STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

SEAN PARNELL, GOVERNOR

Cora Campbell, Commissioner

P.O. BOX 115526
JUNEAU, AK 99811-5526
PHONE: (907) 465-4100
FAX: (907) 465-2332

March 25, 2011

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

Re: Comments on the Proposed Designation of Select Subspecies of Ringed Seals (RIN 0648-XZ59) and Distinct Population Segments of Bearded Seals (RIN 0648 XZ58) as Threatened Under the Endangered Species Act

Dear Ms. Brix:

The National Marine Fisheries Service (NMFS) published a proposed rule to list the Arctic (*Phoca hispida hispida*), Okhotsk (*Phoca hispida ochotensis*), Baltic (*Phoca hispida botnica*), and Ladoga (*Phoca hispida ladogensis*) subspecies of the ringed seal as threatened under the Endangered Species Act of 1973, as amended (ESA). 75 Fed. Reg. 77476 (December 10, 2010). Concurrently, NMFS published a proposed rule to list the Beringia and Okhotsk Distinct Population Segments (DPSs) of the bearded seal (*Erignathus barbatus*) as threatened under the ESA. 75 Fed. Reg. 77496 (December 10, 2010). Comments were originally requested by February 8, 2011, but the comment deadline was subsequently extended to March 25, 2011. 76 Fed. Reg. 6754, 6755 (February 8, 2011).

Following are the consolidated comments for the State of Alaska based on input from the Alaska Department of Fish and Game, Alaska Department of Natural Resources, Alaska Department of Environmental Conservation, and the Alaska Department of Law. Please consider and include these comments within the administrative record for the proposed listing of these subspecies and DPSs of ringed and bearded seals. Please also include in the record the comments the State provided on May 22, 2008 (attached) in reply to the request for information for the preparation of status reviews for ribbon, bearded, ringed, and spotted seals as noticed in the Federal Register on March 28, 2008. 73 Fed. Reg. 16617.

I. Introduction

Alaska is the only state that has ringed and bearded seals within its jurisdiction. Notwithstanding the proposed federal rules to list these species under the ESA, the State of Alaska has sovereign trustee responsibilities with respect to these species and takes an active role in protecting and conserving ringed and bearded seals and their habitats and uses.

Based on our review of the proposed rule and the federal regulations for listing species promulgated under the ESA, **the State concludes that listing these subspecies of ringed seals and DPSs of bearded seals as threatened species is not warranted**. These species are currently abundant and widespread and are not threatened with extinction in the foreseeable future. For example, the NMFS website notes, among "Conservation Efforts" currently in place for bearded seals, that "[b]earded seals are classified as "Low Risk-Least Concern" on the IUCN Red List." Also, given existing state and federal permitting requirements and protections, no special management considerations or additional protections are currently required. Finally, sufficient monitoring programs are in place to assess changes in status of these populations.

II. The ESA Listing Process

ESA Section 4 directs the Service[1] to determine whether species should be listed as endangered or threatened. 16 U.S.C. § 1533(a)(1). An endangered species is one "in danger of extinction throughout all or a significant portion of its range," whereas a threatened species is one "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." *Id.* at § 1532(6), (20). The ESA requires the Service to determine if a species is endangered or threatened based on any one of the following five listing factors: (A) the present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. *Id*. at § 1533(a)(1). This listing determination must be made "solely on the basis of the best scientific and commercial data available to [the Secretary] after conducting a review of the status of the species and after taking into account those efforts, if any, being made by any State or foreign nation . . . to protect such species." *Id*. at § 1533(b)(1)(A).

A species may be listed as endangered or threatened either on the initiative of the Service or as a result of a petition submitted by an "interested person." *Id*. at § 1533(b)(3)(A).

[1] "Service" refers to the applicable federal agency, depending on the species involved. The ESA divides the responsibility for listing species between the Secretary of the Interior, who generally is responsible for terrestrial species, and the Secretary of Commerce, who generally is responsible for marine species. 16 U.S.C. §§ 1532(15), 1533(a)(2). The Secretary of Commerce has jurisdiction over ringed and bearded seals, and has delegated his ESA responsibilities to the National Marine Fisheries Service.

Within 90 days of receiving a petition, the Service must "make a finding as to whether the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted." *Id*. Within 12 months of receiving a petition for a listing that may be warranted, the Service is to publish in the Federal Register a proposed rule listing the species or a finding that the petitioned action is not warranted. *Id*. at § 1533(b)(3)(B).

The Service must act on a proposed rule within one year of the date of its publication. *Id.* at § 1533(b)(6)(A). At that point, the Service may promulgate a final rule, withdraw the proposed rule if there is insufficient evidence to justify it, or extend the one-year period for consideration by not more than six months if there is "substantial disagreement regarding the sufficiency or accuracy of the available data relevant to the determination or revision concerned." *Id*. at § 1533(b)(6)(B)(i).

Listing affords species certain legal protections. For example, the ESA prohibits illegal or unauthorized "taking" of endangered fish or wildlife species. *Id.* at § 1538(a)(1). In addition, federal agencies must consult with the Service whenever any agency action may "jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification" of designated critical habitat. *Id.* at § 1536(a)(2); 50 C.F.R. § 402.14(a). The Service has flexibility to determine what regulations are necessary to protect threatened species. 16 U.S.C. § 1533(d). In contrast, for endangered species, the ESA contains a specific list of prohibited acts. *Id*. at § 1538.

III. Determination of Listing Units (Subspecies and DPSs)

NMFS assessed the currently named subspecies of ringed seals to determine whether they meet the criteria for a Distinct Population Segment (DPS) under the ESA, including whether the subspecies are (1) discrete and (2) significant, in accordance with the 1996 joint policy with the US Fish and Wildlife Service (FWS) regarding the recognition of distinct vertebrate population segments. 61 Fed. Reg. 4722 (Feb. 7, 1996). The proposed rule concluded that there are no DPSs that are discrete within any of the subspecies of ringed seals, so there are no DPS designations and no assessment of DPS significance for ringed seals. However, the proposed rule notes that the ringed seal subspecies, especially the Arctic subspecies, require further genetic investigation to clarify whether any DPSs exist among the subspecies. 75 Fed. Reg. at 77478.

The proposed rule did not, however, adequately emphasize the scientific uncertainty surrounding the designated ringed seal subspecies, which leads the reader to think those designations are conclusive. In fact, there remains substantial uncertainty about the subspecies designations themselves. For example, the Status Review of the Ringed Seal[2] reports that recurrent gene flow between the Arctic and Baltic subspecies is probable. Status Review-Ringed at 36-37. In addition, the Status Review states: "[w]ith the exception of the freshwater populations, genetic differentiation is low among subspecies

[2] Status Review of the Ringed Seal (*Phoca hispida*), NOAA Technical Memorandum NMFS-AFSC-212, December 2010.

of ringed seals and may suggest on-going gene flow." *Id*. at 40. The ringed seal subspecies designations need reevaluation and more study, and should not be considered definitive.

Similar uncertainty exists regarding the bearded seal subspecies and DPS designations, as indicated in the proposed rule and the Status Review of the Bearded Seal[3]. Proposed Rule at 77497; Status Review-Bearded at 48. The proposed rule includes a "strong caveat that distinct boundaries do not appear to exist in the actual populations." There are limited genetic data comparing the bearded seal subspecies and identified DPS (especially considering their extensive ranges) and apparently no thorough assessment of phylogenetic distinctiveness or long- and short-term rates of gene flow. The bearded seal subspecies and DPS designations appear to be based on outdated traditional designation criteria, not definitive, genetic qualitative and quantitative assessments.

A more basic and primary concern is lack of acknowledgment of the subjectivity of subspecies and DPSs categories in general. One serious problem with the proposed rule in accepting as fact the five designated subspecies of ringed seals is that it does not acknowledge this subjectivity, which is commonly recognized in the scientific community. *See* Cronin 2006, 2007, and references therein. The proposed rule should have made it clear that subspecies designations are subjective, not definitive. Experts may agree on a subspecies designation, but without clear identification of criteria, and adequate data to assess the criteria for individual cases like the ringed seal, those designations are basically expert opinion, not established data-based results. The proposed rule claims to use the best scientific data available. As such, it should openly acknowledge that the basis for the rule (i.e., the existence of five subspecies of ringed seal) is a subjective judgment. Likewise, DPS designations, as proposed for the bearded seal, are based on judgments, not firm quantitative criteria, and should be acknowledged as such.

These quotes from the published literature substantiate acknowledgment within the scientific community of the subjectivity of the subspecies category:

> Mayr (1970): "Species are not composites of uniform subtypes-subspecies-but consist of an almost infinite number of local populations, each in turn (in sexual species) consisting of genetically different individuals. . . . The better the geographic variation of a species is known, the more difficult it becomes to delimit subspecies and the more obvious it becomes that many such delimitations are quite arbitrary."
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> Futuyma (1986) noted that "there is so much variation among populations of most species that some combination of characters will distinguish each population from others and, consequently, there is no clear limit to the number of subspecies that can be recognized."

[3] Status Review of the Bearded Seal (*Erignathus barbatus*), NOAA Technical Memorandum NMFS-AFSC-211, December 2010.

> Vanzolini (1992:189) noted that "present applications of the subspecies concept are uneven, frequently undocumented, and lead to no improvement of either evolutionary theory or practical taxonomy."
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> Avise (2000:308): "In intermediate situations (and also in hybrid settings), educated nomenclatural judgments will remain necessary at species and subspecies levels."
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> Ehrlich (2000:49, 291) stated: "Widespread species thus can be divided into any number of different sets of 'subspecies' simply by selecting different characteristics on which to base them. . . . As is the case with other species, geographic variation in human beings does not allow *Homo sapiens* to be divided into natural evolutionary units. That basic point . . . has subsequently been demonstrated in a variety of organisms . . . and use of the subspecies (or race) concept has essentially disappeared from the mainstream evolutionary literature."
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> O'Gara (2002): "Classification below the species level often has been subjective because there are no standard criteria for naming subspecies or populations. . . . [S]ubspecies designations should be based on phylogenetic relationships, the same for species. In practice, they seldom are."
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> Zink (2004): "Mitochondrial DNA sequence data reveal that 97% of . . . avian subspecies lack the population genetic structure indicative of a distinct evolutionary unit. . . . A massive reorganization of classifications is required so that the lowest ranks, be they species or subspecies, reflect evolutionary diversity. Until such reorganization is accomplished, the subspecies rank will continue to hinder progress in taxonomy, evolutionary studies and . . . conservation."
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> Haig et al. (2006): "Among taxonomists, definitions of subspecies are a source of considerable disagreement. . . . In an extensive literature review, we found no universally accepted subspecies definition within or across taxa. . . . [T]he scientific community has some level of comfort with the subjective nature of subspecies classification . . . ."

IV. Difficulty in Accurately Predicting Future Conditions

The proposed listing rules for both ringed and bearded seals are **not warranted** because they rely entirely on speculative predictive models and hypothetical future impacts on animals that are currently abundant. Climate, ice, and snow model results should be considered as hypotheses, to be tested with data collected over time. They are not data and they should not be considered to be conclusive. Therefore, reliance on such models does not constitute the use of data; instead, that reliance is misplaced because it depends on untested hypotheses.

It is important to note that ringed and bearded seals currently live in areas with annual ice only (i.e., no multi-year ice) and survive without year-round ice. The assumption in the proposed rules is that the included Arctic subspecies and DPSs of ringed and bearded seals cannot survive under these circumstances. However, the current status of the other subspecies--i.e., those *not* proposed for listing--indicates that ringed and bearded seals can survive without multi-year ice.

The proposed rules report record high winter ice in the Bering Sea from 2007-2010, which includes some of the same years with low quantities of summer ice: 2007, 2008, and 2010. This overlap casts doubt on the rules' determination of a threat of extinction to ringed and bearded seals. The proposed rule makes it clear that winter ice will continue to occur, and that the primary issues are the length of open water periods and changes in snow accumulation. Changes in distribution and numbers of ringed seals may occur, but the continued occurrence of winter ice--particularly years where its record extent coincides with low summer ice years--indicates that a more thorough assessment of seal habitat and population responses is needed before the threat of extinction can be assessed with any reasonable level of certainty.

In this regard, the proposed rule states that record low summer ice occurred in 2007, 2008, and 2010. Proposed Rule-Ringed at 77481. Although the year 2009 is not mentioned, it is relevant to testing the model predictions with observed data. If one of 4 years (i.e., 25%) of the observed summer ice seasons do not fit the models, this must be acknowledged, and predictions of seal populations' responses must be quantified accordingly.

The proposed rule predictions about snow accumulation are also problematic. It is questionable whether it is possible to predict how deep snow will be 50 to 100 years from now with the level of accuracy needed to declare ringed seals as threatened with extinction. This factor requires quantitative analysis to accompany the predictive models (or "scenarios" as the Intergovernmental Panel on Climate Change, or IPCC, calls them).

The superficial treatment of past warming periods in the proposed rule is also inadequate. The proposed rule states that "Ringed seals…survived warm interglacial periods. How they survived…or in what numbers is not known." Proposed Rule-Ringed at 77484. This statement misses the primary point: how the seals survived is not the issue. The fact is that ringed seals *did* survive past warming periods and *did not go extinct*. Although the proposed rule alludes to the current declines in sea ice being more rapid and extensive than in the past, this is not convincingly documented. The survival of ringed seals during interglacial periods can be considered better evidence for population persistence than predictive models of ice conditions and species extinction. This point, that ringed (and bearded) seals survived previous warm, ice-free periods, is a primary reason why the designation of ringed and bearded seals as threatened with extinction is **not warranted**.

We also note that predicting climate changes is uncertain and made more difficult by decades long shifts in temperature that occur due to such variables as the Pacific Decadal Oscillation, which has recently caused the National Weather Service to predict a colder Alaska for approximately the next three decades.

V. Use of 100-Year Time Horizon for the Foreseeable Future

The general premise of the proposed listings is that forecasts of a warming climate over the next 100 years predict, with varying ranges of certainty, declines in habitat (sea ice), which in turn will lead to reduced ringed and bearded seal populations to such an extent that these species will be threatened with extinction. Each of the proposed rules finds that, within a 100-year foreseeable future, both species are likely to become in danger of extinction, and would thus qualify currently as "threatened" and within 100 years as "endangered" under the ESA. 16 U.S.C. § 1532(6)(20).

The State questions the use of 100 years as the appropriate "foreseeable future" period for these proposed listing decisions. There is simply too much uncertainty to assess future conditions this far into the future. Alaska believes that the best available scientific data supports a "foreseeable future" period of no more than 50 years. Such shorter time periods have been used for other climate-related listing decisions for marine mammals, including the polar bear, the Pacific walrus, and the ribbon seal.

The most analogous recent listing decision regarding the appropriate "foreseeable future" period is NMFS's ribbon seal decision, in which NMFS found that a listing of this ice seal species was **not warranted**. 73 Fed. Reg. 79822. The ribbon seal (another ice seal species) decision was based on climate modeling projections similar to those used in the ringed and bearded seal proposed rules. For the ribbon seal, NMFS based its decision on a mid-century outlook, citing uncertainty in projections beyond this period. NMFS's ribbon seal determination was recently upheld in federal district court[4]. For the ringed and bearded seal proposed rules, however, without any quantitative explanation, NMFS departed from this clearly defensible approach, and utilized 100 years as the foreseeable future for the purpose of the proposed threatened listing. Yet the proposed rules contain no substantive explanation regarding how NMFS can now evaluate threats beyond mid-century, 100 years into the future.

While it is correct that IPCC climate scenarios and models may project out for 100 years, it does not follow that the foreseeable future period used to evaluate the status of any given species—even a species under consideration for listing because of potential climate-change effects—should also be 100 years. Other information that is used to evaluate potential impacts to the species, as well as the specific characteristics of the species itself, must be considered in determining the appropriate foreseeable future period.

[4] *Center for Biological Diversity v. Lubchenco*, No. 09-4087, 2010 WL 5288188 (N.D. Cal. Dec. 21, 2010).

NMFS misrepresents the use of longer-term projections in the listing evaluation of the ringed and bearded seal. The ultimate decision resulting from the ESA listing process cannot drive the appropriateness (or lack thereof) of the "foreseeable future" period determined applicable by the Service in a case- and species-specific instance. Further, the rationale provided by NMFS in setting the ribbon seal foreseeable future period at mid-century supports NMFS' use of a similar (i.e., mid-century at 2050) foreseeable future period for ringed and bearded seals. As NMFS noted in the ribbon seal Status Review,[5] "the best available scientific information allows reliable assessment of global warming and the related threats to ribbon seals through the first half of the 21st century. 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 those threats." Status Review –Ribbon at 28. Similarly, the 12-month finding that listing the ribbon seal was not warranted stated: "[f]or this status review, the foreseeable future was determined to be the year 2050 because past and current emissions of greenhouse gases have already largely set the course for changes in the atmosphere 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." 73 Fed. Reg. 79822, 79823 (December 30, 2008). The same considerations that NMFS addressed for the ribbon seal apply to determining the appropriate, scientifically defensible foreseeable future period for ringed and bearded seals

NMFS's argument for ringed and bearded seals fails to recognize the real and substantive difference between (1) the data and studies analyzed in a listing determination evaluation, and (2) the determination of the foreseeable future period used. These are two separate exercises, and the consideration of some information in the overall listing analysis that may contain projections further out than the determined foreseeable future period does not undermine the agency's decision on the determination of the foreseeable future period. Instead, this raises only a question of the weight that NMFS determined to give certain subsidiary projections, such as climate change scenarios, that might feed into an evaluation of potential impacts on the species in the foreseeable future. NMFS's determination to give less weight to projections beyond 2050 because of the uncertainties inherent in them, as noted in the ribbon seal not-warranted finding, was a rational, defensible application of the best available scientific data. *Id.*

In conclusion, there is simply too much uncertainty to substantiate the use of a 100-year foreseeable future in the ringed and bearded seal listing decisions. For these species, NMFS should use the rationale it used in the ribbon seal designation and evaluate effects over a 20 to 30-year timeframe, but no longer than a mid-century timeframe.

[5] Status Review of the Ribbon Seal (*Histriophoca fasciata*), NOAA Technical Memorandum NMFS-AFSC-191, December 2008.

VI. Current Health of Stocks

The best available science does not support the listing of select stocks of bearded and ringed seals as threatened under the ESA. Both species are currently abundant throughout their respective historical ranges (refer to Attachment 1). The numbers presented in the proposed rule indicate that there are approximately 3 to 4 million ringed seals today. The bearded seal population is believed to be in the hundreds of thousands in the Arctic.

There is no sound scientific evidence that climate change is having an actual impact on ringed and bearded seal populations, as indicated by the high population numbers referenced above and data summarized in the proposed rules and summarized below. The proposed rules simply designate these populations as threatened with extinction, predicting that they will *likely become endangered with extinction in the foreseeable future*. The proposed rules simply rely on speculation from climate, ice, and snow models that predict conditions to the year 2100. However, concluding that the Arctic ringed seal subspecies will decline from 2-3 million seals to a number low enough to possibly become endangered with extinction should be accompanied with substantially more quantification. The proposed rule acknowledges this, stating that "there is little basis for quantitatively linking projected environmental conditions or other factors to ringed seal survival or reproduction. Our risk assessment therefore primarily evaluated important habitat features . . . ." Proposed Rule-Ringed at 77481. NMFS simply cannot justify its listing decision based on the very limited quantification provided in the proposed rule.

The Alaska Department of Fish and Game's (ADF&G) ice seal monitoring program provides long-term data and results that are extremely useful for monitoring the status and health of these species. The ADF&G Arctic Marine Mammal Program (AMMP) conducts a bio-monitoring program that relies on measurements and samples from the Alaska Native subsistence seal harvest to provide essential information on the health and status of sea ice associated seals. These samples allow us to monitor, document, and evaluate changes in population status, species distribution, availability to subsistence hunters, and contaminant levels in seal populations. The program has a long-term and positive relationship with Alaska Natives who harvest these animals and understand them very well, and the program works with villages from Hooper Bay in the Bering Sea to Kaktovik in the Beaufort Sea. Although the monitoring could be enhanced, the current program is adequate to detect landscape population level patterns and problems, should they arise. Sample collections are ongoing, and the ice seal biomonitoring program is a cost-effective tool to evaluate species status.

In response to this proposed listing, the Department analyzed pertinent information from the AMMP program (refer to Attachment 2). These data indicate that both ringed and bearded seal populations are currently healthy. This and other monitoring programs are sufficiently robust to determine if a population-level crisis exists. Thus, there is no need to list these common species.

In conclusion, given the current abundance, distribution, and health of ringed and bearded seals, the proposed listings are based entirely on an unrealized and unsubstantiated future threat. The State of Alaska does not believe the best available science supports the listing of these species.

VII. Lack of Meaningful State Involvement in the Listing Proposal

Congress clearly intended states to have an important role in the implementation of the ESA. The Senate Report on the legislation that ultimately became the 1982 Endangered Species Act amendments noted: "The involvement and advice of such State agencies in the Federal regulatory process is crucial *and must not be ignored*." S. Rep. No. 97-418, at 12 (1982) (emphasis added). The ESA clearly requires NMFS to cooperate with states to the maximum extent practicable in carrying out the programs authorized by the ESA. 16 U.S.C. § 1535(a).

The Services also recognize the necessity of state involvement in ESA processes. *See* 59 Fed. Reg. 34274 (July 1, 1994) (Notice of Interagency Cooperative Policy Regarding the Role of State Agencies in Endangered Species Act Activities). There, the Services state that their joint policy is to: "[u]tilize the expertise and solicit the information of State agencies in preparing proposed and final rules" as well as at other points in the listing process. *Id*. In addition, the ESA Consultation Handbook provides that interested parties, including affected State governments, should be involved in ESA decisions, including development of status reviews and designations of critical habitat. ESA Consultation Handbook, March 1998, at 4-7.

In summary, both Congress and the agency itself have formally recognized the importance of state agency involvement in the ESA process. In this case, however, NMFS failed to follow that policy. Other than providing the opportunity to respond to federal register notices, NMFS did not involve the State in a meaningful manner in either the development of foundational status reviews or the proposed rules to list these subspecies and DPSs of ringed and bearded seals.

As can be seen in this letter and the attached May 22, 2008 comments, Alaska has much to offer to ensure that status reviews and listing decisions can be based on the best available science. As a trustee of Alaska's fish and wildlife resources, we remain committed to working collaboratively with NMFS to assure the continued viability and conservation of Alaska's ringed and bearded seal populations.

VIII. Adequacy of Existing Regulatory Programs

The Service must list a species "solely on the basis of the best scientific and commercial data available . . . after conducting a review of the status of the species and after taking into account those efforts, if any, being made by any State or foreign nation, or any political subdivision of a State or foreign nation, to protect such species, whether by

predator control, protection of habitat and food supply, or other conservation practices, within any area under its jurisdiction, or on the high seas." 16 U.S.C. § 1533(b)(1)(A).

In addition, under the Service's Policy for Evaluation of Conservation Efforts (PECE), NMFS is required to "take into account any State or local laws, regulations, ordinances, programs, or other specific conservation measures that either positively or negatively affect a species' status." 68 Fed. Reg. 15100, 15113 (March 28, 2003). In the comments the State provided to NMFS on May 22, 2008 (in reply to the request for information for preparation of status reviews for ribbon, bearded, ringed, and spotted seals, as noticed at 73 Fed. Reg.16617 (March 28, 2008)), Alaska outlined comprehensive conservation measures undertaken by the State that positively affect the ringed and bearded seals in Alaska. These measures are updated and summarized in Attachment 3.

Alaska's formal conservation measures are designed to improve the habitat and food supply of ringed and bearded seals in Alaska. NMFS's consideration of these formal conservation measures in the proposed ringed and bearded seal rules is extremely limited, without any supporting analysis. This summary dismissal of the State's conservation programs fails to comply with NMFS's affirmative statutory obligation under ESA Section 4(b), as well as the agency's own PECE policy construing ESA Section 4. 16 U.S.C. § 1533(b); § 1535(a).

The PECE establishes two broad criteria for evaluating current conservation efforts: (1) the certainty that the conservation efforts will be implemented, and (2) the certainty that the efforts will be effective. 68 Fed. Reg. at 15101; *see also* 75 Fed. Reg. at 77490 (PECE discussion for ringed seal) and 75 Fed. Reg. at 77511 (PECE discussion for bearded seal). As part of its evaluation, the Service is to consider several questions to ensure "that the formalized conservation effort improves the status of the species at the time we make a listing determination." 68 Fed. Reg. at 15101. In addition to providing a "consistent set of criteria to evaluate formalized conservation efforts," the PECE is designed to provide states with a framework to develop their own conservation efforts designed to make an ESA listing unnecessary. *Id*. Under PECE, conservation measures do not have to be species specific, but for instance could be general habitat protection and restoration or other measures. *Id.* at 15114.

In the proposed ringed and bearded seal listing rules, NMFS failed to recognize or adequately consider "conservation efforts indentified in conservation agreements . . . management plans, or similar documents developed by . . . State and local governments" for which it has information. 68 Fed. Reg. 15100. Alaska has in place comprehensive regulatory programs that positively affect the status of both ringed and bearded seals. *See, e.g.*, Attachment 3; similar information also was provided in our May 22, 2008 comments, also attached. Alaska's statewide conservation program is consistent with the intent of the ESA and the certainty and effectiveness criteria in the PECE, and ultimately achieves the same conservation goals as listing under the ESA, i.e., to conserve species such that the statute's listing mechanisms are not necessary. Here, NMFS failed to evaluate these State conservation measures as required by ESA Section 4(b) and under the PECE. 16 U.S.C. § 1533(b)(1)(A); 68 Fed. Reg. 15100. Although the proposed rules

set forth the PECE criteria and discuss international and *federal* conservation efforts, the Service's section 4(b) evaluation simply stops there. 75 Fed. Reg. at 77490 (Conservation Efforts discussion for ringed seal) and 75 Fed. Reg. at 77511 (Conservation Efforts discussion for bearded seal).

NMFS's approach is therefore inconsistent with the ESA and the PECE policy, which recognizes that State conservation efforts should be discussed and considered in a listing determination, even if the ultimate agency decision is that the species should be listed. 68 Fed. Reg. at 15113. But here, NMFS did not adequately consider this relevant information.

The listing of these species under the ESA will create no additional safeguards. Indeed, in the event of a listing, these species will, for all practical purposes, continue to be managed just as they are now under the Marine Mammal Protection Act (MMPA) and other existing laws and regulations, which provide equal or greater protection than that provided under the ESA.

IX. Traditional and Ecological Knowledge

At the 2011 public hearings pertaining to the proposed listings of these species, Alaska Native hunters expressed their opinion that both ringed and bearded seals remain abundant and healthy. The State urges NMFS to fully consider this and other traditional and ecological knowledge as it prepares the final rules for these species.

X. Other Information

In 2008, an Alaskan industry group developed and implemented a multi-year, comprehensive, ecosystem-level environmental studies program[6], spending tens of millions of dollars with other offshore operators, universities, research institutions and local stakeholders to collect and analyze environmental data. This program involves the collection and analysis of physical, chemical, and biological oceanographic data, chemical characterization of sediments and biota, bioacoustics, metocean, and air quality data in the Chukchi Sea. This program is contributing significant information toward the understanding of ecosystems in the Arctic Outer Continental Shelf (OCS) and has been well received by North Slope communities, regulatory agencies, and several environmental groups. The State urges NMFS to consider data from these studies as it prepares its final rules.

The Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE; formerly the Minerals Management Service) Environmental Studies Program began in 1973 as a means to gather and synthesize environmental, social, and economic information to support decision making for the offshore oil and gas program. Since its beginning, the National Environmental Studies Program has contracted for more than $600 million dollars of studies throughout the coastal zone of the continental United

[6] http://alaska.conocophillips.com/EN/sustainable/environment/Pages/index.aspx

States. These funds have supported studies of all aspects needed for a thorough understanding of the complex nature of the Alaskan OCS and have aided in the protection of its valuable resources. The BOEMRE uses information from the studies program in evaluating potential environmental problems associated with all levels of oil and gas activities. Results of these studies can be found at http://alaska.boemre.gov/ess/index.htm. The State urges NMFS to carefully consider this information as it finalizes these rules.

Also, the proposed rule for the ringed seal refers to the long generation time for this species without stating what that generation time is. 75 Fed. Reg. at 77484. Estimates of age of first reproduction in the proposed rule range from 3 years to 5 years (males) or 8 years (females). To use the approach of the average age of reproducing females as generation time, more accurate determination of the first age and duration of reproduction is needed. This is an important parameter for population projections and population genetics assessments (*see* Cronin et al. 2009).

XI. The Proposed Listing Harms Alaska

Alaska is a sovereign state with legal title and regulatory interests in its natural resources, which extend beyond its land area to the State's offshore submerged lands and waters. *See* 43 U.S.C. §§ 1301, 1311; *Alaska v. United States*, 545 U.S. 75, 79 (2005) (stating that Alaska is generally entitled to regulate submerged lands beneath territorial waters extending three nautical miles seaward of its coastline). The ringed and bearded seals subject to the proposed listing determination are present within these State waters.

1. The Service's Proposed Listing Harms Alaska's Sovereign Interests

The proposed listing of ringed and bearded seals would injure at least two of Alaska's sovereign interests: (1) the State's interest in managing the wildlife and natural resources within the range of the ringed and bearded seals in Alaska; and (2) the State's interest in the implementation and enforcement of its laws. As a steward of its wildlife and natural resources, Alaska directly manages wildlife and habitat through its Departments of Fish and Game, Natural Resources, and Environmental Conservation. *See* Alaska Const. Art. VIII, §§ 1, 2, 4; Alaska Stat. § 16.05.020. These departments implement affirmative conservation measures, including habitat conservation practices and cooperation with other government agencies through research and monitoring, designed to protect and conserve Alaska's wildlife and avoid the need for species to be listed under the ESA.

NMFS's proposed listing of these species interferes directly with Alaska's management of ringed and bearded seals and their habitat and therefore harms Alaska's sovereign interests. Furthermore, by displacing State statutes and regulations addressing Alaska's wildlife and natural resources generally—and the ringed and bearded seals specifically—NMFS's listing decision impedes Alaska's ability to implement its own laws. *See Alaska v. U.S. Dep't of Transportation*, 868 F.2d 441, 443-44 (D.C. Cir. 1989) (holding that the sovereign interest of Alaska and other states in enforcing their own laws conferred standing to challenge the legality of a federal agency's order that preempted state law).

2. The Service's Listing Harms Alaska's Economic Interests

NMFS's proposed action also will cause substantial injury to Alaska's economic interests. In addition, in the event a decision to list is made, the designation of critical habitat will follow, which will impact the State's economic interests. It has been estimated that the Alaska OCS is one of the largest untapped energy resources in the world, with billions of barrels of oil and trillions of cubic feet of natural gas. Specific activities that would be affected by this proposed listing include oil and gas leasing in and adjacent to Alaska including the proposed Beaufort and Chukchi Sea Areawide 2009 Oil and Gas Lease Sales and the North Slope Areawide 2008 Oil and Gas Lease Sale. These are geographic and site-specific examples of oil and gas leasing in the Beaufort and Chukchi Seas and North Slope planning areas that would be affected by the Service's proposed listing designation. More generally, areas that are the subject of the Alaska Department of Natural Resources current five-year plan for areawide oil and gas lease sales for the Beaufort Sea and North Slope planning areas scheduled for 2010, 2011, 2012, and 2013 would be affected by a decision to list these species.

In addition, State activities involving existing pipelines (including the TransAlaska Pipeline), roads, other industry and local infrastructure projects; ports and coastal infrastructure and shipping; coastal impact assistant programs; and local governments could similarly be affected by the proposed rule. The State's own oil and gas leasing activities, together with federal offshore oil and gas leasing activities, are important to the State's operations, management, and income—both for wildlife management (including ice seals) and for other purposes, because throughput of products via the TransAlaska Pipeline system provides substantial income to and economic benefit to the State.

Additional regulation of ringed and bearded seals and their habitat and uses under the ESA will deter or delay activities such as oil and gas exploration and development, and shipping operations. For example, the connection is quite direct between the projected decline in Alaska's revenue from royalties and limitations on oil and gas development in occupied areas of ringed and bearded seal habitat that will result from the associated designations of critical habitat for these species. The oil and gas industry in Alaska contributes substantially to the State's economy and the State treasury. Listing would adversely affect ongoing and planned oil and gas development, which would reduce State royalties and revenues. Furthermore, listing would harm municipal governments located on or near the coastal areas within the range of these species, including the North Slope Borough, which are political subdivisions of the State of Alaska under Alaska Statutes, Title 29. Finally, listing and the resulting regulatory measures would interfere with the municipalities' efforts to provide public services to Alaska residents and would impact their land use planning, utility access, and waste water disposal activities.

XII. Conclusion

In closing, the State concludes that the proposed listing of the Arctic (*Phoca hispida hispida*), Okhotsk (*Phoca hispida ochotensis*), Baltic (*Phoca hispida botnica*), and

March 25, 2011

Ladoga (*Phoca hispida ladogensis*) subspecies of the ringed seal and the Beringia and Okhotsk Distinct Population Segments (DPSs) of the bearded seal (*Erignathus barbatus*) as threatened under the ESA is **not warranted**.

Alaska understands that other parties, including the North Slope Borough, the Arctic Slope Regional Corporation, the Alaska Oil and Gas Association, and others with similar interests, have filed comments on this proposed rule, and Alaska urges NMFS to carefully consider the comments and points raised in these comments.

If you have any questions, please feel free to contact me at (907) 267-2339 or douglas.vincent-lang@alaska.gov.

Sincerely,

Doug Vincent-Lang, Acting Deputy Commissioner
Alaska Department of Fish and Game

cc: Randall Ruaro, Cora Campbell, Daniel Sullivan, Larry Hartig, John J. Burns, John Katz, Senator Lisa Murkowski, Representative Don Young, Senator Mark Begich

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ATTACHMENT 1
Estimated Population Size of Ringed and Bearded Seals

Ringed Seals

Arctic ringed seal four regions:
- Greenland Sea and Baffin Bay: 787,000 (1979)
- Hudson Bay 53,346 midpoint estimate (2007-2008); 280,000 (1995)
- Beaufort and Chukchi Seas: 1,000,000 (no date); 250,000 shore-fast ice and 1,000,000 to 1,500,000 in pack-ice (mid-1980's).
- White, Barents, Kara, East Siberian Seas: 220,000 (1975-1993).

Total Arctic subspecies: Low estimate: 2,060346 to High estimate: 3,037,000

Okhotsk ringed seal.
676,000 to 855,000 (1968-1990)

Baltic ringed seal
10,000 (1996)

Ladoga ringed seal
3,000 to 5,000 (2001)

Saimaa ringed seal
Less than 300 (current estimate)

Five-subspecies total: Low estimate: 2,749,646 to high estimate: 3,907,300.

Bearded Seals:

Pacific bearded seal:

Beringia DPS:	155,000;
Okhotsk DPS:	95,000;
Total Pacific subspecies:	250,000;

Atlantic bearded seal: 188,000.

ATTACHMENT 2
New Information Regarding the Biology of the Ringed and Bearded Seal in Alaska

The Biology of the Ringed Seal in Alaska, 1960–2010

Lori T. Quakenbush, John J. Citta, and Justin A. Crawford
Arctic Marine Mammal Program
Alaska Department of Fish and Game
Division of Wildlife Conservation
Fairbanks, AK
March 2011

EXECUTIVE SUMMARY

The Alaska Department of Fish and Game has been monitoring the health and status of ringed seals (*Phoca hispida*) in Alaska since 1960 by collecting information and samples from the Alaska Native subsistence harvest. This monitoring program is especially important because agencies are unable to overcome the logistical and sampling constraints necessary to estimate seal abundance in remote, ice covered waters. As such, reliable estimates of ringed seal abundance or population trend are lacking. Retrospective data analyses from this monitoring program allow us to examine how parameters that affect population size and status may vary in time and how current conditions compare with past conditions. Parameters we monitor that are indicative of population health or status include growth rate, body condition, diet, age distribution, sex ratio, age of maturation, and pregnancy rate. Since 2000, ADF&G has also conducted surveys for local knowledge and hunter preferences and analyzed tissue samples for contaminants and disease. All of these collections rely on the cooperation of coastal subsistence communities. Villages that have participated in the sampling program span the region from Hooper Bay in the Bering Sea to Kaktovik in the Beaufort Sea, including islands in the Bering Sea; an area that encompasses most of the range of ringed seals in Alaska.

Local knowledge—Hunter questionnaires are used to evaluate seal availability for harvest and hunter bias in the samples so that we can determine whether changes are due to hunter behavior or related to the seal population itself. Responses to hunter questionnaires from five participating villages did not indicate decreases in ringed seal numbers (availability) at any location. The majority of respondents from all villages reported that ringed seals were found in the same areas as in the past and hunting occurred at the same time as in the past.

Diet—Using stomach contents from 1,555 ringed seals collected between 1960 and 2009, we identified 155 different fish and invertebrate prey of which 99 were

common. Using percent frequency of occurrence, fish were consumed significantly more frequently (4.1 times) during the 2000s than during the 1960s and 1970s. Too few data were available for analysis in the 1980s and 1990s. The increase in general fish consumption over time was strongly correlated (Pearson correlation) with changes in the consumption of cod from the Family Gadidae ($r = 0.67$), suggesting changes in the consumption of Arctic cod (*Boreogadus saida*), saffron cod (*Eleginus gracilis*), and to a lesser extent walleye Pollock (*Theragra chalcogramma*) were likely responsible for variations we observed among all fish. Ringed seals have also consumed significantly more Pacific herring (*Clupea harangus*), capelin (*Mallotus villosus*), Pacific sand lance (*Ammodytes hexapterus*), and pricklebacks (Stichaeidae), including eelblenny (*Lumpenus* spp.) in the 2000s than in the 1960s and 1970s ($P < 0.01$).

In general, invertebrates were consumed less frequently in the 2000s (66%) than during the 1960s and 1970s (89%; $P < 0.01$). Too few data were available for analysis in the 1980s and 1990s. Although invertebrates were consumed less frequently in the 2000s, the diversity (D) of invertebrate species consumed recently was somewhat greater ($D = 0.26$) than during the 1960s and 1970s ($D = 0.29$), based on Simpson's Diversity Index. The decrease in general invertebrate consumption over time was strongly correlated with crustacean ($r = 0.96$) and shrimp consumption ($r = 0.58$), suggesting decreases in their consumption were likely responsible for the decrease observed among all invertebrates.

Contaminants—Liver (n = 35) and kidney (n = 12) tissues from ringed seals collected during 2003 and 2007 were analyzed for concentrations of potentially toxic elements such as arsenic, cadmium, mercury, and lead. Concentrations of these elements in ringed seals in Alaska were lower than for ringed seals in Canada, Greenland, and Russia. Within Alaska, ringed seals had the second lowest concentrations of cadmium and mercury of the four species of ice seals in our studies (only spotted seals were lower) and lead levels were very low in all ringed seals analyzed. Blubber (n = 35) and liver (n = 26) tissues were analyzed for persistent organochlorine compounds and compared to bearded, spotted, and ribbon seals in Alaska; ringed seals had the lowest levels of total CHL (chlordanes), and the second lowest of HCH (hexachlorocyclohexane), DDT (dichlorodiphenyltrichloroethane), and PCB (polychlorinated biphenyls) in our studies. Ringed seals in our study also had lower levels of these compounds than ringed seals in Canada, Norway, and Russia.

Disease—Antibodies for *Brucella*, phocine herpesvirus, phocine and canine distemper, *Leptospira*, and *Toxoplasma*, were detected in ringed seals at levels below or similar to the past. Screening for toxic algae detected domoic and saxitoxin at very low levels in four and six of 34 individual ringed seals, respectively.

Growth rates—We analyzed growth rate using length at age data for 1,610 seals ≥1 years old and 543 pups. Seals were identified as being longer or shorter than expected, given their age, and were then classified by birth year. For seals ≥1 year of age, individuals born after 1976 were larger than expected in 20 of 23 sample years. We fit von Bertalanffy growth curves to age-at-length data. Seals harvested before and after

1976 reached similar asymptotic (maximum) lengths; however, seals harvested after 1976 grew at a faster rate. For example, at age 1, seals born after 1976 were an average of 1.7 cm longer than seals born in 1976 or earlier. This effect was greatest at 6 years of age, when seals born after 1976 were an average of 6.2 cm longer. By age 25, the effect had diminished to an average of only 2.8 cm. Growth rates for pups were lowest in 1961 and 2005. Pups were shorter than expected, given their date of harvest, in six of ten (60%) sample years between 1960 and 1979. In contrast, pups were shorter than expected in only three of nine (33%) sample years between 2000 and 2009. Too few data were available for analysis in the 1980s and 1990s.

Body condition— We examined patterns in sternal blubber thickness using linear models to control for covariates, such as time of year, for 147 pups, 215 subadults, and 189 adults collected between 1971 and 2010. Pups had less blubber than expected in 1971 and 1976; since 2002, blubber thickness of pups has been average. Adults and subadults also had less blubber than expected in 1971, but more than expected in 1978. Since 2002, blubber thickness of adults and subadults has been average.

Age distributions—We analyzed age at harvest for 528 ringed seals harvested in the 1960s, 4,694 in the 1970s, and 727 in the 2000s. Too few data were available for analysis in the 1980s and 1990s. A much greater proportion of pups were identified in the 2000s (56%) than in the 1960s (14%; $P < 0.01$) and 1970s (23%; $P < 0.01$). On average, ringed seals harvested in the 1960s were older than those harvested in the 1970s, and seals harvested in the 1970s were older than those harvested in the 2000s.

Sex ratios—Sex ratios were generally male biased. However, the patterns were not consistent through time or by age class. The shifts in the sex ratios were driven by an increase in the proportion of adult males (ages 5 and older; $P < 0.01$) harvested in the 1960s and 2000s. Too few data were available for analysis in the 1980s and 1990s.

Age at maturity and pregnancy rate—Sexual maturity was determined by examining reproductive tracts of 690 female ringed seals; 47 harvested between 1965 and 1975, 84 in 1976, 196 in 1977, 162 in 1978, 81 between 1979 and 1984, and 120 between 1999 and 2010. The average age of maturity varied significantly in time. Average age of maturity was 5.3 years of age between 1965 and 1975 and increased to 6.4 in 1976 and 6.5 in 1977 ($P<0.05$). In 1978, the average age of maturity significantly decreased to 5.0 years of age ($P<0.05$). Age at maturity rose to 5.9 years from 1979 to 1984. Since 1999, however, the average age of maturity has been the lowest observed (3.2 yrs), and is significantly lower than all other years ($P<0.05$).

Female reproductive tracts were analyzed for percent pregnant at harvest. The decades with the lowest percentage was the 1960s (76.8%) and the 1980s (76.2%). The 1970s had the highest percentage at 89.1% and the 2000s were next highest at 79.5%. Too few data were available for analysis in the 1990s.

Conclusions—These data span five decades and include time periods well before changes in sea ice or other factors attributed to global climate change were present. Our

analyses show that ringed seals have been positively and negatively affected by past and current conditions. Currently, however, ringed seals are growing faster, have average blubber thickness, are maturing at the youngest age to date (indicating females are in a positive nutritional state allowing them to grow faster and become mature at an earlier age), and have the second highest pregnancy rate to date. Current environmental conditions have not had a negative effect on any of these factors. In addition, there are more pups in the harvest now. Because age ratios are proportional, a higher proportion of pups in the sample may indicate that adult survival is decreasing or that reproduction is increasing. Based upon other information, however, it is most likely that reproduction has increased. For example, growth rate, age of maturation, pregnancy rate, and blubber thickness are average or better than expected, and hunter responses to questionnaires indicate that ringed seal numbers have not decreased. The high proportion of pups in the harvest also indicates that pups are surviving long enough to be harvested (*i.e.*, pups survive to weaning). Sex ratios are currently male biased; however, this is probably not a concern as it corresponds to a period with high pregnancy rates and increasing numbers of pups. Levels of contaminants in ringed seals harvested in Alaska are lower than levels reported in Canada, Europe, and Russia, and the prevalence of diseases has remained stable.

The results from this long-term program demonstrate its ability to monitor and detect changes in parameters that are useful for monitoring population status when estimating the population size is not possible. Parameters that determine the status of the ringed seal population in the Bering, Chukchi, and Beaufort seas have been more favorable throughout the 2000s than during the 1960s and 1970s.

The Biology of the Bearded Seal in Alaska, 1962–2009

Lori T. Quakenbush, John J. Citta, and Justin A. Crawford
Arctic Marine Mammal Program
Alaska Department of Fish and Game
Division of Wildlife Conservation
Fairbanks, AK
March 2011

EXECUTIVE SUMMARY

The Alaska Department of Fish and Game has been monitoring the health and status of bearded seals (*Erignathus barbatus*) in Alaska since 1962 by collecting information and samples from the Alaska Native subsistence harvest. This monitoring program is especially important because agencies are unable to overcome the logistical and sampling constraints necessary to estimate seal abundance in remote, ice covered waters. As such, reliable estimates of bearded seal abundance or population trend are lacking. Retrospective data analyses from this monitoring program allow us to examine how parameters that affect population size and status may vary in time and how current conditions compare with past conditions. Parameters we monitor that are indicative of population health or status include growth rate, body condition, diet, age distribution, sex ratio, age of maturation, and pregnancy rate. Since 2000, ADF&G has also conducted surveys for local knowledge and hunter preferences and analyzed tissue samples for contaminants and disease. All of these collections rely on the cooperation of coastal subsistence communities. Villages that have participated in the sampling program span the region from Hooper Bay in the Bering Sea to Kaktovik in the Beaufort Sea, including islands in the Bering Sea; an area that encompasses most of the range of bearded seals in Alaska.

Local knowledge—Hunter questionnaires are used to evaluate seal availability for harvest and hunter bias in the samples so that we can determine whether changes are due to hunter behavior or related to the seal population itself. Responses to hunter questionnaires from five participating villages did not indicate decreases in bearded seal numbers (availability) at any location. The majority of respondents from all villages reported that bearded seals were found in the same areas as in the past and hunting occurred at the same time as in the past.

Diet—Using stomach contents from 943 bearded seals collected between 1962 and 2009, we identified 213 different fish and invertebrate prey of which 113 were common. Using percent frequency of occurrence, bearded seals were 21.8 times more likely to consume fish in the 2000s than during the 1960s ($P < 0.01$) and 16.8 times more likely in the 1970s than during the 1960s ($P < 0.01$). The increase in general fish consumption over time was strongly correlated (Pearson correlation) with changes in the

consumption of sculpin (r = 0.67), suggesting changes in the consumption of sculpin were likely responsible for variations we observed among all fish. In the 2000s, bearded seals consumed a greater diversity (D) of fish species (D = 0.21) than during the 1960s (D = 0.35) and 1970s (D = 0.30) based on Simpson's Diversity Index.

Bearded seals commonly consumed invertebrates in all decades; over 95% of stomachs with food included invertebrate prey. Changes in the consumption of invertebrate prey were largely explained by changes in crustacean consumption. The occurrence of invertebrates was strongly correlated (Pearson correlation) with the occurrence of crustaceans (r = 0.67), specifically decapods (r = 0.55). Bearded seals consumed fewer crustaceans during the 2000s than in the 1960s or 1970s ($P < 0.01$), which did not differ from each other (P = 0.24). Too few data were available for analysis in the 1980s and 1990s.

Contaminants—Liver (n = 42) and kidney (n = 16) tissues from bearded seals collected during 2003 and 2007 were analyzed for concentrations of potentially toxic elements such as arsenic, cadmium, mercury, and lead. Within Alaska, bearded seals had the second highest concentrations of cadmium and mercury of the four species of ice seals in our studies (only ribbon seals were higher); lead levels were very low in all ice seals analyzed. Blubber (n = 33) and liver (n = 23) tissues were analyzed for persistent organochlorine compounds and compared to ringed, spotted, and ribbon seals in Alaska; bearded seals had the lowest levels of total HCH (hexachlorocyclohexane), DDT (dichlorodiphenyltrichloroethane), and PCB (polychlorinated biphenyls) and the second lowest levels of CHL (chlordanes) in our studies.

Disease—Antibodies for *Brucella* and phocine herpesvirus were detected in bearded seals at levels below or similar to those observed during 1978–1990. No antibodies of phocine or canine distemper, *Leptospira*, or *Toxoplasma* were detected. Screening for toxic algae detected domoic and saxitoxin at very low levels in three and four of 14 individual ringed seals, respectively.

Growth rates—We analyzed growth rate using length at age data for 289 bearded seals ≥1 years old. Seals were identified as being longer or shorter than expected, given their age, and were then classified by birth year. Bearded seals were significantly longer than expected in 1964, 1967, 1968, 1969, and 2007, and were shorter than expected in 1979, 1996, and 2004. In general, bearded seals were shorter in the 2000s than in the 1970s. Compared with the 1970s, bearded seals sampled in the 2000s were shorter in 8 of 10 age classes, although there were only statistically significant differences for older age classes, including ages 8, 9, and ≥10 years. Asymptotic length, calculated as the average length of seals >10 year of age, was 208.6 cm (95% CI ± 5.4) in the 2000s and 218.6 (95% CI ± 3.1) in the 1970s. Too few data were available for analysis in the 1980s.

Body condition—Using the blubber thickness of 68 subadult, and 172 adult bearded seals collected between 1975 and 2010, linear models (with covariates to control for time of year) indicated that bearded seals had less blubber than expected in 1977,

1978, 1979, and 1991, although there were only statistically significant differences in 1978 and 1991. In contrast, blubber thickness was greater than average between 2004 and 2010, although there were only statistically significant differences in 2008 and 2010.

Age distributions—We analyzed age at harvest for 208 bearded seals harvested in the 1960s, 2,044 in the 1970s, and 527 in the 2000s. Too few data were available for analysis in the 1980s and 1990s. We found fewer pups in the 1960s versus the 1970s or 2000s ($P < 0.01$). Overall, the mean age at harvest of bearded seals was greater in the 1960s ($\bar{x} = 6.8$ years) and 2000s ($\bar{x} = 5.2$ years) than in the 1970s ($\bar{x} = 4.4$ years; $P < 0.01$).

Sex ratios—Sex ratios were female biased in the 1960s but closer to unity in the 1970s and since 2000. However, the patterns were not consistent through time or by age class. The shift in sex ratios toward unity in the 1970s were driven by an increase in the proportion of subadult males (ages 1–6 years; $P = 0.03$) in the harvest, starting in the 1970s. Too few data were available for analysis in the 1980s and 1990s.

Age at maturity and pregnancy rate—Sexual maturity was determined by examining reproductive tracts of 367 female ringed seals; 96 harvested in the 1960s, 183 in the 1970s, and 88 in the 2000s. Too few data were available for analysis in the 1980s and 1990s. The average age of maturity was statistically indistinguishable by decade, averaging 4.01 years of age in the 1960s, 3.97 in the 1970s, and 3.90 since 2000. Average age at maturity for all years combined was 3.97 years of age (95% CI = 3.5 to 4.4). Female reproductive tracts were analyzed for percent pregnant at harvest. The 1960s was the lowest at 88.3%, followed by 91.2% in the 1970s and 93.9% in the 2000s.

Conclusions—These data span five decades and include time periods well before changes in sea ice or other factors attributed to global climate change were present. Our analyses show that bearded seals have been positively and negatively affected by past and current conditions. Currently, bearded seals grow to a shorter asymptotic length than they did in the 1970s; however, statistically significant differences were observed only in seals 8, 9, and $\geq$10 years of age. Most of a seal's growth occurs in the first two or three years after birth; as such, decreased length in these seals likely reflects poor foraging conditions in the 1990s or early 2000s. In contrast, metrics that reflect current environmental conditions had rates that were similar to or greater than what was observed earlier. For example, we found no evidence that age at maturation for females has changed over time. Blubber thickness and pregnancy rates are currently higher than previously observed. In addition, there are similar proportions of pups in the harvest now as in the 1970s and twice as many as in the 1960s. The high number of pups in the harvest indicates that pups are surviving long enough to be harvested (*i.e.*, pups survive to weaning). Hunter responses to questionnaires indicate that bearded seal numbers have not decreased. Sex ratios are currently equal and correspond to a period with high pregnancy rates and a high number of pups in the harvest. Levels of contaminants in bearded seals are lower than levels of other ice seal species harvested in Alaska and the prevalence of diseases has remained stable.

Results from this long-term program demonstrate its ability to monitor and detect changes in parameters that are useful for monitoring population status when estimating the population size is not possible. Parameters that determine the status of the bearded seal population in the Bering, Chukchi, and Beaufort seas are currently neutral or more favorable than during the 1960s and 1970s.

ATTACHMENT 3
State of Alaska Regulatory Programs

Alaska Department of Environmental Conservation (ADEC)

Following is an overview of the ADEC's environmental monitoring and permitting in the Arctic. The ADEC's agency mission involves the permitting and authorization of actions relating to oil and gas development, oil spill prevention and response, pollutant discharges and other activities affecting the waters of the Arctic. The information is organized and presented in the following categories:

- Water quality management
- Air quality management
- Regulation of solid waste disposal
- Oil spill prevention and response
- Contaminated sites
- Additional information

Water Quality Management: The Water Division regulates water quality for the State of Alaska through water quality and wastewater standards found in the Alaska Administrative Code at 18 AAC 70 and 18 AAC 72. These regulations provide specificity for the State of Alaska's implementation of the federal Clean Water Act. The water quality standards apply to both marine and fresh waters and protect water quality for a wide variety of uses, including growth and propagation of aquatic life, which includes marine mammals and their prey. The state's water and wastewater regulations are based on the general prohibition principle, such that no person may cause or contribute to a violation of the water quality standards in state waters and discharges to state waters must be authorized by a permit. The permits include wastewater discharge monitoring and reporting requirements to determine compliance.

For waters that are of naturally high quality, the water quality standards include an antidegradation provision that prohibits any degradation of water quality unless certain conditions are met and even then all uses still have to be protected. Alaska's water quality standards also apply to waters of the outer continental shelf adjacent to Alaska by virtue of the Alaska Coastal Management Program.

The Division's Non-Point Source Water Pollution Control Program regulates stormwater pollution of water bodies through review and approval of construction plans and stormwater pollution prevention plans from industrial sites.

Industrial Wastewater Discharges: At present, the following oil and gas facilities are located in or adjacent to Arctic waters:

- BP Exploration Northstar Facility
- BP Endicott Satellite Island

- Pioneer Oooguruk Project
- BP Milne Point (Kuparuk River)
- Prudhoe Bay (BP and various others)
- Conoco Phillips Kuparuk

There is also an additional project currently in the development and permitting stage:

- BP Liberty Project (drilled from the Endicott Satellite Island site)

Arctic oil and gas wastewater discharges: Arctic oil and gas wastewater discharges are mainly permitted through the EPA's NPDES Arctic General Permit. This permit covers discharges on the Outer Continental Shelf and state waters. ADEC issued a Certificate of Reasonable Assurance (401 Certification) for the EPA's NPDES Arctic General Permit in 2006. Water quality parameters of concern in ADEC's water quality certification were

- Hydrocarbons from drilling operations
- Increased sediment loading from drilling operations
- Increased metals loading from drilling muds

Many of the harmful effluents produced on the North Slope are transported and deep injected to Class 1 Underground Injection Control (UIC) wells under the EPA's Safe Drinking Water Act jurisdiction. Therefore, drilling wastes, some domestic wastes, and other effluents avoid discharge to surface marine or fresh water.

Water Quality Monitoring and Assessment: ADEC has no independent baseline water quality data for the Arctic Ocean. The Minerals Management Service (MMS; now known as the Bureau of Ocean Energy Management, Regulation and Enforcement, or BOEMRE) has conducted baseline water quality studies in the area, through contracts with the University of Alaska, Fairbanks' Institute of Marine Science. In addition, the U.S. Army Corp of Engineers has conducted studies on contaminants in snow and ice in this area through the Cold Regions Research and Engineering Laboratory (CRREL) Alaska Projects Office in Fairbanks.

The January 24, 2006 *EPA Ocean Discharge Criteria Evaluation of the Arctic NPDES General Permit* report also provides critical baseline information and updates regarding water quality issues in the Beaufort and Chukchi Seas. The report identifies biologically sensitive areas and discusses the seasonal distribution of marine mammals, including ice seals in the biological resources section. The biological resources section also discusses ice seal critical areas or habitats in detail.

Air Quality Management: The Air Quality Division regulates air quality for the State of Alaska through the air quality standards found in the Alaska Administrative Code at 18 AAC 50 and the vehicle emission standards at 18 AAC 52. The State of Alaska has primary authority for implementation of the federal Clean Air Act on state lands and throughout the OCS by virtue of the Alaska Coastal Management Program, which effectively extends state air quality standards and regulation offshore.

While the Air Quality Division permits individual facilities on the North Slope, the division does not monitor regional air quality nor is air quality monitoring data available from the EPA for the Outer Continental Shelf region. The Environmental Protection Agency (EPA) is responsible for issuing permits on the Outer Continental Shelf.

Regulation of Solid Waste Disposal: Under the general provisions of Subtitle D of the Resource Conservation and Recovery Act (RCRA), the Division of Environmental Health, Solid Waste Program has an approved program for regulation of solid waste disposal in Alaska. The state's solid waste management regulations, based on the federal standards in 40 C.F.R 257 and 40 C.F.R 258, are found in the Alaska Administrative Code at 18 AAC 60. These regulations make a general distinction between municipal and non-municipal disposal facilities and include requirements for the design, operation, closure, and monitoring of those facilities to minimize harm to human health and the environment.

As with air and water quality, the State's solid waste disposal requirements apply to the OCS by virtue of the Alaska Coastal Management Program. The Solid Waste Program permits and regulates both municipal and non-municipal disposal facilities in the Arctic region of Alaska. Non-municipal facilities are associated with the oil & gas industry and the mining industry, and municipal facilities are found in every community. At present, every disposal facility on the North Slope is either permitted or authorized under a plan approval.

Oil and Gas Solid Waste Facilities: The Solid Waste Program regulates oil and gas drilling waste management facilities on the North Slope. Drilling waste is generated by oil and gas exploration and production activities. Drilling waste, which consists of drilling mud, cuttings, pigging waste, fluids, and other related wastes, is a solid waste that is excluded from regulation as a hazardous waste through 40 C.F.R 261.4(b)(5). However, drilling waste may include contaminants that pose a significant public health and environmental risk, and as such, drilling waste storage, treatment, and disposal facilities must be designed and operated to minimize the potential for contaminant release.

The Solid Waste Program requires surface water monitoring at permanent North Slope oil and gas solid waste facilities and inspects these facilities annually. On the North Slope, drilling waste is primarily disposed of by underground injection, although management can involve surface storage of solid waste prior to injection. The Solid Waste Program authorizes drilling waste management through several mechanisms, including individual solid waste permits, solid waste general permits, solid waste treatment permits, and temporary storage plan approvals.
Current authorizations and specific facilities on the North Slope include the following:

- Individual Solid Waste Permit – Drilling Waste Monofill
  - BP Milne Point Central Reserve Pit

- Solid Waste General Permits - Drilling Waste Long-Term Storage
  - BP CC2A Drilling Waste Storage Facility
  - BP T Pad Drilling Waste Storage Facility
  - BP W Pad Drilling Waste Storage Facility
  - BP Endicott Drilling Waste Storage Facility
  - ConocoPhillips Drill Site 1H Drilling Waste Storage Facility
  - ConocoPhillips Central Processing Facility 1 Drilling Waste Storage Facility

- Solid Waste Treatment Permits – Grind and Inject Facilities
  - BP Drill Site 4 Grind and Inject Facility
  - BP Badami Grind and Inject Facility
  - BP Northstar Grind and Inject Facility
  - ConocoPhillips Alpine Grind and Inject Facility
  - Pioneer Oooguruk Grind and Inject Facility

- Solid Waste Plan Approvals - Drilling Waste Temporary Storage
  - The Solid Waste Program reviews and approves drilling waste temporary storage plans for twenty to twenty-five sites per year. This temporary storage is primarily in support of oil and gas exploration drilling. Temporary storage is normally for less than one year.

Municipal Solid Waste Facilities: Municipal solid waste landfills are subdivided into three classifications:

- Class I (greater than 20 tons per day)
  - The lone Class I landfill on the North Slope is the Oxbow Landfill at Prudhoe Bay. This landfill is designed as a freezeback landfill, which means that the overall intent is for the disposed wastes to become permanently frozen. The progress towards achieving freezeback is monitored by periodically measuring the temperature below, within, and around the waste pile.

- Class II (5 to 20 tons per day)
  - The only Class II landfill on the North Slope is located in Barrow. This landfill was opened in July 2007 and is located approximately six miles inland from the coast. Because this landfill is operated in conjunction with a Thermal Oxidation System incinerator, it receives only incinerator ash and inert wastes. A second landfill in Barrow is in the process of being permanently closed.

- Class III (less than 5 tons per day)
  - There are seven Class III landfills on the North Slope. The following landfills are located in Arctic coastal communities: Atqasuk, Kaktovik, Nuiqsut, Point Hope, Point Lay, and Wainwright.

The specific requirements for design, operation, monitoring, and closure of landfills vary with the classification: the larger the landfill, the more stringent the requirements. Class I and Class II landfills are inspected at least once per year; permitted Class III landfills are inspected at least once every five years.

Oil Spill Prevention and Response: The DEC Division of Spill Prevention and Response (SPAR) is responsible for protecting Alaska's land, waters and air from oil and hazardous substances spills. SPAR regulates spill prevention through review and approval of spill prevention plans for oil terminals, pipelines, tank vessels, barges, refineries, oil exploration facilities and oil production facilities. SPAR ensures response preparedness through the review and approval of oil discharge contingency plans, inspections, oil spill response exercises, and oil spill response drills. Oil Spill contingency plans are required under Alaska Statute AS 46.04.030 and Alaska Administrative Code regulations at 18 AAC 75. Oil Spill Proof of Financial Responsibility is required under Alaska Statute AS 46.04.030. The State of Alaska requires oil spill contingency plans for the following facilities:

- Crude oil tankers
- Non-crude vessels and barges
- Offshore oil and gas exploration facilities
- Onshore oil and gas exploration facilities
- Crude oil transmission pipelines
- Oil flow lines and gathering lines
- Noncrude oil terminals (over 10,000 bbls)
- Nontank vessels (over 400 gross tons)

The DEC SPAR Division's mission is to prevent, respond and ensure the cleanup of unauthorized discharges of oil and hazardous substances. The Industry Preparedness Program (IPP) requires regulated facilities and vessels to develop state-approved oil spill response and contingency plans, to establish a facility-wide spill prevention program, and to ensure that personnel, equipment and financial resources are available to respond to spills. In the event of a spill, the Prevention and Emergency Response Program (PERP) serves as the State's emergency responders to oil and hazardous substance spills and ensures that cleanup measures are implemented as soon as possible. A search of the ADEC oil spill database revealed a total of seven oil spills, six in the Beaufort Sea and one in the Chukchi Sea, primarily from oil production and exploration activities. Detailed information on historical oil spill is available in the department's latest report, *DEC 10-Year Statewide Summary: Oil and Hazardous Substances Spill Data*, and the *Summary of Oil and Hazardous Substances Spills by Subarea,* both of which are available on the program's web site.

Federal Oil Spill Oversight – Outer Continental Shelf: The State of Alaska has jurisdiction for oil spill prevention on state land and in state waters, but state spill prevention requirements are extended to the OCS by virtue of the Alaska Coastal Management Program. In addition, the federal government has jurisdiction for oil spill prevention and

response in federal waters through the federal Oil Pollution Act (OPA) of 1990. This oversight is managed by the MMS through inspections, oil spill risk analysis and through an environmental evaluation and permitting process. The U.S. Coast Guard is also involved in vessel inspections, oil transfer regulation and oil spill prevention, control, and countermeasures.

Contaminated Sites: The DEC Contaminated Sites program oversees or conducts cleanup of contaminated sites based on their danger to public health and the environment. The contaminated sites cleanup process is governed by Alaska Statutes at Title 46 and Alaska Administrative Code regulations at 18 AAC 75 and 18 AAC 78. Cleanup processes overseen by a federal agency, such as those at formerly used defense sites are also governed by federal regulations.
The ADEC Contaminated Sites database contains information on five sites located adjacent to Arctic waters:

- Point Lonely – Nuiqsut, AK
- Umiat Test Wells – Nuiqsut, AK
- Collinson Point Intermediate DEW Line Station – Kaktovik, AK
- Barter Island DEW Line Station – Kaktovik, AK
- Saint Lawrence Island – Formerly Used Defense Sites

Additional Information: We suggest that a report prepared by Oasis Environmental for ADEC entitled "*North Slope Nearshore and Offshore Breakup Study Literature Search and Analysis of Conditions and Dates"* dated July 15, 2006, may be of interest. The report includes information on sea ice conditions in the Beaufort, Chukchi and Bering Sea regions.
In addition, the MMS has funded an ongoing study that looks at sea ice modeling in the landfast ice zone of the Beaufort and Chukchi Seas. The latest report from this study was produced at the Geophysical Institute at the University of Alaska, Fairbanks, and is titled "*Mapping and Characterization of Recurring Spring Leads and Landfast Ice in the Beaufort and Chukchi Seas*" (Eicken, et al, 2006). The information in this report on large-scale sea-ice characteristics may be of interest.

REFERENCES

DEC Air Permits Permit Information, available at
http://www.dec.state.ak.us/air/ap/mainair.htm
DEC Contaminated Sites Database, available at
http://www.dec.state.ak.us/spar/csp/db_search.htm
DEC Solid Waste Sites, Northern Region, available at
http://www.dec.state.ak.us/eh/sw/northern.htm

DEC Wastewater Permits Database, available at
http://www.dec.state.ak.us/ias/permitsearch/default.aspx

DEC (2007) *DEC 10-Year Statewide Summary: Oil and Hazardous Substances Spill Data* (July 1, 1995 – June 30, 2007) available at
http://www.dec.state.ak.us/spar/perp/subreports.htm

DEC (2007) *Summary of Oil and Hazardous Substance Spills by Subarea (July 1, 1995 – June 30, 2005)*
http://www.dec.state.ak.us/spar/perp/docs/10year_rpt/10Yr_Subareas_FINAL.pdf

Eicken, et al, (2006). *Mapping and Characterization of Recurring Spring Leads and Landfast Ice in the Beaufort and Chukchi Seas*, available at
http://mms.gina.alaska.edu/private/reports/MMS05-068_final.pdf

EPA (2006) *Ocean Discharge Criteria Evaluation of the Arctic NPDES General Permit for Oil and Gas Exploration (Permit No.: AKG280000*, January 24, 2006,

MMS (2007) *Chukchi Sea Planning Area Oil and Gas Lease Sale 193 – Activities in the Chukchi Sea* available at
http://www.mms.gov/alaska/ref/EIS%20EA/Chukchi_DEIS_193/DEIS_193.htm

Oasis Environmental (2006) *North Slope Nearshore and Offshore Breakup Study Literature Search and Analysis of Conditions and Dates*, summary available at
http://www.dec.state.ak.us/spar/ipp/docs/IceTOC.pdf

Alaska Department of Natural Resources (DNR)

The following is a summary of DNR regulatory authorities and a compilation of mitigation measures that pertain to ice seals.

OFFICE OF PROJECT MANAGEMENT & PERMITTING: The Office of Project Management and Permitting (OPMP) functions under AS 38.05.020(b)(9), which requires the Commissioner of DNR to coordinate permitting activities for all large resource development projects, and AS 27.05.010(b), which requires DNR to be the lead agency for permitting all large mine projects. OPMP's goal is to ensure that all aspects of a large project are considered during a single review and approval process. The OPMP is currently coordinating the permitting of mining, oil & gas, and transportation projects, including BP's Liberty project, BLM's planning for NPRA-NE, the Bullen Point infrastructure corridor permitting, and Shell Oil's OCS exploratory activities.

OPMP assigns a project manager to serve as the primary contact for a large project. The project manager coordinates the permitting activities of the state team, the Large

Project Team, assigned to work on the project. The Large Project Team is an interagency group, coordinated by OPMP, which works cooperatively with project applicants and operators, federal resource agencies, and the Alaskan public to ensure that projects are designed, operated and reclaimed in a manner consistent with the public interest. The project manager's primary responsibility is to ensure a coordinated process with minimum redundancy of efforts. This often involves tailoring the process to fit specific project needs.

The goal of the state's Large Project Team is to coordinate the timing and completion of the numerous permits required. The team reviews all the complex technical documents generated during the process and provides coordinated comments. The team also coordinates stakeholder involvement and provides a single point of contact for the public. The team provides the public, agencies, and the applicant the opportunity to view the project as a whole.

The requirement for the federal authorizations usually triggers the requirement for an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). The State usually participates as a cooperating agency in the EIS process, and the team endeavors to dovetail the state's permitting process with the EIS process. For example, during the Pogo Mine process, the public Draft EIS included drafts of all the major state permits. This gave the public the opportunity to see how the state's management decisions could be implemented on the ground, and enabled them to comment on the project as a whole.

The Large Project Team also coordinates, to the extent possible, with local governments. For example, the team has been working closely with the City and Borough of Juneau throughout the permitting and EIS process for the Kensington Mine. The City's Conditional Use Permits are critical authorizations for the mine, and may place additional stipulations on the project.

DIVISION OF COASTAL AND OCEAN MANAGEMENT: The Division of Coastal and Ocean Management (DCOM) facilitates the implementation of various ice seal conservation measures at several distinct levels during land and resource planning processes as well as at the level of individual project planning and development. Below is a bulleted list of these responsibilities of the DCOM:

1. Pre-application assistance & meetings. The DCOM is tasked with arranging and scheduling meetings between a prospective developer and the agency personnel that would be reviewing, critiquing and, ultimately, writing permits to authorize a given development project. These meetings provide an invaluable opportunity for industry to meet face-to-face with agency scientists and resource managers. Oftentimes ice seal issues are brought to an applicant's attention at these meetings. Thus, when a developer is made aware of potential wildlife conflicts

and/or potential adverse impacts of their planned project ahead of time, the finalized plan of operation or facility footprint is substantially modified before permit applications are even filed. At these meetings, prospective applicants are made aware, if they are not already, of the need to design and site facilities so as to be consistent with statewide standards and district enforceable policies. Applicants are also made aware of the (oftentimes) many distinct special-interest and other groups that need to be "kept in the loop" for the planning/approval process. This list typically includes subsistence oversight groups, Native Tribes, Native Councils, commercial or recreational fishing interests, environmental groups, etc.

2. Requirements/Standards for what review materials need be submitted. Applicants need to provide DCOM and review participants with:

   (1) completed Coastal Project Questionnaire;

   (2) map(s) identifying the location of the project and adjacent facilities, diagrams, technical data, and other relevant material;

   (3) description of any man-made structures or natural features that are at or near the project site;

   (4) an evaluation of how the proposed project is consistent with the state standards and with any applicable district enforceable policies, sufficient to support the consistency certification.

   These materials are of paramount importance in assisting agency personnel as well as the public review of a given project for its potential impacts to coastal uses and resources. It is partially with these materials that a review participant can suggest alternative measures that will improve a proposed development project. Similarly, the requirement imposed by the coastal consistency review process for federal agencies to submit consistency evaluations along with draft plans (for example, OCS oil & gas leasing plans) enables a more thorough review and comment adjudication.

3. Public process/ public review. Most state & federal agency authorizations (permits) go through both public and agency review processes often coordinated by the DCOM. This fulfills many agencies' responsibility for posting/distributing public notice. It also provides a key tool wherein USFWS, ADF&G, state agency biologists, the public and the coastal district, along with the public, can raise attention to scientific, social and/or environmental concerns relative to ice seal habitats, ice seal population dynamics, or health effects of a given proposed plan or project. Plan adoption and/or individual authorizations for a given project must, through the coastal consistency review process that is adjudicated by the DCOM, be deemed consistent with ACMP standards before a permit is issued or the plan is adopted. Often the DCOM will have to negotiate and include specific alternative measures, designed to minimize potentially adverse impacts to ice

seals, into a project description before it can be deemed consistent and permits can be written.

4. The DCOM assists coastal districts develop and adopt Program Plans and District Enforceable Policies. According to the statewide standards of the ACMP as well as local enforceable policies, the ACMP review process functions as a tool for adding restrictions or mitigating measures (in the form of Alternative Measures) to the authorizations that are issued.
5. The DCOM works to act as a facilitator to attempt to resolve conflicts among the resource agencies, an affected coastal resource district, and/or an applicant -- before, during, or after a project is permitted.
6. Where the specific aspects of an activity that would otherwise be subject to authorization by the ADEC are not subject to that department's authorization because the activity is either a federal activity or is located on federal land or the OCS, the DEC can review, comment on, and/or add alternative measures to that activity ***only*** through the ACMP. Thus, the ACMP provides a very valuable role in its being the only venue for the state to comment on, allow, disallow or make modifications to certain federal actions or private activities located on federal land or the OCS. Obviously this leverage is of paramount importance in areas that also happen to be crucially important as habitat for ice seals.
7. Specific Statewide standards and North Slope Borough District enforceable policies that have bearing on conserving ice seals and ice seal habitat include:

   - **11 AAC 112.230. Energy facilities.** (a)(1) The siting and approval of major energy facilities by districts and state agencies must be based, to the extent practicable, to minimize adverse environmental and social effects while satisfying industrial requirements;
   - **11 AAC 112.230. Energy facilities.** (a)(2) The siting and approval of major energy facilities ... must be based, to the extent practicable, to be compatible with existing and subsequent adjacent uses and projected community needs;
   - **11 AAC 112.230. Energy facilities.** (a)(11) The siting and approval of major energy facilities ... must ... minimize the probability, along shipping routes, of spills or other forms of contamination that would affect fishing grounds, spawning grounds, & other biologically productive or vulnerable habitats, including marine mammal rookeries and hauling out grounds...
   - **11 AAC 112.230. Energy facilities.** (a)(12) The siting and approval of major energy facilities ... must ... allow for the free passage and movement of fish and wildlife with due consideration for historic migratory patterns;

- **11 AAC 112.230. Energy facilities.** (a)(13) Major energy facilities should be sited so that areas of particular ... environmental, or cultural value ... will be protected;
- **11 AAC 112.270. Subsistence.** (a) A project within a subsistence use area designated by the department or under 11 AAC 114.250(g) must avoid or minimize impacts to subsistence uses of coastal resources. (b) For a project within a subsistence use area designated under 11 AAC 114.250(g), the applicant shall submit an analysis or evaluation of reasonably foreseeable adverse impacts of the project on subsistence use as part of (1) a consistency review packet submitted under 11 AAC 110.215; and (2) a consistency evaluation under 15 C.F.R. 930.39, 15 C.F.R. 930.58, or 15 C.F.R. 930.76.
- **11 AAC 112.300. Habitats.** (b) (1) Offshore areas must be managed to avoid, minimize, or mitigate significant adverse impacts to competing uses such as commercial, recreational, or subsistence fishing, to the extent that those uses are determined to be in competition with the proposed use;
- **11 AAC 112.300. Habitats.** (b) (2)(B) Estuaries must be managed to avoid, minimize, or mitigate significant adverse impacts to competing uses such as commercial, recreational, or subsistence fishing, to the extent that those uses are determined to be in competition with the proposed use;
- **11 AAC 112.300. Habitats.** (b) (5)(A) Rocky islands and sea cliffs must be managed to avoid, minimize, or mitigate significant adverse impacts to habitat used by coastal species;
- **11 AAC 112.300. Habitats.** (b) (6)(C) barrier islands and lagoons must be managed to avoid, minimize, or mitigate significant adverse impacts from activities that would decrease the use of barrier islands by coastal species, including polar bears and nesting birds;

North Slope Borough Coastal Management Program Enforceable Policies

- 2.4.4(a)Vehicles, vessels, and aircraft that are likely to cause significant disturbance must avoid areas where species that are sensitive to noise or movement are concentrated at times when such species are concentrated. Concentrations may be seasonal or year-round and may be due to behavior (e.g., flocks or herds) or limited habitat (e.g., polar bear denning, seal haul-outs). Horizontal and vertical buffers will be required where appropriate. Concern for human safety will be given special consideration when applying this policy.

DIVISION OF OIL AND GAS: DO&G crafts mitigation measures and lessee advisories as part of its best interest finding process for the areawide lease sales. The measures become enforceable terms of every lease and are also included in the stipulations of every permit issued in the area. Two lease sales have the potential to impact ice seals: the North Slope Areawide and the Beaufort Sea Areawide.

<u>The North Slope Areawide Lease Sale Mitigation Measures and Lessee Advisories currently require:</u>

- The Lessee is advised that the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.) protects endangered and threatened species and candidate species for listing that may occur in the lease sale area. Lessees shall comply with the Recommended Protection Measures for all endangered, threatened and candidate species developed by the USFWS to ensure adequate protection.
- Lessees are advised that they must comply with the provisions of the Marine Mammal Protection Act of 1972, as amended (16 USC 1361-1407). USFWS shares authority for marine mammals with NMFS.

<u>The Beaufort Sea Areawide Lease Sale Mitigation Measures and Lessee Advisories currently require:</u>

- Seals: To protect hauled-out spotted seals, boat and barge traffic will be prohibited between July 15 and October 1 within one-half mile of the Piasuk River delta and Oarlock Island.
- Lessees are advised that they must comply with the provisions of the Marine Mammal Protection Act of 1972 as amended.
- Sensitive Areas: Lessees are advised that certain areas are especially valuable for their concentrations of marine birds, marine mammals, fishes, or other biological resources; cultural resources; and for their importance to subsistence harvest activities. The following areas must be considered when developing plans of operation. Identified areas and time periods of special biological and cultural sensitivity include:
    a. the Boulder Patch in Stefansson Sound, year round;
    b. the Canning River Delta, January-December;
    c. the Colville River Delta, January-December;
    d. the Cross, Pole, Egg, and Thetis Islands, June-December;
    e. the Flaxman Island waterfowl use and polar bear denning areas, including the Leffingwell Cabin national historic site located on Flaxman Island;

f. the Jones Island Group (Pingok, Spy, and Leavitt Islands) and Pole Island are known polar bear denning sites, November-April; and

g. the Sagavanirktok River delta, January-December.

h. Howe Island supports a snow goose nesting colony, May-August.

Additionally, the following Beaufort Sea Mitigation Measures and Lessee Advisories address bowhead whales (and incidentally provide protection to ice seals):

- Whale Harvest Protection:
    a. Permanent facility siting on Cross Island will be prohibited unless the lessee demonstrates to the satisfaction of the NSB, in consultation with the AEWC, that the development will not preclude reasonable access to whales as defined in NSBCMP Policy 2.4.3(d) and in NSBMC 19.79.050(d)(1) and as may be determined in a conflict avoidance agreement, if required by the NSB. With the approval of the NSB, the director may authorize permanent facilities.
    b. Permanent facility siting in state waters within three miles of Cross Island will be prohibited unless the lessee demonstrates to the satisfaction of the director, in consultation with the NSB and the AEWC, that the development will not preclude reasonable access to whales as defined in NSBCMP Policy 2.4.3(d) and in NSBMC 19.79.050(d)(1) and as may be determined in a conflict avoidance agreement if required by the NSB.
    c. Permanent facility siting in state waters between the west end of Arey Island and the east end of Barter Island (Tracts 40 through 45) will be prohibited unless the lessee demonstrates to the satisfaction of the director, in consultation with the NSB and the AEWC, that the development will not preclude reasonable access to whales as defined in NSBCMP Policy 2.4.3(d) and in NSBMC 19.79.050(d)(1) and as may be determined in a conflict avoidance agreement if required by the NSB.
- Any tract or portion thereof in the Beaufort Sea areawide sale area may be subject to the March 1990 Beaufort Sea Seasonal Drilling Policy in conjunction with the submission of a plan of operations permit application by the lessee. This measure will be reevaluated and updated periodically on the basis of experience and new information.
    a. Exploratory Drilling From Bottom-founded Drilling Structures and Natural and Gravel Islands: Subject to condition (c) below, exploratory drilling operations and other downhole operations from bottom-founded drilling structures and natural and gravel islands are

allowed year-round in the Central Subsistence Whaling Zone (SWZ).[7] In the Eastern SWZ, drilling is prohibited upon commencement of the fall bowhead whale migration until whaling quotas have been met.

b. Exploratory Drilling Operations from Floating Drilling Structures: Subject to condition c, exploratory drilling below a predetermined threshold depth and other downhole operations from floating drilling structures is prohibited throughout the Beaufort Sea upon commencement of the fall bowhead whale migration until the whale migration mid-point.[8]

In addition to the above restriction, exploratory drilling above and below a predetermined threshold depth in the Eastern SWA from floating drilling structures is prohibited upon commencement of the fall bowhead whale migration until the whaling quotas have been met.

In the Central and Western SWZ, exploratory drilling above and below a predetermined threshold depth may be prohibited on a case-by-case basis until the whaling quotas have been met.[9] The following criteria will be used to evaluate these operations: 1) proximity of drilling operations to active or whaling areas, 2) drilling operation type and feasible drilling alternatives, 3) number of drilling operations in the same area, 4) number of whaling crews in the area, and 5) the operator's plans to coordinate activities with the whaling crews in accordance with the subsistence harvest protection mitigation measure.

All non-essential activities associated with drilling are prohibited in the Central SWZ during the whale migration until whaling quotas have been met. Essential support activity associated with drilling structures occurring within active whaling areas shall be coordinated with local whaling crews in accordance with the subsistence harvest protection mitigation measure.

"Essential activities" include those necessary to maintain well control,

[7] Subsistence Whaling Zones:
Eastern SWZ is that area within 20 nautical miles of the shoreline between 141° and 144° W longitude.
Central SWZ is that area within 20 nautical miles of the shoreline between 144° and 151° W longitude.
Western SWZ is that area within 20 nautical miles of the shoreline between 154° and 157° W longitude.

[8] Migration Dates:
Eastern SWZ - September 1 - October 10 with the midpoint of the migration on September 20.
Central SWZ and Western SWZ - September 10 - October 20 with the midpoint of the migration on September 28.
Outside SWZ - Seaward of the Eastern SWZ - September 1 - October 10 with the midpoint of the migration on September 20; Seaward and west of the Central SWZ - September 10 - October 20 with the midpoint of migration on September 28. The midpoint of the migration is when 50 percent of the whales have been deemed to have passed the drill site.

[9] If upon review of the proposed operation using the above described criteria, the state determines that conflict with subsistence whaling activities may occur, additional drilling restrictions, similar to those imposed for the Eastern SWZ, may be imposed in the Central and Western SWZ's. In the Eastern SWZ, drilling is prohibited upon commencement of the fall bowhead migration until whaling quotas have been met.

maintain physical integrity of the drilling structure, and scheduled crew changes. Support craft include aircraft, boats, and barges. "Non-essential activity," by exclusion, are those activities that do not fit the definition of essential activities. Both types of activities must be described by the operators in their exploration plans submitted for state review. To the extent feasible, mobilization or demobilization of the drilling structures should not occur during the whale migration. If operators propose to mobilize or demobilize during the whale migration, they must describe the activity in their exploration plan and must demonstrate why the activity must occur during the migration period.

c. Exploratory Drilling in Broken Ice: Consistent with the May 15, 1984, "Tier 2" decision, lessees conducting drilling operations during periods of broken ice must:

(1) participate in an oil spill research program;

(2) be trained and qualified in accordance with MMS standards pertaining to well-control equipment and techniques; and

(3) have an oil spill contingency plan approved by the state which meets the requirements of the "Tier 2" decision, including requirements for in situ igniters, fire resistant boom, relief well plans, and decision process for igniting an uncontrolled release of oil.

- Geophysical Activity: Except as indicated, the mitigation measures listed above do not apply to geophysical exploration on state lands. Geophysical exploration activities are governed by 11 AAC 96. In conducting offshore geophysical surveys, neither the lessees nor their agents will use explosives in open water areas.

  Lessees or nonlessee companies may propose various operations, which include seismic surveys, in the sale area. Lessees may not have control over those activities not contracted by them. However, post-lease seismic surveys conducted or contracted by the lessee, are considered lease-related activities. Restrictions on geophysical exploration permits, whether lease-related or not, will depend on the size, scope, duration, and intensity of the proposed project and on the reasonably foreseeable effects on important species, specifically marine mammals.

  Studies indicate that some geophysical activities may have an impact on the behavior of bowhead whales. Measures may be imposed on geophysical exploration permits in the vicinity of bowhead whale migratory routes during spring or fall migrations. See the community involvement and seasonal

drilling mitigation measures. The extent of effects on marine mammals varies depending on the type of survey and gear used.

Copies of the non-proprietary portions of all Geophysical Exploration Permit Applications will be made available to the NSB, AEWC, and potentially affected subsistence communities for comment.

- Subsistence whaling: Subsistence whaling activities occur generally during the following periods:

  August to October: Kaktovik whalers use the area circumscribed from Anderson Point in Camden Bay to a point 30 km north of Barter Island to Humphrey Point east of Barter Island. Nuiqsut whalers use an area extending from a line northward of the Nechelik Channel of the Colville River to Flaxman Island, seaward of the Barrier Islands.

  September to October: Barrow hunters use the area circumscribed by a western boundary extending approximately 15 km off Cooper Island, with an eastern boundary on the east side of Dease Inlet. Occasional use may extend eastward as far as Cape Halkett.