



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

Megan J. Williams, PhD

Chair, Alaska Scientific Review Group
Ocean Conservancy

Dear Dr. Williams:

Thank you for the letter to Janet Coit, Assistant Administrator for Fisheries, transmitting recommendations from the March 2021 meeting of the Alaska 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 Alaska 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,

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

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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



Alaska SRG's 2021 Recommendations

General Recommendations

1. The SARs presented each year provide critical information on marine mammal stock status and commercial fishery interactions; however, the length of the SARs at times can make it difficult for stakeholders to identify key changes or key points for management decisions in the documents. **The AKSRG therefore recommends that NMFS consider adding a short Executive Summary before the Introduction in order to highlight key points and/or key changes in the SARs to make them more accessible to the public.**

Response: We appreciate the AKSRG's recommendation to improve the accessibility of the SARs to the public. We strive to keep the SARs as concise as possible, and have worked to ensure that the summary tables display the pertinent, updated information from the SARs. NMFS is currently revising its Guidelines for Preparing Stock Assessment Reports policy directive (i.e., the GAMMS) and will consider this recommendation when implementing any revisions to the policy. In this vein, during your review of the SARs, we would welcome the AKSRG's input on how to shorten the SARs and keep them in line with statutory requirements.

2. In 2021, the AKSRG heard an informative presentation from the Tribal Government of the Aleut Community of St. Paul Island (ACSPI) regarding northern fur seal research in the Pribilof Islands. The dialogue afforded by the presentation added value to the meeting on a number of levels including: novel research, considering indigenous perspectives and increased transparency with the SAR process. **The AKSRG recommends NMFS continue to invite participation from marine mammal Co-Management organizations at the AKSRG meetings for species for which we are conducting SAR reviews and/or hearing information updates on stock status.**

Response: We agree that Lauren Divine's presentation on northern fur seal research in the Pribilof Islands was valuable, and we will plan to invite participation from marine mammal co-management organizations at future AKSRG meetings for species for which SARs are being revised or for those with updated information. Please note that the Alaska Native organizations involved in co-management have varying levels of capacity to conduct research or attend outside meetings, so their participation in AKSRG meetings may likewise vary.

3. The AKSRG was appreciative of Jay Ver Hoef's presentation regarding upcoming collaborations among different groups at MML and data integration for modeling at-sea densities of marine mammal stocks. Combining disparate data sets such as acoustics and/or Platforms of Opportunity (POPs) is essential to developing a more comprehensive understanding of ecosystem dynamics and how these dynamics drive marine mammal distributions and demographics. **The AKSRG commends the associated working group**

for initiating these collaborations and requests follow-up presentations as this work is developed.

Response: We appreciate your comment and will provide follow-up presentations as the work progresses.

4. The AKSRG also wants to express its appreciation to NMFS staff for the updated abundance estimates that were presented this year in a number of SARs. The group is aware of the considerable amount of work and resources needed to conduct and analyze new surveys. Updating and improving abundance estimates is essential to Potential Biological Removal (PBR) estimation and allows for more robust management inference. Previous abundance estimates for several species (especially large whales) are only available for small subsets of the stocks' ranges. **In light of the 2021 PacMAPPS survey in the Gulf of Alaska and the anticipated ArMAPPS survey, the SRG would like to request additional information on how survey design was or will be chosen to address the most pressing data gaps (e.g., SEBS shelf beyond 70 m isobaths, Gulf of Alaska shelf to slope). Additionally, the group recommends that NMFS carefully consider the trade-offs between survey coverage and intensity, and prioritize species with missing or partial abundance estimates.**

Response: We will provide a presentation at the 2022 AKSRG meeting on the recently completed PacMAPPS survey and our current plans for ArMAPPS surveys in future years.

USFWS Managed Species

We shared your recommendations regarding USFWS managed species with USFWS staff and asked them to respond to you directly.

Bowhead Whales

5. The bowhead whale SAR reviewed in 2021 uses an abundance estimate from 2011 although new abundance estimates exist based on two surveys in 2019: a spring ice-based survey and a summer aerial line-transect survey. **The SRG recommends that an updated abundance estimate be added to the bowhead whale SAR and that the updated bowhead whale SAR be reviewed again at the 2022 AKSRG meeting.**

Response: We are updating the bowhead whale SAR in the 2022 SAR cycle to include the updated abundance estimate and other new information.

6. **The AKSRG also recommends that MML consider exploring the use of population demographics from the aerial survey data (i.e., decadal-scale changes in the proportion of bowhead calves in the population and survivorship curves) to provide**

an alternative assessment of the overall health of the population or to estimate population growth.

Response: Janet Clarke currently has a paper in press in *Arctic Science* that examines MML’s Aerial Surveys of Arctic Marine Mammals (ASAMM) bowhead whale calf data, focusing on the years 2012-2019 but also considering the full time series from 1982 to 2019. This paper identifies a number of differences between survey protocols prior to 2009 vs. from 2009 to 2019 that make it difficult to compare calf ratios between the two periods. These differences include survey platform, survey speed, identification of primary observers, and the fact that we know from recent years that 60% of ASAMM’s bowhead whale calf sightings would go undetected if the aircraft did not circle the sighting for closer inspection. Regarding the last point, if there is a year with few calves recorded in the non-circling data, we do not know if that is because it was a low-calf year or because calves were present but went undetected. Janet Clarke allowed us to share this figure from the manuscript:

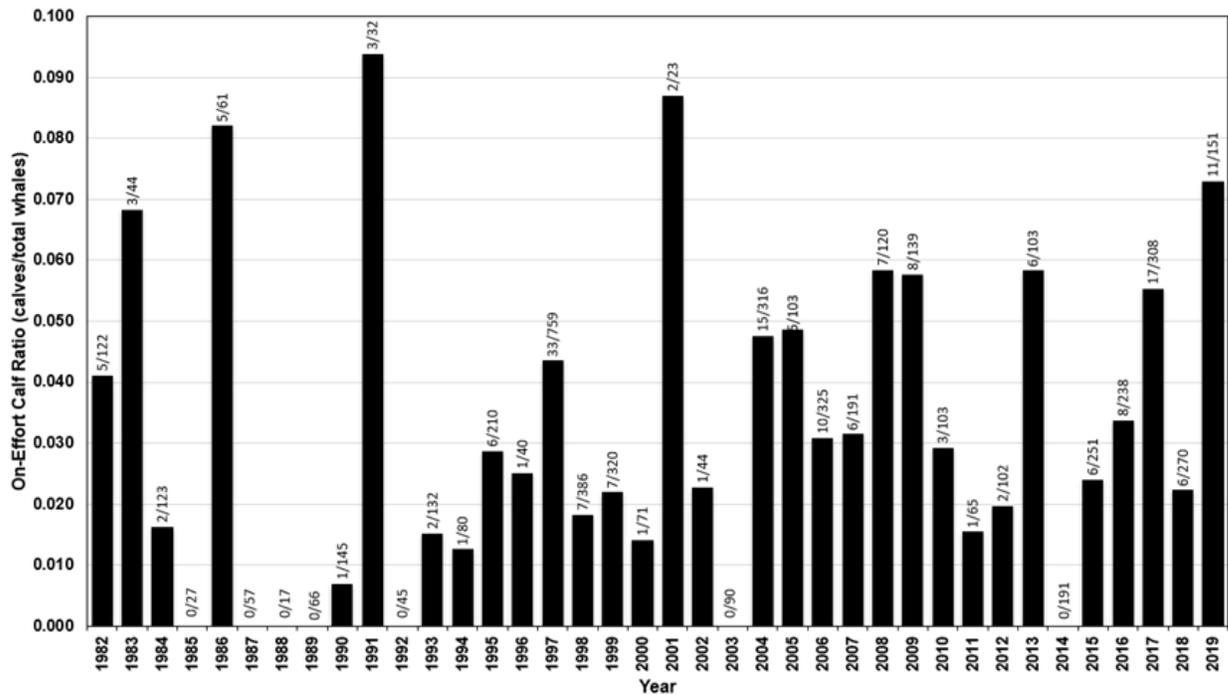


Figure from Clarke et al. (*In press*). Bowhead whale annual calf ratio (number of calves on effort relative to total whales on effort) in fall (September-October pooled) in the western Beaufort Sea, 1982-2019. Calf ratios incorporate sightings from primary and secondary observers but exclude any sightings made during circling. Data labels indicate the number of calves per total number of whales.

At this time, the available data are not suitable to provide an alternative assessment of the overall health of the population or to estimate population growth.

Cook Inlet Beluga Whales

7. At the 2021 meeting, the AKSRG discussed the difficulties and uncertainties associated with estimating abundance of belugas in Cook Inlet using aerial surveys. In particular, there is substantial imprecision in the estimation of group size of large groups of whales and variability in estimates of abundance. **Given the difficulties involved with estimating abundance of belugas in Cook Inlet using aerial surveys, the SRG would like to receive an update on photo-based mark-recapture studies ongoing in Cook Inlet.**

Response: Matching of identification photographs has been completed for 2017 and 2018, and is ongoing for 2019 (which is a more extensive dataset). We hope to have some preliminary mark-recapture estimates available to present at the 2022 AKSRG meeting. Given that 2-sample estimators (such as Lincoln-Petersen) are often fairly negatively biased for cetaceans, the goal is to have 3-4 sample periods available in a year so that a model incorporating individual heterogeneity, such as a Chao model, can be used.

8. The AKSRG also notes Cook Inlet belugas are a relatively data rich stock, however the mechanistic forces driving the continued decline in Cook Inlet belugas remain unclear. Stranded individuals and known mortalities may represent an important data point. **The AKSRG therefore recommends an evaluation of the demographics of stranded whales as it relates to Cook Inlet beluga whale population trends.**

Response: The demographics of stranded Cook Inlet beluga whales have been extensively investigated in McGuire et al. (2020). Substantial information about stranded whales was summarized, but the authors concluded that minimum mortality numbers from strandings did not increase during the period since 2010, after which the population has been estimated to be declining. Analyses are underway using an integrated model to estimate trends in survival and fecundity; it is likely that some of these results will be available to be presented at the 2022 AKSRG meeting.

Southeast Alaska Harbor Porpoise

9. The draft 2021 Southeast Alaska (SEAK) harbor porpoise SAR presented new survey information; however, the corresponding abundance estimate was not corrected for the detection probability on the track line, $g(0)$. Since a double-platform approach was not possible during the survey, a correction factor was developed using a different method (analogous to Barlow 2015) and will be submitted to peer-review (Zerbini et al. in prep.). **The AKSRG approved the draft 2021 SEAK harbor porpoise SAR, but the AKSRG requests that this correction factor be applied to the abundance estimate once the new information is published.**

Response: The 2019 abundance estimate to be included in the 2022 SEAK harbor porpoise SAR will have been corrected for $g(0)$. This estimate is the one presented to the AKSRG in 2021.

10. If results from recent genetic analyses confirm that a different stock structure is applicable for SEAK harbor porpoises, the AKSRG requests to review the corresponding SAR(s) as soon as possible.

Response: We undertook an evaluation of SEAK harbor porpoise pursuant to NMFS' [stock policy](#), the results of which will be presented in the draft 2022 SAR for AKSRG review.

11. The AKSRG appreciates that setting research priorities within the NMFS is a complex interaction of funding and logistics and that both funds and personnel are limited. The AKSRG also notes it's critical that research projects on marine mammal stocks are aligned with both an evidence of need (e.g., if harvest or bycatch exceeds PBR) and a likelihood that management can be effective (e.g., bycatch mitigation is generally feasible). We applaud the work NMFS has done to-date to evaluate SEAK harbor porpoise; assessing abundance within SEAK and clarifying the genetic structure of the stock (and likely existence of a separate stock) are important steps. However, important questions remain, including: 1) how many porpoises occur in offshore waters; 2) what is the stock identity of porpoises offshore; 3) what are current bycatch rates of the southernmost population segment? Available evidence suggests that SEAK harbor porpoise bycatch is not sustainable, and the AKSRG is concerned that future studies are not currently planned, largely due to the lack of research dollars. **The AKSRG requests that NMFS continue to make harbor porpoise research in SEAK a priority such that research can inform effective management actions in a relevant timeframe.**

Response: We agree that assessing harbor porpoise in SEAK is a priority and will continue to raise the need for this research within the agency. However, assessment of SEAK harbor porpoise is only one of several very high priority research needs for Alaska cetaceans.

12. In addition to the need for observer data to evaluate bycatch rates of SEAK harbor porpoise in state water fisheries, the AKSRG also recommends NMFS consider novel research platforms to improve Mortality and Serious Injury (M&SI) estimates, such as Electronic Monitoring platforms or thermal imagery.

Response: NMFS agrees and is considering both traditional and novel research methods during discussions about how to best monitor M&SI of harbor porpoise bycatch in Southeast Alaska.

North Pacific Right Whales

13. The North Pacific right whale is in danger of extinction and data limited. Research on this endangered population should be a NMFS priority. **The AKSRG requests that NMFS continue to identify specific actions: such as processing of existing acoustic data, maintenance of monitoring stations, and/or the development of novel Platforms of**

Opportunity, that could provide important data on endangered North Pacific right whales in a cost-effective manner.

Response: We agree that North Pacific right whale research is needed; in fact, the recovery plan for North Pacific right whales prioritizes research on this species over management actions as a critical first step in understanding where management actions might be needed. Limited funds are available for maintaining existing acoustic monitoring stations to collect data on North Pacific right whale distribution, but funds to process these data are extremely limited. MML's Cetacean Assessment and Ecology Program is making progress and will maintain this as a priority. We will share a list of North Pacific right whale research priorities at the 2022 AKSRG meeting.

Climate and Marine Mammals

14. A number of fish stocks, including pollock, Pacific cod, and flatfish are shifting distributions north from the Eastern Bering Sea to the Northern Bering Sea due to climate change and warming conditions. As a result, some commercial fisheries have responded by shifting their fishing operations farther north as well. These shifts in prey resources and commercial fishery operations could have significant implications for marine mammals that rely on the Northern Bering Sea for summer breeding or foraging as well as migratory corridors (e.g., risk of bowhead whale entanglement in pot fishing gear). **The AKSRG requests a presentation from the Alaska Fisheries Science Center regarding recent shifts in the commercial fishery footprint by gear type in the Eastern Bering Sea and Northern Bering Sea as well as an evaluation of potential marine mammal-fisheries interactions that may arise in the Northern Bering Sea due to these environmental changes.**

Response: We agree that a presentation of recent shifts in the distribution of the commercial fishery footprint by gear type in the Eastern Bering Sea and Northern Bering Sea would provide the AKSRG with critical information needed to evaluate potential fisheries interactions due to climate change. We will coordinate with the AKSRG regarding available datasets and identify specific analyses to undertake and present at a future AKSRG meeting.

15. Alaskan marine environments, from the Gulf of Alaska to the Arctic, have been experiencing biotic and abiotic changes at unprecedented rates. For example, 2014-2016 saw some of the warmest Sea Surface Temperatures on record in the Gulf of Alaska as part of a marine heatwave event, and sea ice extent in the Bering Sea in 2018 and 2019 was at the lowest levels on record and exhibited warming trends not predicted to occur by regional climate models for another 10-15 years. These exceptional warming conditions are impacting species at all trophic levels and are occurring at an order of magnitude capable of causing significant ecosystem production and function change. While climate change has been directly linked to changes in distribution, abundance or body condition of some fish species, seabirds and ice-associated marine mammals, the AKSRG notes that the implications of

climate change are not well-established for many of the marine mammal stocks managed in the Alaska region. We also note that the NMFS is developing the Climate Fisheries Initiative, which does consider marine mammals and climate change. **The AKSRG requests an update from MML and the NMFS regarding marine mammal-climate change research as well as how this work fits into the Climate Fisheries Initiative. The AKSRG also recommends that MML and NMFS prioritize marine mammal-climate change research in the short- and long-term.**

Response: The Arctic, Bering Sea, and Gulf of Alaska climate science regional action plans were recently updated for 2022-2024, and identify ongoing, planned, and proposed AFSC studies to better understand impacts of climate change on marine mammals. Regional Action Plans (RAPs) will inform the NOAA Fisheries Climate and Fisheries Initiative and are used to highlight awareness of efforts and actions necessary to implement objectives of the NOAA Climate Science Strategy to improve scientific information on the impacts of climate change on marine ecosystems. In addition, if resourced and implemented, the Climate Fishery Initiative will provide broad predictive indices for marine ecosystem physical drivers, production, and trophic changes that will be informative for understanding climate effects on marine mammals.

The Gulf of Alaska RAP (Dorn et al. 2021) identified twenty studies. While some of those studies are regular abundance surveys that provide a strong basis for monitoring long-term changes, other studies are attempting to directly evaluate impacts of a changing climate and environmental drivers of marine mammal populations. In 2021 AFSC received funding for an interdisciplinary assessment of climate impacts to marine ecosystems: “From climate to communities in the Gulf of Alaska: using an integrated modeling approach to evaluate drivers of present and future system-level productivity and assess climate impacts on fishing-dependent communities.” Steller sea lions feature prominently in this effort, including a joint MML/AEP-UW CICOES project to evaluate and predict impacts of major environmental anomalies to Steller sea lions using the 2013-2016 marine heatwave as a natural experiment, and in another that integrates Steller sea lions and harbor seals into the Gulf of Alaska Atlantis ecosystem ensemble model used to investigate ecological hypotheses and evaluate alternative fisheries management strategies.

The draft Bering Sea (Hollowed et al. 2021) and Chukchi-Beaufort Sea RAPs (Thorson et al. 2021) also identify multiple marine mammal projects that are ongoing or planned for the next three years. An array of passive acoustics moorings deployed from the Aleutian Islands to the western Beaufort Sea currently provides information on changes in marine mammal occurrence with respect to changes in environmental conditions, particularly changes in sea ice. The RAPs call for maintenance and improvement of this acoustics effort, along with implementation of new research efforts in offshore areas and nearshore areas, with a focus on understanding marine mammal abundance, trends, stock structure and habitat use in a changing environment. These new projects will be implemented as resources allow.

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