ALASKA REGIONAL SCIENTIFIC REVIEW GROUP

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Mr. Chris Oliver   19 June 2018
Assistant Administrator for Fisheries
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910
transmitted by electronic mail

Dear Mr. Oliver:

The Alaska Regional Scientific Review Group (AKSRG) held its annual meeting on 27-28 February 2018 at the National Marine Fisheries Service, Alaska Fisheries Science Center in Seattle, Washington. Our agenda included review of 2018 draft marine mammal stock assessment reports (SARs), detailed orientation of new members to the role of the AKSRG, and research and policy updates from NMFS and U.S. Fish and Wildlife Service staff on issues associated with the status and assessment of Alaska's marine mammal stocks. The following are major recommendations from our meeting:

N_{min} for partial stock ranges
Guidelines for calculating N_{min} are given in various versions of GAMMs. However, for many SARs, especially those for North Pacific and Alaska stocks, data are lacking for calculating N_{min} for entire stocks. In some cases (e.g., Fin Whale, Harbor Porpoise - SEAK) data exist such that an abundance estimate is available for a portion of the stock's range, and an N_{min} can be calculated from this regional abundance estimate; this is truly a minimum because it is based on less than the population of the entire stock. However whether to calculate such an N_{min}, and use it in the SAR for PBR calculation, when based only on a portion of the stocks range, is inconsistently applied across stocks and SARs. **The Alaska SRG recommends that guidelines be developed for when, and how, N_{min} should be calculated from data when only a subset of the stock's range is available. When such guidelines are developed, we also recommend that in cases where these guidelines are not followed, clear justification be given in SARs justifying why the guidelines were not appropriate in that specific case.**

Estimating mortality and serious injury related to small-boat and shore fisheries
A number of species (e.g., harbor porpoises, humpback whales) are known to interact with gear used in small boat fisheries, especially gill nets. Many such fisheries have never had associated estimates of mortality and serious injury (M&SI) and in some of those that have had observers, estimates are >25 years old and possibly now inaccurate. There is a fundamental inconsistency between the strict conditions placed in abundance estimates to be useable in Nmin/PBR calculations (e.g., have to be recent, complete coverage of range) and the criteria to use old and incomplete data on bycatch. Because fishing-related mortality is one of the key pieces of information required in SARs, there is a great need to obtain M&SI estimates for small-boat fisheries and set gillnet fisheries. **The Alaska SRG supports observer programs and development of other innovative approaches for estimating M&SI in these fisheries that have no, incomplete, or extremely outdated, estimates.**

Precision for mortality and serious injury estimates
One major feature of the SAR process is comparing the numbers of mortalities and serious injuries (M&SI) with Potential Biological Removal (PBR), which is based on population size and productivity. The precision of the population estimates is incorporated into the PBR. Many estimates of M&SI for Alaskan marine mammal stocks do not have associated precision estimates, and even when such precision estimates exist, they are not used when comparing M&SI estimates to PBR, which can lead to false conclusions regarding whether PBR has been exceeded. **The Alaska SRG recommends that procedures for estimating M&SI be improved, include associated precision estimates, and that guidelines for the use of the estimated precision when comparing M&SI with PBR be developed.**

Complete data for abundance surveys
Abundance estimates are key components to the SAR process and estimating Potential Biological Removal (PBR). Such estimates are also often difficult and expensive to obtain. There are instances reported in SARs (e.g., harbor porpoise, Dall's porpoise) in which surveys have been conducted but not all relevant information has been collected to estimate abundance (e.g., in line transect surveys, data for estimating g(0) and vessel attraction), thus making estimates based on those surveys of limited value. Similar situations for surveys other than line transects include the lack of estimates of availability for hauled out pinnipeds (e.g., Steller sea lions). **The Alaska SRG recommends that in future surveys, if at all possible, data for all essential components of a survey necessary for producing unbiased estimates (and measures of precision) be collected. If it is not feasible to collect all relevant data, we recommend that the limited utility of the resulting estimates be considered before proceeding with the survey.**

Evaluation of PBR when no estimate of N_{min} exists
For species such as sperm whales, where no estimate of N_{min} exists and there are known mortalities and serious injuries (M&SI), it is possible to back-calculate how small the population would have to be for M&SI not to exceed PBR. Such calculations are useful when the exact value of N_{min} is unknown, but the population is clearly large enough that M&SI are not exceeding PBR. However, such a value is not technically a back-calculation of N_{min}, but the minimum number of animals that would have to exist for PBR to be greater than M&SI. Although this is a minimum abundance to meet conservation objectives, it is not the true population minimum and thus it should be formally defined and named something other than N_{min}. **The Alaska SRG supports back-calculation of how small the population must be for PBR to exceed the known M&SI. Furthermore, we suggest that the terminology used to describe these back-calculations be formalized and that guidelines for when these procedures are appropriate be created.**

Improved estimates of subsistence harvest
Subsistence harvest is one of the larger known sources of human-caused mortality for ice-associated seals (i.e., ringed seal, bearded seal, spotted seal, ribbon seal). Estimates of subsistence harvest are derived from community-based surveys. However, lack of a survey design and inconsistency in when and where (i.e., which communities) surveys are conducted make it difficult to produce meaningful annual estimates. For example, Utqiaġvik (Barrow) had a large harvest of ice seals, especially bearded seals, in the one year it was surveyed in the last 5 years, making interpretation difficult in the years it was not surveyed. **The Alaska SRG recommends a survey design be constructed for estimating subsistence harvest of marine mammals (specifically ice seals), in consultation with local communities, and designed with greater sampling effort in high harvest communities such as Utqiaġvik.**

Steller sea lion stock boundaries

Subsequent to the delineation of the 2 Steller sea lion stocks in 1997, sea lions established new rookeries within the range of the Eastern stock, with some of these rookeries composed of individuals from each of the existing stocks (O'Corry-Crowe et al. 2014). These new rookeries have persisted and grown dramatically for >15 years (Mathews et al. 2011) with evidence of population dynamics and movement distinctive from their parent stocks (Mathews et al. 2011, Hastings et al. 2011, 2018, Jemison et al. 2013). These findings indicate that Steller sea lion presence in this area is not a temporary or seasonal phenomenon. Given this new information and the need to determine how to apportion mortalities among stocks in the mixed-stock zone, **the Alaska SRG recommends that the stock structure for Steller sea lions in the northeastern Pacific be re-evaluated to consider whether moving stock boundaries or creating an additional stock are warranted.**

Northern fur seal population estimates

For management purposes, including the SAR, the population size of northern fur seals is estimated using an expansion factor that is multiplied by the estimated number of pups on the rookeries. This expansion factor is derived from a matrix population model developed in 1981, and accounts for delayed return of juveniles to breeding rookeries and adult fur seals that are at sea when counts are conducted. This expansion factor was developed when the population dynamics of northern fur seals were different; the expansion factor also has no precision estimate, which results in population estimates calculated with it also not having precision estimates. **The Alaska SRG recommends that a new expansion factor be developed for northern fur seals that reflect current population dynamics and that has an associated precision measure such that precision can be calculated for the population estimate. Similarly, a new expansion factor could be developed for Steller sea lions, whose N_{min} is based on the observed animals rather than total population size.**

Sperm whale stock structure

Sperm whale stock structure in the Pacific Ocean is largely unknown, and abundance data for sperm whales in the north Pacific region are limited and outdated. While historic whaling and movement data suggest minimal separation in sperm whale stocks in the Pacific Ocean, genetic work indicates that there may be a partially discrete stock along the U.S. west coast (Mesnick et al. 2011). There is little evidence, however, to support the current stock delineation of sperm whales (Alaska North Pacific, CA/OR/WA, Hawaii). This issue is made more complex because the majority of sperm whales in Alaskan waters are males, and the number of fishery interactions involving sperm whales appears to be increasing (e.g., sablefish longline fishery was upgraded to Category II in 2018). **The Alaska SRG recommends that the National Marine Fisheries Service reexamine the stock structure for sperm whales in the north Pacific Ocean, with special consideration of the unique demographics (male-dominated) of the stock and the possibility of developing sub-stock estimates of N_{min} or PBR for males interacting with commercial fisheries.**

Harbor porpoise DNA for revising stock structure

As stated in an introductory note in the three Alaska harbor porpoise SARs, the currently-used stock structure for harbor porpoise in Alaska is thought to inaccurately reflect true population structure. In addition, harbor porpoise are known to be seriously injured and killed in gill net fisheries, which could be substantial in some areas. If stocks are much smaller than those currently defined, such M&SI could be exceeding PBR in the actual stocks. **The Alaska SRG supports continuation/expansion of the ongoing eDNA (and other genetics) projects to gather data on harbor porpoises and the use of these data in revising harbor porpoise stocks in Alaska. In addition the SRG recommends that once stocks are**

revised, necessary abundance and mortality data be collected for harbor porpoise stocks, prioritizing those where fishery-related mortality is known or suspected to occur.

Humpback whale stock structure
Based on SPLASH and other studies, humpback whale populations have been divided into new Distinct Population Segments (DPS) under the Endangered Species Act (ESA). However, humpback stocks in the Pacific Ocean under the Marine Mammal Protection Act (MMPA) remain unchanged (under review); existing MMPA stocks are not coincident with the new ESA defined DPS. However, the humpback whale SARs attempt to discuss the ESA DPS, which is confusing and difficult to follow; we feel that this confusion will be wide-spread with divergent population definitions (i.e., MMPA stocks ≠ ESA DPS). **The Alaska SRG urges the National Marine Fisheries Service to complete the review of humpback whale stock designations under MMPA, taking into account the humpback whale DPS under ESA, as soon as possible and revise the humpback whale SARs accordingly.**

As a group, the AKSRG appreciates the opportunity to review marine mammal stock assessments and assist NMFS in addressing the conservation concerns of specific AK marine mammal stocks. But perhaps of greater value to NMFS is our assessment of priorities for future research related to AK stocks, especially in times of reduced funding outlooks. Therefore, we appreciate your consideration of the above recommendations and will gladly discuss these them in greater detail, if desired.

Respectfully,

Grey Pendleton, acting Chair
Alaska Scientific Review Group