

## North Atlantic right whale entanglement and serious injury update, November 2018 – October 2019

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Since the last consortium meeting eight right whales were seen carrying gear, with 28 sightings from the Gulf of St. Lawrence (GoSL) to New York. Of these eight cases, three were from prior years (3843, 4091 and 3960) and five were newly discovered (2310, 1226, 4423, 4440 and 3125). Of the three ongoing cases, all first sighted in 2018, two were confirmed to have shed their entanglements (4091 and 3960) and one is ongoing as of last sighting (3843). Of the new cases, all five were discovered alive upon first sighting. Three of these cases were discovered in the GoSL, and two off Massachusetts. Disentanglement efforts were conducted on four of the five new cases, (2310, 4423, 4440, and 3125). Right whale 1226 was eventually found dead off of New York with no gear attached and necropsy results are pending. In two cases disentanglement efforts led to the animals shedding their entanglements (4440 and 4423). In the case of 3125 disentanglement operations led to the removal of some gear but the whale may still be lethally entangled. This whale had a telemetry buoy tied into his entanglement to facilitate responses and was tracked for two weeks (July 19 to August 2), traveling over 750nm out of the GoSL to the waters east of Cape Cod. Of the five new cases, all had line through the mouth, at minimum, and all but one (2310) had limited mobility due to the robust characteristics of the entangling gear. The network is urged to keep an eye out for 3843, 2310, and 3125 and report any sightings immediately to the Atlantic Large Whale Disentanglement Network. Monitoring of whales with entanglement-related injuries, but not seen carrying gear, continued and reaffirms that entanglement effects a larger proportion of the population than represented by entanglement sightings alone.

An aerial photograph of a whale's tail fluke breaking the surface of the ocean. The water is a deep blue-grey color with gentle ripples. The tail fluke is a lighter, yellowish-brown color and is positioned on the right side of the frame, angled towards the bottom right corner.

# North Atlantic right whale entanglement and injury events

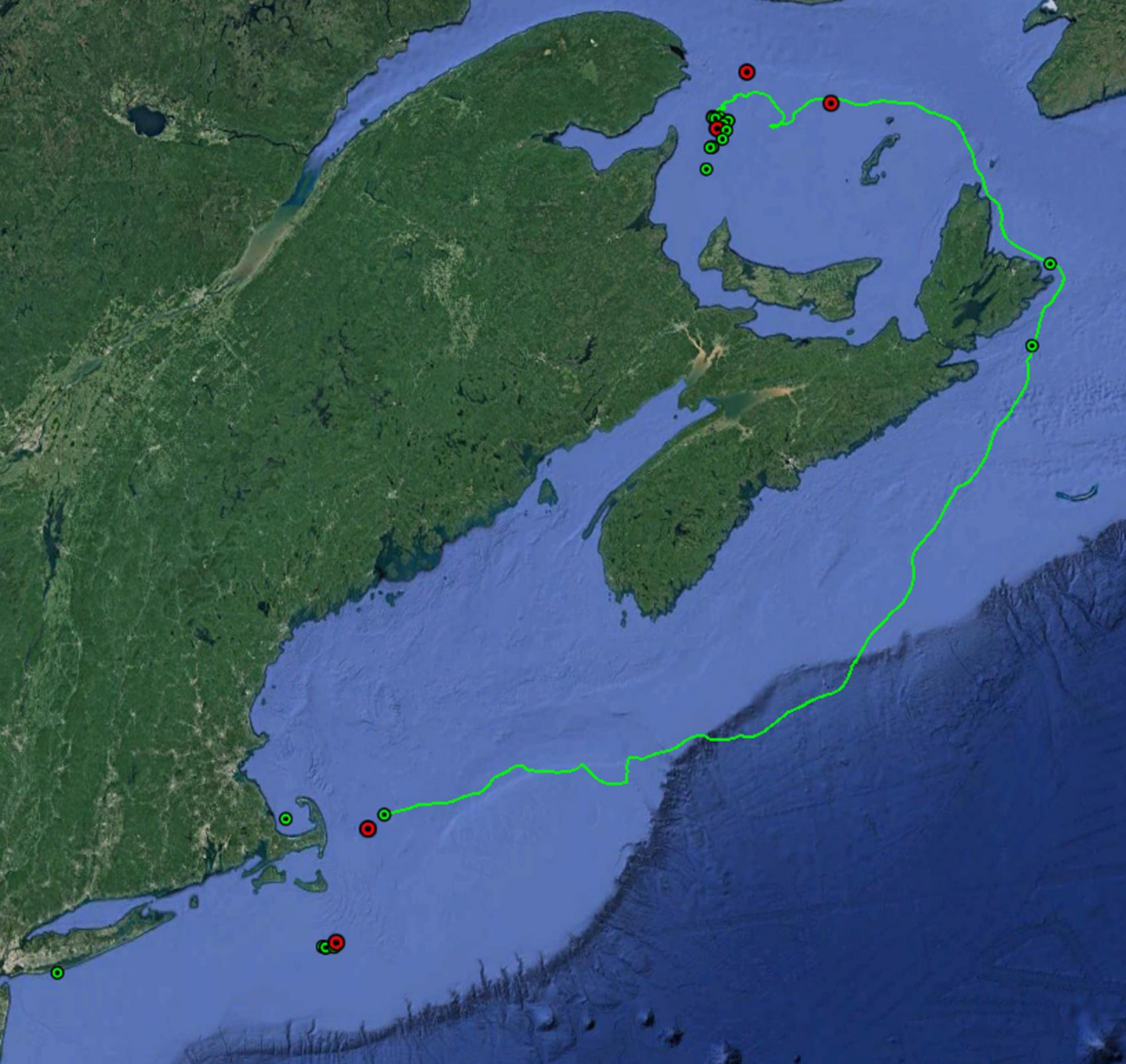
**Scott Landry, Heather Pettis, and Allison Henry**

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*Activities conducted under NOAA permit 18786 and Species At Risk Act license*



## Entangled right whale sightings, November 2018-2019:

- 8 cases of right whales carrying gear documented from Gulf of St. Lawrence to Long Island, New York
- 5 new cases, 3 ongoing case – average new cases over previous 10 years: 6 (range: 3-11)
- Of new cases: 4/5 were known to be lethal; 2 were disentangled, 1 had a significant amount of gear removed but likely still entangled, 1 other is still at large, and 1 was later found dead
- Sighting sources: all sightings except for the discovery of carcass of #1226 were by the research community
- Gear samples were collected in only one case while all others had at least some level of documentation

# Resolved cases from 2018: #4091 & #3960

NEFSC



CWI



# Unresolved case from 2018: #3843

GMWSRS



NEFSC



#2310: report immediately and document mouthline

CCS



#4440: disentangled/gear shed



NEAq



NEESC

#3125: some gear removed/still entangled

NEFSC



CCS





# #1226: deceased

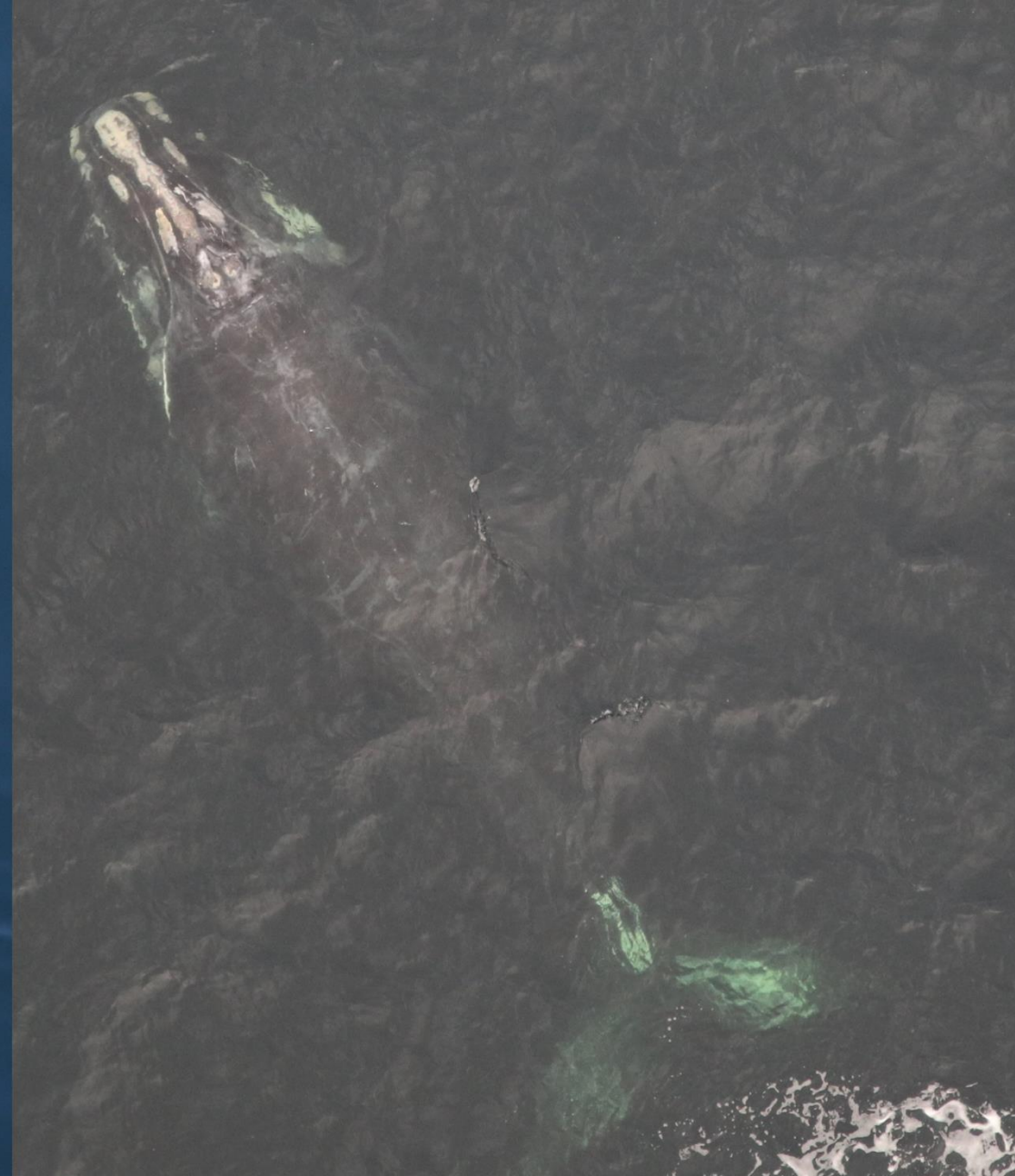
DFO













CCS



#4423: disentangled/gear shed



NABF Anthropogenic Injury Update: Whale mortality in the North Pacific Ocean: impact and whale rescue addressed updating information to monitor condition. (Jan 2017)

1142 - KLEENEX 	1151 - MARYNNE 	1152 - NECKLACE 	1203 - SENATOR 	1205 - LUNA 
1306 - VELDRO 	1337 - SCOOP 	1427 	1820 	1968 - QUATRO 

**Monitoring Injured North Atlantic Right Whales**

**June 2017 Report**

Heather Pettis

Anderson Cabot Center for Ocean Life  
New England Aquarium

**SUMMARY**  
Between 01 December 2016 and 31 May 2017, four new severe injuries were detected for four right whales. All new injuries were entanglement related, including two whales with attached gear. Two whales with new injuries were determined to be in declining condition coinciding with injury and the impact of injury on health for the remaining two was determined to be inconclusive. Eighteen previously injured whales had additional sightings to assess and as a result, three whales

# Monitoring Injured Right Whales



K. Jackson, FWRI



K. Jackson, FWRI



M. Brown, ACCOL/NEAq



C. Slay, NEAq

- Injury severity
- Timeframe of injury acquisition
- Health decline associated with injury?

# 2019 (preliminary) New Injury Detections

Decline

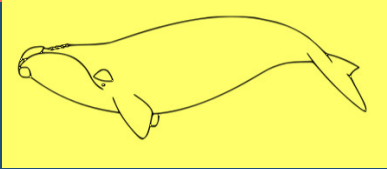
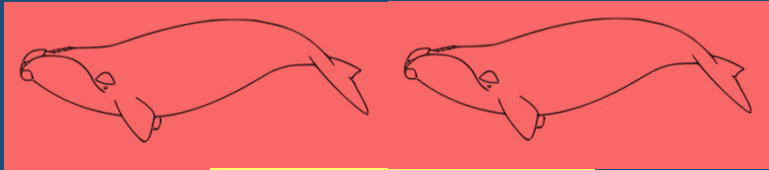
Inconclusive

No Impact

Ext. Monitor

8 new injuries detected

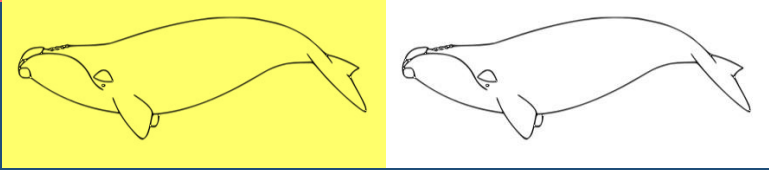
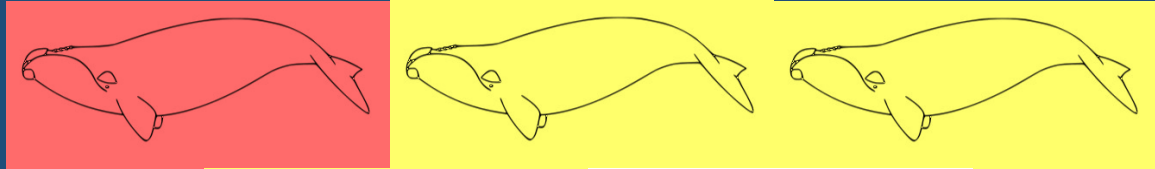
Entangled w/gear



Vessel Strike

0

Entangled w/o gear



# Whales w/ New Injuries in Declining Condition

Eg #3125: >18 y.o. male, w/gear  
partial disentanglement, gear remains



NEFSC



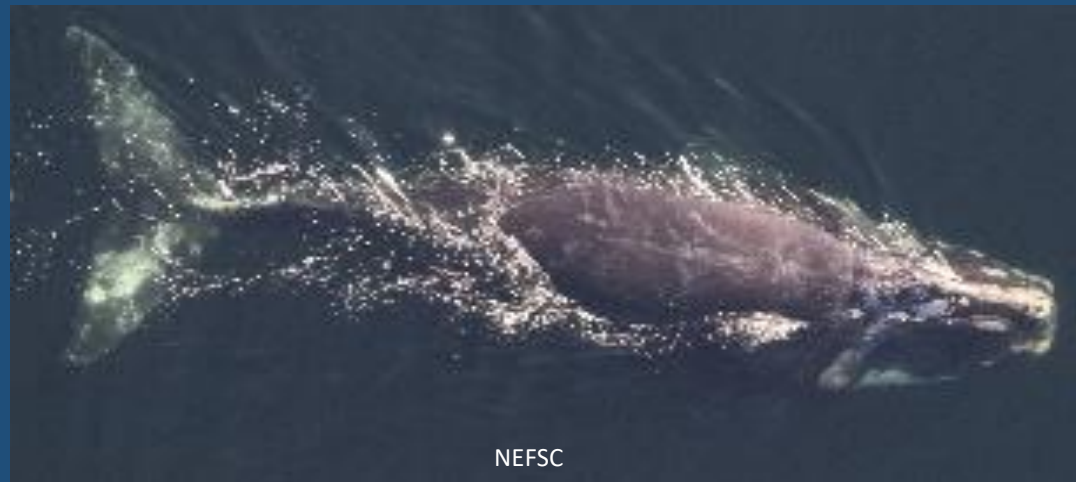
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Eg #3208: 17 y.o. male, no gear



Anderson Cabot Center for Ocean Life at the New England Aquarium

Eg #4423: 5 y.o. male, w/gear  
partial disentanglement, gear shed



NEFSC

# Previously Injured Whale Updates

December 2018 Report – 70 whales

- 40 whales not resighted
  - 30 not seen >1yr post injury
    - 17 not seen since initial injury sighting
- 30 previously injured whales resighted
  - 1 dead, 6 removed for stable condition
  - 9 ↑condition
  - 0 ↓condition

December 2019 Report – 71 injured whales on monitoring list

Updated report will be released in December 2019

Results added to report card (finalized in January 2020)

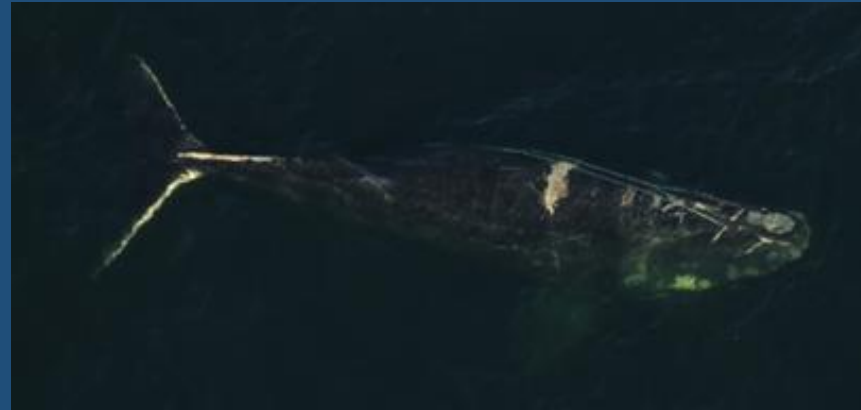
# Severe Injury vs Serious Injury

*NATIONAL MARINE FISHERIES SERVICE INSTRUCTION 02-038-01  
EFFECTIVE DATE January 27, 2012*

*Protected Resources Management  
Process for Distinguishing Serious from Non-Serious Injury of Marine Mammals*

*Process for Injury Determinations*

**Serious injury is “an injury that is *more likely than not* to result in mortality”.**



## Instructions:

- Use all available information & scientific judgement
- Evaluate using all applicable injury categories
- Can differ from table’s guidance if more detailed info or extended observation justifies
- Fully disentangled/no-gear = non-serious injury unless additional evidence
- Any injury leading to apparent *significant* health decline = serious injury

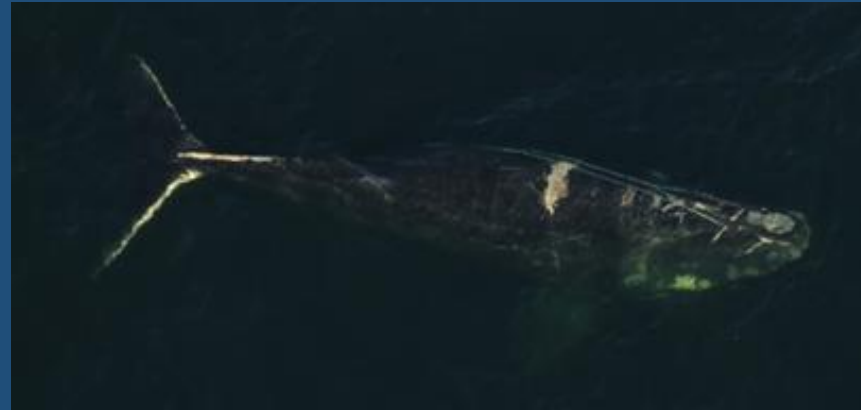
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# NMFS Serious Injury Determination Criteria

**TABLE 1: Summary of Large Cetacean<sup>1</sup> Injury Categories and Criteria**

Instructions: Each large cetacean injury event is recorded to the appropriate injury/information category using all available information and scientific judgment, as described in the Procedural Directive. Criteria L10 - L12 accommodate events that lack details necessary for assignment to a more specific category. 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. An animal that is fully disentangled would generally be considered not seriously injured, unless there is additional evidence of a serious injury. Any injury leading to apparent significant health decline (e.g., skin discoloration, lesions near the nares, fat loss, increased cyamid loads) is a serious injury.

Category	Injury/ Information	Injury Determination	Criteria
L1	Ingested gear <sup>2</sup> or hook(s)	SI <sup>3</sup>	Swallowed, not simply draped through mouth
L2	Constricting wrap	SI	Tightly wrapped line anywhere on body that indents the skin or does not shift with whale's movement, or line that is likely to become constricting as the whale grows. Indication that a whale that is heavily weighted, anchored or has a discolored appendage is sufficient evidence of constricting gear
L3	Loose wrap, bridled or draped gear	NSI <sup>4</sup>	Loosely wrapped gear that moves or shifts freely with whale's movement. Absence of constricting gear must be confirmed
L4	External hook	NSI	Fishing hook of any size on any part of the body (i.e., not ingested)
L5a	Deep laceration <sup>5</sup>	SI	Laceration with the potential to affect major artery (e.g., laceration or severing at insertion of flipper/fluke), penetrating body cavity, or cutting bone
L5b	Superficial laceration	NSI	Laceration not deeper than blubber layer, does not affect major artery, or cut bone
L6a	Vessel much greater in size than whale or vessel $\geq 65'$ and $>10$ knots	SI	Struck by vessel much greater in size than the whale and traveling greater than 10 knots, or struck by vessel equal or greater than 65' and traveling greater than 10 knots, and no information on injury to the whale
L6b	Vessel smaller in size than whale or vessel $<65'$ and $>10$ knots	Prorate <sup>6</sup> : 0.20	Struck by vessel smaller in size than the whale and traveling greater than 10 knots, or struck by vessel less than 65' and traveling greater than 10 knots, and no information on injury to the whale. A strike to a calf by a vessel of any size and traveling greater than 10 knots will be considered a serious injury



L6c	Vessel any size $\leq 10$ knots	NSI	Struck by vessel of any size traveling at equal or less than 10 knots and no information on injury to the whale
L7a	Vessel much greater in size than whale or vessel $\geq 65'$ and speed unknown	Prorate: 0.56	Struck by vessel much greater in size than the whale traveling at an unknown speed, or struck by vessel equal or greater than 65' and traveling at unknown speed, and no information on injury to the whale. A strike to a calf by a vessel of any size when speed is unknown will be considered a serious injury
L7b	Vessel smaller in size than whale or vessel $<65'$ and speed unknown	Prorate: 0.14	Struck by vessel smaller than the whale traveling at an unknown speed, or struck by vessel less than 65' and traveling at unknown speed, and no information on injury to the whale. A strike to a calf by a vessel of any size when speed is unknown will be considered a serious injury
L8	Dependent <sup>7</sup>	SI	Dependent calf of a dead or seriously injured mother
L9	Brought on deck	SI	Whale removed from water and brought on deck
L10	Evidence of entanglement	Prorate: 0.75	Confirmed entanglement but insufficient information available to place in any of the L1-L4 criteria with a high degree of certainty
L11	Vessel strike laceration	Prorate: 0.52	Whale confirmed with non-entanglement related laceration but lacking details to place in either criteria L5a or L5b with a high degree of certainty. Includes observation of blood in water
L12	Vessel strike observed	Prorate: 0.36	Confirmed vessel strike report where there is insufficient detail to assign event to criteria L6a - L7b with a high degree of certainty. A strike to a calf by a vessel of unknown size traveling at an unknown speed will be considered a serious injury

NATIONAL MARINE FISHERIES SERVICE INSTRUCTION 02-038-01  
 EFFECTIVE DATE January 27, 2012

Protected Resources Management  
 Process for Distinguishing Serious from Non-Serious Injury of Marine Mammals  
 Process for Injury Determinations

Serious Injury and Mortality Determinations for Baleen Whale Stocks along the Gulf of Mexico, United States East Coast, and Atlantic Canadian Provinces, 2011-2015

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by Allison G Henry, Timothy VN Cole, Mendy Garron, Wayne Ledwell, David Morin, and Andrew Reid



# NMFS Serious Injury Determination Process

TABLE 1: Summary of Large Cetacean<sup>1</sup> Injury Categories and Criteria

Instructions: Each large cetacean injury event is recorded in the appropriate injury information category using all available information and scientific judgment, as described in the Procedures Document, Criteria 1.1.1-1.1.2. Accommodate events that lack details necessary for assignment to a more specific category. 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 observations on an individual case may justify a determination differing from the preference of this table. An injury that is fully documented would generally be considered not seriously injured, unless there is additional evidence of a serious injury. Any injury leading to apparent significant health decline (e.g., skin discoloration, lesions near the apex, the base, increased cranial length) is a serious injury.

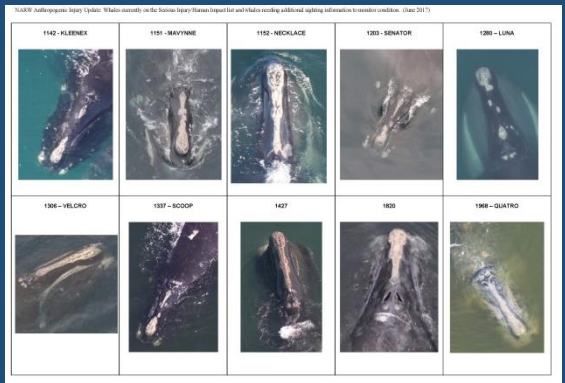
Category	Injury Information	Injury Determination	Criteria
L1	Injured pair <sup>2</sup> or boob(s)	IS <sup>3</sup>	Swollen, not singly draped through girth. Tightly wrapped line anywhere on body that impedes the skin or does not slide with whale's movement, or line that is likely to become constricting as the whale grows. Indicators that a whale that is heavily weighed, anchored or has a discolored appearance is sufficient evidence of constricting gear.
L2	Constricting wrap	IS	
L3	Loose wrap, twisted or draped gear	NS <sup>4</sup>	Loosely wrapped gear that moves or shifts freely with whale's movement. Absence of constricting gear must be confirmed.
L4	Entirety bled	NS	Frisking hole of any size on any part of the body (i.e., not dependent).
L1a	Deep laceration <sup>1</sup>	IS	Lacerations with the potential to affect major arteries (e.g., laceration or severing of arteries of fluke blade, penetrating body cavity, or cutting bone).
L1b	Superficial lacerations	NS	Lacerations not deeper than 1/8th of the liver, does not affect major artery, or cut bone.
L1c	Vessel much greater in size than whale or vessel < 6" and < 10 knots	IS	Struck by vessel much greater in size than the whale and traveling greater than 10 knots, or struck by vessel equal or greater than 6" and traveling greater than 10 knots, and no information as to injury to the whale.
L1d	Vessel smaller in size than whale or vessel < 6" and < 10 knots	Presence <sup>5</sup> of IS	Struck by vessel smaller in size than the whale and traveling greater than 10 knots, or struck by vessel less than 6" and traveling greater than 10 knots, and no information as to injury to the whale. A strike to a calf by a vessel of any size and traveling greater than 10 knots will be considered a serious injury.



K. Jackson, FWRI



M. Brown, ACCOL/NEAq



# 2019 (preliminary) NMFS Serious Injury Determinations

Decline

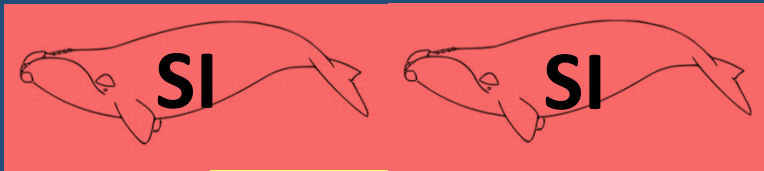
Inconclusive

No Impact

Ext. Monitor

8 new injuries detected

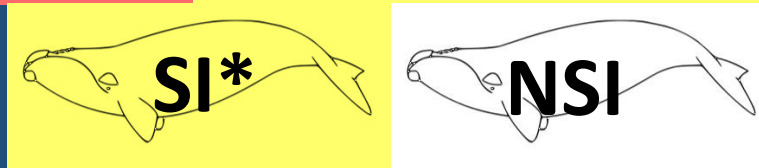
Entangled w/gear



Vessel Strike

0

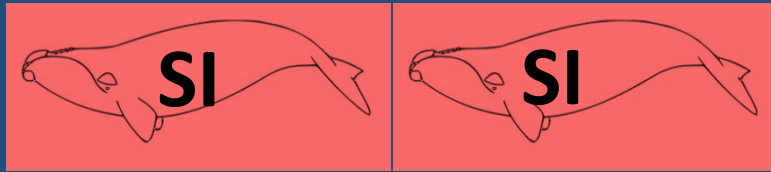
Entangled w/o gear



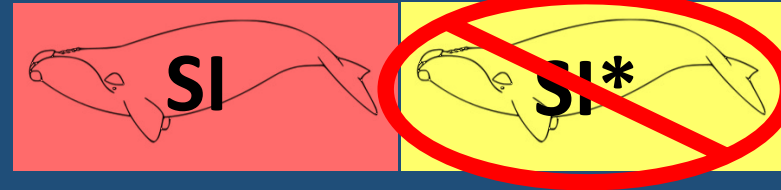
\*significant health decline – new entanglement injuries, but source of SI unconfirmed

# 2019 (preliminary) NMFS Serious Injury Determinations vs PBR

Entangled w/gear



Entangled w/o gear



Injury Value:  
SI = 1

Injury Determination Values are counted against PBR.

$$(3 * SI) = 3.0$$

$$PBR = 0.8$$

Decline

Inconclusive