

OCEAN CONSERVATION RESEARCH



Science and technology serving the sea

September 17, 2012

Michael Payne, Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3225

Re: Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Marine Seismic Survey in the Beaufort and Chukchi Seas, Alaska, 77 Fed. Reg. 49,921 (August 17, 2012)

Dear Mr. Payne,

We believe that the requested Incidental Harassment Permits by ION Geophysical for proposed seismic surveys in the Arctic should be denied because introducing these operations in the Arctic is ill-advised and reckless. The Arctic is currently a pristine biological (and bio-acoustic) environment that is coming under increasing stress due to climate change, increase in shipping traffic, and increasing industrial exploitation. Adding seismic surveys on top of these stressors does not bode well for the health of Arctic marine life.

We find it remarkable that while the Federal Register request is full of citations that point to migratory and feeding disruptions to beluga, bowhead, and humpback whales at distances much greater than the exclusion zones described in the request, nonetheless the opinions expressed in the request capriciously point to “negligible impacts.” This situation is aggravated by NMFS overstepping the “small numbers” caveat in the Marine Mammal Protection Act (MMPA) subjecting significant proportions of beluga whales and pinniped populations.

This situation is further aggravated by the proposed season of the surveys heading into the dark of winter when visual acuity of marine mammal observers will be limited by darkness and also by increasing ice cover and

other winter-onset weather conditions. That the surveys will be conducted with the assistance of icebreakers further increases the acoustical impact of the proposed surveys.

It is becoming increasingly evident that the impact of human generated noise on marine habitat is compromising the natural adaptations of marine mammals.¹ While the habitat disruptions mentioned in the request only extend to the impacts that the seismic surveys might have on some of the ‘prey fish; of the marine mammals, we know that healthy habitats do not consist of individual species of animals distributed across a trophic hierarchy; rather healthy habitat includes all of the biological interactions found within a physical environment.

These interactions include the natural histories of invertebrates; mollusks, various arthropods, cnardia, ctenophora, and echinoderms – most of which in the Arctic are unknown to science. It stands to reason that an environment that is completely dark through a large portion of the year would drive acoustical adaptations in animals that while not “listed marine mammals,” but are nonetheless important building blocks of marine mammal habitat. We have no idea what impacts that ceaseless trains high-energy impulses will have on the complete habitat, although it is clear that the overall ambient noise levels could increase by 8dB re $1\mu\text{Pa}^2/\text{Hz}$.⁽²⁾ And while this does not seem “excessive,” when the ambient noise levels during the loudest part of the year (October) are not greater than 80–83 dB re: $1\mu\text{Pa}^2/\text{Hz}$ at 20–50 Hz,⁽³⁾ adding 8dB represents an increase of over 600% above the acoustical energy in the ambient field. And this does not account for the +160dB to 200dB that biota will be subjected to in the near field.

Additionally the request does not take into account the accumulative and synergistic impacts of the surveys in the context of all of the dramatic changes, and thus biological stressors that are visiting the environment. Measuring the impacts of a single aggravator such as the distant sound of seismic surveys banging away for days and months on end may be hard to gauge on individual animals. But the unpredictable biological impacts of the

¹ Rolland, R.M., Parks, S.E., Hunt, K.E., Castellote, M., Corkeron, P.J., Nowacek, D.P., Wasser, S.K., and Kraus, S.D., Evidence that ship noise increases stress in right whales, *Proceedings of the Royal Society B: Biological Sciences* doi:10.1098/rspb.2011.2429 (2012).

² Ethan H Roth, John A. Hildebrand, Sean M. Wiggins, and Donald Ross “Underwater ambient noise on the Chukchi Sea continental slope from 2006–2009” *J. Acoust. Soc. Am.* 131 (1), January 2012

³ Ibid.

extreme melt-back of arctic ice,⁴ increased noise from shipping traffic, extractive industries access to greater habitat (some of which has not been exposed to sunlight for eons), and the increasing pressures of exploratory (and extractive) drilling operations for hydrocarbon all needs to be figured into any proposed action that will disrupt normal biological functions.

Western scientists know so little about the Arctic; the animals that reside there and their interactions and adaptations to a mysterious and extreme environment. In relentlessly pursuing Arctic hydrocarbon deposits we stand to destroy biological interactions that we may ourselves – and certainly the Arctic indigenous people depend on for survival.

Most of our understanding of what constitutes an assault to an environment has been derived from habitat (and captive) studies in temperate and tropical waters. Applying mitigation protocols and making assumptions about “negligible impacts” based on these legacy studies is the apex of hubris. We know so little about the biology of the arctic that sending in broad and chronic disruptions is reckless, irresponsible, and should not be permitted until we have a full understand of the impacts – and what we stand to lose.

Sincerely,

A handwritten signature in black ink that reads "Michael Stocker". The signature is written in a cursive, flowing style with a long horizontal flourish at the end.

Michael Stocker
Director

⁴ Quirin Schiermeier “Ice loss shifts Arctic cycles” Nature v.489 Sept. 2012