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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XC559]

Process for Distinguishing Serious from Non-Serious Injury of Marine Mammals; Revisions to Procedural Directive

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of availability; response to comments.

SUMMARY: The National Marine Fisheries Service (NMFS) announces final revisions to the Process for Distinguishing Serious from Non-Serious Injury of Marine Mammals. NMFS has incorporated public comments into the final Procedural Directive and provides responses to public comments.

DATES: This final Procedural Directive will be effective as of [*insert date of publication in the FEDERAL REGISTER*].

ADDRESSES: Electronic copies of the Process for Distinguishing Serious from Non-Serious Injury of Marine Mammals (NMFS PD 02-03801) are available at: *https://www.regulations.gov/docket/NOAA-NMFS-2022-0043* or *https://www.fisheries.noaa.gov/national/laws-and-policies/protected-resources-policy-directives.*

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SUPPLEMENTARY INFORMATION:

Background

The Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361 *et seq*.) requires NMFS to estimate the annual levels of human-caused mortality and serious injury (M/SI) of marine mammal stocks (Section 117) and to classify commercial fisheries based on their level of incidental M/SI of marine mammals (Section 118). In 2012, NMFS finalized national guidance and criteria, comprising a Policy Directive (02-038) and associated Procedural Directive (02-038-01; 77 FR 3233, January 23, 2012), for distinguishing serious from non-serious injuries of marine mammals. Both directives are available at: *https://www.fisheries.noaa.gov/national/laws-and-policies/protected-resources-policy-directives*. The Policy Directive provides further guidance on NMFS' regulatory definition of "serious injury" (*i.e.,* "any injury that will likely result in mortality"; 50 CFR 229.2), and the Procedural Directive describes the annual process for making and documenting injury determinations. The annual process includes guidance for which NMFS personnel make the annual injury determinations; what information should be used in making injury determinations; information exchange between NMFS Science Centers; NMFS Regional Office and Scientific Review Group review of the injury determinations; injury determination report preparation and clearance; and inclusion of injury determinations in the marine mammal stock assessment reports and marine mammal conservation management regimes (*e.g*., MMPA List of Fisheries, Take Reduction Teams, Take Reduction Plans, and vessel speed regulations).

In addition, the NMFS Policy Directive specifies that NMFS should review both the Policy and Procedural Directives at least once every 5 years or when new information becomes available to determine whether any revisions to the Directives are warranted. The review must be based on the best scientific information available, input from the MMPA Scientific Review Groups, as appropriate, and experience gained in implementing the process and criteria. If significant revisions are indicated during the

review, NMFS will consider making these available for public review and comment prior to acceptance.

In 2017, NMFS initiated a review of the Policy and Procedural Directives and invited subject matter experts from within NMFS to identify any necessary revisions based upon the best scientific information available. The review suggested that, in general, the Procedural Directive is meeting its objectives of providing a consistent, transparent, and systematic process for assessing serious from non-serious injuries of marine mammals. However, there was enough substantive feedback to warrant revising the Procedural Directive.

On July 20, 2022, NMFS published proposed revisions to the Procedural Directive for a 30-day public comment period (87 FR 43247). Proposed revisions included clarifying the serious injury determination process and reporting procedures; improving the overall readability of the Procedural Directive; refining pinniped and small cetacean injury categories and criteria; and providing guidance on capture myopathy in cetaceans, which is included as an appendix to the Procedural Directive. For large whales, NMFS is currently developing a statistical approach for injury determinations using a more recent and larger dataset that builds on NMFS' implementation of the Procedural Directive since its inception. Once the new methodology is finalized, NMFS will review the Procedural Directive to determine whether revisions are warranted.

Comments and Responses

NMFS received comments from the Marine Mammal Commission (the Commission), the Atlantic Scientific Review Group (Atlantic SRG), International Fund for Animal Welfare (IFAW), a joint letter from non-governmental environmental organizations (The Center for Biological Diversity, Conservation Law Foundation and Defenders of Wildlife (CBD *et al.*)), Western Pacific Regional Fishery Management Council (WPRFMC), representatives from the fishing industry (Blue Water Fishermen's

Association (BWFA) and Hawaii Longline Association (HLA)), and a joint letter from members of the public. Comments received covered several topics, including: the national review process, accounting for sublethal injuries and cases where the severity of an injury "Cannot Be Determined," national data and expertise, taxa-specific injury criteria, and proposed revisions to the small cetacean injury criteria. NMFS also received some minor editorial comments, which were incorporated throughout the Procedural Directive. All comments received are available on *regulations.gov* at: *https://www.regulations.gov/docket/NOAA-NMFS-2022-0043/comments*. All substantive comments are addressed below. Comments outside the scope of the revisions to the Procedural Directive are not responded to in this notice.

General Comments

Comment 1: HLA is discouraged that NMFS only proposed minor edits to the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals." They assert NMFS did not conduct a publicly informed, substantive review and revision of the Procedural Directive. HLA encourages NMFS to conduct a formal review process and include direct engagement with the False Killer Whale Take Reduction Team (FKWTRT), WPRFMC, and Pacific Scientific Review Group.

Response: NMFS disagrees. The "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" states that at least once every 5 years or when new information becomes available, NMFS will review the Procedural Directive to determine whether revisions are warranted based upon the best scientific information available, input from the MMPA Scientific Review Groups, as appropriate, and experience gained in implementing the process and criteria. It further states that, if significant revisions are indicated during the review, NMFS will consider making these available for public review and comment prior to acceptance. In 2017, NMFS initiated a review of the Procedural Directive and invited subject matter experts

from within NMFS to identify necessary revisions based upon the best scientific information available, Scientific Review Group input, and experience implementing the Procedural Directive. Through the review process, several topics were identified by an internal NMFS Working Group. To inform these proposed revisions, NMFS conducted literature reviews, sought input from several researchers with long-term longitudinal data sets, and solicited individual expert opinion from experts familiar with small cetacean injuries (including anatomists and veterinarians). Based on this review, NMFS determined revisions to the Procedural Directive were warranted. NMFS conducted several informational webinars for Scientific Review Groups, Marine Mammal Commission, U.S. Fish and Wildlife Service (USFWS), Take Reduction Teams (including the FKWTRT and Pelagic Longline TRT), and the Hawaii Longline Association, and presented an update on revisions to the WPRFMC at their June 2022 meeting. While this Procedural Directive is not subject to the formal rulemaking process, in the interest of transparency and inclusion, NMFS solicited public comments for a period of 30 days (87 FR 43247, July 20, 2022).

Comment 2: WPRFMC is disappointed NMFS did not convene a workshop to review and revise the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals." They request NMFS hold a virtual workshop with FKWTRT, Fishery Management Councils, and subject matter experts to review the best scientific information available and discuss revisions to the Procedural Directive.

Additionally, WPRFMC requested that NMFS convene an expert working group to develop Serious Injury Determination guidance specific for false killer whales in the Hawaii deep-set longline fishery. This false killer whale specific guidance should consider gear characteristics, handling methods, and information on interaction outcomes, and should review the best available scientific information on odontocete fishery interactions and gear ingestion.

Response: NMFS initiated a review of the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" in 2017. NMFS conducted a formal, exhaustive review of the best scientific information available, including false killer whale interactions, input from the MMPA Scientific Review Groups, as appropriate, and experience gained in implementing the process and criteria. Despite the time since the 2007 Serious Injury Technical Workshop, no new significant data were identified for false killer whale interactions. As a result, a formal workshop was unnecessary and further not required as part of the Procedural Directive.

This Procedural Directive is not subject to the formal rulemaking process; however, in the interest of transparency and inclusion, NMFS made the proposed revisions available to the public and solicited comments (87 FR 43247, July 20, 2022) prior to finalizing the revisions.

Comment 3: The Commission notes that the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" should be reviewed every 5 years or when new information becomes available that warrants more frequent review. The Commission states NMFS initiated review of the Procedural Directive in 2017, which resulted in the current proposed revisions. The Commission recommends that NMFS conduct more timely reviews of both the Policy and the Procedural directives.

Response: NMFS acknowledges this comment and notes that the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" should be reviewed (not necessarily revised) at least once every 5 years or when new information becomes available.

Comment 4: The Atlantic SRG and CBD *et al.* encourage NMFS to work with USFWS to develop serious injury guidelines for species under USFWS jurisdiction.

Response: NMFS thanks the Atlantic SRG and CBD *et al.* for their comments. The "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" only applies to marine mammal species under NMFS' jurisdiction. At this time, NMFS is not assisting USFWS in developing serious injury guidelines for species under USFWS' jurisdiction, though the two agencies discuss and coordinate on marine mammal stock assessment issues.

Comment 5: NMFS received several comments on the definition of "serious injury" and counting sublethal injuries against Potential Biological Removal (PBR). IFAW and members of the public recommend NMFS revise the definition of "serious injury." They note that the current definition of "serious injury" (an injury "more likely than not" to result in mortality, or any injury that presents a greater than 50 percent chance of death) is too restrictive. They assert that NMFS is missing a large number of injuries by not including injuries that are sublethal to the animal in the definition of "serious injury." These sublethal injuries can have effects on energetics, reproductive rates, and overall population health. It was recommended that the term "serious injury" be revised to "lethal injury."

The Atlantic SRG, CBD *et al*., and members of the public also commented that NMFS should count sublethal injuries against PBR. The commenters note that sublethal entanglement and vessel strike injuries can have long term energetic and population impacts. They state that the practice of not counting sublethal injuries against PBR results in under-representation of population effects, which in turn affect conservation management and population recovery. They recommend that NMFS prorate sublethal injuries against PBR based on documented survived injuries.

Response: NMFS appreciates the comments and recommendations to further consider sublethal injuries and the impacts to marine mammals in stock assessment reports (SARs). The PBR management scheme is based on basic population dynamics.

Per the MMPA, PBR is defined as: "the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population." Importantly, in this definition, PBR only includes removals from the population (not including natural mortalities), which is critical to the assumptions of the underlying PBR framework. Furthermore, in comparing human impacts to PBR, the MMPA directs NMFS to specifically consider mortalities and serious injuries.

While the MMPA uses the term "serious injury," it does not provide guidance qualifying the level of severity for injuries that are considered serious. Therefore, to implement the MMPA, NMFS defined serious injury in its regulations (50 CFR 229.2) as "any injury that will likely result in mortality." This definition is consistent with the PBR framework's focus on removals (*i.e.,* mortality) from the population. To further clarify NMFS' interpretation of this regulatory definition, NMFS developed the policy "Process for Distinguishing Serious from Non-Serious Injury of Marine Mammals" (NMFS-PD 02-238). In this policy, which is the broader policy under which the procedure under revision here (NMFS-PD 02-238-01) exists, NMFS further clarifies its interpretation of the regulatory definition of serious injury as any injury that is "more likely than not" to result in mortality, or any injury that presents a greater than 50 percent chance of death to a marine mammal. Again, this is consistent with the PBR management scheme's focus on removals (*i.e.,* mortality or death) from the population.

Given the statutory text of the MMPA and NMFS' regulations and policy consistent with the statutory text, it is not appropriate to count sublethal injuries that are not likely to result in an animal being removed (*i.e.,* die) from the population when making comparisons to PBR. Doing so would violate the underlying assumptions of the PBR framework and the MMPA. However, such sublethal impacts can be considered and incorporated into marine mammal SARs as appropriate. More specifically, Section 117 of

the MMPA requires that, for strategic stocks, SARs include information on "other factors that may be causing a decline or impeding recovery of the stock, including effects on marine mammal habitat and prey." Currently, NMFS includes information on such "other factors" as appropriate in the SARs, often in a "Habitat Issues" or "Habitat Concerns" section. In addition, NMFS considers and tracks sublethal injuries for the purposes of informing the MMPA List of Fisheries, stocks to consider in Take Reduction Plans, and Unusual Mortality Events. NMFS will continue to consider sublethal injuries in these ways and considered the comments and recommendations provided here in finalizing revisions to its related procedure "Guidelines for Preparing Stock Assessment Reports Pursuant to the Marine Mammal Protection Act" (NMFS PD 02-204-01), where these comments are perhaps more applicable.

Comment 6: The Atlantic SRG comments that observed M/SI are underestimated for large whales. They ask if NMFS plans to develop protocols for estimating total mortality for large whale stocks.

Response: NMFS appreciates the Atlantic SRG's concern that M/SI is often underestimated, particularly for large whales. Recognizing this issue, when data are available, NMFS has attempted to estimate such unobserved or cryptic M/SI and include these along with documented mortality, to provide more accurate estimates of total mortality (*e.g.,* North Atlantic right whale SAR, among others). To more broadly address this issue, which is not just applicable to large whales, NMFS proposed revisions to its related procedure "Guidelines for Preparing Stock Assessment Reports Pursuant to the Marine Mammal Protection Act" (NMFS PD 02-204-01) (87 FR 52368, August 25, 2022), which are now being finalized. Specifically, a new section was proposed to be added to that procedure that (1) summarizes the concept of undetected mortality and the state of the science as it relates to estimating undetected mortality in marine mammals and its inclusion in SARs; (2) provides specific guidance directing SAR authors to

correct human-caused M/SI estimates for undetected mortality using the best scientific information available, when possible, and includes several examples of how this may be accomplished; and (3) provides guidance on using data from other stocks and how to appropriately deal with apportioning undetected mortality by cause, various biases that may exist, and multiple estimates of human-caused M/SI. We are hopeful that these revisions address the Atlantic SRG's comment with respect to how NMFS plans to address this issue more broadly, specifically in SARs, which are ultimately used to inform management.

Comment 7: NMFS received several comments on the overall process for documenting M/SI in marine mammals. Members of the public commented that NMFS is treating large whale, small cetacean, and pinniped injuries differently and thus, not using a consistent process for determining serious injury. They note that live entangled cetaceans are documented and reported differently compared to pinnipeds. They specifically note that pinniped entanglements are not incorporated into the SARs.

The Commission comments that they remain concerned about the under-reporting of human-caused injuries to pinnipeds in the northeast, particularly the western North Atlantic stock of gray seals. They state that documented gray seal injuries are not summarized in the SAR, injury determinations are not being made, and serious injuries from entanglements are not included in the estimates of total human-caused M/SI in the SAR. In contrast, the Commission notes that pinnipeds with constricting entanglements are accounted for in Alaska and Pacific injury determination reports and included in the total human-caused M/SI estimates in the SARs. The Commission recommends that NMFS Northeast Fisheries Science Center and Greater Atlantic Regional Fisheries Office collaborate with their other NMFS science centers and regional offices to ensure that pinniped entanglements are being documented, assessed, and reported consistently

nationwide, in accordance with the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals."

Response: NMFS agrees that serious injury determinations need to be consistent among taxa. Nevertheless, there are differences in the different taxa's interactions with humans, how such data are collected, and how such interactions may impact the taxa in question. Given these differences, NMFS has developed criteria that will, to the extent possible, result in consistent determinations across taxa, while recognizing the different types of interactions, data available to assess injury severity, and ultimate effects to the specific marine mammal injured.

The Commission suggests there is an inconsistency in how NMFS is making serious injury determinations within a single taxa, specifically pinnipeds. NMFS recognizes the concern and is working on efforts to improve consistency across pinniped stocks in making serious injury determinations. As the Commission's comments pertain to the consistent implementation of the policy, not the draft revisions per se, we will consider how best to improve consistency going forward and welcome further discussion with the Commission on the specific issue of serious injuries of the western North Atlantic stock of gray seals.

Comment 8: IFAW recommends NMFS include in the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" an annual request to all stranding network partners to report all strandings to NMFS that meet the serious injury criteria. They note strandings that are not assigned a stranding case number (*e.g.,* reported and photographed but not found when responder arrives) are not accounted for in the injury determination process.

Response: All National Marine Mammal Stranding Network members are required to submit basic Level A data on all strandings to NMFS including: date and location, species, condition of animal, sex of animal, length, disposition of the animal and

tissues or specimens, and any personal observations. Network members complete the Marine Mammal Stranding Report – Level A Form (NOAA Form 89-864, OMB No. 0648-0178) as part of their response and forward the form to NMFS in a timely manner, as specified in the terms of the Stranding Agreement. In addition, as of April 1, 2020, Network members must complete the Human Interaction Form (NOAA Form 89-864, OMB No. 0648-0178) for all confirmed live, fresh dead, and moderately decomposed strandings. However, NMFS encourages the use of the Human Interaction Form for all cases. "Confirmed by public" is also now an option on the Level A form. Any animals photographed by the public and reported to the stranding network should get a Level A form and would be included in the data analyzed if the injury is part of the report from the public such as injuries visible in photographs.

Comment 9: Members of the public commented that stranding data are being underutilized in reviewing and revising the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals." They state that reviewing stranding data for types and severities of injuries, body condition, and factors contributing to strandings can provide meaningful insights into long-term outcomes of injuries, especially when there is a lack of long-term longitudinal data sets.

Response: NMFS reviews and analyzes stranding data during the serious injury determination process. As noted in response to comment #8, the National stranding network submits level A and human interaction data to NMFS. Implementation of Human Interaction Form (NOAA Form 89-864, OMB No. 0648-0178) provides additional data to be used in the serious injury determination process. These forms are reviewed and reissued every 3 years. Information beyond what is captured on the forms that are part of the Level A Data Collection are not submitted to NMFS in a standardized manner and are generally not available to be analyzed. In addition, stranding data that

was used during the serious injury determination process was also considered when reviewing and revising this Procedural Directive.

Comment 10: Members of the public commented that the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" often refers to a lack of resight data for small cetaceans and pinnipeds. They note that sightings of free-swimming entangled pinnipeds are not entered into the National Stranding Database because they are not considered strandings. However, the sighting information is often maintained with local stranding networks. For example, the 2019 bycatch estimates for gray seals in the Northeast sink gillnet fishery alone is 2,019 gray seals (Precoda *et al.* 2022). This estimate is based solely on observer reports. However, using the estimated entanglement prevalence calculated through unmanned aerial vehicle surveys and the minimum population estimate for gray seals in the U.S., Martins *et al.* (2019) reported an additional 192-857 gray seals living with entanglements. They assert that a lack of curation and data analysis is not the same as lack of data. Members of the public recommend NMFS develop a standardized process for curating data from free-swimming entangled small cetaceans and pinnipeds.

Response: NMFS recognizes that these data may be collected by various groups, but as pointed out by the commenters, they are currently maintained by local organizations and are not submitted to NMFS. NMFS remains concerned that there is often limited ability to determine the identity of an individually entangled animal, particularly for pinniped species with few external unique features (*e.g.,* sea lions and elephant seals). This limits our ability to use this type of information to quantify the impacts of entanglements or follow individual animals over time. NMFS is open to continue to explore this issue with external partners, including stranding network organizations.

Comment 11: The Commission recommends that NMFS integrate all marine mammal mortality and injury data into one centralized database. They acknowledge the amount of work NMFS does to compile and analyze mortality and injury data for injury determinations, SARs, and the List of Fisheries and note that a centralized database will help NMFS understand both short-term and long-term impacts of human-caused M/SI.

Response: NMFS thanks the Commission for their recommendation. NMFS agrees that there is value in centralizing these data. We are working to develop the capabilities to centralize marine mammal SAR, M/SI, and List of Fisheries data into a single database.

Comment 12: NMFS received several comments from IFAW and members of the public on the level of expertise needed to make injury determinations. They raise concerns about the effectiveness of the serious injury determination process if NMFS staff do not have adequate training in marine mammal anatomy, biology, physiology, health, and stranding response. They also note the importance of having the appropriate expertise to be able to appropriately apply the serious injury criteria and identify the cause of injury. They recommend that NMFS consult with outside subject matter experts including veterinarians and marine mammal health experts when making serious injury determinations. They also recommend clarifying sections throughout the Procedural Directive regarding when outside experts may be consulted.

Response: NMFS appreciates the concerns about serious injury determinations not having adequate review, particularly by those with expertise in marine mammal anatomy, biology, physiology, health, and stranding response. However, there is nothing in the procedure (as it was originally or in the draft revisions) that precludes NMFS from consulting with additional experts (external and internal) as needed when making serious injury determinations. In fact, this occurs fairly often in practice. For example, if there is uncertainty about a stranding event, NMFS staff will often reach out to the external

partner that was actually at the stranding to get more information. Further, when the initial procedure and injury criteria were developed, NMFS consulted experts in these aforementioned fields. Therefore, expertise is built into the criteria themselves. In addition, additional expert review is required as part of NMFS existing process of cross Science Center review. All injury determinations, by way of the annual SAR process, are also subject to review by the Scientific Review Groups, many members of whom are explicitly appointed due to their expertise in marine mammal anatomy, biology, physiology, health, and stranding response. Finally, SARs are subject to further review by the public, which can include, and often does, review of the injury determinations and resulting estimates included in the SARs. To help clarify current processes, NMFS has revised the procedure to include a sentence providing guidance to NMFS staff to consult with external experts, as appropriate.

Comment 13: IFAW and members of the public express concern that fishery observers do not have the expertise and training to accurately identify a serious injury. They recommend NMFS provide adequate training for observers to identify serious injuries and note that this training should be overseen by veterinarians. They also recommend that observers cross-train with stranding network members. They note stranding network personnel are trained to understand serious injuries and cross-training could provide more accurate injury data collection. Further, they note that data from stranding programs should contribute equally, if not more than, observer programs for these determinations.

Response: Fishery observers do not identify or determine serious injuries. Fishery observers collect data on the bycatch event, such as the location and configuration of hookings/entanglements, the amount and type of trailing gear, and behavior of the animal among other details. Using these data, NMFS experts determine whether an injury is

serious or non-serious. NMFS disagrees that observers should make these injury determinations.

Comment 14: IFAW comments that the injury determination process described in Section V (Accounting for Cases where the Severity of an Injury Cannot Be Determined) can lead to inaccurate injury determinations if staff do not have sufficient background in anatomy and physiology. Members of the public further recommended that NMFS use a scaled approach similar to epidemiology case definitions for "Cannot Be Determined" cases.

Response: NMFS appreciates the concerns and chance to clarify when and how "Cannot Be Determined" cases are made. We agree that it is important for NMFS Science Center staff responsible for making injury determinations to have either sufficient background in anatomy and physiology or the ability to consult with external experts who have such expertise, as needed. To that end, we have modified the final Procedural Directive to clarify when such additional expertise should be sought. However, this principle applies to all injury determination cases and is not specific to those cases where the injury severity remains "Cannot Be Determined." To clarify, "Cannot Be Determined" cases are injuries for which NMFS is not able to determine the injury severity based on the available information and following consultation with additional experts. NMFS appreciates the recommendation to use a scaled approach similar to epidemiology for "Cannot Be Determined" cases, and will consider such an approach in future revisions.

Large Whale Injury Criteria

Comment 15: The Atlantic SRG recommends that NMFS provide time at the 2023 Scientific Review Group meeting to discuss the implementation of the random forest model-based proration of M/SI.

Response: As noted above, NMFS is developing a statistical approach (random forest model) for large whale injury determinations; and, once the new methodology is finalized, NMFS will review the Procedural Directive to determine whether revisions are warranted. A paper describing the model was published in 2022 and relied upon right and humpback whale data (Carretta and Henry 2022). Since that time, the algorithms used in that paper were updated with additional data (blue, fin, and gray whale injury cases) and published as an R-package *SeriousInjury*, available at Github (*https://github.com/JimCarretta/SeriousInjury*). We encourage managers and researchers to download and test the package using the data bundled with *SeriousInjury* or with their own datasets. NMFS will provide a tutorial to the SRGs during future meetings as requested.

Comment 16: IFAW and the Commission support and encourage NMFS to revise the large whale injury determination section in the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" in the future to incorporate the recent publication by Carretta and Henry (2022). The Commission agrees that NMFS should delete the current large whale injury section of the Procedural Directive and recommends NMFS recalculate the prorated values for the large whale injury categories based on the new statistical method to assess large whale injury events (Carretta and Henry 2022).

Response: NMFS appreciates the comment. Once the new methodology is finalized, NMFS will review the Procedural Directive to determine whether revisions are warranted.

Comment 17: NMFS received comments from the Commission, CBD *et al.*, IFAW, and members of the public recommending NMFS update the vessel size for the large whale vessel strike injury categories (L6a, L6b, L7a, and L7b) from 65 feet to 35 feet (19.8 meters to 10.7 meters) in length. They note this change in vessel size is

consistent with NMFS' proposed rule to amend the North Atlantic right whale vessel strike reduction rule (87 FR 46921, August 1, 2022).

Response: NMFS issued a proposed rule to amend the North Atlantic right whale vessel speed regulations to further reduce the likelihood of lethal vessel collisions on August 1, 2022 (87 FR 46921). The changes would broaden the spatial boundaries and timing of seasonal speed restriction areas along the U.S. East Coast and expand mandatory speed restrictions of 10 knots or less to include most vessels 35 to 65 feet (10.7 to 19.8 meters) in length. Once a final rule is published, NMFS will review the Procedural Directive to determine whether revisions are warranted.

Comment 18: Members of the public comment that a proration of 0.14 for the large whale injury category L7b (Vessel smaller in size than whale or vessel <65 feet (<19.8 meters) and speed unknown) is not sufficient. They note that vessels in the 35-65 feet (10.7-19.8 meters) length range have propellers between 16-28 inches (40.6-71.1 centimeters) in diameter and propeller radii of 8-14 inches (20.3-35.6 centimeters), which can cause wounds of the same depth. They state that head injuries of that depth can be fatal and the only locations on the body where such propeller injuries might be considered benign are along the extremities or over the thickest part of the epaxial muscle.

Response: As noted in response to comment #17, NMFS will review the Procedural Directive to determine whether revisions are warranted once a final rule amending the North Atlantic right whale vessel speed regulations is published.

Comment 19: NMFS received several comments from IFAW and members of the public regarding the existing large whale criteria and categories. They suggest that injuries consistent with injury criterion L11 should be defined as a serious injury, rather than be prorated, as NMFS states there is a greater than 50 percent chance of mortality. Further, they express concern that large whale experts participating in the 2007 Serious

Injury Technical Workshop indicated that an external fishing hook of any size on any part of a large cetacean is likely a non-serious injury. Other comments pertaining to the large whale injury categories include a suggestion to add an additional injury category "partially severed flukes transecting midline" to more closely reflect the small cetacean injury categories. They also recommend additional clarification to some injury categories.

Response: For large whales, NMFS recently developed a statistical approach using a more recent and larger dataset that builds on NMFS' implementation of the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" (Carretta and Henry 2022). NMFS will review the Procedural Directive to determine whether revisions are warranted once the new methodology is finalized. For this current review and revision process, NMFS only made minor clarifying changes to the large whale injury criteria section and will consider these recommendations in a future review of the Procedural Directive.

Comment 20: Members of the public request clarification regarding if killer whales are included in the large whale injury categories as they feel the species is better aligned with the large whale injury categories instead of the small cetacean injury categories.

Response: The serious injury determination process for large whales is intended for evaluating injury events involving mysticetes and sperm whales. The serious injury determination process for small cetaceans evaluates injuries for all odontocetes except sperm whales - including killer whales.

Comment 21: The Atlantic SRG and CBD *et al.* stress that the Procedural Directive should not revise (downgrade) a serious injury to a non-serious injury if a subsequent sighting of the animal shows it is gear-free and in good body condition. They state that: 1) entanglements are under-reported and underestimated; 2) entanglements make marine mammals – including pinnipeds – more vulnerable to other sources of

mortality, including disease; and 3) injuries to energetic and stress hormones cannot be observed yet can have individual- and population-level impacts. The Atlantic SRG inquired if a new injury category could be added to Table 1 in the Procedural Directive (and also included in Table 1 of the U.S. Atlantic and Gulf of Mexico SAR) for when an injury is downgraded from a serious injury to non-serious but could still have unknown sublethal effects.

Response: Animals determined to be seriously injured (or dead) are counted against PBR as they are, more likely than not, removed from the population. Those determined to be non-seriously injured are still considered to be contributing to the population. Subsequent sightings of animals can provide information regarding "known" outcomes for documented injuries. These known outcomes feed the probability calculations of the likelihood of serious injury. The details for all injury events, both serious and non-serious, are captured in annual Mortality and Serious Injury reports. Events where the outcome has differed from the procedural guidance are noted in these reports. Please also see response to comment #5, which addresses the issue of sublethal injuries more broadly.

Small Cetacean Injury Criteria

Comment 22: HLA comments that in NMFS' 1995 MMPA regulations (60 FR 45086, August 30, 1995), NMFS stated that serious injury guidelines would be developed on a "fishery-by-fishery, case-by-case basis" to ensure determinations are accurate and tailored to specific fisheries that interact with specific marine mammals. HLA states that the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" does not apply on a fishery-by fishery, case-by-case basis. False killer whale injuries in longline gear are determined by the small cetacean criteria, which are primarily based on a series of bottlenose dolphin studies in the Atlantic. HLA argues that, as a result, the Procedural Directive does not allow for accurate determinations of

whether certain types of injuries will cause false killer whales in Hawaii to be more likely than not to die.

Response: NMFS clarifies that when the Agency promulgated regulations in 1995 for MMPA section 117, the Agency explained that when developing guidelines for what constitutes a serious injury, "NMFS expects that this will be done on a fishery-by-fishery, case-by-case basis" (60 FR at 45093, August 30, 1995). In general, there are very limited data on small cetacean injury outcomes. At the time the Procedural Directive was developed, using data from bottlenose dolphins as proxies represented the best scientific information available for known outcomes of hookings and hook ingestion. Without species-specific information, experts and NMFS considered it appropriate to apply conclusions about bottlenose dolphins to all small cetacean species. During the review of the Procedural Directive, NMFS staff considered whether there was sufficient information to propose changes to small cetacean injury criteria, including the possibility of developing species-specific (or false killer whale-specific) criteria but determined there was not.

When considering fishing-related (and other) injuries to small cetaceans, many of the injury categories identified in this Procedural Directive are case specific. For injuries incidental to fishing, the factors surrounding the injury event will be considered, including, but not limited to, the species and the fishery (*e.g.,* type of gear, fishing techniques). For fishing-related injury categories assigned as serious injuries, the injury is considered to be serious regardless of the species or fishery. Lastly, the list of factors for consideration in small cetacean case-specific injury categories is not meant to be exhaustive and, as stated in Section II of the Procedural Directive, NMFS' determination staff can use additional available information for data-rich situations in lieu of the criteria laid out in section VIII.

Comment 23: HLA asserts that this Procedural Directive as applied to false killer whales is inconsistent with NMFS' regulations and its intent in implementing them. They note that NMFS promulgated regulatory definitions for the terms "injury" and "serious injury" and state that the regulatory definition of "injury" shows NMFS recognized that an entanglement in fishing gear is not an "injury" at all (much less a "serious injury") unless it is accompanied by other signs of injury. They also note the management implications of NMFS' interpretation of serious injury, citing the Southern Exclusion Zone closure provisions in the False Killer Whale Take Reduction Plan (FKWTRP).

Response: The regulatory definition of an injury is "a wound or other physical harm." The definition also includes various signs of injury such as: visible blood flow, noticeable swelling or hemorrhage, laceration, and inability to swim or dive upon release from fishing gear, or signs of equilibrium imbalance. The definition further states "any animal that ingests fishing gear, or any animal that is released with fishing gear entangling, trailing or perforating any part of the body will be considered injured regardless of the absence of any wound or other evidence of an injury" (50 CFR 229.2). The Procedural Directive is consistent with the regulatory definition of injury because we consider an animal with gear entanglements that is released with trailing gear to have an injury. The Procedural Directive is also consistent with the regulatory definition of serious injury (i.e., "an injury that will likely result in mortality") because it considers an injury "serious" to be an injury that presents a greater than 50 percent chance of death to a marine mammal. Thus, the definition does not require that all such injured animals actually die, but rather requires only that the animal is more likely than not to die.

NMFS' Procedural Directive includes small cetacean injury criteria that could result in a non-serious injury even with gear remaining on an animal. For example, if a hook was attached somewhere other than the head with trailing gear that did not pose a specific risk (injury criterion S5d), then that injury may be considered non-serious if

other case-specific considerations were not applicable (*e.g.,* capture myopathy). Management implications of a particular injury determination are outside the scope of this Procedural Directive, which provides a standardized framework for differentiating serious from non-serious injuries.

Comment 24: Both HLA and WPRFMC comment on the need to develop guidance, provisions, and criteria specific to false killer whale interactions in the Hawaii deep-set longline fishery. HLA recommends criteria be developed that specify a false killer whale released with a hook in the head or mouth and 2 feet (0.6 meter) or less of trailing gear attached has a non-serious injury. Secondly, WPRFMC appreciates the consideration of hook type in the proposed revisions for injury criterion S5b, but questions how the other factors would be interpreted and applied when making S5b injury determinations. Further, WPRFMC recommended in 2018 and 2019 that NMFS support additional research to obtain scientific information on species-specific post-hooking mortality to inform revision of the Procedural Directive. They also recommended NMFS consider a prorated approach for SI determinations for false killer whales. WPRFMC requests NMFS review all available literature on odontocete fishery interaction and gear ingestion, as well as relevant stranding data and necropsy data from Hawaii and worldwide to evaluate the risk of gear ingestion in false killer whales.

Response: As stated in response to comment #22, there are insufficient data to inform criteria specific for false killer whales, including for head/mouth hookings with 2 feet (0.6 meter) or less of trailing gear. The best scientific information available indicates that a small cetacean hooked in the head is more likely than not to die. Two feet of trailing line is enough to be ingested and wrap around the animal's goosebeak, which data indicate generally leads to death in bottlenose dolphins (Wells *et al.* 2008). A number of factors, including hook type, will be considered collectively in the lip-hooking (S5b) confirmation process. More factors than hook type are necessary to consider

because a visible hook of the same type (and size) could represent a jaw or lip hooking depending on the size of the animal or where along the mouthline the hooking occurs. These factors are and will continue to be carefully considered, in consultation with expert anatomists as needed, in the injury determination process. There are also insufficient data to inform injury proration. We note that proration was only previously established for large whales when data were insufficient to make a probabilistic assignment of serious or not based on known outcomes. Proration is not intended to be a stand-alone approach because, by definition, an injury only needs to be more likely than not to lead to death to be considered a serious injury. While comprehensive literature reviews were conducted as part of the current guidelines review, NMFS appreciates the recommendations for research studies related to post-hooking mortality and gear ingestion in stranded false killer whales. The feasibility of such studies will continue to be discussed, including with external partners and in relevant management contexts, such as the FKWTRT.

Comment 25: HLA states that NMFS should conduct a thorough review of all existing information as it considers revising the Procedural Directive. This includes all false killer whale interactions, photographic/video data, observer data, logbook data, fishermen interviews, and any other information that provides information on effects of longline fishing gear and false killer whales.

Response: The "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" review that was initiated in 2017 included review of the best scientific information available, input from the MMPA Scientific Review Groups, as appropriate, and experience gained in implementing the process and criteria. Subject matter experts from within NMFS with years of experience working with observer and other types of data relevant to injury determination for false killer whales (and other species) were included in the review process.

Comment 26: HLA requests NMFS address questions and requests identified in the 2008 Technical Memorandum "Differentiating Serious and Non-Serious Injury of Marine Mammals: Report of the Serious Injury Technical Workshop" (Andersen *et al.* 2008) that have not yet been addressed in the Procedural Directive. These questions and requests include: 1) What is the fate of small cetaceans released with a hook in their mouth or with an ingested hook; 2) Is there any evidence false killer whales shed the hook on their own; 3) Would a hook in the mouth significantly impair feeding, causing infection, or lead to death; 4) Collect additional data on post-release survival; and 5) Data-mining of existing observer data, especially for fisheries that lack key drivers for data gathering (such as Take Reduction Teams (TRTs) or interactions with strategic stocks).

Response: NMFS acknowledges that the questions identified by HLA from the 2008 Technical Memorandum remain important. These were guiding questions during the 2007 Serious Injury Technical Workshop, and they were addressed via expert and veterinary opinion when data were lacking. Since the 2007 Serious Injury Technical Workshop, NMFS has not addressed these questions further because the required data are not available and/or difficult to obtain. These questions, as well as others, still drive NMFS' work with the Procedural Directive as it relates to false killer whales (and other species), and we continue to use the best scientific information available and expert guidance when reviewing and revising the Procedural Directive.

Comment 27: HLA and WPRFMC express concern NMFS has not prioritized conducting additional research on false killer whale interactions in the Hawaii longline fisheries. They raise the question of false killer whale research, specifically in regard to post-interaction survival. They stress that HLA representatives and industry have consistently expressed a desire for a tagging study to improve the understanding of species-specific survival rates of false killer whales following interactions with the

Hawaii longline fishery. They further note that the FKWTRT identified this need when it updated the FKWTRP Research Priorities (2014). The FKWTRT recommended that NMFS devote substantial effort and resources to conduct and support research dedicated to quantifying and assessing post-release false killer whale mortality. This research should build on current research on the main Hawaiian Islands insular false killer whale population, including but not limited to, obtaining information on false killer whale interactions with near-shore fisheries and using mark-recapture data to chart health outcomes from those interactions. This research should also examine hook degradation rates to determine survival duration after hook interactions in dead and stranded odontocetes, survival duration after hook interactions in dead and stranded odontocetes, and injury healing rates in captive animals. HLA and WPRFMC urge NMFS to pursue this additional false killer whale research.

Response: NMFS has indeed prioritized conducting additional research to address these questions. There are a number of projects in various stages of development that relate to furthering our understanding of false killer whale ecology, health, and survival in relation to fisheries interactions and other impacts. As the results are available, NMFS will continue sharing these with the FKWTRT.

Furthermore, tagging pelagic false killer whales following fisheries interactions would require that fisheries observers or crewmembers perform the tagging operations, which is not feasible. Tagging small cetaceans is a highly specialized skill possessed by very few individuals and can pose a substantial risk to the animals, particularly in challenging conditions (*e.g.,* sea state, limited visibility at night, *etc*.). These tags are generally attached using a specialized tagging gun/rifle/crossbow, and hitting a false killer whale with a dart tag anywhere other than its fins or base of the dorsal fin carries as much, or more, risk of killing the animal than the initial fishery injury. Even if a skilled tagger was available, it is unlikely that a robust sample size would be obtained, and the

tag life of current tags would confound analyses of survival. Long-term photo-identification studies that include resighting data of individuals following a fisheries interaction are likely to provide the best information on post-interaction survival. However, we simply do not have sufficient known outcome data for most small cetaceans, including false killer whales. Obtaining such data for pelagic false killer whales will be particularly difficult, given that photo-identification encounters and repeat encounters with the same animal are uncommon.

Comment 28: WPRFMC requests that NMFS consider hook type as part of the criteria for determining serious injury for mouth- or lip-hooked false killer whales. Available observer data, research from other species, and expert opinion should be used to evaluate the relative risk of internal hooking by hook type.

Response: A hook in the head/mouth is a serious injury according to category S5a regardless of hook type because, in general, the risks posed by hooks (*i.e.,* "the potential for ingesting attached gear, impairing feeding, breathing, or sight, or acting as a conduit for infection") are not necessarily specific to hook type. After consulting with outside experts, it remains apparent that there are insufficient data to evaluate injury outcomes following mouth hooking by hook type.

Comment 29: HLA and WPRFMC provided comments on small cetacean injury criteria S2. HLA states that the minor revisions proposed to small cetacean injury criteria S2 and S5 are somewhat helpful, but insufficient. HLA recommends clarifying injury criterion S2 that if the hook and a sufficient amount of line is visible, NMFS will not presume the gear/hook(s) is ingested. For injury criterion S5b, HLA states that the new language does not provide sufficient guidance for assessing lip-only hookings.

WPRFMC also requests NMFS revise the proposed text added to small cetacean injury criterion S2 to clarify that the ingestion of gear or hook will not be presumed and that S2 will not be used for injuries where the hook and sufficient amount of leader is

visible and no other gear is coming from the mouth. They state that in 2021, 40 percent of the observed false killer whale interactions in the Hawaii deep-set longline fishery were recorded as seeing the hook in the animal's mouth.

Response: S2 was clarified to account for what is most often seen in presumed ingestion cases, which is line coming from the mouth. If a hook and attached line was visible, the hook/gear would not be considered ingested, according to the guidelines. In many cases involving observer data, it is not possible to determine if a hook is ingested or in the mouth. In such cases, "S2 or S5a" can be applied that allows for the possibility of either, as each category denotes a serious injury. Only in cases where a lip-hooking can be confirmed can S5b be used. Confirming a lip-hooking is challenging given the number of potentially confounding factors combined with what can typically be observed or recorded by fisheries observers, given challenging sea or lighting conditions and the behavior or distance of the animal. These confounding factors (*e.g.,* hook type and size, species, size of animal, location along the mouthline) preclude the formulation of prescriptive guidelines for confirming a lip-only hooking. However, these factors should and will be carefully considered, in consultation with expert anatomists as needed, in the injury determination process.

Comment 30: BWFA expresses concern regarding small cetacean injury categories S5a and S6. They question whether leaving a hook in an animal's mouth constitutes a serious injury. BFWA states that there is no scientific evidence that a hook in the mouth leads to more than a 50 percent chance of death. They also note that the Pelagic Longline Take Reduction Team (PLTRT) have these concerns for many years. BWFA recommends NMFS revise S5a and S6 from serious injuries to case-specific.

Response: As stated in response to comments #22 and #24, there are very limited data on small cetacean injury outcomes. At the time the Procedural Directive was developed, bottlenose dolphins as proxies represented the best scientific information

available for known outcomes of hookings. During the review of the Procedural Directive, NMFS staff considered whether there was sufficient information to propose changes to small cetacean injury criteria, but determined there was not. A hook in the head/mouth (S5a) and gear attached to free-swimming animal (S6) are a serious injuries due to the risks posed by hooks and the attached gear (*i.e.,* the potential for ingesting attached gear, impairing feeding, breathing, or sight, or acting as a conduit for infection, entanglement and constriction).

Comment 31: BWFA requests NMFS clarify why the proposed revisions were added to small cetacean injury criterion S6, noting that it is not possible to comment on the proposed revision to S6 without understanding the implications for the Atlantic pelagic longline fishery. They question whether the addition of a definition of the term "potential" changes the way the term "potential" has been previously applied and interpreted. BWFA also states that there is no mention in the Procedural Directive about using the expertise of those serving on TRTs to develop the injury criteria.

Response: The revisions to S6 were made to provide more specific guidance about what is meant by "potential" for the injury criterion. TRTs are convened to recommend measures to reduce M/SI incidental to specific fisheries and not to provide input on which injuries are serious. The Procedural Directive establishes a protocol for seeking review of draft injury determinations before they are finalized, and while the TRT is not a part of that process, we welcome TRT engagement and expertise in considering revisions to the Procedural Directive, particularly if they have relevant data or other information.

Comment 32: BWFA requests that prior to finalizing the revisions to the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals" NMFS present the proposed revisions to the PLTRT, and that the proposed revisions should be fully reviewed and considered by the PLTRT.

Response: NMFS thanks BWFA for their comment. NMFS conducted several informational webinars for Scientific Review Groups, Marine Mammal Commission, USFWS, TRTs (including the Pelagic Longline Take Reduction Team), and the Hawaii Longline Association, and presented an update on revisions to the WPRFMC at their June 2022 meeting. Prior to finalizing the revisions, NMFS solicited public comments for a period of 30 days (87 FR 43247, July 20, 2022).

Comment 33: IFAW recommends NMFS add a statement to small cetacean injury criterion S5b that if the exact location of the hook in the mouth cannot be determined, that the injury is assigned to criterion S5a.

Response: NMFS agrees and revised S5b to state that if the location of the hook in the mouth cannot be determined, the injury is assigned to criterion S5a.

Comment 34: IFAW requests NMFS consider revising the small cetacean injury category S16 to be similar to the large whale injury categories for vessel strikes, specifically pertaining to the inclusion of various vessel sizes and speeds.

Response: NMFS appreciates the suggestion to make the vessel strike categories for large and small cetaceans more consistent. However, the amount of information available on the factors that influence strike severity between these two taxa differs greatly, as does their ability to potentially avoid being struck by a vessel due to differences in size and agility. Given this, NMFS does not believe there are sufficient data to provide the same level of specificity for small cetaceans when it comes to vessel strike injuries as is provided for large cetaceans. As additional data become available, NMFS will consider revising S16 as appropriate.

Pinniped Injury Criteria

Comment 35: IFAW recommends NMFS create an additional pinniped injury category for deep laceration injuries. The stranding network receives several reports of pinnipeds with multiple deep lacerations from propeller strikes. When there are multiple

injuries that expose muscle, there is a high likelihood that these animals die. These types of injuries, that are fairly commonly seen, warrant a separate injury category.

Response: NMFS appreciates the information about known outcomes for these types of injuries. Lacerations from vessel strikes are generally evaluated using category P9 ("body trauma not covered by any other criteria"). Injuries in this category have case-specific determinations that require consideration of various factors such as the location of the wound(s) on the body, the depth (*e.g.,* deep vs. superficial laceration), and the cleanliness of the wound. In addition, category P1 could also be applied to cases in which the animal observed at a date later than its human interaction exhibits signs of declining health believed to be resulting from the initial injury. NMFS considers these categories to be sufficient to capture vessel strike injuries to pinnipeds.

Comment 36: Members of the public state that pinnipeds that are provisioned over time should be considered a serious injury under injury category P16 ("Injuries resulting from observed or reported harassment, disturbance, feeding, or removal - case specific"). They note that there is tag data, stable isotope data, and photo identification/video documentation indicating a change in health and serious injury for provisioned pinnipeds.

Response: The new category P16 is intended to cover harassment-related injuries and mortalities from a broad range of human activities, as described in the category narrative. Given this broad range, NMFS considered it appropriate to allow for case-specific outcomes and listed various factors that should be considered when determining the injury severity, such as the duration of the harassment. Pinnipeds that are provisioned over time may be considered seriously injured. It is likely that this could only be applied to individually-identifiable animals that are known to have been provisioned over time. Additionally, for cases of ongoing harassment such as this, NMFS will need to determine at what point the animal should receive this determination to avoid counting the animal as injured more than once.

Comment 37: IFAW recommends NMFS clarify in pinniped injury criterion P14 how abandoned, dependent pups that are rehabilitated and released (after weaning) are categorized with regards to serious injury.

Response: Pinniped injury criterion P14 is used for non-weaned pups that are separated from their groups or mothers and therefore "released" alone immediately following the human interaction. It is not used for pups that are rehabilitated and then released after weaning. NMFS revised P14 to clarify this injury criterion covers animals "immediately released."

Comment 38: IFAW recommends adding a description of gear size and gear location on the animal to two injury categories (S8b and P8b), which both relate to "gear wrapped and loose on any body part."

Response: Categories S8b and P8b are both case specific. In Tables 2 and 3 of the "Process for Injury Determination Distinguishing Serious from Non-Serious Injury of Marine Mammals," the fourth column lists several factors for evaluating whether case-specific injuries are serious or non-serious, and refers the reader to additional factors at the end of each table. Gear size and gear location on the animal are already listed, either in the tables or in the lists at the end of the tables, as factors to consider for these injury categories.

Comment 39: Members of the public recommend NMFS add new small cetacean and pinniped injury criteria for non-line related fisheries interactions. These new criteria could cover blunt force trauma from fishery trawl doors, dredges, and haulers and entrapment in the cod-end of gear.

Response: NMFS developed the injury categories to reflect types of injuries; they are generally not specifically linked to the specific source of a human-caused injury. NMFS does not consider it necessary to create new small cetacean and pinniped categories for non-line related fisheries interactions. These types of injuries are currently

evaluated under several different categories depending on the circumstances and evidence of injury. For example, animals entrapped in the cod-end of trawl gear are often brought on the vessel deck (P4, case specific; S4, serious injury), or may have been immobilized or entangled before being freed without gear attached (P7b, case specific; S7b, case specific). Animals with evidence of trauma from fishery trawl doors, dredges, haulers, or other sources could be evaluated using categories P9-P13, as applicable.

Comment 40: Members of the public express concern that there is no mention of aspiration or the sequelae of peracute underwater entrapment (PUE) in the pinniped injury determination process description. They state that aspiration and trauma should be a significant concern with any entanglement case in which PUE is a possibility, or when handling an entangled animal by inexperienced people could result in sustained agonal submergence. Members of the public note that observer data include information on unresponsiveness and foam/froth from nostrils may indicate aspiration and other PUE pathologies. These injuries should not be categorized as non-serious just because an animal eventually was observed swimming. They state that any evidence of unconsciousness while submerged or respiratory foam indicative of aspiration should be considered a serious injury.

Response: NMFS agrees and added language to injury criterion P4 about clinical signs from PUE, drowning, and capture myopathy.

Minor Revisions

Comment 41: Members of the public note the addition of the external signs indicative of stress that could lead to capture myopathy to the Procedural Directive are helpful. However, they recommend including a list of clinical indicators that may suggest capture myopathy. For instance, spinal scoliosis due to capture myopathy has been documented in several delphinid species including live stranded pilot whales, and is a grossly visible sign that can develop in hours after the physiological perturbation.

Additionally, they suggest changing "Duration of holding or transport" under Extrinsic Risk Factors to "Duration and degree of immobilization," which is broader terminology that not only encompasses situations of animals brought on board vessels but also more accurately reflects entanglement type conditions as a whole. Finally, since capture myopathy likely has a significant component of acidosis, the degree/extent of submergence may be important, especially in the context of fisheries entanglements, PUE, and extrinsic risk factors.

Response: NMFS thanks the commenters and revised the Procedural Directive to reflect their recommendations. NMFS added in the following phrases to the Capture Myopathy Appendix II under extrinsic factors: “Duration of entanglement, including extent of submergence or stranding prior to intervention or stranding prior to intervention” and “Duration and degree of immobilization.” The clinical signs list was not meant to be exhaustive, so we added the phrase “including and not limited to:” to make that clear. Additionally, the signs listed were meant to be the most immediate real-time signs in live animals in the water, on the deck, or stranded and were not meant to include signs that may take hours to manifest (*e.g.,* scoliosis).

Comment 42: Members of the public comment that there is no small cetacean injury category for penetrating stab wounds from arrows, screwdrivers, *etc.* They question what criteria penetrating injuries that do not penetrate into a cavity but are deeply embedded would fall under.

Response: NMFS revised the Procedural Directive based on the comment. NMFS added in the following language to the narratives for S9 and P9 to address this comment: “and other penetrating injuries (including those made from foreign objects) that do not extend to the body cavity.”

Comment 43: Members of the public request NMFS clarify how dependency is established in small cetacean injury criteria S15a and S15b. They question if dependency

is determined through field estimates of total length or external features consistent with perinatal status.

Response: In general, NMFS anticipates dependency will be established based on the general size of an animal compared to other animals if it is in a group, and if alone, field estimates of total length will be informed by what is known about the size and life history of the species and stock. Importantly, a lack of external factors indicating perinatal status should not preclude a determination of dependency as many marine mammals nurse and thus, are at least somewhat nutritionally dependent on their mothers well beyond when they may exhibit perinatal status. Since this will vary among species, stocks, and even within stocks given individual variability in the nursing period, NMFS believes it is not appropriate to provide any specifics within this procedure. However, we revised the procedure to add text explaining that animal size is a potential characteristic to consider.

Comment 44: NMFS received comments from IFAW, members of the public, and the Commission suggesting various minor editorial revisions to the Procedural Directive. These minor editorial edits ranged from removing the term "fins" from pinniped injury criteria to including additional descriptive text to criteria and rephrasing sentences for clarity. The commenters also included minor editorial revisions to the large whale injury criteria.

Response: NMFS thanks the commenters for their suggestions and has made minor editorial revisions throughout the Procedural Directive. As noted in responses to comments #16 and 17, NMFS will review the Procedural Directive to determine whether revisions are warranted once the new methodology for large whale injury determinations is finalized.

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