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VIA Federal eRulemaking Portal:

<http://www.regulations.gov>

Ms. Kaja Brix
Assistant Regional Administrator
Protected Resources Division – Alaska Division
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802
Attn: Ellen Sebastian

Re: RIN 0648-XZ59 and RIN 0648-XZ58 – Comments of the Alaska Oil and Gas Association and the American Petroleum Institute – Proposed Rules to List Subspecies of the Ringed Seal and the Bearded Seal as “Threatened” Under the Endangered Species Act

Dear Ms. Brix:

Pursuant to Section 4 of the federal Endangered Species Act (“ESA”), the National Marine Fisheries Service (“NMFS”) has proposed listing as “threatened” four subspecies of the ringed seal (*Phoca hispida*) and two subspecies of the bearded seal (*Erignathus barbatus*). See 75 Fed. Reg. 77476 (Dec. 10, 2010) (ringed seal proposed rule); 75 Fed. Reg. 77496 (Dec. 10, 2010) (bearded seal proposed rule).¹ This letter provides the joint comments of the Alaska Oil and Gas Association (“AOGA”) and the American Petroleum Institute (“API”) (collectively, the “Associations”) in response to the two proposed seal listing rules. In addition to commenting on the proposed rules, this letter serves as a petition by the Associations to NMFS for the adoption of ESA § 4(d) limitations as further addressed in Section IV below.²

¹ The comment deadlines for these two proposed rules were extended by NMFS from February 8, 2011 to March 25, 2011. See 76 Fed. Reg. 6754 (Feb. 8, 2011).

² See 50 C.F.R. §§ 424.10 (authorizing, among other things, adoption of special 4(d) rules as to threatened species), 424.14(a) (authorizing written petitions requesting any action described in § 424.10).

I. INTRODUCTION

A. The Associations

AOGA is a private non-profit trade association located in Anchorage, Alaska. AOGA's fifteen member companies account for the majority of oil and gas exploration, development, production, transportation, refining, and marketing activities in Alaska. AOGA's members are the principal industry stakeholders that operate within the range of, and that incidentally interact with, ringed and bearded seals in Alaskan waters and in the adjacent waters of the U.S. Outer Continental Shelf ("OCS"). AOGA and its members are longstanding supporters of wildlife conservation, management, and research in the Arctic.

API is a national trade association representing over 450 member companies involved in all aspects of the oil and natural gas industry. API's members include producers, refiners, suppliers, pipeline operators, and marine transporters, as well as service and supply companies that support all segments of the industry. API and its members are dedicated to meeting environmental requirements, while economically developing and supplying energy resources for consumers.

B. Summary of Comments

The Associations' comments are essentially threefold in purpose, each of which applies to the proposed rules for both ringed and bearded seals:

1. **The proposed subspecies of ringed and bearded seals do not qualify as "threatened" within the meaning and requirements of Section 4 of the ESA.**

In the pending rules, NMFS proposes to list abundant subspecies of two circumpolar seal species by projecting global climate change 100 years into the future. This approach, which is directly contrary to prior decisions of both NMFS and the U.S. Fish and Wildlife Service ("FWS") using the same climate-related data, requires the agency to rely upon controversial and highly variable modeling projections of complex factors to forecast a future climate change scenario that is well beyond the reasonable ability of science to predict and, in addition, to imagine what the as-yet unapparent biological consequences of these forecasts will be on seal species. Moreover, the best available scientific data and information demonstrate that the seal populations proposed for listing are presently healthy, abundant, and occupy the entirety of their historical range. If the Services are going to list healthy species under the ESA based on speculation about the resulting biological consequences of multi-decadal projections for a single generalized ecological variable such as "climate," virtually every species may be considered threatened. On the present record, these proposed listings are contrary to the ESA.

2. **Oil and gas leasing, exploration, development, and production activities are not a past, present, or reasonably foreseeable future threat to ringed or bearded seals, or their habitat.**

As NMFS has concluded in the proposed rules, oil and gas exploration, development, and production are not a threat to ringed and bearded seals. The effects of oil and gas activities in the Alaskan Arctic are relatively well-studied. The documented impacts to seals from such activities

are limited to short-term, localized, temporary effects that have no apparent long-term effects on individuals and no detectable effect on seal populations.

3. **If, as proposed, NMFS promulgates both a final threatened listing decision and associated 4(d) rules, the 4(d) rules should limit application of the Section 9(a) prohibitions of the ESA so that these prohibitions do not apply to activities: (i) authorized by and undertaken in compliance with the Marine Mammal Protection Act (“MMPA”); and (ii) occurring outside of the range of the listed subspecies of seals.**

Congress did not apply the statutory “take” prohibitions of Section 9 of the ESA to species listed as “threatened.” Instead, the default statutory scheme provides that these prohibitions only apply to “endangered” species. However, Section 4(d) of the ESA authorizes NMFS to tailor application of the Section 9 take prohibitions to threatened species in a manner that is specific to the circumstances and conservation needs of each species. Here, because ringed and bearded seals are protected under the MMPA, and would be protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (“CITES”), NMFS should determine, as did the FWS with polar bears, that activities successfully regulated or exempted under these statutes need not be subjected to additional take regulation under the ESA. In addition, consistent with the Section 4(d) rule adopted by FWS for polar bears, NMFS should use Section 4(d) to limit application of the Section 9 take prohibitions to exclude emissions of greenhouse gases (“GHGs”) outside the range of these seal subspecies.

II. RINGED AND BEARDED SEALS ARE NOT “THREATENED” SPECIES

The ESA was enacted by Congress as an action-forcing conservation statute designed to ensure real protections for species that, based upon the best available science, are either currently in great peril (an “endangered” species) or foreseeably threatened with great peril (a “threatened” species). Nothing in the ESA compels NMFS to list healthy species based on politically-motivated petitions by advocacy groups and speculative multi-decadal projections based on the available information.

Under Section 4, the default position for all species is that they are not protected under the ESA. A species receives the protections of the ESA only when it is added to the list of threatened species after an affirmative determination that it is ‘likely to become endangered within the foreseeable future.’ Although an agency must still use the best available science to make that determination, *Conner [v. Burford]* cannot be read to require an agency to ‘give the benefit of the doubt to the species’ under Section 4 if the data is uncertain or inconclusive. Such a reading would require listing a species as threatened if there is any possibility of it becoming endangered in the foreseeable future. This would result in all or nearly all species being listed as threatened.

Trout Unlimited v. Lohn, 645 F. Supp. 2d 929, 947, (D. Or. 2007); *see Center for Biological Diversity v. Lubchenco*, No. C-09-04087, 2010 U.S. Dist. LEXIS 135030, *24-25 (N.D. Cal. Dec. 21, 2010) (“benefit of doubt” concept does not apply in Section 4 listing context); *see also Oregon National Resources Council v. Daley*, 6 F. Supp. 2d 1139, 1152 (D. Or. 1998) (ESA requires a determination as to the likelihood – rather than merely the prospect – that a species

will or will not become endangered in the foreseeable future); *Federation of Fly Fishers v. Daley*, 131 F. Supp. 2d 1158, 1165 (N.D. Cal. 2000) (“The ESA cannot be administered on the basis of speculation or surmise.”).

A. Seal Populations Are Currently Healthy

The best available scientific information regarding seal population status does not support a listing decision. Alaska stocks of ringed and bearded seals are not listed as depleted or strategic under the MMPA by NMFS, indicating the absence of scientific data or consensus that these populations are currently threatened or in significant decline.³ Moreover, there are no recent range-wide estimates of the population sizes or trends of these species to provide a scientific basis for listing under the ESA. See 2009 SARs and 2010 Draft SARs. However, there are data suggesting that Arctic ringed and bearded seal populations are quite large⁴ and may be stable or increasing. The International Union for Conservation of Nature (“IUCN”) lists bearded and ringed seals as “least concern,” and has recommended review of this designation in another ten years. See <http://www.iucnredlist.org/details/8010> (bearded seal); <http://www.iucnredlist.org/details/41672> (ringed seal). The conclusion and approach of the IUCN is scientifically-supported, conservation-minded, and prudent. The proposed ESA listings are not.

Recent surveys in portions of their ranges suggest that ringed and bearded seal populations may be higher or similar to past estimates:

- *Ringed Seals*: Ringed seal densities reported by Bengtson et al. (2005) off the Alaska coast in the Chukchi Sea for 1999-2000 were as much as two to three times higher than those reported for surveys in the 1980s (Frost et al. 1988). Densities during the 1999-2000 surveys ranged from 2.13-3.69 seals/km² compared to those in 1985, 1986, and 1987, which ranged from 1.06-1.77 seals/km². Both surveys in 1999 and 2000 were conducted during the same time of the year (mid-May to mid-June) when seals exhibit basking behavior and are most likely to be hauled out on the ice and therefore visible. While there are many factors (*i.e.*, year, methods, geographic extent, number of observations) that could affect the survey results, these two surveys provide the best

³ See Allen and Angliss, Alaska Marine Mammal Stock Assessments, 2009, available at: <http://www.nmfs.noaa.gov/pr/sars/region.htm> (“2009 SARs”); see also Allen and Angliss, Alaska Marine Mammal Draft 2010 Stock Assessments, available at: <http://www.nmfs.noaa.gov/pr/sars/draft.htm> (“2010 Draft SARs”).

⁴ For example, the listing petition represents that ringed seals are the most abundant *Phocid* species in the northern hemisphere, with a global population between 2.3 and 7 million, and that the global population of bearded seals is unknown, but believed to be “in the hundreds of thousands in the Arctic.” In addition, the proposed rules, respectively, estimate the abundance of Arctic ringed seals at over 1 million (in U.S. waters only) and the bearded seal Beringia DPS at 155,000. 75 Fed. Reg. at 77480; 75 Fed. Reg. at 77502.

scientific data for assessing ringed seal population trends in the Alaskan Arctic. The trend strongly suggests this ringed seal population has increased since the 1980s.⁵

- *Bearded Seals*: Reliable bearded seal population estimates and trends are not available (Angliss and Outlaw 2008), but the most recent surveys in the Chukchi Sea suggest population levels may be similar to those in the past. In the bearded seal proposed rule, NMFS refers to data from aerial surveys flown in 1999 and 2000 as a source for its estimate of the Chukchi Sea bearded seal population. Although not specifically cited in the proposed rule, the referenced 1999-2000 data are undoubtedly from the work reported by Bengtson et al. (2005) (eastern Chukchi Sea surveys). NMFS reports an estimate for the Chukchi Sea bearded seal population of approximately 27,000, which is based on Bengtson et al. (2005)'s estimate of 13,600 multiplied by two to account for bearded seals along the Russian coast. The estimate of 27,000 bearded seals for the Chukchi Sea likely underestimates the actual population size due to several factors:
 - The 13,600 estimate for the eastern Chukchi Sea was based only on observed seals on ice during aerial surveys and did not take into account seals that may have been underwater and unavailable for observation during the aerial surveys. This would suggest that the actual number of seals in the survey area, which extended from 148 to 185 km offshore of the Alaskan coast, may be much greater by some unknown factor than the proposed estimate.
 - The estimate was based on two years of aerial survey data. Bearded seal density in 2000 (0.14 seals/km²) was twice the density in 1999 (0.07 seals/km²), suggesting that inter-annual variability may be high, which could result from numerous naturally-occurring environmental factors. The high variability reduces confidence in the accuracy of the NMFS's estimate.
 - NMFS does not account for any bearded seals that may have been present in the central portion of the Chukchi Sea between the area surveyed by Bengtson et al. (2005) and the Russian side of the Chukchi Sea. The area in the central Chukchi Sea may represent approximately one-third of the total area of the Chukchi Sea.
 - Bengtson et al. (2005) reported that bearded seal density in the eastern Chukchi Sea was greater in offshore pack ice than nearshore fast ice during both survey years. If high bearded seal densities extend into the central portion of the Chukchi Sea, the actual size of the bearded seal population may be much greater than the proposed estimate.

⁵ The proposed ringed seal rule recognizes the difficulties in determining accurate population estimates due to the large geographical areas occupied by ringed seals, differences in survey effort and methodology among areas and over time, and effects of survey timing in relation to inter-annual variability of environmental factors such as ice conditions and snow melt. Nevertheless, the population estimates presented for various ringed seal subspecies suggest that total ringed seal population may be comprised of several million animals and the Arctic subspecies over which NMFS has jurisdiction may include in excess of 1.5 million animals.

- The historical estimates of the Bering/Chukchi bearded seal population, which range from 250,000 to 300,000 animals (*e.g.*, Allen and Angliss 2010 and references therein), suggest that the Chukchi Sea bearded seal population is higher than the estimate proposed by NMFS.⁶

NMFS's recent decision not to list ribbon seals (also an Arctic species dependent on sea ice) under the ESA further supports the conclusion that bearded and ringed seals should not be listed. *See* 73 Fed. Reg. 79822 (Dec. 30, 2008). In its ribbon seal decision, issued in response to a petition that was also premised upon climate change and ocean acidification, NMFS expressly found:

After a formal review of the best available scientific and commercial information, we find that listing of the ribbon seal is not warranted at this time. Although the ribbon seal population abundance is likely to decline gradually for the foreseeable future, primarily from slight but chronic impacts on reproduction and survival caused by reduced frequency of years with sea ice of suitable extent, quality, and duration of persistence, it is not in danger of extinction or likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

*Id.*⁷ This decision was very recently upheld, over the numerous objections of the Center for Biological Diversity, by the federal district court for the Northern District of California. *See Lubchenco*, 2010 U.S. Dist. LEXIS 135030.

In sum, the "threatened" listings proposed by NMFS for certain ringed and bearded seal populations are not supported by the best available scientific data and information. Moreover, NMFS's proposed listings are contrary to a well-established scientific consensus, as reflected in the IUCN's conclusions, and NMFS's MMPA findings that the Arctic populations of ringed and bearded seals are abundant and healthy.

B. NMFS's Reliance Upon a 100-Year Foreseeable Future is Contrary to the Best Available Science and Inconsistent With Recent ESA Decisions by Both NMFS and FWS

The primary conservation threat identified and addressed in the proposed rules is decline in sea ice habitat as a result of a warming climate. The United States, acting through both FWS

⁶ Additional information regarding the abundance and distribution of ringed and bearded seals, and other information related to ringed and bearded seals and oil and gas activities in the Arctic, is presented in the appendix attached to this letter.

⁷ Like ringed and bearded seals, ribbon seals are abundant and occupy their entire historical range. *Id.* at 79824 ("With a population likely comprising at least 200,000 individuals, ribbon seals are not currently at risk from the demographic issues of low abundance commonly associated with ESA listing decisions, such as demographic stochasticity, inbreeding, loss of genetic diversity, and compensatory effects.... The species is thought to occupy its entire historically observed range. There are no portions of their range in which ribbon seals have been reported to have disappeared, nor are they known to be demographically at risk in any portion of their range.").

and NMFS, has recently examined in detail the best available scientific data and information regarding climate change projections. FWS and NMFS have consistently concluded that the foreseeable future for purposes of climate change threats is *mid-century*, and that longer-term projections and forecasts are too uncertain to be relied upon for purposes of ESA listings. Although determination of the foreseeable future may differ among species, subject to different threats based upon different data, there is no rational or scientific basis to use a different foreseeable future where, as here, the species are dependent upon sea ice habitat, subject to the same threat (sea ice declines due to climate change), using the same data that NMFS has used in the past. Rather, climate predictions extending out 100 years and specific to the Arctic, as NMFS has relied upon in the proposed rules, far exceed the reliability of climate models and forecasts. In the proposed rules, NMFS does not explain, with supporting scientific data, analyses, and reasoning, its use of a 100-year foreseeable future and its related departure from past conclusions of both NMFS and FWS.

For example, in its recent ribbon seal decision, NMFS determined that mid-century was the foreseeable future because:

Past and current emissions of greenhouse gases have already largely set the course for changes in the atmosphere and climate until that time, and because of enormous uncertainty about future social and political decisions on emissions that will dominate projection of conditions farther into the future. Beyond the year 2050, projections of climate scenarios are too heavily dependent on socio economic assumptions and are therefore too divergent for reliable use in assessing threats to ribbon seals.

73 Fed. Reg. at 79823. In so doing, NMFS emphasized that for species with overlapping generations and facing extrinsic (habitat destruction) threats, the generation length of the species “may be essentially irrelevant,” and that “the best available scientific information allows reliable assessment of global warming and the related threats to ribbon seals through 2050.” *Id.* Notably, NMFS’s determination regarding the mid-century foreseeable future for purposes of analyzing sea ice recession due to climate change was recently defended by NMFS and sustained in a lengthy and thorough federal district court decision. *Lubchenco*, 2010 U.S. Dist. LEXIS 135030 at *46-72.⁸ The *Lubchenco* court explained:

⁸ In its vigorous defense of the mid-century foreseeable future, NMFS argued, among other things, that:

As part of the status review NMFS determined that the ‘foreseeable future’ for purposes of its analysis was the year 2050. This determination was based on the fact that climate projections, and thus NMFS’s sea-ice modeling are all in broad agreement through 2050, and thus can be relied upon in making projections. Past 2050, however, the quality of such predictions rapidly degrades, and so NMFS determined that it could not reliably predict the seal’s status past that date....

[I]t is worth emphasizing that the current consensus is that the ribbon seal population consists of at least 200,000 animals and is healthy. The best available data, though changing rapidly and reflecting uncertainty, indicates that the

Defendants are correct that NMFS did not disregard IPCC climate modeling, but instead cited it in the Status Review. In the twelve-month finding, NMFS states that its reason for choosing 2050 as the foreseeable future is that climate models after that time are too heavily dependant [sic] on socio-economic assumptions and are therefore unreliable for use in assessing threats to the ribbon seal. AR 13 at 79823. Further, the record shows that NMFS actually did consider a significant amount of climate science that included projections to 2100 or later. See, e.g., AR 11 at 63 (discussing sea ice coverage during decade from 2075-2084); AR 276 at [sic] [(]climate projections through 2200); AR 316 [(]ocean acidification projections through 2100); AR 319 at 4 (sea ice projections through 2100); 352 at 4 (climate projections through 2084); AR 409 at 12 (projections to 2100).

Plaintiffs have not shown that NMFS's reasons for designating 2050 as the foreseeable future were arbitrary and capricious. Specifically, the IPCC addressed warming after 2050, but since there was little reliability, NMFS did not err in determining that models after 2050 were too variable to be part of the foreseeable future.

Id. at *54-55.

Although the ribbon seal foreseeable future determination was an independent assessment, NMFS nevertheless emphasized that “[i]t is important to note that our approach to establishing the appropriate time frame for the foreseeable future, as noted above, was the same as the approach used by FWS in its recent decision listing the polar bear as threatened under the ESA (73 FR 28212).” 73 Fed. Reg. at 79823.⁹ Indeed, the U.S. Department of the Interior completed a comprehensive analysis of climate change modeling uncertainty and the reliability of future forecasts in connection with its polar bear listing decision. See 73 Fed. Reg. 28212, 28227-28, 28243-45 (May 15, 2008). FWS concluded that there is a scientific consensus that predictions of climate change on at least a broad scale extending out to 2050 are relatively insensitive to emissions assumptions, but that longer-term projections and forecasts at the

population will not be threatened with extinction by 2050 despite what NMFS has characterized as a gradual decline from slight but chronic impacts associated with climate change. NMFS will continue to monitor the species and if new information comes to light or the [sic] if the population decline indicates that the ribbon seal will become threatened [or] endangered, NMFS will revisit its conclusions. Congress has not authorized NMFS under the ESA to take action any sooner, nor has it authorized NMFS to make assumptions that are unsupported by the available data.

Lubchenko, 2010 U.S. Dist. LEXIS 135030, Dkt. 67, pp. 14-19 (federal defendants' reply brief, dated July 23, 2010).

⁹ See *Lubchenko*, 2010 U.S. Dist. LEXIS 135030 at *60-61 (accepting NMFS's contention that consistency with polar bear foreseeable future supports mid-century foreseeable future for the ribbon seal).

regional or local scale are not sufficiently reliable for projections of threat to a species. *Id.* at 28253-54. Specifically, FWS explained:

On the basis of our analysis, reinforced by the conclusions of the IPCC AR4 [the same report used by NMFS in the ringed and bearded seal proposed rules], we have determined that climate changes projected within the next 40-50 years are more reliable than projections for the second half of the 21st century....

[W]e considered the timeframe over which the best available scientific data allow us to reliably assess the effect of threats on the polar bear, and determined that there is substantial scientific reliability associated with climate model projections of sea ice changes over the next 40-50 years. Confidence limits are much closer (i.e., more certain) for projections of the next 40-50 years and all projections agree that sea ice will continue to decrease. In comparison, periods beyond 50 years exhibit wider confidence limits, although all trends continue to express warming and loss of sea ice (IPCC 2007, p. 749; Overland and Wang 2007a, pp. 1-7; Stroeve et al. 2007, pp. 1-5).

73 Fed. Reg. at 28253-54. The United States has provided a vigorous and extensive defense of this determination in response to a pending legal challenge.¹⁰ *See, e.g., In re Polar Bear Endangered Species Act Listing and 4(d) Rule Litigation*, MDL Dkt. No. 1993 (D.D.C.), Dkt. #137 at pp. 68-72 (Federal Defendants' brief of Dec. 7, 2009), Dkt. #195 at pp. 27-28 (Federal Defendants' reply brief of April 21, 2010).

The two proposed rules confirm that NMFS has relied upon the same data used by NMFS for the ribbon seal (and by FWS for the polar bear and American pika) and acknowledge the inconsistency. 75 Fed. Reg. at 77477; *id.* at 77497. However, the explanation given for the inconsistency is both conclusory and devoid of meaning:

NMFS scientists have revised their analytical approach to the foreseeability of threats and responses to those threats, adopting a more threat-specific approach based on the best scientific and commercial data available for each specific threat. For example, because the climate projections in the Intergovernmental Panel on Climate Change's (IPCC's) *Fourth Assessment Report* extend through the end of the century (and we note the IPCC's *Fifth Assessment Report*, due in 2014, will extend even farther into the future), we used those models to assess impacts from climate change through the end of the century.

Id.

The IPCC's *Fourth Assessment Report* is the same report, with the same data and the same projections, used previously by NMFS and FWS, for the same purpose (to assess the threat

¹⁰ In another relatively recent ESA listing analysis of a species proposed for listing on the basis of climate change, the FWS again reaffirmed that a mid-century foreseeable future is appropriate because of the general scientific consensus that climate change projects past mid-century are not reliable. *See also* 75 Fed. Reg. 6438, 6456-57, 6462-63 (Feb. 9, 2010) (listing of American Pika based upon climate change not warranted).

of Arctic sea ice recession linked to warming of climate).¹¹ In the Services' previous decisions, which were peer-reviewed and one of which has since been sustained in federal court, the Services determined that although the IPCC models project impacts out for 100 years, the resulting information *was not scientifically reliable beyond mid-century*. The currently proposed rules do not determine otherwise, let alone explain what would justify such a reversal of scientific decision regarding the reliability of the same data used for the same purpose. The issue has never been the existence of climate and sea ice recession projections out to 100 years or more. Rather, as determined by NMFS and by FWS, and as concurred in by numerous independent peer reviewers, and as sustained by a federal court, the issue is the lack of reliability of these projections beyond *mid-century*.

In sum, in assessing the threat of climate change to ringed and bearded seals, NMFS should use the same mid-century foreseeable future that the two Services have previously applied with respect to the same data and the same threat. Here, NMFS has offered no explanation of any substance to explain how it proposes to reach a different result (indeed, there is none) and, consequently, its sharp deviation from previous practice is arbitrary and violates the Administrative Procedure Act ("APA") and the ESA. By looking beyond mid-century, NMFS effectively speculates about projected threats during a timeframe (after 2050) that both Services have recently concluded is beyond the realm of foreseeability. The altered approach NMFS proposes here is significant because the proposed listings are wholly dependent upon NMFS's use of a 100-year foreseeable future. The identified seal subspecies do not qualify as "threatened" under the ESA if the more appropriate mid-century foreseeable future is used.¹²

C. Predictions of Impacts From Climate Change on Seal Populations Are Speculative

There are no scientific data demonstrating an observed adverse impact on ringed or bearded seal populations resulting from sea ice recession or other environmental changes attributed to global climate change. While there are data from isolated past warm years that form the basis for theoretical notions of potential biological consequences to Arctic seal species from global climate change, these data do not demonstrate an existing adverse impact. This data gap is a critical distinction between the present listing proposals and the recent polar bear listing in which the FWS relied upon data it concluded demonstrated a present adverse impact to polar bear populations in the southern most reaches of its habitat *attributable to sea ice recession*

¹¹ NMFS's cursory explanation of its use of a "more threat-specific approach" in the ringed and bearded seal proposed rules does not explain NMFS's sharp departure from recent decisions by both Services that used a mid-century foreseeable future for ice-dependent Arctic species. Those decisions were equally focused on specific "threats" to the species due to projected sea ice reductions. Indeed, application of the ESA's five listing factors requires consideration of the specific threats faced by a species. *See* 16 U.S.C. § 1533(a)(1). Nothing in either of the proposed rules is meaningfully distinguishable from the threat analyses consistently used by both Services in previous climate change-related listing decisions.

¹² Given the high abundance of ringed and bearded seal populations, the fact that they occupy their entire historical ranges, and the fact that there have been no observed effects on either species due to climate change, neither species qualifies as "threatened" even if the 100-year foreseeable future is used. *See supra* § II.A.

linked to climate change. See 173 Fed. Reg. 28212, 28275 (“Polar bears in some regions already are demonstrating reduced physical condition, reduced reproductive success, and increased mortality”), 28276 (“In the southerly populations... polar bears already experience stress from seasonal fasting due to early sea ice retreat”). Similar findings for ringed and bearded seals do not exist.¹³

NMFS’s best science findings made pursuant to the MMPA also suggest that predicting future population declines based upon projected climate change effects is speculative. Based on the recommendations of regional scientific review groups established by the MMPA, NMFS annually prepares, proposes, accepts public comment on and publishes final stock assessment reports (“SARs”) of certain marine mammal stocks. *See* 16 U.S.C. § 1386. These SARs must, by law, be based upon “the best scientific information available.” *Id.* § 1386(a). The current final SARs for the Alaska stocks of ringed and bearded seals, and the currently proposed updated draft SARs for both species, specifically address the potential impacts of climate change in the Arctic and resulting reductions in sea ice habitat. In the 2009 SARs and 2010 Draft SARs, after considering these potential impacts, NMFS makes the following identical findings:

- “There are insufficient data to make reliable predictions of the effects of Arctic climate change on the Alaska ringed seal stock.”
- “There are insufficient data to make reliable predictions of the effects of Arctic climate change on the Alaska bearded seal stock.”

2009 SARs at pp. 57 and 62; 2010 Draft SARs at pp. 58 and 63. NMFS neither attempts to, nor could it, square these “best science” findings with the proposed listing rules. While we recognize that the findings in NMFS’s SARs represent current status assessments and not forecasts, the existing data documented in NMFS’s most recent SARs do not demonstrate a current detectable adverse impact on seal species from climate change nor do they suggest a negative trend in abundance for either species.¹⁴

D. Predictions of Impacts of Ocean Acidification on Seal Species are Speculative

The proposed listing rules discuss the potential impacts on ringed and bearded seals caused by ocean acidification. *See* 75 Fed. Reg. at 77485 and 77508. The proposed rules suggest that a series of undefined “cascading effects” may cause unspecified “changes in

¹³ Moreover, the proposed rules largely ignore the fact that sea ice in the Arctic has been in decline for a number of years, yet, despite those declines, no declines in fitness or abundance, or any other detrimental effects, have been observed with respect to ringed or bearded seals. This calls into question NMFS’s assumption that future declines in sea ice will inevitably lead to detrimental effects to ringed and bearded seal populations.

¹⁴ More broadly, the models that NMFS largely relies upon in the proposed rules to project climate change effects on seal species in the next 100 years generally focus on a single first-order forcing factor (carbon dioxide) and not other important first-order factors, such as the effects of aerosols on radiative heating, clouds, precipitation, and land cover and use. *See* Pielke (2011). The models employed by NMFS are also limited in their ability to accurately depict regional effects and natural atmospheric oscillations (such as El Nino).

community composition” that may be adverse to ringed or bearded seals. However, the proposed rules also acknowledge that “[o]n the other hand, overall pelagic productivity may increase.” *Id.* at 75485.

NMFS has previously addressed the threat posed to Arctic and Subarctic seal species from ocean acidification. Based upon the exact same information reviewed and relied upon for the two proposed listings, NMFS has stated with greater clarity that:

- while ocean acidification has “the potential for negative impacts, the possibilities are complex” and “are not well understood;” and
- the “nature and timing” of ocean acidification impacts “are extremely uncertain.”

74 Fed. Reg. at 53690 (spotted seal); 73 Fed. Reg. at 79826 (ribbon seal). On the basis of the “dietary flexibility” of seal species, “and acknowledging our present inability to predict the extent and consequences of acidification,” NMFS has previously made the express determination that ocean acidification is not likely to cause ice-dependent seal species to become in danger of extinction within the foreseeable future. *Id.*¹⁵ In sum, given NMFS’s recent findings regarding ocean acidification, and the fact that the potential impacts, if any, of ocean acidification are not well-documented and are poorly understood, the perceived threat of ocean acidification is not a factor that justifies listing under the ESA.

E. Seal Species May Adapt to the Effects of a Changing Climate

The proposed listing rules are structured around only one of a range of potential outcomes from sea ice changes. The environment marine mammals inhabit is constantly changing due to the dynamic nature of the oceans and climate. Marine mammals, like all wildlife, adapt to these changing environmental conditions in a number of ways to increase fitness to survive and reproduce (Wilson 1975). There are many examples of wildlife adapting to changing environmental and anthropogenic conditions in the Arctic (and elsewhere) that present plausible responses of ice seals to changing climate conditions. Some examples are described below.

- Ringed seals have adapted to a history of climate change in the Arctic. The proposed rule cites literature showing the effects of cold and warm temperature years on ringed seal survival. However, these studies show that temperature extremes are an inherent feature of the Arctic environment, an environment where ice seals adapt and sustain their populations, as evidenced by ringed seal density increases recorded over a time period spanning these extreme conditions (Bengtson *et al.* 2005).
- Ringed seals use a wide variety of ice types enabling them to respond to changing ice conditions. Bengtson *et al.* (2005) reported that ringed seal densities were higher in shorefast ice and pack ice, and lower in offshore pack ice. However, in some areas where there is limited fast ice but wide expanses of offshore pack ice, the total numbers of ringed seals on pack ice may exceed those on shorefast ice (Burns 1970; Stirling *et al.*

¹⁵ See *Lubchenko*, 2010 U.S. Dist. LEXIS 135030 at *66-72 (sustaining NMFS’s findings regarding the uncertainty of ocean acidification timing and effects).

1982; Finley *et al.* 1983). Frost *et al.* (2004) reported slightly higher ringed seal densities in the offshore pack ice (0.92-1.33 seals/km²) than in the shorefast ice (0.57-1.14 seals/km²) in the central Beaufort Sea during late May and early June, when seals are most commonly hauled out on the ice. Wiig *et al.*, (1999) found highest seal densities on stable shorefast ice, but significant numbers of ringed seals also occur in offshore pack ice. During summer, high densities of ringed seals are associated with ice remnants (Burns *et al.* 1980 cited in USDI MMS 2003). These results show that ringed seals use and adapt to a variety of ice conditions influenced by seasonal conditions, environmental conditions, and seal behavior throughout the Alaskan Arctic to maintain healthy population levels. Recent industry monitoring during exploration activities in the Chukchi Sea since 2006 have reported relatively stable sighting rates and densities for ringed seals (Ireland *et al.* 2009, Funk *et al.* 2010). While these studies are not designed to produce population estimates, they suggest that seal abundance has not changed greatly in past 5 years across a fairly wide geographical area.

- Bearded seals have been shown to switch from pack ice to open water in response to changing sea ice conditions. Bearded seal densities are highest in the offshore pack ice over the Outer Continental Shelf, but also occur at the interface of the fast ice with pack ice and open cracks (Bengtson *et al.* 2005). However, bearded seals move shoreward into open water areas when the pack ice retreats to areas beyond the continental shelf with water depths greater than 200 meters to maintain their access to preferred food sources. This implies that bearded seals may be able to adapt to longer periods of open water, though the longer term consequences of these changes are not known.
- Ringed seals respond to changes in climatic periods by varying lair density. As Rosing-Asvid (2006) explains, during milder climatic periods, ringed seal habitat is less abundant while lair density is higher. Conversely, during colder climatic periods, ringed seal habitat is more abundant while lair density is lower. There was no change noted in pup production between the two climatic conditions. This relationship has also been observed in Norway (Aars *et al.* 2006). Based on these findings, Rosing-Asvid (2006) concludes that alternative theories are being ignored by researchers who are focused on a single theory based on global warming – a flaw that the proposed rules share.
- Adult ringed seals have benefited from landfast ice clearing earlier than the average dates. Mean body-mass index declined for female ringed seals during severe ice years while it remained high in a year the landfast ice cleared earlier than average which created an abundance of marine food (Harwood *et al.* 2000). This outcome was reported by other researchers (Kingsley and Byers 1998; Craig *et al.* 1982). Ovulation rates also remained high during this period compared to much lower rates during periods of severe ice conditions. There was an unexpected increase in pup mortality and delayed molt of lanugal fur possibly caused by shortened lactation from the early clearing of the fast ice but a subsequent analysis concluded the causes could not be defined and, furthermore, that seals may be adapted to such events because of their strategy of feeding autonomously from birth (Smith and Harwood 2001; Lydersen 1995). While not addressed in the proposed rules, these results show how marine mammals may compensate for consequences of changing conditions by taking advantage of readily available foods to maintain body condition and ovulation rates sufficient to offset pup mortalities.

Moreover, NMFS has previously concluded that adaptation to declines in sea ice by Arctic and Subarctic seal populations is both relevant and significant. *See* 73 Fed. Reg. at 79825-26 (ribbon seals); 74 Fed. Reg. at 53690 (spotted seals). The proposed rules do not address or distinguish NMFS's prior findings regarding climate change and seal adaptation.

The above examples demonstrate the ability of marine mammals to adapt to changing environmental conditions. These and other adaptations have been formed over hundreds of years in response to the dynamic nature of the Arctic. While the proposed rules project one possible adverse outcome from changing environmental conditions, there are other more optimistic outcomes that are equally or more likely to occur. Responsible science requires that all outcomes be fully analyzed. There should be no listing in the absence of reliable data demonstrating that ringed and bearded seals are likely to become in danger of extinction in the foreseeable future.

F. The Alaskan Arctic Ecosystem Remains Healthy

The health of the Arctic ecosystem in and adjacent to Alaska argues against listing ice seals under the ESA. A key measure of the health of the ecosystem is the condition of the populations that feed on zooplankton which support the prey populations of the ice seals. Reduced prey populations would be reflected by declining marine mammal populations caused by reduced reproduction rates.

A key species reflecting the health of the ecosystem is the bowhead whale, which feeds on zooplankton during summer to fall. The stock (Bering-Chukchi-Beaufort Sea or BCB) has increased from several thousand in the 1970s to over 10,545 whales (Brandon and Wade 2004; George *et al.* 2004a,b; Zeh and Punt 2004; and Angliss and Outlaw 2008). The actual population size is likely much higher, since the most recent estimate was derived from data collected in 2001. The current population could be over 12,000 bowheads given an annual growth rate (3.4 - 3.5% or at least 350 new whales per year). Sheldon *et al.* (2001) and Gerber *et al.* (2007) suggested that the healthy condition of the stock should warrant delisting it under the ESA, since the population is within the range (10,400 to 23,000 whales) of its pre-commercial exploitation size. George *et al.* (2004a) concluded that the recovery of the BCB Seas bowhead whale population is likely attributable to relatively pristine habitat combined with low anthropogenic mortality and well-managed subsistence harvest. The health of the ecosystem reflected by continued growth of the bowhead whale population likely supports similarly healthy ice seal populations. A deteriorating or stressed ecosystem may warrant consideration of listing species under the ESA. However, a healthy ecosystem, such as the Alaskan Arctic, does not.

III. OIL AND GAS ACTIVITIES IN THE ARCTIC ARE NOT A THREAT TO SEAL SPECIES

A secondary purpose of the proposed listing of ice seal species in the Arctic is the advancement of the petitioner Center for Biological Diversity's ("CBD") ongoing political campaign in opposition to offshore oil and gas exploration and development in Alaska. CBD's campaign is not supported by a substantial body of scientific data and information. Specifically, while industrial activities in the Arctic need to be, and are, conducted in a manner that ensures protection of all marine mammal species, it is well-demonstrated that oil and gas activities,

regulated under the requirements of the MMPA, have no more than a negligible impact on seal species.

A. Oil and Gas Activities Have Had No Detectable Adverse Impact on Seal Populations

Scientific studies performed over the past three decades have not shown any measurable effects on ice seal populations due to oil and gas activities. The Services have concluded, on numerous occasions, that the best available scientific data and information demonstrate that oil and gas operations have had no more than a negligible effect on individual ice seals, and no effect on the populations in the Alaskan Arctic. These studies and information are summarized below. *See also* Appendix (attached).

1. Seismic Operations

Ice seals show no more than a temporary response to seismic operations. Monitoring studies in the Alaskan and Canadian Beaufort Sea during 1996–2002 provided considerable information regarding behavior of seals exposed to seismic pulses (Miller *et al.* 2005; Harris *et al.* 2001; Moulton and Lawson 2002). These seismic projects usually involved arrays of 6 to 16 with as many as 24 airguns with total volumes 560 to 1500 cubic inches. The combined results suggest that some seals avoid the immediate area around active seismic vessels. In most survey years, ringed seal sightings tended to be farther away from the seismic vessel when the airguns were operating than when they were not (Moulton and Lawson 2002). However, these avoidance movements were relatively small, on the order of 100 meters (328 feet) to (at most) a few hundred meters, and many seals remained within 100–200 meters (328–656 feet) of the trackline as the operating airgun array passed by. Seal sighting rates at the water surface were lower during airgun array operations than during no-airgun periods in each survey year except 1997. Miller *et al.* (2005) also reported higher sighting rates during non-seismic than during line seismic operations, but there was no difference for mean sighting distances during the two conditions nor was there evidence ringed or bearded seals were displaced from the area by the operations.

The operation of the airgun array had minor and variable effects on the behavior of seals visible at the surface within a few hundred meters of the array. The behavioral data from these studies indicate that some seals were more likely to swim away from the source vessel during periods of airgun operations and more likely to swim towards or parallel to the vessel during non-seismic periods. No consistent relationship was observed between exposure to airgun noise and proportions of seals engaged in other recognizable behaviors (*e.g.*, “looked” and “dove”). Such a relationship might have occurred if seals seek to reduce exposure to strong seismic pulses, given the reduced airgun noise levels close to the surface where “looking” occurs (Miller *et al.* 2005; Moulton and Lawson 2002). Seals exposed to multiple seismic airguns in the Chukchi Sea during Shell and ConocoPhillips’ 2006 and 2007 operations showed no more than localized movement, and there was no indication of displacement from seismic sounds (Ireland *et al.* 2008).

In sum, bearded and ringed seals do not show strong avoidance reactions to seismic operations. Pinnipeds frequently do not avoid the area within a few hundred meters of operating airgun arrays, even for large airgun arrays (Harris *et al.* 2001). Reactions are localized and confined to relatively small distances and durations, with no documented long-term effects on

individuals or populations. *See generally* Final Programmatic Environmental Assessment, Arctic Ocean Outer Continental Shelf Seismic Surveys – 2006 (concluding that there has been no scientific link established between exposure to sound and adverse effects on any marine mammal population).

2. Other Oil and Gas Activities

Other oil and gas operations that have been demonstrated to have no significant effect on ice seal populations are vibroseis, offshore development at Northstar, and drilling:

- Vibroseis may cause some localized displacement of ringed seals from breathing holes and lairs in the immediate proximity of seismic lines but any such displacement was found to be insignificant with no effect on the population (Burns and Kelly 1982; Kelly *et al.* 1986; Richardson *et al.* 1995). Furthermore, there have been no reduced ringed seal densities in the areas with vibroseis (Kelly *et al.* 1988).
- The Northstar offshore facility in Alaska's Arctic has been in production since 2001. Studies show effects on basking ringed seals are few and no more than slight relative to the effects of natural environmental factors (Moulton *et al.* 2005). Similar findings were reported by ringed seal use of breathing holes and lairs (Williams *et al.* 2006). Ringed seal holes and lairs were established before and during activities within a few meters of the Northstar offshore oil development, and many of the structures were maintained for extended periods despite the presence of low-frequency industrial noise and vibration, construction and use of an ice road, and other occasional industrial activities on the sea ice.
- Offshore drilling operations have not been demonstrated to significantly affect ringed or other ice seals. Studies show that seals are commonly seen near drillships drilling in the Arctic during summer and fall (Richardson *et al.* 1995; Brueggeman *et al.* 1991). Ringed and bearded seals have been observed diving within 50 meters of an underwater sound projector broadcasting steady low frequency drilling sounds (Richardson *et al.* 1995). These studies show that ringed and bearded seals tolerate drilling noise (Richardson *et al.* 1995).
- Oil spills are not likely to have a significant effect on ice seal populations. Oil spills in the Arctic Ocean, if any, would likely affect a small portion of ice seal habitat. Ice seals are widespread in the Chukchi and Beaufort Seas, which provides a natural safety factor in the event of an oil spill. The combination of broad ice seal distribution, and spill prevention and response capabilities, has prevented and will prevent an oil spill from significantly affecting ice seal populations.

B. The MMPA and Oil Spill Prevention and Response Requirements Are Adequate Regulatory Mechanisms That Sufficiently Address Industrial Activities Occurring in Seal Habitat

The oil and gas industry has been operating in the Alaskan Arctic Ocean and adjacent shoreline for over 30 years with no more than a negligible effect on ice seals and other marine mammals. As confirmed by the scientific evidence presented above, and numerous analyses

performed by NMFS and other federal agencies over a period of years, existing regulatory mechanisms sufficiently protect seal species from the impacts of authorized oil and gas activities, and from the risk of an oil spill.

The MMPA, 16 U.S.C. § 1361, *et seq.*, is intended to ensure that marine mammals are “protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management.” 16 U.S.C. § 1361(6). The MMPA’s primary management objective is to “maintain the health and stability of the marine ecosystem.” *Id.* To accomplish this objective, the MMPA enacts a broad moratorium on the “take,” import, or export of marine mammals and marine mammal products, except as expressly authorized. *See id.* §§ 1371(a), 1362(8) (defining moratorium), 1371(a)(1)-(6) (describing exceptions), 1373 (authorizing regulations on take and importation). In the MMPA, Congress authorized the Secretaries of Interior and Commerce, acting through the Services, to issue several different types of permits and authorizations allowing the take of marine mammals incidental to activities such as industrial projects, commercial fishing, military readiness, research, public display, and photography. *See, e.g., id.* §§ 1362(12), 1371(a)(1), 1374, 1387.

As relevant to commercial and industrial activities, other than commercial fishing, Section 101(a)(5) of the MMPA, 16 U.S.C. § 1371(a)(5), provides two means by which the Services may authorize incidental take. First, U.S. citizens may petition the Services to issue a regulation for a period of up to five years authorizing the taking of small numbers of marine mammals incidental to a specified activity in a specified geographic region. *Id.* § 1371(a)(5)(A). The Services must grant such an authorization if it is determined that the activity: (i) will have a “negligible impact on the species or stock” and; (ii) “will not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses.” *Id.* Once the Services’ incidental take regulations are promulgated pursuant to MMPA § 101(a)(5)(A), individual authorizations, known as Letters of Authorization (“LOAs”), may be issued by the Services to specific operators within the class of activities addressed in the regulations. LOAs must, among other things, identify mitigation measures “effecting the least practicable impact” on the species or stock and its habitat, and identify requirements for monitoring and reporting of take. *Id.* 1371(a)(5)(A)(i)(II). Second, pursuant to MMPA § 101(a)(5)(D), U.S. citizens may request authorization for the incidental take by harassment of small numbers of marine mammals while engaged in a specified activity in a specified geographic area. 16 U.S.C. § 1371(a)(5)(D). Known as Incidental Harassment Authorizations (“IHAs”), the Services may grant these approvals for a period of one year or less, provided that the same findings required for incidental take regulations (*i.e.*, negligible impact, no unmitigable adverse impact on subsistence, and mitigation effecting the least practicable impact) are made. *Id.*

With respect to the risk of oil spills, the Oil Pollution Act of 1990 (“OPA”), 33 U.S.C. § 2701, establishes extensive requirements under the Federal Clean Water Act for the prevention of, and response to, oil spills. In conjunction with the environmental protection requirements of the Outer Continental Shelf Lands Act (“OCSLA”), 43 U.S.C. § 1331 *et seq.*, and rigorous State of Alaska laws and regulations, a comprehensive and demonstrably effective regulatory scheme exists regarding oil spill protection and response related to oil and gas operations occurring within seal habitat.

As addressed in detail in connection with the recent polar bear listing, the provisions of the MMPA, OCSLA and OPA, among others, have been extraordinarily effective in managing

the potential for adverse impacts to marine mammal species, including seals, in the Arctic environment. *See* 73 Fed. Reg. at 28283-85. As a consequence, as with the polar bear, it is well documented that oil and gas exploration, development and production activities do not threaten the ringed or bearded seal species, or any distinct population segment of such species, throughout all or any significant portion of their ranges because: (i) mitigation measures now in place and likely to be used in the future have been effective; (ii) no more than negligible impacts have been documented to individual seals, seal populations, or seal habitat from oil and gas activities; and (iii) development activities, and possible oil spill events, are limited and localized relative to the availability of seal habitat. *See, e.g., id.* at 28265-66.

C. Responsible Oil and Gas Leasing, Exploration, and Development, and Conservation of Arctic Species and Habitat Are Not Irreconcilable Choices

It is well-documented that petitioning to list Arctic marine mammals under the ESA, including ringed and bearded seals, is a tactic by the advocacy group, CBD, to draw public attention and political pressure to the issues surrounding global climate change and to promote its separate campaign to impede Alaska oil and gas activities.¹⁶

However, CBD's attempt to juxtapose the Alaska oil and gas industry as irreconcilable with the survival of Arctic marine mammals is as revealing as it is false. The protection of the environment, including species listed under the ESA, and the responsible development of natural resources for energy, are both important national priorities that find support in federal laws, regulations, and policies. CBD exists to advocate for only the former of these priorities, and has taken on as one of its missions the elimination of the other. By contrast, it is the responsibility of NMFS, other agencies, and ultimately the federal courts, to harmonize these (and many other) important Congressional mandates. Fortunately, the survival of Arctic species on the one hand, and continuing oil and gas operations in Alaska on the other, are not in serious conflict. No matter how often and how fervently it may be stated by CBD, there is well-documented, long-standing and uncontradicted evidence demonstrating that the oil and gas industry in Alaska, as

¹⁶*See Center for Biological Diversity, et al. v. Kempthorne et al.*, No. 3:07-cv-00141-RRB (D. Alaska Apr. 22, 2008), *aff'd*, 588 F.3d 701 (9th Cir. 2009) (challenge to Beaufort Sea polar bear incidental take regulations for oil and gas activities); *North Slope Borough, et al. v. Minerals Management Service, et al.*, No. 3:07-cv-0045-RRB (D. Alaska Feb. 12, 2007), *aff'd*, 343 Fed. Appx. 272 (9th Cir. 2009) (challenge to Beaufort Lease Sale 202); *Native Village of Point Hope, et al. v. Salazar, et al.*, 730 F. Supp. 2d 1009 (D. Alaska 2010), *amended by*, No. 1:08-cv-0004-RRB (D. Alaska Aug. 2, 2010)(challenge to Chukchi Sea Lease Sale 193); *Center for Biological Diversity, et al. v. U.S. Department of Interior, et al.*, 563 F.3d (D.C. Cir. 2009) (challenge to MMS 5-year plan for OCS oil and gas leasing); *Alaska Wilderness League, et al. v. Minerals Management Service, et al.*, 564 F. Supp. 2d 1077 (D. Alaska 2008), *appeal pending*, No. 08-35571 (9th Cir.) (challenge to seismic survey approvals for Shell and BP); *Center for Biological Diversity, et al. v. Kempthorne*, No. C-08-1339-CW (N.D.Cal. Oct. 2, 2008) (challenge to 4(d) ESA regulation for polar bears); *Center for Biological Diversity, et al. v. Kempthorne*, No. 08-cv-00159-JWS (D. Alaska Jan. 8, 2010), *appeal pending*, No. 10-35123 (9th Cir.) (challenge to Chukchi Sea polar bear incidental take regulations for oil and gas activities).

regulated and monitored under the MMPA, does not injure or otherwise have more than a negligible effect on any marine mammal species.¹⁷

For example, in the context of seals, NMFS has made the following findings:

- “NMFS believes that any potential impacts to ringed, bearded, and spotted seals to the proposed on-ice geophysical seismic program would be no more than negligible, and would be limited to distant and transient exposure.” 73 Fed. Reg. 9535, 9543 (Feb. 21 2008).
- “Long term research and monitoring results on ice seals in the [sic] Alaska’s North Slope have shown that effects of oil and gas development on local distribution of seals and seal lairs are no more than slight, and are small relative to the effects of natural environmental factors.” 73 Fed. Reg. 46774, 46789 (Aug. 11, 2008).
- “[T]here is no indication that seals are more than temporarily displaced from ensonified zones and no evidence that seals have experienced physical damage to their auditory mechanisms even within ensonified zones.” 73 Fed. Reg. 31816, 31819 (June 4, 2008).
- “The short-term exposures of pinnipeds to airgun sounds are not expected to result in any long-term negative consequences for the individuals or their populations, as observations have shown pinnipeds to be rather tolerant of (or habituated to) underwater seismic sounds.... Any effects would be temporary and of short duration at any one place.” 74 Fed. Reg. 55368, 55405 (Oct. 27, 2009).
- “NMFS has preliminarily determined that Shell’s proposed exploration drilling program in Camden Bay, Beaufort Sea, Alaska is not expected to have any habitat-related effects that could cause significant or long-term consequences for individual marine mammals [such as ice seals] or on the food sources that they utilize.” 75 Fed. Reg. 20482, 20495 (April 19, 2010).

¹⁷ Nor is it the case that if all oil and gas activity in Alaska, and therefore all Alaska oil production, were eliminated, the use of oil and gas for energy would decline in the United States or elsewhere, emissions of GHGs would decline, or prospects for the future of sea ice habitat would change. Alaska oil and gas reserves are important national energy and national security resources. In the absence of development of these domestic resources, which are critical to national energy policy and to the economy of Alaska, the primary result would be a substantial increase in the import of oil produced by foreign countries. By not producing our own oil and gas resources, and instead relying on imported oil, the United States would only transfer (export) the environmental impacts of exploration and production to other countries, while increasing transportation effects and related risks. There is no evidence that increasing our use of imported oil and gas would result in a reduction in GHG emissions, amelioration of global climate change, or improvements in the long-term prospects for sea ice habitat or ice-dependent marine mammal species. See, e.g., *Final Environmental Impact Statement, Chukchi Sea Planning Area Oil and Gas Lease Sale 193*, OCS EIS/EA MMS 2007-026 at pp. ES-7 – ES-8, IV-23 – IV-26; *Final Environmental Impact Statement, Beaufort Sea Planning Area Oil and Gas Lease Sales 186, 195 and 202*, OCS EIS/EA MMS 2003-001 at pp. IV-20 – IV-22.

- “Oil and gas exploration and development activities may include artificial island construction, drilling operations, pipeline construction, seismic surveys, and vessel and aircraft operations. The main issues for evaluating the impacts of exploration and development activities on ribbon seals are the effects of noise, disturbance, and potential oil spills produced from these activities. Any negative effects on ribbon seals from noise and disturbance associated with development activities are likely to be minor and localized. Ribbon seals are also highly dispersed during the summer, open water season, so the rate of interactions with seismic surveys would likely be low, and, in any case, seals have not been shown to be significantly impacted by oil and gas seismic surveys.” 73 Fed. Reg. 79822, 79827 (Dec. 30, 2008).

IV. IF NMFS PROMULGATES 4(d) RULES FOR RINGED AND BEARDED SEALS, IT SHOULD LIMIT APPLICATION OF THE “TAKE” PROHIBITIONS OF THE ESA IN A MANNER SIMILAR IN SCOPE AND EFFECT TO THE 4(d) RULE ISSUED BY FWS FOR THE POLAR BEAR

In addition to the proposals to list several subspecies of ringed and bearded seals as “threatened,” NMFS has also proposed to adopt broadly applicable 4(d) rules. The entire discussion of the proposed 4(d) rules is contained in two identical sentences in each proposed rule:

Based on the status of each of the [ringed and bearded] seal subspecies and their conservation needs, we conclude that the ESA section 9 prohibitions are necessary and advisable to provide for their conservation. We are therefore proposing protective regulations pursuant to section 4(d) for the [ringed and bearded seal subspecies] to include all of the prohibitions in section 9(a)(1).

75 Fed. Reg. at 77493; *id.* at 77512. The proposed rules provide no scientific or policy rationales explaining why the proposed “blanket” 4(d) rules are either necessary or advisable, nor is there any analysis based upon data, studies, or scientific findings. On this basis alone, the proposed 4(d) rules fail to meet the APA’s “arbitrary and capricious” standard of review because the agency fails to show a “rational connection” between the facts found and the decision made.

In the event that NMFS should determine to list one or more of the proposed ringed and bearded seal subspecies as “threatened” (which is not warranted by the record or the law) and to adopt a 4(d) rule for such species, the Associations hereby petition¹⁸ NMFS to establish limits on application of the § 9(a) take prohibitions similar in scope and effect to the 4(d) rule limitations established by FWS for the polar bear. *See* 50 C.F.R. § 17.40(q). Specifically, the Associations petition NMFS to adopt a 4(d) rule as to the ringed and bearded seal subspecies addressed in the proposed rules that provides the following limitations:

- (1) The prohibitions in section 9(a)(1) of the ESA (16 U.S.C. 1538(a)(1)) relating to endangered species do not apply [as to ringed and bearded seal subspecies] to any activity that is authorized or exempted under the MMPA, 16 U.S.C. § 1361 *et seq.*, the Convention on International Trade in Endangered Species of Wild Fauna

¹⁸ *See supra* n.2. The Associations also incorporate here, as a part of their petition, the prior sections of this letter.

and Flora (CITES), or both, provided that the person carrying out the activity has complied with all the terms and conditions that apply to that activity under the provisions of the MMPA and CITES and their implementing regulations.

- (2) The prohibitions in section 9(a)(1) of the ESA (16 U.S.C. 1538(a)(1)) relating to endangered species do not apply to any taking of [ringed and bearded seal subspecies] that is incidental to, but not the purpose of, carrying out an otherwise lawful activity within the United States, except for any incidental taking caused by activities in areas subject to the jurisdiction of the United States within the current range of the [ringed and bearded seal subspecies].

Although the Associations request that NMFS adopt both proposals, the rationale and support for each of the proposed limitations are distinct and severable from one another. *See, e.g.*, 50 C.F.R. § 223.203(d) (NMFS severability finding regarding 4(d) rule for anadromous fish). Each proposed limitation must be evaluated on its independent merit.¹⁹

The purpose of the Associations' proposed limitations is to rationally and lawfully reconcile the conduct of routine commerce with the overlay of an ESA regulatory regime that is premised, in these instances, upon a predicted future global threat to presently healthy and abundant species. As to the proposed MMPA limitation, there is a well-established record that regulated activities occurring in compliance with the MMPA are not a past, present, or future foreseeable threat to ringed and bearded seals (or to any other marine mammals). This provision is primarily relevant to oil and gas activities occurring within the Alaska range of ringed and bearded seals, and to Alaska Natives and other residents of the North Slope that live, subsist, and work among seals on a daily basis.²⁰ As to the proposed limitation for activities outside the range of these seal species, this provision is primarily relevant to activities that emit GHGs in the Lower 48 states or within Alaska, but outside the range of ringed and bearded seals. The Services have acknowledged that the best available science does not establish a causal connection between GHGs from specific facilities and impacts Arctic ice habitat. *See e.g.*, 73 Fed. Reg. 9535, 9539 (Feb. 21, 2008) ("it is unclear at this time the extent to which climate

¹⁹ We make this petition in the alternative and in the event NMFS does not adopt the 4(d) limitations proposed in this letter as part of the current rulemaking process. We believe that NMFS can, and should, adopt the 4(d) limitations we propose here in any final listing rules issued in the current rulemaking process. The 4(d) limitations we propose here are a logical outgrowth of the 4(d) rule currently proposed by NMFS and, if adopted, would not require a separate rulemaking or notice and comment period. However, should NMFS decline to adopt our proposed 4(d) limitations as part of the current rulemaking process, this letter serves as a petition for rulemaking pursuant to 50 C.F.R. §§ 424.10 and 424.14(a).

²⁰ In adopting an essentially identical 4(d) limitation for polar bears, the FWS concluded that, in addition to the oil and gas industry, such a provision would have application to subsistence handicraft trade and cultural exchanges, military activities, activities covered by CITES, commercial fishing and some forms of import and export of polar bear products. Because the Associations' members do not engage in these activities, we do not address application of the proposed seal 4(d) limitation in these contexts.

change contributes to a reduction in pinniped habitat or pinniped productivity”); 73 Fed. Reg. 76249 (Dec. 16, 2008) (polar bear 4(d) rule).

A. Section 4(d) of the ESA Authorizes Limited 4(d) Rules

In establishing the ESA, Congress only applied a blanket prohibition against the “take” of species categorized as “endangered.” 16 U.S.C. § 1538. The omission of “threatened species” from the ESA’s “take” prohibitions is obvious and intentional. Accordingly, absent a special 4(d) rule, should NMFS decide to list the proposed seal subspecies as “threatened” based upon projections of future climate change effects, there would be no statutory prohibition on take under the ESA. However, Section 4(d) of the ESA provides the Services with two separate regulatory tools to address threatened species: (i) the promulgation of regulations deemed “necessary and advisable” to conserve a threatened species; and (ii) the application, by rule, of the Section 9(a) take prohibitions to a threatened species. 16 U.S.C. § 1533(d).

The two Services have implemented Section 4(d) differently. NMFS separately addresses Section 4(d) with each species it lists as threatened, thereby applying or limiting the ESA’s take prohibitions to each species on a case-by-case basis. By contrast, FWS has adopted a blanket rule that extends the take prohibitions of the ESA to all threatened species unless the agency adopts a special 4(d) rule that withdraws the take prohibitions as they apply to a specific threatened species. Accordingly, although the Services are both implementing the same statutory authority, NMFS implements Section 4(d) through species-by-species opt-in regulations, while FWS implements Section 4(d) through a blanket opt-in regulation, with special opt-out regulations adopted species-by-species. However implemented, Section 4(d) grants the Services the authority and discretion to tailor application of take prohibitions to threatened species in a manner that is specific to the circumstances and conservation needs of each species. *See Wash. Envtl. Council v. NMFS*, No. C00-1547R, 2002 U.S. Dist. LEXIS 5432 at *23 (W.D. Wash. Feb. 27, 2002) (“The language of 4(d) makes it clear that NMFS “may” impose a take prohibition. The unavoidable implication is that NMFS may, in its discretion, choose not to impose a take prohibition. NMFS’s decision to craft a limited take prohibition under 4(d) must be, *a fortiori* under this analysis, within its discretion.”).²¹

B. The Proposed MMPA/CITES Limitation

The Associations petition NMFS to adopt a 4(d) limitation that would except activities authorized by and undertaken in compliance with the MMPA and CITES from application of the take prohibitions of Section 9(a) of the ESA:

The prohibitions in section 9(a)(1) of the ESA (16 U.S.C. 1538(a)(1)) relating to endangered species do not apply [as to ringed and bearded seal subspecies] to any activity that is authorized or exempted under the Marine Mammal Protection Act (MMPA), 16 U.S.C. § 1361 *et seq.*, the Convention on International Trade in

²¹ The current interpretation of Section 4(d) by the Services is found in the submissions of the United States to the court in pending litigation regarding the polar bear 4(d) rule. *See In re Polar Bear Endangered Species Act Listing and 4(d) Rule Litigation*, MDL Dkt. No. 1993 (D.D.C.), Dkt. #156 (Federal Defendants’ brief of Feb. 2, 2010), Dkt. #205 (Federal Defendants’ reply brief of July 2, 2010).

Endangered Species of Wild Fauna and Flora (CITES), or both, provided that the person carrying out the activity has complied with all the terms and conditions that apply to that activity under the provisions of the MMPA and CITES and their implementing regulations.

As explained below: (i) the need for application of the ESA “take” prohibitions is presently mitigated by the fact that Alaska stocks of ringed and bearded seals are healthy and abundant; (ii) the oil and gas activities covered by the proposed limitation are not a foreseeable threat to the continued existence of ringed and bearded seals, and are compatible with seal conservation; (iii) the existing statutory and regulatory requirements imposed under the MMPA for the protection and management of marine mammals provide a comprehensive and demonstrably successful program for the conservation of ringed and bearded seals; and (iv) should circumstances change in future decades, NMFS retains the authority to amend its 4(d) rule to respond as may be appropriate. For these reasons, adoption of the proposed limitation is a reasonable regulatory means of rationalizing essential existing and future commercial activities with the proposed ESA listings.

1. Alaska context

The North Slope of Alaska and the adjacent offshore areas of the Beaufort and Chukchi Seas are the location of nationally-strategic oil and gas exploration, development, and production activities. Congress has established that leasing, exploration, and development of these resources is a national priority. *See, e.g.*, 43 U.S.C. § 1332(3) (mandating the “orderly and expeditious development” of the Outer Continental Shelf); *Amoco production Co. v. Gambell*, 480 U.S. 531, 545 (1987) (“the public interest . . . favor[s] continued oil exploration given OCSLA’s stated policy”); *Tribal Village of Akutan v. Hodel*, 859 F.2d 662, 664 (9th Cir. 1998) (recognizing the “public interest in favor of developing oil and gas reserves”). These same nearshore areas are the principal location of North Slope and Northwest Arctic Borough communities, and the adjacent waters are the location of essential cultural and subsistence activities by the Native communities of Northern Alaska.

Nearshore areas of the Alaskan Arctic, and offshore areas of the Beaufort and Chukchi Seas in particular, also serve as habitat for ringed and bearded seals in widely distributed numbers. Native activities conducted in these Arctic areas, including subsistence hunting of seals, have occurred for centuries. Although NMFS has appropriately concluded that subsistence harvesting is not a foreseeable threat to ringed or bearded seals, subsistence harvesting is the primary source of human-caused mortality for adult seals.

The MMPA is intended to ensure that marine mammals are “protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management.” 16 U.S.C. § 1361(6). The MMPA’s primary management objective is to “maintain the health and stability of the marine ecosystem.” *Id.* To accomplish this intent, the MMPA enacts a broad moratorium on the “take,” import or export of marine mammals and marine mammal products, except as expressly authorized. *See id.* §§ 1371(a), 1362(8) (defining moratorium), 1371(a)(1)-(6) (describing exceptions), 1373 (authorizing regulations on take and importation). In the MMPA, Congress authorized the Secretary of Interior, acting through FWS, to issue several different types of permits and authorizations allowing the take of marine mammals incidental to activities such as industrial projects, commercial fishing, military

readiness, research, public display, and photography. *See, e.g., id.* §§ 1362(12), 1371(a)(1), 1374, 1387. Congress also adopted certain statutory exceptions to the moratorium on take of marine mammals. *See, e.g., id.* §§ 101(a)(4) (deterrence to protect human and property safety), (b) (exemptions for Alaskan natives), (c) (taking in defense of self or others), (d) (Good Samaritan exemption), and 109(h) (taking of marine mammals as part of official duties).

As relevant to commercial and industrial activities, other than commercial fishing, and as noted above, Section 101(a)(5) of the MMPA, 16 U.S.C. § 1371(a)(5), authorizes two means by which NMFS may allow incidental take of seals. First, U.S. citizens may petition NMFS to issue a regulation for a period of up to five years authorizing the taking of small numbers of marine mammals incidental to a specified activity in a specified geographic region. *Id.* § 1371(a)(5)(A). NMFS must grant such an authorization if it determines that the activity (i) will have a “negligible impact on the species or stock,” and (ii) “will not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses.” *Id.* Once incidental take regulations are promulgated pursuant to MMPA § 101(a)(5)(A), LOAs may be issued by NMFS to specific operators within the class of activities addressed in the regulations. LOAs must, among other things, identify mitigation measures “effecting the least practicable impact” on the species or stock and its habitat, and identify requirements for monitoring and reporting of take. *Id.* 1371(a)(5)(A)(i)(II). Second, pursuant to MMPA § 101(a)(5)(D), U.S. citizens may request an IHA for the incidental take by harassment of small numbers of marine mammals while engaged in a specified activity in a specified geographic area. 16 U.S.C. § 1371(a)(5)(D). NMFS may grant an IHA for a period of one year or less, provided that the same findings required for incidental take regulations (*i.e.*, negligible impact, no unmitigable adverse impact on subsistence, and mitigation effecting the least practicable impact) are made. *Id.*

The oil and gas industry has routinely requested, and the Services have issued, both numerous IHAs for a wide range of marine mammals and a series of regulations allowing the incidental take of small numbers of polar bears and walrus as a result of oil and gas activities in the Beaufort Sea, Chukchi Sea, and nearshore areas.²² As addressed in detail below, no mortalities or serious injuries are known to have occurred pursuant to these authorizations. Rather, the activities conducted pursuant to these authorizations have involved only passive observations of marine mammals or defection of individual animals away from humans and human activities.

The above take authorizations have all been issued with public notice and comment, and subject to mitigation, monitoring, and reporting requirements tailored to the nature of the specific activity, including its location, timing, and duration. NMFS’s regulations require, and Beaufort and Chukchi Seas MMPA authorizations routinely specify, mandatory mitigation measures that include the following:

- cooperation with federal, state, and local agencies to facilitate monitoring of impacts;

²² The most recent of these regulations for the Beaufort Sea was issued in 2006. *See* 71 Fed. Reg. 13150-78 (Aug. 2, 2006). Renewal of these regulations was recently published for public comment. 76 Fed. Reg. 13454 (March 11, 2011). Incidental take regulations for oil and gas activities in the Chukchi Sea and nearshore areas were issued in June, 2008. *See* 73 Fed. Reg. 33212 (June 11, 2008).

- designation of qualified personnel to observe, record, and report on the effects of the authorized activities;
- development of a an approved marine mammal “interaction plan,” that must comprehensively include a description of the activity (*i.e.*, a plan of operation), personnel training materials and procedures, identification of site at-risk locations and situations, observation and reporting procedures, and avoidance and encounter procedures;
- communication with affected subsistence communities and submission of a “plan of cooperation” that ensures activities will not interfere with subsistence hunting and will minimize adverse impacts on the availability of marine mammals for subsistence;
- preparation, submission, and approval of a monitoring plan that NMFS may require be peer-reviewed; and
- reporting requirements including submission of a report of monitoring and interactions within 90 days of the completion of exploration and development activities, and annual reporting for production activities, with all reports to document dates and times of the activity, and the results of required monitoring.

See 50 C.F.R. §§ 216.101-.108; *see also* 50 C.F.R. Part 18 (FWS MMPA regulations governing authorization of marine mammal incidental take).²³

2. Management of Alaska stocks of ringed and bearded seals under the existing MMPA regulatory scheme serves the conservation purposes of the ESA and is otherwise reasonable

The Associations’ reasons for supporting the 4(d) limitations proposed here as to MMPA authorized and compliant activities are, as addressed below, four-fold.

(a) Alaska stocks of ringed and bearded seals are healthy and abundant

We assume for purposes of this petition that NMFS has determined to proceed with a listing of ringed and bearded seal subspecies as “threatened.” Should NMFS do so, the undisputed fact will remain that these subspecies are currently healthy and abundant, occupy the

²³ *See, e.g.*, 75 Fed. Reg. 60174 (Sept. 29, 2010); 75 Fed. Reg. 29226 (July 8, 2010); 75 Fed. Reg. 32379 (June 8, 2010); 75 Fed. Reg. 27708 (May 18, 2010); 75 Fed. Reg. 25730 (May 7, 2010); 75 Fed. Reg. 20482 (April 19, 2010); 74 Fed. Reg. 55368 (Oct. 27, 2009); 73 Fed. Reg. 45969 (Aug. 7, 2008); 73 Fed. Reg. 77623 (Dec. 19, 2008); 73 Fed. Reg. 40512 (July 15, 2008); 73 Fed. Reg. 38990 (July 8, 2008); 73 Fed. Reg. 31816 (June 4, 2008); 73 Fed. Reg. 22922 (April 28, 2008); 73 Fed. Reg. 9535 (Feb. 21 2008); 73 Fed. Reg. 46774 (Aug. 11, 2008); 73 Fed. Reg. 31816 (June 4, 2008); 74 Fed. Reg. 55368 (Oct. 27, 2009); 75 Fed. Reg. 20482 (April 19, 2010).

entirety of their historical range, and are not known to be in decline. *See* § II.A above. The potential adverse effects of climate change on these subspecies (if any), as projected by NMFS, are likely many years, if not many decades, in the future. Moreover, NMFS has acknowledged that: (i) numerous factors “suggest resilience in the face of environmental variability” for these seals; (ii) judging the timing of the onset of potential impacts to these seals “is complicated”; and (iii) a warming climate may, at least initially, result in increases in abundance of some subspecies. *See* 75 Fed. Reg. at 77482.

If NMFS is going to proceed to list species as “threatened” based upon projections possible future adverse effects that have not yet occurred and that are very uncertain in timing, the agency should reasonably use its authority under Section 4(d) of the ESA to adapt present regulatory measures and conservation management to the current and, at least for some time to come, sustaining, health, and abundance of these species.

- (b) The oil and gas activities covered by the proposed limitation are not a foreseeable threat to the continued existence of ringed and bearded seals, and are compatible with seal conservation

As addressed above in this letter and confirmed by NMFS in the proposed rules, routine oil and gas activities have been occurring in seal habitat for decades without any detectable adverse impact to ringed or bearded seal survival, abundance, or health. *See*

§ III above. Indeed, none of the activities routinely occurring within the U.S. range of ringed and bearded seals are known or expected causes of mortality or serious injury to ringed or bearded seals (except authorized Native subsistence activities), or otherwise expected to cause or contribute to the threatened status of the listed seal subspecies. Instead, these activities, individually and cumulatively, have no more than a negligible effect on ringed and bearded seal stocks. As a result of reporting pursuant to the MMPA, it is well-documented that the level of interaction between ringed and bearded seals and the oil and gas industry in Alaska is both minimal and limited to transient observation and deflections. To our knowledge, there are no contrary data, studies, or reasoned scientific opinions.

The present knowledge that activities covered by the proposed limitation will be closely monitored, do not present a significant threat, and cannot by law have more than a negligible impact supports issuance of the narrow 4(d) limitation proposed here. Conversely, there can be no conservation benefit to imposing additional regulatory requirements pursuant to Section 9(a) of the ESA on activities that are already successfully managed, monitored, and reported to the point that they have no more than a negligible impact.²⁴

²⁴ Although oil and gas activities do not pose a risk to ringed and bearded seals sufficient to warrant or support an ESA listing, NMFS has stated that the risk of major oil spill is the greatest potential threat posed by oil and gas activities. Accordingly, it is worth noting both that oil spills cannot be authorized by the MMPA and, accordingly, would never fall within the proposed 4(d) limitation. It is also useful to note that the proposed limitation would not exempt any activity, whether MMPA-approved or not, from the consultation requirements of Section 7 of the ESA.

- (c) The existing statutory and regulatory requirements imposed under the MMPA for the protection and management of marine mammals provide a comprehensive and demonstrably successful program for the conservation of ringed and bearded seals

The proposed 4(d) limitation is not an exemption from NMFS regulation for the conservation benefit of ringed and bearded seals, or a “take” exemption. Even with the proposed limitation, routine oil and gas activities occurring within the habitat of listed seals must: (i) obtain take authority under the rigorous requirements of the MMPA (requiring, among other things, a negligible impact determination based upon the best scientific information available); (ii) comply with the ESA § 7 consultation requirements; and (iii) comply with applicable ESA requirements pertaining to critical habitat should NMFS designate such areas.

The Associations do not contend that the MMPA and the ESA are identical. However, as FWS has determined in the context of the polar bear ESA listing:

Many provisions provided under the MMPA and CITES are comparable to or stricter than similar provisions under the ESA, including the definitions of take, penalties for violations, and use of marine mammals....

Additionally, the process for authorization of incidental take under the MMPA is more restrictive than the process under the ESA. The standard for issuing incidental take under the MMPA is “negligible impact.” Negligible impact under the MMPA, as defined at 50 C.F.R. 18.27(c), is an impact 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. This is a more protective standard than standards for issuing incidental take under the ESA[.]

73 Fed. Reg. 76249, 76261 (Dec. 16, 2008) (final special polar bear 4(d) rule). The relevant inquiry here is not whether there are differences between the ESA and the MMPA (there are), or whether the MMPA is more strict than the ESA (it is in some respects and not in others). Rather, as analyzed by the FWS in the context of polar bears, the relevant issue is whether, *vis-à-vis* a narrow set of well-defined activities, application of the Section 9(a) take prohibitions is appropriate as a threshold matter and whether the MMPA provides for the conservation and management of ESA-listed species. Because the MMPA provisions relevant to the proposed 4(d) limitation are comparable or stricter in application than the ESA, and because regulation of these same activities under the MMPA by NMFS has a demonstrated record of success, the proposed 4(d) limitation is a sensible and rigorous means of assuring conservation of the species.

- (d) Should circumstances change in future decades, NMFS retains the authority to amend its 4(d) rule to respond as may be appropriate

For the above-explained reasons, it makes sense to adopt the proposed MMPA 4(d) limitation. However, the reasonableness of this approach is reinforced by NMFS’s ability to rescind or amend its 4(d) rule at any time. Accordingly, should there come a time when the MMPA no longer provides sufficient conservation and management authority, NMFS has the means to respond appropriately. Moreover, because NMFS is responsible for implementation and enforcement of the MMPA as to ringed and bearded seals, and because of the rigorous

monitoring and reporting requirements imposed under the MMPA, NMFS will have all the relevant experience and data necessary to make such a judgment.

In sum, adoption of the proposed limitation is a reasonable exercise of NMFS's Section 4(d) authority to rationalize regulation of essential existing and future commercial activities with an ESA listing of currently healthy and abundant species. This provision applies only to activities that are already rigorously and successfully regulated under the MMPA or CITES, or to a very narrow class of statutorily exempt activities under the MMPA. These activities have not caused, and are not contributing to, the conditions projected in the proposed listing decisions to threaten seals or seal habitat in the coming decades. Subjecting these activities to multiple duplicative or conflicting regulatory requirements would not in any way further conservation of ringed and bearded seals, but would instead increase costs, and impose needless regulation and delay, particularly for energy exploration and development in Alaska.

Reliance upon MMPA requirements that, in many instances, are more rigorous than ESA take provisions, and which have proven to be both very effective and beneficial to marine mammal conservation, is a reasonable and rationale exercise of agency discretion and judgment. Conversely, the threat that has been identified in the proposed seal listing rules – loss of habitat and related effects – would not be alleviated by imposing additional take restrictions on the activities to which the proposed 4(d) limitation applies. No conservation or other constructive purpose would be served by requiring the oil and gas industry and NMFS to duplicate their efforts under the MMPA and the ESA. Indeed, this use of § 4(d) – to limit the take prohibition in the context of activities otherwise adequately regulated – is the prototypical use of § 4(d) by the Services for threatened species.²⁵ In the end, the proposed MMPA 4(d) limitation is a practical solution to the practical problems posed to those persons and activities located in the Alaskan Arctic that must co-exist with listed species, and that have succeeded in doing so for decades, under the requirements of the MMPA as implemented by NMFS. The proposed MMPA 4(d) limitation also serves the policies set forth in the President's Executive Order Improving Regulation and Regulatory Review (January 18, 2011). See <http://www.whitehouse.gov/the-press-office/2011/01/18/improving-regulation-and-regulatory-review-executive-order> (visited on March 6, 2011).

C. The Proposed Limitation Regarding Activities Outside Current Range

Independent of the above-discussed MMPA 4(d) limitation, the Associations are also petitioning NMFS to promulgate a 4(d) limitation that excludes otherwise lawful activities occurring outside of the range of the seal subspecies proposed for listing from the ESA's Section 9(a) take prohibitions:

The prohibitions in section 9(a)(1) of the ESA (16 U.S.C. 1538(a)(1)) relating to endangered species do not apply to any taking of [ringed and bearded seal subspecies] that is incidental to, but not the purpose of, carrying out an otherwise

²⁵ See, e.g., 50 C.F.R. §§ 17.42(a) (exempting take of American alligator authorized by state law or regulation); 17.43(a) (exempting take of amphibian in accordance with applicable state law); 17.44(a)-(x), (z) (exemptions for take of numerous fish species in accordance with applicable state law); 17.44(y) (exempting take of Beluga sturgeon in compliance with CITES); 50 C.F.R. §§ 223.203 (numerous exemptions for threatened anadromous fish species).

lawful activity within the United States, except for any incidental taking caused by activities in areas subject to the jurisdiction of the United States within the current range of the [ringed and bearded seal subspecies].

The effect of the proposed limitation would be to clarify that emissions of GHGs outside of the current range of these seal subspecies are not prohibited “take” under the ESA. However, consistent with the MMPA limitation previously discussed, this limitation would not exempt activities from regulation by NMFS either pursuant to the MMPA, which has a comparable take provision, or the ESA Section 7 consultation process. This proposed limitation is essentially identical in words and intent as the polar bear 4(d) limitation promulgated by FWS at 50 C.F.R. 40.17(g)(4). *See* 73 Fed. Reg. 76249 (final special polar bear 4(d) rule).

There is currently no way to determine how the emissions from a specific action influence climate change and then subsequently affect specific listed species or their habitat, including ringed and bearded seals. Accordingly, the United States has repeatedly stated that “the best scientific data currently available do not draw a causal connection between GHG emissions resulting from a specific Federal action and effects on listed species or critical habitat by climate change.” 73 Fed. Reg. at 75266. As with the polar bear 4(d) rule addressing activities outside the range of the species, application of the § 9(a) prohibitions here is not necessary or appropriate because doing so would not alleviate the potential future effects of loss of sea ice habitat and related effects on ringed and bearded seals.²⁶ Again, like the proposed MMPA 4(d) limitation, this proposed limitation furthers the policies set forth in the President’s Executive Order Improving Regulation and Regulatory Review.

²⁶ Application of the ESA Section 9(a) take prohibitions here is also not appropriate because GHG emissions from specific activities cannot constitute “take” in violation of Section 9. Causation is a necessary element for demonstrating “take” under Section 9. *See Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687, 697, n.9 (1995) (Section 9 take prohibition is subject to “ordinary requirements of proximate causation”). As set forth above, the federal government has expressly found that a causal connection cannot be established between GHG emissions from specific activities and effects on listed species.

V. CONCLUSION

Your detailed review and consideration of the Associations' comments regarding NMFS's proposed "threatened" listings for ringed and bearded seals is sincerely appreciated. We also thank you for addressing our alternative petition with respect to the 4(d) rule we propose above, as provided in 50 C.F.R. §§ 424.10 and 424.14. If you have any questions regarding these comments, please do not hesitate to contact the undersigned.

Sincerely,



Marilyn Crockett
Executive Director
Alaska Oil and Gas Association



Richard Ranger
Senior Policy Advisor
Director, Upstream and Industry Operations
American Petroleum Institute

cc: The Honorable Sean Parnell, Governor, State of Alaska
The Honorable Lisa Murkowski, United States Senate
The Honorable Mark Begich, United States Senate
The Honorable Don Young, United States House of Representatives

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

Population Size and Status

Ringed Seal

NMFS (2010a) recognize the difficulties of determining accurate ringed seal population estimates due to the large geographical areas occupied by ringed seals, differences in survey effort and methodology among areas and over time, and effects of survey timing in relation to inter-annual variability of environmental factors such as ice conditions and snow melt. Nevertheless the population estimates presented for various ringed seal subspecies suggest that total ringed seal population may be comprised of several million animals and the Arctic subspecies over which NMFS has jurisdiction may include in excess of 1.5 million animals.

Bearded Seal

NMFS (2010b) recognized two subspecies of bearded seal including *Erignathus barbatus nauticus* inhabiting the Pacific and *Erignathus barbatus barbatus* in the Atlantic with apparent overlap of the two subspecies along northern Russia and central Canadian coasts. NMFS (2010b) divided *nauticus* into two DPSs including the Beringia and Okhotsk DPSs, and proposed threatened status for both DPSs under the ESA. NMFS (2010b) did not propose listing of the *barbatus* subspecies.

According to NMFS (2010b) and others (e.g.; Allen and Angliss 2010), an accurate estimate for the bearded seal population is not available. NMFS (2010b) used data from aerial surveys flown in 1999 and 2000 as a source for their size estimate of the Chukchi Sea bearded seal population. Although not specifically cited in NMFS (2010b), the 1999-2000 data were undoubtedly from the work reported by Bengtson et al. (2005). The NMFS (2010b) bearded seal population estimate for the Chukchi Sea was ~27,000 which was based on an estimate of 13,600 bearded seals from the Bengtson et al. (2005) surveys along the Alaskan Chukchi Sea coast multiplied by 2 to account for an assumed similar number of bearded seals along the Russian coast. The estimate of 27,000 bearded seals for the Chukchi Sea proposed by NMFS (2010b) likely underestimates the actual population size due to several factors.

- The estimate of 13,600 bearded seal for the eastern Chukchi Sea was based only on observed seals on ice during aerial surveys and did not take into account seals that may have been underwater and unavailable for observation during the aerial surveys. This would suggest that the actual number of seals in the survey area, which extended from 148 to 185 km offshore of the Alaskan coast, may be much greater by some unknown factor than the proposed estimate.

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

- The above estimate was based on two years of aerial survey data. Bearded seal density in 2000 (0.14 seals/km²) was twice the density in 1999 (0.07 seals/km²) suggesting that inter-annual variability for this type of survey may be high which could result from numerous naturally occurring environmental factors. The high variability reduces confidence in the accuracy of the NMFS (2010b) estimate.
- If we assume that a similar number of bearded seals occur on the Russian side of the Chukchi Sea, that population would also increase by the same unknown factor as the eastern Chukchi Sea group.
- NMFS (2010b) did not account for any bearded seals that may have been in the central portion of the Chukchi Sea between the area surveyed by Bengtson et al. (2005) and a similar, imaginary survey area on the Russian side of the Chukchi Sea. The area in the central Chukchi Sea which was not included in either of the coastal areas may represent approximately one-third of the total area of the Chukchi Sea.
- Bengtson et al. (2005) reported that bearded seal density in the eastern Chukchi Sea was greater in offshore pack ice than nearshore fast ice during both survey years. This seems reasonable given that the level of benthic biomass seems relatively high throughout much of the Chukchi Sea (Dunton et al. 2005). If high bearded seal densities extend into the central portion of the Chukchi Sea (*i.e.*, the area between the Bengtson survey area and an area of similar size along the Russian coast), the actual size of the bearded seal population may be much greater than the proposed estimate.
- The historical estimates of the Bering/Chukchi bearded seal population, which range from 250,000 to 300,000 animals (e.g., Allen and Angliss 2010 and references therein), support the idea that the Chukchi Sea bearded seal population may be higher than that proposed by NMFS (2010b).

For the Beaufort Sea, NMFS (2010b) estimated the bearded seal population at ~3150 animals based on aerial surveys of the eastern Beaufort Sea in 1974-1979 and extrapolation of those densities to the western Beaufort Sea. The reference for these surveys was not cited by NMFS (2010b) but was likely from the work of Stirling et al. (1982). The NMFS estimate of ~3150 bearded seals was based on an estimate of 2100 bearded seals for the eastern Beaufort Sea determined from the 1974-1979 aerial surveys which, as was pointed out by NMFS (2010b), was uncorrected for seals in the water, and thus produced a minimum value which can only be considered an index of the actual population. The actual size of the bearded seal population is likely greater than that proposed by NMFS (2010b) by some unknown factor.

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

The size of the Beaufort Sea bearded seal population likely undergoes significant inter-annual variability. Annual index estimates for the eastern Beaufort Sea by Stirling et al. (1982) ranged from 1309 to 3109 bearded seals in their survey area. The index more than doubled from 1309 seals in 1977 to 3109 seals in 1978. The authors suggested that among-year differences in indices were likely related to naturally occurring environmental factors which affected mortality, productivity and immigration/emigration. They also pointed out that factors related to differences in observer acuity and some aspects of survey protocol and seal behavior may have introduced error into the data set, and that six years of data may not be adequate to determine a representative population estimate with such levels of variability. It is likely that bearded seals are more numerous in the Beaufort Sea than would be suggested by the NMFS (2010b) estimate and inter-annual variability in the size of the population is likely significant.

Recent Industry Survey Activity in the Chukchi and Beaufort Seas

From 2006 through 2010, the oil and gas industry has funded large scale marine mammal monitoring programs in the Chukchi and Beaufort seas associated with offshore exploratory activities (e.g., Funk et al. 2007, 2010; Hauser et al. 2008; Aerts et al. 2008; Ireland et al. 2009; Bruggeman 2009). Monitoring occurred from multiple platforms including vessel-based surveys, aerial surveys, and arrays of acoustic recorders deployed at multiple locations in both seas. Vessel-based monitoring that was part of the Joint Monitoring Program (JMP) by Shell, ConocoPhillips, Statoil, and GXT in the Chukchi and Beaufort seas from 2006 to present to a certain extent focused on areas of interest to oil and gas companies. Vessel-based monitoring activities however, occurred over a wide area in the Chukchi and Beaufort seas as vessels transited between areas of exploratory interest. Figures 1 and 2 show vessel-based monitoring effort in areas of exploratory interest and in other locations in the Chukchi and Beaufort seas, respectively.

Below, we present and discuss some results of the 2006-2010 JMP data related to disturbance or potential disturbance to seals from recent marine geophysical surveys. The results in most of the examples below refer to all seals in the surveyed areas of the Chukchi and Beaufort seas and are not specific to ringed or bearded seals. Ringed and bearded seals however, are the most abundant seal species in the Chukchi and Beaufort seas. The results of these industry studies generally suggest that disturbance to seals from anthropogenic activities related to oil development and production do not have impacts to seal populations that are likely to be biologically significant. NMFS (2010b) states that “threats posed by pollutants, oil and gas industry activities, fisheries, and shipping do not individually or cumulatively raise concern about them placing bearded seals at risk of becoming endangered.”

Under current NMFS guidelines (e.g., NMFS 2008), “safety radii” for marine mammals around airgun arrays are customarily defined as the distances within which received pulse levels are 3 180 dB re 1 μ Pa (rms) for cetaceans and 3 190 dB re 1 μ Pa (rms) for pinnipeds. The 3 180 and 190 dB (rms) guidelines are also employed by the USFWS for the species under its jurisdiction for Pacific walrus and polar bears in water,

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

respectively. These safety criteria are based on an assumption that seismic pulses at lower received levels will not injure these animals or impair their hearing abilities, but that higher received levels might have some such effects. Marine mammals exposed to sound levels ≥ 160 dB (rms) are assumed by NMFS to be potentially subject to behavioral disturbance. However, for certain groups (dolphins, pinnipeds), available data indicate that disturbance is unlikely to occur unless received levels are higher, perhaps ≥ 170 dB (rms) for an average animal. Sound levels from 159 dB (rms) to 120 dB (rms) are audible to many marine mammal species but are not known to elicit responses in seals. Sounds that are < 120 dB (rms) rapidly approach background levels of sound in the environment depending upon the location and conditions.

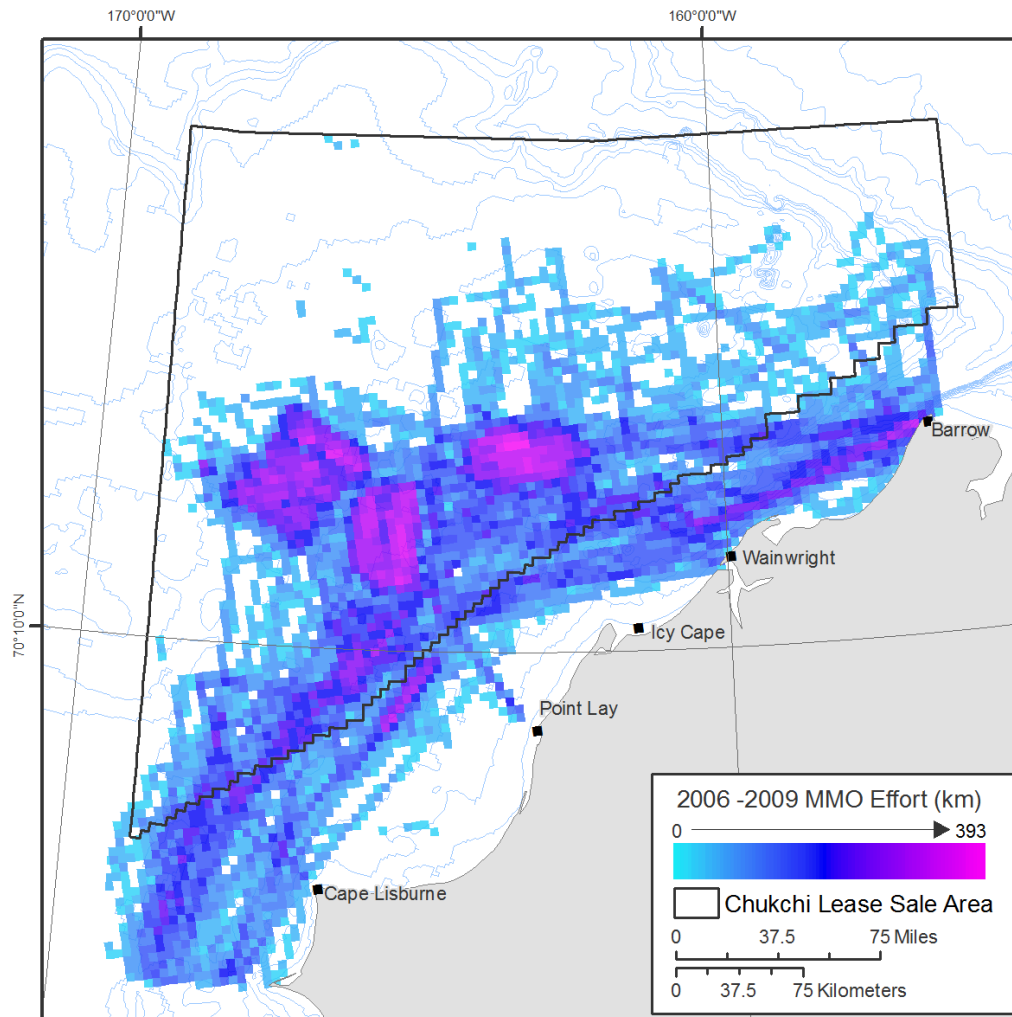


FIGURE 1. Location and amount of vessel-based observer effort (km) that occurred in the Chukchi Sea, 2006–2009. Grid cells are 25 km^2 (9.7 mi^2).

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

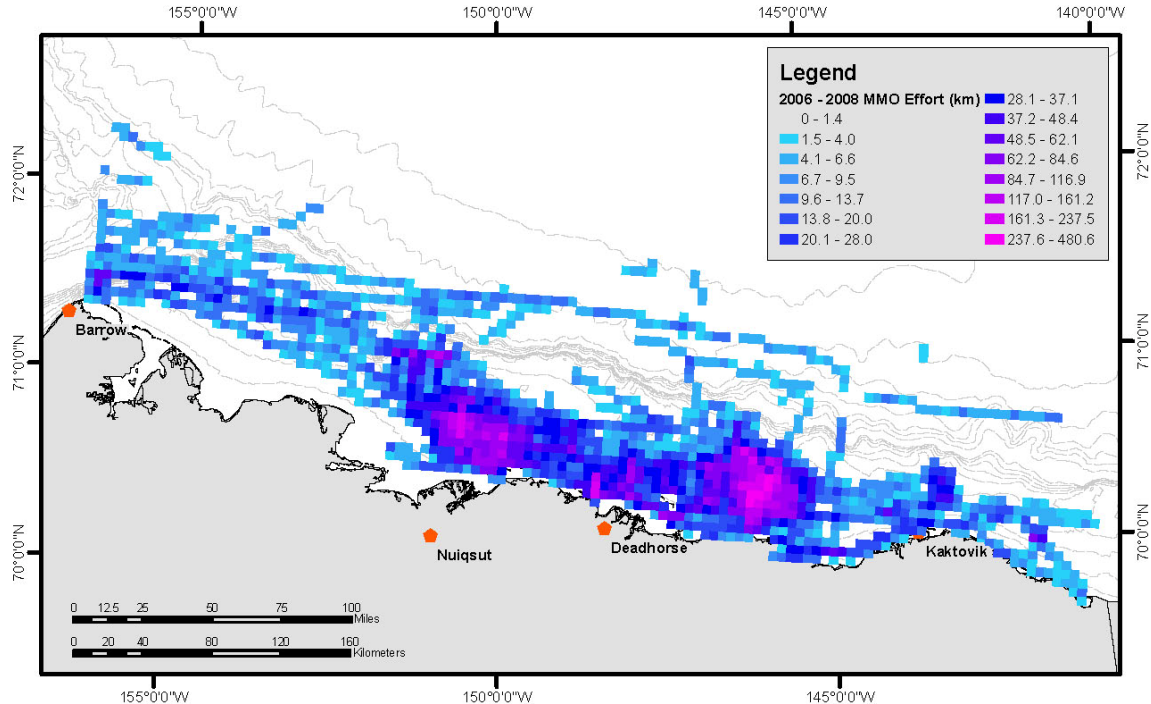


Figure 2. Location and amount of vessel-based effort (km) that occurred in the Beaufort Sea, 2006 – 2009. Grid cells are 25 km².

Seal sighting rates

Ringed seal, followed by bearded seal, was the most frequently sighted marine mammal species identified during industry-sponsored, vessel-based surveys in the Chukchi and Beaufort seas from 2006 through 2009 (Funk et al. 2010; LGL unpublished data). Seal sighting rates suggested possible localized seal avoidance of seismic survey activities. Overall seal sighting rates from 2006 through 2009 were higher from source vessels during periods when airguns were not active compared to periods with seismic survey activity in both the Chukchi and Beaufort seas (Figs. 3 and 4). However, seal sighting rates were higher from monitoring vessels operating near active seismic source vessels than from source vessels. Harris et al. (2001) reported that seals appeared to avoid the area within 150 m of an active seismic airgun array but apparently did not move much beyond 250 m. This localized avoidance could explain higher seal sighting rates from monitoring vessels operating near active seismic vessels. Seals that moved away from seismic airgun activity could have moved toward monitoring vessels operating nearby thus reducing the likelihood of being observed from source and increasing the likelihood of being observed from monitoring vessels. This possible result could explain observed seal sighting rates in the Chukchi Sea where sighting rates from monitoring vessels were highest near active source vessels and steadily declined as underwater received sound levels decreased (Fig. 3). This was less obvious in the Beaufort Sea where seal sighting rates from monitoring vessels were similar regardless of the degree of exposure to underwater sound levels (Fig. 4).

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

The highest seal sighting rate was recorded from support vessels in locations where received levels were <120 dB rms. Support vessels by definition operated at distances ≥ 75 km (~47 mi) from source vessels where underwater sound levels were generally <120 dB rms. The high seal sighting rate from support vessels resulted from very high sighting rates from these vessels in 2006 while operating near ice where sighting rates approached 300 sightings/1000 km of effort. Seismic operations generally do not occur near ice (where seals might be expected to be more abundant) due to the potential for damage to equipment.

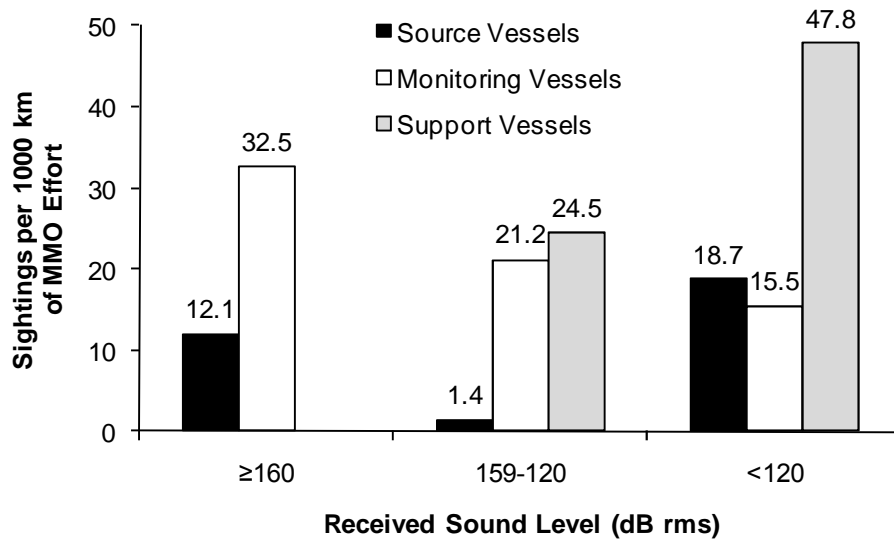


FIGURE 3. Seal sighting rates by received sound level and vessel role in the Chukchi Sea during 2006–2009. Note that no effort occurred for Support Vessels in areas where received sound levels were ≥ 160 dB rms.

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

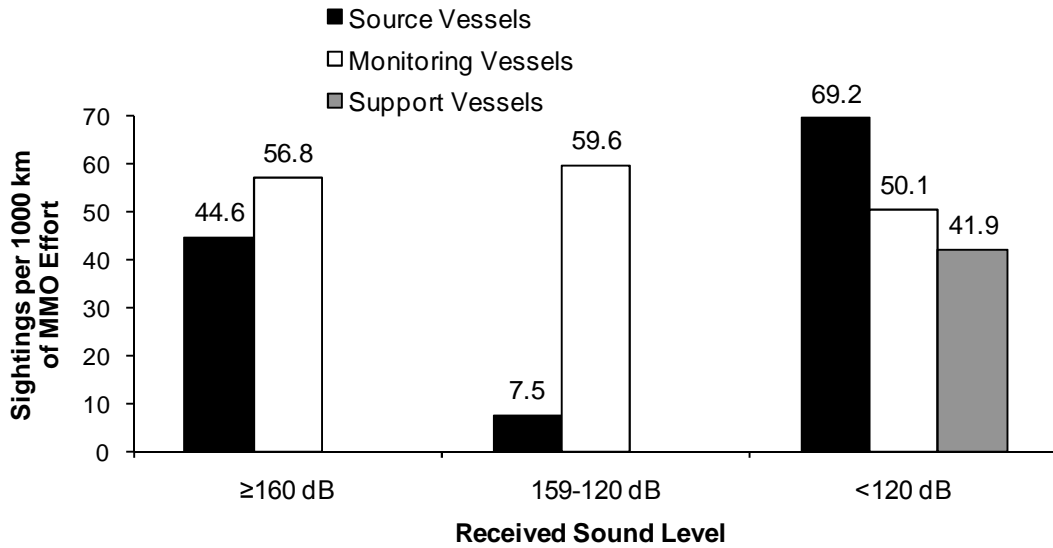


FIGURE 4. Seal sighting rates by received sound level and vessel role in the Beaufort Sea during vessel operations, 2006–2009. Rates not shown for Support Vessels received sound levels ≥160 and 159-120 dB rms because <250 km (<155 mi) of effort occurred in those bins.

Seal reaction to vessels

As part of the industry monitoring program in the Chukchi and Beaufort seas, Marine Mammal Observers (“MMOs”) recorded any observable seal reactions to vessels. In locations where underwater sound levels were <120 dB rms, ~50% of seals displayed no observable reaction to vessels in the Chukchi (Fig. 5) or Beaufort (Fig. 6) seas based on MMO observations from 2006-2009. “Look” at the vessel and “splash” were the most frequently recorded reactions. “Splash” is a reaction suggesting a vigorous response to the vessel. Most seals, however, displayed no discernable reaction to vessel operations in either the Chukchi or Beaufort seas (Figs. 5 and 6).

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

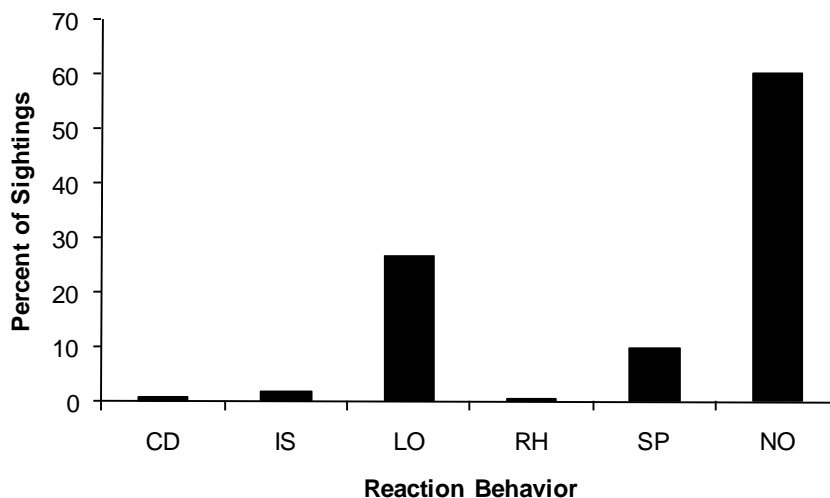


FIGURE 5. Percentages of seal reactions to vessels for animals exposed to received sound levels <120 dB rms in the Chukchi Sea during 2006–2009 seismic operations. Data included seals in water and on ice, $n = 1928$. CD = Change Direction, IS = Increase Speed, LO = Look, RH = Rush from ice into water, SP = Splash, NO = No Reaction.

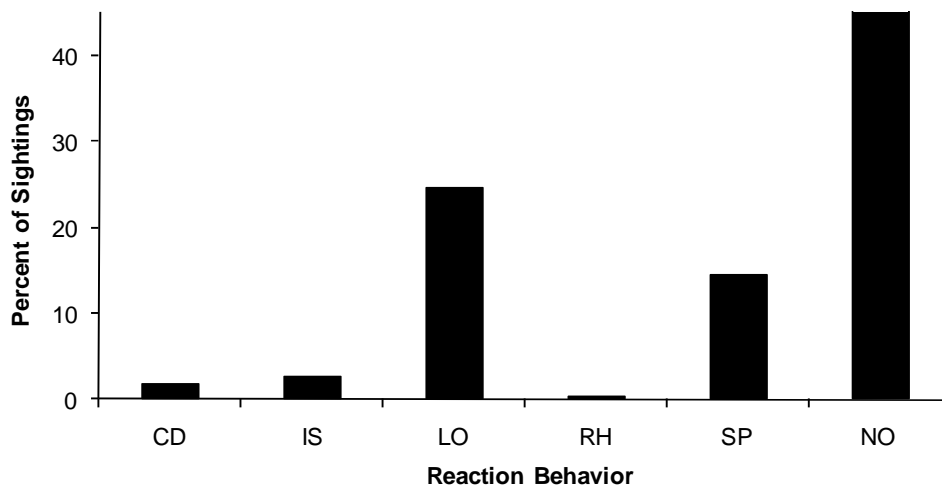


FIGURE 6. Reaction behavior for seals exposed to sound levels <120 dB rms for all vessels in the Beaufort Sea during vessel operations, 2006–2009. CD = Change Direction, IS = Increase Speed, LO = Look, RH = Rush from Ice into Water, SP = Splash, NO = No Reaction. Seals recorded in water or on ice were considered ($n = 1485$).

Seal reactions were also compared for observations from source and monitoring vessels in locations where underwater sound levels were ≥ 160 dB rms. Seals “looked” at monitoring vessels more frequently than at source vessels in both the Chukchi and Beaufort Seas (Figs. 7 and 8). The more vigorous “splash” reaction was recorded more frequently from monitoring than source vessels in the Beaufort Sea but was similar for the two vessel types in the Chukchi Sea. Overall, “splash” was recorded for <10% of the reaction behaviors recorded by MMOs. The reaction behaviors during seismic and non-

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

seismic periods suggest that seals probably react at relatively low levels to disturbance from both seismic source vessels and monitoring vessels.

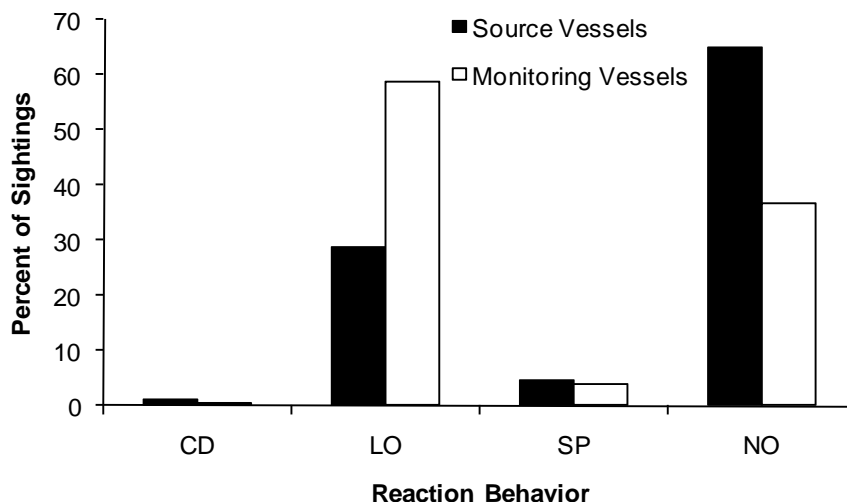


FIGURE 7. Seal reaction to vessels by received sound level ≥ 160 dB rms in the Chukchi Sea during 2006–2009 seismic operations. CD = Change Direction, LO = Look, SP = Splash, NO = No Reaction. ($n = 166$ for source and $n = 329$ for monitoring vessels).

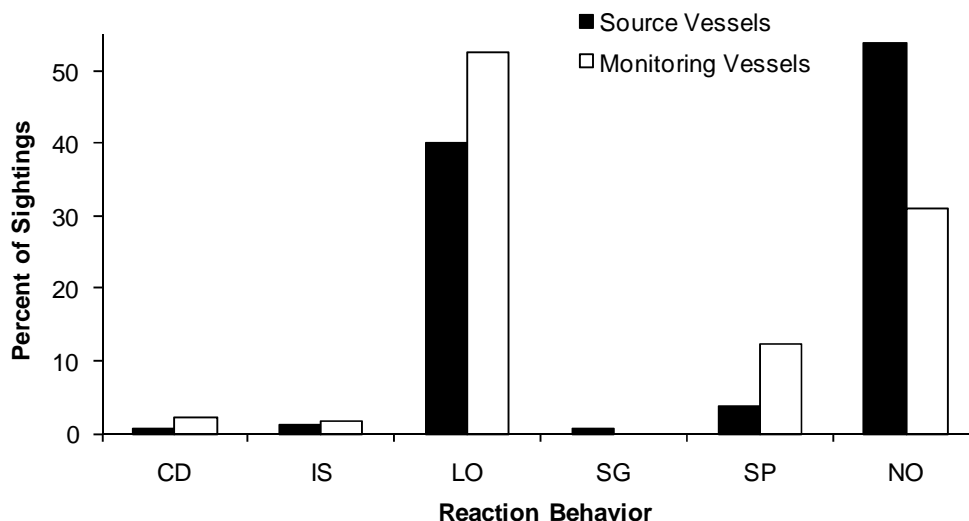


FIGURE 8. Reaction behavior for seals exposed to sound levels ≥ 160 dB rms for seismic source vessels and monitoring vessels in the Beaufort Sea during vessel operations, 2006–2009. CD = Change Direction, IS = Increase Speed, LO = Look, SG = Interaction with Seismic Gear, SP = Splash, NO = No Reaction. ($n = 165$ for source vessels, $n = 177$ for monitoring vessels).

Earlier Industry Survey Activity in Beaufort Sea

Earlier studies associated with oil and gas exploratory activities were conducted in the Beaufort Sea from 1996 through 2001 to monitor the effects of industry activities on marine mammals (Richardson 1998, 1999, 2000, 2001; Richardson and Lawson 2002).

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

Pre- and post-development monitoring of marine mammals was also conducted by BP for its Northstar project from 1997 through 2010 (Richardson 2008; LGL unpublished data). These studies have produced a large amount of data to provide managers with the information necessary for making decisions on how to mitigate potential effects of anthropogenic activities on marine mammals including ringed and bearded seals.

Seal studies associated with OCB seismic surveys in the Beaufort Sea

Marine mammal monitoring and mitigation was conducted concurrently with ocean bottom cable seismic surveys by various industry participants in the Alaskan Beaufort Sea each open-water season from 1996 through 2001. The monitoring program consisted of three components including observations from source vessels, aerial surveys to monitor bowhead whales during some years, and acoustic measurements. Ringed and bearded seals were the most abundant, and, in some years, the only seal species observed in the study areas.

Seal sighting rates by vessel-based observers were generally lower during seismic than non-seismic periods but the differences were not always statistically significant. Overall sighting rates for the combined data from 1996-2001, however, were significantly lower during seismic (0.24 seals/hr) than non-seismic periods (0.37 seals/hr; Moulton and Lawson 2002). In most years seals were initially sighted at greater distances during seismic than non-seismic periods and the difference was significant when data from 1996-2001 were combined. Among-year differences in initial sighting distance, however, were not always significant. Combined behavioral data for 1996-2001 indicated that some seals were more likely to swim away from source vessels during seismic compared to non-seismic periods. Similar proportions of seals were observed swimming during periods with and without seismic survey activity. No consistent relationship was observed between seismic states for proportions of seals that looked and dove. Results of these data were similar to results or more recent studies of seal reactions to seismic survey activity suggesting localized seal avoidance of these activities in some situations. Seal reactions to seismic survey activity appear to generally be confined to the area within ~200 m of the sound source. Harris et al. (2001) reported partial avoidance of a zone <150 m from an active seismic operation, but that seals did not move much beyond 250 m. It seems unlikely that the localized disturbance to seals from seismic survey activities produce effects that are biologically significant.

More recent OBC seismic surveys were conducted in 2008 in Harrison Bay (Hauser et al. 2008) and east of Endicott in Foggy Island Bay (Aerts et al. 2008). Much of this activity occurred in the lagoon system inside the barrier islands. Results of monitoring programs during these exploratory activities were similar to those of previous OBC monitoring studies and suggested little seal reaction to these offshore operations.

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

Seal studies associated with Northstar

BP Exploration conducted a number of studies of marine mammals prior to and during development of the Northstar project offshore of Prudhoe Bay in an effort to determine how the development might affect marine mammals including ringed seals. Intensive aerial surveys of ringed seals in the vicinity of the proposed Northstar development began in 1997 during late May and early June when ringed seals haulout on ice (Moulton et al. 2002). Baseline data were collected in a survey area along ~72 km of coastline to ~37 km offshore prior to most development activities for three seasons from 1997 through 1999. The study objective was to investigate how the local abundance of ringed seals was related to various habitat factors. Although Northstar construction had not begun, limited on-ice industrial activity including ice-road construction, exploratory drilling from an artificial island, and vibroseis seismic exploration occurred during the study period. These industrial activities occurred in a relatively small part of the study area and the effects of these activities, if any, apparently did not affect the numbers of seal sightings during the surveys.

The three years of pre-development aerial surveys in the vicinity of Northstar were followed by two years of similar surveys during construction and drilling activities at Northstar in 2000 and 2001 (Moulton et al 2003). Construction activities included impact pipe driving, ice-road construction, pipeline installation, and gravel transport on the ice road. Acoustic measurements underwater and in-air sounds and icebourne vibrations were above background levels at distances ranging up to 4 or 5 km. Seal densities near Northstar in 2000 and 2001, however, were not reduced relative to densities farther away. In some cases, seal densities were actually higher near (within 1 km) Northstar than farther away. Observed seal densities in the 1997-1999 period did not differ significantly within 10 km of Northstar and average seal densities were lower near Northstar in 1997-1999 than in years with construction and drilling. Similar results were observed in a subsequent study after the start of oil production activities at Northstar (Moulton et al. 2005).

During June and July 2000, Blackwell et al. (2004) observed ringed seal activity near Northstar during impact pile driving activities on the island. During 55 hr of behavioral observations, 23 ringed seals were observed around Northstar Island. Most (17) were basking on ice 0.5 to 2 km from the island. The remaining six seals were observed in the moat around the island at distances of 3-15 m from the edge of the island. Twenty seals (15 basking and 5 in the mote) were observed during periods of pile driving activity. Eleven seals were observed without concurrent presence of helicopter activity, eight of which showed no apparent reaction to pipe-driving activity. Seal reactions included briefly looking at the island or pipe-driving activity before continuing with previous behaviors. Nine seals observed during concurrent pipe-driving and helicopter activities showed no reaction to pipe-driving activity, but all reacted to some degree to helicopter activity. Of the 12 ringed seals observed during helicopter activities, one showed no reaction, and the remaining 11 reacted by either looking at the helicopter (10

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

seals) or by departing from a basking site (1 seal). Reactions of seals to pipe-driving activity probably did not result in disturbances that were biologically significant. The basking seal that entered the water did so when a helicopter circled over its haulout at a distance of ~100 m.

Williams et al. (2006) used trained dogs to locate ringed seal breathing holes and lairs within 3.5 km of Northstar during winter 2000-2001. Temperature sensors were placed in lairs to determine dates of abandonment. Ringed seals created and used structures within 11 to 3500 m from Northstar. Structures were created and abandoned throughout the winter. Structures farther from the Northstar ice road were more likely to be abandoned than those closer to the ice road (although this was only marginally significant) suggesting that ice-road activities did not affect ringed seal use of structures near Northstar. In what was probably a more intensive study based on three years of pre-development data and one year during which drilling activity occurred in the Canadian Arctic, Harwood et al. (2007) also reported that the mean distances of breathing holes and lairs used by adult females and rutting males from the development site were not significantly different during pre-development years and in 2006 when drilling occurred. In 2006, the frequency distribution of distances of seal structures showed no tendency toward avoidance or attraction related to activities on an ice road, airstrip and the research camp suggesting that development activities did not affect ringed seal use of breathing holes and lairs.

Snow Depth and Accumulation Monitoring

The climate models used by NMFS predict that precipitation in the Arctic will decrease in future decades. NMFS outlines potential effects on ringed seals which could result from reduction of ice habitat, and, additionally, the potential for reduced snow accumulation to affect ringed seal lairs. Ringed seals remain in the Arctic throughout the year and maintain breathing holes in the ice during winter months. In areas with snow accumulation, ringed seals enlarge some breathing holes and excavate lairs under snow which are especially important for females during birthing and nursing of pups. Subnivean lairs allow ringed seal pups to remain concealed from predators such as polar bears during the nursing period which may last for six weeks or more and thus undoubtedly improves pup survival and recruitment (e.g., Hammil and Smith 1991; Furgal et al. 1996).

There is a fair amount of uncertainty in the climate change models used by NMFS, as has been seen by the inability of these models to accurately depict certain aspects of the climate during recent years. Use of currently available downscaled global models to project future regional precipitation patterns across the Arctic may increase the uncertainty of such predictions. Despite the apparent limitations, NMFS uses the models to suggest that snow accumulation across ringed seal habitat will be too low to allow successful excavation and maintenance of lair structures used during pupping and whelping by ringed seals. This is proposed by NMFS as a major factor in suggesting that future impacts to ringed seal survival and reproduction may occur and threaten survival

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

of the species. In fact, observational records from Barrow, Alaska show a clear upward trend in annual snowfall since the mid 1980's (Figure 9) and snow accumulation at levels similar to those recorded during earlier periods when seals were successful in excavating and maintaining lair structures. This increase is thought to be connected with a shift in Pacific climate patterns in the mid 1970's and may also be linked to the modification in Chukchi/Beaufort sea ice climatology/overall Arctic atmospheric circulation patterns.

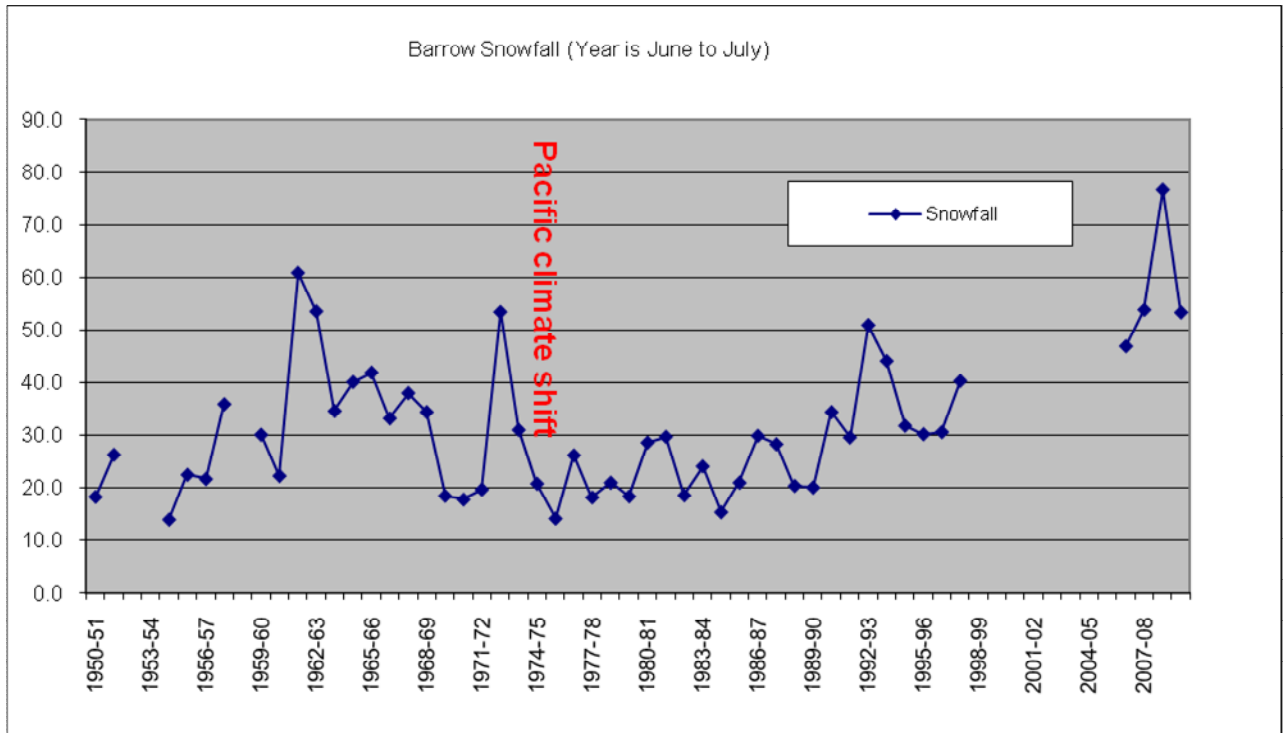


Figure 9. Snowfall at Barrow, Alaska 1950 through 2010.

Ringed seal subnivean lairs are likely of greatest value during whelping and nursing periods when pups are most vulnerable to hypothermia and potential threats from predation. Hammill and Smith (1991) reported that most polar bear predation on ringed seals occurred after the mean pupping date (21 April in their study area in Barrow Strait, Northwest Territories), and that most predation was on pups. The effectiveness of subnivean lairs was dependent on snow depth, with higher levels of predation occurring when mean snow depth and snow depth at lairs was at low levels. A pattern similar to the annual snowfall (Fig. 9) suggesting an increasing trend in snow accumulation is apparent for Barrow snowfall data for the December through April time period when most snow accumulation that would be available for seal structures is likely to occur (Fig. 10).

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

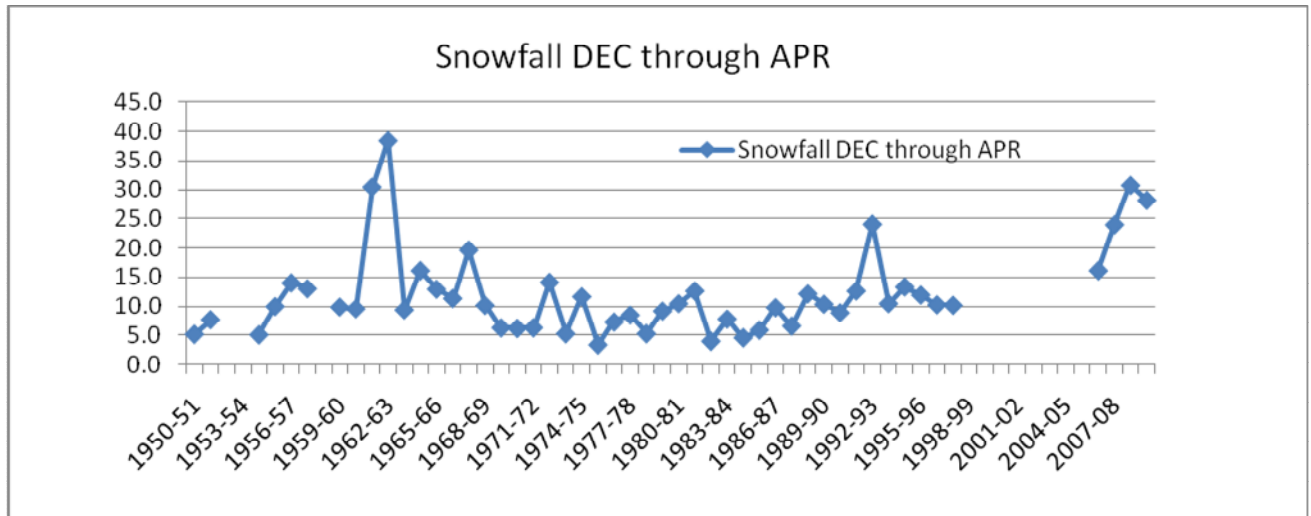


Figure 10. Snowfall in the vicinity of Barrow, Alaska for the December through April time period each year 1950-2010.

The timing of ringed seal whelping, and associated requirement for lair protection, is variable and likely dependant on location and latitude. Most information suggests that in the Arctic whelping generally occurs from March through April (e.g., Kelly 1988 and references therein; Smith and Lydersen 1991; Lydersen and Ryg 1991; Weeks 2010). However, whelping has been reported as early as February in some areas, i.e., the White and Baltic seas (Kelly et al. 2010). The nursing period may be as long as nine weeks as reported by Sipilä and Hyvärinen (1998) for Saimaa and Ladoga seals or as short as three weeks in the Sea of Okhotsk as reported by Fedoseev (1975 in Lentfer 1988). These seem to be the extremes and a number of researchers have reported lactation periods of four to six weeks (Smith et al. 1991; Hammill et al. 1991). The plasticity of the timing and length of whelping periods across ringed seal range imply that ringed seals may be able to adapt to shorter periods of lair use.

Finally, and relatedly, recent comparisons of the Alaskan Arctic to the Barents Sea suggest that systems that have longer periods of open water may be generally more productive. In general biomass, densities of most species were significantly higher in the southern Barents Sea where open water persists for a much longer period of time than in the northern Barents Sea. It is well-established that increasing the period of open water during periods of high sunlight increases productivity of the system and is reflected at most trophic levels. There are also data from the Canadian Beaufort Sea that indicate high rates of seal health indicators during years with more extensive areas of open water which result from greater food availability. It is possible that increased food production may more than offset any early pup mortality that occurs as a result of a changing climate, even if these seal species do not exercise other adaptations.

APPENDIX

Comments of AOGA and API in Response to Proposed Ringed and Bearded Sea Listing Rules (RIN 0648-XZ59 and RIN 0648-XZ58)

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