

Response to Public Comments:
Draft Policy for Distinguishing Serious from Non-Serious Injuries of Marine Mammals

General comments

Comment 1: The American Veterinary Medical Association (AVMA) applauds NMFS for its efforts in developing this policy, which will allow for a more accurate assessment of human-caused injuries and mortalities of marine mammals. The AVMA states that the clarification and standardization of reporting criteria provided within the Directives should prove beneficial in analyzing and utilizing marine mammal injury reports. The AVMA appreciates that appropriately experienced and qualified veterinarians were selected by NMFS to participate in the 2007 Serious Injury Technical Workshop (Workshop), and the AVMA encourages NMFS to use such veterinarians to optimize the health and welfare of marine mammals.

Response: NMFS acknowledges this comment and has finalized these Directives as proposed, with the addition of certain clarifying text described in these comment responses.

Comment 2: The U.S. National Park Service supports the Directives and appreciates that NMFS has taken the effort to develop the criteria to distinguish serious from non-serious injury.

Response: NMFS acknowledges this comment and has finalized these Directives as proposed, with the addition of certain clarifying text described in these comment responses.

Comment 3: The Maryland Department of Natural Resources (Maryland) applauds the objective scientific assessment presented in the draft policy and states that this effort will promote a more consistent approach to assessing injuries to marine mammals for addressing the Marine Mammal Protection Act (MMPA) sections 117 and 118, as comparable measurements are essential for unbiased analyses.

Response: NMFS acknowledges this comment and has finalized these Directives as proposed, with the addition of certain clarifying text described in these comment responses.

Comment 4: The Blue Water Fishermen's Association (BWFA) notes that over the years it has recommended that NMFS develop a policy to apply the criteria for distinguishing serious from non-serious injuries in a consistent manner for all U.S. fisheries; therefore, the BWFA is pleased that NMFS has finally developed policy and directives that will apply across all fisheries nationally to classify injuries in a reliable and objective manner. The BWFA thinks that, for the most part, the draft policy and directives are objectively-focused and provide a more equitable and scientific process to evaluate the true seriousness of incidental injuries. Further, the BWFA recommends NMFS review and revise these directives on a regular basis, based on factual interaction data, not speculation.

Response: NMFS acknowledges this comment and has finalized these Directives as proposed, with the addition of certain clarifying text described in these comment responses. NMFS will review and update the policy every five years based on current information, or sooner if new information suggests a change is warranted. Further, the proportions of serious injury outcomes for the large cetacean injury categories will be recalculated annually, incorporating the latest verified injury reports to improve rate estimates.

Comment 5: The Hawaii Longline Association (HLA) argues the draft policy is not a "policy statement" or "legislative rule," but is a "final agency rule" and "interpretive rule;" therefore, it must be promulgated in the same manner as any other final action under the Administrative Procedure Act (APA), including review under the National Environmental Policy Act. The HLA argues that the draft policy broadens the definition of "serious injury" and does not simply interpret the definition. Lastly, the HLA believes that the proposed policy will be

applied consistently and without exception; and it is therefore a rule, because NMFS states in the draft policy that the policy sets forth a "uniform framework for the consistent application of sections 117 and 118 of the MMPA across NMFS" and "will serve" as the basis for analyzing injury reports.

Response: This policy is a policy statement and not a final agency action. In an effort to increase the consistency of injury determinations across regions, the policy provides technical guidance for the NMFS scientists tasked with reviewing injury reports and making determinations. NMFS recognizes that in some cases the best available information will be in addition to, or in lieu of, the criteria presented in the policy. For this reason, section II of the Procedural Directive states, "in data rich cases where there is additional detailed information regarding the injury is available and/or the condition of the injured animal is known or can be tracked over time, the available case specific data can be used in lieu of, or in addition to, the criteria laid out in sections VII-IX to make injury determinations." This statement has been retained in the final policy because of the importance in allowing variation for cases with more information. Further, this policy does not redefine the regulatory definition of "serious injury" or introduce new regulations. NMFS defined "serious injury" in regulations in 1995, and this policy provides further interpretation to guide NMFS scientists tasked with reviewing injury reports and making injury determinations.

Comment 6: An individual commenter recommends NMFS consider forming a working group with the necessary expertise to review and evaluate vessel injuries to marine mammals, much like take reduction teams for commercial fisheries. The commenter feels that a unified effort among people with appropriate expertise to monitor, evaluate, and archive information

about vessel collisions could lead to more valuable information that may support management decisions and more vigorous conclusions.

Response: NMFS agrees that such a working group could provide valuable information to support; however, NMFS feels that the development of a working group focusing on only a portion of the injury determination process is outside the scope of this policy. The annual injury determination process laid out in section III of the Procedural Directive includes multiple steps for review of the preliminary injury determinations, including determinations for vessel-related injuries. Steps 2 and 3 call for the annual cross-regional review of the preliminary injury determinations by determination staff and Regional Office staff, and Step 5 calls for the annual review of preliminary injury determinations by the MMPA Scientific Review Groups (SRG). Further, the NMFS determination staff has discretion to seek out further expertise or consultation on specific injury cases. Lastly, as stated in the response to comment 4, this policy will be reviewed and updated every five years or sooner if new information suggests a change is warranted, and the proportions of serious injury outcomes for the large cetacean injury categories will be recalculated annually, incorporating the latest verified injury reports to improve rate estimates. Therefore, as additional information becomes available on vessel-related injuries, the policy will be updated accordingly.

Comment 7: The Marine Mammal Commission (Commission) recommends NMFS expand the policy to include a list of research needs for improving injury prevention, response, and assessment efforts in the future. The Commission further provided suggestions for improving assessments for the eventual fates of injured marine mammals.

Response: NMFS thanks the Commission for its suggestions for improving assessments. NMFS agrees that additional research is needed; however, the intent of this policy is to provide

technical guidance to NMFS scientists currently tasked with reviewing injury reports and making injury determinations. In other words, it is a tool for NMFS scientists to use now, and is therefore based on the best currently available information. Therefore, including research recommendations is outside the scope of this policy. As stated in response to comments 4 and 6, when information becomes available from additional research to suggest changes to the policy are warranted that information will be incorporated into the policy.

Comment 8: An individual commenter asks whether the Navy is also a contributor of injury or death of animals listed on the List of Fisheries (LOF), if the process in the draft policy is complying with Advisory Council on Historic Preservation Section 106, and, if so, which Native Hawaiian Organizations are involved.

Response: The National Historic Preservation Act (NHPA) section 106 generally requires federal agencies to consult with the appropriate State Historic Preservation Office (SHPO) and/or tribal or Native Hawaiian groups on undertakings, including projects, activities, and programs that may affect qualifying historic properties. This policy involves technical guidance for NMFS scientists tasked with distinguishing between serious and non-serious injuries to marine mammals, and is not a federal undertaking under the NHPA. Further, this policy addresses human-caused injury to marine mammals from any source, including U.S. government agencies, State governments, the public, etc.

Comment 9: The Humane Society of the United States (HSUS) states that it attended both the 1997 and 2007 serious injury workshops that helped establish the current approach for defining and accounting for serious injury to marine mammals.

Response: NMFS clarifies that the HSUS was not a participant at the 2007 Workshop. Participants to the 2007 Workshop were selected based on their specific expertise in marine

mammal science, marine mammal management, veterinary medicine, or pathobiology. In addition, NMFS requested each MMPA SRG self-select two of its appointed members to attend the Workshop. The Atlantic SRG chose as one of its representatives a SRG member that is employed by the HSUS. Therefore, this participant attended the Workshop as a SRG member, not a HSUS representative, tasked with representing the Atlantic SRG.

Comments on the Interpretation of the Regulatory Definition of “Serious Injury”

Comment 10: The Commission concurs with NMFS change in the definition of a “serious injury.”

Response: NMFS thanks the Commission for its support and clarifies that the policy does not change the definition of a serious injury. Instead, the policy provides NMFS’ interpretation of the regulatory definition of serious injury.

Comment 11: The Animal Welfare Institute (AWI) is concerned that NMFS’ interpretation of the regulatory definition of serious injury uses “greater than 50 percent” as the criterion for determining if a serious injury will result in mortality. The AWI asserts that this criterion is arbitrary without any substantive analytical support; and, therefore, NMFS must explain the basis for its selection of this particular criterion and why, for example, it chose not to set the mortality criterion at 40 percent. The AWI recommends NMFS use a lower mortality criterion for determining when an injury would be properly designated a serious, which would lead to more injuries being classified as serious and, hence, would be more precautionary. Further, the AWI states that species listed, or are candidates for listing, under the Endangered Species Act (ESA) should be afforded a lower threshold than abundant species.

Response: NMFS interprets the regulatory definition of “serious injury” (“any injury that is likely to result in mortality”) as “more likely than not” to result in mortality. The “more likely

than not” interpretation of the term “likely” has been upheld by courts, in respect to the ESA (*see Trout Unlimited v. Lohn*, Civ. No. 06–01493 (D. Or. Oct. 5, 2007)). NMFS placed the threshold between “more likely than not” and “less likely than not” at 50 percent because 50 percent is half. Therefore, anything greater than 50 percent is "more likely than not" while anything less than 50 percent is "less likely than not." Any threshold other than 50 percent would be arbitrary because it would not meet the interpretation of "more likely than not."

Comment 12: The HSUS, Defenders of Wildlife (DoW), Center for Biological Diversity (CBD), and Whale and Dolphin Conservation Society (WDCS) generally support NMFS' interpretation of the regulatory definition of “serious injury,” but urge NMFS to use greater precaution for fragile endangered species for injuries that are significant but difficult to determine whether there is, for example, a 40 percent versus 50 percent chance of it dying so a likelihood that is less than 50 percent may be appropriately precautionary for some species. The commenters note that data show that a percentage of North Atlantic right whales entangled in fishing gear simply disappear without being counted as mortalities for 6 years, and a whale may survive a vessel collision but swim off injured to some unknown extent and later die offshore where it will not be re-sighted.

Response: As noted in response to comment 11, NMFS’ interpretation of the term “likely” in the regulatory definition of “serious injury” as “more likely than not” has been upheld by courts, in respect to the ESA (*see Trout Unlimited v. Lohn*, Civ. No. 06–01493 (D. Or. Oct. 5, 2007)). NMFS chose 50 percent as the threshold because 50 percent is half and anything greater than 50 percent is "more likely than not" while anything less than 50 percent is "less likely than not. Therefore, any threshold other than 50 percent would be arbitrary as it would not meet the interpretation of "more likely than not." Regarding the example raised by the commenters, the

large cetacean injury determination process prorates injury categories where data show the number of deaths and survivals are nearly equal (i.e., injury category L7a, L11) and to account for injury categories where well above 50 percent of the animals survived but there is at least one case of an animal dying from such an injury (i.e., injury category L6b, L7b). Therefore, depending on the data informing the injury categories, large cetaceans with certain injuries that have less than 50 percent chance of death already falls into a prorated category (see Appendix 1 in the Procedural Directive). Further, as stated in section VII-A of the Procedural Directive, the proportions of serious injury outcomes for each large cetacean injury category will be recalculated annually, incorporating the latest verified injury reports to improve the rate estimates.

Comment 13: The AWI recommends NMFS provide procedures for addressing what constitutes an injury before a determination of whether a serious injury has occurred can be made.

Response: NMFS uses the regulatory definition for "injury" when determining if an animal is injured. "Injury" is defined in 50 CFR 229.2 as "a wound or other physical harm." The definition further provides examples of what can be considered injury, but indicates the list is not all inclusive.

Comment 14: The AWI recommends NMFS take into account harm and serious injury that does not necessarily result in mortality, such as impairment of an individual's reproductive success. The AWI notes that the Supreme Court has recognized impairment of reproduction as harm to an individual under the ESA.

Response: While impairment of an individual's reproductive success could be a concern for species that are endangered, threatened, or depleted, the regulatory definition of "serious

injury" states that a serious injury is an "injury that is likely to result in mortality." Therefore, NMFS must consider whether an injury is likely to lead to a mortality when making a serious injury determination.

Comment 15: The AWI recommended NMFS update the regulatory definition "serious injury" to encompass the types of injuries enumerated in the Procedural Directive. In addition, the AWI recommends NMFS consider issuing regulations pursuant to Section 118(f) of the MMPA imposing any necessary measures (e.g. gear modifications) so as to reduce or eliminate the risk of serious injury and mortality to marine mammals from any such fisheries.

Response: The intent of this policy is to provide technical guidance to NMFS scientists tasked with reviewing injury reports and making injury determinations. NMFS is not proposing new regulations or changes to existing regulations because it is outside the scope of this policy.

Comment 16: The VA Aquariums notes that the interpretation of the regulatory definition of serious injury never refers to "indications of a significant health decline" or "signs of deteriorating health;" however, this terminology is used as part of the justification for the assignment of "serious" injury under most of the categories in sections VII-IX. The VA Aquarium suggests this language be included within the interpretation of the regulatory definition if it will be employed in such a manner. Further, the VA Aquarium suggests, as one way for NMFS to remove the restrictive demarcation of "50 percent survival" while providing a less subjective interpretation, that NMFS identify and describe the "signs of deterioration" and explanation of how many would need to be present.

Response: While a sign of significant health decline is a factor to be considered by determination staff when making an injury determination, there are many other factors that are also considered by determination staff (see Sections VII-IX). Therefore, NMFS does not include

this long list of factors in the interpretation for the term “likely” in the regulatory definition of serious injury. Indications of significant health decline will be assessed on a case-by-case basis. NMFS provides examples of signs of significant health decline within the policy to guide the determination staff on what signs to look for. An exhaustive list cannot be created, as each individual animal may present with different signs of health decline. Further, signs of significant health decline could lead NMFS to deviate from the determination presented for a given category. For example, L5a (“superficial laceration”) has an injury determination of non-serious injury; but, as stated in the Procedural Directive, NMFS will deviate from that determination if there are signs the animal’s health has significantly declined as a result of the injury. A sign of significant health decline is a consequence of an injury, not a cause of injury; therefore, a sign of significant health decline is a universal factor to be considered when making injury determinations. The indications of health decline are listed in the Procedural Directive, and the presence of any one of these indicates that a serious injury has occurred.

Comments on the Annual Injury Determination Review and Reporting Process

Comment 17: An individual commenter notes that Section III, Step 2 includes a footnote describing the membership of the "Determination Staff Working Group" as "unofficial and/or fluid, depending on staffing and duty changes," and asks NMFS to describe the personnel involved and describe and provide support for the statement of how frequently staff and duties modified in the Science Centers, such that the Determination Working Group personnel could not be described.

Response: The names and contact information for NMFS staff responsible for making and documenting injury determinations are included in Technical Memorandums or similar publications that describes each Science Center's annual injury determinations. Each staff

member responsible for making injury determinations is assigned to these duties based on his or her expertise in marine mammal science and or marine mammal stock assessment processes. As noted by the commenter, NMFS indicates in the Procedural Directive that membership to this working group is considered unofficial and/or fluid, depending on staffing and duty changes in each Science Center. The frequency of changes to staffing duties is not predictable; and, therefore, NMFS cannot describe it in the policy. As is true with any place of employment, staffing changes and/or duty assignments are made by the supervising official based on the current needs of the organization.

Comment 18: An individual commenter asks NMFS to describe who at the Regional Offices provide review and input to injury determinations (per Section III, Step 3) and to give a specific example of the type of input they would provide.

Response: The Regional Office reviewers will be staff of the Protected Resources Division with expertise in marine mammal science and management. These reviewers will provide input based on their knowledge of NMFS policy and management obligations; however, the determinations are, and will remain, based on the scientific expertise of the determination staff and the procedures laid out in this policy. The exchange of information discussed in step 3 of the review and reporting process serves to ensure that staff in the Regional Offices responsible for implementing the various requirements of the MMPA are informed of all injury determinations and ensure any injuries are enumerated accordingly for management.

Comment 19: The HSUS, DoW, CBD, and WDCCS are pleased to see the NMFS attempting to provide guidance on how to evaluate the utility and validity of the guidelines. The commenters request NMFS clarify the guidance provided in 4.1.1 to 4.1.3 of the Policy Directive to show the Agency will assure consistency in the application of the guidelines by having

determination staff from other regions evaluate the same cases to compare results (i.e., a blind cross check).

Response: The guidance in 4.1 of the Policy Directive states that staff from each Science Center, Regional Office, and Headquarters Office will review a subsample of the annual injury determinations for the first two years after this policy is implemented to determine whether the determination staff are following the guidance provided in the Policy and Procedural Directives. By undergoing this review, NMFS can evaluate whether the objectives of consistency, transparency, and effective implementation of the MMPA are being achieved. Per the commenter's request, NMFS has added a sentence to section 4.1 of the final Policy Directive to clarify that the group performing this review will include determination staff with relevant expertise from each Science Center.

Comments on the Process for Assessing and Documenting Injury Status after Successful Post-Interaction Mitigation Efforts

Comment 20: The State of Maine's Department of Marine Resources (Maine) states that it understands that NMFS recording the level of injuries after successful mitigations efforts could provide a more accurate picture of the impact of commercial fisheries on a species. Maine further states that with this proposed accounting, these cases should only be counted for purposes of determining the LOF classification and not be counted against the PBR in the marine mammal Stock Assessment Reports (SAR).

Response: NMFS agrees with the commenter and has finalized this process as proposed, with the addition of certain clarifying text described in these comment responses.

Comment 21: The AWI applauds NMFS for revising the previous approach that designated an entangled or hooked marine mammal as a non-serious injury if the gear was

subsequently removed. The AWI additionally requests that NMFS expand its policy so that any animal that is classified as a “serious injury,” even if that animal has been successfully disentangled or dehooked, be retained in any and all subsequent reports including, but not limited to, LOFs and SARs.

Response: NMFS acknowledges this comment and has finalized this process as proposed, with the addition of certain clarifying text described in these comment responses. As requested by the commenter, and as noted in the Procedural Directive, NMFS will note the initial (e.g., injury status before NOAA mitigation efforts) serious injury determination in the SARs and will use the initial determination for the classification of fisheries on the LOF and for informing management (e.g., take reduction planning). However, animals released with no or non-serious injuries will not be included as the pre-mitigation determination (i.e., serious injuries) in bycatch estimates that are compared to PBR or in the status of the stocks in the SARs. These distinctions and pre/post mitigation determinations will be clearly denoted in a standardized manner in all SARs.

Comment 22: The Commission believes that any entangled marine mammal initially classified as seriously injured should be counted against the PBR level for the purpose of fishery management actions, such as take reduction planning, and NMFS should clarify the policy in this regard. Further, the policy should clarify that it requires NMFS to count entangled marine mammals that are considered seriously injured for the purposes of triggering and guiding take reduction efforts, even if they are disentangled. The Commission feels that the emphasis should be on prevention of entanglement rather than simply responding to it. Although fishermen deserve credit whenever they successfully disentangle marine mammal, the Commission knows of no system or means for determining with confidence that released animals are not seriously

injured. Therefore, until NMFS has devised a method of determination, the Commission feels that marine mammals cannot be excluded from tallies of seriously injured animals.

Response: NMFS agrees with the Commission. Section IV of the Procedural Directive addresses events where NOAA or its authorized partners disentangle/dehook an animal at some time or date after the interaction occurs. This process does not apply to situations where commercial fishermen or fishery observers release animals from gear in real-time. The intent of the process for accounting for successful post-mitigation efforts is to now consider any seriously injured marine mammals that NOAA or its authorized partners disentangle/dehook post-interaction in the LOF and management (e.g., take reduction planning), even if the animal is successfully released from the gear and no longer considered seriously injured post-mitigation. NMFS recognizes the draft policy may not have been clear on this point; therefore, NMFS has revised the text of this section in the final Procedural Directive to clarify the intent. As noted in the response to comment 21, NMFS will note the initial (i.e., injury status before NOAA mitigation efforts) serious injury determination in the SARs, using the initial determination for the classification of fisheries on the LOF and informing management. However, animals released with no or non-serious injuries will not be included as serious injuries in bycatch estimates that are compared to PBR or in the status of the stocks in the SARs. These distinctions and pre/post mitigation determinations will be clearly denoted in a standardized manner in all SARs.

Comment 23: The HSUS, DoW, CBD, and WDCS found the discussion on accounting for successful mitigation efforts of marine mammals confusing and recommend NMFS clarify the text. The commenters state that their agreement or disagreement depends on NMFS's intent. They disagree if NMFS' intent is that the removal of gear alone is sufficient to remove an animal

from consideration as seriously injured in the SAR, regardless of the animals remaining body condition when the gear is removed. The commenters feel that if the animal's injury or body condition post-release qualifies it as seriously injured, it should be accounted in the SARs and not dismissed as only worthy of mention in the LOF. The commenters hope that NMFS intends to complete accounting of serious injuries in the SARs and that the confusion is simply a result of an absence of clarity in wording.

Response: NMFS recognizes the language describing the process for accounting for successful mitigation efforts in the draft policy may not have been clear; therefore, NMFS has clarified the intent in this response and revised the text of this section in the final Procedural Directive to clarify the intent. If an animal is seriously injured because of an entanglement, is completely disentangled by a post-interaction NOAA mitigation effort, and is deemed to possess any serious injuries after the gear is removed, then that animal is recorded as seriously injured for fishery management purposes (i.e., classifying fisheries on the LOF and informing take reduction planning) and the SARs. In contrast, if an animal is seriously injured because of an entanglement, is completely disentangled by a post-interaction NOAA mitigation effort, and is deemed to possess no or only non-serious injuries after the gear is removed, that animal is recorded as seriously injured only for fishery management purposes. The determinations of serious or non-serious before and after the disentanglement effort will be made by NMFS determination staff using the guidance presented in the policy. These distinctions will be made clear in all SARs, which will present both the initial determination of serious injury and the post-mitigation determination (e.g., serious injury for all purposes, or serious injury for fisheries management but non-serious injury for bycatch estimates related to PBRs).

Comments on Accounting for Cases where the Severity of an Injury Cannot Be Determined (CBD)

Comment 24: The AWI commends the decision to assign all remaining small cetacean CBD cases to be the same determination as for the majority of similar assignable cases.

Response: NMFS acknowledges this comment and has finalized this process as proposed, with the addition of one statement to the Procedural Directive to clarify the how NMFS will handle cases with insufficient data, which was not clearly articulated in the draft policy. The process described in this section is for cases where there are sufficient data on similar assignable cases to determine whether an injury type is more likely than not a serious injury (i.e., incidence of serious injury in previous cases is >50 percent). If insufficient similar data are available to statistically evaluate this 50 percent threshold (e.g., using the binomial test as described in Section VII-A), then prorating can be used as in the large whale evaluations (e.g., case L6b).

Comment 25: Maine is strongly opposed to NMFS' proposed approach for applying methods to assign CBD cases as serious or non-serious. The lack of sufficient information to make a definitive injury determination for both large and small marine mammals placing them into this category underscores Maine's rationale to not support this approach. Maine asserts that the use of unsubstantiated assumptions and extrapolations will likely increase the takes toward the PBR and unduly impact commercial fisheries, and also erode recent collaborative efforts to generate and apply scientifically sound data for development of new TRP measures.

Response: As described in section V of the Procedural Directive, the previous methods of accounting for CBD cases was inconsistent among regions and fisheries, and in many cases impacts to marine mammals were underestimated because these CBD injuries were not taken

into account when evaluating population status. The commenter is correct that the number of serious injuries might increase in those cases where the previous methods underestimated the number of serious injuries; however, this will reflect a more accurate assessment of impacts based on the best available scientific data. The new methods of assigning CBD cases were developed based on known or documented outcomes of injuries, and are designed to be re-evaluated as new information becomes available, including efforts by Take Reduction Teams. NMFS believes this framework will foster collaborative approaches rather than erode them as suggested by the commenter. Further, the large cetacean injury determination process does not include CBDs or case specific injury categories, instead large cetacean injury events will be recorded as serious, non-serious, or prorated based upon the data analysis presented in Table 1 and Appendix 1 of the Procedural Directive. As stated in section VII-C, in the rare instance where an event cannot be assigned to any of the large cetacean injury categories, these numbers will be tallied by species and included in the annual serious injury determination report.

Comment 26: An individual commenter asks NMFS to describe what would constitute a change in fishing practices to cause pooling to be limited, as discussed in section VI, and to describe what level of analysis is conducted when determining if fishing practices have changed. The commenter states that it is easy to know if fishery regulations have changed, but social and behavioral changes are difficult to “see” unless fishers are surveyed periodically or routinely.

Response: As described in section V of the Procedural Directive, if measures have been implemented in a fishery that are expected to lead to a change in fishing practices or bycatch rates, then pooling should be restricted only to the years since those measures were put in place. The types of measures will vary by fishery, but could include Take Reduction Plans, other regulatory changes, outreach and education efforts to teach fishermen to reduce the severity of

injuries, time/area closures, or any other process that would be expected to result in a change in rates of marine mammal bycatch or injury severity. When available, observer data can also be used to examine potential changes quantitatively. This process is intended to be sufficiently flexible that any process – including one initiated by fishermen – can be considered in making a determination of the most appropriate years to pool.

General Comments on the Injury Categories and Criteria

Comment 27: The AWI recommends NMFS develop procedures within this proposed policy to identify mortalities that are human-caused but are less obvious to detect than in the case of direct physical contact (e.g., Did the individual die of a human-caused disease? Did human generated noise generate a behavioral response that resulted in mortality?).

Response: NMFS believes the injury categories presented in this final policy encompass the full suite of injury events NMFS scientists have encountered or are likely to encounter in injury reports, with the exception of noise-related injuries. NMFS decided not to include discussions of noise-related injuries in the 2007 Workshop or this subsequent policy because NMFS scientists making injury determinations are unlikely to detect noise-related injuries in live animals and because the state of science on identifying noise-related injuries in live marine mammals is still developing. As stated in the Policy Directive, this policy will be reviewed and updated every five years or sooner if information becomes available to suggest changes are warranted. This may include the addition of injury categories for noise or human-caused disease-related injuries, depending on the state of future scientific information. Further, when possible, carcasses are necropsied to help determine the cause of death and whether the death is attributed to a human interaction. This information was considered when drafting this policy and

new information from necropsied animals will be used to inform further refinements to the injury categories, if warranted.

Comment 28: The HLA and an individual commenter argue that the draft policy provides no incentives for commercial fishermen to change their attitudes and behavior, given that only few situations result in an injury determined to be not serious. Further, the HLA argues that the draft policy offers no certainty that specific types of interactions will be classified as "non-serious;" therefore, there will be no "buy in" from fisheries on protective measures (such as specialized training for captains on dehooking methods for small cetaceans) if fishermen do not have assurance that marine mammals released in a certain manner will result in a "non-serious" injury determination.

Response: The intent of this policy is to provide technical guidance to NMFS scientists tasked with reviewing injury reports and making injury determinations; therefore, the injury categories are organized in a manner that is most useful and manageable for NMFS scientists while they are performing their duties. There are many injuries that could be considered non-serious, but NMFS did not list all of the many events that would receive a non-serious determination individually because the addition of these events would make the table overly lengthy and cumbersome for NMFS scientists. Further, for many injuries that would generally be considered a non-serious injury, there may be instances where other factors are present that need to be considered prior to making a determination. For this reason, the small cetacean and pinniped injury categories generally include the many injuries that could be non-serious within the categories assigned a "case specific" determination. These categories could be determined to be a non-serious injury depending on the factors involved in the injury event. These case specific categories provide guidance for NMFS scientists to use when reviewing injury reports so

staff can make objective determinations that are not automatically serious or non-serious, and are consistent across regions.

The text discussing each injury categories presented in sections VII-IX discuss the factors that make an injury serious, non-serious, or case specific. For example, as stated in the Procedural Directive, S8b, "Gear wrapped and loose on any body part," is case specific because the gear may never become constricting or accumulate drag (resulting in a non-serious injury), or the gear could become constricting (resulting in a serious injury). Therefore, the incentive for fishermen is to cut the line as short as possible, thereby reducing the potential for it to become constricting. This type of exercise is true of each of the case specific criteria. Another example is the case specific categories dealing with hooks (e.g., S5c) or the presence or absence of line on an animal (e.g., S5d), where the incentive for the fishermen is to remove the hook in a manner that does not cause further injury to the animal or to cut the line as short as possible, thus making the injury non-serious. These incentives will be discussed in the trainings for vessel captains and crews on dehooking methods and other protected species interactions.

Comment 29: An individual commenter asks NMFS to explain how uncertainty and data limitations from many sources translates into the interpretation that a serious injury is more likely than not to result in mortality. The commenter further asks what sources of data were used to support this policy decision. The commenter asserts that essentially a flip of a coin determines live or die; and, therefore, the policy appears overly precautionary and to include unsupported assumptions.

Response: NMFS reviewed the best available scientific information and considered the uncertainties when crafting the draft policy. Uncertainty arises from any imperfect knowledge, but the boundaries of uncertainty can often be defined. Some types of injuries are known to

almost always result in mortality. Other types of injuries are less well understood, and the uncertainty can be bracketed by considering that at least some cases are likely to result in mortality. To create this policy, NMFS estimated the likely proportion that will result in mortality based on empirical observation, other data, and/or expert opinion.

The information reviewed and considered by NMFS includes NMFS' data on marine mammal injuries events (e.g., observer program, stranding network, and disentanglement network data), NMFS technical memoranda, published literature, and expert opinion provided at the 2007 Workshop. In view of the uncertainty and data limitations of known outcomes of injured small cetaceans and pinnipeds, NMFS created the injury categories for these groups based mostly on expert opinion and included those injury categories that are not clearly serious or non-serious under all circumstances and for all species as case specific. In this way, the NMFS determination staff can consider all the factors of the injury event, including the uncertainty inherent to the available data, when making a determination. NMFS created the injury categories and determinations for large cetaceans based on expert opinion and an analysis of data on known outcomes from 2004-2008; therefore, the large cetacean injury determination process does not include case specific categories. Instead, the large cetacean categories are all serious, non-serious, or prorated.

Comment 30: The Garden State Seafood Association notes that NMFS follows a long list of criteria as provided in the MMPA to determine "injury," but to determine serious injury NMFS relies on an interpretation of the definition of the statutory meaning of "serious injury." The Association asks why NMFS would rely upon a discretionary definition instead of creating a list of criteria that would determine "serious injury." The Association states that the list of

criteria would include what needs to be observed and documented to make a determination of serious injury.

Response: The MMPA does not define injury or serious injury. Instead, NMFS has defined these terms in regulations at 50 CFR 229.2. As stated in response to comment 13, "injury" is defined as "a wound or other physical harm." The definition further provides examples of what can be considered injury, but indicates the list is not all inclusive. "Serious injury" is defined as "any injury that is likely to result in mortality." Sections VII-IX of the Procedural Directive provide detailed criteria that NMFS staff would need to consider when making a determination on the seriousness of an animal's injury. The NMFS observer and stranding response programs and stranding networks will use the criteria presented in this policy to inform and/or update their reporting forms and to train the personnel gathering data on injury events on what information is needed by NMFS scientists in order to apply the guidance presented in this policy to make an injury determination.

Comment 31: The BWFA agrees that the size of the animal is a factor in determining the level of injury and supports the use of size classifications in the policy. The BWFA also agrees that hooking location and amount of trailing gear is also an important factor in estimating the effect on released animals. The BWFA recommends that when released animals are re-captured in the future, NMFS should request fishermen and observers compile the data on healed wounds to refine the ability to distinguish serious from non-serious injuries.

Response: NMFS agrees that information on healed wounds is important; therefore, NMFS attempts to gather this information when an animal is resighted and will continue to work with fisheries observers, stranding networks, and other data sources to compile data on healed

wounds. This information will be used to make future refinements to the injury categories in the Procedural Directive, if warranted.

Comment 32: The HSUS, DoW, CBD, WDCS, and AWI recommend NMFS consider a serious injury of a pregnant animal with a near-term fetus as two injuries. The AWI further recommends NMFS take into account the postpartum status of the species and time during the gestation cycle when injury occurs.

Response: NMFS does not consider the fetus as a separate serious injury because it is not known whether that fetus would have ever reached full-term status and been introduced into the population. In other words, the viability of an unborn fetus is unknown. Further, in the stranding response programs, NMFS does not count the fetus as a separate stranded animal; instead, the data are captured as part of the pregnant female's report (i.e., the death of a pregnant female is recorded as one death). In many cases the female would have to be a mortality to know about the pregnancy, so this would be captured in mortality data instead of serious injury data. Lastly, NMFS does consider a serious injury or death to a postpartum animal as a serious injury for the dependent animal in the existing injury categories L8, S15, and P14.

Comment 33: The AWI recommends NMFS define what constitutes a significant amount of time between the event and death, for example a ship strike and the death of a marine mammal.

Response: NMFS acknowledges the difficulty in accounting for all injuries that may ultimately lead to the death of the animal at some amount of time after an injury event. NMFS has not identified a specific amount of time that can pass between an injury event and death because there is no available information that identifies such a timeframe and NMFS does not want to place undue restrictions on the timeframe determination staff can consider as when

making an injury determination. For example, North Atlantic right whale 2143 died as a result of injuries she sustained from a vessel strike 14 years after the injury event. This case shows that a significant amount of time can pass between injury and death. Often, the timeframe depends on the specific factors surrounding the injury event, the type of injury, and the individual animal, all of which are factors NMFS scientists will consider when making an injury determination.

Comment 34: An individual commenter notes that many of the criteria in the Procedural Directive are based on expert opinion for the 2007 Workshop and asks NMFS to describe who the experts are, and how their opinions support a legally defensible argument because data are so lacking for outcomes of injuries.

Response: Each participant at the 2007 Workshop was selected to participate based on their recognized expertise in marine mammal science, veterinary medicine, pathobiology, or marine mammal management, or were appointed members of an SRG identified by the SRG to attend. The opinions of the experts at the workshop are defensible because each is a recognized expert (e.g., holds strong record of peer-reviewed scientific publications relevant to this issue, holds a long record of research on a marine mammal species or occurrences of injuries in marine mammals, etc.) in a field relevant to injury determinations in marine mammals, such as expertise in the species or taxonomic group in question, marine mammal veterinary medicine, or pathobiology of injuries. The names, affiliation, and contact information for each participant are recorded in the Technical Memorandum that reported the results of the 2007 Workshop (Andersen *et al.*, 2008). This Technical Memorandum can be found at:

http://www.nmfs.noaa.gov/pr/pdfs/interactions/serious_injury_techmemo2008.pdf.

Comment 35: An individual commenter asks NMFS to describe and provide support for the actual review processes for ensuring injury determinations are accurate over time, and for the

best available science used to ensure that a serious injury determination is accurate for all species under a certain category.

Response: Resighting information is available for some large cetacean injury events and records on known outcomes of large cetacean injuries were used to create the large cetacean injury categories. As more resighting data on large cetacean injuries become available, they will be incorporated into the policy. Conversely, resighting data for injured small cetaceans and pinnipeds are largely unavailable, so NMFS cannot follow each animal to record whether the animal survives or dies. Therefore, as additional research is performed and data become available on the outcomes of various injuries, this information will be incorporated into the injury categories and changes will be made to the policy, as appropriate. As stated in the Policy Directive, the policy will be reviewed and updated every five years or sooner if new information suggests changes are warranted. Further, as stated in section VII-A of the Procedural Directive, the proportions of serious injury outcomes for each large cetacean injury category will be recalculated annually, incorporating the latest verified injury reports to improve the rate estimates. The process of reviewing and updating the policy will help ensure that the injury determinations are accurate and consistent over time, by indicating whether the injury categories are accurate or changes are necessary. Further, the process of reviewing and updating the data informing the policy helps ensure that the policy is based on the best available science.

Comment 36: An individual commenter asks NMFS to describe and provide support for how all injury types are considered by category. The commenter states that surely different species within the same category may have very different responses to identical injuries (e.g., right whale and minke whale, false killer whale and bottlenose dolphin). The commenter further

asks NMFS to describe and provide support for how each event would not be considered case-by-case.

Response: Every injury event is considered on a case-by-case basis because each injury event is reviewed and a determination is made based on the available information (e.g., observer reports, stranding network reports) for that event. The event will then be assigned as serious or non-serious based on the guidance in this policy. For some injury events, NMFS determination staff will have a plethora of details to consider while making a determination; for other events the details for consideration will be scarce. For every injury event, regardless of the level of detail available to the determination staff, the determination staff will apply the injury categories and criteria laid out in the policy to make a determination.

There is no literature or other information to support injury determinations by species; therefore, as described in the Procedural Directive, the injury categories are organized around taxonomic group. The taxonomic groups identified in the policy are organized in groups commonly identified by experts because the species grouped together share certain similarities (e.g., life history, behavior, body size). For injury categories with a serious injury determination, the available information, data, and/or expert opinion suggest the injury is serious for any animal within the taxonomic group, regardless of any differences that exist between the species. For example, the best available information suggests that ingested gear is considered a serious injury for any small cetacean regardless of species, size, life history, or social structure. Further, the small cetacean and pinniped injury categories include many with “case specific” determinations, which apply to injury types where severity of an injury could vary based on species. In contrast, the large cetacean injury categories are designed to allow categorization of most reports to accurately assign a prognosis of death or survival to the observed events, regardless of the

species, based on an analysis of data on known outcomes of injured large whales of various species.

Comment 37: The HSUS, DoW, CBD, and WDCS agree that trailing fishing gear with the potential to further entangle a small cetacean, be ingested, cause drag or become snagged and further entangle or anchor the animal should be considered a serious injury (category S6). The commenters believe NMFS should consider addressing the same situation for pinnipeds and large whales. The commenters suggest this could be addressed for large whales by adding text after L3 that addresses cases in which a loose wrap nevertheless trails sufficiently behind the whale that it may ultimately further entangle the whale or snag and anchor it. The commenters note that category L10 suggests that large cetaceans trailing gear be categorized based on Items L2 or L3, but does not consider the risks described in the previous sentence.

Response: Reports of large whale entanglement events typically lack the detail necessary to evaluate the potential for further entanglement or constriction of wraps. Even the better documented cases would require assumptions about the trailing line because the end of the line may not be visible. Unless the ends of all lines could be accounted for, it could be assumed that there is potential for further entanglement and constriction; however, many entanglements are known not to result in death. Therefore, cases with any evidence of a wrap that is constricting or likely to become constricting will be assigned to L2 (“constricting wrap”); cases where NMFS can confirm there is no constriction will be assigned to L3 (“loose wrap, bridled or draped gear”); and all remaining cases where NMFS cannot confirm that the wrap is or is not constricting will be assigned to L10 (“evidence of entanglement”) and prorated at 0.75. Lastly, NMFS points out that the pinniped injury determination process includes an injury category considering trailing fishing gear with the potential to further entangle a pinniped, be ingested,

cause drag or become snagged and further entangle or anchor the animal. Please see category P6.

Comments on the Large Cetacean Injury Determination Process

Comment 38: The HSUS, DoW, CBD, and WDCS believe category L1 is risk prone because it states that if it is not known whether gear or hooks actually go down the throat of the whale, then the case is referred to category L10, which discusses evidence of entanglement. The commenters argue that it is impossible to look into the mouth of a large whale except under the most restricted of circumstances that would preclude any knowledge of whether gear has been swallowed. The commenters feel that, since it is not generally possible to see inside a large whale's mouth until after death, it would seem precautionary to presume that gear in the mouth is potentially fatal unless it is clear that the line/gear goes in one side of the baleen and out the other.

Response: Upon review of the data, the majority of head and mouth entanglements tend to fall into categories L2 ("constricting wrap"), L3 ("loose wrap, bridled or draped"), or L4 ("external hook"). As stated in the text describing category L1, cases where it is unknown whether the gear is ingested would be assigned to category L10, which has a 0.75 proration. This proration allows for the uncertainty that the line in the mouth is ingested. Therefore, when confirmation of ingestion is not available, 75 percent of the cases would be assigned as a serious injury, unless other information is available to suggest assignment to another category is more appropriate.

Comment 39: An individual commenter suggests NMFS not use the term "laceration" for categories L5a and L5b as lacerations are typically considered to be tears due to blunt force, whereas L5a refers predominantly to propeller-type injuries. Secondly, the commenter suggests

the language in L5a should include additional information about location on the body because, as written, the language under-represents the potential damage. For example, the commenter notes that the criteria discuss penetration of the body cavity; however, the commenter asserts penetration into the muscles or the head, even if bone is not involved, can be extremely detrimental.

Response: As noted in footnote five in Table 1, for the purposes of the injury categories in this policy “laceration is defined as a ragged incision or tearing of the skin that is caused by trauma that results in stretching, tearing, crushing, shearing, or avulsion of the tissue. Trauma, including blunt and sharp force trauma, includes a wound or bodily harm caused by an extrinsic agent.” Therefore, these categories cover a range of incisions or tearing, from propeller injuries to blunt trauma.

Regarding category L5a, this injury category is assigned as a serious injury; therefore, a deep laceration on any part of the body is considered a serious injury, including the head. Further, the text for L5b, “superficial laceration,” states that a superficial laceration is one that does not reach below the blubber layer. Therefore, it remains that any laceration deeper than the blubber layer is considered a “deep laceration.”

Comment 40: With respect to category L5b, an individual commenter requests NMFS consider that propeller injuries are often associated with a certain degree of blunt force trauma and some propellers may not cause or lead to an incising wound. Further, the commenter notes that shallow incising propeller wounds can be critical depending on the location (e.g., across the head), if they weaken the body wall (e.g., potential to rupture due to pregnancy), or if they interfere with basic functions (e.g., wounds across blowholes or lips).

Response: The large whale injury categories and determinations result from a quantitative analysis of known outcomes of national large whale injury events from 2004-2008. In those data, zero of nine cases of superficial lacerations resulted in death; therefore, this category was assigned as non-serious. Additional information on the location or impact of a superficial laceration on the animal's health might be available in a data rich situation. 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 VII. Lastly, depending on the data available about the injury event, many of the examples provided by the commenter could be assigned to category L11, "vessel strike laceration," and prorated at 0.52.

Comment 41: With respect to category L6b, an individual commenter notes that the fatal vessel size and speed are based on a single paper which uses simple physics to determine lethality; however, the biological tissues have complex material properties whose response to collision cannot be described by simple physics. Therefore, the commenter believes that a prorating of 0.20 for this category seems excessively small because it has to account for all possible combinations of "small" vessels interaction with a whale (e.g., impact to the head, propeller incisions with acute or chronic implications, rib fractures and muscle shredding with accompanying respiratory dysfunction and/or locomotor impairment, etc.).

Response: Category L6b, as with the other large cetacean injury categories, is based on an analysis of known outcomes of this injury type. For those documented cases, one of five (20 percent) whale strikes by a vessel less than 65 feet in length traveling faster than 10 knots resulted in the whale's deteriorating health and likely death. Therefore, per the analysis methodology developed for this determination process, this category, while significantly lower than the 50 percent threshold, is prorated because at least one documented case led to the death

of the animal. Further, category L6b applies to events where the determination staff has no information on the animal. Therefore, the examples of injuries provided by the commenter would be assigned to categories other than L6b, as explained in the text describing each category. Lastly, as stated in section VII-A, the proportions of serious injury outcomes for each large cetacean injury category will be recalculated annually, incorporating the latest verified injury reports to improve the rate estimates. Therefore, this category may be modified over time as more data become available.

Comment 42: An individual commenter asserts there is inconsistency between categories L6c and L7a. The commenter notes that L6c states that a non-serious injury status will be placed on any event in which the vessel was going less than 10 knots, no matter the size of the vessel; however, L7a states that any collision involving a "large/larger" vessel will be prorated at 0.56 without any information about speed. The commenter asks why, if velocity and mass are both factors in estimation of force, why would lack of information on one lead to a non-serious injury status, while lack of information on the other would allow for a 0.56 prorating?

Response: In categories L6c and L7a NMFS distinguishes between events where either the vessel size is unknown but vessel speed is known (L6c) or the vessel speed is unknown but vessel size is known (L7a). This distinction is important because, as described in section VII-A, the available literature show that both vessel speed and mass play a role in the understanding of the severity of the injury. In the analysis of events with known outcomes involving all vessels going less than 10 knots, no events resulted in the death or apparent health decline of the whale. In the analysis of events with known outcomes involving only ships greater than 65 feet in length, the speed of some of the vessels may have been exceeding the speed that a whale could survive. The 0.56 may therefore represent, in part, the probability that the larger vessel was

travelling faster than 10 knots at the time of the collision. The rate is likely higher than for smaller vessels at unknown speed due to the mass component. Lastly, as stated in section VII-A, the proportions of serious injury outcomes for each large cetacean injury category will be recalculated annually, incorporating the latest verified injury reports to improve the rate estimates. Therefore, this category may be modified over time as more data become available.

Comment 43: The HSUS, DoW, CBD, and WDCCS disagree with category L6c being considered a non-serious injury and recommend that, at the very least, this category be pro-rated by calculating in the case of a blue whale off CA that was struck and killed by a vessel traveling 5.5 knots. The commenters argue that had the currents carried the whale out to sea following its death rather than fortuitously allowing it to strand dead, it appears that this ultimately fatal encounter would have been classified as a non-serious injury. Further, the commenters acknowledge that the crew observed the animal bleeding, but ask what exactly constitutes a profuse amount of blood in the water when no gashes can be observed that might meet other criteria such as item L5a? The commenters further argue that, while they understand that the category does not consider this blue whale event because it occurred subsequent to the workshop in 2007 and internal NMFS discussions that may have included data through 2008, NMFS is obligated to use the best available science; and, therefore, this injury event should be considered.

Response: The numbers and proportions reflected in the analysis of large whale criteria reflect the 2004-2008 data. This time period was selected for two reasons: (1) Beginning in 2004, the available data were collected in a consistent and thorough manner; and (2) NMFS began developing the draft policy and analysis process in 2009; therefore, data from 2008 were the most recent verified data. NMFS did not make individual exceptions to the analysis methods, such as adding in one 2009 case raised by the commenters but not other cases, because

the consistency in the analysis methods is a strength in the large cetacean injury determination process. Once the policy is finalized, NMFS will update the prorated large cetacean injury categories annually to be proactive in addressing the low data resolution (as stated in section VII-A). This will enable NMFS to add additional data as they are verified to improve the estimates as quickly as possible. Therefore, within a year after the policy becomes final, NMFS will incorporate verified data beyond 2008, which may or may not lead to changes in the large cetacean injury categories and determinations, including category L6c. Further, NMFS has not reviewed the 2009 injury event mentioned by the commenters in the context of this policy because it occurred in 2009 and is therefore outside of the analysis of data that informed this policy.

Comment 44: The Commission concurs with category L8 ("Dependent"), but does not believe that it covers all situations involving dependent calves, such as a situation where a calf or the mother is entangled, not considered seriously injured, but the entanglement interferes with successful nursing or maintaining the mother-calf bond. Therefore, the Commission recommends NMFS review available data on entanglements of either member of the mother-calf pair and subsequent calf survival to (1) determine if mothers or dependent calves have become entangled and the entanglements were judged to be non-serious injuries, (2) characterize the outcome of any such cases in terms of survival probabilities for the associated calves, and (3) revise this criterion accordingly if the evidence suggests serious risk to the calves.

Response: NMFS currently does not have the data to test the survival probabilities for calves when an entanglement interferes with successful nursing or maintaining the mother-calf bond. Long-term monitoring of an individual calf would be needed to assess the condition of the animal over time; however, given that survival rate of calves is not 100 percent for any known

species, it would be impossible for NMFS to determine whether an injury to a mother directly resulted in calf mortality. In other words, for calves that do not survive into adulthood, there could be other, equally likely reasons for its death than the injury to its mother (e.g., congenital disease). Testing would require further consideration and availability of data.

Comment 45: The HSUS, DoW, CBD, and WDCCS believe NMFS should develop a means of accounting for the likely cause of death of large whales that are not retrieved for necropsy, as many are likely to have died from anthropogenic impacts because, as acknowledged in the draft policy, even those animals who are known to have died or become seriously injured represent only a fraction of the large whales that are actually injured or killed by human interaction.

Response: NMFS agrees that a means for accounting for these data could help inform management. However, developing such a means of accounting for the likely cause of death of animals not retrieved is outside the scope of this policy because the intent of this policy is to provide technical guidance on making a determination of injury severity in live animals. The analysis of data for the large cetacean injury determination process included animals where the cause of death was confirmed. As NMFS obtains additional data on causes of death to large cetaceans, this data will be incorporated into the large cetacean injury determination process.

Comment 46: The HSUS, DoW, CBD, and WDCCS state that a review of cases reported in the Large Whale Disentanglement data base, media reports and personal communications with field research teams, show that between 2004 and 2011, 10 of the 33 right whales that were confirmed dead (not including two that were euthanized) were not retrieved for necropsy. The commenters recommend NMFS give future consideration to prorating these deaths based on

what percentage of stranded large whales have deaths that are found on necropsy to be entanglement-related, vessel collision-related or CBD.

Response: As stated in the response to comment 45, the analysis of data from 2004-2008 for the large cetacean injury determination process included animals where the cause of death was confirmed. NMFS did not include mortalities where the cause of death could not be confirmed, because those cases are not considered “known outcomes.” NMFS agrees with the commenter that future consideration should be given to stranded large whales in which necropsy results confirm a human-caused death. Therefore, as described in section VII-A, additional data will be included as they become available in the annual update to the large cetacean rate estimates.

Comment 47: The VA Aquarium suggests that a process for considering the risk associated with the longevity of an entanglement be added to the current criteria. First, the VA Aquarium is concerned that the potential exists for any entanglement of a large whale deemed non-serious (L3) upon initial observation to become constricting later as the animal moves/grows (L2); however, under the current recommendations, a non-serious designation can result in not only the postponement of a response to an entanglement, but also inadequate data and calculations being used for management decisions. Second, the VA Aquarium recommends NMFS include expert necropsy and pathology reports of large whales in the analysis of injury status because they are proof that a particular injury was or was not serious enough to cause the death of an animal, and because the use of only live animals in the analyses can be deceiving as the final health outcome of many of these animals remains unclear. Lastly, the VA aquarium suggests NMFS factor any injury that causes the death of at least one animal into assessments when similar circumstances are observed.

Response: NMFS injury designations are made at least one year following observation of an event and are therefore not likely to impact disentanglement response. All available information, including field observations and photographs of both live and dead whales and necropsy and pathology reports were used in the analysis of injury categories and the development of criteria.

Comment 48: The AWI recommends that, since the proration formula used for categories that are prorated is based on a relatively small sample size, NMFS should utilize the precautionary principle and develop the proration amount (e.g., .20) and then double, triple, or even quadruple it in order to determine what proportion of animals affected should be declared to have a serious injury likely to result in death. The AWI asserts that this would reflect a far more precautionary approach and is more sensible from a management perspective because, though it may over-estimate the number of large whales with serious injuries, it will avoid misclassifying animals as having non-serious injuries that then subsequently die.

Response: While NMFS recognizes the results still underestimate total serious injury and mortality to marine mammals, given the likelihood of undetected and unreported events, NMFS' interpretation of the serious injury definition coupled with the approaches described in the Policy and Procedural Directives is expected to allow NMFS to evaluate the majority of documented injury events, providing a more accurate estimate of total human-caused serious injury and mortality to marine mammal. The large cetacean injury categories and determinations are based on actual data from known outcome cases from 2004-2008. Doubling or tripling the proration amounts would be arbitrary and contrary to the methods by which the large cetacean injury determination process was developed. Further, as stated in section VII-A, the proportions of serious injury outcomes for each large cetacean injury category will be recalculated annually,

incorporating the latest verified injury reports to improve the rate estimates. Therefore, the proration numbers in section VII will be modified over time as more data become available.

Comment 49: The AWI feels that if NMFS was employing the precautionary principle, many, if not all of the non-serious injury designations would be case specific to allow the discretion to designate an injury as serious if the circumstances warranted. For example, “Superficial Laceration” (L5b) is considered a non-serious injury, but can be designated as a serious injury if there is an indication that the marine mammal’s health has significantly declined as a result of the entanglement. The AWI asserts that this is an example of a designation that is actually case specific even though it is designated in the guidelines as a non-serious injury.

Response: NMFS reiterates that the large whale injury categories and determinations result from a quantitative analysis of known outcomes of national large whale injury events from 2004-2008. In those data, none of the nine cases of superficial lacerations resulted in death; therefore, this category was assigned as non-serious. Still, in the instructions for sections VII-IX, NMFS states that any injury leading to an indication of significant health decline will be considered a serious injury. Therefore, any indication of health decline of an animal with any injury, including a superficial laceration, would be considered a serious injury. 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 VII. Lastly, as stated in section VII-A, the proportions of serious injury outcomes for each large cetacean injury category will be recalculated annually, incorporating the latest verified injury reports to improve the rate estimates. Therefore, this category may be modified over time as more data become available.

Comment 50: The AWI states that many of the large cetacean criteria note that a whale will be deemed seriously injured if significant health decline is noted after an injury. The AWI asserts that while a whale observed weeks or months after the injury can be designated as a “serious” injury depending on the whale's condition, if the animal is observed only days after the injury, the animal’s injury can be designated as a “non-serious injury” even though the whale may eventually die as a result of the injury. The AWI states that if the precautionary principle was applied in this particular policy, then some or all of these marine mammals with a superficial laceration (L5b) would be designated as having a serious injury.

Response: As stated in the response to comment 49, NMFS reiterates that the large whale injury categories and determinations result from a quantitative analysis of known outcomes of national large whale injury events from 2004-2008. In those data, none of nine cases of superficial lacerations resulted in death; therefore, this category was assigned as non-serious. Still, in the instructions for sections VII-IX, NMFS states that any injury leading to an indication of significant health decline will be considered a serious injury. Therefore, any indication of health decline of an animal with any injury, including a superficial laceration, would be considered a serious injury. Lastly, as stated in section VII-A, the proportions of serious injury outcomes for each large cetacean injury category will be recalculated annually, incorporating the latest verified injury reports to improve the rate estimates. Therefore, this category may be modified over time as more data become available.

Comment 51: The Commission notes that the large cetacean criteria themselves do not address the problem of increasing severity of an injury over time. Therefore, the Commission recommends that, if it has not already been done, NMFS review its available data to determine how often injuries initially judged to be non-serious have evolved to be considered serious. If

such cases have been documented, the Commission recommends NMFS adjust the guidelines to account for the probability of escalating risks. The Commission notes that the estimated seriousness of an injury may increase based on a new assessment of the same information, or new information, or an actual change in the injury.

Response: NMFS included information on the life histories of the animals involved in the large cetacean injury events in the analysis for the large cetacean injury determination process. Further, sections VII-IX each state that evidence of significant health decline after an injury event for any injury, regardless of the initial determination, will be assigned as a serious injury. Further, section VII-A of the Procedural Directive states the proportions of serious injury outcomes for each large cetacean injury category will be recalculated annually, incorporating the latest verified injury reports to improve the rate estimates. Therefore, cases that were initially determined to be non-serious injuries and for which NMFS has data to show the injury evolved to be a serious injury will be included in the annual updates to the proportions of serious injury outcomes for each large cetaceans in Table 1.

Comment 52: An individual commenter states that the draft policy fails to take account of the prediction of Lambertsen *et al.* on the functional morphology of the mouth of baleen whales and its implications for conservation (Lambertsen *et al.*, 2005; IWC/SC/BC7, 2006), as evidently independently confirmed and perhaps proven by detailed field observations on right whale NEAq 2220 (Moore *et al.*, 2004). By doing so, the commenter asserts that the draft policy is inappropriately deferential to fishermen and other interests, and favors the already probable extinction of the North Atlantic right whale.

Response: There are numerous cases of whales with compromised oral seals that show no signs of health decline in the 2004-2008 data analyzed as the basis for the large cetacean

injury determination process. Still, in the instructions for sections VII-IX, NMFS states that any injury leading to an indication of significant health decline will be considered a serious injury. Therefore, any indication of health decline of an animal with line in the mouth, or anywhere on the body, would be considered a serious injury. Lastly, NMFS clarifies that though right whale 2220 had entanglement-related injuries, they were deemed to be insufficiently severe to cause death by the examining experts (Moore *et al.*, 2004).

Comments on the Small Cetacean Injury Determination Process

Comment 53: The HLA and the Commission indicate that NMFS did not define the term "small cetaceans" in the policy. The Commission recommends NMFS define the term to include all cetaceans other than mysticetes and sperm whales, while the HLA states that the use of the term in the policy presumably applies to a variety of dolphin and porpoise species that have very different morphological characteristics. Further, the HLA states that the marine mammal categorizations presented in the policy are notably different than those presented on NMFS' SAR webpage, which is organized by large whale, small whale, dolphin, porpoise, and pinniped.

Response: NMFS defined "small cetaceans" in the draft policy in footnote 1 on Table 2 as "all odontocetes except sperm whales." NMFS has retained this footnote in the final policy and has added a sentence to the text of section VIII-A for further clarity. The breakdown of marine mammal groupings on the SARs website is for organizational purposes to better assist the public in locating the species on which they are focused. The breakdown on the website is not how the SARs themselves are organized. For the small cetacean categories classified as "serious injury" in section VIII, these injury types are serious for the animal no matter its size. For those small cetacean injury categories where size is a factor in the severity of the injury (i.e., "case

specific" categories), size is a factor to be considered by the scientists when making an injury determination.

Comment 54: The HSUS, DoW, CBD, and WDCS argue category S1 appears to automatically remove a small cetacean from consideration as seriously injured if it is disentangled, regardless of its condition at time of release and feel that the animal should be considered seriously injured if it still has serious injuries after the gear is removed and/or released without conspecifics in the area.

Response: The removal of gear from a small cetacean does not preclude the animal from being classified as seriously injured. An animal released from gear will be evaluated based on the guidance described in section IV of the Procedural Directive to determine if it has serious injuries when it is released. If the animal possesses injuries determined to be serious after the gear is removed, the animal will be assigned as a serious injury based on that assessment. Category S1 is designed to capture the rare instances where a small cetacean is resighted after any injury event. Category S1 applies to all injury events, not only entanglement events.

Comment 55: An individual commenter questions NMFS' justification for stating that a small cetacean that ingests gear or hook(s) (category S2) is seriously injured and recommends NMFS conduct more testing on specific gear characteristics in previous ingestion events. The commenter argues that there is a wide variety of fishing gear and that there are many factors in play determining how gear may be more or less prone to causing specific injuries to marine mammals. The commenter further notes that the cases evaluated by Wells *et al.* (2008) did not involve commercial hook or line gear and Wells *et al.* (2008) said, "As a precautionary approach, dolphins with ingested gear or severe constrictive entanglements should be considered

mortalities, but extrapolations of findings from coastal bottlenose dolphins to other cetaceans and different gear must be done with caution.”

Response: The current available information suggests that ingestion of gear or hooks is a serious injury for all small cetaceans. While NMFS cannot conduct research that may kill a small cetacean to determine which gear types may or may not cause more severe injuries when ingested, NMFS can review stranding records to determine the specific gear characteristics of ingested gear that attributed to the death of the stranded animals. NMFS acknowledges the statement from Wells *et al.* (2008) cited by the commenter, but clarifies that NMFS did not base the serious injury determination for this injury category solely on the information in that journal article. Instead, the article was considered along with small cetacean expert opinion at the 2007 Workshop, which concluded that ingested gear is a serious injury for all small cetacean species (Andersen *et al.*, 2008). Further, while Wells *et al.* (2008) discussed cases of ingestion of recreational gear, in many cases commercial hook and line gear is similar to recreation hook and line gear, but the fishing line pound test for many commercial gears tends to be stronger, which would be more problematic for small cetaceans.

Comment 56: An individual commenter asked NMFS to describe and provide support for how one fishing hook in the head of a dolphin is “likely to have a much more significant impact” compared to the permitted activities of tags shot from crossbows or tag harpoons into the dorsal fins and backs of dolphins.

Response: Before a tagging activity is permitted by NMFS, the tagging method and research methods are thoroughly reviewed, as required by the MMPA, and the permitted tagging activities are conducted by trained professionals under the strict protocol described in the permit. Research of tagging activities permitted by NMFS, such as dart tagging, has been shown not to

seriously injury marine mammals (Baird *et al.*, 2011). NMFS does not permit a tagging activity that is known to seriously injure a small cetacean. By contrast, hooking events often include methods of hooking (e.g., hooked in a particularly sensitive body part, such as the mouth or blowhole) or dehooking (e.g., pulled out roughly, causing tissue additional damage) that are serious injuries. For additional information on the impacts of different tagging techniques on marine mammals, please review the report of the Marine Mammal Commission's 2005 Large Whale Tagging Workshop (Weller, 2008; http://www.mmc.gov/pdf/final_tagging_82608.pdf).

Comment 57: An individual commenter asks NMFS to clarify how the high risk of later death due to capture myopathy or hidden injuries from bringing an animal on a vessel deck is mitigated by well-intentioned, permitted researchers (category S4). The commenter states that if rough handling, such as being pulled on a vessel deck by fishing gear, is the intention, NMFS should make this clear in the heading.

Response: The title and explanation for category S4 clearly states the intention of the category. The text explains that NMFS-permitted research where an animal is brought on deck is not included as a serious injury because the “permit requires a certain level of care be taken during the research not to harm the animal.” As stated in the response to comment 56, before a research activity is permitted by NMFS, the research methods are thoroughly reviewed by NMFS, as required by the MMPA, and the permitted activities are conducted by trained professionals under the strict protocol described in the permit. NMFS does not permit research methods known to seriously injure a small cetacean. Further, the title of category S4 states the intent is to distinguish between animals brought on the deck by fishing gear versus in a controlled, permitted manner, “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)” (emphasis added).

Comment 58: An individual commenter asks NMFS to clarify how the location of the hook and manner in which it is removed from a small cetacean influences NMFS’s injury determination (e.g., what is meant by "pulling out cleanly vs. roughly").

Response: NMFS explains how the location of a hook on a small cetacean makes the injury event serious or non-serious in the text describing injury categories S5a-d in the Procedural Directive. NMFS refers the commenter to that text for additional information. Regarding the removal of a hook, the manner in which a hook is removed is important because it can impact the severity of an injury. A hook removed cleanly causes no additional injury to the animal as the hook is removed, while a hook removed roughly causes additional injury, such as more tissue damage than the damage caused by the initial insertion of the hook.

Comment 59: The VA Aquarium thinks that S6 and S8b could easily be confused; however, one is deemed serious while the other is case specific. The VA Aquarium asks which categories an animal would be placed if two events combined increase the severity of an injury.

Response: The text describing category S8b in the Procedural Directive states that this category is included to distinguish between categories S6 and S8a. The text further describes how S8b differs from S6. However, to further clarify the text, NMFS has added a short statement in the text for S8b providing an example of a factor, taken from Table 2, that should be considered when reviewing injury events that fall into this category. If an injury event falls under two criteria, NMFS will classify the injury based on the highest level of seriousness; therefore, if one criterion is "serious" and one is "case specific," the injury would be classified as "serious."

Comment 60: The BWFA does not agree that an adult or even juvenile mammal released without the known presence of other like mammals in the area may be unable to survive the interaction (S14). Further, the BWFA and an individual commenter ask how it can be practically determined if a small cetacean is separated from its group or how to know if there are others in the vicinity unless the animals are positively observed. In addition, the BWFA disagrees that NMFS should consider that an animal is injured solely on the basis of being a social animal separated from its group because such a decision would be based on emotion and/or speculation and not science.

Response: As stated in the Procedural Directive, a small cetacean separated from its group (category S14) has been considered a serious injury since a 1997 workshop held to discuss distinguishing serious from non-serious injuries incidental to commercial fishing operations (Angliss and DeMaster, 1998); however, experts at the 2007 workshop concluded that this injury is not a serious injury in all cases. Instead, other factors must be considered before making a determination, such as the social structure of the species in question and where the individual is released (i.e., suitable habitat where the species is likely to locate its conspecifics). For example, releasing a bottlenose dolphin alone is less of a concern than releasing a resident killer whale alone. Bottlenose dolphins are social and reside in groups that are fluid in nature with the membership in frequent flux; therefore, if an individual is able to locate others of its species in the area where it is released, there is not a concern as to whether it locates the same or different animals than the group it was with at the time of an interaction. In contrast, resident killer whale groups are permanent groups consisting of close family members; therefore, there is concern if the animal is released into an area where it is unlikely to find its specific group.

NMFS agrees that clarification of what is meant by “separated” in category S14 is necessary. Therefore, NMFS has added text to the description of S14 to further clarify that when making a determination on whether an animal is separated from others, the determination staff should consider the species of the individual and location or habitat where the animal is released.

Comment 61: The AWI notes that if the precautionary principle were used, more of the small cetacean case specific designations would qualify as serious injuries. For example, the AWI states that blood loss should be classified as a serious injury because if a small cetacean is seen bleeding there is no way for NMFS to know if the bleeding will stop based on a single observation. Further, the AWI questions how the loss of a dorsal fin, partially severed fluke, and/or partially or completely severed pectoral fin be considered a non-serious injury. The AWI recommends NMFS err on the side of caution in assessing injuries and include any uncertainties as serious injuries.

Response: The examples of injury events provided by the commenter support a case specific determination for many injury categories. These injuries could be serious or non-serious depending on the factors specific to the injury event; therefore, automatically assigning these injuries as serious disregards all the factors of the case. For example, it is known that not all bleeding injuries lead to death; therefore, NMFS will consider all available information on a bleeding injury to make a determination. Further, as stated in Wells *et al.* (2008), multiple cases presented at the 2007 Workshop (Andersen *et al.*, 2008), and summarized in the text describing categories S13a-d, many small cetaceans survive the full or partial loss of a fin. Therefore, NMFS must consider other factors specific a fin-related injury event prior to making an injury determination. These factors are described in the Procedural Directive.

Comment 62: The HLA recommends NMFS revise the draft policy to clarify that the procedures set forth under section VIII-C do not apply to fisheries with systematic observer programs, and specifically clarify that it does not apply to Hawaii-based longline fisheries. Without this clarification, the HLA objects to the approach set forth in this section.

Response: The commenter is correct that the approach outlined under section VIII-C does not apply if alternate methods of assigning injury severity are available from observer program data. NMFS has added text to the Procedural Directive to clarify this for all fishery observer programs with sufficient data.

Comment 63: An individual commenter asks NMFS to explain the rationale provided in Section VIII-C for how any small cetacean CBD case would not be assigned according to known similar assignable cases and asks why, if other injury types of injuries are prorated, prorating isn't also applied in these circumstances.

Response: The process described in this section is for cases where there are sufficient data on similar assignable cases to determine whether an injury type is more likely than not a serious injury (i.e., incidence of serious injury in previous cases is >50 percent). If insufficient similar data are available to statistically evaluate this 50 percent threshold (e.g., using the binomial test as described in Section VII-A), then prorating can be used as in the large whale evaluations (e.g., case L6b). NMFS has added text to the Procedural Directive to clarify this point.

Comment 64: The HLA, commenting specifically on the small cetacean injury categories, notes that when NMFS promulgated MMPA regulations in 1995, the Agency explained that serious injury "will be done on a fishery-by fishery, case-by-case basis" (60 FR at 45093). However, HLA argues that the draft policy does not present guidelines on a fishery-by

fishery or case-by-case basis and, consequently, does not accurately address the likelihood of mortality resulting from types of interactions with certain types of species. For example, the HLA argues that the result is that many of the proposed categories for small cetaceans do not accurately reflect whether certain interactions with certain species, such as false killer whales, are likely to result in mortality. For this reason, the HLA asserts the draft policy is arbitrary and capricious and violates the APA.

Response: NMFS clarifies that when the Agency promulgated regulations in 1995 for MMPA section 118, 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, emphasis added). NMFS further states, “Injuries reported by fishers will be analyzed, taking into consideration the type of fishing gear and the marine mammal species affected, to determine which are indeed serious injuries” (60 FR at 45093, August 30, 1995). Therefore, this policy conforms to the statements made in that *Federal Register* notice. Since 1995, NMFS has obtained significant amounts of new scientific information on the types and sources of injuries to marine mammals. Therefore, this policy considers injuries from all sources (except noise-related injuries, as explained in the response to comment 27), not only fishing-related injuries. If this policy were to consider only fishing-related injuries, NMFS would not be fulfilling its obligations under section 117 of the MMPA, which states that NMFS shall include an estimate of the “annual human-caused mortality and serious injury of the stock *by source*” (16 U.S.C. 1386(a)(3), emphasis added) in all SARs. Further, as stated in response to comment 36, every marine mammal injury event will be considered on a case-by-case basis. NMFS scientists will consider all the available information

on an individual event and apply the technical guidance in this policy to that case to make a determination of the injury's severity.

Lastly, when considering the fishing-related injuries to small cetaceans, many of the injury categories identified in this policy are case specific (e.g., S5b-d, S7b). For these cases, 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 those fishing-related injuries categories assigned as serious injuries, the injury is considered to be serious regardless of the species or fishery (e.g., S2, S5a). 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 65: The HLA argues that some of the small cetacean injury categories do not qualify as "injuries," much less "serious injuries" under 50 CFR 229.2; therefore, NMFS may not include these injury categories. The HLA states that under the draft policy, every type of injury contemplated in the regulatory definition of "injury" will be classified as a serious injury whether automatically or after a case specific analysis. The HLA argues that this leaves little room for the possibility that the types of injuries described in 50 CFR 229.2 may well be injuries that, while concerning, are not "serious" as the regulations have interpreted that term. As examples, the HLA refers to S14 and S7b, and argues that such interactions would not qualify as injuries under 50 CFR 229.2. Further, the HLA notes that NMFS recognized in the *Federal Register* notice of the implementing regulations under section 118 of the MMPA that an entanglement with fishing gear is not an "injury," much less a "serious injury," unless it is accompanied by other signs of injury (60 FR at 45094).

Response: The definition of "injury" in 50 CFR 229.2 states that an "injury" means "a wound or other physical harm." The regulation goes on to list signs of injuries to marine mammals, but explicitly states that the list of signs of injury "are not limited to" those presented in the regulation. Therefore, the guidance provided in this policy, which includes NMFS' interpretation of a "wound or other physical harm" (i.e., an "injury") that "will likely result in mortality" (i.e., a "serious injury"), complies with the regulatory definitions of "injury" and "serious injury." As to the examples raised by the commenter, both S7b and S14 qualify as injuries under 50 CFR 229.2. As explained in the Procedural Directive, being anchored or immobilized for some time period before being released (S7b) can physically harm a marine mammal by compromising the animal's health, such as by limiting its ability to feed or causing capture myopathy-related injuries. As also explained in the Procedural Directive, a social animal released separated from its group (S14), depending on the species and factors of its release, may subject the animal to additional stress and harm.

NMFS stated in response to comment 43 in the *Federal Register* notice of the implementing regulations under section 118 of the MMPA that entanglements with gear are not considered an injury, except when other signs of injury are present (60 FR at 45094, August 30, 1995). However, in the final regulatory text implemented in the *Federal Register* notice of the implementing regulations under section 118 of the MMPA (60 FR at 45101, August 30 1995), and codified in 50 CFR 229.2, the definition of "injury" states that an animal "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*" (emphasis added). Therefore, a marine mammal released entangled in gear is considered injured. That being said, this policy does not consider all entanglement-related injuries to be serious injuries and these

injury categories are organized based on the varying degree of severity (see S6, S7a-b, and S8a-b).

Lastly, as explained in the response to multiple previous comments, injury categories assigned as case specific are not automatically determined to be serious. The injury can be serious or non-serious depending on the factors surrounding the injury event, making consideration of those factors critical in making a determination.

Comments on the Pinniped Injury Determination Process

Comment 66: The AWI duplicates its comment from the small cetacean table (comment 61) recommending NMFS err on the side of caution for all pinniped injury categories classified as case specific in assessing injuries and include any uncertainties as serious injuries.

Response: As stated above in response to comment 61, many injuries could be serious or non-serious depending on the factors specific to the injury event; therefore, automatically assigning these injuries as serious disregards all the factors of the case. These factors are described in section IX of the Procedural Directive.

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