



Northeast Fisheries Science Center Reference Document 25-05

Serious injury determinations for small cetaceans and pinnipeds caught in commercial fisheries off the northeast U.S. coast, 2018-2022

December 2025



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INTRODUCTION

The Marine Mammal Protection Act (MMPA) requires the National Marine Fisheries Service (NMFS) to estimate annual levels of human-caused mortality and serious injury to marine mammal stocks (Section 117) and to categorize commercial fisheries based on their level of incidental mortality and serious injury of marine mammals (Section 118). Serious injury determinations were addressed at NMFS-convened workshops in 1997 and 2007 (Angliss and DeMaster 1998; Andersen et al. 2008), and in January 2012, the agency published new national guidelines for distinguishing serious from non-serious injuries of marine mammals (NMFS 2012). The procedural directive was again updated in February 2023 (NMFS 2023). According to this procedural directive, a serious injury (SI) is defined as an injury that has a >50% chance of resulting in a mortality (NMFS 2023). A major goal of the guidelines is to establish national consistency and transparency in SI determinations. To implement the new guidelines, Science Center SI determination staff (SID) are required to annually review the observer (OBS) and at-sea monitor (ASM) records on all incidentally caught marine mammals that were released alive. This year, the Northeast Fisheries Science Center (NEFSC) also reviewed live stranding reports of pinnipeds for serious injury determinations. Determinations made on these human interactions are independently reviewed by another center (Southwest Fisheries Science Center (SWFSC)), the Greater Atlantic Regional Fisheries Office (GARFO), and the Atlantic Scientific Review Group (ASRG) before final determinations are published in this document.

METHODS

Electronic records of all small cetacean and pinniped bycatch that were coded as alive or condition unknown for the 5-year period (2018-2022) were extracted from the Northeast Fisheries Observer Program (NEFOP) database. A principal component of these records included OBS/ASM notes that provided information on entanglement characteristics (e.g., animal in cod end), crew handling (e.g., rope tied animal, animals lifted overboard), animal condition (e.g., cut on dorsal flank, some blood), and state of released animal (e.g., swam away quickly, swimming sluggishly at surface, immediately sank). These data were independently compared to small cetacean (S) and pinniped (P) criteria contained in the SI guidance document (Appendix) by 2 marine mammal researchers in the NEFSC Protected Species Division to determine their status (e.g., serious injury [SI], nonserious injury [NSI], uninjured [UI], Dead [D], or could not be determined [CBD]). The 2 evaluators compared their determinations, and all differences were discussed to obtain agreement. Details of each injury from the fishery observer programs and its determination are presented in Table 1. Final injury determinations and mortality events were tabulated to estimate the annual proportion of observed SI animals relative to the other observed determinations by gear type and species (Table 2). Proportions are used in stock assessment reports to partition the expanded bycatch estimate into serious injury vs. mortality (Hayes et al. 2024). Determinations for 2017-2021 have been previously published (Josephson and Lyssikatos 2023). Cases where a determination could not be made (CBD) were treated conservatively and included with the dead animals and hence represented in the final mortality and serious injury estimates reported in the annual stock assessment reports (Hayes et al. 2024). Offshore, migratory, and estuarine coastal bottlenose dolphin (*Tursiops truncatus truncatus*) injury determinations were analyzed and reported by the NOAA Fisheries Southeast Fisheries Science Center (Maze-Foley et al. 2019).

Species codes and gear codes used in this report are contained, respectively, in Tables 3 and 4. The statistical area designations are presented in Figure 1.

As a response to the ASRG and other agency reviews, the NMFS has started to include the serious injuries of marine mammals in stock assessment reports, as documented in the National Marine Mammal Health and Stranding database. In the Northeast, the majority of animals reported as live strandings with evidence of human interaction are pinnipeds. In the 2023 Marine Mammal Stock Assessment Report (2024), a table was provided in the gray seal (*Halichoerus grypus*) report that itemized gray seal serious injuries from 2017-2021 by type of interaction (fishery vs. other human interaction) and whether the animal was disentangled and released. Upon review of the 2022 data, and amid ongoing discussions with stranding network partners, managers, and scientific reviewers, it has been determined that a portion of the records that were in the database did not follow reporting guidelines that were in place at the time¹. Namely, these records represented sightings of entangled animals for which there was no stranding response. This resulted in unevenness in documentation of cases reported as entangled or injured animals and may also have resulted in double counting. We have made the decision, starting with the year 2022, to add the stranding database records to the serious injury determination process but only for cases that received stranding responses to be consistent with the national reporting guidelines. Table 5 itemizes and summarizes the 2022 stranding data that was reviewed, and Table 6 presents the 2017-2021 data previously reported in the gray seal stock assessment report. NOAA Fisheries is currently updating and clarifying the guidelines and forms for reporting live entangled pinnipeds, which will improve the data used in the future for serious injury determinations.

RESULTS AND DISCUSSION

Small Cetaceans

In 2018, 2 small cetacean records were reviewed for injury determination. A common dolphin (*Delphinus delphis*) was recorded in the observer database as alive in bottom trawl gear. Few details were available for this animal, but as it was entrapped in the net before being cut out and released, and was exhibiting unusual behavior such as opening and closing its mouth, it was classified as SI. In addition, an unidentified dolphin was observed in gillnet gear. This animal was also classified as SI, as it was hauled out of the water by the roller and no movement was observed post-release.

In 2019, 9 small cetacean records were reviewed. Seven of these were common dolphins with bottom trawl gear interactions, of which 4 were on the same trip. Upon review of observer descriptions and photos, 2 of the common dolphins were classified as dead and 2 as SI, with the remaining 3 meriting CBD status due to lack of information collected.

The remaining 2 cetaceans reviewed in 2019 were recorded as an unidentified whale and unidentified dolphin. The “whale” was an animal brought on deck in the catch pile, probably in the cod end, described as being approximately 8 ft. in length, but the observer had only a quick view before the animal was hoisted overboard with a rope around the tailstock. The animal sank out of view when the line was cut, so it was most likely dead, but the species remains unknown. Two other bycatch mortalities on the same trip were harbor porpoises (*Phocoena phocoena*). The unidentified dolphin was perhaps a Risso’s dolphin or pilot whale (*Globicephala* sp.) that had its flukes entangled in the tripper rope. After a line was cut, the animal was able to swim away, gear-free, apparently

¹ Examiners Guide to Marine Mammal Stranding Report – Level A, Marine Mammal Rehabilitation Disposition Report, and Marine Mammal Human Interaction Report. 2021 Revision. Available at: <https://fisheries.noaa.gov/national/marine-life-distress/level-data-collection-marine-mammal-stranding-events>

unharmful. However, since details were scant and species unknown, this record was classified as CBD.

In 2020 and 2021, observer coverage was greatly reduced due to COVID-19 restrictions. There were no takes recorded in the observer database as alive or condition unknown in 2020. In 2021, we reviewed 1 common dolphin, 1 white-sided dolphin (*Lagenorhynchus acutus*), 1 unidentified pilot whale (*Globicephala* sp.), and 1 unidentified dolphin for injury determination. The common dolphin and the white-sided dolphin were both determined to be SI as they were brought on deck. The pilot whale did not move while observed in the net but was cut from the net, and the captain of the vessel said it swam away. There was not enough information to make an injury determination. The unidentified dolphin, while not brought on board the vessel, fell onto the ramp when the net came out of the water, so it was also classified as SI under category S9 (body trauma).

In 2022, 3 common dolphins were recorded as alive or condition unknown after interactions with bottom trawl gear. From the observer's description, 1 was clearly a fishery mortality. The other 2 were both brought on board with the catch before release, thus qualifying them as at least serious injuries. From the observer's description, one of those animals could have been dead. Similarly, a harbor porpoise caught in a bottom trawl and brought on board before being released was determined to be SI. An unidentified pilot whale was caught in a bottom trawl but seen swimming freely in the net with the catch and released without being brought on board. The animal was observed rejoining its group and breathing and swimming normally. The animal was determined to be either UI or NSI.

In summary, 20 records of small cetaceans from 2018-2022 were reviewed for injury determination. Of these, 8 were designated as SI, 1 as UI/NSI, 5 as CBD, and 15 as dead. Three common dolphins, 1 white-sided dolphin, 1 unidentified dolphin, and 2 Risso's dolphins were seriously injured as a result of interacting with bottom trawl gear. One dolphin of unknown species, 1 common dolphin, 1 white-sided dolphin, and 1 harbor porpoise sustained serious injuries in sink gillnet gear. One unidentified marine mammal was classified as CBD in its interaction with trawl gear.

Pinnipeds

Observer Records

In 2018, 6 records of seals were reviewed for injury determination. One of these, an unidentified seal interaction with sink gillnet gear, was determined to be SI. Lack of movement noticed after release, combined with observation of bulging eye, led reviewers to classify that take as seriously injured, if not dead. Three gray seals, 1 of them in herring purse seine gear and the other 2 in bottom trawl gear, were determined to be NSI. One gray seal and 1 unidentified seal interaction with sink gillnet gear did not have enough information to make a determination. Those cases were coded as CBD.

In 2019, 3 unidentified seals and 2 gray seals were reviewed for injury determination. The unidentified seals were reported on gillnet trips. None had enough information to make injury determinations or species identifications. A gray seal was cleared from gillnet gear while still in the water and determined to be NSI, although it is unknown if any gear remained on the animal. Another gray seal had an interaction with handline fishing. The handline fisher lost multiple hooks and a significant amount of monofilament during the interaction. The animal was hooked on the dorsal side but broke free and disappeared. This interaction was classified as CBD because, while SI was possible due to the quantity of line lost, NSI could not be ruled out.

In 2020 and 2021, observer coverage was greatly reduced due to COVID-19 restrictions. There were no takes recorded in the observer database as alive or condition unknown in 2020. In

2021, 1 harbor seal (*Phoca vitulina*) was recorded as being captured in a trawl net. The seal was first seen in the catch pile on deck but returned to the water with a slight prod and dove immediately. No blood or fresh wounds were seen. This animal was classified as NSI as while no wounds were visible, stress trauma is likely.

In 2022, 9 gray seals, 1 harbor seal, and 1 unidentified seal were reported in the observer databases as alive or unknown. The harbor seal was caught in bottom trawl gear and brought on deck with the catch but had no visible damage and found its way back into the water seemingly unharmed. This seal was classified as UI. The unidentified seal capture (also bottom trawl) was not witnessed by the observer in the net or after release, so it was classified as CBD. Two alive or unknown status gillnet interactions with gray seals were recorded by observers in 2022. Due to the severity of the wounds described by the observer, 1 animal was classified as SI. On the other, the observer recorded, “Most likely the animal was dead, fresh.” A gray seal interaction with longline gear was recorded. The seal was hooked through the skin at the sternum but was able to shed the gear as it was being hauled in. This event was categorized as NSI. Six gray seal/purse seine interactions were recorded. In 5 of them, the seal was recorded to have been swimming freely and was classified as UI, while the 6th was classified as CBD since it was described as trapped and struggling, and the observer did not see the seal leave the net.

Stranding Records

As mentioned above, we reviewed only those 2022 stranding records for which a stranding response was mounted. We reviewed 2 harbor seal cases and 14 gray seal cases (Table 5). One of the harbor seals had wounds consistent with a boat strike. While responders treated the wound and felt like it may have been survivable, we have classified this case as CBD because the wound was fairly deep and the prognosis is unclear. The other harbor seal was anchored in entangling gear. Without the stranding agency response, the seal would have been considered a SI, but the post-mitigation status of the animal is assumed to be NSI because responders released it instead of bringing it to rehabilitation or euthanizing it. Thirteen of the gray seal cases were also disentanglements, placing them also into the SI pre-mitigation/NSI post-mitigation category. The last gray seal case was an animal described by stranding responders as having wounds consistent with a propeller strike. Photos of this case were not located, so it is being considered as CBD.

In summary, from 2018-2022, 19 pinniped records in the observer database were reviewed for injury determination (Table 1). One unidentified seal and one gray seal were seriously injured from observed bycatch in sink gillnet gear (Table 4). Most of the other cases were determined to be NSI. The addition of the stranding records to the determination process yielded 2 vessel strike interactions—one harbor seal and one gray seal—both determined to be CBD. In addition, 14 entangled seals (one harbor seal and 13 gray seals) had SI averted through the disentanglement efforts of stranding responders and rehab centers. These 14 cases were classified as SI pre-mitigation and NSI post-mitigation (Table 5).

ACKNOWLEDGEMENTS

We thank the onboard observers, at-sea monitors, and stranding responders for collecting the data and the staff in the Northeast Fisheries Science Center, Fisheries Monitoring Operations Branch, for their assistance in obtaining electronic copies of data logs and pictures required for our SI determinations.

TABLES AND FIGURES

Table 1. Comparison of fishery observer or at-sea monitor animal condition codes and Protected Species Division (PSD) injury determinations (SI = serious injury, NSI = non-serious injury, UI = uninjured, CBD = cannot be determined) for the 5-year period of 2018-2022. Determinations are based on observer notes and small cetacean and pinniped criteria in the National Marine Fisheries Service (NMFS) Determination Directive (NMFS 2023). Northeast gear (NEGEAR) codes are listed in Table 4, statistical areas are shown in Figure 1, and species codes are listed in Table 3.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
OTB	537	21-May-2018	GRSE	Alive		SI	P4, P7b	Take noticed while cod end was emptied into checker pen, unknown where in catch pile take was when net tripped. Alert, erratically whipping head, looking wide-eyed, mouth open, not barking/making noise, eyes intact/clear. Did not attempt to attack/bite crew. No coughing or foam around mouth or nose noted. Quarter-sized, pink, not bleeding wound on R pec flipper; no other wounds, marks, or scars noted. Crew member grabbed by hind flippers and slid take down the stern where it immediately dove out of sight, unknown if resurfaced after release. No gear left on.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
OTB	538	23-May-2018	GRSE	Alive		NSI	P4, P7b	Take noticed in belly of net, net reeled up little by little to shake out, tumbled few feet at a time until it tumbled into checker pen. Gear never rested on top of take. Initially motionless, thought to be dead; after <30 secs. in checker pen, took 2 large breathes before awaking, bearing teeth, and growling. No wounds, marks, scars, indents. No coughing or foam around nose or mouth. Crew member grabbed by hind flippers when take was not looking, released when it whipped around to bite, and repeated when take was not looking. Slid down the stern where it immediately dove out of sight, unknown if resurfaced after release. No gear left on. Whole interaction ~40 secs.
SGN	521	24-Jun-2018	UNSE	Unknown		CBD	P7b	Observer saw 1 hind flipper break water surface, tension on net from hauler caused seal to break free from net before any more of the animal could be lifted out of the water. Seal became free from net and went back under water and was not seen again. Unknown which species. Unknown if dead/alive. No blood seen in water.
SGN	521	24-Jun-2018	UNSE	Unknown		SI	P9	Seal came up in net, head made it over gunnel before hauler before falling from the gear back into the water as capt. tried to pull the net onboard. No large holes or damage seen in net after, gear nor animal were cut. Observer was able to see face for 2-3 secs., eye seen appeared to be bulging and had visible red veins. No odor. Take occurred during early hours of morning, too dark out

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
								to see detail. Seal was not seen in water once if fell from the gear. Unknown if dead/alive. No blood seen. Unknown if tagged. No photos taken. Take 2 of 3 on this trip.
OTB	537	31-Sep-2018	CODO	Alive		SI	S7b	Dolphin was ventral side up vertical in net with head facing bow, only first half of face sticking through net, the rest of the body was within the net. Very active, opening and closing mouth like eating fish. Crew member stood on edge of stern and pulled net towards him, cut the net directly below the animal. Take then fell from gear headfirst into water. Take was not seen in the water after. No damage or blood seen.
HPS	512	02-Sep-2018	GRSE	Alive		NSI		Take noticed when float line of net was raised overhead while catch was being pumped onboard. Alive: initially swam erratically at surface, noticed popping above/below water with help of spot light on deck. Float line dropped immediately once seal was noticed, did not attempt jumping gear, so it was raised again and pumping of catch continued. Take ~8-10 ft. from pump, did not seem alarmed/concerned of pump, not feeding on catch. No wounds/marks/scars/blood visible. After pumping catch ~15 min., topline was dropped a second time, take swam over float line, dove immediately, did not resurface.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
SGN	611	31-Oct-2018	GRSE	Alive		CBD	P9	Take seen following vessel for ~2 hauls grabbing striped bass from string. Capt. saw seal approaching vessel and screamed to crew, "He's coming after us!" Crew promptly handed capt. a long stick and capt. leaned over side hauler, stretched out, and swung to hit the seal once. Unk if capt. made contact w/ seal, it dove below water as the stick made contact with surface. Alive: no noticeable injuries/blood/wounds, eyes open and alert. Disappeared beneath water and did not resurface for the rest of trip. No gear seen attached, disappeared beneath water and did not resurface for the rest of trip.
SGN	537	19-Dec-2018	UNDO	Unknown		SI	S7b	Take came mostly out of the water; when head came up to roller, it fell out of gear due to force of roller. Unknown if any indents from gear or gear left on, observer only saw head and pec flippers. Unknown condition: no movement or noises noticed, skin taut and shiny, R eye clear/black/shiny, no blood/fluids/foam seen. Unknown condition of L eye and body posterior to R and L pec flippers. ID: solid gray coloration for head and R and L pec flippers, prominent rostrum. Unknown if any wounds/marks/scars, blood present, none visibly seen on head or R or L pec flippers. Release: disappeared under the waves, did not resurface, no thrashing or signs of movement seen.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
OTB	515	15-Mar-2019	CODO	Unknown	Dead	Dead		First seen hanging by caudal fin from net approx. 5 ft. from start of cod end, rip in net belly caused animal to fall from gear before exiting water. No gear attached when it fell from net. Observer unable to see take once in water, unknown if sank or floated, take occurred at night. Description is consistent with mortality.
OTB	616	15-Oct-20019	CODO	Alive		SI	S4	Animal on deck, crew had rope around fluke, body hanging vertically and spinning, with crew moving animal towards the stern. Animal was seen moving on its own and was deemed alive but sluggish/lethargic.
OTB	613	19-Nov-2019	CODO	Alive		SI	S4	Animal seen in belly of net, shaken down to cod end to release from net. Animal seemed in poor condition and was not very lively while on deck. Once out of gear, animal was on deck for approx. 1-2 min. Crew lifted the animal and moved it to the stern ramp where it was released with no gear attached. Once put down stern ramp, animal seen at surface of water, possibly floating.
OTB	622	02-Jan-2019	CODO	Unknown	Dead	Dead		Take noticed after cod end was tripped, crew believed it was in the center of the catch, no movement visible and bobbing at surface and disappeared into the dark. Photo showed broken/dislocated pectoral flipper, and both jaws appear white with skin loss.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
OTB	622	02-Jan-2019	CODO	Alive, seen by captain or crew only		CBD		3 dolphins noticed in cod end while bag was being pulled in, bag never brought aboard. Capt. and crew noted PSID 02-04 on top of bag/catch, easily visible and moving. Mouth of net was dropped and dipped back into water to allow escape, cod end was tripped to discard rest of catch.
OTB	622	02-Jan-2019	CODO	Alive, seen by captain or crew only		CBD		3 dolphins noticed in cod end while bag was being pulled in, bag never brought aboard. Capt. and crew noted PSID 02-04 on top of bag/catch, easily visible and moving. Mouth of net was dropped and dipped back into water to allow escape, cod end was tripped to discard rest of catch.
OTB	622	02-Jan-2019	CODO	Alive, seen by captain or crew only		CBD		3 dolphins noticed in cod end while bag was being pulled in, bag never brought aboard. Capt. and crew noted PSID 02-04 on top of bag/catch, easily visible and moving. Mouth of net was dropped and dipped back into water to allow escape, cod end was tripped to discard rest of catch.
OTB	561	07-Mar-2019	UNWH	Unknown		CBD (SI or Dead)	S4	Take was found in catch pile, assumed to have been in cod end with catch when dumped. Observer saw dark charcoal-colored fluke with light gray pattern on sides, approx. 2 ft. in width. Take was suspended by rope around tail stock hanging over side of boat. Rope was cut, take fell into the water and sank immediately, unknown amount of rope attached to animal. No obvious wounds/damage/blood/decomposition seen but dead, unknown condition kept due to little amount of time and

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
								percent of body seen.
OTB	616	08-Nov-2019	UNDO	Alive, seen by captain or crew only		CBD		Capt. told observer a cetacean was entangled by its caudal fin in the tripper rope as trawl gear was hauled in. Capt. cut 1 tripper rope near animal, dolphin was able to free itself at this point and swam away immediately, no gear remaining on body, appeared unharmed and no damage seen by crew/capt. Observer did not see animal, capt. referred to animal as pilot whale but animal photographed in area around same time as a sighting event was ID'd as a Risso's dolphin.
SGN	521	26-Jun-2019	UNSE	Unknown		CBD		Take came up in unknown orientation, never came aboard.
SGN	521	26-Jun-2019	UNSE	Unknown		CBD		Seen by capt. in gear while in the net overboard. Capt. let observer know he cut the seal out of the gear because it was too big to bring through hauler safely without damaging gear further. Capt. unable to confirm condition or species. No photos taken.
SGN	513	22-Apr-2019	UNSE	Unknown		CBD		Seen by capt. in gear while in the net overboard. Capt. let observer know he cut the seal out of the gear because it was too big to bring through hauler safely without damaging gear further. Capt. unable to confirm condition or species. No photos taken.

NEGGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
SGN	521	26-Jun-2019	GRSE	Alive		NSI	P7b	Take noticed first by capt. in gear while hauling string poking head out of water, capt. and crew moved down side of vessel to help seal out of gear but appeared to have freed itself. Unknown orientation in gear, unknown if solely involved with meshes or if lead/float line involved. Snorted at crew, did not attempt to bite or growl.
handline	515	01-Mar-2019	GRSE	Alive, gear in or around several body parts		CBD		Take was hooked on dorsal side, unknown if in back or R or L sides and unknown of gear entangled around any portion of take, unknown if more than 1 hook attached; capt. lost 4 hooks during interaction. Capt. continued to fish and bring up gear during interaction, unknown amount of monofilament line lost during interaction but noted it was a significant amount of line. Alive: take noted to be swimming at surface intermediately going under water and popping up at surface, not struggling to swim or breathe, no splashing or noises made. Unclear whether P5d (NSI) or P6 (SI).

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
OTB	513	31-Jan-2021	CODO	Unknown		SI	S4	Common dolphin caught in cod end and dumped into checker pen. Capt. believed animal to still be alive, so quickly got it overboard by tying a rope around the caudal peduncle and using the winch to lift it. When vertical with head facing down, 1 cup clear liquid spilled from mouth. About 4 ft. rope tied around tail, rope slid off animal when cut, no gear remaining on animal. Observer unsure if animal was dead or alive. Dolphin sank immediately after hitting the water, and observer lost sight of it. Unknown if it sank or swam down, as observer was standing in a safe location and did not have a good view. No visible wounds or blood. Video taken.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
OTB	521	22-May-2021	UNPW	Unknown		CBD		Pilot whale, NK seen in belly of net as it was hauled in. Belly cut to remove the animal from gear, cutting not seen, unknown how much of the net was cut. Animal condition unknown. Observer saw the whale in the net and went inside to get incidental take gear. At the time, the whale was not moving, but they were unsure if it was dead or alive. The animal had no associated odor and appeared life-like, but no movement was observed. Capt. said that the animal was alive at the release but did not give any further details. No visible wounds, blood, or other bodily fluids. No photos taken.
OTB	622	1-Jun-2021	UNDO	Alive		SI	S9	Dolphin, NK seen with fluke loosely attached to the net mouth, body hanging out. When the net came out of the water, it hit the stern, causing the animal to fall from the net directly onto the stern ramp and back into the water. Animal still alive; crew members said it was making noise and swam away when it hit the water. Observer watched event from wheelhouse ~100 ft. away, most of the body seen but very briefly from a far distance. Dolphin about 1 meter long with gray, white/cream, and yellow colors seen. No damage or blood seen by observer or crew. No photos taken. SI determination due to potential for internal trauma due to falling onto the stern ramp.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
OTB	515	13-Mar-2021	WSDO	Alive		SI	S4	Atlantic white-sided dolphin first seen by crew when releasing catch into pile, observer could not confirm what part of gear animal was in, entanglement recorded as unknown. Crew thought animal was dead but saw movement while putting rope around the tail stock. Observer saw dolphin moving fluke up/down and mouth opening, closing slowly. Animal on deck for approx. 5 min. during event. Observer noted large amount of redfish in catch. Body covered in superficial cuts/scratches. No other noticeable wounds/scars. No active bleeding seen, blood on animal believed to be from catch. Rope around tail stock used to lift animal overboard by winch, rope cut, no rope remaining on animal once released. Appeared to swim away, lost sight of animal quickly. Photos taken.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
OTB	515	03-Feb-2021	HASE	Alive		NSI	P4	Live harbor seal first seen in catch pile by crew member. Crew shook down net as it came on board, able to confirm seal was not in net mouth or belly, assumed to have been in cod end before catch was dumped. No wounds/blood seen. Healed scar approx. 6x6 in. area seen on dorsal side near left hip. No other noticeable marks or identifying features. Seal laid in catch pile for a few minutes before moving to side of boat, crew let animal move at its own pace. Seal climbed pile of fish, sat looking at water/crew for a few more minutes. Crew member then approached animal from behind and tapped back end near flipper with boot, seal went over railing and into water. Appeared to dive immediately, not seen again. NSI as opposed to UI determination made due to potential for stress effects.
OTB	514	11-Jan-2022	CODO	Alive		SI		Common dolphin first seen in cod end. Animal seen moving fluke and head, lifting both at same time, and opening mouth while laying on left side. Crew wanted to get animal over immediately from catch pile, rope tied around tail stock to hoist animal into the air. Crew pushed body over water. Unknown if any rope remaining on body at release.
OTB	613	22-Mar-2022	CODO	Alive	Dead	Dead		Common dolphin seen in catch pile. Dead, fresh. Photos taken. Female. At release, crew lifted body at midsection and head, pushed overboard with no gear attached, unknown if sank/floated.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
OTB	514	25-Nov-2022	CODO	Unknown	Unknown	Dead		Common dolphin was first seen in catch pile. No major wounds/damage or blood seen when animal was in pile. Entirety of body not seen. No movement seen but observer did not feel confident if dolphin was alive or dead since they were not able to handle it themselves. Dolphin dragged by fluke to stern, pushed down stern ramp for release. Unknown if sank/floated. No photos/video.
OTB	514	10-Apr-2022	HAPO	Alive		SI		Harbor porpoise first seen by observer in belly of net, dorsal fin appeared to be caught in mesh. Porpoise fell onto deck with catch when cod end was emptied. Animal on board for approx. 2 minutes, was then pushed down stern ramp. Capt. noted porpoise swam away but did not look like it was swimming too well.
OTB	526	16-Mar-2022	PIWH	Alive		UI/NSI		Pilot whale initially seen by crew in cod end of net. Crew was pulling up last of belly with cod end still in the water. Capt. told crew to release bag which is when the whale was seen. Observer did not see whale until catch was dumped from bag into water and whale swam out freely. Crew confirmed animal was not seen touching/rubbing against net, was inside bag freely with catch, no parts through meshes. Whale appeared to swim directly to group once released. No injuries/damage seen. No blood seen. Whale appeared to have no issues swimming and was seen taking a breath right after release

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
OTB	515	20-Jan-2022	HASE	Alive		UI		Live harbor seal seen inside of cod end before net was hauled completely onboard. Adult, estimated at 200 lbs. No gear on seal, was loose inside of net with catch. No visible wounds, damage, or sign of scarring/injury. No blood or other bodily fluids seen. Once released with catch, seal perked head up to look around the deck and exited over stern ramp quickly in opposite direction of boat, only on deck for a few seconds. Swam in opposite direction of vessel.
OTB	613	22-Mar-2022	UNSE	Alive		CBD		Seal, NK seen in cod end by capt. and crew only. Captain discarded catch before bringing net onboard, seal released with catch. Observer saw a flipper of some kind but was unable to confirm species/condition. Capt. said animal was alive but unknown recorded due to limited viewing opportunity. Neither capt./crew or observer saw animal swimming and/or in area after release.
LL	514	18-Mar-2022	GRSE	Alive		NSI	P5c	Adult gray seal seen attached to longline gear by hook through skin at sternum. Head was seen at top of water. Event lasted approx. 2-3 minutes once seal was noticed. Seal seen swimming and moving body/thrashing around at surface of water, seen trying to use pectoral flippers, hook eventually became free from body and seal left the area. Hook was brought on board, no gear remaining on animal. No blood seen in water, no additional wounds/damage seen on animal. Video taken.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
SGN	521	25-Jun-2022	GRSE	Unknown	Dead	Dead		Gray seal brought onboard, crew began removing seal from net, as observer approached the table to take photographs, the crew said the animal was alive. Observer did not see any movement, said seal was hanging limp but crew said they saw movement/felt resistance when they tried to open the mouth. Multiple net meshes/float line entangled around neck, meshes loose over posterior end of body. Removal from gear required damaging net meshes. Condition of seal being recorded as unknown due to lack of confirmation if dead/alive. Most likely animal was dead, fresh.
SGN	521	19-Nov-2022	GRSE	Unknown	SI/Dead	SI	P9	Condition unknown, observer unable to give further details to confirm fresh/moderate. Animal entangled by the mesh around the neck and head. Unknown how/when animal was seen in the gear. Removed by crew without cutting mesh. Eye condition unknown. Observer reports skull was exposed, white flesh visible on L side of face around the eye. Open wound with unknown amount of dark red blood visible on L side of neck, extent of wound and further details unknown. One square, ~1x1 in. wound on R side of belly, upper mid-body, white flesh, crisp edges. Release details unknown.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
PSH	512	15-Jul-2022	GRSE	Alive		CBD		Gray seal seen stuck in the bunt of the purse seine as the net hovered at the surface and the float line was raised. Seal attempted to swim through the bunt as the net was hauled in. Its head poked through a mesh during the struggling processes, but quickly came out. The struggling lasted about 1 min. until the seal was no longer able to be seen. Though the seal was struggling to get out of the net, it did not appear injured, no blood. There were other gray seals swimming around and in/out of gear during the haul. Photos taken. Release details not known. Crew may have seen the back of the seal slip out, it appeared unharmed.
PSH	512	14-Jul-2022	GRSE	Alive		NSI		Gray seal seen in the bunt of the purse seine prior to the start of pumping. The seal was swimming with the float line above its head and then disappeared under water/into the fish shortly after. No specific interactions with gear observed. Seal was only seen very briefly, but no damage was noted as the seal was swimming around and behaving normally. The release was not seen by observers as they went to the other side of the boat to sample catch once pumping began. After pumping ended, the capt. notified observer that the float line was lowered enough for the seal to pull itself up and over. Specific release details not known.

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
PSH	512	18-Jul-2022	GRSE	Unknown		UI		Gray seal seen in the bunt of the purse seine swimming amongst the fish and struggling to escape. The float line was raised, and it is possible that the seal got stuck in the mesh as the net was pulled in, but got itself out. It was splashing around and flailing, acting erratically, and did not seem very calm. The lower body was a bit harder to see but the animal did surface so all sections of the body were seen briefly by observer. The capt. stopped the pump and lowered the float line allowing the seal to pull itself up and escape over the float line. It was seen outside of the gear and did not appear to be damaged or injured. At the release, the seal hopped over the float line, swam forward briefly and then dove down and disappeared out of sight. Take 1 of 4.
PSH	512	18-Jul-2022	GRSE	Alive		CBD		Gray seal seen within the bunt of the purse seine when the net was pulled up alongside the vessel and the float line was raised. The seal was struggling to escape for a few minutes which included erratic movements, splashing, and moving quickly back and forth. The seal then disappeared below the surface and disappeared with the fish. The lower body was a bit harder to see, as it got lost in the fish. The catch was not pumped, instead, the bag was dumped. The seal was released with the rest of the catch, but observer was unable to see the seal come out of the net as it was opened up beneath the surface. The animal was not seen

NEGEAR	Statistical Area	Take Date	Species Code	Recorded Animal Condition	Revised Animal Condition	PSB Determination	NMFS 2012 SI Determination Directive	PSD comments regarding determination
								again, release details not known. Take 2 of 4.
PSH	512	18-Jul-2022	GRSE	Alive		UI		Gray seal seen swimming amongst the fish in the bunt of the purse seine. The float line was raised, and the seal remained in net as pumping began. The lower body was more difficult to see, but seal dove down showing its hind flippers for a brief period of time. The seal appeared healthy and fine, no obvious external injuries noted. During the pumping process, the float line was lowered for the seal to escape. Release not observed, and observer not able to see the seal once it was outside of the net, specific release details not known. Take 3 of 4.
PSH	512	18-Jul-2022	GRSE	Alive		UI		Gray seal seen swimming amongst the fish in the bunt of the purse seine. The float line was raised, and the seal remained in net as pumping began. Lower body more difficult to see as it was lost in the fish. The seal appeared healthy and fine, no obvious external injuries noted. During the pumping process, the float line was lowered for the seal to escape. Release not observed, and observer not able to see the seal once it was outside of the net, specific release details not known. Take 4 of 4.

Table 2. Summary of animal conditions (D = dead; DC = decomposed carcass; SI = serious injury; NSI = non-serious injury; UI = uninjured; CBD = could not be determined) by gear type, species, and year. Proportion SI = SI/Total (expressed as a percentage).

Gear Type	Species	Year	Dead		Alive ^[1]				Total Observed Dead + Alive ^[4]	% SI
			D ^[2]	DC ^[3]	SI	NSI	UI	CBD		
Bottom Trawl	Harp Seal (<i>Pagophilus groenlandicus</i>)	2018							0	0.0%
		2019	1	1					1	0.0%
		2020							0	0.0%
		2021							0	0.0%
		2022							0	0.0%
	Bottlenose Dolphin (<i>Tursiops truncatus</i>)	2018	1						1	0.0%
		2019	1						1	0.0%
		2020	1						1	0.0%
		2021	3						3	0.0%
		2022	3						3	0.0%
	Common Dolphin (<i>Delphinus delphis delphis</i>)	2018	38	3	1				39	2.6%
		2019	51	1	2			3	53	3.6%
		2020							0	0.0%
		2021	21	1	1				22	4.5%
		2022	34		1				35	2.9%
	Gray Seal (<i>Halichoerus grypus atlantica</i>)	2018	10		1	1			12	8.3%
		2019	7	2					7	0.0%
		2020							0	0.0%
		2021	2	0					2	0.0%
		2022	13						13	0.0%
	Harbor Porpoise (<i>Phocoena phocoena phocoena</i>)	2018							0	0.0%
		2019	2	3					2	0.0%
		2020							0	0.0%
		2021	1	1					1	0.0%
		2022			1				1	100.0%
	Harbor Seal (<i>Phoca vitulina vitulina</i>)	2018	1						1	0.0%
		2019	2						2	0.0%
		2020							0	0.0%
		2021					1		1	0.0%
		2022	2				1		3	0.0%
	Pilot Whale (<i>Globicephala</i> spp.)	2018							0	0.0%
		2019	1	1					1	0.0%
		2020							0	0.0%
		2021	1					1	2	0.0%
		2022	3				1		4	0.0%
	Risso's Dolphin (<i>Grampus griseus</i>)	2018							0	0.0%
		2019							0	0.0%
		2020							0	0.0%

			Dead		Alive ^[1]					
		2021	1						1	0.0%
		2022	4						4	0.0%
	White-sided Dolphin (<i>Lagenorhynchus acutus</i>)	2018							0	0.0%
		2019	14	8					14	0.0%
		2020							0	0.0%
		2021	2		1				3	33%
		2022							0	0.0%

			Dead		Alive ^[1]					
Gear Type	Species	Year	D ^[2]	DC ^[3]	SI	NSI	UI	CBD	Total Observed Dead + Alive ^[4]	% SI
Sink Gillnet	Risso's Dolphin (<i>Grampus griseus</i>)	2018							0	0.0%
		2019		1					1	0.0%
		2020							0	0.0%
		2021	3						3	0.0%
		2022	1						1	0.0%
	Common Dolphin (<i>Delphinus delphis delphis</i>)	2018	10	1					11	0.0%
		2019	3	1					4	0.0%
		2020	2						2	0.0%
		2021	3						3	0.0%
		2022	5						5	0.0%
	Gray Seal (<i>Halichoerus grypus atlantica</i>)	2018	95	7				1	102	0.0%
		2019	247	7		1			255	0.0%
		2020	11	3					14	0.0%
		2021	47	1					48	0.0%
		2022	88		1				89	1.1%
	Harbor Porpoise (<i>Phocoena phocoena phocoena</i>)	2018	9						9	0.0%
		2019	29	6					35	0.0%
		2020	10	1					11	0.0%
		2021	23	2					25	0.0%
		2022	22						22	0.0%
	Harbor Seal (<i>Phoca vitulina vitulina</i>)	2018	25						25	0.0%
		2019	60	4					64	0.0%
		2020	6						6	0.0%
		2021	24						24	0.0%
		2022	35						35	0.0%
	Harp Seal (<i>Pagophilus groenlandicus</i>)	2018	1	1					2	0.0%
		2019	35	2					37	0.0%
		2020							0	0.0%
		2021							0	0.0%
		2022							0	0.0%
	White-sided Dolphin (<i>Lagenorhynchus acutus</i>)	2018							0	0.0%
		2019							0	0.0%
		2020							0	0.0%
		2021	2						2	0.0%
		2022	1						1	0.0%

			Dead		Alive ^[1]						
Gear Type	Species	Year	D ^[2]	DC ^[3]	SI	NSI	UI	CBD	Total Observed Dead + Alive ^[4]	% SI	
Midwater Trawl	Harbor Seal (<i>Phoca vitulina vitulina</i>)	2018							0	0.0%	
		2019							0	0.0%	
		2020							0	0.0%	
		2021							0	0.0%	
		2022							0	0.0%	
	Pilot Whale (<i>Globicephala</i> spp.)	2018								0	0.0%
		2019								0	0.0%
		2020								0	0.0%
		2021								0	0.0%
		2022								0	0.0%
	Common Dolphin (<i>Delphinus delphis delphis</i>)	2018								0	0.0%
		2019								0	0.0%
		2020								0	0.0%
		2021								0	0.0%
		2022	1							1	0.0%
						1			1	0.0%	
									0	0.0%	
									0	0.0%	
									0	0.0%	
						1	2	3	6	0.0%	
Hand Line	Gray Seal (<i>Halichoerus grypus atlantica</i>)	2018							0	0.0%	
		2019						1	1	0.0%	
		2020							0	0.0%	
		2021							0	0.0%	
		2022							0	0.0%	
[1] Animals included under the alive category include animals with the following animal conditions: 0 – unknown; 01 – alive; 04 – alive, hook/gear in/around mouth; 05 – alive, hook/gear in/around flipper; 06 – alive, hook/gear in/around another single body part; 07 – alive, hook/gear in/around several body parts; 08 – alive, seen by captain and/or crew only.											
[2] Animals included under the dead category include the following animal conditions: 10 – dead, condition unknown; 11 – dead, fresh; 14 – dead, seen by captain/crew only.											
[3] Animals included under the decomposed carcass category include the following animal conditions: 12 – dead, moderately decomposed; 13 – dead, severely decomposed.											
[4] Decomposed carcass category (DC) values are not included in bottom trawl totals but are in gillnet totals. Could not be determined (CBD) category values are treated conservatively and thus included in the totals as dead (D) animals.											

Table 3. List of marine mammal codes, common names, and scientific names.

Code	Common Name	Scientific name
CODO	Common dolphin	<i>Delphinus delphis delphis</i>
HAPO	Harbor porpoise	<i>Phocoena phocoena phocoena</i>
UNPW	Long-finned or short-finned pilot whale	<i>Globicephala</i> spp.
PPDO	Harbor porpoise or dolphin	
RIDO	Risso's dolphin	<i>Grampus griseus</i>
WSDO	Atlantic white-sided dolphin	<i>Lagenorhynchus acutus</i>
UNDO	Unidentified dolphin	
GRSE	Gray seal	<i>Halichoerus grypus atlantica</i>
HASE	Harbor seal	<i>Phoca vitulina vitulina</i>
HPSE	Harp seal	<i>Pagophilus groenlandicus</i>
UNCE	Unidentified cetacean	
UNSE	Unidentified seal	
UNMM	Unidentified marine mammal	
UNWH	Unidentified whale	

Table 4. Northeast region commercial fishery gear codes.

Gear code	Gear description
HND	Hand line
OTB	Otter trawl bottom
OTM	Midwater otter trawl
OTR	Otter Ruhle trawl
OTH	Otter trawl haddock separator
PSH	Purse seine
SGN	Sink gillnet

Table 5. Injury determinations (SI = serious injury, NSI = non-serious injury, UI = uninjured, CBD = cannot be determined) for 2022 marine mammals recorded in the National Marine Mammal Health and Stranding Response Program (MMHSRP) database. Determinations are based on responder notes and small cetacean and pinniped criteria in the National Marine Fisheries Service (NMFS) Determination Directive (NMFS 2023). Species codes are listed in Table 4.

National Database #	Stranding Response Date	Species Code	Stranding State	Type of interaction	Initial SI Determination	Injury Determination Criteria/Comments	Post-Mitigation SI Determination	NMFS 2012 SI Policy Criteria	SI Averted
NE-2022-1267718	30-Aug-2022	HASE	ME	Vessel Strike	CBD	Weanling harbor seal with large laceration on dorsum next to left front flipper. Alert, responsive. Relocated.	CBD		?
NE-2022-1257734	31-Jul-2022	HASE	ME	Entanglement	SI	Anchored, disentangled.	NSI	P7b	Y
NE-2022-1266907	2022-APR-10	GRSE	MA	Entanglement (FI)	SI	Entanglement with associated wound along the neck. Disentangled and transferred to rehab.	NSI	P7b	Y
NE-2022-1261352	2022-MAR-29	GRSE	MA	Entanglement	SI	Grey seal pup with gill netting and rope and twine around neck and fore flipper.	NSI	P7b	Y
NE-2022-1261902	2022-APR-20	GRSE	MA	Entanglement	SI	Entangled seal successfully disentangled from white twine.	NSI	P7b	Y
NE-2022-1261287	2022-MAR-28	GRSE	MA	Entanglement	SI	Seal, captured and successfully disentangled from gill netting. Wound was treated with antibacterial. Animal was tagged and released.	NSI	P7b	Y
NE-2022-1261276	2022-MAR-03	GRSE	MA	Entanglement	SI	Animal was successfully detangled and immediately released. Entanglement material was white monofilament gill net.	NSI	P7b	Y
NE-2022-1261860	2022-APR-15	GRSE	MA	Entanglement	SI	The animal was captured, restrained and completely disentangled from gill netting.	NSI	P7b	Y
NE-2022-1261939	2022-MAY-18	GRSE	MA	Entanglement	SI	Responders captured and restrained the animal, successfully removing white gill net with a dead fish in it from around the seal's neck. Neck wound appeared clean. Animal was released and it returned to the sea	NSI	P7b	Y
NE-2022-1265113	2022-APR-18	GRSE	MA	Entanglement	SI	Juvenile gray seal entangled in netting, tight around the neck and imbedded. Seal disentangled and returned to sea.	NSI	P7b	Y

National Database #	Stranding Response Date	Species Code	Stranding State	Type of interaction	Initial SI Determination	Injury Determination Criteria/Comments	Post-Mitigation SI Determination	NMFS 2012 SI Policy Criteria	SI Averted
NE-2022-1261936	2022-MAY-17	GRSE	MA	Entanglement	SI	Responders captured and restrained the seal and successfully removed white twine strapping material from around its neck. Wound was about 1.5 cm deep and looked clear. Seal was released and returned to the water. Seal was spotted about 2 weeks later in the same spot with a nicely healing neck wound.	NSI	P7b	Y
NE-2022-1264234	2022-APR-16	GRSE	RI	Entanglement	SI	Young grey seal entangled around the neck in twine, taken to rehab where he was disentangled and deep laceration treated. Tagged and released 7/5/22.	NSI	P7b	Y
NE-2022-1264235	2022-APR-30	GRSE	RI	Entanglement	SI	Gray seal weanling entangled with monofilament. Taken to rehab where he was disentangled and treated. Tagged and released 7/28/22.	NSI	P7b	Y
NE-2022-1242852	2022-FEB-05	GRSE	NY	Entanglement	SI	Entanglement. Taken to rehab.	NSI	P7b	Y
NE-2022-1244181	2022-APR-24	GRSE	NY	Entanglement	SI	Entanglement. Taken to rehab.	NSI	P7b	Y
NE-2022-1261289	2022-MAR-22	GRSE		Vessel strike	CBD	Responders reported prop wounds. No other info.	CBD		?
NE-2022-1266907	2022-APR-10	GRSE	MA	Entanglement	SI	Entanglement with associated wound along the neck. Disentangled by responders and taken to rehab.	NSI	P7b	Y

Table 6. Serious injury stranding records reported in the gray seal Stock Assessment Report for 2017-2021. Note that some of these stranding records may represent sightings rather than stranding responses. Injuries reported in this table have not been evaluated through the injury determination process. Entanglements that appeared to be fishing line or net were classified as fishery interaction.

Year	# of fishery interaction reports (not disentangled)	# disentangled and released/rehabbed	Human Interaction - other
2017	41*	7	2
2018	35	7	11
2019	24	25	5
2020	9	22	8
2021	9	13	5

*Includes 17 reports in the Marine Mammal Health and Stranding Response Program (MMHSRP) database and 24 records reported in Iruzun Martins et al. 2019.

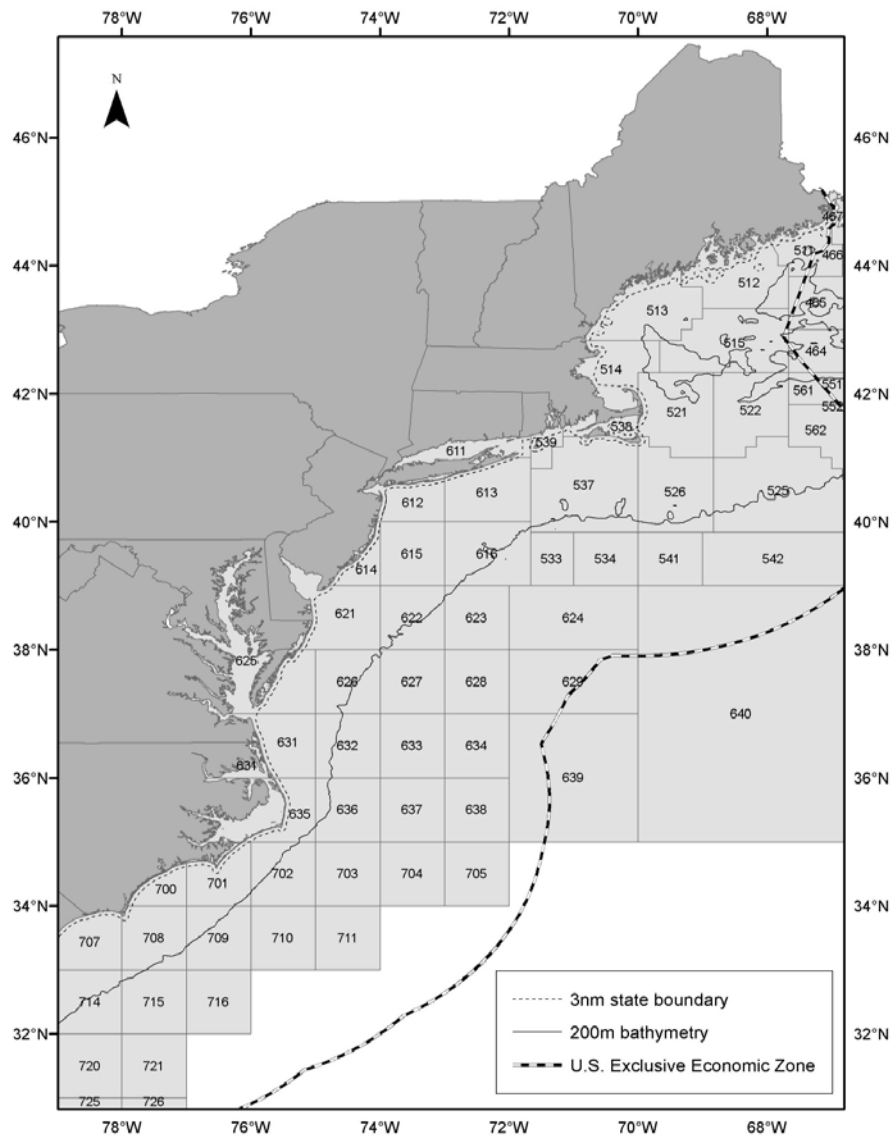


Figure 1. Fishery statistical areas.

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APPENDIX. TABLES 2 AND 3 FROM [NMFS PROCEDURE MANUAL \(2012\)](#)

Table 2: Summary of Small Cetacean¹ 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.

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 an 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

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) *
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	
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

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) *
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	
S15a	Dependent animal (i.e., non-weaned calf) released alone post-interaction and separated from its mother	SI	
S15b	Dependent animal (i.e., non-weaned calf) 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

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.

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).

Table 3: Summary of Pinniped¹ Injury Categories and Criteria

Instructions: Each pinniped 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)
P1	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 change in body condition, tissue necrosis, emaciation, gangrene).	SI ³	
P2	Ingested gear ⁴ or hook(s)	SI	
P3	Visible blood loss	Case specific ⁵	Amount of blood, location of the bleeding injury, duration of bleeding
P4	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)	Case specific	Manner in which animal is brought on deck, length of time animal is on deck, environmental conditions (e.g., temperature)
P5a	Hook(s) in mouth (excluding criterion P5b), regardless of the presence of gear	SI	
P5b	Hook(s) confirmed in head (excluding criterion P5a) or in lip only (external tissue outside of teeth), no trailing gear	Case specific	Location on head (e.g., eye), depth of penetration, type of hook, prolonged restraint or struggle that could lead to capture myopathy, size of hook, impairing ability to feed
P5c	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, location of hooking on the body, depth of hook, hook pulls out cleanly vs. causes further injury during dehooking, method used to remove hook, length of time hooked
P5d	Hook(s) in appendage or body (excluding criteria P5a-c and P12), 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	NSI ⁷	
P6	Gear attached in any manner to free-swimming animal with potential ⁸ 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	
P7a	Anchored/immobilized and not freed	SI	

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)
P7b	Anchored, immobilized, or entangled before being freed without gear attached	Case specific	Duration of entanglement, prolonged restraint or struggle that could lead to capture myopathy, type of fishing gear, where/how gear immobilized animal, associated injury (where directly or indirectly caused by initial entanglement), response of individual
P8a	Gear wrapped and constricting any body part or likely to become constricting as the animal moves or grows	SI	
P8b	Gear wrapped loosely on any body part	Case specific	Type and amount of fishing gear, animal body size relative to gear (species, age), effect on movement, species sensitivity
P9	Body trauma ⁹ not covered by any other criteria	Case specific	Location of trauma on body, depth (superficial or to the bone, penetrating muscle or organs), length of laceration(s), number of lacerations, cleanliness (compression vs. tearing), amount and duration of blood loss, risk of infection or disease transmission (e.g., dog bites)
P10	Visible fracture(s), excluding broken appendages (see criterion P13 for broken appendages)	SI	
P11	Vertebral transection or fully severed flipper(s)	SI	
P12	Body cavity penetration ¹⁰ by foreign object or body cavity exposure	SI	
P13	Partially severed or fractured flipper(s)	Case specific	Cleanliness (clean cut vs. tear), nature of injury causing the loss, extent of fin or flipper loss, opened or closed fracture, dislocation, amount/duration of blood loss
P14	Dependent animal (i.e., pup, juvenile) released alone post-interaction or dependent animal left with a seriously injured or dead mother	SI	
P15	Observed or reported collision with vessel	Case specific	Speed of vessel, size of vessel, hull shape, part of vessel to strike the animal (e.g., propeller, hull), size of animal compared to size of vessel, location of strike on animal's body, extent and location of wound(s) to animal
P16	Observed or reported harassment, disturbance, feeding, or removal	Case specific	Type, duration, and severity of harassment, age of animal, seasonality (e.g., breeding, annual molt) behavioral state, previous stressors and/or injuries, etc.

¹ For the purposes of this table, pinnipeds include all pinniped species except walrus.

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 pinniped 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 to criterion P5d indicates that the trailing gear is not capable of leading to any of the situations listed.

⁷ NSI = nonserious injury.

⁸ For the purposes of this table, potential as it relates to criterion P6 indicates that the trailing gear is capable of leading to any of the situations listed.

⁹ 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 or a bullet from a gunshot 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.

¹⁰ For the purposes of this table, “penetration” is defined as a wound occurring when a foreign object punctures the body, such as a bullet from a gunshot. 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)

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