

Atlantic Scientific Review Group

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Ms. Eileen Sobeck
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1315 East-West Highway, Room 14564
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Dear Ms. Sobeck:

The Atlantic Scientific Review Group (ASRG) held its annual meeting during 24-26 February, immediately following the joint Scientific Review Group meeting, in Seattle. We appreciate the hospitality of the Alaska Fisheries Science Center for hosting the meeting, and the preparatory work performed by Headquarters and Science Center and Regional Office staff. We were pleased to welcome two new ASRG members, Christopher Clark and Trent McDonald, to bring us back up to our full complement. We had six members in attendance in Seattle, and most others joined via telephone and webinar.

The ASRG had a number of recommendations for the National Marine Fisheries Service (NMFS), presented in no particular order below.

1. The ASRG **recommends** that communication between Science Centers be improved with regards to developing, refining and sharing methodologies of relevance across regions, perhaps through regular (annual or biennial) workshops.
2. We lack information on habitat use by right whales in the mid-Atlantic, but the largest gap in information is for inshore waters along the Maine coastline. In response to concerns about undetected interactions between right whales and fisheries in this area, the ASRG **recommends** that NMFS increase its passive acoustic monitoring program to include the exempted waters of Maine.
3. The ASRG commends NMFS for increasing HMS observer coverage for the pelagic longline fishery as this will likely improve characterization of the serious and ongoing problem of pilot whale takes. However, the ASRG is concerned about delays in developing rules to mitigate these interactions—takes are continuing as rules are being developed.

4. At the ASRG meeting, we were informed that acoustics have not been taken into account adequately when defining critical habitat for northern right whales. Given the endangered status of the species, its reliance upon sound as a sensory mode for conducting basic life functions (e.g., reproduction), and the scientifically documented acoustic sensitivities of the species (i.e., the importance of acoustics as a physical feature of the habitat), the ASRG **recommends** that NMFS, with authority from the ESA to require special management considerations or protection of critical habitat features: a) recognize that right whale habitat includes that portion of the acoustic environment in which they use sound for basic life functions, b) implement measures by which to quantify the spatio-temporal dynamics of right whale acoustic habitat, and c) include acoustic habitat metrics in an integrated approach for assessing habitat loss.
5. At the ASRG meeting, we were informed that acoustic occurrence data for different species have not been adequately taken into account in spatial models for abundance estimates. Given the scientifically documented ability to acoustically detect species-specific sounds, the ASRG **recommends** that NMFS include acoustic occurrence data (e.g., acoustic detections of right whale sounds) for abundance estimates in spatial models (e.g., Duke, AMAPPS).
6. Trend analyses of abundance data can provide important information for management, but to date few trend analyses appear in Atlantic and Gulf of Mexico SARs. We understand that in the future it should be possible to provide trend analyses from AMAPPS and perhaps GoMAPPS survey data. However, the ASRG considers trend analyses to be a priority, and we would like to see them performed with available historical data as soon as possible. We appreciate the recent efforts by NMFS Science Center staff to consider how new analytical techniques (see next comment) involving such approaches as post-stratification of data and examination of biases might be applied to comprehensive historical trend analyses. Furthermore, we recognize that it will be difficult to perform these new analyses without compromising planned and ongoing work given existing personnel resources. Thus, the ASRG **recommends** that NMFS provide personnel resources required for these analyses.
7. When data support trend analyses, the ASRG **recommends** NMFS consider analyzing trends in abundance using random effects models (1, 2, 3, 4). The envisioned random effects models divide the range of a species into “blocks” or “regions,” and analyze abundance in each block or region. Trends on individual blocks are treated as random (e.g., some up, some down, some constant), and the model estimates the overall average trend over blocks, with appropriate error estimates. Advantages of this approach include dramatically increased statistical power relative to analyzing annual whole-stock abundance estimates, and the ability to include sporadic and temporally mis-matched surveys in different blocks.

References:

- [1] NM Laird and JH Ware. Random-effects models for longitudinal data. *Biometrics*, 38(4):963–974, December 1982.

- [2] H-P Piepho and JO Ogutu. A simple mixed model for trend analysis in wildlife populations. *Journal of agricultural, biological, and environmental statistics*, 7(3):350–360, 2002.
- [3] H-P Piepho and JO Ogutu. Inference for the break point in segmented regression with application to longitudinal data. *Biometrical journal*, 45(5):591–601, 2003.
- [4] J Pinheiro and D Bates. *Mixed-effects models in S and S-PLUS*. Springer Science & Business Media, 2006.

8. The ASRG notes that the populations of pinnipeds in the Northeast are undergoing potentially divergent trends in abundance. Gray seals are increasing in numbers and, as a result, bycatch of this species is also increasing. In contrast, harbor seal abundance seems to be declining. Both species require significant attention as part of the stock assessment process. The NEFSC scientist responsible for pinniped stock assessments recently retired, and the ASRG notes that NEFSC PSB staff cannot allocate sufficient time and effort to pinnipeds without putting their ability to address other scientific obligations in jeopardy. Therefore, the ASRG **strongly recommends** the NEFSC PSB hire a full-time NEFSC scientist to oversee a dedicated research program devoted to these two species.
9. Given that few pinnipeds recover (or survive for long periods) after being entangled in fishing gear, the ASRG **recommends** that NMFS consider estimating the number of pinnipeds hauled out with active gear entanglements but which receive no stranding response. Strategic sampling of representative haul-outs would be useful to document incidence and help determine whether entanglements play a role in limiting population growth. In addition, The ASRG notes that there is no stranding response in areas such as the north shore of Massachusetts, Nantucket, and Martha’s Vineyard, and no pups are responded to in Maine. We **recommend** that NMFS assess whether expanded stranding and entanglement response is possible in these areas.
10. Estimation of $g(0)$ during survey efforts is crucial, but can be challenging, and this parameter has not yet been estimated for several stocks in the Atlantic and Gulf of Mexico. The ASRG **recommends** that NMFS attempt to employ the Barlow approach to develop estimates of $g(0)$ when data support this approach, and otherwise use multiple-observer $g(0)$ values obtained from similar field efforts in one region when needed for abundance estimation in a comparable region. The assumption of $g(0) = 1$ will rarely, if ever, be appropriate when surveying for marine mammals, whether from aircraft or surface vessels.
11. The ASRG concurs with the serious concerns raised at the meeting regarding the very small population of Bryde’s whales in the Gulf of Mexico, and **recommends** that additional research on these whales be an immediate and high priority. Of particular importance is: 1) tagging of whales, especially with satellite-linked tags, to define their ranging patterns, 2) collection of genetic samples, and 3) investigation of the possibility of occurrence of this species elsewhere in the Gulf of Mexico, as suggested by acoustic records from the western Gulf.

12. The ASRG raised questions about how to increase awareness of and focus conservation attention to small stocks that are at particularly high risk of extinction, especially when they do not meet the criteria for “strategic stock” designation (e.g., Bryde’s whales, killer whales). The ASRG **recommends** that NMFS prepare a list of stocks of potential concern, due to their small size or lack of information, for an ASRG review with regards to prioritizing research.
13. The ASRG **strongly recommends** initiating surveys (e.g., GoMAPPS) in the waters of the southern Gulf of Mexico, south of the U.S. EEZ, as soon as possible to better define transboundary stocks and obtain more accurate estimates of abundance for oceanic stocks.
14. Knowledge of marine mammals in Caribbean waters is poor and should be updated, as mandated under the MMPA. While traditional survey techniques would be best for establishing baselines for marine mammal stocks in this region, the ASRG recognizes that diverting scarce survey resources from addressing current serious issues in waters closer to the U.S. mainland could be counterproductive. The ASRG **recommends** that NMFS look into alternative means of obtaining information to inform SARs when resources are inadequate to support standard approaches in these waters. The ASRG stands ready to assist NMFS in a review capacity with planning and design of these studies.
15. The ASRG commends the SEFSC for outstanding scientific work and collaboration related to the injury assessment for *Deepwater Horizon* PDARP. Their work, along with collaborators, was ground-breaking and has resulted in numerous publications that not only informed the NRDA injury assessment and set the stage for restoration, but has also advanced the scientific field in general.
16. Recognizing the extent and long-term nature of the injuries to Gulf of Mexico marine mammal stocks as a result of the *Deepwater Horizon* oil spill, the ASRG **recommends** developing an appropriate recovery factor for updated PBR calculations for affected stocks.
17. The ASRG finds the quality of writing and communication in nearly all Stock Assessment Reports (SARs) from our region to be sub-standard, and in several cases unacceptable (e.g., bay, sound, and estuary bottlenose dolphins). In general, the SARs have become confusing, contradictory, and disorganized to an extent that it is often difficult to discern critical information. At a minimum, the state of most SARs places NMFS's statutory responsibility to publish stock assessments in a poor light, and at a maximum calls our (NMFS and ASRG) understanding of the status of these stocks into serious question. The ASRG **strongly recommends that** NMFS assign a single senior author to each SAR, that this person be well-acquainted with publication-quality scientific writing, and that this person retain senior authorship for a number of years. If implemented, these authors must initially be given the time and institutional support needed to completely re-write the SARs.

18. In response to the membership rotation plan identified in the NMFS Terms of Reference for SRGs, the ASRG **recommends** that NMFS develop a training webinar and disseminate background materials to new SRG members to: 1) facilitate their timely integration into the SRG process, and 2) develop familiarity with procedures, to be provided to new members well in advance of assuming their reviewing responsibilities or attending meetings.

Finally, to better understand our efficacy as an advisory peer review group and to maximize the value of our time commitment to the process, we request additional information on the responses of your agency to our recommendations beyond the standard boilerplate response. To this end, we request that the NMFS liaison to the ASRG be prepared to brief the group at the beginning of each annual meeting on NMFS follow-up activities related to our recommendations over the prior three years, to give us a better sense of how our recommendations are being used.

We continue to stand ready to assist the Agency in reviewing its science, including plans for future research.

Sincerely,



Randall S. Wells
Acting Chair, Atlantic Scientific Review Group

cc:

Rebecca J. Lent, Executive Director, Marine Mammal Commission
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