July 18, 2017

Jolie Harrison
Chief, Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Silver Spring, MD 20910

RE: Comments on Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Geophysical Surveys in the Atlantic Ocean; RIN 0648–XE283, 82 Fed. Reg. 26,244 (June 6, 2017)

Dear Ms. Harrison:

The South Carolina Wildlife Federation (SCWF) has nearly 10,000 supporters across the state, from anglers to hunters to outdoor enthusiasts. Our mission is to conserve and restore South Carolina's wildlife and wildlife habitat through education and advocacy. We have reviewed the draft Individual Harassment Authorizations (IHAs) for the above-referenced seismic companies' activities in the Atlantic and offer the following comments.

In general, we find the science used in making these draft decisions unsupportable. Flaws include both the reliance on questionable mitigation measures, failure to consider secondary and cumulative impacts of five or more seismic testing operations that would both temporally and spatially overlap, and use of outdated decibel harm level standards.

Based on individual analysis for each company, the National Marine Fisheries Service (NMFS) has reached a draft conclusion that there would be negligible impact on marine mammals and proposes to authorize each seismic company with incidental take approval. "Negligible impact" is defined by NMFS in 50 CFR 216.103 as "an impact resulting from the specified activity that cannot be reasonably expected to and is not reasonably likely to adversely affect the species or stock through effects on annual rates of recruitment or survival." The other factor in enabling such authorization under the Marine Mammal Protection Act (MMPA) is the take (take includes harassment) of only small numbers of organisms.

Although "small" is a general term without definition or context, limiting impacts to such a proportion of any marine mammal population would be almost impossible to meet with five concurrent seismic surveys in the same or overlapping areas over the course of a year considering the thousands of dolphins, hundreds of right whales, and other cetaceans that would be impacted. When a population like the right whale is down to less than 400 individuals, take of even one individual is too high a number and is certainly not "negligible" relative to jeopardy for the species.

Furthermore, for right whales, the number of takes for behavioral change is wildly underestimated based on the best available science we have, namely the Blackwell et al. (2015) study documenting significant vocal changes in bowhead whales (a very close relative to right whales) at levels around 100 dB; thus the range of impact to right whales is likely orders of magnitude larger than you have used in your analysis.

Despite industry rhetoric to the contrary, the literature is replete with evidence of behavioral and physical impacts on marine mammals and other marine organisms caused by underwater noise in the decibel range generated by seismic exploration (AEI, 2005; WDCS, 2004; Weilgart, 2013; Hildebrand, 2009; Neo et al, 2015; Day et al, 2015.) Noise from seismic airguns can be heard at great distances away from the generation site (hundreds or even thousands of kilometers) and elicits behavioral responses. This distance factor greatly reduces the effectiveness of mitigation measures based on visual observers (especially at night as these operations are liable to run 24 hours a day). There is consensus in the literature that marine species are dependent upon hearing for communication, and for cueing to spawning and feeding sites and on how seismic booms can physically damage hearing or mask important communication.

"Buying down" the numbers or the negligibility of the impacts through the proposed mitigation measures is not justified. Given the distance of harmful sound from the generation vessel, many organisms would be within the behavioral or physical harm range and not be visible to observers, especially at night. Alternatively, the use of passive acoustic monitoring as a secondary "safety" measure is also problematic as many whales stop vocalizing when confronting noise notably at levels far below the 160 dB you used to calculate behavioral responses (e.g., Blackwell et al. 2015). Proposing temporal seasonal closures likewise does not "mitigate" impacts as species of concern are in the seismic testing area year round.

Another concern is the NMFS use of outdated thresholds of 160 dB for behavioral impact and 180 dB for injury in impact calculations. As mentioned above, bowhead whales (a close cousin of the right whale) are known to start behavioral responses at ~100 dB (Blackwell et. al, 2015) or 6 orders of magnitude lower than the 160 dB threshold (every 10 dB is an order of magnitude). Under this scenario, we would expect right whales to start demonstrating behavioral responses at sound levels 1,000,000 quieter than the level NMFS currently uses for this 'trigger'.

If NMFS used updated thresholds in their analysis, the areas of impact would decidedly show large numbers and impacts far beyond negligible. This would also have implications for the effectiveness of mitigation measures, as behavioral response levels would occur at greater distances from the source with significantly less chance of marine mammal visual observation.

Perhaps the biggest flaw in arriving at a conclusion of small numbers and negligible impacts is the lack of analysis of both secondary and cumulative impacts required by both the National Environmental Policy Act and the Endangered Species Act (ESA). Secondary impacts involve those that are removed in both time and space, but a consequence of the action being analyzed. Seismic testing is known to adversely affect both fish and invertebrates including zooplankton that are primary food sources for marine mammals and fish. For example, squid beaching due to unexplained internal injuries from 2001 and 2003 seismic operations (AEI, 2005). For zooplankton, the primary food for right whales, a recent study (McCauley et al., 2017) demonstrated immediate large impacts to nearby communities (64% drop in abundance and 200-300% increase in mortality over natural rates) within the full range of their sampling (1.2 km from the seismic array).

The magnitude of the proposed seismic explorations is significantly higher than that conducted for the zooplankton study from temporal (continuous over long periods of time vs. two one hour study replicates), spatial (more than 90,000 miles proposed vs. approximately 2 miles in the study), and decibel-wise perspectives (24-40 air gun arrays times five operating companies with an unknown number of boats each vs. one single airgun in the study). Based on this, a valid look at food web impacts would likely reveal chilling ramifications. Also, given that the study showed that all krill larvae were wiped out, potential implications for Atlantic coastal shrimp and crab fisheries may be of great concern.

Loss, decline, or displacement of zooplankton by seismic testing would constitute secondary impacts and need to be included in the analysis of numbers of marine mammals affected (probably all that feed in the area) and in the severity of impacts relative to the negligible incidental take criteria. Under both criteria, the cumulative high loss of the primary food source for the endangered right whale would constitute a taking for this species under the ESA that may be of non-permittable magnitude for this critically endangered species.

Also, zooplankton and invertebrate food chain losses are particularly germane considering the magnitude of designated essential fish habitat sites including feeding and breeding sites in the proposed seismic testing area (see Figure 1) and prior documentation that seismic activities have caused complete dispersal of fish from such sites (Paxton, et.al, 2017). These sites should be totally excluded from seismic activity with sufficient buffers to render them safe from seismic disturbance and/or at least be included in analysis of seismic food web impacts to marine mammals.

Cumulative impact analysis should include the combined effects of all seismic testing operations that are being considered for IHAs as the impacts from all of them are undoubtedly cumulative. Failure to do so would result in a totally flawed analysis. It would seem that even without such analysis, the draft IHAs violate the "small numbers" and "negligible impact" standards under the MMPA individually and collectively. Each IHA allows the take of 30% of a stock--and taken together, all five IHAs are likely to have a huge impact on marine mammals. The cumulative effect of the five IHAs goes well beyond what is allowable under the MMPA.

Relative to the right whale in particular, the population is in such dire condition that the NMFS Potential Biological Removal (the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population) is one animal per year. This is exceeded every year as a result of fisheries interactions and ship strikes, yet the draft IHAs have failed to account for these as cumulative impacts to the species. Again, allowing incidental take for this species in terms of direct behavioral and/or physical impacts and/or impacts on its primary food source should not be allowed and may lead to a compelling case for a jeopardy call under the ESA.

In summary, the NMFS draft IHAs are disappointing and dangerous. As a resource agency charged with the protection of marine organisms, the IHA analyses display little sensitivity to that charge. Admittedly, there are always gaps and a level of uncertainty in decisions involving science. However, in this case the level of uncertaintly still points to impacts that are not small and not neglible, especially if seondary and cumulative impacts are factored into the decision making as they should be. It seems as new research accumulates, the case for seismic damage becomes more and more compelling.

If uncertainties exist, as a federal resource agency, we would expect NMFS to use the best science available and the precautionary principle, inclining towards protecting at-risk resources as per the agency charge.

Sincerely yours,

Ben Gregg
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South Carolina Wildlife Federation

Steve Gilbert
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South Carolina Wildlife Federation

References

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Figure1. South Atlantic Fisheries Management Council Map of Managed Areas and Coral Habitats of Particular Concern and Snapper Grouper Essential Fish Habitat-Habitat Areas of Particular Concern.