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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 223

[Docket No. 101126591-2477-03]

RIN 0648-XZ58

Endangered and Threatened Species; Threatened Status for the Beringia and Okhotsk Distinct Population Segments of the Erignathus barbatus nauticus Subspecies of the Bearded Seal

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: We, NMFS, issue a final determination to list the Beringia and Okhotsk distinct populations segments (DPSs) of the Erignathus barbatus nauticus subspecies of the bearded seal (Erignathus barbatus) as threatened under the Endangered Species Act (ESA). We will propose to designate critical habitat for the Beringia DPS in a future rulemaking. To assist us with this effort, we solicit information that may be relevant to the designation of critical habitat for the Beringia DPS. In light of public comments and upon further review, we are withdrawing the proposed ESA section 4(d) protective regulations for the Beringia and Okhotsk DPSs because we have determined that such regulations are not necessary or advisable for the conservation of the Beringia and Okhotsk DPSs at this time. Given their current population sizes, the long-term nature of the primary threat to these DPSs (habitat alteration stemming from climate change), and

the existing protections under the Marine Mammal Protection Act, it is unlikely that the proposed protective regulations would provide appreciable conservation benefits.

DATES: This final rule is effective on [insert date 60 days after date of publication in the FEDERAL REGISTER]. Replies to the request for information regarding designation of critical habitat for the Beringia DPS must be received by [insert date 60 days after date of publication in the FEDERAL REGISTER].

ADDRESSES: You may submit comments and information related to the identification of critical habitat for the Beringia DPS of bearded seals to Jon Kurland, Assistant Regional Administrator for Protected Resources, Alaska Region, NMFS, Attn: Ellen Sebastian. You may submit this information, identified by FDMS Docket Number NOAA-NMFS-2010-0259, by any one of the following methods:

- Electronic Submissions: Submit all electronic public comments via the Federal eRulemaking Portal http://www.regulations.gov. To submit comments via the e-Rulemaking Portal, first click the "submit a comment" icon, then enter NOAA-NMFS-2010-0259 in the keyword search. Locate the document you wish to comment on from the resulting list and click on the "Submit a Comment" icon on the right of that line.
- Mail: Submit written comments to P.O. Box 21668, Juneau, AK 99802.
- Fax: (907) 586-7557.
- Hand delivery to the Federal Building: 709 West 9th Street, Room 420A, Juneau, AK.

Comments must be submitted by one of the above methods to ensure that the comments are received, documented, and considered by NMFS. Comments sent by any

other method, to any other address or individual, or received after the end of the comment period, may not be considered.

All comments received are a part of the public record and will generally be posted for public viewing on www.regulations.gov without change. All personal identifying information (e.g., name, address, etc.) submitted voluntarily by the sender may be publicly accessible. Do not submit confidential business information, or otherwise sensitive or protected information.

NMFS will accept anonymous comments (enter "N/A" in the required fields if you wish to remain anonymous). Attachments to electronic comments will be accepted in Microsoft Word or Excel, WordPerfect, or Adobe PDF file formats only.

FOR FURTHER INFORMATION CONTACT: Tamara Olson, NMFS Alaska Region, (907) 271-5006; Jon Kurland, NMFS Alaska Region, (907) 586-7638; or Marta Nammack, NMFS Office of Protected Resources, (301) 427-8469.

SUPPLEMENTARY INFORMATION: On March 28, 2008, we initiated status reviews of bearded, ringed (Phoca hispida), and spotted seals (Phoca largha) under the ESA (73 FR 16617). On May 28, 2008, we received a petition from the Center for Biological Diversity to list these three species of seals as threatened or endangered under the ESA, primarily due to concerns about threats to their habitat from climate warming and loss of sea ice. The petitioner also requested that critical habitat be designated for these species concurrently with listing under the ESA. In response to the petition, we published a 90-day finding that the petition presented substantial scientific or commercial information indicating that the petitioned action may be warranted (73 FR 51615; September 4, 2008). Accordingly, we prepared status reviews of ringed, bearded, and spotted seals and

solicited information pertaining to them.

On September 8, 2009, the Center for Biological Diversity filed a lawsuit in the U.S. District Court for the District of Columbia alleging that we failed to make the requisite 12-month finding on its petition to list the three seal species. Subsequently, the Court entered a consent decree under which we agreed to finalize the status review of the bearded seal (and the ringed seal) and submit a 12-month finding to the Office of the Federal Register by December 3, 2010. Following completion of a status review report and 12-month finding for spotted seals in October 2009 (74 FR 53683; October 20, 2009; see also 75 FR 65239; October 22, 2010), we established Biological Review Teams (BRTs) to prepare status review reports for bearded and ringed seals.

The status review report for the bearded seal (Cameron et al., 2010) is a compilation of the best scientific and commercial data available concerning the status of the species, including identification and assessment of the past, present, and future threats to the species. The BRT that prepared this report was composed of eight marine mammal biologists, a fishery biologist, a marine chemist, and a climate scientist from NMFS' Alaska and Northeast Fisheries Science Centers, NOAA's Pacific Marine Environmental Lab, and the U.S. Fish and Wildlife Service (FWS). The status review report underwent independent peer review by five scientists with expertise in bearded seal biology, Arctic sea ice, climate change, and ocean acidification.

Based on the best scientific and commercial data available on the bearded seals' taxonomy, the BRT concluded that there are two currently recognized subspecies of the bearded seal that qualify as "species" under the ESA: Erignathus barbatus nauticus, inhabiting the Pacific sector, and Erignathus barbatus barbatus, inhabiting the Atlantic

sector. Based on evidence for discreteness and ecological uniqueness of bearded seals in the Sea of Okhotsk, we determined that the E. b. nauticus subspecies consists of two distinct populations segments—the Okhotsk DPS and the Beringia DPS.

On December 10, 2010, we published in the Federal Register a 12-month finding and proposed to list the Beringia and Okhotsk DPSs of the E. b. nauticus subspecies of the bearded seal as threatened (75 FR 77496). We published a 12-month finding for ringed seals as a separate notification concurrently with this finding (75 FR 77476; December 10, 2010), and proposed to list four subspecies of ringed seals as threatened.

On December 13, 2011, we published in the Federal Register a document announcing a 6-month extension of the deadline for a final listing determination to address a substantial disagreement relating to the sufficiency or accuracy of the model projections and analysis of future sea ice for the Beringia DPS (76 FR 77465). At that time we also announced that to address the disagreement and better inform our final determination, we would conduct a special independent peer review of the sections of the status review report over which there was substantial disagreement. We subsequently conducted this special peer review and made available for public comment the resulting peer review report that consolidated the comments received (77 FR 20774; April 6, 2012).

ESA Statutory, Regulatory, and Policy Provisions

Two key tasks are associated with conducting an ESA status review. The first is to identify the taxonomic group under consideration; and the second is to conduct an extinction risk assessment to determine whether the petitioned species is threatened or endangered. To be considered for listing under the ESA, a group of organisms must

constitute a "species," which section 3(16) of the ESA defines to include "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature." The term "distinct population segment" (DPS) is not commonly used in scientific discourse, so the FWS and NMFS developed the "Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act" to provide a consistent interpretation of this term for the purposes of listing, delisting, and reclassifying vertebrates under the ESA (61 FR 4722; February 7, 1996). Under our DPS Policy two elements are considered when evaluating whether a population segment qualifies as a DPS under the ESA: (1) The discreteness of the population segment in relation to the remainder of the species or subspecies to which it belongs; and (2) the significance of the population segment to the species or subspecies to which it belongs. As stated in the joint DPS policy, Congress expressed its expectation that the Services would exercise authority with regard to DPSs sparingly and only when the biological evidence indicates such action is warranted.

In the preamble to the proposed rule and in the status review report we evaluated whether E. b. nauticus population segments met the DPS policy criteria. We determined that this subspecies consists of two DPSs— the Okhotsk DPS and the Beringia DPS. Comments regarding the DPS evaluation are addressed below in the Summary of Comments and Responses.

The ESA defines the term "endangered species" as "any species which is in danger of extinction throughout all or a significant portion of its range." The term "threatened species" is defined as "any species which is likely to become endangered

within the foreseeable future throughout all or a significant portion of its range." The foreseeability of a species' future status is case specific and depends upon both the foreseeability of threats to the species and foreseeability of the species' response to those threats. When a species is exposed to a variety of threats, each threat may be foreseeable over a different time frame. For example, threats stemming from well-established, observed trends in a global physical process may be foreseeable on a much longer time horizon than a threat stemming from a potential, though unpredictable, episodic process such as an outbreak of disease that may never have been observed to occur in the species.

The principal threat to bearded seals is habitat alteration stemming from climate change. In the 2008 status review for the ribbon seal (Boveng et al., 2008; see also 73 FR 79822, December 30, 2008), NMFS scientists used the same climate projections used in our risk assessment for bearded seals, and analyzed threats associated with climate change through 2050. One reason for that approach was the difficulty of incorporating the increased divergence and uncertainty in climate scenarios beyond that time. Other reasons included the lack of data for threats other than those related to climate change beyond 2050, and the fact that uncertainty embedded in the assessment of the ribbon seal's response to threats increased as the analysis extended farther into the future.

Since completing the analysis for ribbon seals, NMFS scientists have revised their analytical approach to the foreseeability of threats and responses to those threats, adopting a more threat-specific approach based on the best scientific and commercial data available for each respective threat. For example, because the climate projections in the Intergovernmental Panel on Climate Change's (IPCC's) Fourth Assessment Report (AR4; IPCC, 2007) extend through the end of the century (and we note the IPCC's Fifth

Assessment Report (AR5), due in 2014, will extend even farther into the future), for our analysis for bearded seals we used the same models to assess impacts from climate change through 2100. We continue to recognize that the farther into the future the analysis extends, the greater the inherent uncertainty, and we incorporated that limitation into our assessment of the threats and the species' response. For other threats, where the best scientific and commercial data do not extend as far into the future, such as for occurrences and projections of disease or parasitic outbreaks, we limited our analysis to the extent of such data. This threat-specific approach creates a more robust analysis of the best scientific and commercial data available. It is also consistent with the memorandum issued by the Department of Interior, Office of the Solicitor, regarding the meaning of the term "foreseeable future" (Opinion M-37021; January 16, 2009).

NMFS and FWS recently published a draft policy to clarify the interpretation of the phrase "significant portion of the range" in the ESA definitions of "threatened" and "endangered" (76 FR 76987; December 9, 2011). The draft policy consists of the following four components:

1. If a species is found to be endangered or threatened in only a significant portion of its range, the entire species is listed as endangered or threatened, respectively, and the ESA's protections apply across the species' entire range.

2. A portion of the range of a species is "significant" if its contribution to the viability of the species is so important that, without that portion, the species would be in danger of extinction.

3. The range of a species is considered to be the general geographical area within which that species can be found at the time FWS or NMFS makes any particular status

determination. This range includes those areas throughout all or part of the species' life cycle, even if they are not used regularly (e.g., seasonal habitats). Lost historical range is relevant to the analysis of the status of the species, but cannot constitute a significant portion of a species' range.

4. If the species is not endangered or threatened throughout all of its range, but it is endangered or threatened within a significant portion of its range, and the population in that significant portion is a valid DPS, we will list the DPS rather than the entire taxonomic species or subspecies.

The Services are currently reviewing public comment received on the draft policy. While the Services' intent ultimately is to establish a legally binding interpretation of the term "significant portion of the range," the draft policy does not have legal effect until such time as it may be adopted as final policy. However, the discussion and conclusions set forth in the draft policy are consistent with NMFS's past practice as well as our understanding of the statutory framework and language. We have therefore considered the draft policy as non-binding guidance in evaluating whether to list the Beringia and Okhotsk DPSs of the bearded seal under the ESA.

Species Information

A thorough review of the taxonomy, life history, and ecology of the bearded seal is presented in the status review report (Cameron et al., 2010; available at http://alaskafisheries.noaa.gov/). This information, along with an analysis of species delineation and DPSs, was summarized in the preamble to the proposed rule (75 FR 77496; December 10, 2010) and will not be repeated here.

Summary of Factors Affecting the Bearded Seal

Section 4(a)(1) of the ESA and the listing regulations (50 CFR part 424) set forth procedures for listing species. We must determine, through the regulatory process, if a species is endangered or threatened because of any one or a combination of the following factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; or (5) other natural or human-made factors affecting its continued existence. The preamble to the proposed rule discussed each of these factors for the Beringia and Okhotsk DPSs (75 FR 77496; December 10, 2010). That discussion will not be repeated in its entirety here, but we provide a summary for each of the factors below. Section 4.2 of the status review report provides a more detailed discussion of the factors affecting bearded seals (see ADDRESSES). The data on bearded seal abundance and trends of most populations are unavailable or imprecise, and there is little basis for quantitatively linking projected environmental conditions or other factors to bearded seal survival or reproduction. Our risk assessment therefore primarily evaluated important habitat features and was based upon the best available scientific and commercial data and the expert opinion of the BRT members.

A. Present or Threatened Destruction, Modification, or Curtailment of the Species' Habitat or Range

The main concern about the conservation status of bearded seals stems from the likelihood that their sea ice habitat has been modified by the warming climate and, more so, that the scientific consensus projections are for continued and perhaps accelerated warming in the foreseeable future. A second concern, related by the common driver of

carbon dioxide (CO_2) emissions, is the modification of habitat by ocean acidification, which may alter prey populations and other important aspects of the marine ecosystem. A reliable assessment of the future conservation status of bearded seals therefore requires a focus on observed and projected changes in sea ice, ocean temperature, ocean pH (acidity), and associated changes in bearded seal prey species.

The threats associated with impacts of the warming climate on the habitat of bearded seals (analyzed in the preamble to the proposed rule and in the status review report), to the extent that they may pose risks to these seals, are expected to manifest throughout the current breeding and molting range (for sea ice related threats) or throughout the entire range (for ocean warming and acidification) of the Beringia and Okhotsk DPSs.

While our inferences about future regional ice conditions are based upon the best available scientific and commercial data, we recognize that there are uncertainties associated with predictions based on hemispheric projections or indirect means. We also note that judging the timing of onset of potential impacts to bearded seals is complicated by the coarse resolution of the IPCC models. Nevertheless, NMFS determined that the models reflect reasonable assumptions regarding habitat alterations to be faced by bearded seals in the foreseeable future.

Potential Impacts of Changes in Sea Ice on Bearded Seals

In order to feed on the seafloor, bearded seals nearly always occupy shallow waters (Fedoseev, 2000; Kovacs, 2002). The preferred depth range is often described as less than 200 m (Kosygin, 1971; Heptner et al., 1976; Burns and Frost, 1979; Burns, 1981; Fedoseev, 1984; Nelson et al., 1984; Kingsley et al., 1985; Fedoseev, 2000;

Kovacs, 2002), though adults have been known to dive to around 300 m (Kovacs, 2002; Cameron and Boveng, 2009), and six of seven pups instrumented near Svalbard have been recorded at depths greater than 488 m (Kovacs, 2002). The BRT defined the core distribution of bearded seals as those areas of known extent that are in water less than 500 m deep.

An assessment of the risks to bearded seals posed by climate change must consider the species' life-history functions, how they are linked with sea ice, and how altering that link will affect the vital rates of reproduction and survival. The main functions of sea ice relating to the species' life-history are: (1) a dry and stable platform for whelping and nursing of pups in April and May (Kovacs et al., 1996; Atkinson, 1997); (2) a rearing habitat that allows mothers to feed and replenish energy reserves lost while nursing; (3) a habitat that allows a pup to gain experience diving, swimming, and hunting with its mother, and that provides a platform for resting, relatively isolated from most terrestrial and marine predators; (4) a habitat for rutting males to hold territories and attract post-lactating females; and (5) a platform suitable for extended periods of hauling out during molting.

Whelping and nursing: Pregnant female bearded seals require sea ice as a dry birthing platform (Kovacs et al., 1996; Atkinson, 1997). Similarly, pups are thought to nurse only while on ice. If suitable ice cover is absent from shallow feeding areas during whelping and nursing, bearded seals would be forced to seek either sea ice habitat over deeper water or coastal regions in the vicinity of haul-out sites on shore. A shift to whelping and nursing on land would represent a major behavioral change that could compromise the ability of bearded seals, particularly pups, to escape predators, as this is a

highly developed response on ice versus land. Further, predators abound on continental shorelines, in contrast with sea ice habitat where predators are sparse; and small islands where predators are relatively absent offer limited areas for whelping and nursing as compared to the more extensive substrate currently provided by suitable sea ice.

Bearded seal mothers feed throughout the lactation period, continuously replenishing fat reserves lost while nursing pups (Holsvik, 1998, cited in Krafft et al., 2000). Therefore, the presence of a sufficient food resource near the nursing location is also important. Rearing young in poorer foraging grounds would require mothers to forage for longer periods and/or compromise their own body condition, likely impacting the transfer of energy to offspring and affecting survival of pups, mothers, or both.

Pup maturation: When not on the ice, there is a close association between mothers and pups, which travel together at the surface and during diving (Lydersen et al., 1994; Gjertz et al., 2000; Krafft et al., 2000). Pups develop diving, swimming, and foraging skills over the nursing period, and perhaps beyond (Watanabe et al., 2009). Learning to forage in a sub-optimal habitat could impair a pup's ability to learn effective foraging skills, potentially impacting its long-term survival. Further, hauling out reduces thermoregulatory demands which, in Arctic climates, may be critical for maintaining energy balance. Hauling out is especially important for growing pups, which have a disproportionately large skin surface and rate of heat loss in the water (Harding et al., 2005; Jansen et al., 2010).

Mating: Male bearded seals are believed to establish territories under the sea ice and exhibit complex acoustic and diving displays to attract females. Breeding behaviors are exhibited by males up to several weeks in advance of females' arrival at locations to

give birth. Mating takes place soon after females wean their pups. The stability of ice cover is believed to have influenced the evolution of this mating system.

Molting: There is a peak in the molt during May-June, when most bearded seals (except young of the year) tend to haul out on ice to warm their skin. Molting in the water during this period could incur energetic costs which might reduce survival rates.

For any of these life history events, a greater tendency of bearded seals to haul out on land or in reduced ice could increase intra- and inter-specific competition for resources, the potential for disease transmission, and predation, all of which could affect annual survival rates. In particular, a reduction in suitable sea ice habitat would likely increase the overlap in the local distributions of bearded seals and walrus (Odobenus rosmarus), another ice-associated benthic (ocean bottom) feeder with similar habitat preferences and diet. The walrus is also a predator of bearded seal, though seemingly infrequent. Hauling out closer to shore or on land could also increase the risks of predation from polar bears, terrestrial carnivores, and humans.

For a long-lived and abundant animal with a large range, the factors identified above (i.e., low ice extent or absence of sea ice over shallow feeding areas) are not likely to be significant to an entire population in any one year. Rather, the overall strength of the impacts is likely a function of the frequency of years in which they occur, and the proportion of the population's range over which they occur. The low ice years, which are projected to occur more frequently than in the past, may reduce recruitment and pup survival if, for example, pregnant females are ineffective or slow at adjusting their breeding locales for variability of the position of the sea ice front.

Potential mechanisms for resilience on relatively short time scales include

adjustments to the timing of breeding in response to shorter periods of ice cover, and adjustments of the breeding range in response to reduced ice extent. The extent to which bearded seals might adapt to more frequent years with early ice melt by shifting the timing of reproduction is uncertain. There are many examples of shifts in timing of reproduction by pinnipeds and terrestrial mammals in response to body condition and food availability. In most of these cases, sub-optimal conditions led to reproduction later in the season, a response that would not likely be beneficial to bearded seals. A shift to an earlier melt date may, however, over the longer term provide selection pressure for an evolutionary response over many generations toward earlier reproduction.

It is impossible to predict whether bearded seals would be more likely to occupy ice habitats over the deep waters of the Arctic Ocean basin or terrestrial habitats if sea ice failed to extend over the shelf. Outside the critical life history periods related to reproduction and molting there is evidence that bearded seals might not require the presence of sea ice for hauling out, and instead remain in the water for weeks or months at a time. Even during the spring and summer bearded seals also appear to possess some plasticity in their ability to occupy different habitats at the extremes of their range. For example, throughout most of their range, adult bearded seals are seldom found on land; however, in the Sea of Okhotsk, bearded seals are known to use haul-out sites ashore regularly and predictably during the ice free periods in late summer and early autumn. Also, western and central Baffin Bay are unique among whelping areas as mothers with dependent pups have been observed on pack ice over deep water (greater than 500 m). These behaviors are extremely rare in the core distributions of bearded seals; therefore, the habitats that necessitate them should be considered sub-optimal. Consequently,

predicted reductions in sea ice extent, particularly when such reductions separate ice from shallow water feeding habitats, can be reasonably used as a proxy for predicting years of reduced survival and recruitment, though not the magnitude of the impact. In addition, the frequency of predicted low ice years can serve as a useful tool for assessing the cumulative risks posed by climate change.

Assessing the potential impacts of the predicted changes in sea ice cover and the frequency of low ice years on the Beringia and Okhotsk DPSs of bearded seals requires knowledge or assumptions about the relationships between sea ice and bearded seal vital rates. Because no quantitative studies of these relationships have been conducted, we relied upon two studies in the Bering Sea that estimated bearded seal preference for ice concentrations based on aerial survey observations of seal densities. Simpkins et al. (2003) found that bearded seals near St. Lawrence Island in March preferred 70-90 percent ice coverage, as compared with 0-70 percent and 90-100 percent. Preliminary results from another study in the Bering Sea (Ver Hoef et al., In review) found substantially lower probability of bearded seal occurrence in areas of 0-25 percent ice coverage during April-May. Lacking a more direct measure of the relationship between bearded seal vital rates and ice coverage, we considered areas within the current core distribution of bearded seals where the decadal averages and minimums of ice projections (centered on the years 2050 and 2090) were below 25 percent concentrations as inadequate for whelping and nursing. We also assumed that the sea ice requirements for molting in May-June are less stringent than those for whelping and rearing pups, and that 15 percent ice concentration in June would be minimally sufficient for molting. The amount of ice cover required by bearded seals for critical life functions has not been

documented in the scientific literature, but for purposes of this final listing determination, we concluded that the above percentages are reasonable assumptions based upon the life history characteristics and field observations of bearded seals by NMFS marine mammal biologists.

Beringia DPS: In the Bering Sea, early springtime sea ice habitat for bearded seal whelping should be sufficient in most years through 2050 and out to the second half of the 21st century, when the average ice extent in April is forecasted to be approximately 50 percent of the present-day extent. The general trend in projections of sea ice for May (nursing, rearing, and some molting) through June (molting) in the Bering Sea is toward a longer ice-free period resulting from more rapid spring melt. Until at least the middle of the 21st century, projections show some years with near-maximum ice extent; however, less ice is forecasted on average, manifested as more frequent years in which the spring retreat occurs earlier and the peak ice extent is lower. By the end of the 21st century, projections for the Bering Sea indicate that there will commonly be years with little or no ice in May, and that sea ice in June is expected to be non-existent in most years.

Projections of sea ice concentration indicate that there will typically be 25 percent or greater ice concentration in April-May over a substantial portion of the shelf zone in the Bering Sea through 2055. By 2095 ice concentrations of 25 percent or greater are projected for May only in small zones of the Gulf of Anadyr and in the area between St. Lawrence Island and Bering Strait. In the minimal ice years the projections indicate there will be little or no ice of 25 percent or greater concentration over the shelf zone in the Bering Sea during April and May, perhaps commencing as early as the next decade. Conditions will be particularly poor for the molt in June when typical ice predictions

suggest less than 15 percent ice by mid-century. Projections suggest that the spring and summer ice edge could retreat to deep waters of the Arctic Ocean basin, potentially separating sea ice suitable for pup maturation and molting from benthic feeding areas.

In the East Siberian, Chukchi, and Beaufort seas, the average ice extents during April and May (i.e., the period of whelping, nursing, mating, and some molting) are all predicted to be very close to historical averages out to the end of the 21st century. However, the annual variability of this extent is forecasted to continue to increase, and single model runs indicate the possibility of a few years in which April and May sea ice would cover only half (or in the case of the Chukchi Sea, none) of the Arctic shelf in these regions by the end of the century. The projections indicate that there will typically be 25 percent or greater ice concentration in April-June over the entire shelf zones in the Beaufort, Chukchi, and East Siberian Seas through the end of the century. In the minimal ice years 25 percent or greater ice concentration is projected over the shelf zones in April and May in these regions through the end of the century, except in the eastern Chukchi and central Beaufort Seas. In the 2090s, ice suitable for molting in June (i.e., 15 percent or more concentration) is projected to be mostly absent in these regions in minimal years, except in the western Chukchi Sea and northern East Siberian Sea.

A reduction in spring and summer sea ice concentrations could conceivably result in the development of new areas containing suitable habitat or enhancement of existing suboptimal habitat. For example, the East Siberian Sea has been said to be relatively low in bearded seal numbers and has historically had very high ice concentrations and long seasonal ice coverage. Ice concentrations projected for May-June near the end of the century in this region include substantial areas with 20-80 percent ice, potentially suitable

for bearded seal reproduction, molting, and foraging. However, the net difference between sea ice related habitat creation and loss is likely to be negative, especially because other factors like ocean warming and acidification (discussed below) are likely to affect habitat.

A substantial portion (about 70 percent) of the Beringia DPS currently whelps in the Bering Sea, where a longer ice-free period is forecasted in May and June. To adapt to this modified sea ice regime, bearded seals would likely have to shift their nursing, rearing, and molting areas to the ice covered seas north of the Bering Strait, potentially with poor access to food, or to coastal haul-out sites on shore, potentially with increased risks of disturbance, predation, and competition. Both of these scenarios would require bearded seals to adapt to novel (i.e., suboptimal) conditions, and to exploit habitats to which they may not be well suited, likely compromising their reproduction and survival rates. Further, the spring and summer ice edge may retreat to deep waters of the Arctic Ocean basin, which could separate sea ice suitable for pup maturation and molting from benthic feeding areas. Accordingly, we conclude that the projected changes in sea ice habitat pose significant threats to the persistence of the Beringia DPS throughout all of its range.

Okhotsk DPS: None of the IPCC models performed satisfactorily at projecting sea ice for the Sea of Okhotsk, so projected surface air temperatures were examined relative to current climate conditions as a proxy to predict sea ice extent and duration. Sea ice extent is strongly controlled by temperature; this is especially true for smaller bodies of water relative to the grid size of available models. Also, the physical processes by which increased greenhouse gases (GHGs) lead to warming are better understood and more

easily modeled than the other processes that influence sea ice formation and persistence. Therefore, whether the whole geographic region around the Sea of Okhotsk is above or below the freezing point of sea water should be a reasonable indicator of the presence or absence of sea ice.

The Sea of Okhotsk is located southwest of the Bering Sea, and thus can be expected to have earlier radiative heating in the spring. The region is dominated in winter and spring, however, by cold continental air masses and offshore flow. Sea ice is formed rapidly and is generally advected southward. As this region is dominated by cold air masses for much of the winter and spring, we would expect that the present seasonal cycle of first year sea ice will continue to dominate the future habitat of the Sea of Okhotsk.

Based on the temperature proxies, a continuation of sea ice formation or presence is expected for March (some whelping and nursing) in the Sea of Okhotsk through the end of this century, though the ice may be limited to the northern region in most years after mid-century. However, little to no sea ice is expected in May by 2050, and in April by the end of the century. These months are critical for whelping, nursing, pup maturation, breeding, and molting. Hence, the most significant threats posed to the Okhotsk DPS were judged to be decreases in sea ice habitat suitable for these important life history events.

Over the long term, bearded seals in the Sea of Okhotsk do not have the prospect of following a shift in the average position of the ice front northward. Therefore, the question of whether a future lack of sea ice will cause the Okhotsk DPS of bearded seals to become in danger of going extinct depends in part on how successful the populations

are at moving their reproductive activities from ice to haul-out sites on shore. Although some bearded seals in this area use land for hauling out, this only occurs in late summer and early autumn. We are not aware of any occurrence of bearded seals whelping or nursing young on land, so this predicted loss of sea ice is expected to be significantly detrimental to the long term viability of the population. We conclude that the expected changes in sea ice habitat pose a significant threat to the Okhotsk DPS throughout all of its range.

Impacts on Bearded Seals Related to Changes in Ocean Conditions

Ocean acidification is an ongoing process whereby chemical reactions occur that reduce both seawater pH and the concentration of carbonate ions when CO_2 is absorbed by seawater. Results from global ocean CO_2 surveys over the past two decades have shown that ocean acidification is a predictable consequence of rising atmospheric CO_2 levels. The process of ocean acidification has long been recognized, but the ecological implications of such chemical changes have only recently begun to be appreciated. The waters of the Arctic and adjacent seas are among the most vulnerable to ocean acidification. The most likely impact of ocean acidification on bearded seals will be through the loss of benthic calcifiers and lower trophic levels on which the species' prey depends. Cascading effects are likely both in the marine and freshwater environments. Our limited understanding of planktonic and benthic calcifiers in the Arctic (e.g., even their baseline geographical distributions) means that future changes will be difficult to detect and evaluate.

Warming of the oceans is predicted to drive species ranges toward higher latitudes. Additionally, climate change can strongly influence fish distribution and

abundance. Further shifts in spatial distribution and northward range extensions appear to be inevitable, and the species composition of the plankton and fish communities will continue to change under a warming climate.

Bearded seals of different age classes are thought to feed at different trophic levels, so any ecosystem change could be expected to affect bearded seals in a variety of ways. Changes in bearded seal prey, anticipated in response to ocean warming and loss of sea ice and, potentially, ocean acidification, have the potential for negative impacts, but the possibilities are complex. These ecosystem responses may have very long lags as they propagate through trophic webs. Because of bearded seals' apparent dietary flexibility, these threats are of less concern than the direct effects of potential sea ice degradation.

B. Overutilization for Commercial, Subsistence, Recreational, Scientific, or Educational Purposes

Recreational, scientific, and educational utilization of bearded seals is currently at low levels and is not expected to increase to significant threat levels in the foreseeable future. The solitary nature of bearded seals has made them less suitable for commercial exploitation than many other seal species. Still, they may have been depleted by commercial harvests in some areas of the Sea of Okhotsk and the Bering Sea during the mid-20th century. There is currently no significant commercial harvest of bearded seals and significant harvests seem unlikely in the foreseeable future.

Bearded seals have been a very important species for subsistence of indigenous people in the Arctic for thousands of years. The current subsistence harvest is substantial in some areas, but there is little or no evidence that subsistence harvests have or are likely

to pose serious risks to the species at present. Climate change is likely to alter patterns of subsistence harvest of marine mammals by changing their densities or distributions in relation to hunting communities. Predictions of the impacts of climate change on subsistence hunting pressure are constrained by the complexity of the interacting variables and imprecision of climate and sea models at small scales. Accurate information on both harvest levels and species' abundance and trends will be needed in order to assess the future impacts of hunting as well as to respond appropriately to potential climate-induced changes in populations. We conclude that there is no evidence overutilization of the Beringia or Okhotsk DPS is occurring at present.

C. Diseases, Parasites, and Predation

A variety of diseases and parasites have been documented to occur in bearded seals. The seals have likely co-evolved with many of these and the observed prevalence is typical and similar to other species of seals. The transmission of many known diseases of pinnipeds is often facilitated by animals crowding together and by the continuous or repeated occupation of a site. The pack ice habitat and the more solitary behavior of bearded seals may therefore limit disease transmission. Other than at shore-based haul-out sites in the Sea of Okhotsk in summer and fall, bearded seals do not crowd together and rarely share small ice floes with more than a few other seals, so conditions that would favor disease transmission do not exist for most of the year. After the proposed listing rule was published, the occurrence of an elevated number of sick or dead ringed seals in the Arctic and Bering Strait regions of Alaska beginning in July 2011 led to the declaration of an unusual mortality event (UME) by NMFS under the Marine Mammal Protection Act (MMPA) on December 20, 2011. A small number of sick or dead bearded

seals were also reported. The underlying cause of this UME is unknown and remains under focused expert investigation. Abiotic and biotic changes to bearded seal habitat potentially could lead to exposure to new pathogens or new levels of virulence, but we continue to consider the potential threats to bearded seals from disease as low.

Polar bears are the primary predators of bearded seals. Other predators include brown bears (Ursus arctos), killer whales (Orcinus orca), sharks, and walruses. Predation under the future scenario of reduced sea ice is difficult to assess. Polar bear predation may decrease, but predation by killer whales, sharks, and walrus may increase. The range of plausible scenarios is large, making it impossible to predict the direction or magnitude of the net impact on bearded seal mortality. The data that are currently available do not suggest that predation is posing a significant threat to the persistence of bearded seals at present.

D. Inadequacy of Existing Regulatory Mechanisms

As noted above in the discussion of Factor A, a primary concern about the conservation status of the bearded seal stems from the likelihood that its sea ice habitat has been modified by the warming climate and, more so, that the scientific consensus projections are for continued and perhaps accelerated warming in the foreseeable future combined with modification of habitat by ocean acidification. Current mechanisms do not effectively regulate GHG emissions, which are contributing to global climate change and associated modifications to bearded seal habitat. The projections we used to assess risks from GHG emissions were based on the assumption that no new regulation will take place (the underlying IPCC emissions scenarios were all "non-mitigated" scenarios). Therefore, the inadequacy of mechanisms to regulate GHG emissions is already included

in our risk assessment, and contributes to the risks posed to bearded seals by these emissions.

E. Other Natural or Manmade Factors Affecting the Species' Continued Existence

Pollution and Contaminants

Research on contaminants and bearded seals is limited compared to the extensive information available for ringed seals. Pollutants such as organochlorine compounds (OC) and heavy metals have been found in most bearded seal populations. The variety, sources, and transport mechanisms of the contaminants vary across the bearded seal's range, but these compounds appear to be ubiquitous in the Arctic marine food chain. Statistical analysis of OCs in marine mammals has shown that, for most OCs, the European Arctic is more contaminated than the Canadian and U.S. Arctic. Present and future impacts of contaminants on bearded seal populations warrant further study. Climate change has the potential to increase the transport of pollutants from lower latitudes to the Arctic, highlighting the importance of continued monitoring of bearded seal contaminant levels. The BRT considered the potential threat posed from contaminants as of low to moderate significance to the Beringia DPS and of moderate significance to the Okhotsk DPS.

Oil and Gas Activities

Extensive oil and gas reserves coupled with rising global demand make it very likely that oil and gas development activity will increase throughout the U.S. Arctic and internationally in the future. Climate change is expected to enhance marine access to offshore oil and gas reserves by reducing sea ice extent, thickness, and seasonal duration, thereby improving ship access to these resources around the margins of the Arctic Basin.

Oil and gas exploration, development, and production activities include, but are not limited to: seismic surveys; exploratory, delineation, and production drilling operations; construction of artificial islands, causeways, ice roads, shore-based facilities, and pipelines; and vessel and aircraft operations. These activities have the potential to affect bearded seals, primarily through noise, physical disturbance, and pollution, particularly in the event of a large oil spill or blowout.

Within the range of the Beringia and the Okhotsk DPSs, offshore oil and gas exploration and production activities are currently underway in the United States, Canada, and Russia. In the United States, oil and gas activities have been conducted off the coast of Alaska since the 1970s, with most of the activity occurring in the Beaufort Sea. Although five exploratory wells have been previously drilled in the Chukchi Sea, no oil fields have been developed or brought into production. Shell plans to drill up to three wells during 2012 at several locations in the northeast Chukchi Sea. Shell also plans to drill offshore in the Beaufort Sea in 2012 near Camden Bay. No offshore oil or gas fields are currently in development or production in the Bering Sea.

About 80 percent of the oil and 99 percent of the gas produced in the Arctic comes from Russia (AMAP, 2007). With over 75 percent of known Arctic oil, over 90 percent of known Arctic gas, and vast estimates of undiscovered oil and gas reserves, Russia will likely continue to be the dominant producer of Arctic oil and gas in the future (AMAP, 2007). Recently there has also been renewed interest in the Russian Chukchi Sea, as new evidence emerges to support the notion that the region may contain world-class oil and gas reserves. In the Sea of Okhotsk, oil and natural gas operations are active off the northeastern coast of Sakhalin Island, and future developments are planned in the

western Kamchatka and Magadan regions.

Large oil spills or blowouts are considered to be the greatest threat of oil and gas exploration activities in the marine environment. In contrast to spills on land, large spills at sea are difficult to contain and may spread over hundreds or thousands of kilometers. Responding to a spill in the Arctic environment would be particularly challenging. The U.S. Arctic has very little infrastructure to support oil spill response, with few roads and no major port facilities. Reaching a spill site and responding effectively would be especially difficult, if not impossible, in winter when weather can be severe and daylight extremely limited. Oil spills under ice would be the most challenging because industry and government have little experience containing or recovering spilled oil effectively in such conditions. The difficulties experienced in stopping and containing the blowout at the Deepwater Horizon well in the Gulf of Mexico, where environmental conditions and response preparedness are comparatively good (but waters are much deeper than the Arctic continental shelf), point toward even greater challenges of attempting a similar feat in a much more environmentally severe and geographically remote location.

Although planning, management, and use of best practices can help reduce risks and impacts, the history of oil and gas activities indicates that accidents cannot be eliminated. Tanker spills, pipeline leaks, and oil blowouts are likely to occur in the future, even under the most stringent regulatory and safety systems. In the Sea of Okhotsk, an accident at an oil production complex resulted in a large (3.5 ton) spill in 1999, and in winter 2009, an unknown quantity of oil associated with a tanker fouled 3 km of coastline and hundreds of birds in Aniva Bay (Sakhalin Island). In the Arctic, a blowout at an offshore platform in the Ekofisk oil field in the North Sea in 1977 released

more than 200,000 barrels of oil.

Researchers have suggested that pups of ice-associated seals may be particularly vulnerable to fouling of their dense lanugo coat. Though bearded seal pups exhibit some prenatal molting, they are generally not fully molted at birth, and thus would be particularly prone to physical impacts of contacting oil. Adults, juveniles, and weaned young of the year rely on blubber for insulation, so effects of oiling on their thermoregulation are expected to be minimal. Other acute effects of oil exposure which have been shown to reduce seal's health and possibly survival include skin irritation, disorientation, lethargy, conjunctivitis, corneal ulcers, and liver lesions. Direct ingestion of oil, ingestion of contaminated prey, or inhalation of hydrocarbon vapors can cause serious health effects including death.

In summary, the threats to bearded seals from oil and gas activities are greatest where these activities converge with breeding aggregations or in migration corridors such as in the Bering Strait. In particular, bearded seals in ice-covered remote regions are most vulnerable to oil and gas activities, primarily due to potential oil spill impacts. The BRT considered the threat posed to the Beringia and Okhotsk DPSs by disturbance, injury, or mortality from oil spills, and/or other discharges, as moderately significant.

Commercial Fisheries Interactions and Bycatch

Commercial fisheries may impact bearded seals through direct interactions (i.e., incidental take or bycatch) and indirectly through competition for prey resources and other impacts on prey populations. NMFS has access to estimates of bearded seal bycatch only for commercial fisheries that operate in Alaska waters. Based on data from 2002-2006, there has been an annual average of 1.0 bearded seal mortality incidental to

commercial fishing operations. We could find no information regarding bearded seal bycatch in the Sea of Okhotsk; however, given the intensive levels of commercial fishing that occur in this sea, bycatch of bearded seals likely occurs there. The BRT considered the threat posed to the Okhotsk DPS from physical disturbance associated with the combined factors of oil and gas development, shipping, and commercial fisheries moderately significant.

For indirect impacts, we note that commercial fisheries target a number of known bearded seal prey species, such as walleye pollock (Theragra chalcogramma) and cod. These fisheries may affect bearded seals indirectly through reduction in prey biomass and through other fishing mediated changes in their prey species. Bottom trawl fisheries also have the potential to indirectly affect bearded seals through destruction or modification of benthic prey and/or their habitat.

Shipping

The reduction in Arctic sea ice that has occurred in recent years has renewed interest in using the Arctic Ocean as a potential waterway for coastal, regional, and trans-Arctic marine operations. Climate models predict that the warming trend in the Arctic will accelerate, causing the ice to begin melting earlier in the spring and resume freezing later in the fall, resulting in an expansion of potential shipping routes and lengthening the potential navigation season.

The most significant risk posed by shipping activities to bearded seals in the Arctic is the accidental or illegal discharge of oil or other toxic substances carried by ships, due to their immediate and potentially long-term effects on individual animals, populations, food webs, and the environment. Shipping activities can also affect bearded

seals directly through noise and physical disturbance (e.g., icebreaking vessels), as well as indirectly through ship emissions and the possibility of introducing exotic species that may affect bearded seal food webs.

Current and future shipping activities in the Arctic pose varying levels of threats to bearded seals depending on the type and intensity of the shipping activity and its degree of spatial and temporal overlap with bearded seal habitats. These factors are inherently difficult to predict, making threat assessment highly uncertain. Most ships in the Arctic purposefully avoid areas of ice and thus prefer periods and areas which minimize the chance of encountering ice. This necessarily mitigates many of the risks of shipping to populations of bearded seals, since they are closely associated with ice throughout the year. Icebreakers pose special risks to bearded seals because they are capable of operating year-round in all but the heaviest ice conditions and are often used to escort other types of vessels (e.g., tankers and bulk carriers) through ice-covered areas. If icebreaking activities increase in the Arctic in the future as expected, the likelihood of negative impacts (e.g., oil spills, pollution, noise, disturbance, and habitat alteration) occurring in ice-covered areas where bearded seals occur will likely also increase.

The potential threats and general threat assessment in the Sea of Okhotsk are largely the same as they are in the Arctic, though with less detail available regarding the spatial and temporal correspondence of ships and bearded seals, save one notable exception. Though noise and oil pollution from vessels are expected to have the same general relevance in the Sea of Okhotsk, oil and gas activities near Sakhalin Island are currently at high levels and poised for another major expansion of the offshore oil fields that would require an increasing number of tankers. About 25 percent of the Okhotsk

bearded seal population uses this area during whelping and molting, and as a migration corridor (Fedoseev, 2000).

The main aggregations of bearded seals in the northern Sea of Okhotsk are likely within the commercial shipping routes, but vessel frequency and timing relative to periods when seals are hauled out on ice are presently unknown. Some ports are kept open year-round by icebreakers, largely to support year-round fishing, so there is greater probability here of spatial and temporal overlaps with bearded seals hauled out on ice. In a year with reduced ice, bearded seals were more concentrated close to shore (Fedoseev, 2000), suggesting that seals could become increasingly prone to shipping impacts as ice diminishes.

As is the case with the Arctic, a quantitative assessment of actual threats and impacts in the Sea of Okhotsk is unrealistic due to a general lack of published information on shipping patterns. Modifications to shipping routes and possible choke points (where increases in vessel traffic are focused at sensitive places and times for bearded seals) due to diminishing ice are likely, but there are few data on which to base even qualitative predictions. However, the predictions regarding shipping impacts in the Arctic are generally applicable, and because of significant increases in predicted shipping, it appears that bearded seals inhabiting the Sea of Okhotsk, in particular the shelf area off central and northern Sakhalin Island, are at increased risk of impacts. Winter shipping activities in the southern Sea of Okhotsk are expected to increase considerably as oil and gas production pushes the development and use of new classes of icebreaking ships, thereby increasing the potential for shipping accidents and oil spills in the ice-covered regions of this sea.

The BRT considered the threat posed from physical disturbance associated with the combined factors of oil and gas development, shipping, and/or commercial fisheries as of low to moderate significance to the Beringia DPS and of moderate significance to the Okhotsk DPS.

Summary for Factor E

We find that the threats posed by pollutants, oil and gas industry activities, fisheries, and shipping do not individually or collectively place the Beringia DPS or the Okhotsk DPS at risk of becoming endangered in the foreseeable future. We recognize, however, that the significance of these threats would likely increase for populations diminished by the effects of climate change or other threats. This is of particular note for bearded seals in the Sea of Okhotsk, where oil and gas related activities are expected to increase, and are judged to pose a moderate threat.

Analysis of Demographic Risks

Threats to a species' long-term persistence are manifested demographically as risks to its abundance, productivity, spatial structure and connectivity, and genetic and ecological diversity. These demographic risks provide the most direct indices or proxies of extinction risk. A species at very low levels of abundance and with few populations will be less tolerant to environmental variation, catastrophic events, genetic processes, demographic stochasticity, ecological interactions, and other processes. A rate of productivity that is unstable or declining over a long period of time can indicate poor resiliency to future environmental change. A species that is not widely distributed across a variety of well-connected habitats is at increased risk of extinction due to environmental perturbations, including catastrophic events. A species that has lost

locally-adapted genetic and ecological diversity may lack the raw resources necessary to exploit a wide array of environments and endure short- and long-term environmental changes.

The degree of risk posed by the threats associated with the impacts of global climate change on bearded seal habitat is uncertain due to a lack of quantitative information linking environmental conditions to bearded seal vital rates, and a lack of information about how resilient bearded seals will be to these changes. The BRT considered the current risks (in terms of abundance, productivity, spatial structure, and diversity) to the persistence of the Beringia DPS and the Okhotsk DPS as low or very low. The BRT judged the risks to the persistence of the Beringia DPS within the foreseeable future to be moderate (abundance and diversity) to high (productivity and spatial structure), and to the Okhotsk DPS to be high for abundance, productivity, and spatial structure, and moderate for diversity.

Conservation Efforts

When considering the listing of a species, section 4(b)(1)(A) of the ESA requires NMFS to consider efforts by any State, foreign nation, or political subdivision of a State or foreign nation to protect the species. Such efforts would include measures by Native American tribes and organizations, local governments, and private organizations. Also, Federal, tribal, state, and foreign recovery actions (16 U.S.C. 1533(f)), and Federal consultation requirements (16 U.S.C. 1536) constitute conservation measures. In addition to identifying these efforts, under the ESA and our Policy on the Evaluation of Conservation Efforts (68 FR 15100; March 28, 2003), we must evaluate the certainty of implementing the conservation efforts and the certainty that the conservation efforts will

be effective on the basis of whether the effort or plan establishes specific conservation objectives, identifies the necessary steps to reduce threats or factors for decline, includes quantifiable performance measures for monitoring compliance and effectiveness, incorporates the principles of adaptive management, and is likely to improve the species' viability at the time of the listing determination.

International Agreements

The International Union for the Conservation of Nature and Natural Resources (IUCN) Red List identifies and documents those species believed by its reviewers to be most in need of conservation attention if global extinction rates are to be reduced, and is widely recognized as the most comprehensive, apolitical global approach for evaluating the conservation status of plant and animal species. In order to produce Red Lists of threatened species worldwide, the IUCN Species Survival Commission draws on a network of scientists and partner organizations, which uses a standardized assessment process to determine species' risks of extinction. However, it should be noted that the IUCN Red List assessment criteria differ from the listing criteria provided by the ESA. The bearded seal is currently classified as a species of "Least Concern" on the IUCN Red List. These listings highlight the conservation status of listed species and can inform conservation planning and prioritization.

Domestic Conservation Efforts

NMFS is not aware of any formalized conservation efforts for bearded seals that have yet to be implemented, or which have recently been implemented, but have yet to show their effectiveness in removing threats to the species. Therefore, we do not need to evaluate any domestic conservation efforts under our Policy on Evaluating Conservation

Efforts (68 FR 15100; March 28, 2003).

NMFS has established a co-management agreement with the Ice Seal Committee (ISC) to conserve and provide co-management of subsistence use of ice seals by Alaska Natives. The ISC is an Alaska Native Organization dedicated to conserving seal populations, habitat, and hunting in order to help preserve native cultures and traditions. The ISC co-manages ice seals with NMFS by monitoring subsistence harvest and cooperating on needed research and education programs pertaining to ice seals. NMFS' National Marine Mammal Laboratory is engaged in an active research program for bearded seals. The new information from research will be used to enhance our understanding of the risk factors affecting bearded seals, thereby improving our ability to develop effective management measures for the species.

Listing Determinations

We have reviewed the status of the bearded seal, fully considering the best scientific and commercial data available, including the status review report. We have reviewed threats to the Beringia DPS and the Okhotsk DPS, as well as other relevant factors, and considered conservation efforts and special designations for bearded seals by states and foreign nations. In consideration of all of the threats and potential threats to bearded seals identified above, the assessment of the risks posed by those threats, the possible cumulative impacts, and the uncertainty associated with all of these, we draw the following conclusions:

Beringia DPS: (1) The present population size of the Beringia DPS is uncertain, but is estimated to be about 155,000 individuals. (2) It is highly likely that reductions will occur in both the extent and timing of sea ice in the range of the Beringia DPS within

the foreseeable future, particularly in the Bering Sea. To adapt to this modified ice regime, bearded seals would likely have to shift their nursing, rearing, and molting areas to ice-covered seas north of the Bering Strait, where projections suggest there is potential for the ice edge to retreat to deep waters of the Arctic basin, forcing the seals to adapt to suboptimal conditions and exploit potentially unsuitable habitats, and likely compromising their reproduction and survival rates. (3) Available information indicates a moderate to high threat that reductions in spring and summer sea ice will result in spatial separation of sea ice resting areas from benthic feeding habitat. (4) Available information indicates a moderate to high threat of reductions in sea ice suitable for molting (i.e., areas with at least 15 percent ice concentration in May-June) and a moderate threat of reductions in sea ice suitable for pup maturation (i.e., areas with at least 25 percent ice concentration in April-May). (5) Within the foreseeable future, the risks to the persistence of the Beringia DPS appear to be moderate (abundance and diversity) to high (productivity and spatial structure). We have determined that the Beringia DPS is not in danger of extinction throughout all of its range, but it is likely to become so within the foreseeable future. Therefore, we are listing it as threatened.

Okhotsk DPS: (1) The present population size of the Okhotsk DPS is very uncertain, but is estimated to be about 95,000 individuals. (2) Decreases in sea ice habitat suitable for whelping, nursing, pup maturation, and molting pose the greatest threats to the persistence of the Okhotsk DPS. As ice conditions deteriorate, Okhotsk bearded seals will be limited in their ability to shift their range northward because the Sea of Okhotsk is bounded to the north by land. (3) Although some bearded seals in the Sea of Okhotsk are known to use land for hauling out, this presently only occurs in late-

summer and early autumn. We are not aware of any occurrence of bearded seals whelping or nursing young on land, so the predicted loss of sea ice for these critical life history functions is expected to be significantly detrimental to the long term viability of the population. (4) Within the foreseeable future the risks to the persistence of the Okhotsk DPS due to demographic problems associated with abundance, productivity, and spatial structure are expected to be high. We have determined that the Okhotsk DPS is not in danger of extinction throughout all its range, but it is likely to become so in the foreseeable future. Therefore, we are listing it as threatened.

Significant Portion of the Range Evaluation

Under the ESA and our implementing regulations, a species warrants listing if it is endangered or threatened throughout all or a significant portion of its range. In our analysis for this final rule, we initially evaluated the status of and threats to the Beringia and Okhotsk DPSs of the bearded seal throughout their entire ranges. We found that the consequences of habitat change associated with a warming climate can be expected to manifest throughout the current breeding and molting ranges of bearded seals, and that the ongoing and projected changes in sea ice habitat pose significant threats to the persistence of these DPSs. The magnitude of the threats posed to the persistence of bearded seals, including from changes in sea ice habitat, are likely to vary to some degree across the range of the species depending on a number of factors, including where affected populations occur. In light of the potential differences in the magnitude of the threats to specific areas or populations, we evaluated whether the Beringia or Okhotsk DPSs might be in danger of extinction in any significant portions of their ranges. In accordance with our draft policy on "significant portion of its range," our first step in this

evaluation was to review the entire supporting record for this final determination to "identify any portions of the range[s] of the [DPSs] that warrant further consideration" (76 FR 77002; December 9, 2011). We evaluated whether substantial information indicated "that (i) the portions may be significant [within the meaning of the draft policy] and (ii) the species [occupying those portions] may be in danger of extinction or likely to become so within the foreseeable future" (76 FR 77002; December 9, 2011). Under the draft policy, both considerations must apply to warrant listing a species as endangered throughout its range based upon threats within a portion of the range. In other words, if either consideration does not apply, we would not list a species as endangered based solely upon its status within a significant portion of its range. For both the Beringia and Okhotsk DPSs, we found it more efficient to address the status consideration first.

The consequences of the potential threats to the Beringia and Okhotsk DPSs, including from changes in sea ice habitat, have been addressed in other sections of the preamble to this final rule. Based on our review of the record, we did not find substantial information indicating that any of the threats to the Beringia and Okhotsk DPSs, including those associated with the changes in sea ice habitat, are so severe or so concentrated as to indicate that either DPS currently qualifies as endangered within some portion of its range. As described in the section entitled Listing Determinations of this final rule, the threats are such that we concluded that Beringia and Okhotsk DPSs are likely to become endangered within the foreseeable future. As a result, we find that the best available data show that there are no portions of their ranges in which the threats are so concentrated or acute as to place those portions of the ranges of either DPS in danger of extinction. Because we find that the Arctic and Okhotsk DPSs are not endangered in

any portions of their ranges, we need not address the question of whether any portions may be significant.

Prohibitions and Protective Measures

Section 9 of the ESA prohibits the take of endangered species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or engage in any such conduct (16 U.S.C. 1532(19)). In the case of threatened species, ESA section 4(d) authorizes NMFS to issue regulations it considers necessary and advisable for the conservation of the species. Such regulations may include any or all of the section 9 prohibitions. These regulations apply to all individuals, organizations, and agencies subject to U.S. jurisdiction. On December 10, 2010, we proposed protective regulations pursuant to section 4(d) to include all of the prohibitions in section 9(a)(1) (75 FR 77496) based on a preliminary finding that such measures were necessary and advisable for the conservation of the Beringia DPS and the Okhotsk DPS.

In light of public comments and following further review, we are withdrawing the proposed ESA section 4(d) protective regulations for the Beringia and Okhotsk DPSs. We received comments arguing against adoption of the 4(d) rule and we have not received any information, and are not aware of any, indicating that the addition of the ESA section 9 prohibitions would apply to any activities that are currently unregulated and are having, or have the potential to have, significant effects on the Beringia or Okhotsk DPS. Further, the Beringia and Okhotsk DPSs appear sufficiently abundant to withstand typical year-to-year variation and natural episodic perturbations in the near term. The principal threat to these DPSs of bearded seals is habitat alteration stemming from climate change within the foreseeable future. This is a long-term threat and the

consequences for bearded seals will manifest themselves over the next several decades. Finally, bearded seals currently benefit from existing protections under the MMPA, and activities that may take listed species and involve a Federal action will still be subject to consultation under section 7(a)(2) of the ESA to ensure such actions will not jeopardize the continued existence of the species. We therefore conclude that it is unlikely that the proposed section 4(d) regulations would provide appreciable conservation benefits. As a result, we have concluded that the 4(d) regulations are not necessary at this time. Such regulations could be promulgated at some future time if warranted by new information.

Section 7(a)(2) of the ESA requires Federal agencies to consult with us to ensure that activities they authorize, fund, or conduct are not likely to jeopardize the continued existence of a listed species or a species proposed for listing, or to adversely modify critical habitat or proposed critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into consultation with us. Examples of Federal actions that may affect the Beringia DPS of bearded seals include permits and authorizations relating to coastal development and habitat alteration, oil and gas development (including seismic exploration), toxic waste and other pollutant discharges, and cooperative agreements for subsistence harvest.

Critical Habitat

Section 3 of the ESA (16 U.S.C. 1532(5)(A)) defines critical habitat as: (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area

occupied by the species at the time it is listed upon a determination by the Secretary that such areas are essential for the conservation of the species. Section 3 of the ESA also defines the terms "conserve," "conserving," and "conservation" to mean "to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary."

Section 4(a)(3) of the ESA requires that, to the extent practicable and determinable, critical habitat be designated concurrently with the listing of a species. Designation of critical habitat must be based on the best scientific data available, and must take into consideration the economic, national security, and other relevant impacts of specifying any particular area as critical habitat. Once critical habitat is designated, section 7 of the ESA requires Federal agencies to ensure that they do not fund, authorize, or carry out any actions that are likely to destroy or adversely modify that habitat. This requirement is in addition to the section 7 requirement that Federal agencies ensure their actions do not jeopardize the continued existence of the species.

In determining what areas qualify as critical habitat, 50 CFR 424.12(b) requires that NMFS "consider those physical or biological features that are essential to the conservation of a given species including space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitats that are protected from disturbance or are representative of the historical geographical and ecological distribution of a species." The regulations further direct NMFS to "focus on the principal biological or physical constituent elements . . . that are

essential to the conservation of the species," and specify that the "known primary constituent elements shall be listed with the critical habitat description." The regulations identify primary constituent elements (PCEs) as including, but not limited to: "roost sites, nesting grounds, spawning sites, feeding sites, seasonal wetland or dryland, water quality or quantity, host species or plant pollinator, geological formation, vegetation type, tide, and specific soil types."

The ESA directs the Secretary of Commerce to consider the economic impact, the national security impacts, and any other relevant impacts from designating critical habitat, and under section 4(b)(2), the Secretary may exclude any area from such designation if the benefits of exclusion outweigh those of inclusion, provided that the exclusion will not result in the extinction of the species. At this time, we lack the data and information necessary to identify and describe PCEs of the habitat of the Beringia DPS, as well as the economic consequences of designating critical habitat. In the proposed rule, we solicited information on the economic attributes within the range of the Beringia DPS that could be impacted by critical habitat designation, as well as the identification of the PCEs or "essential features" of this habitat and to what extent those features may require special management considerations or protection. However, few substantive comments were received in response to this request. We find designation of critical habitat for the Beringia DPS to be not determinable at this time. We will propose critical habitat for the Beringia DPS of the bearded seal in a separate rulemaking. Because the known distribution of the Okhotsk DPS of the bearded seal occurs in areas outside the jurisdiction of the United States, we will not propose critical habitat for the Okhotsk DPS.

Public Comments Solicited

To ensure that subsequent rulemaking resulting from this final rule will be as accurate and effective as possible, we are soliciting information from the public, other governmental agencies, Alaska Natives, the scientific community, industry, and any other interested parties. Specifically, we request comments and information to help us identify: (1) the PCEs or "essential features" of critical habitat for the Beringia DPS of bearded seals, and to what extent those features may require special management considerations or protection, as well as (2) the economic, national security, and other relevant attributes within the range of the Beringia DPS that could be impacted by critical habitat designation. Regulations at 50 CFR 424.12(h) specify that critical habitat shall not be designated within foreign countries or in other areas outside U.S. jurisdiction. Therefore, we request information only on potential areas of critical habitat within the United States or waters within U.S. jurisdiction. You may submit this information by any one of several methods (see ADDRESSES and DATES). Comments and information submitted during the initial comment period on the December 10, 2010 proposed rule (75 FR 77496) or during the comment period on the peer review report (77 FR 20774; April 6, 2012) should not be resubmitted since they are already part of the record.

Summary of Comments and Responses

With the publication of the proposed listing determination for the Beringia and Okhotsk DPSs on December 10, 2010 (75 FR 77496), we announced a 60-day public comment period that extended through February 8, 2011. We extended the comment period an additional 45 days in response to public requests (76 FR 6755; February 8, 2011). Also in response to public requests, including from the State of Alaska, we held

three public hearings in Alaska in Anchorage, Barrow, and Nome (76 FR 9734, February 22, 2011; 76 FR 14883, March 18, 2011).

During the public comment periods on the proposed rule we received a total of 5,298 comment submissions in the form of letters via mail, fax, and electronically through the Federal eRulemaking portal. These included 5,238 form letter submissions and 60 other unique submissions. In addition, at the three public hearings we received testimony from 41 people and received written submissions from 12 people. Comments were received from U.S. State and Federal Agencies including the Marine Mammal Commission and the Alaska Department of Fish and Game (ADFG); Canada's Department of Fisheries and Oceans (DFO); Native Organizations such as the Ice Seal Committee (ISC; Alaska Native co-management organization); environmental groups; industry groups; and interested individuals.

In accordance with our July 1, 1994, Interagency Cooperative Policy on Peer Review (59 FR 34270), we requested the expert opinion of four independent scientists with expertise in seal biology and/or Arctic sea ice and climate change regarding the pertinent scientific data and assumptions concerning the biological and ecological information use in the proposed rule. The purpose of the review was to ensure that the best biological and commercial information was used in the decision-making process, including input of appropriate experts and specialists. We received comments from three of these reviewers. There was significant disagreement among the peer reviewers regarding magnitude and immediacy of the threats posed to the Beringia DPS by the projected changes in sea ice habitat.

The differences of opinion amongst the peer reviewers, as well as uncertainty in

the best available information regarding the effects of climate change, led NMFS to take additional steps to ensure a sound basis for our final determination on whether to list the Beringia and Okhotsk DPSs under the ESA. To better inform our final listing determination and address the disagreement regarding the sufficiency or accuracy of the available data relevant to the determination, on December 13, 2011, we extended the deadline for the final listing decision by 6 months to June 10, 2012 (76 FR 77465). Subsequently, we conducted special independent peer review of the sections of the bearded seal status review report (Cameron et al., 2010) related to the disagreement. For this special peer review, we recruited three scientists with marine mammal expertise and specific knowledge of bearded seals to review these sections of the status review report and provide responses to specific review questions. We received comments from two of the marine mammal specialists. We consolidated the comments received in a peer review report that was made available for comment during a 30-day comment period that opened April 6, 2012 (77 FR 20774). During this public comment period on the special peer review we received an additional 14 comment submissions via fax and electronically through the Federal eRulemaking portal.

We fully considered all comments received from the public and peer reviewers on the proposed rule in developing this final listing of the Beringia and Okhotsk DPSs of the bearded seal. Summaries of the substantive public and peer review comments that we received concerning our proposed listing determination for these DPSs, and our responses to all of the significant issues they raise, are provided below. Comments of a similar nature were grouped together where appropriate.

Some peer reviewers provided feedback of an editorial nature that noted

inadvertent minor errors in the proposed rule and offered non-substantive but clarifying changes to wording. We have addressed these editorial comments in this final rule as appropriate. Because these comments did not result in substantive changes to the final rule, we have not detailed them here. In addition to the specific comments detailed below relating to the proposed listing rule, we also received comments expressing general support for or opposition to the proposed rule and comments conveying peer-reviewed journal articles, technical reports, and references to scientific literature regarding threats to the species and its habitat. Unless otherwise noted in our responses below, after thorough review, we concluded that the additional information received was considered previously or did not alter our determinations regarding the status of the Beringia and Okhotsk DPSs. We also received comments addressing our final decision regarding E. b. barbatus (the Atlantic subspecies of bearded seals). Because we previously determined that a status review was not warranted for E. b. barbatus (75 FR 77496; December 10, 2010) and this rulemaking concerns listing of the Beringia and Okhotsk DPSs, we have not provided specific responses to those comments here.

Peer Review Comments

Comment 1: A peer reviewer expressed the opinion that there is compelling evidence of additional discrete populations within the Beringia DPS. This reviewer noted that Davis et al. (2008) reported significant genetic differentiation between bearded seals in the Bering and Beaufort seas, and that Risch et al. (2007) found differences in bearded seal vocalizations between the Barrow and the Canadian Beaufort regions.

Response: The reviewer's assertion that there are additional discrete populations within the Beringia DPS stemmed in part from a misunderstanding about the sampling

locations for the Davis et al. (2008) study. That study used samples referred to as "Beaufort Sea" bearded seals, though they were obtained from the Amundsen Gulf, which is east of the Beaufort Sea in the Canadian Arctic. Even if one considers the Amundsen Gulf to be part of the Beaufort Sea, there were no other Beaufort Sea samples, so the vast majority of the Beaufort Sea was not represented. In fact, the samples came from the region that is thought to be transitional between the two subspecies of bearded seals and where the boundary was identified in the proposed rule between the Beringia DPS and the E. b. barbatus subspecies.

The vocalizations studied by Risch et al. (2007) in the Canadian Beaufort region also came from the zone of transition between the two subspecies. The differences in vocalizations cited by the reviewer, between the Barrow region and the Canadian Beaufort region, are insufficient evidence on their own for population discreteness. It is unknown whether vocal differences in bearded seals reflect breeding population structure, or simply local variations in calls that are learned and used by breeding individuals. In the latter case, if bearded seals commonly disperse from natal sites to different sites for breeding, the vocal differences would not reflect breeding population structure (Risch et al., 2007).

In the status review report, the BRT considered a zone in the western Canadian Arctic where skull morphology was intermediate between the two recognized subspecies, vocalizations were more similar to those of E. b. nauticus than to those of E. b. barbatus, and the genetics were more similar to E. b. barbatus than to E. b. nauticus. Recognizing the likelihood that no truly distinct boundary occurs in the distribution of the two bearded seal subspecies, and also the great uncertainty about where the best location for a

boundary should be, the BRT selected the midpoint between the Beaufort Sea and Pelly Bay (112^{o} W. longitude), which was the region encompassed by the intermediate samples in the skull morphology study, as the North American delineation between the two subspecies, and thus also between the Beringia DPS and E. b. barbatus. We concurred with this delineation in the proposed rule.

Based on the reviewer's comment above, and further consideration of the genetic results of Davis et al. (2008), we now conclude a stronger argument can be made for placing the boundary between the two subspecies at 130^{o} W. long., rather than at 112^{o} W. long. The study by Davis et al. (2008) used two different approaches to detect genetic variation. A pairwise comparison of bearded seal samples from around the Arctic found differentiation between all sample locations, including the Bering Sea and the Amundsen Gulf (the eastern extent of the Beaufort Sea, which was included in our proposed Beringia DPS); the second approach, with a commonly used population-genetic analysis called STRUCTURE, found only two groups, with the Bering Sea (St. Lawrence Island and Gulf of Anadyr) samples clustering separately from the remainder (Amundsen Gulf, Labrador Sea, Greenland, and Svalbard). One of the 16 Amundsen Gulf samples was strongly assigned to the Bering Sea cluster, and the inferred ancestry of the Amundsen Gulf samples was 21 percent from the Bering Sea cluster indicating substantial current or historical gene flow between the Bering Sea and the Amundsen Gulf (and presumably the Beaufort Sea, which lies between), and again confirming that the Amundsen Gulf is a transitional region.

A line at 130^{o} W. long. divides the two clusters found by Davis et al. (2008) in the STRUCTURE analysis and is consistent with that study's pairwise differences between

the Bering Sea and Amundsen Gulf samples. This line also falls within the zone found to be transitional in skull morphology, and it recognizes the vocalization differences found between Barrow and the western Canadian Arctic (7 of 8 recording locations east of 130° W. long.). Finally, this line corresponds closely to the margin of the continental shelf that runs north along the Arctic Basin at the western edge of the Canadian Arctic.

Moving the eastern boundary of the Beringia DPS from 112° W. long. to 130° W. long. would have little or no impact on risk and threat scores and no impact on ESA listing status. The estimates of bearded seal abundance in the vicinity of these alternative boundaries are too low to significantly alter the overall abundance estimate of either the Beringia DPS or the E. b. barbatus subspecies by including them in one or the other group. The average bearded seal numbers estimated by Stirling et al. (1982) in the Amundsen Gulf, which was originally included in the Beringia DPS but is now considered part of the E. b. barbatus subspecies after moving the eastern boundary, was 1,015 individuals. Compared with the overall population estimates of 155,000 for the Beringia DPS and 188,000 for E. b. barbatus, this number is small and well within the imprecision associated with the estimates. Therefore, we have concluded that the best information currently available supports an eastern boundary line for the Beringia DPS at 130° W. long and we have revised this final rule accordingly.

Comment 2: A peer reviewer expressed the view that there are conservation concerns associated with the failure to recognize a DPS in the Bering Sea and noted that the Bering Sea is at the southern edge of the distribution of bearded seals where there is greater risk of losing ice during the spring pupping season than in the Beaufort and Chukchi seas. This reviewer also suggested that certain other threats are also likely to

affect this region more; for example, increased shipping and fishing are expected in the Bering Sea.

Response: Under our DPS Policy, we determine whether any species division is discrete and significant before evaluating whether any such potential DPSs qualify as threatened or endangered. In the case of the Bering Sea, there is no compelling evidence that the bearded seals there are distinct from the bearded seals of the Chukchi and Beaufort seas, and indeed large numbers of the bearded seals found seasonally in the Chukchi and Beaufort seas are associated with breeding areas in the Bering Sea. Species often are more vulnerable to threats at the extremes of the range, but the ESA status must be based on the species, subspecies, or DPS as a whole, with due regard for whether any vulnerable extremities of the range constitute a significant portion of the overall range.

Although increases in shipping and commercial fishing pose potential threats to bearded seals, it is not clear that those threats will be greater in the Bering Sea than in the Beaufort and Chukchi seas. Future conditions in which a reduced ice regime allows for more shipping and fishing will likely also result in very different distributions of bearded seal prey communities and seasonal congregations that might be vulnerable to oil spills from shipping accidents. The BRT considered the likelihood that these risks would increase in the future, but projecting the specific geographic distributions of these risks within the Beringia DPS is presently not feasible.

Comment 3: A peer reviewer commented that the identified components of uncertainty with the model projections of changes in sea ice cover were not particularly well explained. This reviewer expressed the opinion that additional detail could be provided regarding the relative size of the uncertainty components and how maximum

and minimum concentrations were defined when considering projections from several models, averaged over 11-year periods, with presumably a range of starting conditions, and under at least two different emissions scenarios. In contrast, another peer reviewer expressed the opinion that the uncertainties associated with the model projections were well identified and characterized.

Response: As we discussed in the status review report and in the preamble to the proposed rule, there are three main sources of uncertainty in climate predictions: large natural variability, the range in emissions scenarios, and across-model differences (i.e., differences between models in physical parameterizations and resolution). For the 21st century projections considered in our analysis, beyond about 2050, the dominant source of uncertainty is the choice of emissions scenario. Because the current consensus is to treat all six "marker" scenarios from the Special Report on Emissions Scenarios (SRES; IPCC, 2000) as equally likely, one option for representing the full range of variability in potential outcomes would be to project from any model under all six scenarios. This approach is impractical in many situations, so the typical procedure is to use an intermediate scenario to predict trends, or one intermediate and one extreme scenario to represent a significant range of variability. In our analysis, model outputs under both the A1B ("medium") and A2 ("high") emissions scenarios were included in projecting the seasonal cycle of sea ice extent at a regional level. By including output under both scenarios, the number of ensemble members was doubled and represented much of the range of variability contained in the SRES scenarios. The projected distributions of sea ice were mapped using model output under the A1B emissions scenario from the six CMIP3 models that met the performance criteria for projecting sea ice, and the ice

concentrations were averaged over 11-year periods to minimize the influence of year-to-year variability.

Hawkins and Sutton (2009) discussed that for time horizons of many decades or longer and at regional or larger scales, the other dominant source of uncertainty is across-model differences. As was noted in the status review report, for the bearded seal analysis, these across-model differences were addressed, and mitigated in part, by using ensemble means from multiple models. To reduce the impacts of models that performed poorly, criteria were applied to cull models with large errors in reproducing the magnitude of the observed seasonal cycle of sea ice extent. The uncertainty due to differences among the models was also explored by mapping for each 11-year period the projected ice distribution for the model with the least and greatest ice extent, along with the distribution of average ice concentrations as noted above.

Comment 4 : A peer reviewer expressed the opinion that use of temperatures as a proxy for projecting sea ice conditions in the Sea of Okhotsk appears problematic given that: (1) the climate models did not perform satisfactorily at projecting sea ice, and sea ice extent is strongly controlled by temperature; and (2) temperature itself is strongly controlled by sea ice conditions.

Response: The decision to use temperature as an indicator for the presence of ice is a geographic size issue. While the climate models' grid size is too coarse to develop full sea ice physics for the Sea of Okhotsk, these models are able to resolve temperature, which is mostly controlled by large-scale weather patterns on the order of 500 km or more. As the reviewer notes, sea ice extent is strongly controlled by temperature; this is especially true for smaller bodies of water relative to the grid size of available models.

Thus, whether the whole geographic region around the Sea of Okhotsk is above or below the freezing point of sea water should be a reasonable indicator of the presence or absence of sea ice.

Comment 5: A peer reviewer and several public comments pointed out that assessing impacts to bearded seals from climate change through the end of this century is inconsistent with: (1) other recent ESA determinations for Arctic species, such as ribbon seal and polar bear, that considered species responses through mid-century; and (2) IUCN red list process, which uses a timeframe of three generation lengths. Related public comments, including from the State of Alaska, noted that NMFS's recent ESA listing determination for the ribbon seal and a subsequent court decision concluded that projections of climate scenarios beyond 2050 are too heavily dependent on socioeconomic assumptions and are therefore too divergent for reliable use in assessing threats to the species. A reviewer and some commenters expressed the opinion that trying to predict the responses of bearded seals to environmental changes beyond mid-century increases the uncertainty unreasonably. A few commenters suggested that the altered approach is significant because the listing determination is wholly dependent upon NMFS's use of a 100-year foreseeable future. Several commenters expressed the opinion that inadequate justification was provided for NMFS's use of a 100-year foreseeable future. Many of these commenters suggested that the best scientific data support a "foreseeable future" time frame of no more than 50 years, and some commenters such as the State of Alaska suggested a shorter time horizon of no more than 20 years. In contrast, another peer reviewer and some commenters expressed support for use of climate model projections through the end of the 21st century.

Response: The ESA requires us to make a decision as to whether the species under consideration is in danger of extinction throughout all or a significant portion of its range (endangered), or is likely to become endangered within the foreseeable future throughout all or a significant portion of its range (threatened) based on the best scientific and commercial data available. While we may consider the assessment processes of other scientists (i.e., IUCN), we must make a determination as to whether a species meets the definition of threatened or endangered based upon an assessment of the threats according to section 4 of the ESA. We have done so in this rule, using a threat-specific approach to the "foreseeable future" as discussed below and in the proposed listing rule.

In the December 30, 2008, ribbon seal listing decision (73 FR 79822) the horizon of the foreseeable future was determined to be the year 2050. The reasons for limiting the review to 2050 included the difficulty in incorporating the increased divergence and uncertainty in future emissions scenarios beyond this time, as well as the lack of data for threats other than those related to climate change beyond 2050, and that the uncertainty inherent in assessing ribbon seal responses to threats increased as the analysis extended farther into the future. By contrast, in our more recent analyses for spotted, ringed, and bearded seals, we did not identify a single specific time as the foreseeable future. Rather, we addressed the foreseeable future based on the available data for each respective threat. This approach better reflects real conditions in that some threats (e.g., disease outbreaks) appear more randomly through time and are therefore difficult to predict, whereas other threats (climate change) evince documented trends supported by paleoclimatic data from which reasonably accurate predictions can be made farther into the future. Thus, the time period covered for what is reasonably foreseeable for one threat may not be the same for

another. The approach is also consistent with the memorandum issued by the Department of the Interior, Office of the Solicitor, regarding the meaning of foreseeable future (Opinion M-37021; January 16, 2009). In consideration of this modified threat-specific approach, NMFS initiated a new status review of the ribbon seal on December 13, 2011 (76 FR 77467).

As discussed in the proposed listing rule, the analysis and synthesis of information presented in the IPCC's AR4 represents the scientific consensus view on the causes and future of climate change. The IPCC's AR4 used state-of-the-art atmosphere-ocean general circulation models (AOGCMs) under six "marker" scenarios from the SRES (IPCC, 2000) to develop climate projections under clearly stated assumptions about socioeconomic factors that could influence the emissions. Conditional on each scenario, the best estimate and likely range of emissions were projected through the end of the 21st century. In our review of the status of the bearded seal, we considered model projections of sea ice developed using the A1B scenario, a medium "business-as-usual" emissions scenario, as well the A2 scenario, a high emissions scenario, to represent a significant range of variability in future emissions.

We also note that the SRES scenarios do not assume implementation of additional climate initiatives beyond current mitigation policies. This is consistent with consideration of "existing" regulatory mechanisms in our analysis under ESA listing Factor D. It is also consistent with our Policy on Evaluating Conservation Efforts (68 FR 15100; March 28, 2003), which requires that in making listing decisions we consider only formalized conservation efforts that are sufficiently certain to be implemented and effective.

The model projections of global warming (defined as the expected global change in surface air temperature) out to about 2040-2050 are primarily due to emissions that have already occurred and those that will occur over the next decade. Thus conditions projected to mid-century are less sensitive to assumed future emissions scenarios. For the second half of the 21st century, however, the choice of an emissions scenario becomes the major source of variation among climate projections. As noted above, in our 2008 listing decision for ribbon seal, the foreseeable future was determined to be the year 2050. The identification of mid-century as the foreseeable future took into consideration the approach taken by the FWS in conducting its status review of the polar bear under the ESA, and the IPCC assertion that GHG levels are expected to increase in a manner that is largely independent of assumed emissions scenarios until about the middle of the 21st century, after which the emissions scenarios become increasingly influential.

Subsequently, in the listing analyses for spotted, ringed, and bearded seals, we noted that although projections of GHGs become increasingly uncertain and subject to assumed emissions scenarios in the latter half of the 21st century, projections of air temperatures consistently indicate that warming will continue throughout the century. Although the magnitude of the warming depends somewhat on the assumed emissions scenario, the trend is clear and unidirectional. To the extent that the IPCC model suite represents a consensus view, there is relatively little uncertainty that warming will continue. Because sea ice production and persistence is related to air temperature through well-known physical processes, the expectation is also that loss of sea ice and reduced snow cover will continue throughout the 21st century. Thus, the more recent inclusion of projections out to the year 2100 reflects NMFS's intention to use the best

and most current data and analytical approaches available. AOGCM projections consistently show continued reductions in ice extent and multi-year ice (ice that has survived at least one summer melt season) throughout the 21st century (e.g., Holland et al., 2006; Zhang and Walsh, 2006; Overland and Wang, 2007), albeit with a spread among the models in the projected reductions. In addition, as discussed by Douglas (2010), the observed rate of Arctic sea ice loss has been reported as greater than the collective projections of most IPCC-recognized AOGCMs (e.g., Stroeve et al., 2007; Wang and Overland, 2009), suggesting that the projections of sea ice declines within this century may in fact be conservative.

We concluded that in this review of the status of the bearded seal, the climate projections in the IPCC's AR4, as well as the scientific papers used in this report or resulting from this report, represent the best scientific and commercial data available to inform our assessment of the potential impacts from climate change. In our risk assessment for bearded seals, we therefore considered the full 21st century projections to analyze the threats stemming from climate change. We continue to recognize that the farther into the future the analysis extends, the greater the inherent uncertainty, and we incorporated that consideration into our assessments of the threats and the species' responses to the threats.

Comment 6: A peer reviewer noted that the cut-off criteria used to define areas of projected sea ice concentrations suitable for whelping, nursing, and molting were reasonable. Another reviewer commented that the criteria probably provide an adequate basis for estimating changes in the amount of available bearded seal habitat, but noted that the question of whether a more complex definition of suitable habitat could be

supported by the available data was not fully explored in the status review report. Both of these reviewers noted that the relationship between sea ice characteristics and bearded seal habitat selection is likely more complex than the simple sea ice concentration and bathymetry criteria considered in the proposed rule.

A related public comment suggested that NMFS should re-evaluate the sea ice concentration criteria (i.e. the sea ice concentrations identified as sufficient for bearded seal whelping, nursing, rearing, and molting) to determine whether these thresholds are protective enough because they do not take into account the lower probability of occurrence of bearded seals at medium-low ice concentrations, and thus may have over-estimated the seals' ability to use marginal sea ice habitat. Another commenter suggested that NMFS should use an empirical static modeling approach (Guisan and Zimmerman, 2000) to defensibly derive habitat parameters and use traditional ecological knowledge (TEK) to provide presence/absence data for model fitting and evaluation.

Response: We acknowledge that the prediction and projection of bearded seal habitat based solely on water depth and a range of preferred sea ice concentration is based upon incomplete information and incorporates assumptions. We are not aware of additional data that would support alternative, more complex, and possibly more realistic habitat descriptions, and the reviewers and commenters did not identify additional data sets that should be considered in this context. Without such additional data, the suggestion to create a more formal empirical static model for bearded seal habitat is not presently feasible (though we did use a form of this approach in deriving the preferred ice concentrations from surveys in a portion of the Bering Sea). We agree that TEK can be a good source of information about bearded seal habitat requirements. However,

incorporating information obtained by traditional ways of observing bearded seals into statistical models of habitat would require additional, dedicated studies that are beyond the scope of ESA listing determinations, which must be made within the time limits required by section 4(b) of the ESA and the regulations implementing the ESA at 50 CFR 424.17, using the best scientific and commercial data that are currently available.

Comment 7: A peer reviewer questioned whether the 500 m depth limit used to define the core distribution (e.g., whelping, breeding, molting, and most feeding) of bearded seals is too deep, and suggested that an analysis of how sensitive the conclusions might be to the choice of depth limit would be appropriate. A commenter agreed, noting that the literature review for the petition to list bearded seals and the status review report found that bearded seals prefer depths less than 200 m.

Response: Our literature review found that although bearded seals seem to prefer depths less than 200 m, the species occurs in waters deeper than 500 m, and dives to depths of 300-500 m have been recorded for a substantial portion of the bearded seals that have been studied with satellite-linked dive recorders. Because the 200 m and 500 m depth contours tend to be very close to each other around the continental slope margins of the Beringia DPS, the area defined by a boundary of 200 m is only 2 percent smaller than that defined by a 500 m boundary. Therefore, the conclusions about risk from habitat loss for that DPS would not be sensitive to the choice of depth limit. In the Sea of Okhotsk and the range of E. b. barbatus, the differences in area encompassed by the 200 m and 500 m depth boundaries are greater (27 percent and 36 percent, respectively). Even for these populations units, however, the conclusions about risk from habitat loss are not expected to be particularly sensitive to the choice of depth limit because both

present and future habitat areas were computed as the areas where water depth and ice concentration are suitable. If we have overestimated the current areas of available habitat by selecting 500 m as the depth limit, the projected future areas of available habitat would also be overestimated, but the predicted change, driven by loss of sea ice extent, would be similar under either depth limit choice.

Comment 8: A peer reviewer expressed the opinion that while it is reasonable to ask the question of whether there will be habitat gains with projected changes in sea ice cover, the more important question is what types and quantities of food would be available in those areas gained. This reviewer noted that in most cases, what are projected for the Beringia DPS are not habitat gains, but rather possible earlier seasonal access to areas that are currently used somewhat later; and comparing areas of gains and losses is only informative if there is some way to scale their relative values. In addition, he pointed out that the habitat projected to be lost in the Bering Sea during spring is a region that is among the most productive for bearded seal prey species; while in contrast, areas of projected gains in the Beaufort Sea and along the shelf break of the Arctic basin are not known to be highly productive. This reviewer commented that it therefore appears that the Beringia DPS will lose highly productive habitat in southern regions, and probably gain access earlier in the spring to low productivity areas.

Two related comments expressed the opinion that the reviewer's suggestion that bearded seals will "lose highly productive habitat in southern regions, and probably gain access earlier in the spring to low productivity areas" (p. 8; NMFS, 2012) did not consider that the projected climate change effects will also affect ocean productivity such that some areas of low productivity will be highly productive in the foreseeable future

(and vice versa). These commenters also expressed the view that the proposed rule did not adequately evaluate how the productivity of the ocean environment could be expected to change in response to the different projected climate scenarios, and instead focused primarily on projected changes in sea ice cover. A few other related comments more generally suggested that some habitat changes caused by projected changes in climatic conditions, such as increased open water foraging areas, may be beneficial to bearded seals.

Finally, a commenter expressed the opinion that the supplementary habitat analysis provided to the special peer reviewers indicates that in assessing the projections of future sea ice extent and distribution and potential impacts to bearded seals, NMFS arbitrarily adopted a precautionary approach that assumed the worst possible future habitat conditions without taking into account any future potential habitat gains.

Response: The range of opinions and lack of consensus among these reviewers and commenters is understandable given the incomplete scientific understanding of bearded seal habitat requirements and the difficulty in projecting future habitat conditions. There is a near universal consensus in the scientific community that the Arctic climate will continue to warm and that sea ice will decline in extent and thickness as a result. The magnitude of these changes is subject to debate, but the general direction of the trend is widely accepted and is based on well-known physical principles of radiative forcing by GHGs. There is little or no similar consensus about the biological responses that are most likely to follow the physical habitat changes. There is broad recognition that changes in sea ice and acidification of ocean waters will cause changes in biological communities, but the nature, direction, and magnitude of changes in these

highly complex systems are highly uncertain. An additional element of uncertainty is the unknown resilience of bearded seals to whatever changes may occur.

We are unaware of documented examples of bearded seals or other closely related species occupying new habitat in response to major and rapid environmental shifts, as there are no known recent-history analogs to the climate warming presently underway. While it is clear that the predicted reductions in sea ice during the remainder of this century will entail major changes in areas that are known to be important bearded seal habitat presently, it is much less certain that regions previously covered by very dense ice during the bearded seal's whelping and nursing periods will become more suitable habitat as ice thins and declines. In particular, we are not aware of any reliable basis for concluding that presently low productivity benthic habitats would become populated with suitable prey for bearded seals that move to more northerly areas. We did not receive any new information as part of the additional peer review and public comment period to indicate that our prior analysis of habitat losses anticipated in the foreseeable future was overstated.

Comment 9: A peer reviewer and several commenters, including Canada's DFO, suggested that the potential for bearded seals to modify their behavior in response to climate change is underestimated, and a few commenters noted that this appears to contradict NMFS's emphasis in its recent ESA listing determinations for ribbon and spotted seals on the ability of ice seals to adapt to declines in sea ice. The peer reviewer noted, for example, that bearded seals are known to: (1) feed on pelagic fish species, indicating flexibility in their diet that could allow them to adapt to feeding in deeper water; and (2) use terrestrial haul-out sites in some areas when ice is unavailable in the

vicinity of their shallow water feeding habitat. A few commenters also noted that bearded seals have a diverse diet, switch from pack ice to open water in response to changing sea ice conditions to maintain access to preferred food resources, and display a wide range of habitat tolerances given their wide circumpolar distribution. Another peer reviewer commented that it is poorly known how a species with a generation time of about 11 years would adapt to the large redistribution of available habitat predicted for the Beringia DPS, noting that it would do so only under a drastically altered distribution and migratory scheme.

Response: The status review report presented evidence for resilience of bearded seals in responding to changes in paleoclimatic history (p. 190-192; Cameron et al., 2010). Two main factors argue for a conservative approach to drawing inferences about whether bearded seals will be able to adapt to the changes anticipated through the remainder of this century. First, the paleoclimatic history has relatively poor resolution for determining how rapid past warming events have been and then comparing those rates with the rate of the present warming event. Although a few past warming events have apparently been rapid, there is insufficient resolution to judge whether that has typically been the case. If large warming events of the past have typically occurred over centuries rather than decades, the fact that bearded seals exist as a species today does not necessarily reflect their capacity to adapt to a more rapid change such as the present warming. The other reviewer's comment about the generation time of the species reflects this concern as well. Individual bearded seals are likely to be faithful to their breeding sites; shifts in breeding range are therefore more likely to occur by successive generations of new breeders establishing their breeding sites farther north in response to reduced ice

extent, rather than by individuals making shifts within their lifetimes. If the warming and loss occurs too rapidly relative to the generation time, adaptation is unlikely to occur. Second, unlike past (pre-historic) warming events, the present warming is accompanied by other significant human-caused environmental changes that may pose additive threats, such as ocean acidification, increased shipping, and chemical pollutants.

The present-day traits of bearded seals such as a diverse diet and occasional use of terrestrial haul-out sites must be interpreted carefully in evaluating their implications for resilience. While the diet is taxonomically diverse, the vast majority of bearded seal foraging seems to be on or near the bottom. They have adaptations, such as their prominent mystacial vibrissae (whiskers) and a mouth structure for capturing prey by suction, that indicate a relatively specialized mode of feeding. This contrasts with ribbon and spotted seals, which forage substantially in the mid-water as well as at the bottom, and which are adapted to a more generalized mode of seizing prey in their sharp teeth.

Despite the use of haul-out sites on shore in the Sea of Okhotsk and occasionally in other areas, these sites have not been documented for whelping and nursing. The general phocid seal ("earless" or "true" seal) trait of having young that are vulnerable to carnivore predators has not proven to be adaptable throughout evolutionary history. The group likely evolved in sea ice as a strategy of predator avoidance and the only present-day exceptions to the ice-breeding strategy occur in places where reproductive sites on shore are devoid of or substantially protected from predators. Such sites are uncommon within the range of bearded seals and therefore it is unlikely that they could successfully make a switch to land-based reproduction. Therefore, the regional or occasional use of haul-out sites on land, primarily during summer and autumn months, does not imply that

bearded seals have much potential for switching to a strategy of breeding on shore in the absence of suitable sea ice.

Comment 10: A peer reviewer expressed the opinion that the concern about future accessibility of shallow water feeding habitat for bearded seal whelping and nursing is not reasonable. This reviewer noted that the central and northern Bering Sea and all of the Chukchi Sea are shallow water feeding habitat for bearded seal females with pups, and suggested that the ice edge would have to be north of Barrow by May for this concern to be founded.

Response: The sea ice projections indicate that both the ice concentrations and overlap between sea ice and shallow waters (less than 500 m deep) in May will be significantly reduced by 2090, especially in the Okhotsk and Bering seas in "average" sea ice years, and additionally in the eastern Chukchi and central Beaufort in "minimal" sea-ice years. This could lead to increased competition and decreased carrying capacity for bearded seal populations in those areas.

Comment 11: A peer reviewer commented that the threat posed by polar bear predation should be qualified. This reviewer stated that the degree to which predation by polar bears may increase in the future is not determinable, and that bearded seals may also become less accessible to polar bears as seasonal sea ice decreases. A related comment also noted that it is expected that polar bear populations will decline, which could reduce predator effects on bearded seals.

Response: The BRT's speculation about future scenarios of polar bear predation (p. 140; Cameron et al., 2010) included qualifications and considerations similar to those expressed by this reviewer and commenter. The threat scoring by the BRT did not assign

high levels of threat or certainty about polar bear predation, and thus this risk factor was not a significant contributor to the overall assessment of risks facing the Beringia DPS.

Comment 12: A peer reviewer commented that new information regarding the health and status of bearded seals in Alaska that became available after the proposed rule was published (i.e., Quakenbush et al., 2011) should be considered. This reviewer expressed the opinion that these data indicate current ice conditions are not affecting vital rate parameters of the Beringia DPS in the Bering and Chukchi seas. The State of Alaska submitted a summary of this information with its comments on the proposed rule, and also subsequently submitted a full copy of Quakenbush et al. (2011), commenting that these data indicate bearded seals are currently healthy.

Response: We have taken Quakenbush et al.'s (2011) data (available at http://alaskafisheries.noaa.gov/protectedresources/seals/ice.htm) into consideration in reaching our final listing determination, and these data will be useful in future status reviews. We note, however, that healthy individual animals are not inconsistent with a population facing threats that would cause it to become in danger of extinction in the foreseeable future. For example, animals sampled from the endangered Western DPS of Steller sea lions have consistently been found to be healthy. In the case of the Beringia DPS, substantial losses associated with reductions in the extent and timing of sea ice cover could not be detected by assessing the health of survivors. In fact, survivors might be expected to fare well for a period of time as a consequence of reduced competition.

Comment 13: A peer reviewer found the assessment of subsistence harvest in the proposed rule reasonable, noting that harvest appears to be substantial in some areas of the Arctic, but appears to remain sustainable. This reviewer commented that the ISC has

been developing a harvest monitoring program with personnel assistance from the State of Alaska. The Marine Mammal Commission also commented that it does not believe that the subsistence harvest of bearded seals in U.S. waters constitutes a significant risk factor for the Beringia DPS, and several other commenters expressed similar views regarding subsistence harvest in U.S. waters as well as elsewhere. In contrast, another commenter expressed concern that the impact of Native subsistence hunting on bearded seals is substantially underestimated. The commenter expressed the view that NMFS needs to obtain reliable estimates of subsistence harvest of bearded seals such that their conservation status can be more closely monitored, in particular considering climate change is expected to have impacts on bearded seals and those could be exacerbated by other factors such as harvest. This commenter also suggested that additional resources should be devoted to obtaining these estimates of subsistence harvest, and suggested that NMFS institute a harvest monitoring system rather than rely on self-reporting.

A number of commenters, including the ISC, emphasized that ice seals have been a vital subsistence species for indigenous people in the Arctic and remain a fundamental resource for many northern coastal communities. Some commenters, including the ISC, requested that NMFS identify what additional measures would be required before the subsistence hunt could be affected by Federal management of bearded seals and under what conditions the agency would consider taking those additional measures, and this information should be provided to residents of all potentially affected communities.

Response: We recognize the importance of bearded seals to Alaska Native coastal communities. Section 101(b) of the Marine Mammal Protection Act (MMPA) provides an exemption that allows Alaska Natives to take bearded seals for subsistence purposes

as long as the take is not accomplished in a wasteful manner. Section (10)(e) of the ESA also provides an exemption from its prohibitions on the taking of endangered or threatened species by Alaska Natives for subsistence purposes, provided that such taking is not accomplished in a wasteful manner. Although the number of bearded seals harvested annually by Alaska Natives is not precisely known or comprehensively monitored, ongoing hunter surveys in several communities give no indication that the harvest numbers are excessive or have a significant impact on the dynamics of the populations (Quakenbush et al., 2011). The numbers of seals harvested have likely declined substantially in recent decades because the need for food to supply sled-dog teams has diminished as snowmobiles have been adopted as the primary means of winter transport. The proportion of Alaska Natives that make substantial use of marine mammals for subsistence may also have declined, due to increased availability and use of non-traditional foods in coastal communities. However, there may also be a counterbalancing increase in awareness of health benefits of traditional foods compared with non-traditional alternatives. Under the MMPA the Alaska stock of bearded seals will be considered "depleted" on the effective date of this listing. In the future, if NMFS expressly concludes that the harvest of bearded seals by Alaska Natives is materially and negatively affecting the species, NMFS may regulate such harvests pursuant to sections 101(b) and 103(d) of the MMPA. NMFS would have to hold an administrative hearing on the record for such proposed regulations. Currently, based on the best available data, the subsistence harvest of bearded seals by Alaska Natives appears sustainable. If the current situation changes, NMFS will work under co-management with the ISC (under section 119 of the MMPA) to find the best approach to ensure that sustainable

subsistence harvest of these seals by Alaska Natives can continue into the future. NMFS is also continuing to work with the ISC to develop and expand collaborative harvest monitoring methods.

Comment 14: A peer reviewer commented that it is suggested that climate change will likely alter patterns of subsistence harvest of marine mammals by hunting communities. However, this reviewer noted that hunter questionnaire data from five Alaska villages (Quakenbush et al., 2011) did not indicate decreases in bearded seal availability at any location.

Response: The alterations to subsistence harvest patterns by climate change suggested in the proposed rule are likely to occur at some unspecified time in the future, when changes to ice cover are predicted to be more pronounced that they are at present. The hunter questionnaire data relate to recent, not future, bearded seal availability.

Comment 15: A peer reviewer commented that no information from the subsistence community or the ISC is considered in the status review report. This reviewer noted that subsistence hunters know a great deal about the biology, ecology, behavior, and movement of bearded seals, and keep a close watch for changes in the seals relative to environmental change. Several related public comments, including from the ISC, expressed the opinion that NMFS has not made adequate use of TEK of Alaska Natives related to ice seals in the listing process. The ISC also suggested that NMFS should conduct a TEK study related to ice seals. In addition, another commenter suggested that NMFS should further investigate the adaptive capacity of bearded seals by seeking the observations of Native communities, especially those that live in the southern part of the range of the Beringia DPS.

Response: The contribution of TEK to the overall understanding of ice-associated seal species is greater than commonly acknowledged, and to the extent that such information is available, we have considered it in this final rule. Following publication of the proposed listing determination, we notified the ISC of the proposal and requested comments on the proposed rule. NMFS held three public meetings in Anchorage, Barrow, and Nome, Alaska, and outlying communities in the North Slope Borough and Kotzebue accessed the Barrow hearing via teleconferencing. We also contacted potentially affected tribes by mail and offered them the opportunity to consult on the proposed action and discuss any concerns they may have. We fully considered all of the comments received from Alaska Native organizations and individuals with TEK, transmitted either in written form or orally during public hearings, in developing this final rule.

We recognize that much of our basic understanding of the natural history of ice-associated seals stems from information imparted by indigenous Arctic hunters and observers to the authors who first documented the biology of the species in the scientific literature. NMFS recognizes that Alaska Native subsistence hunting communities hold much more information that is potentially relevant and useful for assessing the conservation status of ice seals. Productive exchanges of TEK and scientific knowledge between the agency and Alaska Native communities can take many forms. Collaborative research projects, for example, provide opportunities for scientists and hunters to bring together the most effective ideas and techniques from both approaches to gather new information and resolve conservation issues. NMFS supports efforts to expand reciprocal knowledge-sharing, which can be facilitated through our co-management agreements.

These efforts require time to build networks of relationships with community members, and the ESA does not allow us to defer a listing decision in order to collect additional information.

Comment 16: A peer reviewer commented that there were only two time scales considered by the BRT in the status review report in analyzing demographic risks: "imminent" risk (i.e., the present), and risk in the foreseeable future. Consequently, this reviewer suggested that in the ESA listing determination an endangered time scale is equated with the extremely short time frame of present-day, which is not consistent with the term "in danger of extinction." This reviewer expressed the view that this also contrasts with the more precautionary 30-year and 75-year endangered time frames used in other recent ESA assessments for black abalone and the Hawaiian false killer whale DPS, respectively.

Response: The reviewer incorrectly equated the BRT's assessment of "imminent risk" with a time frame of zero years to reach an extinction threshold. The BRT members' assessment of the severity of the demographic risks posed to the persistence of each of the bearded seal DPSs was formalized using a numerical scoring system. Each BRT member assigned a severity score to questions that, in general, asked, "Are the conditions at present such that the species is already or soon to be on a path toward demise, from which it would not likely deviate unless appropriate protective measures were undertaken?" Implicit in this question is the possibility that it may take some time, perhaps years or generations, to go from present conditions to demise. Although the BRT did not specify a time frame (this was left to individuals to consider implicitly in their scoring), it is incorrect to assert that the procedure was less precautionary than other

examples in which the time frame was made explicit. A qualitative assessment of "imminent risk" is not the same as setting a zero time to extinction threshold in a quantitative assessment.

The black abalone and false killer whale examples cited were both cases in which there was a relatively well-documented (i.e., quantified) decline of the species. In such cases it is useful and practical to define an extinction threshold, which may include a time frame as well as an abundance threshold. Models can then be constructed to assess probabilities of reaching the extinction threshold abundance within the specified time frame. Defining an extinction threshold for bearded seals and attempting to assess the probability of reaching such a threshold within a specified time frame is not possible using existing data because of the lack of quantitative information about the current status and about the sensitivity of vital rates to projected environmental conditions.

Comment 17: A peer reviewer commented that although in general the needed expertise was brought to bear on the general biology of bearded seals and the most serious threats facing the species, it is unclear whether sufficient expertise was available to evaluate the evidence on the discreteness of bearded seal populations or on determining what time scales may be of interest to decision makers in interpreting the data on whether the population units warrant being listed as threatened or endangered. This reviewer noted that, for example, there were no members on the BRT or among the peer reviewers of the status review report that would list as their primary expertise population genetics, taxonomy, or risk analysis.

Response: The BRT was composed of eight marine mammal biologists, one climate scientist, one marine chemist, and one fishery biologist. Although the BRT did

not include members whose primary expertise is population genetics or taxonomy, several of the members were senior level biologists and ecologists familiar with population genetics and taxonomy concepts for seals and other species. The peer reviewers of the draft status review report also included a marine mammal specialist who has supervised and published research on genetic analysis of the phylogeny of pinnipeds. The BRT incorporated a simplified structured decision-making process into the qualitative risk analysis, which considered a full range of time scales for extinction risk over the period from the present to the extent of the foreseeable future. Given the limited time and data available, the BRT was not able to incorporate a quantitative assessment of various time scales in its risk analysis, though that may be possible and desirable for inclusion in future updates to the status of the species.

Comment 18: A peer reviewer commented that the proposed listings are premature, suggesting that there is still time to monitor the status of bearded seal populations and their responses to changes to have better information upon which to base management decisions. This reviewer discussed that the climate model projections suggest there will be sufficient ice to support bearded seal pupping in the Bering Sea through 2050 and beyond, and there is even more time before ice conditions are forecast to change appreciably in the Chukchi and Beaufort seas, noting that it is also likely there is at least 25 years before a significant change in the Okhotsk DPS can occur. In addition, this reviewer commented that although there is no evidence that bearded seals pup successfully on land, the Beringia and Okhotsk DPSs are moderately large, are widely distributed across varied habitat, and appear to have a high degree of genetic diversity. The reviewer suggested that they are thus unlikely to be at high risk of major

declines due to environmental perturbations including catastrophic events, and as such, they are not at risk of extinction now or in the foreseeable future, and should not be listed as threatened.

In opposing the proposed listing of the Beringia DPS, several related public comments, including from the State of Alaska, similarly noted that the Beringia DPS appears to have healthy abundant populations across its range. Several commenters suggested that the ESA is not intended to list currently healthy abundant species that occupy their entire historical ranges. Some of these commenters expressed the opinion that if NMFS lists healthy abundant species under the ESA based on assessments that consider the potential biological consequences of multi-decadal climate forecasts, virtually every species could be considered threatened. A few commenters also stated that a conclusion that the Beringia DPS will decline from over 100,000 animals to being threatened with extinction should be accompanied with some level of quantification regarding what constitutes being in danger of extinction. Finally, the State of Alaska also commented that although the monitoring could be enhanced, ADFG's Arctic Marine Mammal Program is adequate to detect landscape population level patterns and problems, should they arise.

Response: The ESA defines a threatened species as one that "is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532(20)). Whether a species is healthy at the time of listing or beginning to decline is not the deciding factor. The inquiry requires NMFS to consider the status of the species both in the present and through the foreseeable future. Having received a petition and subsequently having found that the petition presented substantial

information indicating that listing bearded seals may be warranted (73 FR 51615; September 4, 2008), we are required to use the best scientific and commercial data available to determine whether bearded seals satisfy the definition of an endangered or threatened species because of any of the five factors identified under section 4(a)(1) of the ESA. These data were compiled in the status review report of the bearded seal (Cameron et al., 2010) and summarized in the preamble to the proposed rule.

We agree that the Beringia and Okhotsk DPSs are moderately large population units, are widely distributed and genetically diverse, and are not presently in danger of extinction. However, these characteristics do not protect them from becoming at risk of extinction in the foreseeable future as a consequence of widespread habitat loss. Based on the best available scientific data, we have concluded that it is highly likely that sea ice will decrease substantially within the range of the Beringia DPS in the foreseeable future, particularly in the Bering Sea. To adapt to this modified sea ice regime, bearded seals would likely have to shift their nursing, rearing, and molting areas to ice-covered seas north of the Bering Strait, where projections suggest there is potential for the spring and summer ice edge to retreat to deep waters of the Arctic basin. The most significant threats to the Beringia DPS were identified by the BRT as decoupling of sea ice resting areas from benthic foraging areas, decreases in sea ice habitat suitable for molting and pup maturation, and decreases in prey density and/or availability due to changes in ocean temperature and ice cover, which were scored as of 'moderate' or 'moderate to high' significance (Table 7; Cameron et al., 2010). The greatest threats to the persistence of bearded seals in the Okhotsk DPS were determined by the BRT to be decreases in sea ice habitat suitable for whelping, nursing, pup maturation, and molting. These threats, which

were assessed by the BRT as of 'high significance,' are more severe in the range of the Okhotsk DPS than in the range of the Beringia DPS because of the likelihood that the Sea of Okhotsk will by the end of this century frequently be ice-free or nearly so during April-June, the crucial months for these life history events.

Data were not available to make statistically rigorous inferences about how these DPSs will respond to habitat loss over time. We note that we currently have no mechanism to detect even major changes in bearded seal population size (Taylor et al., 2007). However, the BRT's assessment of the severity of the demographic risks posed to the persistence of each of bearded seals DPSs was formalized using a numerical scoring system. The risks to the persistence of the Beringia and Okhotsk DPSs within the foreseeable future were judged to be moderate to high, with consistently higher risk scores assigned to the Okhotsk DPS (Table 9; Cameron et al., 2010). After considering these risks as well as the remaining factors from section 4(a)(1) of the ESA, we concluded that the Beringia and Okhotsk DPSs are likely to become endangered within the foreseeable future (threatened), primarily due to the projected loss of sea ice habitat.

Comment 19: A peer reviewer commented that there is a high level of uncertainty about future sea ice concentrations in the Sea of Okhotsk, there is little information regarding the response of the Okhotsk DPS to threats from climate change, and the current status of the Okhotsk DPS is unknown. Several commenters expressed a similar general view that there are insufficient data, including on bearded seal abundance and population trends, to proceed with the listings at this time. Some commenters stated that we should defer the listing decision for the Beringia DPS in particular until more information becomes available. Two commenters specifically noted that NMFS has

announced that it is conducting large-scale ice seal aerial surveys, and they requested that NMFS delay the listing determination until the results of these surveys become available.

Response: Under the ESA, we must base each listing decision on the best available scientific and commercial data available after conducting a review of the status of the species and taking into account any efforts being made by states or foreign governments to protect the species, and we have done so in assessing the status of the Beringia and Okhotsk DPSs. These data were summarized in the preamble to the proposed rule and are discussed in detail in the status review report (see Cameron et al., 2010). The existing body of literature concerning bearded seal population status and trends is limited, and additional studies are needed to better understand many aspects of bearded seal population dynamics and habitat relationships. However, the ESA does not allow us to defer listing decisions until additional information becomes available. In reaching a final listing determination we have considered the best scientific and commercial data available, including the information provided in the status review report as well as information received via the peer review process and public comment. These data are sufficient to conclude that the Beringia and Okhotsk DPSs are likely to become endangered within the foreseeable future (threatened).

Comment 20: A peer reviewer commented that cooperative research on the Okhotsk DPS is needed to better understand its responses to threats when they occur.

Response: We agree that there is still much to learn about bearded seals, particularly in the Sea of Okhotsk. Towards that end, NMFS has increased the scope of cooperative research efforts planned in Russian waters (e.g., aerial surveys and tagging projects scheduled for 2012 and 2013).

Comments on the Climate Model Projections and the Identification and Consideration of Related Habitat Threats

Comment 21: A commenter noted that studies indicate the risks from climate change are substantially greater than those assessed in the IPCC's AR4, raising concern that the IPCC climate change projections used in the status review report likely underestimate climate change risks to bearded seals.

Response: Although recent observations of annual minimum ice extent in the Arctic Ocean have been outside (i.e., below) the majority of model runs projected from the most commonly used scenarios, a few models exhibit anomalies of a similar magnitude early in the 21st century. Nonetheless, the observed sea ice retreat has been faster than the consensus projection, which may have occurred either because: (1) climate models do not have sufficient sea ice sensitivity to the rise in GHG forcing, or (2) there is an unusually large contribution in observations from natural variability. Many of the same recent years have been characterized by near record high ice extents in regions such as the Bering Sea, for example. While we recognize the possibility that consensus projections may underestimate the future risks to bearded seals, the likelihood of that does not seem to be sufficiently established to warrant abandonment of the IPCC AR4 as the best available scientific basis for projection of future conditions.

Comment 22: The State of Alaska noted that predicting climate change is made more difficult and uncertain by decades long shifts in temperature that occur due to such variables as the Pacific Decadal Oscillation (PDO).

Response: Climate models account for PDO variability but the PDO is chaotic—the future points at which it will shift between its warm and cool phases cannot currently

be predicted. To address this unpredictable variability, NMFS used the average from an ensemble of models and model runs. The average of the ensemble indicates the expected response forced by rising GHGs and aerosol changes. The individual model runs that compose the ensemble vary substantially, often trending above or below the average, or bouncing back and forth across it. The variability among the model runs in the ensemble reflects the unpredictability of the PDO and many other factors. We used the range of this variability in our projections of future ice conditions, for example, to characterize the minimum, mean, and maximum ice concentrations in future decades.

Comment 23: Several commenters, including the State of Alaska and Canada's DFO, expressed the view that the AOGCMs used for climate and sea ice prediction are not appropriate for projecting sea ice at a scale that is important for bearded seals. A commenter also suggested that the analysis of the IPCC model projections at a regional level is questionable because these models perform poorly at smaller than continental scales. In addition, some commenters suggested that there should be field verification of the model predictions of sea ice conditions.

Response: We used the AOGCMs to determine how soon and in which month sea ice cover can be expected to retreat in the future relative to conditions in the 20th century. This is a reasonable question to evaluate using the modern models, as it is occurring on a large scale. With regard to the comment that the model predictions should be verified with field observations, we note that the BRT limited the IPCC model projections analyzed in the status review report to those that performed satisfactorily at reproducing the magnitude of the observed seasonal cycle of sea ice extent.

Comment 24: The State of Alaska and another commenter noted that it is assumed

the Beringia DPS cannot survive without year-round ice. However, they suggested that the current status of the Okhotsk DPS indicates bearded seals can survive without multi-year ice.

Response: Our risk assessment for the Beringia DPS was not based on an assumption that they require sea ice year-round. As discussed in the preamble to the proposed rule, based on the best available scientific data we have concluded that it is highly likely that sea ice will decrease substantially within the range of the Beringia DPS in the foreseeable future, particularly in the Bering Sea. Pup maturation and molting, in particular, are important life history events that depend on the presence of suitable sea ice (annual timing of peak pup maturation in April/May, and molting in May/June and sometimes through August).

Comment 25: A commenter noted that it does not appear that climate change effects on sea ice habitat during mating or molting are likely to threaten the Beringia or Okhotsk DPS.

Response: The importance of sea ice for bearded seal mating has not been determined. Ice may not be necessary for copulation, which may occur mostly in the water, but the mating season occurs during a period when bearded seals are closely associated with ice and when they are spending substantial portions of time hauled out on the ice. The BRT assessed the threat from loss of ice habitat for mating as being of 'moderate significance' for the Beringia DPS and of 'moderate to high significance' for the Okhotsk DPS. The process of molting in phocid seals is energetically costly and facilitated by hauling out so that the skin temperature can be raised above water temperatures. The BRT judged the threat posed from loss of ice suitable for molting as

of ‘moderate to high significance’ for both the Beringia and Okhotsk DPSs, and the threat scores were somewhat higher than for mating. The combination of these and other moderate threats from loss of sea ice habitat and ocean acidification contributed to overall threat scores for destruction, modification, or curtailment of habitat or range that were of ‘high significance’ for the Beringia and Okhotsk DPSs.

Comment 26: A commenter expressed the view that sea ice in the Arctic has been in decline for a number of years without observed detrimental effects on bearded seals, thus calling into question NMFS’s assumption that future declines in sea ice will inevitably result in impacts to bearded seals.

Response: As noted in the preamble to the proposed rule and discussed in detail in the status review report, our present ability to detect changes in the Beringia and Okhotsk DPSs is limited. There are no population estimates sufficiently precise for use as a reference in judging trends. Indices of condition, such as those recently reported by ADFG (Quakenbush et al., 2011), are available for only a portion of the Beringia DPS’s range and would not be expected to detect certain types of detrimental effects, such as an increase in pup mortality by predation. Therefore, while NMFS is not aware of unequivocal evidence that the Beringia or Okhotsk DPSs have declined, the converse is equally true: there is no firm evidence that these populations are stable or increasing. Our decision to list these DPSs is based primarily on our conclusion for ESA listing Factor A that ongoing and projected changes in sea ice habitat pose significant threats to the persistence of the two bearded seal DPSs.

The primary concern about future habitat for the Beringia and Okhotsk DPSs stems from projected reductions in the extent and timing of sea ice cover. The

projections are consistent with a scenario in which little or no impact from climate disruption has yet been felt by the Beringia DPS in particular, but the anticipated impacts will begin to appear within the foreseeable future (i.e., over the 21st century), as the peak ice extent becomes reduced and the sea ice retreats earlier in the spring. The ice-covered area is much smaller in the Sea of Okhotsk than the Bering Sea, and unlike the Bering Sea, there is no marine connection to the Arctic Ocean. Over the long-term, bearded seals in the Sea of Okhotsk do not have the prospect of following a shift in the ice front northward. The question of whether a lack of ice will cause the Okhotsk DPS to go extinct depends in part on how successful the populations are at moving their reproductive activities from ice to haul-out sites on shore. Although bearded seals are known to use land for hauling out, this only occurs in late summer and early autumn. The BRT is not aware of any occurrence of bearded seal whelping or nursing on land, so the predicted loss of sea ice is expected to be significantly detrimental to the long-term viability of the population.

Comment 27: The State of Alaska and another commenter suggested that the record high winter ice in the Bering Sea from 2007-2010 casts some doubt on the determination of the threat of extinction to the Beringia DPS. They noted that the climate model projections make it clear that winter ice will continue to occur, and that the length of open water is the primary issue. These commenters expressed the view that changes in the distribution and numbers of bearded seals may occur, but the continued occurrence of winter ice, and its record extent simultaneous with low summer ice years, indicate that a more thorough assessment of seal habitat and population responses is needed before the threat of extinction can be assessed with any level of certainty.

Response: The above average ice cover in winter in the Bering Sea in 4 of the last 5 years is consistent with natural variability of the past 33 years. Just a few years prior to the recent high ice years, ice in the Bering Sea was at very low levels in 2002-2005, consistent with the expectation that variability from year to year will continue to be great, and will likely increase along with the expected warming trend. The recent years of above average Bering Sea ice extent are very unlikely to indicate a long-term reversal of the observed and projected declining trend. As the commenters noted, the length of the open water season is important for seasonally ice-associated species such as bearded seals. The open water season is determined by the dates of ice formation and melting. In 2012, despite above average winter ice extent in the Bering Sea, melt began over the Beaufort and Chukchi seas 12 and 9 days earlier than normal (as compared to the averages for the period 1979-2000), respectively (National Snow and Ice Data Center, 2012). Thus, the expectation that winter ice will continue to form in the future is insufficient grounds for concluding that the threat of habitat loss for bearded seals will not rise to the level of posing a risk of extinction.

Comment 28: A commenter noted that NMFS's current MMPA stock assessment report and proposed draft update state that there are insufficient data to predict the effects of Arctic climate change on the Alaska bearded seal stock, suggesting that predicting future population declines based upon climate change effects is speculative.

Response: NMFS's MMPA stock assessments for ice-associated seals need to be updated, which NMFS is in the process of doing to reflect new data and recent analyses from ESA status reviews.

Comment 29: A commenter noted that elders and hunters interviewed in 2011 for

a Kawerak research project on TEK of ice seals and walruses reported changes in ice and weather that complicated hunter access, but they also explained that walrus, bearded, and ringed seals were as healthy as ever. The commenter also noted that multiple hunters in these interviews also reported that marine mammals have shifted their migrations to match the timing of earlier ice break-ups. Individual observations regarding ice seal ecology, health, abundance, behavior, and habitat were also provided by a number of coastal Alaska residents, primarily Native hunters. Many of these comments, including those from the ISC, indicated that although the effects of a warming Arctic have been observed for a number of years, bearded seals appear healthy and abundant, and any significant decline does not appear to be sufficiently imminent to warrant listing the Beringia DPS of bearded seals as threatened under the ESA at this time.

Response: TEK provides a relevant and important source of information on the ecology of bearded seals, and we have carefully reviewed the comments submitted from individuals with TEK on bearded seals and climate change. We do not find that these observations conflict with our conclusions. As we have noted in response to other related comments, the Beringia DPS is not presently in danger of extinction, but is likely to become endangered within the foreseeable future (threatened).

Comment 30: One commenter argued that declines in benthic biodiversity due to ocean warming should be determined to be a threat to the Beringia DPS given the scientific evidence indicating benthic biomass in the northern Bering Sea and Chukchi Sea food webs is declining. Another commenter stated productivity in the region is expected to increase into the foreseeable future, which will likely lead to an increased forage base for bearded seals.

Response: The difference in views of these commenters is consistent with our judgment that there is considerable scientific uncertainty regarding the likely biological responses to warming and ocean acidification.

Comment 31: Some commenters argued that ocean acidification should be determined to be a significant threat, in particular when considered cumulatively with other climate change impacts. Another commenter disagreed, and felt that NMFS more clearly discussed the uncertainties associated with assessing the potential impacts of ocean acidification in the previous ESA listing determinations for ribbon and spotted seals.

Response: As we discussed in the preamble to the proposed rule, the impact of ocean acidification on bearded seals is expected to be primarily through the loss of benthic calcifiers and lower trophic levels on which the species' prey depend, but the possibilities are complex. We concluded that because of the bearded seals' apparent dietary flexibility, the threat posed from ocean acidification is of less concern than the direct effects of sea ice degradation. The BRT members tended to rank the threat from ocean acidification as moderate, but also noted the very low degree of certainty about the nature and magnitude of potential effects on bearded seals (Tables 7 and 8; Cameron et al., 2010). However, the BRT did consider cumulative effects as part of the threats assessment scoring procedure, as evidenced by the fact that the overall score for each ESA section 4(a)(1) factor tended to be higher than the scores assigned for individual threats within each factor.

Comment 32: The State of Alaska and several other commenters suggested that past warming periods were not adequately considered. They expressed the view that the

survival of bearded seals during interglacial periods can be considered better evidence for population persistence than predictive models of ice condition for species extinction, and that this is a primary reason why listing of bearded seals as threatened is not warranted.

Response: We are not aware of any available information on bearded seal adaptive responses during the interglacial periods. A fundamental difficulty in using pre-historic warm periods as analogs for the current climate disruption is that the rate of warming in the pre-historic periods is poorly known. The species' resilience to those previous warming events, which may have been slower than the current warming, does not necessarily translate into present-day resilience. Moreover, there may be cumulative effects from climate warming and ocean acidification, or other human impacts, that combine to limit the species' resilience to the changes anticipated in the coming decades.

Comments on the Identification and Consideration of Other Threats

Comment 33: A commenter suggested that terrestrial predators could become a greater threat to bearded seal pups if sea ice loss results in land-based or shorefast pupping.

Response: This threat was acknowledged in the status review report (p. 140; Cameron et al., 2010) and was considered by the BRT in its threats analysis.

Comment 34: A commenter noted that residents throughout the Bering Strait region regularly observe young bearded seals spending their summers in rivers feeding on fish and hauling out on river banks. This commenter observed that many of these young bearded seals survive and are observed into autumn; therefore, the risk from land-based predators may not be a threat to population viability.

Response: The main concern about risk from land-based predators in a scenario of

reduced ice stems from the vulnerability of very young bearded seals, such as maternally dependent pups and recently weaned young, that have not yet gained the strength and skills needed for evading predators. The young bearded seals described by the commenter, observed in summer and autumn, are likely at least a few months to a few years old, and able to fend for themselves.

Comment 35: A few commenters expressed the opinion that existing regulatory mechanisms in the United States and elsewhere are not adequate to address the factors driving climate disruption (i.e., GHGs). One of these commenters suggested that U.S. agencies are either failing to implement or only partially implementing laws for GHGs, and that the continued failure of the U.S. Government and international community to implement effective and comprehensive GHG reduction measures places bearded seals at ever-increasing risk, where the worst-case IPCC scenarios are becoming more likely.

Response: While some progress is being made in addressing anthropogenic GHG emissions, we recognize in our analysis under ESA listing Factor D that current mechanisms do not effectively regulate the anthropogenic processes influencing global climate change and the associated changes to bearded seal habitat, and that this is contributing to the risks posed to bearded seals by these emissions. Further, we note that our analysis considered future emissions scenarios that did not involve dramatic and substantial reductions in GHG emissions.

Comment 36: Some commenters suggested that NMFS should re-examine its conclusion that fisheries do not threaten bearded seals because a warming climate could lead to shifts in commercial fisheries that could affect the seal's food base. The ISC also expressed concern that the Bristol Bay region used to offer good seal hunting, but this is

no longer the case and could be due to trawl fishing impacts on bearded seal foraging habitat.

Response: The possible advent of new commercial fisheries, and the nature and magnitude of ecosystem responses, are speculative. Although there are possible risks, those should be mitigated through appropriate management of new fisheries. In U.S. waters, the intent to conduct such responsible management is evident in the Arctic Fishery Management Plan (North Pacific Fishery Management Council, 2009), which establishes a framework for sustainably managing Arctic marine resources.

Comment 37: Some commenters stated that offshore oil and gas development should be determined to be a threat to bearded seals in part because there is no technology available to effectively contain or recover spilled oil in ice covered waters, and a large oil spill could be devastating to these seals. In addition one of these commenters emphasized that extensive offshore oil developments are currently underway within the range of the Beringia DPS, and additional drilling is proposed in the Beaufort and Chukchi seas. Other commenters stated that offshore oil and gas development, as currently regulated, does not pose a significant threat to bearded seals.

Response: Although a large oil spill could cause substantial injury, mortality, and indirect impacts to seals in the area, the risks posed to persistence of the Beringia and Okhotsk DPSs as a whole are low and are possible to mitigate by preventive measures, at least relative to the much more pervasive risks from climate change and habitat loss.

Comments on the Status Determinations for the Beringia and Okhotsk DPSs

Comment 38: The State of Alaska and several other commenters expressed the opinion that the Beringia DPS should not be listed because there are no scientific data

demonstrating any observed past or present adverse impacts on their populations resulting from sea ice recession or other environmental changes attributed to climate change. The State of Alaska also extended this comment to the Okhotsk DPS. These commenters suggested that the determinations rely on the results of predictive models and speculation about future impacts, which they argued provide insufficient justification. Some of these commenters noted that in contrast, the polar bear ESA determination relied upon data for some populations that suggested a link between observed population declines or other population vital rates and climate change. Further, the State of Alaska and another commenter suggested that climate model forecasts should be considered as hypotheses to be tested with data collected over time.

Response: We have concluded that the best scientific and commercial data available, which are discussed in detail in the status review report and are summarized in this notice provide sufficient evidence that: (1) bearded seals are strongly ice-associated, and the presence of suitable sea ice is considered a requirement for whelping and nursing young; (2) similarly, the molt is believed to be promoted by elevated skin temperatures that can only be achieved when seals are hauled out on suitable ice; (3) reductions in the extent and timing of sea ice cover are very likely to occur within the foreseeable future; (4) if suitable ice cover is absent from shallow feeding areas during times of peak whelping and nursing (April/May) or molting (May/June and sometimes through August), bearded seals would be forced to seek either sea ice habitat over deeper water (likely with poorer access to food) or coastal regions in the vicinity of haul-out sites on shore (likely with increased risks of disturbance, predation and competition); (5) both scenarios would require bearded seals to adapt to suboptimal conditions and exploit

habitats to which they may not be well adapted, likely compromising their reproductions and survival rates; (6) the rates of environmental change will be rapid in the coming decades and may outpace possible adaptive responses; and (7) the rapid changes in sea ice habitat are likely to decrease the Beringia and Okhotsk DPSs to levels where they are in danger of extinction. Land boundaries will also limit the ability of the Okhotsk DPS to shift its range northward in response to deteriorating ice conditions. Regarding the climate model forecasts, the BRT analyses used simulations from six models of the Coupled Model Intercomparison Project Phase 3 (CMIP3) prepared for the IPCC's AR4, which represent the scientific consensus view on the causes and future of climate change and constitute the best scientific and commercial data available. Based on this information, and after considering the five ESA section 4(a)(1) factors, we have determined that the Beringia and Okhotsk DPSs are likely to become endangered within the foreseeable future throughout their ranges (i.e., threatened under the ESA).

With regard to the comment that the climate model projections should be considered as hypotheses, with data collected over time to test the hypotheses, taking that approach in lieu of listing is not an option under the ESA. If the best scientific and commercial data available indicate that a species satisfies the definition of threatened or endangered, then NMFS must list it. In time, as new data become available, NMFS may de-list a species, change its listing status, or maintain its listing status. The determination here is based on the best scientific and commercial data that is presently available.

Comment 39: A commenter suggested that if NMFS determines that the Beringia or Okhotsk DPS is threatened under the ESA, it should adopt the approach used by the FWS for species such as the walrus and designate them as candidate species, or

alternatively list them as species of concern. This commenter expressed the opinion that listing the species as candidate species or species of concern would avoid unnecessary expenditure of resources while providing for the option to take appropriate action under the ESA if it becomes necessary.

Response: Although NMFS and FWS define candidate species the same way in their joint regulations, the two agencies have slightly different interpretations of the term. FWS candidate species are those species for which FWS has sufficient information to support an ESA listing but for which issuance of a proposed rule is precluded due to higher priority listings (61 FR 64481; December 5, 1996). Therefore, FWS has already determined that its candidate species warrant listing under the ESA. In contrast, NMFS uses the term "candidate species" to refer to "(1) species that are the subject of a petition to list and for which NMFS has determined that listing may be warranted, pursuant to section 4(b)(3)(A), and (2) species for which NMFS has determined, following a status review, that listing is warranted (whether or not they are the subject of a petition)" (69 FR 19976; April 15, 2004). Regardless, once a species has been proposed for listing, section 4(b)(6)(A) of the ESA does not allow us to issue a "warranted but precluded" finding. Such a finding is only permissible at the time of a 12-month finding (see section 4(b)(3)(B)), not a final rule. NMFS defines a "species of concern" as a species that is not being actively considered for listing under the ESA, but for which significant concerns or uncertainties regarding its biological status and/or threats exist (69 FR 19975; April 15, 2004). This is not the case for the Beringia DPS or the Okhotsk DPS.

Comment 40: A commenter noted that the Alaska stock of bearded seals is not listed as depleted or strategic under the MMPA by NMFS, which they suggested

indicates the absence of scientific data or consensus that these populations are currently threatened or in significant decline.

Response: The absence of a depleted designation does not mean that a species is not threatened under the ESA. Similarly, the absence of a threatened designation does not mean a species or population stock is not depleted under the MMPA. Under both the ESA and the MMPA, these determinations are based on reviews of the best scientific and commercial data available, which is the process NMFS is undertaking here.

The criteria for depleted or strategic status under the MMPA also differ from those for threatened or endangered species under the ESA. A species or population stock is considered depleted under the MMPA if it is determined through rulemaking to be below its optimum sustainable population (OSP) or if it is listed as threatened or endangered under the ESA. Section 3(9) of the MMPA (16 U.S.C. 1362(9)) defines OSP as "the number of animals which will result in the maximum productivity of the population or species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element." Under the MMPA, the term "strategic stock" means a marine mammal stock: (1) for which the level of human-caused mortality exceeds the maximum number of animals that may be removed (not including natural mortalities) while allowing the stock to reach or maintain its OSP; (2) based on the best available scientific information, is declining and likely to be listed as threatened under the ESA; or (3) is listed as threatened or endangered under the ESA. While we may consider MMPA stock assessment information, our determination as to whether the Beringia DPS of bearded seals meets the definition of a threatened or endangered species must be based on an assessment of the threats according to section 4 of the ESA.

Comment 41: Some commenters, including Canada's DFO, expressed the view that listing the Beringia and Okhotsk DPSs as threatened is inconsistent with the IUCN's listing of bearded seals among species of "least concern."

Response: While we may review the assessment processes and conclusions of other expert organizations such as the IUCN, our determination as to whether the bearded seal DPSs meet the definition of threatened or endangered must be an independent one based on an assessment of the threats according to section 4 of the ESA. After reviewing the best scientific and commercial data available, we have determined that Beringia and Okhotsk DPSs of bearded seals are likely to become endangered within the foreseeable future, and are accordingly listing them as threatened.

Comments Related to Subsistence Harvest of Bearded Seals

Comment 42: Several comments received, including from the ISC, expressed concern that Alaska Natives who harvest ice seals, and all of the coastal communities, will likely be disproportionately affected by the listing of the Beringia DPS as threatened; and that the listing could cause hardship in the form of restrictions being placed on subsistence hunting of the seals, and could also result in other restrictions that could impair economic development. Some of these commenters expressed concern that the listing could also result in additional unfunded mandates, such as monitoring of the seal harvest.

Response: As discussed above, the MMPA and ESA exempt subsistence takes by Alaska Natives from the marine mammal take prohibitions. Subsistence harvest of bearded seals by Alaska Natives appears sustainable and does not pose a threat to the populations. If the current situation changes, we will work under the co-management

agreement with the ISC to find the best approach to ensure that sustainable subsistence harvest of these seals by Alaska Natives continues. Protection under the ESA does not automatically result in specific data collection and reporting requirements for the species. However, benefits of listing a species under the ESA can include enhanced funding and research opportunities that might address aspects of the harvest for a listed species. In addition, when a species is listed under the ESA, additional protections apply that promote the conservation of the species and therefore have the potential to benefit subsistence harvests. For example, section 7 of the ESA requires Federal agencies to ensure that the activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the action agency must enter into consultation with NMFS.

Comment 43: The ISC expressed the view that, should the Beringia DPS be listed under the ESA, the Alaska Native community should have a strong role in determining the terms of subsequent management, including (1) representation on the recovery team, (2) the identification of critical habitat, (3) identification of criteria that must be met before any changes could be required in the harvest of the Beringia DPS of bearded seals or trade in their parts, (4) identification of research priorities, and (5) identification of a mechanism for distribution of funds available for research and management. Some other commenters similarly suggested that local Native subsistence users should be involved directly and have primary roles in any subsistence-related management or monitoring activities involving the Beringia DPS.

Response: We recognize the importance of bearded seals to the Alaska Native

community, as well as the expertise and particular knowledge the Alaska Native hunting communities possess regarding the species and its habitats. We are committed to meaningful involvement of stakeholders, including the Alaska Native Community, throughout any recovery planning process. Critical habitat will be proposed in subsequent rulemaking. We are soliciting comments on the identification of critical habitat (see DATES, ADDRESSES, and Public Comments Solicited for additional information). We encourage those with expertise and understanding of those physical or biological features which are essential to the conservation of the Beringia DPS of bearded seals and which may require special management to submit written comments.

In the response to comment 13 above, we explained the criteria that must be satisfied for any regulation of subsistence harvest of bearded seals or trade in their parts to occur under the MMPA.

We appreciate the ISC's interest in identifying research priorities and a mechanism to distribute funds for ice seal research and management. The ISC's Ice Seal Management Plan identifies its biological and subsistence research recommendations for ice seals. The ISC has provided this management plan to NMFS and we are taking the information into consideration in planning future research (the ISC has also made a copy of this plan available at our web site; see ADDRESSES).

Comments on the ESA Process and Related Legal and Policy Issues

Comment 44: NMFS received comments that we should consult directly with all of the Alaska Native communities that could potentially be affected by the proposed listings, hold public hearings in each of these communities, and consult directly with the ISC on the listings. The ISC stated that they protest the lack of consultation, request an

explanation from NMFS, and require a commitment to be involved in all future aspects of the listing process prior to any future public announcement. Some commenters, including the ISC, also expressed concern that without holding hearings in more communities where a majority of the ice seal hunters live, these communities were not able to provide informed comments. In addition, one commenter stated there is confusion and frustration in the Alaska Native community regarding the listing process and harvest implications, and suggested that a better process is needed to ensure that all stakeholders have an opportunity to learn about and understand the proposed rules and their implications. We received several comments expressing concern that consultation with Alaska coastal communities and local leaders was inadequate. One commenter asserted that the Inuit of Alaska, Canada, Russia, and Greenland should all play a central consultative role in any decision that could affect them in relation to wildlife food sources and wildlife management regimes.

Response: NMFS has coordinated with Alaska Native communities regarding management issues related to ice seals through co-management organizations, particularly the ISC. NMFS discussed the listing petitions with the ISC, and provided updates regarding the timeline for the bearded seal status review. Following publication of the proposed listing determination, we notified the ISC of the proposal and requested comments on the proposed rule. NMFS remains committed to working with Alaska Natives on conservation and subsistence use of bearded seals.

We acknowledge the value of face-to-face meetings, and NMFS held three public meetings in: (1) Anchorage, Alaska, on March 7, 2011; (2) Barrow, Alaska, on March 22, 2011; and (3) Nome, Alaska, on April 5, 2011. The logistical difficulties with

holding additional hearings in other remote communities made it impractical to do so. We instead used other methods to provide opportunities for the public to submit comments both verbally and in writing. With assistance from the North Slope and Northwest Arctic boroughs, we provided teleconferencing access to the Barrow hearing from outlying communities in the North Slope Borough and from Kotzebue. The public hearings in Anchorage and Barrow were announced in the Federal Register on February 22, 2011 (76 FR 9734), and the public hearing in Nome was announced in the Federal Register on March 18, 2011 (76 FR 14883). The communities of Kaktovik, Wainwright, Point Lay, Point Hope, Nuiqsut, Anaktuvuk Pass, and Kotzebue participated in the Barrow hearing via teleconferencing. The public hearings were attended by approximately 88 people. In response to comments received during the public comment period that indicated some tribes may wish to consult on the proposed rule, we also contacted potentially affected tribes by mail and offered them the opportunity to consult on the proposed action.

We recognize the value of bearded seals to the Inuit of Canada, Alaska, Russia, and Greenland, and we have considered all of the comments received from interested parties in our final determination. Further, we note that E.O. 13175 outlines specific responsibilities of the Federal Government in matters affecting the interests of recognized tribes in the contiguous 48 states and in Alaska. We have met those obligations in the development of this final action.

Comment 45: The State of Alaska commented that NMFS did not involve the State in a meaningful manner in either the development of the status review report or the proposed listing rule.

Response: We sent a copy of the 90-day petition finding to ADFG and considered all of the comments and information submitted in response to this finding in the development of the status review report and the proposed rule. We also provided funding to ADFG to analyze information and samples collected from Alaska Native subsistence harvest of bearded seals to make these data available for inclusion in the status review report. Although reports on the results of this work were submitted after the status review report was completed and the proposed rule was published, we have considered this information in our final determination. During the initial public comment period, we sent a copy of the proposed rule to ADFG and the Alaska Department of Natural Resources (ADNR), and in those mailings noted the Internet availability of the proposed rule, status review report, and other related materials. In response to requests received, including from the State of Alaska, we extended the public comment period 45 days to provide additional time for submission of comments. We have thoroughly considered the comments submitted by the State of Alaska, and these comments are addressed in this final rule.

Comment 46: Some commenters expressed the opinion that the ESA is not intended as a means to regulate potential impacts from climate change, or that the primary potential threats to bearded seals identified are the result of a global phenomenon that cannot be effectively addressed through the ESA, and thus the proposed listings will not provide a significant conservation benefit.

Response: First, this rulemaking does not regulate impacts from climate change. Rather, it lists certain species as threatened, thereby establishing certain protections for them under the ESA. Second, section 4(b)(1)(A) of the ESA states that the Secretary

shall make listing determinations solely on the basis of the best scientific and commercial data available after conducting a review of the status of the species and taking into account efforts to protect the species. Based on our review of the best available information on the status of the Beringia and Okhotsk DPSs, and efforts currently being made to protect these population units, we conclude that the Beringia and Okhotsk DPSs of bearded seals should be listed as threatened. Our supporting analysis is provided in this final rule and is supplemented by our responses to peer review and public comments. While listing does not have a direct impact on the loss of sea ice or the reduction of GHGs, it may indirectly enhance national and international cooperation and coordination of conservation efforts; enhance research programs; and encourage the development of mitigation measures that could help slow population declines. In addition, the development of a recovery plan will guide efforts intended to ensure the long-term survival and eventual recovery of the Beringia DPS.

Comment 47: Several commenters, including the State of Alaska and the ISC, expressed the view that bearded seals and their habitat are adequately protected by existing international agreements, conservation programs, and laws such as the MMPA.

Response: We recognize that there are existing regulatory mechanisms, such as the MMPA, that include protections for bearded seals. However, declining to list a species under the ESA because it is generally protected under other laws such as the MMPA would not be consistent with the ESA, which requires us to list a species based on specified factors and after considering conservation efforts being made to protect the species. As discussed in our analysis under ESA listing Factor A, a primary concern about the conservation status of the Beringia and Okhotsk DPSs stems from the

likelihood that its sea ice habitat has been modified by the warming climate and that the scientific consensus projections are for continued and perhaps accelerated warming for the foreseeable future. While we acknowledge that there is some progress being made in addressing anthropogenic GHG emissions, we also recognize under listing Factor D that current mechanisms do not effectively regulate the anthropogenic factors that influence global climate change and the associated changes to the habitat of these bearded seal DPSs.

Comment 48: The State of Alaska commented that NMFS's proposed listing of the Beringia DPS would interfere directly with Alaska's management of bearded seals and their habitat and would therefore harm Alaska's sovereign interests. The State also commented that NMFS's listing determination impedes Alaska's ability to implement its own laws by displacing State statutes and regulations addressing Alaska's wildlife and natural resources generally, and bearded seals specifically.

Response: The ESA does not preclude the State from managing bearded seals or their habitat. We disagree that the listing of a species under the ESA would displace a specific state law or otherwise impede the State's ability to implement its own laws. We note that in 2009 NMFS and ADFG entered into a cooperative agreement for the conservation of threatened and endangered species pursuant to ESA section 6(c)(1).

Comment 49: The State of Alaska commented that NMFS's consideration of the State of Alaska's formal conservation measures designed to improve the habitat and food supply of the Beringia DPS is extremely limited, and without any supporting analysis. Such limited consideration of the State's conservation programs fails to comply with NMFS's affirmative statutory obligation under ESA section 4(b) and NMFS's Policy for

the Evaluation of Conservation Efforts.

Response: The ESA provides that NMFS shall make listing determinations solely on the basis of the best scientific and commercial data available and after conducting a review of the status of the species and taking into account those efforts, if any, of any state or foreign nation to protect such species. NMFS has developed a specific Policy for Evaluation of Conservation Efforts (68 FR 15100; March 28, 2003) that identifies criteria for determining whether formalized conservation efforts that have yet to be implemented or to show effectiveness contribute to making listing a species as threatened or endangered unnecessary.

The State of Alaska asserts that it has implemented laws, regulations, and mitigation measures that are generally aimed at protecting ice seals and their prey. These measures (the most relevant of which are summarized below), however, are not specifically directed toward the conservation of the Beringia DPS of bearded seals and its ice habitat. For example, the mitigation measures referenced by the State aim to minimize the impact of oil and gas operations, not proactively or specifically to conserve the species. Moreover, the threats to bearded seals stem principally from habitat loss associated with global climate change, a threat the State could not single-handedly mitigate. Under NMFS's policy, notwithstanding state conservation efforts, "if the best available scientific and commercial data indicate that the species meets the definition of 'endangered species' or 'threatened species' on the day of the listing decision, then we must proceed with the appropriate rule-making activity under section 4 of the Act," i.e., list the species (68 FR 15115; March 28, 2003).

Finally, in the preamble to the proposed rule we described our consideration of

the effects of existing programs on the extinctions risk of the Beringia and Okhotsk DPSs. In response to these comments from the State of Alaska, we add the following details about the State of Alaska's regulatory programs.

Under the Submerged Lands Act, the State of Alaska has authority over the submerged lands and resources therein, within an area extending from the mean high tide line to 3 nautical miles offshore. The ADNR Division of Oil and Gas (DOG) develops mitigation measures and lessee advisories as part of its best interest finding process for area-wide oil and gas lease sales. The North Slope Area-wide and Beaufort Sea Area-wide lease sales have the potential to affect bearded seals. Mitigation measures and lessee advisories identified for these oil and gas lease sales include advisories that ESA listed and candidate species may occur in the lease sale area, that lessees shall comply with recommended protection measures for these species, and that lessees must also comply with MMPA provisions. Other provisions to protect certain concentrations of resources and to protect subsistence harvest could provide some incidental benefit to bearded seals.

The Alaska Department of Environmental Conservation's (ADEC) mission involves the permitting and authorization of actions relating to oil and gas development, oil spill prevention and response, pollutant discharge, and other activities affecting Alaska's land and waters in the Arctic. State of Alaska solid waste management, water quality, wastewater, air quality, and vehicle emission standards are found in the Alaska Administrative Code (AAC) at 18 AAC 60, 18 AAC 70, 18 AAC 72, 18 AAC 50, and 18AAC 52, respectively. Oil spill contingency plans are required under Alaska Statute AS 46.04.030 and at 18 AAC 75 for crude oil tankers, non-crude vessels and barges, oil

and gas exploration facilities, oil flow lines and gathering lines, and for certain non-crude oil terminals and non-tank vessels. The ADEC contaminated sites cleanup process is governed by Alaska Statutes at Title 46 and regulations at 18 AAC 75 and 18 AAC 78.

We acknowledge that the State of Alaska's regulatory regime may provide some general benefits to bearded seals and their habitat. However, these laws and regulations do not reduce or mitigate in any material way the principal threats posed to the Beringia DPS from the projected changes in sea ice habitat. As a result, they do not change our extinction risk assessment within this final listing determination.

Comment 50: Several comments were received regarding the proposed 4(d) rules requesting additional analyses to support the conclusion that they are necessary and advisable and petitioning NMFS to establish certain limitations on the application of those rules, such as excluding activities occurring outside the range of any of the listed DPSs of bearded seals.

Response: For species listed as threatened, section 4(d) of the ESA requires the Secretary to issue such regulations as are deemed necessary and advisable to provide for the conservation of the species. Such 4(d) protective regulations may prohibit, with respect to threatened species, some or all of the acts that section 9(a) of the ESA prohibits with respect to endangered species. Both the section 9(a) prohibitions and section 4(d) regulations apply to all individuals, organizations, and agencies subject to U.S. jurisdiction. On December 10, 2010 (75 FR 77496), we proposed to issue protective regulations for the Beringia and Okhotsk DPSs under section 4(d) of the ESA to include all of the prohibitions in section 9(a)(1) based on a preliminary finding that such regulations were necessary and advisable for the conservation of the species. As

explained above, in light of public comments and upon further review, we have determined that such regulations are not necessary at this time. The Beringia and Okhotsk DPSs appear sufficiently abundant to withstand typical year-to-year variation and natural episodic perturbations in the near term. The principal threat to these DPSs of bearded seals is habitat alteration stemming from climate change within the foreseeable future. This is a long-term threat and the consequences for bearded seals will manifest themselves over the next several decades. Finally, bearded seals currently benefit from existing protections under the MMPA, and activities that may take listed species and involve a Federal action will still be subject to consultation under section 7(a)(2) of the ESA to ensure such actions will not jeopardize the continued existence of the species. We therefore conclude that it is unlikely that the proposed section 4(d) regulations would provide appreciable conservation benefits. As a result, we have concluded that the 4(d) regulations are not necessary at this time. Such regulations could be promulgated at some future time if warranted by new information.

Comment 51: Comments were received that critical habitat is both prudent and determinable; other comments were received that critical habitat is not currently determinable and would require extensive additional study.

Response: Section 4(a)(3) of the ESA requires that, to the maximum extent practicable and determinable, critical habitat be designated concurrently with the listing of a species. Critical habitat is not determinable when information sufficient to perform required analyses of the impacts of the designation is lacking or if the biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat. Existing data are lacking in several areas necessary to support the designation of

critical habitat, including identification and description of the physical and biological features essential to the conservation of the Beringia DPS, and economic data which would allow for consideration of the costs of designation. We have therefore determined that designating critical habitat for the Beringia DPS is prudent but not determinable at this time. We will designate critical habitat for the Beringia DPS in a subsequent rulemaking as provided under the ESA, and we are soliciting comments related to the designation (see DATES, ADDRESSES, and Information Solicited).

Comment 52: Comments were received that it is unclear how future recovery planning, including establishing accurate recovery and delisting criteria, can occur given the apparent lack of abundance data. Other comments were received expressing support for recovery planning for the Beringia DPS.

Response: Section 4(f) of the ESA requires that NMFS develop recovery plans for ESA listed species, unless such a plan will not promote the conservation of the species. Section 4(f)(1)(A) of the ESA also states that in developing and implementing recovery plans, the Secretary shall, to the maximum extent practicable, ‘‘give priority to those endangered species or threatened species, without regard to taxonomic classification, that are most likely to benefit from such plans.” The range of the Okhotsk DPS of bearded seals occurs entirely under the jurisdiction of other countries. This DPS would therefore qualify for exemption from the ESA section 4(f) recovery planning process because the U.S. has little authority to implement actions necessary to recover foreign species. A recovery plan will be developed for the Beringia DPS of bearded seals provided the limitations in section 4(a)(1)(A) of the ESA do not apply. Future recovery planning efforts for the Beringia DPS will incorporate the best scientific and commercial data

available regarding abundance at that time, and would identify data gaps that warrant further research.

Comment 53: A number of comments stressed that the determination should be based on sound scientific data and analysis. Some comments suggested inappropriate factors such as political pressure from the climate change debate may have influenced our decision making.

Response: We were petitioned to evaluate the status of the bearded seal under the ESA. Section 4(b)(1)(A) of the ESA requires us to make listing determinations solely on the basis of the best scientific and commercial data available. Consistent with this requirement, in reaching our final listing determination, we considered the status review report prepared by the BRT, information received through public and peer review comments, and efforts being made to protect the species. This information is summarized in this final rule.

Comment 54: A commenter expressed the opinion that to provide a meaningful process in which interested parties could review and comment on the special peer review comments, NMFS should have made the original comment letters available (rather than NMFS's "summary and interpretation of those comments") and opened more than a 30-day comment period.

Response: On April 6, 2012, we announced in the Federal Register the availability of a peer review report that consolidated the comments received from special peer review of the bearded seal status review report (77 FR 20774). We issued a news release to ensure that the public was made aware of this comment period. The comment period was limited to 30 days in consideration of the statutory deadline requiring a prompt final

listing determination. We did not receive any specific requests to extend the comment period. The peer review report simply consolidated the comments received from the special peer reviewers to facilitate public review—the report did not provide our interpretation of those comments.

Comments on the Consequences of the Proposed Listing Rule

Comment 55: Several commenters, including the State of Alaska and the ISC, expressed concern that the ultimate effect of the listings will be additional regulatory burden and increased economic and other human impacts without significant conservation benefit. Some of these commenters noted that the proposed listing would affect an area of national significance because of its importance for domestic oil and gas development. The State of Alaska specifically expressed concern that the proposed action will cause substantial injury to Alaska's economic interests including those of northern coastal municipal governments. The State expressed the view, for example, that the listing will deter or delay activities such as oil and gas exploration and development, and shipping operations, which could reduce State royalties and revenue. One commenter also expressed concern that the listings could also potentially cause resources and efforts to be distracted away from the conservation of populations at greater risk.

Response: Section 4(b)(1)(A) of the ESA states that the Secretary shall make listing determinations based solely on the best scientific and commercial data available, after conducting a status review of the species and taking into account efforts to protect the species. The regulations implementing the ESA at 50 CFR 424.11(b), consistent with case law interpreting the ESA and its legislative history, state that the listing determination will be made without reference to possible economic or other impacts of

such determination. Therefore, we cannot consider such potential consequences in our final determination. However, we will consider economic impacts for the designation of critical habitat. We also note that such activities have been occurring despite the presence of several ESA listed whale species in the areas.

Additional Comments

Comment 56: Two commenters suggested that the abundance estimate for the Chukchi Sea likely underestimates the actual population size due to several factors including that it does not appear to account for any seals that may occur in the central Chukchi Sea. These commenters noted that the abundance estimate for the Beaufort Sea also likely underestimates the actual population size and it likely undergoes significant inter-annual variation.

Response: The numbers of bearded seals in the Chukchi and Beaufort seas (i.e., the number that breed there rather than migrating there seasonally after breeding in the Bering Sea) are very poorly documented. Our estimate of 27,000 for the Chukchi Sea included an assumption that the western Chukchi Sea along the Russian coast has similar densities to the eastern Chukchi Sea. A relatively small area of the north-central Chukchi is, as the reviewer noted, unaccounted for in this estimate. The bearded seal densities in the survey stratum adjacent to this area were very low. Because it has not been documented whether bearded seals occur in that north-central area, there was no sound basis for computing an estimate. If the adjoining survey stratum densities (0.001-0.05 seals/km^2) were used as an estimate, only about 50 to 2,250 additional seals would be included. This is well within the imprecision of the overall estimate, and not different enough to affect the threats analysis or risk assessment for the Beringia DPS.

Comment 57: The State of Alaska and another commenter noted that there is a high degree of uncertainty associated with the bearded seal subspecies identified that should be more explicitly acknowledged, and they provided a number of references to support this comment.

Response: Although the concept of a subspecies as an identifiable taxon has been questioned by some evolutionary biologists, and has been applied inconsistently by taxonomists with respect to the nature and amount of differentiation required for subspecies designation, the concept remains in wide use and there is clearly no consensus to abandon it. In the case of bearded seals, the two subspecies designations are widely recognized (for details see Cameron et al., 2010). As was discussed in the preamble to the proposed rule, and considered in more detail in the status review report, the geographic distribution of these two subspecies is not separated by conspicuous gaps, and there are regions of intergrading generally described as somewhere along the northern Russian and central Canadian coasts. The validity of the division into subspecies has been questioned, though recent research on skull morphology and genetics tends to support their continued recognition. Despite doubts expressed by some about the veracity of dividing E. barbatus into two subspecies, the BRT concluded, and NMFS concurred, that the evidence for retaining the subspecies is stronger than any evidence for combining them.

Comment 58: The Marine Mammal Commission recommended that NMFS develop a research plan to address the major uncertainties and information gaps identified in the status review report, and strengthen collaborative efforts among range nations to facilitate research and management to assess the status and trends of bearded seal

populations throughout the species' range, and identify protective measures where necessary. Canada's DFO noted that they remain open to exploring potential areas for cooperation for improving mutual understanding of bearded seal populations. The Commission and another commenter expressed the view that NMFS also needs to prioritize funding to collect data on bearded seal population size and trends and many other aspects of the seal's biology which are currently poorly understood.

Response: We agree that additional research is needed to help resolve areas of uncertainty and to add to the ecological knowledge of this species. We look forward to working with our partners and stakeholders in the conservation and recovery of bearded seals, including obtaining needed research to fill in knowledge gaps.

Classification

National Environmental Policy Act (NEPA)

The 1982 amendments to the ESA, in section 4(b)(1)(A), restrict the information that may be considered when assessing species for listing. Based on this limitation of criteria for a listing decision and the opinion in Pacific Legal Foundation v. Andrus, 657 F. 2d 829 (6th Cir. 1981), we have concluded that NEPA does not apply to ESA listing actions. (See NOAA Administrative Order 216-6.)

Executive Order (E.O.) 12866, Regulatory Flexibility Act, and Paperwork Reduction Act

Under the plain language of the ESA and as noted in the Conference Report on the 1982 amendments to the ESA, economic impacts cannot be considered when assessing the status of a species. Therefore, the economic analyses required by the Regulatory Flexibility Act are not applicable to the listing process. In addition, this rule is exempt from review under E.O. 12866. This rule does not contain a collection of

information requirement for the purposes of the Paperwork Reduction Act.

E.O. 13132, Federalism

E.O. 13132 requires agencies to take into account any federalism impacts of regulations under development. It includes specific directives for consultation in situations where a regulation will preempt state law or impose substantial direct compliance costs on state and local governments (unless required by statute). Neither of those circumstances is applicable to this rule.

E.O. 13175, Consultation and Coordination with Indian Tribal Governments

The longstanding and distinctive relationship between the Federal and tribal governments is defined by treaties, statutes, executive orders, judicial decisions, and co-management agreements, which differentiate tribal governments from the other entities that deal with, or are affected by, the Federal Government. This relationship has given rise to a special Federal trust responsibility involving the legal responsibilities and obligations of the United States toward Indian Tribes and the application of fiduciary standards of due care with respect to Indian lands, tribal trust resources, and the exercise of tribal rights. E.O. 13175 - Consultation and Coordination with Indian Tribal Governments - outlines the responsibilities of the Federal Government in matters affecting tribal interests. Section 161 of Public Law 108-199 (188 Stat. 452), as amended by section 518 of Public Law 108-447 (118 Stat. 3267), directs all Federal agencies to consult with Alaska Native corporations on the same basis as Indian tribes under E.O. 13175.

NMFS has coordinated with Alaska Native communities regarding management issues related to ice seals through co-management organizations, particularly the ISC.

NMFS discussed the listing petition with the ISC and provided updates regarding the timeline for the bearded seal status review. Following publication of the proposed listing determination, we notified the ISC of the proposal and requested comments on the proposed rule.

We fully considered all of the comments received from Alaska Native organizations on the proposed rule and have addressed those comments in this final rule. In response to comments received during the public comment period that indicated some tribes may wish to consult on the proposed rule, we contacted potentially affected tribes by mail and offered them the opportunity to consult on the proposed action and discuss any concerns they may have. No requests for consultation were received in response to this mailing.

References Cited

A complete list of all references cited in this rulemaking can be found on our website at http://alaskafisheries.noaa.gov and is available upon request from the NMFS office in Juneau, Alaska (see ADDRESSES).

List of Subjects in 50 CFR Part 223

Endangered and threatened species, Exports, Imports, Transportation.

Dated: DEC 20 2012

Alan D. Risenhoover
Director, Office of Sustainable Fisheries,
performing the functions and duties of the
Deputy Assistant Administrator for Regulatory Programs
National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 223 is amended as follows:

PART 223—THREATENED MARINE AND ANADROMOUS SPECIES

1. The authority citation for part 223 continues to read as follows:

Authority: 16 U.S.C. 1531-1543; subpart B, § 223.201-202 also issued under 16 U.S.C. 1361 et seq.; 16 U.S.C. 5503(d) for § 223.206(d)(9).

2. In § 223.102, in the table, amend paragraph (a) by adding paragraphs (a)(7) and (a)(8) to read as follows:

§ 223.102 Enumeration of threatened marine and anadromous species.

* * * * *

Species[1]		Where listed	Citation(s) for listing determination(s)	Citation(s) for critical habitat designation(s)
Common name	Scientific name			
* * * * * * *				
(a) * * *				
(7) Bearded seal, Beringia DPS	Erignathus barbatus nauticus	The Beringia DPS of the bearded seal includes all bearded seals	[INSERT FR CITATION & DATE WHEN PUBLISHED AS A FINAL RULE]	NA

		from breeding populations in the Arctic Ocean and adjacent seas in the Pacific Ocean between 145° E. Long. (Novosibirskiye) and 130° W. Long., except west of 157° E. Long or west of the Kamchatka Peninsula, where bearded seals from breeding populations of the Okhotsk DPS are listed as threatened under §223.102(a)(8).		
(8) Bearded seal, Okhotsk DPS	Erignathus barbatus nauticus	The Okhotsk DPS of the bearded seal includes all bearded seals from breeding populations of bearded seals west of 157° E. Long. or west of the Kamchatka Peninsula in the Pacific Ocean.	[INSERT FR CITATION & DATE WHEN PUBLISHED AS A FINAL RULE]	NA
* * * * * * *				

[1]Species includes taxonomic species, subspecies, distinct population segments

(DPSs) (for a policy statement; see 61 FR 4722, February 7, 1996), and evolutionarily significant units (ESUs) (for a policy statement; see 56 FR 58612, November 20, 1991).

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