

ALASKA SCIENTIFIC REVIEW GROUP

A Regional Advisory Group for the National Marine Fisheries Service and Fish and Wildlife Service

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transmitted by electronic mail

Dear Assistant Administrator Coit and Special Assistant Hamilton,

The Alaska Regional Scientific Review Group (AKSRG) held its annual meeting March 5-6, 2024. Our agenda included review of draft 2024 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) on issues associated with the status and assessment of Alaska’s marine mammal stocks.

The AKSRG gratefully acknowledges NMFS, USFWS, and Alaska Native Organizations who reviewed and prepared stock assessment reports and made presentations at our meeting. In addition, the AKSRG wants to recognize our NMFS liaisons, Nancy Young and Amelia Brower, whose efforts enhanced the efficiency and quality of the AKSRG meeting.

This letter addresses the following key topics for NMFS and USFWS:

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Integrated Modeling Approaches

At the 2024 meeting, the AKSRG noted that some stock assessments may benefit from the use of integrated population models (IPM) and similar approaches to estimate minimum abundance (N_{\min}) and other demographic parameters. The Bristol Bay beluga SAR was an example where a new abundance estimate of 1,669 individuals in 2022 was lower than the previous estimate of 2,040 in 2016, however, it was not clear if this represented a real decline in abundance or was the result of sampling variability. Most of the whales in Bristol Bay are counted in 2-3 large groups, which make them more difficult to count accurately, a common issue for surveys of small cetaceans that form large aggregations. Moreover, fewer surveys were flown in 2022 due to weather. In such situations, an IPM could impose realistic underlying population dynamics that would allow the distinction between process variation (i.e., real changes in abundance) and observation error, and would prevent abundance estimates from varying from year-to-year in demographically implausible ways. An IPM could also potentially allow the inclusion of additional information, such as mark-recapture data, that would allow variables to be informed by multiple observation processes. This can reduce potential bias and allow estimation of additional demographic parameters such as the superpopulation size (i.e., the larger group of animals that use an area over a multiyear period, rather than the “snapshot” of abundance provided by aerial surveys) and rates of immigration and emigration. **The AKSRG therefore recommends that stock assessment authors explore IPMs where multiple data sources exist. Resulting abundance estimates used to inform N_{\min} and Potential Biological Removal (PBR) may exhibit less sampling variation and bias, allowing for more consistent management advice.**

Critical N_{\min}

The AKSRG noted that the SARs for Gulf of Alaska (GOA) and Bering Sea (BS) harbor porpoises made use of new guidance from the revised GAMMS to calculate a Critical N_{\min} when abundance information is outdated (and therefore cannot be used unless there is evidence that the population has been stable or increasing). Essentially, this approach calculates the minimum abundance that would result in PBR being exceeded given observed mortality and serious injury (M/SI). For instance, the GOA harbor porpoise abundance estimate for 1998 is 3.6 times greater than the Critical N_{\min} , and therefore NMFS concluded that strategic status is not warranted.

The AKSRG endorsed the Critical N_{\min} approach when it was introduced because prior rules required that a stock be classified as strategic when abundance estimates were more than 8 years old; in many cases, it is clear that stocks are not strategic even when abundance data are out-of-date. However, the AKSRG was not comfortable with the application of Critical N_{\min} to GOA harbor porpoises, for which there are too many uncertainties. Specifically, the estimate of M/SI is based on incomplete mortality data, the population estimate is 25 years old, and the stock structure of the population is poorly understood. Section IV of the GAMMS item 3.4.2.1 applies to cases where one should “judge whether the stock range-wide minimum abundance is likely greater or less than this Critical N_{\min} value based on the best scientific information available.” The group argued that there is no clear guidance or a set threshold to decide what “likely greater” means and felt that this standard was not met for GOA harbor porpoises given the available scientific information.

In contrast, the AKSRG felt more comfortable with the application of Critical N_{\min} to BS stock harbor porpoises. For BS harbor porpoises, the abundance estimate is more recent and 23 times greater than the Critical N_{\min} despite being based on a survey that covered only a small part of the stock's range, which makes the NMFS' recommendations much more defensible.

Therefore, the AKSRG recommends that the Critical N_{\min} approach be applied on a case-by-case basis, and that its rationale should be subjected to the same scrutiny as other components of the PBR calculations that are changed from their default values (e.g., R_{\max} , F_R). The AKSRG further recommends GOA harbor porpoise remain a strategic stock, within the context of the Critical N_{\min} process, due to the data limitations, fishery interactions, and stock structure concerns noted above.

Effects of Anthropogenic Noise during Harbor Porpoise Surveys

Recent studies suggest that elevated ambient noise (associated with survey efforts or other nearby anthropogenic sources) has the potential to impact harbor porpoise sightability and distribution, and thus can introduce a bias in abundance estimates based on distance sampling (Frankish et al. 2023). Therefore, surveys conducted from different platforms or in different acoustic conditions may not always be directly comparable within a time series. The AKSRG noted that data collection methods used to generate population estimates for GOA or BS harbor porpoise include both aerial and vessel-based surveys, yet there has been no consideration to date of the effect of the survey platform on and the comparability of abundance estimates. **The AKSRG recommends that platform type (vessel type and size, aircraft size) and, when possible, a description of the acoustic environment (e.g., a count of the number of vessels underway), should be considered and discussed when comparing population estimates for harbor porpoises.**

Killer Whale Bycatch

The AKSRG received a presentation on the bycatch of 11 killer whales in 2023 Bering Sea trawl and longline fisheries. The AKSRG appreciated the opportunity to discuss the issue prior to the relevant SAR update (planned for 2025) and notes that the recent bycatch represents a significant increase in M/SI for the Eastern North Pacific Alaska Resident stock. All whales, for which sex could be determined, taken in this fishery were females. If this sex ratio is indicative of the general skew for bycatch in this fishery, takes could have a disproportionate impact on the reproductive potential of the population, and this issue could raise concerns for the calculation of the PBR (which is robust to some types of uncertainty but does not take into consideration the sex and age structure of the removals). The GAMMS mention that the recovery factor can be adjusted to accommodate additional information, for example "if human-caused M/SI includes more than 50% females, the recovery factor should be decreased to compensate for the greater effect of this mortality on the population." The GAMMS, however, do not provide a specific method to adjust the recovery factor based on the observed sex ratio, but other studies have examined this issue and could provide additional insights (e.g., Brandon et al. 2017).

The AKSRG recommends that sex ratio of killer whale bycatch be given due consideration when updating the killer whale SAR and calculating the PBR and encourages authors to discuss the biological consequences of a skewed sex ratio (an example of this can be found in the Northern fur seal SAR) and to provide rationale for the choice of a recovery factor.

In light of ongoing concerns with killer whale bycatch in Alaskan commercial fisheries, interaction risks associated with depredation on commercial fishing gear (including new reports of slinky pot interactions) and changing prey resource availability associated with warming marine conditions, **the AKSRG reiterates its recommendations from 2013 and 2022 for NMFS to prioritize efforts to update Eastern North Pacific killer whale stock structure. This update should include an analysis of existing genetic samples from southeast Alaska, the Gulf of Alaska, and False Pass/Unimak Island region and analyses of historic and current photo-identification catalogs.**

Model-based Bycatch Estimators

The AKSRG continues to support the development of model-based approach to estimate marine mammal bycatch. In addition to the advantages of reduced interannual volatility in marine mammal bycatch estimation, there may be other advantages as this method is further developed to explore longer-term time series for certain fishery/marine mammal combinations, probabilities of exceeding PBR for vulnerable marine mammal species, and to incorporate interaction (presence/absence or distribution) data in the models to improve performance. The AKSRG also urges NMFS to evaluate ways to address rare events (such as years with high bycatch numbers) via simulations or other methods to best account for these interactions. We look forward to hearing updates on this work at the 2025 joint meeting.

Bristol Bay Belugas

NMFS requested that the AKSRG: 1) review the SAR for the Bristol Bay beluga stock, 2) comment on next steps for assessing correction factors for aerial surveys and, 3) comment on existing survey methods for belugas in Bristol Bay. The Bristol Bay population is relatively small with approximately 1,500 to 2,000 belugas. Past surveys have focused on visually counting belugas during coastline aerial surveys in July, when belugas aggregate near shore to feed on migrating sockeye salmon. Observers fly nearly the entire range of Bristol Bay belugas multiple times during the survey period, often twice per day and during two sequential years. The survey yields raw counts of belugas, which have been adjusted by a fixed correction factor for availability bias of 2.62, which comes from a small sample of belugas radio-tagged in Bristol Bay (Frost and Lowry 1995). These surveys have been conducted approximately every five years since 1993 (Fig. 1) by the Alaska Beluga Whale Committee (ABWC) and the Alaska Department of Fish and Game (ADFG). The question posed by NMFS was specifically whether a better correction factor was necessary and more generally if better survey methods should be considered.

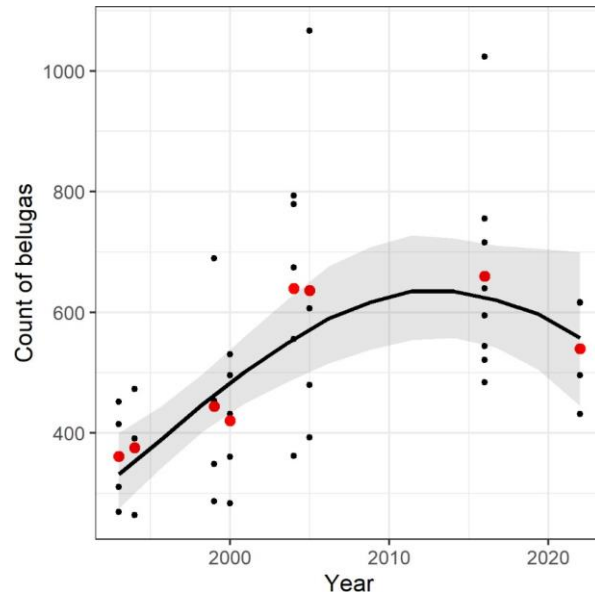


Figure 1. Trend in beluga counts from 1993 to 2022. Black points are actual counts, red points are the mean count for each year, and the black line is the fitted trend (\pm 95% C.I. gray shading). This graphic is taken from Quakenbush et al. (2022).

The AKSRG concluded that although more informative surveys should be considered, there is nothing inherently wrong with the current method of counting. Consistency in the timing of surveys (during the sockeye run), conducting multiple counts per year, and covering most of the entire summer range of belugas during each survey has yielded valuable information on trend (Lowry et al. 2008; Citta et al. 2019; Quakenbush et al. 2022). The AKSRG thinks that those estimates of trend are potentially more reliable than applying the fixed availability correction factor to obtain estimates of absolute abundance. However, we note that a genetic mark-recapture study (Citta et al. 2018) yielded 1,928 belugas and was consistent with the 2016 aerial surveys which yielded 2,040 belugas after the fixed correction factor was applied (Citta et al. 2019). As such, surveys completed in Bristol Bay to date have been appropriate and informative.

However, the AKSRG also notes that the methods used rely on maintaining survey consistency. Flying the survey during a different time of year or with new observers may alter the apparent trend and resulting estimate of abundance. Likewise, changes in beluga behavior or the behavior of their prey may also alter results and affect inferences. The ability of observers to accurately count large groups visually is potentially one large source of error, which may be difficult to control across multiple observers.

More complex methods that can likely control for sources of uncertainty in a statistically defensible fashion are available. For example, the video method used in Cook Inlet will likely enumerate groups more consistently (Hobbs et al., 2022). The development of habitat-specific availability correction factors for belugas in the Saint Lawrence Estuary has dampened the variability in counts and led to more consistent and biologically realistic estimates of abundance over time (Lesage et al. 2024). These approaches should be considered for Bristol Bay. We note that all these approaches will require significantly more resources in the form of funding, staff, and time investment.

One potential way forward would be to leverage the existing genetic work that has been done in Bristol Bay. Approximately 1,000 belugas were genetically marked during the genetic mark-recapture study that was completed in 2011 (funded by ABWC). Most of these marked belugas should still be alive and could contribute information on survival if another genetic mark-recapture study were to be conducted. We can foresee analyzing these data within a robust design framework, estimating abundance within sampling periods and survival between periods. This work could be expanded to consider relatives in a close-kin mark-recapture framework and could also be combined with the aerial survey data in an integrated population model. The Bristol Bay population is small, and existing data suggest it may be declining. Therefore, the AKSRG recommends that updated surveys of belugas in Bristol Bay be given priority. **Determining the best approach for future surveys will take time, so the AKSRG suggests holding a dedicated workshop, similar to what was held for Cook Inlet belugas in 2023. Until then, the AKSRG suggests continuing the existing aerial survey program with another survey within the next year or two to acquire trend data.**

Agency Communications and Science

Effective marine mammal science and management necessitates collaboration and transparency across agencies, including NMFS, the North Pacific Fishery Management Council (NPFMC), ADFG, USFWS and Alaska Native Organizations and Tribes. At the 2024 meeting, the AKSRG received a presentation on a proposed ADFG survey to reassess Southeast Alaska harbor porpoise abundance and genetic stock structure given concerns with recent NMFS-led surveys. While the AKSRG appreciates some of the concerns ADFG communicated at the 2024 annual meeting, **we strongly urge NMFS and ADFG to collaborate on future surveys to ensure research effort is complementary and not duplicative, especially when funding and survey resources are limited and many marine mammal species in the Alaska region do not have current estimates of N_{min} or PBR.**

Additionally, it has come to the AKSRG's attention that the NPFMC no longer receives a detailed annual update from NMFS/MML on marine mammal stock status relative to fishery interactions/bycatch (with the exception of northern fur seals). Understanding marine mammal interactions with commercial fisheries and potential impacts to marine mammal stock status is a major component of the SAR process. **Therefore, the AKSRG recommends that NMFS/MML reinstitute a detailed annual update to the NPFMC to ensure that marine mammal bycatch and stock status is communicated to fishery managers and fishers to best inform Ecosystem-Based Fishery Management.**

Alaska Native Organizations and Indigenous/Traditional Knowledge

Alaska Native Peoples and organizations should be involved in key decisions regarding species integral to the ecological and sociocultural aspects of their regions. The AKSRG commends NMFS for formalizing the review of SARs by Alaska Native co-management groups and recognizes their increased efforts to collaborate on SARs with Alaska Native Organizations (ANOs). **The AKSRG recommends that NMFS and USFWS continue building frameworks that support equity for ANOs and Tribes in marine mammal management.**

The AKSRG appreciated the presentation by Aleut Community of St Paul Island (ACSPI) that provided some historical and cultural context to understanding Unangan relationships with northern fur seals

(NFS), which was particularly relevant to our review of the NFS SAR. Furthermore, we feel that ACSPI's participation in the conversation about the NFS SAR contributed to more inclusive Tribal collaboration and representation during the SAR review process. Recent White House guidance^{1,2} confirms Indigenous Knowledge (IK) must be equitably considered among "the best available science" for federal agencies to confront climate change in consultation with Tribes. **As part of NMFS' commitment to Tribal Consultation and co-management agreements, the AKSRG supports continued efforts to include IK and Tribal Consultation through ANOs and Tribes in SAR development, review processes and other management actions.**

Research Priorities

The AKSRG suggests the following priorities, based on conservation need and the ability for management actions to alter population status and trajectory (list is NOT in order of priority):

- Southeast Alaska harbor porpoise stock structure and fishery interactions ([see 2022 AKSRG letter](#)).
- Eastern North Pacific resident killer whale stock structure and fishery interactions (see recommendation above).
- North Pacific right whale research that could provide important data on this endangered species in a cost-effective manner. Research could include processing of existing acoustic data, maintenance of acoustic monitoring stations, and the development of research platforms of opportunity.
- Bristol Bay belugas stock survey and workshop (see recommendation above).
- Improving methods to estimate marine mammal bycatch (see recommendation above).

To better facilitate the work of the AKSRG, we request that there be a response from NMFS regarding these 2024 recommendations prior to the 2025 annual meeting such that the AKSRG can effectively evaluate and discuss NMFS responses during the 2025 annual meeting.

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

Respectfully,

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¹ <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/26/memorandum-on-tribal-consultation-and-strengthening-nation-to-nation-relationships/>

² <https://www.whitehouse.gov/wp-content/uploads/2022/12/OSTP-CEQ-IK-Guidance.pdf>

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