, species sensitivity (e.g., frightens easily)
S9	Body trauma[8] not covered by any other criteria	Case specific	Location of wound, depth (e.g., superficial or to the bone, penetrating muscle or organs), length, number of lacerations, cleanliness (i.e., compression vs. tearing)
S10	Visible fracture(s), excluding pectoral fins (see criterion S13d for pectoral fin fractures)	SI	
S11	Vertebral transection, including fully severed flukes	SI	
S12	Body cavity penetration[9] by foreign object or body cavity exposure	SI	
S13a	Loss or disfigurement of dorsal fin	Case specific	Cleanliness (i.e., compression vs. tearing), nature of injury causing the loss, extent of fin loss (i.e., full or partial), amount and duration of blood loss
S13b	Partially severed flukes, transecting midline	SI	

[7] For the purposes of this table, potential as it relates criterion S6 indicates that the trailing gear IS capable of leading to any of the situations listed.

[8] For the purposes of this table, "trauma" is defined as a wound or bodily harm caused by an extrinsic agent. Blunt trauma is an injury (abrasion, laceration, contusion or skeletal fracture) produced by a blunt object striking the body or impact of the body against a blunt object or surface. Sharp force trauma is an injury caused by a sharp or pointed object creating a penetrating (stab, chop or incision) wound. Laceration is defined as a ragged incision or a tearing of the skin. Lacerations are caused by blunt trauma that results in stretching, tearing, crushing, shearing, or avulsion of the tissue.

[9] For the purposes of this table, "penetration" is defined as a wound occurring when a foreign object punctures the body. Penetrating wounds can be characterized as one of three types: stab (small external wound that is greater in length into the body than is apparent on the skin surface), incised (clean cuts into the skin which are longer on the skin surface than they are deep), or chop wounds (incised wounds that penetrate deep to the bone, leaving a groove or cut in the bone).

S13c	Partially severed flukes, not transecting midline	Case specific	Cleanliness (i.e., compression vs. tearing), nature of injury causing the loss, amount and duration of blood loss
S13d	Partially or completely severed or fractured pectoral fin(s)	Case specific	Cleanliness (i.e., compression vs. tearing), nature of injury causing the loss, extent of fin loss (i.e., full or partial), amount and duration of blood loss, opened or closed fracture
S14	Social animal separated from group and/or released alone post-interaction (excluding criterion S15)	Case specific	Species (e.g., sensitivity, offshore vs. inshore), location of release (e.g., likelihood of animal locating its conspecifics)
S15	Dependent animal (i.e., calf, juvenile) released alone post-interaction or dependent animal left with a seriously injured or dead mother	SI	
S16	Observed or reported collision with vessel	Case specific	Speed of vessel, size of vessel, hull shape, part of vessel to strike the animal, size of animal compared to size of vessel, behavior of animal after collision, extent and location of wound(s) on animal

* Factors listed in the far right column of Table 2 are unique to the associated injury type. In addition to those listed in this column, the factors that should be considered, if available, when reviewing all case specific injury events in Table 2 include, but are not limited to:

- Species
- Age or age class (e.g., calf, juvenile, adult)
- Sex
- Size of animal
- Overall health (e.g., nutritional status, body condition, pre-existing disease state, pre-existing injuries)
- Behavior during and/or after injury-causing interaction (e.g., dorsal arching, listlessness)
- Reproductive status (e.g., pregnant, lactating, has dependant calf)
- Natural history (e.g., indigenous, migratory)
- Location of injury (e.g., mouth, head, body, fin, tail, internal)
- Size of injury
- Duration of injury (e.g., single event, repeated, chronic)
- Depth of injury (e.g., superficial or to the bone, penetrating muscle or organs)
- Cleanliness of injury (e.g., compression, tearing)
- Environmental condition (e.g., individuals out of their normal habitat, climate stressors)
- Social stressors (e.g., social structure of species, separation of social individuals from the group, cow/calf separation)
- Cumulative effects of repeated exposures
- Compounding effects of multiple injuries obtained during a single event
- Availability of data on multiple sequential events involving the same individual over time
- Susceptibility of the species to capture myopathy (spinner dolphins and porpoises notoriously sensitive; bottlenose dolphins robust; many others fall in between, with some unknown)
- Ability of rehabilitated animal to be released
- Relative effect of blood loss on different species

In addition to those factors listed above, the factors that apply to all fishery-interaction related case specific injuries include, but are not limited to:

- Entanglement type (e.g., hooked, anchored, entrapment)
- Amount and size of gear (e.g., size, length and number of branches of line; number of buoys, traps or anchors; volume of netting)
- Entanglement constriction (e.g., tight, loose, multiple wraps)
- Habitat where animal is located (e.g., an animal with trailing gear areas of dense gear or an area with vegetation is more likely to risk snagging the gear and becoming anchored)
- Entanglement duration
- Existence, type and amount of any trailing gear
- Method of handling the animal during disentanglement