ALASKA REGIONAL SCIENTIFIC REVIEW GROUP

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Janet Coit
Assistant Administrator for Fisheries
National Marine Fisheries Service
1315 East-West Highway
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transmitted by electronic mail

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Dear Ms. Coit:

The Alaska Regional Scientific Review Group (AKSRG) held its annual meeting on 7-9 March 2022 virtually. Our agenda included review of draft 2022 marine mammal stock assessment reports (SARs), updates from the United States Fish and Wildlife Service (USFWS), and research and policy updates from the National Marine Fisheries Service (NMFS) staff on issues associated with the status and assessment of Alaska's marine mammal stocks.

This letter addresses the following key topics:

Bycatch and Marine Mammal Interactions

Electronic Monitoring (EM) continues to expand in federal commercial fishery fleets in Alaska as well as nationally. In particular, partial coverage fleets operating out of the Eastern Bering Sea and Gulf of Alaska have seen a significant proportion of coverage transitioning to EM (as opposed to onboard observers). As EM programs become more commonplace, it may be increasingly difficult to track marine mammal interactions as cameras are not currently designed to monitor marine mammal interactions. This, in turn, decreases the amount of data

on marine mammal interactions with commercial fisheries and may increase uncertainty in Mortality and Serious Injury (M&SI) estimates in several marine mammal stock assessments. **The AKSRG recommends that NMFS and the Marine Mammal Lab at the Alaska Fisheries Science Center continue to work with the observer program to develop protocols within the EM framework to ensure that marine mammal interaction data collection continues to be a component of the observer program and/or associated logbooks. Additionally, the AKSRG would like to be updated on: 1) how M&SI estimates are being adjusted as more vessels transition to EM, and 2) how new EM-based marine mammal sightings/interaction data are being processed and eventually incorporated into the SARs.**

The AKSRG received an informative presentation from Brian Brost regarding approaches for estimating marine mammal bycatch in commercial fisheries nationally and in the Alaska region specifically. The Alaska region currently estimates bycatch based on the bycatch per unit effort for observed hauls, which is then extrapolated to the unobserved portion of the fleet and stratified by vessel length, region and time period. The current approach is problematic due to the inherent volatility of bycatch estimates associated with low coverage and/or documentation of rare events. Additionally, false zeros (or undetected bycatch events), are likely to occur and bias bycatch estimates low. **The AKSRG therefore supports the work proposed to evaluate the efficacy of new bycatch estimation methods as well as methods employed in other regions, such as Generalized Linear Models or Generalized Additive Models, to estimate marine mammal bycatch with the longer-term goal of applying new bycatch estimation methods in the Alaska region.** The AKSRG notes that models that consider Zero-Inflated distributions and hierarchical structures to better characterize uncertainty should be explored as part of this work. The AKSRG looks forward to reviewing analyses exploring ways to improve bycatch estimation at future meetings.

USFWS Managed Species

The AKSRG appreciates the presentations they received on marine mammal stocks managed by USFWS. In light of the considerable research on sea otters, walrus, and polar bears in recent years, the importance of these species as a subsistence resource, and the potential impacts associated with changing environmental conditions, **the AKSRG requests that USFWS update the SARs for sea otters, Pacific walrus, and polar bears in 2023 (noting that updated SARs for the Chukchi Sea and Beaufort Sea polar bear stocks were published in 2021 but did not include scientific information more recent than 2016).**

The AKSRG reviewed the 2021 SARs for the Chukchi Sea and Beaufort Sea polar bear stocks. The 2021 SAR utilizes an abundance estimate generated from 2001-2010 data to calculate the Minimum Population Estimate (N_{MIN}), and data indicate that subsistence takes of Southern Beaufort Sea polar bear likely exceed the Potential Biological Removal (PBR), suggesting there may be short- and long-term conservation concerns for this strategic stock. **In light of concerns regarding Chukchi Sea and Beaufort Sea polar bear stock status, the AKSRG recommends the application of more recent data to update the N_{MIN} estimate if possible. The AKSRG additionally supports USFWS service efforts to focus research efforts on anthropogenic impacts, such as take authorizations, the impacts of oil and gas activities to**

denning bears, or the impacts of bear viewing activities. The AKSRG agrees it is important to understand anthropogenic impacts to polar bears as this type of research is most likely to yield tangible management recommendations to minimize negative impacts associated with human activities.

At the 2022 meeting, the AKSRG enquired whether the USFWS was considering metagenomic studies on polar bears and their habitats to assess bear and ecosystem health. Metabarcoding involving next generation sequencing is now in widespread use to assess microorganism community composition in easy to collect environmental samples (e.g., water, snow) while similar techniques are being used to determine the microbiomes of individual species/animals and can be conducted using small amounts of tissue or fluids. Coordination among such studies is an emerging and powerful approach to assessing potential environmental impacts on apex predator health and population viability, and thus to assessing risk in changing environments. **In considering Chukchi Sea and Beaufort Sea polar bear stock status, the likely declining access to polar bears for sample collection in upcoming years due to sea ice loss, and the power of emerging next generation sequencing (NGS) metabarcoding and microbiome techniques, the AKSRG recommends that the USFSW prioritize coordinated metagenomic studies on polar bears and their environments.** Existing bear tissue samples would likely be of value in establishing techniques, while downstream outcomes can be used to inform risk analyses and decision making.

At the 2022 AKSRG meeting, NMFS reported on procedural changes being made to streamline and improve the quality of the process for updating SARs by differentiating between SAR reviews versus revisions. NMFS will *review* SARs annually for strategic stocks, stocks that have new information, and stocks that have not been reviewed in 3 years. SARs will be *revised* when substantial new information becomes available and/or changes have occurred within M&SI estimates. **The AKSRG recommends that that the USFWS evaluate the feasibility of aligning their USFWS SAR review and revision process with the updated NMFS process for revising and reviewing SARs.**

SEAK Harbor Porpoise

The AKSRG applauds the extensive work that NMFS has done to clarify SEAK harbor porpoise stock structure and abundance and looks forward to reviewing the upcoming Parsons *et al.* manuscript for additional genetic information. This research helps identify gaps in our understanding of and ability to effectively manage SEAK harbor porpoise stocks. The AKSRG therefore recommends the following research priorities: **1) increased observer coverage of the SEAK gillnet fisheries to collect better information on bycatch. The SEAK Harbor Porpoise SAR bycatch information is old and based on limited observer coverage. 2) increased funding for work aimed at reducing bycatch, noting that research to address the response of SEAK harbor porpoise to pingers was not funded for FY22. If pingers reduce or eliminate bycatch, this could directly address conservation concerns with SEAK harbor porpoise bycatch and stock structure. 3) further clarification of stock structure, especially near Yakutat and for offshore regions, and to the extent possible to understand movement between offshore and inshore stocks.**

M&SI estimates for SEAK harbor porpoise stocks are a critical source of data as estimates of the fishery-related mortality for the SEAK harbor porpoise stocks are close to, exceed or are unknown relative to estimated Potential Biological Removal (PBR) levels, in large part due to interactions with regional gillnet fisheries. The current approach to estimating M&SI for SEAK harbor porpoise stocks estimates interactions and extrapolates estimates to only a subset of the known species range based on historical observer coverage. **The AKSRG notes this could result in an underestimation of overall M&SI estimates for these stocks and recommends that NMFS report back to the ASKRG on the feasibility of extending the M&SI estimate to the full range of the SEAK harbor porpoise stocks in question.** The AKSRG also notes that the M&SI estimates are *already* likely biased low due to limited observer coverage in state-water fleets; thus, additional bias introduced by limited spatial extrapolation further increases the likelihood that M&SI is underestimated for these stocks.

Killer Whales

The AKSRG took note that NMFS is currently reviewing new genetic information on resident killer whales in Alaska that might indicate the current stock structure of killer whales in Alaska needs to be reassessed. **The AKSRG requests an update on new genetic work associated with killer whale stock structure as this work develops.**

Upon reviewing the current SAR for the ENP Alaska Resident stock, the AKSRG acknowledged the efforts made to use the best available information and to synthesize abundance data from a large number of sources (line-transect surveys, photo-identification catalogues and mark-recaptures analyses) covering different time periods and spatial areas. While recognizing the challenges of monitoring a large and wide-ranging population of killer whales, the AKSRG noted that there were issues with using catalogue tallies of unique individuals as minimum counts when those counts are taken over multiple years (e.g., 2001-2012 for Aleutian Islands and Bering Sea, 2005-2019 for Gulf of Alaska). Catalogue totals could overestimate the number of living individuals if evidence of deaths is lacking, are often based on unpublished or non peer-reviewed sources, and do not have any measure of uncertainty associated with them. Although these concerns are partially alleviated when there is evidence that the population is growing, killer whale populations are known to be vulnerable to the loss of key individuals and disruptions in social structure. **Therefore, the AKSRG encourages the assessment of an updated abundance estimate for the full population using relevant modelling approaches.**

Bowhead Whales

The AKSRG will be reviewing the Bowhead whale SAR again in 2023 due to an additional population estimate from dedicated aerial surveys. **The AKSRG therefore requests a presentation on the aerial survey estimates that were noted in the SAR but not presented, as well as what NMFS' rationale will be for using the ice-based census versus the aerial survey data.** The AKSRG also highlights the commencement of year-round commercial shipping in the northern Bering Sea and through Bering Strait in winter which has the potential to impact

bowhead whales in core use habitat both via noise, but more critically, through the increased likelihood of ship strikes.

Humpback Whales

The AKSRG applauds NMFS for releasing five updated draft humpback whale SARs in 2022. The revised Western North Pacific (WNP) humpback whale SAR M&SI estimation exceeds the PBR for this stock, and this overage is largely driven by Japanese and Korea bycatch. International take data for this transboundary Endangered stock is critical for a meaningful comparison against PBR; however, there is no uncertainty associated with the international M&SI estimates, and per conversations during the SAR review, the data from Japan in recent years in particular may represent false zeros. **The AKSRG therefore recommends NMFS discuss international take data uncertainty in more detail in future WNP humpback whale SARs, and/or if the uncertainty around these international data increases, the AKSRG recommends considering alternative methods for estimating M&SI for this transboundary stock in subsequent years.**

The AKSRG also encourages NMFS and MML to conduct genetic relatedness analyses on humpback whales within and between DIPs to confirm philopatry when feasible.

Potential Biological Removal and Sustainable Removals

The AKSRG recognizes that the PBR method to calculate mortality limits for marine mammals reflects management objectives and risk tolerances that seek to minimize unwanted mortality (e.g., resulting from bycatch) and ensure that stocks remain within their Optimum Sustainable Population (OSP) range. PBR is not necessarily an appropriate mortality limit for other types of removals, and in some cases PBR is considerably lower than the level of removals that would be considered sustainable for subsistence harvest (e.g., polar bears in the Chukchi Sea; Regehr et al. 2021). **The AKSRG recommends that, when available and applicable, NMFS and USFWS include "other relevant information" in the SARs about the sustainable level of removals.**

The consideration of "other relevant information" on sustainable removals is especially pertinent to the management of marine mammals in Alaska, because many stocks harvested by Alaska Natives have limited bycatch in commercial fisheries. A timely example of this is provided by management issues surrounding Eastern Bering Sea (EBS) beluga whales. During the 2022 AKSRG meeting, an update on the SAR for EBS stock beluga whales was received. As part of this update, the AKSRG was provided with a letter to NMFS drafted by the Alaska Beluga Whale Committee (ABWC):

> *In response to Section 119, NMFS and FWS have entered into cooperative agreements with Alaska Native Organizations to conserve marine mammals and provide co-management of subsistence use by Alaska Natives. FWS and NMFS believe that it is appropriate to develop management programs for stocks subject to subsistence harvests through the co-management process provided that commercial fisheries takes are not significant and that the process includes a sound research and management program to identify and address uncertainties concerning the status of these stocks. Calculations of*

PBR and classification as to whether a stock is strategic will be determined from the analysis of scientific and other relevant information discussed during the co-management process."

Hence, it seems that management decisions related to PBR, such as the classification of stocks and harvest regulation, should address "other relevant information" when there is limited take by commercial fisheries. In contrast to this, during the 2022 AKSRG meeting, NMFS OPR staff stated that decisions for the classification of stocks will be based on "science alone" and that management decisions will be solely based on whether or not harvest exceeds PBR. **The AKSRG requests further clarification on this issue and, as stated above, would like to see NMFS consider all available and relevant information, not just the values of PBR and subsistence harvest.**

As part of the update on the SAR for EBS beluga whales, NMFS informed the AKSRG that they will seek input from co-management organizations prior to the adoption of SARs. **The AKSRG approves of this decision and requests that consultation with co-management organizations occur prior to the AKSRG review of the SARs, as this will ensure that the most up-to-date information is included in the SAR. For transparency, the AKSRG would also like to be informed as to how consultation altered the content of SARs under review. To improve communication and transparency in the process, the AKSRG also recommends that NMFS follow-up and consult with co-management organizations if the AKSRG recommends substantial revisions to a SAR during their annual review.**

PACMAPPS/ARMAPPS

The AKSRG appreciated receiving preliminary information about the recent PACMAPPS cruise in the Gulf of Alaska and is cognizant of the difficulties of planning and executing a cruise during a global pandemic and with limited ship time and multiple scientific priorities. **The AKSRG encourages MML to prioritize data analysis from this cruise as it may provide key new information for a number of SARs with limited abundance and distribution data.** The AKSRG is also interested in understanding how the double platforms were used during the cruise as this was not presented in 2022.

The AKSRG also recommends that MML develop a set of well-reviewed protocols that will serve over the next decade of surveying so that results can be comparable among regions and years. Having enough sea days to adequately cover the regions of interest and enough observers to allow time for off-effort identification of species, small boat operations when needed, and to account for weather systems in the region will maximize the use of limited resources. Developing protocols for handling common challenging situations (e.g., how to proceed when many whales are observed or when rare species such as right whales are sighted). NMFS should also consider pre-planning collaborations to maximize the value of data collection to establish priorities for sample and data collection and explore synergies for additional data collection (eDNA).

Research Priorities

NMFS requested that the AKSRG attempt to rank recommended research priorities for 2022-2023. The AKSRG suggests the following priorities, based on conservation need and the ability for management actions to alter population status and trajectory, in order of most important to least important:

1. Southeast Alaska harbor porpoise (see recommendations above).
2. Alaska Native Organization (ANO) / Co-Management consultation and collaboration: The Alaska region is a unique position and can leverage partnerships with ANOs, Tribal Governments and Co-Management Agencies to improve subsistence, life history, and distribution data quality for many marine mammal species in the Arctic and subarctic.
3. Improving methods to estimate marine mammal bycatch (see recommendations above).
4. The North Pacific right whale is in danger of extinction and data limited. Research on this Endangered population should be a top 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.
5. The AKSRG would like to see issues relating to the reclassification of EBS beluga whale stock be resolved in a manner that includes meaningful and transparent consultation with the Alaska Beluga Whale Committee and agrees with NMFS that more frequent surveys of this stock are necessary.

The AKSRG thanks NMFS, MML and USFWS for their continued attention to marine mammal stock status, research and conservation.

Respectfully,

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