

CASE NO. 07-1247, CONSOLIDATED WITH CASE NO. 07-1433

NOT CALENDARER FOR ORAL ARGUMENT

**UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

CENTER FOR BIOLOGICAL DIVERSITY)	
Petitioner,)	
v.)	No. 07-1247
UNITED STATES DEPARTMENT OF THE)	
INTERIOR,)	consolidated with
Respondent,)	
AMERICAN PETROLEUM INSTITUTE)	
Intervenor.)	

NATIVE VILLAGE OF POINT HOPE, ET AL.,)	
Petitioners,)	No. 07-1433
v.)	
UNITED STATES DEPARTMENT OF THE)	
INTERIOR,)	
Respondent.)	

**PETITION FOR REVIEW OF FINAL DECISION BY THE U.S.
DEPARTMENT OF INTERIOR**

**BRIEF OF *AMICI* OCEANA, OCEAN CONSERVANCY, NATIONAL
AUDUBON SOCIETY, THE WILDERNESS SOCIETY, AND A TURAL
RESOURCES DEFENSE COUNCIL SUPPORTING PETITIONERS**

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CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Amici Oceana, Ocean Conservancy, National Audubon Society, The Wilderness Society, and Natural Resources Defense Council submit this certificate as to parties, rulings, and related cases.

(A) Parties and *Amici*.

(i) Except for the following, all parties, intervenors, and *amici* appearing in this court are listed in the Opening Brief for Petitioner Center for Biological Diversity and in the Opening Brief for Petitioners Native Village of Point Hope, Alaska Wilderness League, and Pacific Environment: The complete list of *amici* supporting Petitioners is Oceana, Ocean Conservancy, Wilderness Society, Audubon, and Natural Resources Defense Counsel on one brief of *amici curiae*, and W. Michael Hanemann and Charles Kolstad on a second brief.

(ii) Pursuant to Circuit Rule 28(a)(1)(A), the requirement to identify parties, intervenors, and *amici* who appeared below is inapplicable because D.C. Circuit No. 07-1247 and consolidated case No. 07-1433 are not appeals from a ruling of a district court.

(B) Rule 26.1 Disclosure Statement.

Pursuant to D.C. Cir. R. 26.1, *amici* Oceana, Ocean Conservancy, National Audubon Society, The Wilderness Society, and Natural Resources Defense Council hereby state that none of them has any parent company and that no publicly-held company has a 10% or greater ownership interest in any of the *amici*.

A full description of the general nature and status of *amici* is provided in the attached Unopposed Motion for Leave to Participate as *Amici Curiae*.

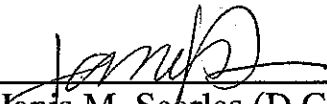
(C) Rulings under Review.

References to the rulings at issue appear in the Opening Brief for Petitioner Center for Biological Diversity and in the Opening Brief for Petitioners Native Village of Point Hope, Alaska Wilderness League, and Pacific Environment.

(D) Related Cases.

Amici are not aware of any related cases.

Dated June 2, 2008



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Pursuant to Circuit Rule 28(a)(2) & (5), *Amici* note that they identify no authorities on which they chiefly rely and that all applicable statutes, etc., are contained in the Opening Brief for Petitioner Center for Biological Diversity and in the Opening Brief for Petitioners Native Village of Point Hope, Alaska Wilderness League, and Pacific Environment.

GLOSSARY

ACIA Scientific Report	Arctic Climate Impact Assessment Scientific Report
AR	Administrative Record
CBD Op. Br.	Opening Brief for Petitioner Center for Biological Diversity
CO₂	Carbon Dioxide
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
IPCC	Intergovernmental Panel on Climate Change
Leasing Program	Outer Continental Shelf Oil and Gas Leasing Program for 2007-2012
MMS	Minerals Management Service
NEPA	National Environmental Policy Act
NSB	North Slope Borough
NSIDC	National Snow and Ice Data Center
NVPH Op. Br.	Native Village of Point Hope, Opening Brief
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act

INTRODUCTION AND INTEREST OF *AMICI*

Together, the American Beaufort and Chukchi Seas encompass more than 70 million acres of pristine sea and ice that, like the vibrant Arctic communities dependent on them, have existed, intact, since time immemorial. These seas are the centerpiece of Arctic culture and the subsistence way of life and are unparalleled in their importance for whales, walrus, polar bears, fish, and sea birds. *See, e.g.*, AR 13026, 13028-32, 13046, 13071. As they have for millennia, these seas also help regulate the world's climate.

Now, these Arctic seas are facing unprecedented threats. As a result of the warming climate, sea ice is declining, and that decline has dramatic consequences for Arctic people, wildlife, and ecosystems. These effects are being felt more quickly than had been predicted, and there are substantial gaps in scientists' understanding of them and in the baseline of information about the Arctic. The Arctic is changing in fundamental ways, and the specifics of those changes are difficult to predict.

It is against this backdrop that the Minerals Management Service (MMS) has authorized a dramatic expansion of oil and gas activities in the Beaufort and Chukchi Seas in its Outer Continental Shelf Oil and Gas Leasing Program for 2007-2012 ("Leasing Program"). The noise, pollution, and industrialization from these activities are an added threat to the wildlife and people dependent on the

Arctic seas. Nonetheless, MMS has gone forward with this plan despite lacking the information necessary to best determine where, when, and how to allow oil and gas activities in the Arctic. It has done so without complying with its obligations under the Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. §§ 1331, *et seq.*, and the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321, *et seq.*

This brief is submitted on behalf of organizations dedicated to protecting the world's oceans and the Arctic. As part of that mission, *Amici* work alongside partners in the Arctic to help maintain the ecosystems that are the foundation for their culture and way of life. Particularly in light of the dramatic effects of global climate change, the industrial activities authorized by the Leasing Program threaten the Arctic seas and the people that depend on them. A fuller statement of *Amici's* interests and the way in which they are affected by the Leasing Program is found in the accompanying Unopposed Motion for Leave to Participate as *Amici Curiae*. On behalf of their members who prioritize protecting the Arctic and the world's oceans, Oceana, Ocean Conservancy, National Audubon Society, The Wilderness Society, and Natural Resources Defense Council, submit this brief as *amici* supporting Petitioners.

ARGUMENT

- I. The Arctic Seas are Complex Systems Vital to Human Existence and the Functioning of the Planet and are not Yet Fully Understood by Scientists.
 - A. The Arctic Seas are Unique Places Inseparable from the Culture and Subsistence Way of Life in the Arctic.

The northernmost United States Arctic waters, the Chukchi and Beaufort Seas, have captured the imagination of explorers, scientists, and poets alike for centuries. For those lucky enough to visit, the images, sounds, and emotions evoke lasting memories:

My frigid nights on the sea ice are now a quarter-century in the past, but the intense beauty of that place teaches me still: the luminous nights, the immense graceful curve of a bowhead suddenly breaking the surface of the sea, the collective focus of a flock of murrelets so large it took several minutes to pass—none of these images has dimmed in my mind. One cannot stare with concentration and anticipation at the polar sea for weeks and come away unchanged. . . . Polar bears roaming the broken ice; a pod of belugas abruptly slashing through the surface of the subpolar sea; the sudden swoop of an ivory gull, its ice-white wings unexpectedly tilting past your face; the steady, urgent migration of seabirds. These experiences echo across the years and sustain a lifelong commitment to conservation.

Thomas L. Fleischner, *Natural History and the Deep Roots of Resource Management*, 45 Nat. Resources J. 1, 12-13 (2005).

In addition, the cultural richness, traditional knowledge, and wisdom of the peoples of the Arctic are an incredibly valuable part of the shared tapestry of human experience. “A true understanding of the Arctic requires an understanding of my people, their traditions and their culture. The traditions and culture of the

Eskimo are a part of the wildlife, the land, the sea, and the Arctic environment.”

Edward T. Hopson, Sr., *foreword to James Lukin & Hilary Hilscher, Alaska's Arctic 7* (1991).

The Arctic seas form the centerpiece of that existence. “If the polar bear, because it spends so much of its life hunting on the ice offshore, is classified by biologists as a sea mammal rather than a terrestrial one, a similar logic might easily hold true for the” people of the Arctic. Dan O’Neill, *The Firecracker Boys* 4 (1994). Arctic peoples, of course, depend on the Chukchi and Beaufort Seas for food, clothing, and other necessities of everyday life. “We Inupiat are meat eaters, not vegetarians. We live off the sea mammals. . . . The Bering Sea and the Chukchi Sea are our gardens.” Thomas R. Berger, *Village Journey: The Report of the Alaska Native Review Commission* 48 (1985) (quotation omitted); *see also* AR 13146.

More fundamentally, however, the Arctic seas provide the basis for a culture and way of life that has survived since time immemorial. At the heart of that way of life is the bowhead whale. As stated by Arctic native leader Eben Hopson:

[T]he whale is more than food to us. It is the center of our life and culture. We are the People of the Whale. The taking and sharing of the whale is our Eucharist and Passover. The whaling festival is our Easter and Christmas, the Arctic celebrations of the mysteries of life.

Rupa Gupta, *Indigenous Peoples and the International Environmental Community: Accommodating Claims Through a Cooperative Legal Process*, 74 N.Y.U. L. Rev.

1741, 1747 (1999) (quoting Eben Hopson). The whale is the center of a subsistence way of life that feeds communities—literally and spiritually—throughout the Arctic:

For the coastal Inupiat Eskimo, the hunting of the bowhead whale—aquig—is the heart of our culture. It is the preparation for the hunt, the hunting, and the sharing of the successful hunt that are important. They must all be considered together. The successful hunt feeds us. The successful hunt affirms our shared values and traditions. The successful hunt gives us reason to celebrate together our spirit and sense of identity.

Hopson, Sr., *supra*, at 7.

This place and its way of life are threatened by a changing climate and offshore industrial activity. As the United States government sells wide swaths of the Arctic for oil and gas development, it must be prepared to answer the question, “What shall we tell the Inuit now that both their own existence and the Bowhead whales['] destiny hang by a slender thread over the precipice of the future?”

Gupta, *supra*, at 1764.

B. In Addition to Human Uses, the Arctic Seas are Vitally Important to Wildlife and to Maintaining the Earth’s Climatic Balance.

Despite the harsh temperatures and long winters, the Arctic seas support a unique diversity of life. Much has been made recently about the decline of the polar bear, and it has been listed as threatened under the Endangered Species Act. *See* Determination of Threatened Status for the Polar Bear, 73 Fed. Reg. 28,212, 28,212 (May 15, 2008) (to be codified at 50 C.F.R. pt. 17). While the Chukchi and

Beaufort Seas certainly provide important habitat for this iconic species, *see* AR 13028, these seas are important for much more than polar bears. The seas provide essential habitat for scores of marine mammals, including bowhead, beluga, and gray whales; walrus; and bearded, ringed, and ribbon seals. *See* Op. Br. for Pet'rs. Native Village of Point Hope, Alaska Wilderness League and Pacific Environment at 9-11 [hereinafter "NVPH Op. Br."]. The areas also provide important habitat for several kinds of invertebrates and fish, including Arctic cod and Pacific salmon. *See* AR 22063-64, 13363-65.

In addition, "Alaska's extensive estuaries and offshore waters provide breeding, feeding, and migrating habitats for about 100 million seabirds of 66 species." AR 22113; *see also* AR 6107. Several places in the Chukchi and Beaufort Seas have been designated by the National Audubon Society as Important Bird Areas. *See* AR 23849.

The Arctic also helps in several ways to regulate climate, and changes to its functioning could have effects worldwide. Over the course of a year, ocean currents and atmospheric circulation move energy from the warmer tropics to the colder poles, where it escapes to space. If not for these colder polar regions and the currents moving energy to them, the tropics would overheat. *See* AR 6096.

The Arctic reflects sunlight back to space and, thereby, helps prevent further warming of the planet. This phenomenon can be measured in terms of reflectivity,

or albedo. “An ideal white surface, which reflected all the light that shone on it, would have an albedo of one, and an ideal black surface, which absorbed all the light, would have an albedo of zero.” Elizabeth Kolbert, *Shishmaref, Alaska*, in *The Ends of the Earth* 187, 200-01 (2007). The albedo of sea ice covered in snow is 0.8 or 0.9, meaning that it reflects 80-90% of the sunlight that hits it. *See id.* at 200; AR 6096. By contrast, the albedo of sea water is less than 0.1; thus, by reflecting sunlight, sea ice helps prevent further warming of the planet.

Melting sea ice also contributes to a positive feedback loop in which “future warming is accelerated by the effects of past warming.” Ruth Gordon, *Climate Change and the Poorest Nations: Further Reflections on Global Inequality*, 78 U. Colo. L. Rev. 1559, 1574 n.61 (2007). As more ice melts, more ocean is revealed. This open ocean absorbs much more sunlight than ice does, which, in turn, leads to more warming. More warming leads to more sea ice melt which, in turn, leads to more open ocean, and so on. *See* AR 6096-97. This phenomenon accelerates warming at a global scale. It also is exacerbated by emissions of black carbon—a component of soot and a byproduct of combustion. Black carbon emissions darken sea ice and decrease albedo. *See generally* Charles S. Zander, *Arctic Climate Effects of Black Carbon* at 3-4, written testimony to the United States House of Representatives Oversight and Government Reform Committee (Oct. 18, 2007), available at <http://oversight.house.gov/documents/20071018110919.pdf>.

Arctic soils and sediments also store a significant amount of carbon and frozen greenhouse gases, including methane, which is a more potent greenhouse gas than carbon dioxide. *See* AR 6100. By storing this carbon and frozen gas, the Arctic region is preventing them from escaping to the atmosphere and creating further warming. “During the summer, when the surface layer of the permafrost thaws, organic matter in this layer decomposes, releasing methane and carbon dioxide to the atmosphere. Warming increases these releases, and can create an amplifying feedback loop whereby more warming causes additional releases, which would cause more warming, and so on.” AR 6100. Again, therefore, warming in the Arctic starts a process that will result in more warming globally.

As a result of the critical role the Arctic plays in regulating climate, Arctic warming will have dramatic effects on the health and welfare of the rest of the world. For example, a study performed by the National Aeronautics and Space Administration (NASA) predicted that the loss of sea ice would result in a four-degree raise in temperatures in Kansas in the winter. *See* NASA, *Dwindling Arctic Ice* at 4, http://earthobservatory.nasa.gov/Study/ArcticIce/arctic_ice4.html. As this prediction shows, the loss of sea ice will affect the weather, crops, and markets far away from the Arctic.

C. While Their Importance Cannot be Overstated, These Systems are Poorly Understood by Scientists.

It is clear that the Chukchi and Beaufort Seas are vital to the functioning of the planet and to life in the Arctic and elsewhere. The actual way in which these systems function, however, is not well understood by scientists. Due to this lack of baseline information and understanding, it is difficult to predict accurately the full impacts from climate change and from oil and gas activities on the changing Arctic.

There is a general scientific consensus that the Arctic is “the least studied and most poorly understood area on Earth . . .” U.S. Arctic Research Commission, Report on Goals and Objectives for Arctic Research at “A Message from the Chair” (2005), *available at* <http://www.arctic.gov/files/USARCRReportOnGoals2005.pdf>. The “Arctic Ocean is the least well known ocean on the planet. We know more about the topography of the planets Venus and Mars than we do about the bathymetry of the Arctic Ocean.” *Id.* at 6-7; *see also* Arctic Climate Impact Assessment Scientific Report 2005 at 520 (listing gaps in knowledge) [hereinafter “ACIA Scientific Report”].¹

¹ This document is listed as a reference in the Leasing Program Final Environmental Impact Statement (FEIS). *See* AR 14137. It also is available online at <http://www.acia.uaf.edu/pages/scientific.html>.

This lack of information is reflected in the Final Environmental Impact Statement (FEIS) accompanying the Leasing Program, which identifies a long series of substantial gaps in our understanding of the Arctic ocean systems, including missing information about species such as polar bears, walrus, whales, seals, and seabirds. *See* NVPH Op. Br. at 8-10, 16-17. In addition, the regional marine mammals supervisor for the United States Fish and Wildlife Service stated recently that walrus population data for the Arctic seas “is so old, we don’t even use it anymore.” Dan Joling, *Mammal Surveys Will Be Updated*, Anchorage Daily News, May 23, 2008, *available at* <http://www.adn.com/news/alaska/story/414795.html>.

This lack of baseline data was identified as an important factor by a series of commenters on the Leasing Plan, including federal agencies, conservation groups, Native entities, and even Shell Exploration and Production Company. *See* NVPH Op. Br. at 14-15; *see also* AR 22113 (“Much remains to be learned about bird use and important habitats within the Beaufort Sea and, in particular, the Chukchi Sea Planning Areas . . .”). Because so little is known about it, the National Marine Fisheries Service went so far as to recommend removing the Chukchi Sea from the list of places to be open for oil and gas activities. *See* AR 435-36.

In addition, efforts to consider traditional ecological knowledge which, in many cases, is the best—and often, only—information available have begun only

relatively recently. *See* AR 20815. This “knowledge is . . . a rich source of information for others wishing to understand the arctic system.” ACIA Scientific Report at 62. “[F]ew scientists have multigenerational temporal knowledge and understanding of a specific site, or spend as much year-round time at remote Arctic locations, as local community residents and their ancestors have done.” Vera Metcalf & Martin Robards, *Sustaining a Healthy Human-Walrus Relationship in a Dynamic Environment: Challenges for Comanagement*, Ecological Applications, Mar. 2008 at S149, available at <http://www.esajournals.org/archive/1051-0761/18/sp2/pdf/i1051-0761-18-sp2-S148.pdf>; *see also* AR 20815.

In sum, there is not an adequate scientific baseline from which to predict the size and scope of potential impacts from industrial activities in the Chukchi and Beaufort Seas. The federal government simply cannot predict accurately the impacts oil and gas activities may have in Arctic seas that are being altered rapidly by climate change.

The lack of baseline information, of course, raises serious questions about MMS’s compliance with the law. *See, e.g., Half Moon Bay Fisherman’s Mktg. Ass’n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988) (“[W]ithout establishing . . . baseline conditions . . . there is simply no way to determine what effect [an action] will have on the environment and, consequently, no way to comply with NEPA.”); *see also* NVPH Op. Br. at 44.

That legal obligation, however, merely codifies a common-sense scientific truth: without an understanding of a system now or in the past, it is impossible to predict accurately how it will react to changes in the future. Nowhere is the evidence of this lack of baseline data for the Arctic felt more acutely than in predictions of climate change impacts to the people and ecosystems of the Arctic.

II. These Unique Arctic Systems and the People Who Depend on Them are Facing Unprecedented Threats.

A. The Dramatic Effects of Global Climate Change are Being Felt in the Arctic at a Faster Pace than had Been Expected, and Substantial Uncertainty Exists About the Future Size and Scope of These Effects.

For much of the past four decades, the United States has been party to a vociferous debate about the reality and causes of global climate change. *See, e.g.*, Gordon, *supra*, at 1571 & n.44. Now, however, there is no longer any credible dispute; the planet is warming. *Id.*; *see also* Intergovernmental Panel on Climate Change (2007) at 2 [hereinafter “IPCC 2007”].² This warming is happening in the Arctic more quickly than in the rest of the planet, *see* AR 6070, and more quickly than was predicted.

1. Global Warming is Having Dramatic Effects on the People and Ecosystems in the Arctic.

The Arctic is warming, and the available scientific information indicates that this warming is fundamentally altering natural ecosystems in the Chukchi and

² This document is listed as a reference in the Leasing Program FEIS. *See* AR 14208. It also is available online at <http://ipcc-wg1.ucar.edu>.

Beaufort Seas. Among other effects, climate change already may have profoundly affected the algae that forms the basis for the ice-covered marine food web. *See* AR 6122. Warming in the Arctic also has caused fundamental changes in weather patterns, *see* Polar Bear, 73 Fed. Reg. at 28,226, declines in the Porcupine caribou herd, and thawing permafrost resulting in disruptions in transportation, buildings, and other infrastructure. *See* AR 6072-73. Significant declines in populations of seabirds also are being predicted due to the effects of climate change. *See* AR 6107-08, 6122.

Indigenous knowledge collected from across the Arctic emphasizes changes in weather, including “reports that the weather seems more variable, unfamiliar, and is behaving unexpectedly and outside the norm.” AR 6158. These changes have caused more rain in winter, changes in snow quality and characteristics, new species in the Arctic, and changes in the quality of the sunlight. *See* AR 6155; *cf.* AR 20654 (noting changes in tundra vegetation and other changes), 22239 (noting “subtle changes in . . .color, texture, and taste” of species harvested and changes in “migratory patterns of key subsistence species”).

Coastal erosion, which is severe enough to necessitate the relocation of coastal villages, has become the most visible of the effects on Arctic peoples. *See, e.g.,* National Oceanic and Atmospheric Administration, *Human and Economic Indicators-Shishmaref*, available at <http://www.arctic.noaa.gov/detect/human->

shishmaref.shtml (describing impacts to the village of Shishmaref). In addition, ice cellars, which, “[f]or centuries” have been “cut into the permafrost for both the short- and long-term storage of harvested fish and game . . . are melting and becoming unusable.” AR 20815. Changing weather patterns also make it more difficult for local people to predict the weather and, therefore, to hunt. *See* AR 6158. “This presents problems for many activities, from hunting to drying fish, on which Indigenous Peoples depend.” *Id.* “In many regions, traditional knowledge regarding the safety of the sea ice has become unreliable. As a result, more hunters and other travelers are falling through the sea ice into the frigid water below.” Gordon, *supra*, at 1598 n.196 (quotation omitted).

2. The Most Fundamental Arctic Change is the Dramatic Decline in Sea Ice, Which is Melting More Quickly Than Had Been Anticipated.

Among all of the effects of climate change in the Arctic, the most significant is the decline of sea ice. Sea ice is vital to the Arctic marine ecosystems and those who depend on them, and it is declining at a rate unthinkable until very recently.

The importance of sea ice to the functioning of the Arctic systems cannot be overstated. “Sea ice is the defining physical characteristic of the marine Arctic environment” Polar Bear, 73 Fed. Reg. at 28,219. It “controls the exchange of heat and other properties between the atmosphere and ocean and, together with

snow cover, determines the penetration of light into the sea.” ACIA Scientific Report at 456.

Sea ice also provides a platform for growth of the algae that form the foundation of Arctic sea ice ecosystems. *See* ACIA Scientific Report at 480. The presence or absence of sea ice in the spring determines the timing of algal blooms, which is fundamental to the functioning of seasonally ice covered regions. *See id.* at 491-92. In the Chukchi Sea, an incredible abundance of bottom feeding birds, such as eiders, and marine mammals rely on the high benthic productivity that depends on the timing of algal blooms.

“Arctic pinnipeds rely on the sea ice as a platform for hauling out, whelping, and molting, as well as for sub-ice foraging, while polar bears rely on seasonal sea ice primarily as a platform for hunting (but also for most mating and some maternity denning).” Kristin L. Laidre, *et al.*, *Quantifying the Sensitivity of Arctic Marine Mammals to Climate-Induced Habitat Change*, Ecological Applications, Mar. 2008 at S98-99, *available at* <http://www.esajournals.org/archive/1051-0761/18/sp2/pdf/i1051-0761-18-sp2-S97.pdf>. Sea ice also is important habitat for birds and fish. *See id.* at S99. It protects the Arctic coastlines from wave-induced erosion and is used by indigenous people for hunting and travel. *See* AR 6140, 6156. As a result of the central role it plays in the Arctic system, changes in sea ice are indicative and predictive of other changes in the ecosystem.

Since 1978, “successive papers have documented an overall downward trend in Arctic sea ice extent and area.” *Polar Bear*, 73 Fed. Reg. at 28220. From 1979-2006, there was an average decline of 23,328 square miles—an area approximately equivalent in size to West Virginia—in the extent of summer sea ice cover each year. *See id.* Similar declines have been seen in winter sea ice, and an annual overall decline in sea ice extent for all seasons of approximately three percent has been documented. *Id.* at 28,222. In addition, the older, thicker sea ice is decreasing and being replaced by thinner, younger ice. *See id.* at 28,223. “This is significant because older ice . . . requires more energy to melt.” *Id.* The length of the season during which sea ice is melting—as opposed to forming—also is getting longer. *Id.*

This downward trend in the extent and thickness of sea ice resulted in an unprecedented minimum extent in September 2007. By the end of the melt season in September, there was 23 percent less sea ice than any previous low ever measured. *Id.* at 28,220. It also was 39 percent lower than the long-term 1979-2000 average and likely represents a 50% decline from the mid-September averages from the 1950s-1970s. *Id.* Much of the loss in area and thickness occurred in U.S. Arctic waters, specifically in the eastern Beaufort and Chukchi Seas. *See* National Snow and Ice Data Center (“NSIDC”), *Arctic Sea Ice Shatters All Previous Record Lows* (Oct. 1, 2007), available at

http://nsidc.org/news/press/2007_seaiceminimum/20071001_pressrelease.html.³

These changes were originally documented by local residents who have noted that sea ice is forming later in the year, is less stable, and is melting earlier at given locations. *See* AR 6159; ACIA Scientific Report at 68-69.

Sea ice decline is likely to continue at a pace that, until recently, was not anticipated by even the most dramatic predictions. Predictions from just four years ago did not even include forecasts of an ice-free Arctic this century. *See, e.g.*, AR 6092 (noting that “some models showing near-complete disappearance of summer sea ice”). More recent models predict that the Arctic seas will be seasonally free for the first time in human existence before the end of this century, if not earlier. *See* Polar Bear, 73 Fed. Reg. at 28,228; ACIA Scientific Report at 193. If the dramatic losses from 2007 are included, those models very likely understate the effects of climate change on sea ice. *See* Polar Bear, 73 Fed. Reg. at 28,276. Indeed, at least one scientist is predicting that the Arctic could be ice-free by 2013, and because this estimate does not taken into account the most recent ice melt, it may be overly conservative. *See* Jonathan Amos, *Arctic summers ice-free ‘by 2013’*, available at <http://news.bbc.co.uk/2/hi/science/nature/7139797.stm>.

³ The effects of this dramatic melting are being felt again in 2008. *See* NSIDC, *Arctic sea ice extent at maximum below average, thin*, Apr. 7, 2008), <http://nsidc.org/arcticseaicenews/2008/040708.htm>.

Similarly, scientists are now projecting that the Northwest Passage may be ice-free and available for trans-Arctic shipping in the next 10-20 years. *See id.*

This continued warming, of course, is due to the steadfast refusal of countries, like the United States, to take action to reduce their emissions of greenhouse gases. *See, e.g.*, AR 6071; Polar Bear, 73 Fed. Reg. at 28,226-34. The concentration of carbon dioxide in the atmosphere continues to increase at an alarming rate. *See, e.g.*, National Oceanic and Atmospheric Administration, *Carbon Dioxide, Methane Rise Sharply in 2007*, http://www.noaanews.noaa.gov/stories2008/20080423_methane.html (“The 2007 rise in global carbon dioxide (CO₂) concentrations is tied with 2005 as the third highest since atmospheric measurements began in 1958.”). In addition, “some fraction (about 20%) of emitted CO₂ remains in the atmosphere for many millennia. Because of slow removal processes, atmospheric CO₂ will continue to increase even if its emission is substantially reduced from present levels.” IPCC 2007 at FAQ 10.3.

3. Substantial Uncertainty Exists About the Size and Scope of Many of the Potential Impacts from Warming in the Fragile and Poorly Understood Arctic Seas.

As explained above, scientists predict that the climate will continue to warm and sea ice will continue to decline into the future. Indeed, the Arctic seas may have reached a “tipping point” and entered a new ice regime. *See Polar Bear*, 73

Fed. Reg. at 28,255. Declines in marine mammal and seabird populations are predicted. *See* ACIA Scientific Report at 504; AR 6107 (“A number of bird species, including several globally endangered seabird species, are projected to lose more than 50% of their breeding area during this century.”). Similarly, distribution and composition of fish populations will change, and substantial changes in the productivity at lower trophic levels are predicted. *See* ACIA Scientific Report at 504 Table 9.10. “Climate change will involve alteration of water and nutrient cycles and energy pathways in the world’s oceans[, and it] may alter oceanic and atmospheric circulation patterns[], with potentially severe biological and ecological consequences for many, if not all, ecosystems, marine and terrestrial.” Timothy J. Ragen, *et al.*, *Conservation of Arctic Marine Mammals Faced With Climate Change*, Ecological Applications S166, S166 (Mar. 2008), available at <http://www.esajournals.org/archive/1051-0761/18/sp2/pdf/i1051-0761-18-sp2-S166.pdf>.

While there is general agreement that vast changes are occurring, there is “great uncertainty underlying attempts to predict the impact of climate change on ecosystems.” ACIA Scientific Report at 520.

The uncertainty stems in part from the complexity of ecosystems and the difficulty in understanding their physical, chemical, and biological elements and natural dynamics. The uncertainty is further confounded by the addition of human activities that may alter ecosystem composition and dynamics before sufficient baseline information has

been collected to provide a basis for distinguishing natural dynamics from anthropogenic disturbance.

Ragen, *supra*, at S167. To address that uncertainty about the size and scope of climate change impacts, long-term monitoring and research is necessary. *See, e.g.*, ACIA Scientific Report at 520.

- B. Despite the Dramatic Impacts of, and Uncertainties About, the Potential Impacts of Climate Change, MMS has Moved Forward with a Dramatic and Dangerous Expansion of Oil and Gas Activities in the Arctic.
 - 1. The Leasing Program Authorizes the Continuation and Expansion of Oil and Gas Activities in the Arctic Seas that are Unprecedented in Scope, Speed, and Danger.

Oil and gas activities are a relatively new phenomenon in the Arctic seas. The first federal lease sale was held in this region less than thirty years ago, and even once the first sales were held, activities proceeded very slowly. The pace of oil and gas activities, however, has increased dramatically in the past decade, and the new Leasing Program would expand that effort to sell the Beaufort and Chukchi Seas.

Prior to 1979, when MMS held its first sale in the Beaufort, there was no oil and gas leasing in the Arctic seas. *Cf.* AR 21594. Before the approval of the 2007-2012 Leasing Program, there still were no active oil and gas leases in the Chukchi Sea, and relatively few leases were owned in the Beaufort Sea. The Leasing Program authorizes a substantial expansion of leasing in these areas. *See*

NVPH Op. Br. at 6-7 (describing plans for repeated lease sales offering 40 million acres in the Chukchi Sea and 33 million acres in the Beaufort Sea). In an area relatively untouched by industrial activities, MMS plans to make repeated offers to lease nearly 70 million acres.

The dramatic increase in leasing is predicted to lead to increased exploration and, eventually, to oil and gas development in these areas. *See* AR 13211-17. These oil and gas activities authorized by the Leasing Program will bring substantial threats to the Arctic.

The most obvious and dramatic of these threats is that an oil spill will occur in Arctic waters. “Routine” oil and gas activities also pollute the marine environment, create noise that detrimentally affects marine mammals, fish, and invertebrates, and cause changes in traditional ways of life.

It is generally agreed that a significant oil spill in Arctic waters could have devastating effects on the ecosystem, wildlife, and people in the Arctic. *See, e.g.,* AR 20388 (“The largest threat to the biological resources inhabiting or utilizing these highly productive offshore surface waters and intertidal regions [of the Arctic] is the threat of an oil spill or gas leak.”). Spilled oil could kill or severely injure marine mammals including whales, seals, polar bears, and walrus, *see* AR 13316-19, seabirds, *see* AR 13337-39, 13340-41, fish, *see* AR 13362-66, and could devastate now pristine waters and shorelines, *see* AR 13016, 13409-10. All of

these impacts likely would have a dramatic, negative effect on the people who depend on these animals and places. *See* AR 12853, 12856, 13677 (“During the 2007-2012 program, the cumulative impact of one or more important subsistence resources becoming unavailable, undesirable for use, or greatly reduced in numbers for a period of 1 or 2 years for one or more Alaska coastal communities is very likely.”).

MMS predicts that, as a result of the offshore oil and gas activities authorized in the Leasing Program, two large oil spills are likely to occur in Arctic waters. *See* AR 14066, 13298 (defining a large spill). It also acknowledges that there is no proven technology to clean up a spill in the remote, icy conditions of the Arctic. *See* AR 13422, 13096 (“Many NSB residents believe that the technology to clean up oil spills in arctic waters, and especially in broken ice conditions, is poorly developed and has not been adequately demonstrated to be effective.”), 20810 (describing “the ‘state of the art’ barge response system” at Northstar as “woefully inadequate” and discussing problems with other potential clean-up mechanisms such as drilling a relief well or in-situ burning).

Thus, MMS has authorized oil and gas activities that it acknowledges are likely to result in an oil spill that cannot be cleaned up. Such a spill would have devastating effects on the Arctic ecosystem, people, and wildlife.

In addition to a catastrophic spill, routine oil and gas activities also release a substantial amount of pollution into the environment. *See* AR 20327 (EPA Comments identifying pollutants from oil and gas activities as including “chloride, sodium, magnesium and potassium . . . [o]rganic compounds such as benzene, naphthalene, toluene, phenanthrene, and oxygen-demanding compounds . . . lead, arsenic, barium, antimony, sulfur and zinc;” and “[r]adionuclides including uranium, radon, and radium”); *see also* AR 13314. Oil and gas activities also pollute the air. *See* AR 14069, 13292 (stating that “[a]ir emissions from OCS oil and gas development arise from production platforms, drilling activities, construction, support vessels, and helicopters” and discussing in-situ burning of spilled oil). This pollution can have adverse impacts on human and animal health. *See* AR 22240 (“[O]il development has increased the smog and haze near some villages, which residents believe is causing an increase in asthma.”), 438.

Oil and gas activities also cause a substantial amount of noise in the Arctic marine environment which, otherwise, is relatively quiet. In addition to bringing noisy icebreakers, drill rigs, and other vessels to the Arctic, oil and gas exploration involves shooting seismic guns to the ocean floor. *See* AR 13306-10. This noise can cause substantial harm to marine mammals and fish, including those species, such as bowhead whales, which are at the heart of the subsistence way of life in the Arctic and protected by the Endangered Species Act. *See, e.g., id.*, AR 13306-07

(describing bowhead whales' avoidance and other responses to noise), 20273 (letter from Senator Lisa Murkowski requesting deferrals to protect bowhead whales), 20320. The impacts of these activities are already being felt. *See* AR 22353.

In addition to the direct threats from oil spills and noise, oil and gas activities bring industrialization to a place where all facets of life traditionally have focused on a relationship with the land and sea. This industrialization continues to dramatically affect Arctic people. *See* AR 13730 (“In Alaska, added incentive to shift from a subsistence-based economy to a cash-based economy, a reduction in subsistence resources, a decrease in subsistence activities, and other changes brought about by the proposed action could be factors in long-term consequences for Native social and cultural systems.”), 22336 (describing “adverse changes in attitudes, values and behaviors [of] the Inupiat” brought on by industrialization and stating that “oil/gas development has brought new challenges to the Inupiat’s traditional values especially the core ideals in the preservation of the land and sea, and the livelihood centered on their resources), 20611 (“Communities in the Arctic already are dealing with a level of offshore and onshore exploration and development that threatens to overwhelm them.”), 30078 (“Increasing urbanization that could occur from OCS development may result in changes to Native culture that may be permanent.”), 22239 (describing impacts to traditional culture).

2. The Combined Stress from Climate Change and Oil and Gas Activities May Result in a Substantial Decrease in the Health and Resilience of Arctic Ecosystems.

As explained above, the climate is changing, and those changes are being felt in the Arctic more quickly and in greater scope than had been anticipated. At the same time, MMS has authorized a substantial expansion of oil and gas activities in the Arctic seas. Individually, both climate change and oil and gas activities have the potential to cause dramatic effects in the Arctic. In conjunction, it is more likely that systemic effects will result in fundamental changes to the ecosystem causing it to enter and remain in an undesirable state.

Scientists describe an ecosystem's ability "to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity and feedbacks" as the system's "resilience." Brian Walker, *et al.*, *Resilience, adaptability and transformability in social-ecological systems*, 9 *Ecology and Society* (Sept. 16, 2004) *available at* <http://www.ecologyandsociety.org/vol9/iss2/art5/>. As an example, diversity in the Arctic seas is an important source of resilience, because it enhances the system's ability to respond to a changing climate. Decreases in diversity, and therefore resilience, make the system less capable of adjusting to change.

Given the scope of the changes already occurring and of those projected to occur in the Arctic seas, the additional stress and impacts from oil and gas

activities pose a substantial risk of synergistic interactions. These interactions would affect the system's resilience and, thereby, the ability of marine life and people to adapt to the changing conditions. *Cf.* Kinzig, *et al.*, "Resilience and Regime Shifts: Assessing Cascading Effects," 11 *Ecology and Society* (2006) at 1, available at <http://www.ecologyandsociety.org/vol11/iss1/art20/> (explaining that "multiple variables may act together in ways that produce interacting regime shifts in social-ecological systems").

III. MMS Violated Its Obligations Under OCSLA and NEPA By Authorizing Oil and Gas Leasing In Areas that are Sensitive Environmentally and Invaluable Culturally Without a Thorough Scientific Assessment and Understanding of the Arctic Marine Environment or the Effects of Global Climate Change.

OCSLA and NEPA create overlapping and complementary obligations in the context of a Leasing Program. Both require MMS to consider the environmental and ecological characteristics of the Arctic seas and the potential impacts from oil and gas activities there. *See, e.g.*, 43 U.S.C. § 1344(a)(2) (requiring, under OCSLA, consideration of "environmental sensitivity and marine productivity," and "relevant environmental and predictive information"); 42 U.S.C. §§ 4332(2)(C)(i), (iii) (requiring, under NEPA, a "detailed statement" describing reasonably foreseeable environmental impacts); *see also* Op. Br. for Pet'r. Center for Biological Diversity at 9-13 (establishing basic NEPA and OCSLA principles) [hereinafter "CBD Op. Br."]; NVPH Op. Br. at 4-5. These considerations must

include global climate change and potential impacts on the people who live in and depend on the Arctic. *See* 43 U.S.C. § 1344(a)(2)(B) (requiring that the plan result in “an equitable sharing of developmental benefits and environmental risks”); CBD Op. Br. at 30 (citing *Ctr. for Biological Diversity v. Nat’l Highway Transp. Safety Admin.*, 508 F.3d 508, 550 (9th Cir. 2007)).

OCSLA takes this obligation one step further and mandates that the Leasing Program “obtain a proper balance between the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone.” 43 U.S.C. § 1344(a)(3). Because MMS has authorized oil and gas activities in particularly sensitive and important places in the Arctic without a complete consideration or understanding of the impacts of climate change in the area, the agency has not met this obligation.

Climate change is affecting the Arctic, and it is happening—and is now predicted to happen—much more quickly than was anticipated. *See supra* pp. 12-18. As Petitioner Center for Biological Diversity makes clear in its brief, MMS did not adequately consider these impacts in approving the Leasing Program. *See* CBD Op. Br. at 25-30. Nor does the agency have sufficient baseline information from which to predict the impacts of oil and gas activities in the warming Arctic or a comprehensive plan to timely obtain that missing information. *See supra* pp. 9-12; NVPH Op. Br. at 13-16, 32-36.

Nonetheless, MMS is moving full-steam ahead, scheduling repeated offers of nearly 70 million acres of the Beaufort and Chukchi Seas to oil and gas companies. According to the agency, it must do so in order to meet the nation's energy needs, *see* CBD Op. Br. at 10, and it will try to gather the missing information at some later stage in the process. *See* NVPH Op. Br. at 31.

Accordingly, the “proper balance” struck by MMS allows oil and gas activities to take place in the entire Beaufort and Chukchi Seas without so much as a plan in place to understand “potential for environmental damage.” The Beaufort and Chukchi Seas are much too important to the people of the Arctic and to the functioning of the planet, *see supra* pp. 3-8, to be handled in this cavalier manner.

Rather, MMS should stop leasing activities in these areas until it has sufficient information to understand the functioning of the Arctic marine systems and how oil and gas activities will affect those systems and the people dependent on them in the context of a rapidly changing climate. Such an approach was suggested by several commenters on the plan, *see* AR 435-36, 22350, 23858-60, and MMS refused even to consider it. *See* AR 12873.

As explained by its purpose and need statement, MMS views its role in developing the Leasing Program as determining how “to meet the Nation's energy needs in a manner consistent with environmental protection and the law and policies of affected States.” AR 12873. The law, however, requires the agency to

balance the benefits of oil and gas activities against the potential for environmental and other harm. *See* 43 U.S.C. § 1344(a)(3). The vital importance of the Arctic systems, the fact that they are being affected more quickly than anticipated by climate change, and the lack of information about these systems counsel very strongly against offering the Beaufort and Chukchi Seas to oil and gas companies at this time.

MMS must stop its aggressive push to lease in the Arctic and, instead, concentrate time, money, and expertise on understanding Arctic systems. As part of that information gathering process MMS must make a substantial effort to integrate traditional ecological knowledge.

Only after it has a thorough understanding of the Arctic seas and the impacts of a rapidly changing climate can MMS make an appropriate decision about where, when, and how to allow oil and gas activities in this area. By pursuing its lease-at-all-costs approach, MMS not only has pushed aside its NEPA and OCSLA obligations but also has put the Arctic, its people, and functions at greater risk.

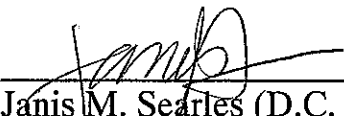
CONCLUSION

The Arctic seas are unique, wondrous places and their value to the functioning of the planet and the people of the Arctic cannot be overstated. Together, climate change and oil and gas activities threaten the very existence of these areas. In light of the scope and speed with which climate change is occurring

in the Arctic and the lack of baseline scientific information from which to predict the effects of oil and gas activities in that changing climate, the current accelerated pace of oil and gas activities does not comport with OCSLA or NEPA.

To uphold its legal and moral obligations, the United States government should be protecting the Arctic seas, not offering them wholesale to oil companies.

Respectfully submitted this 2nd day of June 2008,



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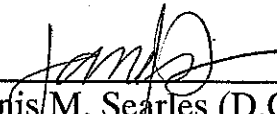
1. This brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) and thus Fed. R. App. P. 29(d) because:

this brief contains 6,899 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii).

2. This brief complies with the typeface requirements of Fed. R. App. P. 43(a)(5) and Circuit Rule 32(a)(1) and the type style requirements of Fed. R. App. P. 32(a)(6) because:

this brief has been prepared in a proportionally spaced typeface using Microsoft Word 2003 in 14-point Times New Roman.

Dated June 2, 2008



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JOINT CERTIFICATE OF COUNSEL FOR *AMICI CURIAE*
PURSUANT TO CIRCUIT RULE 29(d)

Pursuant to Circuit Rule 29(d), counsel for *amici* submit this joint certificate explaining the reasons for which separate briefs of *amici curiae* are necessary.

Circuit Rule 29(d) requires “[a]*amici curiae* on the same side to join in a single brief to the extent practicable.” Counsel for the two groups of *amici* supporting Petitioners have conferred regarding this requirement and do not believe it is practicable to submit one brief. Rather, counsel believe that the Court will be best served by the submission of separate briefs, each of which reflects the expertise and views of the two groups of *amici*.

Two groups of *amici*, each with separate expertise, have sought leave to participate in this matter to address separate issues in the litigation. One set of *amici*, W. Michael Hanemann and Charles Kolstad, are economists who study the economic impacts of global climate change. They seek leave to file a brief explaining how the environmental impact review could have considered the economic cost of the carbon emissions released as a result of the leasing program. The second set of *amici* are the science and policy-based conservation groups Oceana, Ocean Conservancy, National Audubon Society, The Wilderness Society, and Natural Resources Defense Council. Their brief focuses on the Arctic and, in particular, the Chukchi and Beaufort Seas. It explains the critical role those seas

play in the lives of the Arctic people and in regulating the world's climate and shows that these regions are facing substantial threats from global climate change which is causing sea ice to melt at a rate significantly faster than anticipated.

Accordingly, the two groups of *amici* will address substantially different topics, one economic and the other largely scientific. It is not practical to combine these disparate presentations without sacrificing their coherence. Moreover, the information presented by the economic *amici* is relevant almost exclusively to a single claim in which Petitioners argue that the economic cost of carbon emissions should have been considered when the Minerals Management Service evaluated the impacts of its the Outer Continental Shelf Oil and Gas Leasing Program for 2007-2012. The information presented by the conservation group *amici* will assist the Court in evaluating other of Petitioners' claims related to the Arctic, including the lack of baseline scientific information and the failure to consider adequately the impacts of global change. Thus, each brief presents discrete arguments that do not overlap and do not lend themselves to consolidation.


For those reasons, counsel for the *amici* supporting Petitioners agree that it is not practical to submit a single brief.

Respectfully submitted this 2nd day of June 2008,

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PROOF OF SERVICE

I, Kelly Fahl, am over the age of eighteen years, and not a party to this action. My business address is 4189 SE Division Street, Portland, Oregon 97202.

I certify that on June 2nd, 2008, one original and fourteen (14) copies of the **Brief of *Amici Curiae* Oceana, Ocean Conservancy, National Audubon Society, The Wilderness Society, and Natural Resources Defense Council Supporting Petitioners** were hand delivered to the Clerk, U.S. Court of Appeals for the D.C. Circuit, 333 Constitution Avenue N.W., Rm. 5423, Washington, D.C. 20001. Two (2) copies of the brief were served on the following counsel of record via First Class Mail, and a courtesy copy was sent via electronic mail:

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I declare under penalty of perjury that the foregoing is true and correct and that this Proof of Service was executed this 2nd day of June, 2008, in Portland, Oregon.



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