Southeast Fisheries Science Center Reference Document PRBD-2016-06

doi:10.7289/V5/RD-PRBD-2016-06

Serious Injury Determinations for Small Cetaceans off the Southeast U.S. Coast, 2013

Katherine Maze-Foley[1] and Lance P. Garrison[2]

NOAA National Marine Fisheries Service, Southeast Fisheries Science Center

[1]101 Pivers Island Road, Beaufort, North Carolina 28516

[2]75 Virginia Beach Dr., Miami, Florida 33149

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center

June 2016

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 during 2013.

The data included in this report came from various sources, including the NOAA National Marine Mammal Health and Stranding Response Database, 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 2013) and are not included in this document.

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

Thirty-one small cetacean events from southeast U.S. waters during 2013 for which a determination was made of serious versus non-serious injury are included in Table 1. All events involved bottlenose dolphins with the exception of one, which involved a short-finned pilot whale. In total, 9 bottlenose dolphins were considered seriously injured; 9 bottlenose dolphins were considered not seriously injured; and for 12 bottlenose dolphin cases, it could not be determined if the injury was serious or not. The Western North Atlantic short-finned pilot whale was considered seriously injured.

The Western North Atlantic (WNA) bottlenose dolphin stocks for which serious injuries were documented include the Southern North Carolina Estuarine System (SNCES) Stock and the Jacksonville Estuarine System (JES) Stock.

The Gulf of Mexico (GOM) bottlenose dolphin stocks for which serious injuries were documented include the following: Eastern Coastal Stock; Estero Bay Stock; Pine Island Sound, Charlotte Harbor, Gasparilla Sound, Lemon Bay (PIS) Stock; Mobile Bay, Bonsecour Bay; and Barataria Bay Estuarine System (BBES) Stock.

There were nearly an equal number of records from the NOAA National Marine Mammal Health and Stranding Response Database and at-sea observations. The majority of stranding records were cases of bottlenose dolphins entangled in either crab trap/pot gear or hook and line fishing gear. Entanglements in unidentified gear, marine debris, and 1 research gillnet comprised the remaining stranding records. The at-sea observations consisted of animals entangled in and sometimes trailing crab trap/pot gear, hook and line fishing gear, or other identified gear/line/rope. In addition, 2 animals were entangled in possible plastic straps or bands around their bodies. There were also records of incidental takes of bottlenose dolphins involving research gillnet gear and a research skimmer trawl (unauthorized research gear takes). There were no fisheries observer reports for 2013.

Acknowledgements

Many thanks to the various people who collected the data included in this report. Elizabeth Stratton, Blair Mase, Gina Rappucci, and Jenny Litz provided assistance with stranding records and opportunistic at-sea observations, and we thank them and all members of the Southeast U.S. Stranding Network. Many stranding network members also answered follow-up questions and provided data or photos to assist with determinations. Elizabeth Scott-Denton provided observer reports for the shrimp trawl fishery and the snapper-grouper and other reef fish bottom longline/hook-and-line fishery. Alyssa Mathers provided bycatch reports for the shark bottom longline fishery and Southeast gillnet fisheries. Wayne Hoggard provided information regarding gear analysis, and we are grateful to him and the members of the Pascagoula Gear Repository. We are grateful to Frederick Wenzel (NEFSC), Elizabeth Josephson (NEFSC), Allison Henry (NEFSC), Stacey Horstman (SERO), Jessica Powell (SERO), and Randall Wells (Chicago Zoological Society's Sarasota Dolphin Research Program and

member of the Atlantic Scientific Review Group) for reviewing the serious injury determinations contained in this report.

Literature Cited

Garrison, L.P. and L. Stokes. 2013. Estimated bycatch of marine mammals and turtles in the U.S. Atlantic pelagic longline fleet during 2012. NOAA Tech. Memo. NMFS-SEFSC-655, 62 pp.

NMFS 2012a. Process for distinguishing serious from non-serious injury of marine mammals. National Marine Fisheries Service Policy Directive PD 02-038. January 2012. Available from: http://www.nmfs.noaa.gov/pr/laws/mmpa/policies.htm [Federal Register Notice, Vol. 77, No. 14, page 3233, January 23, 2012]

NMFS 2012b. Process for distinguishing serious from non-serious injury of marine mammals: Process for injury determinations. National Marine Fisheries Service Policy Directive PD 02-038-01. January 2012. Available from: http://www.nmfs.noaa.gov/pr/laws/mmpa/policies.htm [Federal Register Notice, Vol. 77, No. 14, page 3233, January 23, 2012]

Table 1. Serious injury (SI) determinations for cetaceans taken in SE U.S. waters during 2013 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*; Gm = *Globicephala macrorhynchus*; ATL = Atlantic Ocean; GOM = Gulf of Mexico; PIS = Pine Island Sound, Charlotte Harbor, Gasparilla Sound and Lemon Bay; IRLES = Indian River Lagoon Estuarine System; JES = Jacksonville Estuarine System; SNCES = Southern North Carolina Estuarine System; NGSSCES = Northern Georgia/Southern South Carolina Estuarine System; CGES = Central Georgia Estuarine System; BBES = Barataria Bay Estuarine System; Copano Bay,... = Copano Bay, Aransas Bay, San Antonio Bay, Redfish Bay, Espiritu Santo Bay.

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**
ITR & STR; shark research gillnet	SER13-1261	Tt	GOM/PIS Stock	21-Jun-2013	Alive, uninjured	CBD	S7b	animal entrapped in research gillnet; researchers monitoring net heard and saw a dolphin, so immediately went over (got there within a minute) to assess animal; they grabbed ahold of buoy line to hold animal up to see if/how animal was entangled; the dolphin was calm until they approached the net; when held net/animal up to boat, found it was loosely entangled around the fluke; dolphin became very agitated at that point and began thrashing a lot, so trying to get the dolphin to a point (without bringing aboard) to disentangle and release it; the dolphin ended up ripping right through the net (ripped a big hole) and swam away – whole process from start to finish took about 10 minutes; as far as researchers could tell, the dolphin swam away vigorously and appeared to be unscathed with no noticeable blood in water; duration of entanglement, animal's distress, and the force required to rip through the gillnet leave the animal's condition in question	N/A		
ITR & STR; research skimmer trawl	SER13-1264	Tt	GOM/Mississippi Sound, Lake Borgne, Bay Boudreau	23-Oct-2013	Alive	CBD		dolphin was captured in the bag of a skimmer trawl during TED testing; animal was observed breathing at the surface inside	N/A		

			Stock					the trawl upon retrieval of the tailbag; vessel redeployed the bag and slowed to allow the animal to swim out the mouth of the trawl; animal was not seen again	
At-Sea	Row 58	Gm	ATL/Western North Atlantic Stock	12-Jan-2013	Alive, injured	Serious	S5a	hooked in mouth (6/0 hook) and trailing ~25ft of mono line; hooked by recreational charterboat fishermen who mistook animal for a large swordfish or tuna; attempted to land animal for over 2 hrs; when it was brought near the vessel, they realized it was a pilot whale and cut the line	N/A
At-Sea	Row 59	Tt	GOM/Eastern Coastal Stock	30-Mar-2013	Alive, unknown	Serious	S6	dolphin entangled around its midsection by a rope and red buoy	N/A
At-Sea	Row 61	Tt	ATL/South Carolina/Georgia Coastal Stock	28-May-2013	Alive, unknown	CBD		reported by fisher as "line around tail"; unable to determine nature of entanglement b/c photo did not show tail stock	N/A
At-Sea	Row 62	Tt	GOM/Copano Bay, ... Stock	14-Jun-2013	Alive, unknown	CBD		citizen reported animal as wrapped in a crab trap; responders were unable to locate; little info available	N/A
At-Sea	Row 63	Tt	ATL/JES Stock	25-Jul-2013	Alive, disfigured	Serious	S13a, S6	line wrapped around dorsal fin, cutting into and partially severing the fin; animal resighted in June 2014 with entanglement still present and more of the dorsal fin severed; likely the entanglement will result in loss of upper 1/3 to 1/2 of dorsal fin at some point; animal is at risk of further entanglement with the current state of its mutilated dorsal fin until fin completely severs off	N/A
At-Sea	Row 64	Tt	GOM/Tampa Bay Stock	7-Aug-2013	Alive, unknown	CBD		citizen reported an animal trailing a white buoy; little info available	N/A
At-Sea	Row 65 [Lucky Charm]	Tt	GOM/Chokoloskee Bay, Ten Thousand Islands, Gullivan Bay Stock	20-Aug-2013	Alive	Not serious	S7b	constricting black strap or band around head posterior to blowhole; re-sighted a few days later gear-free; animal had only minor abrasions where strap/band had been; frequently sighted animal by local researchers and it's believed duration of entanglement was short	N/A
At-Sea	Row 66	Tt	GOM/BBES Stock	25-Aug-2013	Alive	Serious	S8a	animal had what was believed to be a plastic packing strap around	N/A

								its head; strap was constricting; observer said it appeared as though the dolphin had grown into it			
At-Sea	Row 67	Tt	GOM/PIS Stock	10-Jul-2013	Alive	Serious	S6	rope/heavy line wrapped around the dorsal fin and trailing	N/A		
At-Sea	Row 68	Tt	GOM/Copano Bay, ...Stock	23-Aug-2013	Alive, injured	CBD		citizen reported animal had tissue hanging off of its body and some fishing gear/hooks attached; photos do not show gear, so type of hooks and placement on body are uncertain; photos showed animal's skin had been torn away or was hanging off in several locations, and there was a deep cut visible on the peduncle	N/A		
At-Sea	Row 69	Tt	GOM/Estero Bay Stock	19-Sep-2013	Alive	Serious	S6	calf entangled in black line around its peduncle with ~5ft of trailing line	N/A		
At-Sea	Row 70	Tt	ATL/SNCES Stock	4-Oct-2013	Alive	Serious	S5a	calf entanglement involving a lure and monofilament line wrapped around rostrum and into mouth; appears to be deforming the rostrum and maxilla	N/A		
At-Sea	Row 71	Tt	GOM/Eastern Coastal Stock	21-Oct-2013	Alive, unknown	CBD		citizen reported animal with possibly wire or mono around pectoral fin and that animal was having trouble surfacing; little info available	N/A		
At-Sea	Row 72	Tt	GOM/Eastern Coastal Stock	23-Jun-2013	Alive, unknown	CBD		citizen reported animal "with something on head"; little info available	N/A		
At-Sea	Row 73	Tt	GOM/PIS Stock	28-Feb-2013	Alive, unknown	CBD		citizen reported an animal with line or netting wrapped around itself; little info available	N/A		
STR; commercial blue crab trap/pot gear	SER13-0583 [Lasso]	Tt	ATL/JES Stock	19-Apr-2013	Alive	Serious	S6	rope wrapped around body in front of dorsal fin; ~3ft of additional line and a float are attached to the wrapped rope and trailing; animal is later observed to have 2 floats trailing	Not serious	S6	multiple disentanglement attempts were made; animal was partially disentangled, but gear remained around body and trailing; body condition was noted to be deteriorating in June 2013 and animal had extensive skin lesions; animal was re-sighted during April 2015 without any entanglement and behaving normally
STR: debris, Aerobie (frisbee)	SER13-0131	Tt	ATL/JES Stock	7-Feb-2013	Alive	Serious	S6	young animal with an Aerobie (frisbee) around its neck	Not serious	S7b	successful disentanglement on 20-Feb-2013 during which Aerobie was removed from around animal's neck
STR; commercial	SER13-0607	Tt	ATL/NGSSCES Stock	1-Aug-2013	Alive	Serious	S7a	a crab pot buoy line was entangled tightly around the	Not serious	S7b	successful disentanglement on 1-Aug-2013; animal swam

blue crab trap/pot gear								flukes and peduncle and attached to a trap/pot on the river bottom			away gear-free; appeared to be uninjured
STR; commercial blue crab trap/pot gear	SER13-0724	Tt	ATL/CGES Stock	16-Sep-2013	Alive, uninjured	Serious	S7a	animal was entangled around flukes and peduncle in a crab pot buoy line attached to a trap/pot	Not serious	S7b	animal was disentangled and swam away gear-free; appeared to be uninjured; entanglement was believed to be of short duration based on conversation with trap owner
STR; spiny lobster trap/pot gear	SER13-1210	Tt	GOM/Florida Keys Stock	5-Aug-2013	Alive	Serious	S7a, S8a	small animal, possibly calf, entangled in trap/pot gear, with ~30 wraps around its fluke insertion and 3 buoys attached	CBD		disentangled and released by citizen; condition unknown
STR; hook and line gear	SER13-0548 [Y23]	Tt	GOM/BBES Stock	24-Jun-2013	Alive,	Not serious	S5b	hook found in lower left jaw/lip of animal during live capture health assessment; no trailing gear	Not serious	S5b	hook was removed; dolphin was released following health assessment work-up; animal resighted in November 2013
STR; hook and line gear	SER13-0549 [Y49]	Tt	GOM/BBES Stock	21-Jun-2013	Alive, injured	Not serious	S13a	braided line wrapped around the upper portion of the dorsal fin and cutting into leading and trailing edges of fin	Not serious	S7b, S13a	line was cut and removed during live capture health assessment; dolphin was released following health assessment work-up
STR; hook and line gear	SER13-0600	Tt	GOM/PIS Stock	13-Apr-2013	Alive	CBD		citizen described event as a lethargic dolphin became entangled in his fishing line around its flukes	CBD		the citizen pulled the dolphin to his boat and disentangled it; dolphin swam away and was not relocated; little info available
STR; crab trap/pot gear	SER13-0602	Tt	GOM/Eastern Coastal Stock	13-May-2013	Alive	Serious	S7a	calf was entangled in a crab trap line around the dorsal fin, head, and mouth;	Serious	S15	citizen disentangled dolphin calf against biologist's advice; citizen pulled the dolphin to his boat and disentangled; the dolphin swam away and was not relocated; dependent animal released alone
STR; unknown gear	SER13-0837	Tt	GOM/ PIS Stock	28-Feb-2013	Alive, unknown	Serious	S6, S15	calf reported entangled in unknown gear; local biologist responded to the scene but was unable to locate the entangled dolphin; he was informed by nearby fisherman that they had seen an entangled dolphin calf swimming in the area; it is believed a boat captain partially disentangled the calf and it was free- swimming but still carrying gear	N/A		
STR; hook and line gear	SER13-0903	Tt	GOM/Estero Bay Stock	15-Aug-2013	Alive, injured	Serious	S6	calf entangled around flukes in biofouled line with gear trailing; first reported entangled on 15-Aug-2013; verified and monitored until disentanglement effort on 18-Nov-2013	Not serious	S7b	successful disentanglement effort on 18-Nov-2013; animal was captured and all gear was removed; wounds on the flukes were treated
STR; research gillnet	SER13-1176	Tt	GOM/Mississippi River Delta Stock	4-Apr-2013	Alive, uninjured	Not serious	S7b	animal became entangled in research strike gillnet; staff were able to respond right away upon seeing splashing and remove the net from the dolphin's flukes and	N/A		

								body; animal swam away vigorously		
STR; hook and line gear	SER13-1252	Tt	GOM/Chokoloskee Bay, Ten Thousand Islands, Gullivan Bay Stock	26-Dec-2013	Alive, unknown	CBD		dolphin was reported as entangled in hook and line gear running from its dorsal fin to its flukes	CBD	disentangled by citizens; they corralled dolphin in shallow water and removed ~30ft of high tech fishing line, hook, and lure; no photos available; not sure if all gear was removed
STR; research longline gear	SER13-1265	Tt	GOM/Mobile Bay, Bonsecour Bay Stock	6-Aug-2013	Alive	Serious	S6	dolphin was caught by a 15/0 circle hook in its flukes during a longline research survey; dolphin broke free from the gear, but the hook and ~2m of trailing gear were still attached.	N/A	

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