UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

John Calambokidis
Chair, Pacific Scientific Review Group

Dear Mr. Calambokidis:

Thank you for the letter to Janet Coit, Assistant Administrator for Fisheries, transmitting recommendations from the March 2022 meeting of the Pacific Scientific Review Group (SRG).

The SRG has made many valuable recommendations to help guide NOAA Fisheries' marine mammal science and management, which are addressed in the enclosure. We appreciate the service and contributions by members of the Pacific SRG in providing advice and support to NOAA Fisheries in accordance with the Marine Mammal Protection Act. We look forward to our continued partnership to improve the science supporting the conservation of marine mammals.

Sincerely,

Francisco Werner, Ph.D.
Director of Scientific Programs and Chief Science Advisor

Samuel D. Rauch III
Deputy Assistant Administrator for Regulatory Programs

Enclosure

cc: Janet Coit, Assistant Administrator for Fisheries
Evan Howell, Director, Office of Science and Technology
Kim Damon-Randall, Director, Office of Protected Resources

Responses to Recommendations from the
2022 Pacific Scientific Review Group (PSRG) Meeting

1. **The PSRG recommends that, if possible, NMFS provide the PSRG draft changes to the GAMMS and SI documents and policies for review and comment as early as possible in the process and ahead of the public comment period.** The PSRG does not wish to delay these important revisions and so recognize this may not be possible but also feel we can be uniquely useful in evaluating these changes given our role in reviewing SARs and PBR calculations and in considering new approaches.

   Response: We thank the Pacific SRG for their interest in the draft revisions to the Guidelines for Preparing Stock Assessment Reports for Marine Mammals (i.e., the GAMMS; NMFS PD 02-204-01) and Process for Distinguishing Serious from Non-Serious Injury of Marine Mammals (SI policy; NMFS-PD 02-038-01). NMFS provided the draft SI policy revisions to the PSRG on May 23, 2022, and held webinars for the SRGs on May 31 and June 2, 2022. NMFS also provided the draft GAMMS revisions to the SRGs on July 15, 2022, and held webinars on July 19 and July 27, 2022 to summarize the revisions and seek input.

   We thank the PSRG members that were able to attend and provide feedback. We are currently addressing public comment on the draft GAMMS and SI policy revisions and anticipate finalizing revisions before the next annual PSRG meeting. Once the revisions are final, they will be shared with the SRGs.

2. **The PSRG recommends initiating a discussion with the NMFS staff involved with preparing stock assessment reports for the various stocks of humpback whales.** We would like to support the use of a species-specific Rmax value in the stock assessment for the western Pacific stock of humpback whales. We note that the current value of Rmax for this stock is 0.07, even though a stock specific estimate of Rmax is not available.
   The value of Rmax is one of the three key parameters in estimating the PBR for a stock (along with a minimum estimate of abundance [Nmin] and a recovery factor (Fr). The following text related to when a default value or a stock-specific value for Rmax should be used is from GAMMS (2016): "*Default values should be used for Rmax in the absence of stock-specific measured values. To be consistent with a risk-averse approach, these default values should be near the lower range of measured or theoretical values (or 0.12 for pinnipeds and sea otters and 0.04 for cetaceans and manatees). Substitution of other values for these defaults should be made with caution, and only when reliable stock-specific information is available on Rmax (e.g., estimates published in peer-reviewed articles or accepted by review groups such as the MMPA Scientific Review Groups or the Scientific Committee of the International Whaling Commission).*" It is likely that this text should be updated, as some cetacean species have been observed to have annual rates of increase that exceed the 0.04 value assigned to cetacean stocks (e.g., humpback whale, beluga whale). Further, it is not clear to the PSRG why a stock-specific value for Rmax is always preferential to a species-specific value. Because the data required to estimate a maximum rate of population increase are substantive, it is not surprising that stock-specific estimates of Rmax are relatively uncommon. In addition, it is the product of Nmin, Rmax, and Fr that is

used for establishing a threshold for anthropogenic removals from a given stock (i.e., PBR). Therefore, an adequately precautionary value for PBR can be implemented by the Agencies in managing marine mammal-fishery interactions without being conservative in estimating each of the parameters used to calculate the PBR.

Response: We thank the PSRG for their interest in further discussing the new draft humpback SARs, and specifically the values used for Rmax for each new stock. After receiving clarification from the PSRG on this recommendation, we understand that the PSRG is seeking clarification on how Rmax is being selected for each humpback whale stock, and whether NMFS is considering broader changes to the default Rmax values recommended by the Guidelines for Assessing Marine Mammal Stocks or the GAMMS (NMFS PD 02-204-01).

First, as can be seen from the draft revisions to the GAMMS that were made available for public comment, NMFS is not proposing any changes to the default Rmax values, nor to the guidance on when it is appropriate to deviate from these defaults.

Second, for the new draft humpback SARs, NMFS selected values for the Rmax for each stock based on what it has determined to be the most relevant value for each stock, either based on estimates for a stock-specific Rmax or species-specific (i.e., North Pacific humpback) Rmax, depending on what information is available. The justification and rationale for these will be provided in the draft SARs for public comment. We welcome further discussion with the PSRG about Rmax values for these stocks and how these can be improved in future SARs.

3. **The PSRG wanted to extend our thanks and appreciation to NMFS and FWS for their efforts to both implement and respond to our 2021 recommendations. For example, we appreciated the presentation of the table summarizing planned and anticipated pinniped survey schedules, by NMFS and hope this can become a regular feature.**

   Response: We appreciate the Pacific SRG's feedback, and we will continue to provide this information at future Pacific SRG meetings.

4. **The PSRG recommends that NMFS reconsider the protocol used to prorate anthropogenic removals for stocks of the North Pacific humpback whale. At a minimum, the PSRG recommends that NMFS provide additional rationale as to why the use of the upper 95% confidence interval of the movement probabilities is appropriate.**
   The Pacific SRG noted during its recent meeting that NMFS uses a protocol for prorating mortality incidental to commercial fishing, where the proration values add up to a value greater than 1.0. While conservative, it is not clear to PSRG members as to whether this approach is appropriately precautionary and asks that NMFS provide evidence from simulations as to the limits of how precautionary this approach is. Specifically, is there some risk that the current approach could be considered "arbitrary" relative to an approach that used the 50-th percentile value. The following text is from the stock assessment report for western Pacific humpback whale (but is also found elsewhere in the SARs):

"*To assess human-caused mortality and serious injury to each stock in areas where stocks overlap, mortality and serious injury is prorated using summering to wintering area movement probabilities reported by Wade (2021) (Table 2). The upper 95% confidence limit of the movement probabilities are used as the proration factors for the endangered WNP stock, consistent with ESA approaches applied to anthropogenic take assessments by NMFS in the Alaska region (NMFS 2021).*" and

"*Mortality and serious injury events where the animal could not be assigned to a stock (i.e., based on photo-identification or information identifying both wintering and summering areas) were prorated among all stocks present in the area, using the area-specific proration factors in Table 2*."

Response: If NMFS assigned all anthropogenic mortality and serious injury (M/SI) for a given region to all stocks within that region, that would represent the most-precautionary approach to prorating M/SI where multiple stocks occur (analogous to the sum of M/SI > 1). However, that approach can be refined using the best-available science on movement probabilities from photo-ID (Wade et al. 2021), genetics (Lizewski et al. 2021), and estimated ratios of abundance estimates for multiple humpback stocks (Curtis et al. 2022). In the case of the two stocks that overlap in U.S. West Coast waters (Mainland Mexico - CA-OR-WA and Central America/Southern Mexico - CA-OR-WA), we have been consistent with GAMMS guidance which states "When one or more deaths or serious injuries cannot be assigned directly to a stock, then those deaths or serious injuries may be partitioned among stocks within the appropriate geographic area, provided there is sufficient information to support such partitioning (e.g., based on the relative abundances of stocks within the area)." For endangered stocks, NMFS presented use of the upper 95th percentile of either movement probabilities or the ratio of estimated abundances for multiple stocks in the draft SARs. Assuming reliance upon these data for prorating M/SI, the only more-conservative approach would be to use a value between the 95th and 100th percentile of these probabilities. The availability of data on movement probabilities (Wade et al. 2021), genetic mixed stock analysis (Lizewski et al. 2021), and ratio of estimated abundances (Curtis et al. 2022) does not preclude consideration of other methods to prorate M/SI, but two of the three methods cited here have either previously been used to prorate M/SI under ESA (movement probabilities) or are explicitly supported in GAMMS (ratio of abundance).

5. **The PSRG welcomed the new information on the SPLASH-2 program and, noting the careful attention to archiving the primary data from the previous SPLASH-1 program, requests future updates on the status of this project and efforts to connect and maintain the long-term utility of data gathered for both SPLASH-1 & 2.**

   Response: We appreciate the Pacific SRG's feedback, and we will continue to provide SPLASH-2 updates at future Pacific SRG meetings.

6. **The PSRG requests an update on how the NMFS intends to address the gap in reporting by Japan and account for uncertainty in human induced mortality throughout the region**. The Pacific SRG recognizes that, with its withdrawal from the

International Whaling Commission, the Government of Japan is no longer obligated to report bycatch or other human-induced mortality of large whales. The SRG is also aware that any reports of bycatch or human induced mortality of cetaceans in the Western North Pacific are likely to be underestimates of the true takes. This has serious implications for the SARs and calculations of PBR for humpback and gray whale stocks.

Response: We recognize that the International Whaling Commission's Scientific Committee (SC) is undertaking a Comprehensive Assessment of North Pacific humpback whales. Under this assessment, the SC will collate humpback whale bycatch data from National Progress Reports issued by Japan, South Korea, Russia and any other western North Pacific country as far back as reports are available. In addition, national stranding databases will be examined to collate the details on the number of stranded whales where the cause of death was determined to be bycatch. In recent years, the number of stranded humpbacks in Japan has been increasing, and a number of these are the result of bycatch. In the case of western gray whales (WGW) in Japan, these rare events always get reported in the national press and are also reported in the stranding databases. The only difficulty with WGW events is to confirm if the death was human induced.

7. **The PSRG recommends that NMFS support efforts to implement mandatory ship speed reductions in areas of known overlap of high ship traffic and large whale concentrations along the US West Coast, as had been used off the US East Coast.** We recognize that NOAA sanctuary personnel, management, and research divisions have done important work on trying to reduce ship strikes of large whales. On the US West Coast these do not appear to have reduced ship strikes for blue and humpback whale stocks to below PBR levels when consideration is made for the large portion of ship strikes that go unreported. Unlike the US East Coast, NOAA has not pushed for implementing mandatory speed restrictions in known areas of large whale and high ship traffic overlap and instead have only advocated for voluntary or incentive-based speed guidelines.

   Response: The available information suggests that these large whale populations continue to increase or remain stable despite the ongoing effects of vessel strikes. NMFS has taken regulatory action in other geographic areas and for other species of large whales that are facing threats to their existence when it was determined to be necessary and appropriate for the conservation of the species or stock. However, at this time, NMFS has not determined that a similar concern exists for the conservation of U.S. West Coast whales. We also note that there is information that suggests efforts to promote voluntary measures related to speed reduction in certain areas have led to steadily increasing cooperation as a result.

8. **The Pacific SRG requests an interpretation of the SRKW inbreeding depression in light of current management priorities and previously identified risk factors.** The Pacific SRG notes with concern the new evidence of inbreeding depression in SRKW and asked for further information on the models used to estimate the impact of this threat on population dynamics (Kardos et. al., now in review).

   Response: On acceptance of the paper, the authors will forward a copy of the paper and supplemental materials detailing the models used to assess the impacts of inbreeding depression on the SRKW population.

9. **The PSRG recommends that NMFS engage and provide updates to the PSRG as its integrated population dynamics modeling approaches for Eastern North Pacific (ENP) gray whales continue to develop.**
The PSRG welcomed the update on ENP gray whale population dynamics modeling. This stock has multiple time series of data (e.g., estimates of abundance and calf production, as well as stranding counts) that provide a valuable opportunity to better understand how population dynamics might be linked to important drivers, like environmental conditions and prey availability on the Arctic and other feeding grounds. The abundance and calf production data have also been integrated in previous population dynamics modeling approaches for this stock, which resulted in estimates of abundance relative to MNPL and carrying capacity following the 1999-2000 UME (Punt and Wade 2012). These previous modeling approaches have formed the basis for OSP status evaluations in terms of setting the recovery factor for PBR in recent stock assessments. Such modeling efforts have incorporated a parameter typically associated with a constant carrying capacity (or long-term average carrying capacity). Given the current ENP gray whale UME, and estimated reductions in abundance associated with this mortality event, future stock assessments and related management decisions will likely once again rely on the results of integrated population dynamics modeling for an updated estimate of OSP status for this stock. To this end, and to fully utilize available sources of data in the estimation of quantities of interest to management, the PSRG encourages the continued development and application of integrated population dynamics models for ENP gray whales. Models in which annual variation in conditions (environmental stochasticity) affects overall growth rate vs. models in which variation is limited to density-dependent effects ("variable K" models) should be compared using information theoretic approaches. For the latter, we note that it will be important to put into context for the MMPA the meaning of annual estimates of carrying capacity. Presumably, some sort of long-term average could be included as an output parameter. The PSRG likewise encourages new and continued development of integrated population dynamics models for other stocks more generally, to augment assessments where data are available in sufficient quality and quantity to be applicable.

Response: The ENP gray whale integrated population model will continue to be worked on during the inter-sessional period and will incorporate data from SWFSC's 2022 abundance and calf production surveys as well as other potential data on prey and risk that are presently being examined. We will provide updates to the PSRG at the next meeting in 2023. Meanwhile, it is anticipated that a peer-reviewed publication on the model and results may be submitted prior to that time.

10. **The Pacific SRG supports the use of passive acoustic methodologies to improve on SARs for elusive yet acoustically identifiable species but requests an update on methodological improvements.** In last year's recommendation, we requested investigations on duty cycle and drift patterns of Drifting Acoustic Spar Buoy Recorder (DASBR) data used in this new methodological approach. Solutions were discussed in the response but not undertaken. The acoustic estimate abruptly replaced the visual estimate in the Cuvier's beaked whale SAR without allowing for a direct comparison between visual and acoustic estimate. Like the discussion on the use of habitat-based species distribution models for density estimation, it would be useful to have a side-by-side comparison until the use of the acoustic-based method is established to entirely replace the visual estimate.

Response: We appreciate the PSRG's support for integration of passive acoustic datasets into the stock assessment process, especially for visually cryptic, but acoustically well-described species. As noted in response to a similar recommendation last year, the metric we use for abundance estimation from DASBR data (percentage of recording periods with echolocation detections) is not affected by duty cycle. Certainly other analysis approaches may be heavily impacted by duty cycling, especially when long duty cycles significantly reduce detection probability. For example, Stanistreet et al. (2016) used "daily presence" as their metric, which leads to the duty cycle effect that they found. We will continue to investigate and test for duty cycle effects as we collect new datasets that can be continuously sampled. Regarding the question of non-random sampling, as noted last year we hope to test this by seeing if the encounter rates at the beginning of deployments (when location is more random) are higher or lower than later in the deployments. The first assessment of these effects will be with PIFSC datasets from the central and western Pacific. Unfortunately, in that region, visual estimates of abundance have very low precision or do not exist given low sighting rates, such that robust comparisons to visual data-derived density estimates will not be possible. Regarding our use of the acoustic-based estimate in the SARs for Cuvier's beaked whales off the U.S. West Coast, we believe it was appropriate to do this, given not only the new methodology (accepted by peer-review), but also the increased sample size provided by the acoustic data, and the fact that this is a more up-to-date estimate, with the previous estimate being from visual data collected in 2014 and earlier.

11. **The PSRG recommends exploring methods that would incorporate a more robust analysis of the survey time series (e.g., Bayesian state-space models) into the Pacific Northwest harbor seal stock assessment model.** The PSRG appreciates the efforts to pull together a comprehensive dataset but has concerns regarding the suitability of using a deterministic model (no stochasticity or temporal effets) to characterize the status of harbor seal stocks in the Pacific Northwest. From our perspective, the model presented during our recent PSRG meeting appears to be missing some key dynamics. Therefore, among other issues, the associated estimate of K is likely to be highly uncertain and difficult to interpret.

    Response: NMFS will work with Washington Department of Fish and Wildlife to explore more sophisticated modeling of the harbor seal abundance estimates for the Washington stock and report on the discussions and progress at the next PSRG.

12. **We encourage continued coordination between regional USFWS centers to ensure a fairly rapid transition to standardized survey methods for sea otters in all regions, including WA and CA.** The WA sea otter survey, like the CA sea otter survey, has traditionally been based on a single exhaustive count (census) of the entire range. While this method provides a minimum abundance estimate and ensures that all potential habitats are surveyed, it precludes any estimation of uncertainty for annual abundances (i.e. it only provides uncorrected counts), and is also extremely labor intensive. In several other regions, particularly SE Alaska, there is movement towards aerial photograph-based surveys: these new methods allow for optimized sampling of habitats, AI analysis of images to estimate abundance, and include image overlap methods for estimating detection/availability bias and uncertainty. These methods are more efficient than the

current observer-based methods, allow for quantification of estimation uncertainty, and will also facilitate a later shift to long-range UAS platforms as this technology becomes more available and affordable.

Response: We have forwarded this recommendation to USFWS.

13. **The Pacific SRG requests a detailed update from NMFS on results and progress from the FKW bycatch mitigation projects (funded from the FY 2021 and 2022 FKW research appropriations) to understand how bycatch mitigation is progressing. The Pacific SRG also requests a summary of 2022 FKW interactions with the Hawaii longline fishery including the amount of trailing gear left on released animals noted.**

Response: NMFS will provide an overview of the progress on each of the FY21 and FY22 projects at the next PSRG meeting.

2022 Observed False Killer Whale Interactions (to date)
As of: August 5, 2022

Date	Fishery	Inside/Outside Hawaii EEZ	Preliminary/Final Injury Determination	Trailing Gear
1/11/22	Deep-set longline	Outside	Cannot be Determined (CBD)	Line broke- gear remaining was ~ 12.04m of monofilament branchline, the weight, monofilament leader, and hook
1/13/22	Deep-set longline	Inside	Serious (Final)	Line cut- Gear remaining was hook, weight, leader and 10-14m branchline
1/24/22	Deep-set longline	Outside	Serious (Preliminary)	Line cut- gear remaining was hook and leader
4/16/22	Deep-set longline	Outside	Serious (Preliminary)	Line cut- gear remaining was ~3.5 m of line, leader, weight and hook

14. **The Pacific SRG reiterates its recommendation that a wider range of mitigation strategies for FKW bycatch in the Hawaii longline fishery be explored. This includes mechanisms to sever the leader closer to the hook to release animals with minimum amounts of trailing gear as well as approaches that limit or eliminate gear fly-back.**

We also request an update on research and recommend additional research that provides more information on post-release survival of bycaught FKW individuals.

Response: NMFS convened a FKW TRT Meeting on November 7-10th, 2022 in Honolulu, Hawaii to begin discussions on the current Take Reduction Plan and consider additional mitigation measures to reduce bycatch in the Hawaii Longline Fishery. NMFS is actively planning for a Take Reduction Team Meeting in spring of 2023. The goal of the deliberations is for the Team to develop recommendations for mitigation measures to reduce M/SI in the fishery. In FY21, NMFS funded the University of Hawaii Hilo Engineering Department to examine methods to reduce gear flyback. Those trials are still ongoing, but we will report on their progress at the next PSRG meeting.

15. **The PSRG recommends that models able to account for fluctuating abundance over time be fit to the data available for FKW.** The current approach does not appear to account for some temporal patterns in the data that cannot be accounted for based solely on sampling issues.

    Response: Our approach to mark-recapture abundance estimation for the MHI stock of false killer whales includes estimating temporally-varying abundance and recruitment in addition to accounting for availability based on whale movement and sampling variability. Further, we include a yearly derived growth rate that appropriately propagates uncertainty in the annual abundance estimates. We will provide an update on this analysis at (or in advance of) the next PSRG meeting, and anticipate the derived abundance estimates will inform 2023 SARs for MHI insular FKWs.

16. **The PSRG requests an update from NMFS on proposed mitigation strategies for the reduction in terrestrial habitat for monk seals in the North Western Hawaiian Islands (NWHI) due to increases in average sea level.**

    Response: We are aware of loss and degradation of terrestrial habitat for monk seals as well as other species in the NWHI, and sea level rise remains a top concern for Hawaiian monk seal recovery. Research and enhancement activities outlined in the 2007 Recovery Plan for the Hawaiian Monk Seal continue in the NWHI and the main Hawaiian Islands (MHI). Section 5 of the Recovery Plan guides our efforts to conserve Hawaiian monk seal habitat, especially in regards to rising sea levels. Steady progress has been made in two of these areas, which includes translocation of weaned pups away from areas of high shark predation within French Frigate Shoals (which is likely related to the loss of several islets), and the management of seals recolonizing the MHI. Further, extensive partner engagement and development has significantly increased our ability to monitor and manage monk seals in the MHI. Continued efforts to model habitat loss are needed to better understand shoreline evolution and possible mitigation strategies, and interagency discussions are ongoing to address the deterioration of the sea wall at Tern Island.

17. The PSRG would like to congratulate NMFS for the implementation of the 50-yard no-approach rule (for spinner dolphins), but has concerns on its effectiveness without the presence of strong enforcement particularly in spinner dolphin resting bays. **The PSRG reiterates its concerns for the lack of effectiveness of this rule within important spinner**

dolphin resting bays and recommends the implementation of no-go areas in these habitats (as provided for in the current proposed-rule). The PSRG is aware of and supportive of the sentiments expressed by the US Marine Mammal Commission in a letter to PIRO dated 22 December 2021. The PSRG would like to be informed of any correspondence between NMFS and the MMC regarding this letter. Further, the PSRG requests a tentative timeline from NMFS regarding decisions related to the proposed rule.

Response: NMFS has been coordinating with NOAA's Office of Law Enforcement concerning enforcement of the Hawiian spinner dolphin swim-with and approach regulation. We are also evaluating information concerning compliance with the regulation. Concurrent with publication of the final rule, NMFS published a proposed rule to establish time-area closures at five sites in the main Hawaiian Islands to provide additional protections within spinner dolphin resting bays. That action is ongoing as we review public comments and any new information as part of the rulemaking.

We received a December 2021 letter from the Marine Mammal Commission (MMC) concerning the proposed rule to establish time-area closures for Hawiian spinner dolphins. This letter was submitted as public comment on the proposed rule and was received during the public comment period. NMFS responds to public comments on rulemaking actions in the published final rule and will respond to the MMC's letter at such time.

18. **The Pacific SRG requests an update on NMFS plan to monitor beaked whale population trends and beaked whale strandings in the Mariana Archipelago, particularly as it relates to Navy activities in the region.** In previous PSRG recommendations, NMFS was asked to establish a monitoring program capable of observing long-term trends of beaked whale populations. NFMS published on beaked whale and *Kogia* spp. acoustic detections from Drifting Acoustic Spar Buoy Recorders (DASBR; McCullough et al. 2021). While informative regarding spatial species distribution and relative density, this effort may not be sufficient to document the impacts on beaked whale stocks of naval activities, specifically to identify strandings in the region.

Response: In 2021, PIFSC surveyed the Guam and Commonwealth of the Northern Mariana Islands EEZs as part of the NMFS and Navy-funded PacMAPPS program. That survey included the use of DASBR to survey beaked whales and other deep divers throughout the archipelago over the course of the survey effort. Those data are still being analyzed, but will provide the most complete and comprehensive assessment of beaked whale abundance for this region. Periodic DASBR surveys will be among the best ways to monitor population trends for beaked whales in this region, and we intend to include Mariana surveys in future phases of PacMAPPS. Further, NMFS has maintained several passive acoustic monitoring sites within the Mariana Archipelago over various time scales. At present, maintenance of those sites, or establishment of alternative sites in better index locations, is our only means of continuously monitoring beaked whales in the region. While both passive acoustic monitoring efforts may provide information on beaked whale trends in this region, neither will address stranding rates. Of additional note, the Navy is required by NMFS' current MMPA authorization for the Navy's Mariana Islands Training and Testing Study Area (MITT Rule/LOA; expires July 30, 2027) to include Cuvier's beaked whales as a

priority species for analysis under a 2020-2023 Navy research-funded program entitled Marine Species Monitoring for Potential Consequences of Disturbance (MSM4PCOD). Cuvier's (SOCAL and Atlantic) and *Mesoplodon* spp. (PMRF) are included in the scope of the MSM4PCoD. This project is funded under the Navy's Living Marine Resources Program (Project #LMR-43) and is scheduled for completion in fiscal year 2023. The fact sheet (written before the species were determined) includes additional information.

Regarding strandings, NMFS' MITT Rule/LOA requires the Navy to increase analysis for any future beaked whale stranding in the Mariana Islands to include detailed Navy review of available records of sonar use; however, the Navy is not aware of any beaked whale strandings in the Mariana Islands since the MITT Rule/LOA was issued on July 31, 2020, so no additional review has been conducted to date. The Navy has assured NMFS that it remains committed to do this if/when a stranding occurs in the future. NMFS' MITT Rule/LOA also requires the Navy to submit a proposal through the annual Federally Funded Research and Development Center (FFRDC) call to fund the Center for Naval Analysis to develop a framework to improve the analysis of single and mass stranding events, including the development of more advanced statistical methods to better characterize the uncertainty associated with data parameters. The Navy is still working on this requirement and has not yet obtained funding. Given the lack of Mariana Islands strandings through present and given existing MITT monitoring, analysis and reporting commitments, Navy has prioritized funding the other initiatives listed herein.

Last, NMFS' MITT Rule/LOA requires the Navy to fund and co-organize with NMFS an expert panel to provide recommendations on scientific data gaps and uncertainties for further protective measure considerations to minimize the impact of Navy training and testing activities on beaked whales in the Mariana Islands. The Navy is planning to fund and form the panel in calendar year 2023.

References:

Kardos, M., Y. Zhang, K.M. Parsons, Y. A, H. Kang, X. Xu, X. Liu, C.O. Matkin, P. Zhang, E. J. Ward, M.B. Hanson, C. Emmons, M.J. Ford, G. Fan, S. Li. Submitted. Inbreeding depression explains killer whale population dynamics.

McCullough JLK, Wren JLK, Oleson EM, Allen AN, Siders ZA and Norris ES (2021) An Acoustic Survey of Beaked Whales and Kogia spp. in the Mariana Archipelago Using Drifting Recorders. Front. Mar. Sci. 8:664292. doi: 10.3389/fmars.2021.664292

Punt, A.E. and Wade, P.R. 2012. Population status of the eastern North Pacific stock of gray whales in 2009. J. Cetacean Res. Manage. 12:15-28.