Oil and Gas in America's Arctic Ocean: Past Problems Counsel Precaution

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> "Although it can be a forbidding moonscape, the Arctic is also varied, majestic, serene, memorably beautiful and occasionally gentle. The far north is not only a prowling bear, a battering storm and vicious cold, but also a fat bumblebee buzzing among delicately yellow arctic poppies."[1]
>
> "I believe there will not be an oil spill."[2]

I. INTRODUCTION

For most of history, the U.S. Arctic Ocean was protected from large-scale industrial activities by sea ice, remoteness, and plentiful resources in other, more accessible regions. That reality is rapidly changing as receding sea ice and the growing world demand for resources have led to increased corporate interest in the Arctic Ocean. This industrial pressure occurs against the backdrop of a swiftly changing climate, an absence of holistic planning for the future of the region, missing scientific information, and a lack of proven technologies.

The potential for industrial development in the America's Arctic Ocean has generated substantial controversy. At the center of this controversy are a series of decisions made by the federal government to allow offshore oil and gas activities in the Chukchi and Beaufort seas.

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1. Dr. William E. Taylor, *Foreword* to FRED BRUEMMER, THE ARCTIC WORLD 1 (1985).

2. John M. Broder, *Shell Is Likely to Receive Permits for Oil Drilling Off Alaska*, N.Y. TIMES (June 26, 2012), http://www.nytimes.com/2012/06/27/science/earth/interior-department-will-likely-allow-shell-to-drill-in-arctic.html?_r=0 (quoting Secretary of the Interior Ken Salazar).

These approvals have greatly expanded the presence of multinational oil companies in the U.S. Arctic Ocean. Prior to 2003, companies held almost no leases in the Chukchi or Beaufort seas, and no exploration drilling had been conducted since the early 1990s. Over the last decade, more than three million acres of leases have been sold, and subsidiaries of Royal Dutch Shell have been awarded permits to conduct exploration drilling. The leasing and exploration-related approvals have generated opposition and litigation, and activities undertaken pursuant to those approvals have created direct risk to the marine environment.

In this Article, we provide context for the controversy facing government agencies charged with making decisions about the future of America's Arctic Ocean. We then distill themes that, if addressed, could help further a lasting solution for this region that respects its natural and human values while crafting a reasonable path forward for decisions about development. First, this Article offers background about the region, the threats facing it, and some of the challenges in managing the natural resources there. Second, it provides an overview of the legal framework through which the United States government makes decisions about whether and under what conditions offshore oil and gas activities should occur. Third, this Article highlights decisions about Arctic Ocean resources that have been made pursuant to that legal framework and discusses the resulting court challenges.

Based on that review, we conclude that the controversy has resulted in large part from: (1) the failure to ensure necessary preparedness; (2) the lack of community involvement; and (3) the need for more specific mandates to ensure that management decisions about resources in important and unique places, like the Arctic, are based on sufficient science, precaution, and an equitable balancing of costs and benefits. This Article identifies specific problems with the existing law that Congress could address to improve decision making, and finally, it highlights steps that federal agencies could take without congressional action to improve preparedness, community involvement, and the rules governing decisions about Arctic Ocean resources.

II. AMERICA'S ARCTIC OCEAN

The U.S. Arctic Ocean, as defined by the Arctic Research and Policy Act, includes the Beaufort, Bering, and Chukchi seas, extending as far south as the Aleutian Islands and north to the end of the U.S. Exclusive Economic Zone, 200 nautical miles from the northern coast of Alaska.[3]

3. Arctic Research and Policy Act, 15 U.S.C. § 4111 (2012).

This vast and diverse region of the world's ocean provides vital habitat for countless mammals, birds, and fish, and it supports vibrant communities and opportunities for subsistence. It is also changing as a result of climate warming and ocean acidification. The southern region—the Bering Sea—supports some of the world's largest fisheries and is part of a major industrial shipping route.[4] By contrast, the northern region—the Chukchi and Beaufort seas—have been largely insulated from large-scale industrial activity until relatively recently.

This Article focuses on the federal waters of the U.S. Beaufort and Chukchi Seas—which extend from three to 200 miles offshore—because these areas are at the heart of the debate about whether and how to move forward with oil and gas activities in the U.S. Arctic Ocean. In this Part, we discuss the unique nature of northern Arctic seas and their importance to wildlife and coastal communities; the state of scientific information about the U.S. Arctic Ocean; and the dual challenges posed by changing climate and growing industrial pressure.

Arctic Boundary as defined by the Arctic Research and Policy Act (ARPA)

All United States and foreign territory north of the Arctic Circle and all United States territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers; all contiguous seas, including the Arctic Ocean and the Beaufort, Bering and Chukchi Seas; and the Aleutian chain.[1]

Acknowledgement: Funding for this map was provided by the National Science Foundation through the Arctic Research Mapping Application (amap.org) and Contract #0520837 to CH2M HILL for the Interagency Arctic Research Policy Committee (IARPC).
Map author: Allison Gayford, Nuna Technologies. May 27, 2009.
1. The Aleutian chain boundary is demarcated by the 'Contiguous zone' limit of 24-nautical miles.

4. *See infra* Part II.C.3.b–c (discussing shipping and commercial fishing).

A. The Arctic Ocean Is Unique and Important

The coasts along the Beaufort and Chukchi seas are sparsely populated, with eight villages whose residents are predominately Iñupiat Eskimo.[5] The Iñupiat people have lived in the region and depended on the Arctic ecosystems to provide fish, whales, walrus, seals, seabirds, and other resources for thousands of years.[6] For the local people, subsistence foods provide a substantial amount of everyday nutrition, comprising up to 50% of total calories consumed in U.S. Arctic communities. These foods also provide health benefits; the proportion of daily intake is inversely related to the risk of developing metabolic disorders.[7] Arctic communities have been experiencing a rise in chronic diseases such as diabetes and cancer, making the availability of subsistence foods all the more important.[8] In addition to food, subsistence resources provide materials for clothing, boat-building, and other fundamental needs.[9]

Subsistence practices also form the basis of cultural, social, and spiritual values in the region.[10] "Subsistence activities are assigned the highest cultural value by the Iñupiat and provide a sense of identity in addition to the substantial economic and nutritional contributions."[11] The sharing and trading of subsistence foods reinforces the strong relationships within and among families and communities.[12] Because the most important subsistence resources—whales, for example—are migratory, subsistence activities can be concentrated in time and space.

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5. Harry Brower Jr. & Taqulik Hepa, *Subsistence Hunting Activities and the Inupiat Eskimo*, CULTURAL SURVIVAL Q. (Fall 1998), http://www.culturalsurvival.org/publications/cultural-survival-quarterly/united-states/subsistence-hunting-activities-and-inupiat-es.

6. *Id.*

7. Aaron Wernham, *Iñupiat Health and Proposed Alaskan Oil Development: Results of the First Integrated Health Impact Assessment/Environmental Impact Statement for Proposed Oil Development on Alaska's North Slope*, 4 ECOHEALTH 500, 506–07 (2007).

8. *Id.* at 500, 504.

9. Brower & Hepa, *supra* note 5.

10. *Id.*

11. *See* NAT'L OCEANIC & ATMOSPHERIC ADMIN. ET AL., EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN: SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT VOLUME I, AT 3-59, 2-60, 3-157 (2013) [hereinafter NOAA ARCTIC SDEIS], *available at* http://www.nmfs.noaa.gov/pr/permits/eis/arctic_sdeis_vol1.pdf.

12. Brower & Hepa, *supra* note 5.

In addition to subsistence, Arctic waters are also of vital importance to some of the world's most iconic wildlife species, including ice-dependent polar bears, walruses, and ice seals. Bowhead, beluga, and gray whales spend some or all of their time in these waters.[13] Millions of birds, representing more than 100 species, migrate from nearly every corner of the world to nest and feed in the Arctic each summer.[14] These bird species include some that are protected under the Endangered Species Act (ESA), such as the Steller's and spectacled eiders; candidate species under the ESA, such as the yellow-billed loon and Kittlitz's murrelet; and other species of conservation concern, including Pacific black brant.[15] More than 100 fish species live in the Chukchi and Beaufort seas, including Arctic grayling, Arctic char, all five species of Pacific salmon, capelin, herring, and various species of cod and sculpin.[16]

The "Arctic environment is highly variable both physically and biologically."[17] Thus, what could appear at quick glance to be a homogenous landscape of snow and ice is actually a vibrant web of important places that change dramatically with the seasons. Phytoplankton and ice algae form the basis of the food web, which is characterized by short food chains, seasonal periods of high productivity, and migration.[18] Habitats in the Beaufort Sea differ from those in the Chukchi, and within each sea there is significant variance among areas. At the same time, there are commonalities. Consistent ice leads and polynas—openings in the ice—and the ice edge, which grows and contracts over great distances seasonally, are among the most important areas to many species.[19] Migration corridors and certain high-productivity habitats along the seafloor are also among the most important areas. The concentrated seasonal and spatial nature of biological resources in the Arctic and the simple food chain may make the ocean ecosystem particularly sensitive to im-

13. NOAA ARCTIC SDEIS, *supra* note 11, at 3–92.

14. U.S. FISH & WILDLIFE SERV., ARCTIC LANDSCAPE CONSERVATION COOPERATIVE (2010), *available at* http://library.fws.gov/LCC/Arctic.pdf.

15. *Id.*

16. NOAA ARCTIC SDEIS, *supra* note 11, at 3-59; N. PAC. FISHERY MGMT. COUNCIL, FISHERY MANAGEMENT PLAN FOR FISH RESOURCES OF THE ARCTIC MANAGEMENT AREA 56 (2009) [hereinafter FISHERY MANAGEMENT PLAN], http://www.npfmc.org/wp-content/PDFdocuments/fmp/Arctic/ArcticFMP.pdf.

17. Leslie Holland-Bartels & Jonathan J. Kolak, *Oil-Spill Risk, Response, and Impact*, *in* AN EVALUATION OF THE SCIENCE NEEDS TO INFORM DECISIONS ON OUTER CONTINENTAL SHELF ENERGY DEVELOPMENT IN THE CHUKCHI AND BEAUFORT SEAS, ALASKA 109, 151 (Leslie Holland-Bartels & Brenda Pierce eds., 2011) [hereinafter USGS REPORT], *available at* http://pubs.usgs.gov/circ/1370/pdf/circ1370.pdf

18. FISHERY MANAGEMENT PLAN, *supra* note 16, at 43, 53–54.

19. NOAA ARCTIC SDEIS, *supra* note 11, at 3-7.

pacts from climate change and activities such as oil and gas exploration and development.

In addition, the Arctic region plays a critical role in regulating the global climate system,[20] including weather patterns in the northern hemisphere.[21] The colder Arctic is a sink for heat from the rest of the world, and the movement of heat from the tropics to the poles affects weather patterns. Storm tracks depend on the position, strength, and orientation of the jet stream,[22] and fluctuations in the polar regions affect the location and speed of the jet stream, which affects weather patterns, especially at mid-latitudes.[23]

B. Lack of Scientific Information About the Arctic Ocean

Though scientists know that the Arctic Ocean is important to the people and wildlife of the region and as part of the climate system, there is a widely acknowledged lack of basic scientific information about the region. In 2005, the U.S. Arctic Research Commission (USARC) noted that the Arctic is "the least studied and most poorly understood area on Earth" and that, in particular, "[t]he 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."[24] Since the USARC made that statement, scientific efforts have increased in the Arctic, and more is known now than a decade ago. Still, there are substantial information gaps, and, as explained below, the government continues to rely on decisions that were made under conditions of considerable uncertainty. This lack of basic scientific information creates significant hurdles to effective management of human activities.

Scientists recognize that the recent loss of sea ice during the summer months is fundamentally changing Arctic Ocean ecosystems, yet relatively little is known about the abundance and distribution of com-

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20. Gordon McBean et al., *Arctic Climate: Past and Present*, *in* ARCTIC CLIMATE IMPACT ASSESSMENT 21, 32–34 (Carolyn Symon et al. eds., 2005), *available at* http://www.acia.uaf.edu/pages/scientific.html.

21. Mark C. Serreze et al., *Perspectives on the Arctic's Shrinking Sea-Ice Cover*, 315 SCIENCE 1533, 1536 (2007).

22. Cristina L. Archer & Ken Caldeira, *Historical Trends in the Jet Streams*, 35 GEOPHYSICAL RES. LETTERS 1, 5 (2008).

23. *See* OCEANA ET AL., AS GOES THE ARCTIC, SO GOES THE PLANET 15–16 (2008), *available at* http://oceana.org/sites/default/files/o/fileadmin/oceana/uploads/pacific/ArcticPetition-FINAL-lowres.pdf.

24. U.S. ARCTIC RESEARCH COMM'N, REPORT ON GOALS AND OBJECTIVES FOR ARCTIC RESEARCH 2005, at 1, 6–7 (2005), *available at* http://www.arctic.gov/publications/goals/usarc_goals_2005.pdf.

mon species, much less how the food webs work in this region.[25] As the USARC noted, "Fundamental baseline scientific information is lacking for living resources in much of the region, and basic biological aspects, such as the ecology of the area, and the spatial habitat of flora and fauna that might be at risk from spills are poorly known."[26] In fact, in the 2008 environmental impact statement (EIS) analyzing the potential impacts from Oil and Gas Lease Sale 193 in the Chukchi Sea, the Department of the Interior explicitly recognized that there is significant missing information about even the most basic parameters for every one of the largest and most conspicuous animals in the ecosystem—all fish, marine mammals, and birds—which, in other regions, are typically the most studied animals.[27] The missing information for these species included abundance, distribution, and life history. As a result of this missing information, the government concluded, among other things, that it could not determine the potential level of effects oil and gas development could have on marine mammals.[28] Accordingly, a court-ordered supplemental EIS for the lease sale included a lengthy appendix chronicling the instances in which the agency acknowledged that it did not have data potentially relevant to the effects of oil and gas activity in the Chukchi

25. *See* SUSAN JOY HASSOL, IMPACTS OF A WARMING ARCTIC 8, 10, 14–15, 24, 58–61 (2004), *available at* http://www.amap.no/arctic-climate-impact-assessment-acia; *see also* NAT'L MARINE FISHERIES SERV. ALASKA REGION, FINAL REGULATORY FLEXIBILITY ANALYSIS FOR THE ARCTIC FISHERY MANAGEMENT PLAN AND AMENDMENT 29 TO THE FISHERY MANAGEMENT PLAN FOR BERING SEA/ALEUTIAN ISLANDS KING AND TANNER CRABS 79–90, 99–105, 192 (2009) [hereinafter ARCTIC FMP EA], *available at* http://www.regulations.gov/#!documentDetail;D=NOAA-NMFS-2009-0042-0403.

26. U.S. ARCTIC RESEARCH COMM'N, U.S. ARCTIC RESEARCH COMMISSION RECOMMENDS STEPS TO EXPANDED U.S. FUNDING FOR ARCTIC/SUBARCTIC OIL SPILL RESEARCH 2 (2010), *available at* http://issuu.com/wickcommunications/docs/2010.5.26_usarc_oilspill_white_paper_finalcrmt/2.

27. *See infra* text accompanying notes 297–302 (discussing litigation challenging the decision to hold Lease Sale 193 in the Chukchi Sea).

28. *See* MINERALS MGMT. SERV., CHUKCHI SEA PLANNING AREA OIL AND GAS LEASE SALE 193 AND SEISMIC SURVEYING ACTIVITIES IN THE CHUKCHI SEA I, at II-42, II-45, IV-269, IV-274 (2007), *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Environment/Environmental_Analysis/2007-026-Vol%20I.pdf ("[B]ecause of the lack of data on marine mammal distributions and habitat use in offshore areas of the Chukchi Sea, it is uncertain what the level of effects would be in offshore area.").

Sea.[29] The agency has made similar acknowledgments for data gaps in the Beaufort Sea.[30]

The lack of baseline science has also been highlighted by several other prominent local and federal agencies as well as by international bodies. The United States Geological Survey (USGS) has identified information gaps for nearly every species in the Arctic Ocean.[31] In its comments on the Draft Proposed 2010–15 Five-Year Leasing Program, the National Oceanic and Atmospheric Administration (NOAA) recommended using a precautionary approach, delaying oil and gas activities in the Chukchi and Beaufort seas until more information is available to support sustainable management.[32] The final report of the National Commission on the BP *Deepwater Horizon* Oil Spill and Offshore Drilling (National Commission) echoed this sentiment, observing that the "[s]cientific understanding of environmental conditions . . . in areas proposed for more drilling, such as the Arctic, is inadequate."[33] "The same is

29. *See* CHUKCHI SEA PLANNING AREA, OIL AND GAS LEASE SALE 193 IN THE CHUKCHI SEA, ALASKA: FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT VOL. I, APPENDIX A (2011) [hereinafter CHUKCHI LEASE SALE 193 FINAL SEIS], *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Environment/Environmental_Analysis/2011-041v1.pdf.

30. *See, e.g.*, MINERALS MGMT. SERV., PROPOSED OCS LEASE SALE 202, BEAUFORT SEA PLANNING AREA 109 (2006), *available at* http://www.boem.gov/uploadedFiles/BOEM/BOEM_Newsroom/Library/Publications/2006/2006_EA_202.pdf (noting lack of data on cumulative impacts of development on polar bears); *id*. at 55–56 (noting that the impacts of an oil spill are uncertain).

31. *See, e.g.*, Anthony R. DeGrange & Lyman Thorsteinson, *Ecological and Subsistence Context*, *in* USGS REPORT, *supra* note 17, at 41, 59 (For marine mammals generally, "seasonal, annual, and geographic variability in diet are poorly quantified and foraging areas are poorly described . . . . Population enumeration is poor, even non-existent, for many [marine mammal] species, and relatively good for a few. Without information on stock structure, however, which is poorly known for many species but fundamental to management, data are difficult to interpret even for species where abundance estimates exist."); Deborah R. Hutchinson & Richard C. Ferrero, *Marine Mammals and Anthropogenic Noise*, *in* USGS REPORT, *supra* note 17, at 165, 187 ("There is a basic lack of information about ice seals. Key information about the abundance, distribution, and vital aspects of ice seals is incomplete."); DeGrange & Thorsteinson, *supra*, at 69 (regarding fish, "[i]nformation about status and trends, habitat requirements, relative distribution and abundance, and knowledge of life history stages . . . is incomplete and unavailable for large expanses of Arctic nearshore and shelf waters . . . .").

32. *See* Letter from Jane Lubchenco, Ph.D., Under Sec'y of Commerce for Oceans and Atmosphere, to S. Elizabeth Birnbaum, Dir., Minerals Mgmt. Serv. 5 (Sept. 21, 2009), *available at* http://www.peer.org/assets/docs/noaa/09_12_10_NOAA_Comments_on_MMS_5_Year_Plan.pdf.

33. NAT'L COMM'N ON THE BP *DEEPWATER HORIZON* OIL SPILL AND OFFSHORE DRILLING, DEEP WATER: THE GULF OIL DISASTER AND THE FUTURE OF OFFSHORE DRILLING vii (2011) [hereinafter *DEEPWATER HORIZON* REPORT], *available at* http://www.gpo.gov/fdsys/pkg/GPO-OILCOMMISSION/pdf/GPO-OILCOMMISSION.pdf. In the wake of the explosion of the *Deepwater Horizon* rig in the Gulf of Mexico, President Obama created the National Commission on the BP *Deepwater Horizon* Oil Spill and Offshore Drilling. The Commission was "an independent, nonpartisan entity, directed to provide a thorough analysis and impartial judgment. The President charged the Commission to determine the causes of the disaster, and to improve the country's ability

true of the human and natural impacts of oil spills," as well as the impacts of routine oil and gas operations.[34] The Arctic Climate Impact Assessment, an international project of the Arctic Council and the International Arctic Science Committee, highlighted basic surveys and monitoring as well as ecosystem-based research as some of the highest priority research actions needed for Arctic marine waters.[35] Further, both the North Slope Borough and Northwest Arctic Borough (the local governments in the U.S. Arctic, approximately equivalent to counties) have called for better baseline science to guide decisions, and Senator Mark Begich (D-AK) has introduced legislation calling for additional Arctic research and coordination.[36]

Where basic information about the marine ecosystem exists, much of it is old, spotty, and sparse. For example, the 2008 Environmental Assessment for the Arctic Fishery Management Plan states that "data [is] scarce for estimating the abundance and biomass of fishes in the Alaskan Arctic."[37] The review of potential data sources indicated that surveys for fish have occurred about every fifteen to twenty years but typically over different regions. Even if those surveys over the past sixty years were combined, which would be inappropriate due to different sampling methodologies and other reasons, there are still major areas of the U.S. Arctic Ocean shelf region that have yet to be surveyed.

Despite harsh and changing conditions, progress is being made. Various private and public entities have recently started scientific research programs in the Arctic Ocean to fill some of the data gaps. For example, the Chukchi Sea Environmental Studies Program (CSESP), funded by ConocoPhilips, Shell, and Statoil, is a multi-year, multi-

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to respond to spills, and to recommend reforms to make offshore energy production safer." *Id.* at vi. The Commission held hearings, produced working papers, and ultimately concluded its work with the publication of the *Deepwater Horizon* Report.

34. *Id.* at vii; *see also* Letter from Jane Lubchenco, *supra* note 32, at 9 (noting that "[t]here are also gaps in our understanding of how some species utilize habitat in the Arctic and how behavioral responses to seismic airguns may or may not exclude marine mammal from these habitats, particularly in the face of potentially increasing levels of exploration and development.").

35. *See* Harald Loeng et al., *Marine Systems*, *in* ARCTIC CLIMATE IMPACT ASSESSMENT, *supra* note 20, at 453, 522. The International Arctic Science Committee is "a non-governmental organisation [sic] that aims to encourage, facilitate and promote cooperation in all aspects of Arctic research in all countries engaged in Arctic research and in all areas of the Arctic region." INT'L ARCTIC SCI. COMM., http://www.iasc.info/ (last visited May 29, 2014).

36. *See, e.g.*, Letter from Reggie Joule, Mayor, Nw. Arctic Borough, to Michael S. Rolland, Chief, Leasing Section, Bureau of Ocean Energy Mgmt. (Nov. 18, 2013); Arctic Ocean Research and Science Policy Review Act of 2009, S. 1562, 111th Cong. (2010), *available at* http://www.gpo.gov/fdsys/pkg/BILLS-111s1562rs/pdf/BILLS-111s1562rs.pdf; Arctic Research, Monitoring, and Observing Act of 2013, S. 1344, 113th Cong. (2013).

37. ARCTIC FMP EA, *supra* note 25, at 99.

discipline marine science research program collecting information on physical oceanography, ocean acidification, atmospheric conditions, sediments, benthic communities, plankton ecology, fish, seabirds, marine mammals, and underwater acoustics.[38] The purpose of the study is to provide baseline information that can be used by the government in its analysis and management of industrial activities.[39] In addition, Shell and the North Slope Borough are working together under a five-year collaborative science agreement in order to expand the baseline knowledge of the Arctic ecosystem, including human health, social, and cultural conditions.[40]

Other entities are working to synthesize existing information. For example, the North Pacific Research Board (NPRB), the National Science Foundation (NSF) Office of Polar Programs, and the North Pacific Marine Research Institute (NPMRI) are synthesizing arctic science in a project called the "Pacific Marine Arctic Regional Synthesis of the Northern Bering, Chukchi, and Beaufort Seas" (PacMARS), and BOEM and NOAA scientists are leading a somewhat different synthesis project known as the "Synthesis of Arctic Research" (SOAR).[41] Several nongovernmental organizations have worked collaboratively to collect available scientific information, use it to identify important areas in the U.S. Arctic Ocean, and provide that information to government decision makers.[42]

38. CHUKCHI SEA ENVTL. STUDIES PROGRAM, http://www.chukchiscience.com/ (last visited May 29, 2014).

39. *Id.*

40. Press Release, Shell, North Slope Borough, Shell to Collaborate on Science (Oct. 28, 2010), *available at* http://www.shell.us/aboutshell/projects-locations/alaska/events-news/10282010-science.html.

41. *See, e.g.*, PAC. MARINE ARCTIC REG'L SYNTHESIS, http://pacmars.cbl.umces.edu/ (last visited May 29, 2014); SYNTHESIS OF ARCTIC RESEARCH (SOAR), http://www.arctic.noaa.gov/soar/ (last visited May 29, 2014).

42. *See generally* Letter from Nat'l Audubon Soc'y et al., to Tommy Beaudreau, Dir., Bureau of Ocean Energy Mgmt. (Dec. 3, 2013) *available at* http://ak.audubon.org/sites/default/files/documents/chukchi_call_comments_and_appendices_3dec2013.pdf ("While we recommend against proceeding with the lease sale at this time, our comments focus on providing BOEM with information and analysis necessary to follow through with a reasonable approach to targeted leasing separate and apart from the valid reasons not to hold the lease sale."); Melanie A. Smith, *Arctic Marine Synthesis: Atlas of the Chukchi and Beaufort Seas*, AUDUBON ALASKA, http://ak.audubon.org/arctic-marine-synthesis-atlas-chukchi-and-beaufort-seas (last visited May 29, 2014).

C. The Triple Threat: Climate Change, Acidification, and Industrialization

The Arctic region is changing. Climate change is resulting in substantial warming, and marine absorption of carbon dioxide is causing oceans to become more acidic. At the same time, industrial activity is increasing in the Arctic Ocean. Together, these changes may have substantial effects on the people and ecosystems in the region. As the interagency working group created by President Obama to address Arctic issues explained,

> The U.S. Arctic is experiencing rapid, sustained change, and those changes are expected to continue into the coming decades due to climate change, resource extraction, and increasing human activities. Terrestrial, freshwater, and marine ecosystems as well as broader environmental, cultural, and economic trends in the Arctic will be affected.[43]

This section summarizes the changes that are occurring in the U.S. Arctic and the risks that are created by those changes.

1. Climate Change

The Arctic is warming roughly twice as fast as the rest of the world.[44] The more rapid temperature increase, known as "Arctic amplification," is due in part to a number of processes known as feedbacks.[45] Most importantly, warming is causing snow and sea ice to melt. Snow and sea ice reflect solar energy, and as it melts, new areas of ocean and land open; these darker areas absorb substantially more energy than the ice-covered areas. Once it is absorbed, this energy is converted to heat, which warms the Arctic.[46]

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43. INTERAGENCY WORKING GRP. ON COORDINATION OF DOMESTIC ENERGY DEV. & PERMITTING IN ALASKA, MANAGING FOR THE FUTURE IN A RAPIDLY CHANGING ARCTIC 8 (2013) [hereinafter INTERAGENCY WORKING GRP. REPORT], *available at* http://www.doi.gov/news/upload/ArcticReport-03April2013PMsm.pdf.

44. *See* Henry Huntington et al., *Introduction*, *in* ARCTIC CLIMATE IMPACT ASSESSMENT, *supra* note 20, at 1, 3–23. In addition, the shape of the troposphere—the atmospheric layer over the Earth's surface—causes the Arctic to warm faster than other parts of the planet. Because the troposphere is thinner in the Arctic, less energy is necessary to warm it there than would be required to warm the much thicker atmospheric layer in the tropics. *See* Vladimir M. Kattsov et al., *Future Climate Change: Modeling and Scenarios for the Arctic*, *in* ARCTIC CLIMATE IMPACT ASSESSMENT, *supra* note 20, at 99, 106. Finally, lower evaporation rates leave more energy available to warm the atmosphere in the Arctic. Since a smaller fraction of energy goes to evaporation at the poles, more energy goes directly to heating the atmosphere. *See id.* at 126.

45. Huntington et al., *supra* note 44, at 12.

46. *See generally All About Sea Ice, Thermodynamics: Albedo*, NAT'L SNOW & ICE DATA CTR., http://nsidc.org/cryosphere/seaice/processes/albedo.html (last visited May 29, 2014).

In 2012, the seasonal minimum sea ice extent in the Arctic reached a record low.[47] The years 2007 through 2012 represent the six smallest sea ice extents on record.[48] The rate of sea ice disappearance exceeds even the most dramatic predictions from only a few years ago; if it continues at its current pace, the Arctic Ocean will be ice free in the summer by 2017.[49] Climate change in the Arctic is also contributing to increased storms, sea level rise, melting permafrost, and coastal erosion.[50]

The changes in the Arctic have implications for the rest of the world. For example, the Arctic plays an important role in driving currents across all oceans, and as the Arctic warms, currents could change.[51] Rapid Arctic warming also may be tied to high-impact, extreme weather events in the United States and Europe.[52] In addition, melting glacial ice caused by warming contributes to global sea-level rise, and the feedbacks tied to melting sea ice contribute to increased warming throughout the world.[53]

The changes in the Arctic also have significant effects locally. The loss of sea ice affects Arctic species by altering the food web and reducing habitat for ice-dependent species such as polar bears, walruses, and ice seals that depend on sea ice for feeding, breeding, and giving birth.[54] Ringed seals, for example, depend on sea ice for resting, pupping, mating, molting, and feeding. Increased temperatures and loss of protective

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47. *Arctic Sea Ice Extent Settles at Record Seasonal Minimum*, NAT'L SNOW & ICE DATA CTR. (Sept. 19, 2012), http://nsidc.org/arcticseaicenews/2012/09/arctic-sea-ice-extent-settles-at-record-seasonal-minimum/. The record minimum is compared to years since 1979, which is when satellite data became available. *Id.*

48. *Id.*

49. *See, e.g.*, Wieslaw Maslowski, Jaclyn Clement Kinney, Matthew Higgins & Andrew Roberts, *The Future of Arctic Sea Ice*, 40 ANN. REV. OF EARTH & PLANETARY SCI. 625 (2012); James E. Overland & Muyin Wang, *When Will the Summer Arctic Be Nearly Sea Ice Free?*, 40 GEOPHYSICAL RES. LETTERS 2097 (2013); Quirin Schiermeier, *Ice Loss Shifts Arctic Cycles*, NATURE (Sept. 12, 2012), http://www.nature.com/news/ice-loss-shifts-arctic-cycles-1.11387.

50. *See generally* Huntington et al., *supra* note 44.

51. *See generally id.*; *see also* McBean et al., *supra* note 20, at 22–33.

52. Andrew Freedman, *Arctic Warming Is Altering Weather Patterns, Study Shows*, CLIMATE CENT. (Sept. 30, 2012), http://www.climatecentral.org/news/arctic-warming-is-altering-weather-patterns-study-shows; *see also* Jennifer A. Francis & Stephen J. Vavrus, *Evidence Linking Arctic Amplification to Extreme Weather in Mid-Latitudes*, 39 GEOPHYSICAL RES. LETTERS 1 (2012).

53. Holli Riebeek, *Arctic Melt Raises Sea Levels and Reinforces Global Warming*, EARTH OBSERVATORY (June 14, 2011), http://earthobservatory.nasa.gov/blogs/earthmatters/2011/06/14/arctic-melt-raises-sea-levels-and-reinforces-global-warming/ (citing ARCTIC MONITORING & ASSESSMENT PROGRAMME, ARCTIC CLIMATE ISSUES 2011: CHANGES IN ARCTIC SNOW, WATER, ICE AND PERMAFROST (2012), *available at* http://amap.no/swipa/).

54. *See generally* Kristin L. Laidre et al., *Quantifying the Sensitivity of Arctic Marine Mammals to Climate-Induced Habitat Change*, 18 ECOLOGICAL APPLICATIONS S97, S98–S99 (2008); Loeng et al., *supra* note 35, at 456, 496–97; NOAA ARCTIC SDEIS, *supra* note 11, at 3-132 to 3-133.

snow covering will make ringed seals more vulnerable to predation.[55] Loss of sea ice also may affect seals' prey species, such as Arctic cod.[56] In addition to reducing habitat for marine mammals, the rapid decline of sea ice to a seasonally ice-free Arctic is likely to fundamentally alter marine productivity in the region, which would have dramatic effects on the ecosystem.[57]

Along with ocean systems and marine life, warming in the Arctic also affects subsistence. For example, climate change makes subsistence whale hunting more difficult and dangerous by increasing waves that affect fall whaling and by decreasing the stability of ice platforms needed for spring hunting.[58] Changes in the timing and location of ice-dependent prey, such as ice seals and walruses, are making hunting more difficult, and declines in those and other important subsistence species are expected.[59] These changes threaten not only the health of individual residents but also the continuity of their cultural identify.[60]

2. Acidification

Carbon dioxide emissions are also resulting in ocean acidification. Approximately one-third of the carbon dioxide that is added to the atmosphere is absorbed by the oceans.[61] The absorption of carbon dioxide alters the chemistry of the seawater, making it more acidic, which can have substantial negative impacts on the marine environment. The Arctic is at particular risk from the effects of acidification due to its cold, low-salinity waters, in which carbon dioxide is more soluble.[62] In addition, changes caused by the warming environment accelerate ocean acidifica-

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55. Brendan P. Kelly, *Climate Change and Ice Breeding Pinnipeds*, *in* "FINGERPRINTS" OF CLIMATE CHANGE 43, 43 (G.-R.Walther et al. eds., 2001).

56. Cynthia T. Tynan & Douglas P. DeMaster, *Observations and Predictions of Arctic Climate Change: Potential Effects on Marine Mammals*, 50 ARCTIC 308, 308 (1997); Bodil A. Bluhm & Rolf Gradinger, *Regional Variability in Food Availability for Arctic Marine Mammals*, 18 ECOLOGICAL APPLICATIONS S77, S89 (2008).

57. *See* Bluhm & Gradinger, *supra* note 56, at S77, S83–S87.

58. NOAA ARCTIC SDEIS, *supra* note 11, at 3-195 to 3-196.

59. *See, e.g.*, Igor Krupnik & G. Carleton Ray, *Pacific Walruses, Indigenous Hunters, and Climate Change: Bridging Scientific and Indigenous Knowledge*, 54 DEEP-SEA RESEARCH PART II 2946, 2954 (2007).

60. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS (2007).

61. UNITED NATIONS ENV'T PROGRAMME ET AL., BLUE CARBON: A RAPID RESPONSE ASSESSMENT 27 (Christian Nellemann et al. eds., 2009), *available at* http://www.grida.no/publications/rr/blue-carbon/. http://www.grida.no/publications/rr/blue-carbon/.

62. ARCTIC MONITORING & ASSESSMENT PROGRAMME, ARCTIC OCEAN ACIDIFICATION ASSESSMENT: SUMMARY FOR POLICYMAKERS 5 (2013), *available at* http://www.amap.no/documents/doc/amap-arctic-ocean-acidification-assessment-summary-for-policy-makers/808.

tion in the Arctic. Warming promotes acidification in the Arctic in three main ways: (1) declining sea ice promotes gas exchange with the atmosphere, which leads to more carbon dioxide being absorbed in Arctic waters; (2) increased light penetration promotes plant growth in the ocean, and these plants initially use absorbed carbon dioxide to grow but then release it when they decay; and (3) increased glacial ice melt and river discharges lower the salinity of Arctic marine waters and thereby reduce their capacity to buffer the ocean against acidification.[63]

Research confirms that ocean acidification is occurring in the Arctic. Direct measurements demonstrate a clear trend of declining alkalinity (i.e., acidification) in the Bering and Chukchi seas.[64] In addition, there is proof that parts of the Arctic Ocean have become undersaturated with respect to aragonite, a relatively unstable form of calcium carbonate used by many Arctic species to form protective shells.[65] This undersaturation hinders formation of shells and skeletons in important components of the marine food webs, such as pteropods and some benthic organisms.[66] Such impacts to these species could reverberate through the marine ecosystem and ultimately affect food for larger Arctic animals, like walruses, seals, and sea birds.

Acidity also affects growth rates and reproduction in a variety of marine organisms.[67] Increasing acidity may also decrease the ability of

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63. Marco Steinacher et al., *Imminent Ocean Acidification in the Arctic Projected with the NCAR Global Coupled Carbon Cycle-Climate Model*, 6 BIOGEOSCIENCES 515, 525–28 (2009)*; see also* Nicholas R. Bates et al., *Ocean Acidification and Biologically Induced Seasonality of Carbonate Mineral Saturation States in the Western Arctic Ocean*, 114 J. GEOPHYSICAL RES. C11, C17–C18 (2009); Nicholas R. Bates & Jeremy T. Mathis, *The Arctic Ocean Marine Carbon Cycle: Evaluation of Air-Sea CO_2 Exchanges, Ocean Acidification Impacts and Potential Feedbacks*, 6 BIOGEOSCIENCES 2433, 2451 (2009).

64. *See generally* A. G. Andreev et al., *Calculation Methods and the Distribution of Anthropogenic Variations of pH Values in the Pacific Subarctic*, 49 OCEANOLOGY 418 (2009) [hereinafter *Calculation Methods*]; A. G. Andreev et al., *The Distribution of the Carbonate Parameters in the Waters of Anadyr Bay of the Bering Sea and in the Western Part of the Chukchi Sea*, 50 OCEANOLOGY 39, 49 (2010).

65. *See* Bates et al., *supra* note 63, at 17–18; Victoria J. Fabry et al., *Ocean Acidification at High Latitudes: The Bellwether*, 22 Oceanography 160, 161–62 (2009); Michiyo Yamamoto-Kawai et al., *Aragonite Undersaturation in the Arctic Ocean: Effects of Ocean Acidification and Sea Ice Melt*, 326 SCIENCE 1098, 1098 (2009); Steinacher et al., *supra* note 63, at 530; Melissa Chierici & Agneta Fransson, *Calcium Carbonate Saturation in the Surface Water of the Arctic Ocean: Undersaturation in Freshwater Influenced Shelves*, 6 BIOGEOSCIENCES DISCUSSIONS 4963, 4965–66, 4974 (2009).

66. NAT'L RESEARCH COUNCIL OF THE NAT'L ACADEMIES, OCEAN ACIDIFICATION: STARTING WITH THE SCIENCE 7 (2013), *available at* http://dels.nas.edu/resources/static-assets/materials-based-on-reports/booklets/OA1.pdf.; Steeve Comeau et al., *Key Arctic Pelagic Mollusc (Limacina Helicina) Threatened by Ocean Acidification*, 6 BIOGEOSCIENCES DISCUSSIONS 2523, 2529–30 (2009); Yamamoto-Kawai et al., *supra* note 65, at 1098.

67. NAT'L RESEARCH COUNCIL, *supra* note 66, at 10.

seawater to absorb sound,[68] increase the size of otoliths in fish,[69] and reduce the availability of iron, an essential nutrient for phytoplankton growth.[70] These changes can affect communication, feeding, and balance in fish.

3. Industrial Activities

As the Arctic environment changes due to climate change and ocean acidification, the region is becoming increasingly available for industrial activities. These activities would bring substantial risks to a part of the world that has remained relatively free from large-scale industrialization. Risks arise from both accidents and routine activities inherent in oil and gas exploration and development, shipping, and commercial fishing.

a. Oil and Gas

Though there is no oil and gas development from offshore rigs in the Arctic Ocean, substantial activities related to the oil and gas industry are taking place. Exploration drilling has been proposed and approved, and significant seismic and other testing has occurred. These activities require drilling rigs, fleets of large and small vessels, aircraft, and other industrial infrastructure, and they can result in substantial risk to the marine environment and those dependent on it.

The most obvious risk from these activities is a large oil spill, like the one that resulted from the *Deepwater Horizon* rig exploding and sinking in the Gulf of Mexico. That "human, economic, and environmental disaster" caused the death of eleven crewmembers and resulted in "more than four million barrels of oil . . . gushing uncontrolled into the Gulf. . . ."[71] The debate about the ecological and economic impacts from the spill and BP's liability for it still continues more than four years after the accident, "but it is already clear that the impacts on the region's natural systems and people were enormous, and that economic losses total tens of billions of dollars."[72]

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68. Kieth C. Hester et al., *Unanticipated Consequences of Ocean Acidification: A Noisier Ocean at Lower pH*, 35 GEOPHYSICAL RES. LETTERS L19601, L19601 (2008).

69. *See* David M. Checkley, Jr. et al., *Elevated CO_2 Enhances Otolith Growth in Young Fish*, 324 SCIENCE 1683, 1683 (2009).

70. *See* Andreev et al., *Calculation Methods*, *supra* note 64, at 425; Dalin Shi et al., *Effect of Ocean Acidification on Iron Availability to Marine Phytoplankton*, 327 SCIENCE 676, 676–78 (2010).

71. *DEEPWATER HORIZON* REPORT, *supra* note 33, at vi.

72. *Id.*

A similar spill in the Arctic Ocean would have dramatic impacts on the people and wildlife in the region.[73] While acknowledging the "limited information" available upon which to make an assessment, the United States estimates that "[f]or a catastrophic oil spill, it is assumed that two entire years of Arctic marine mammal subsistence harvests and one and one-half years of Bowhead whale harvests would be lost."[74] Given what is known about the impacts of the *Deepwater Horizon* and *Exxon Valdez* spills on fish and wildlife, this estimate appears to be optimistic estimate. Even this disruption, however, would ripple through the communities that depend on bowhead whales as the center of their subsistence way of life.[75]

The impacts of a catastrophic spill would be exacerbated by the lack of effective response capabilities and the sensitivity of the environment. Moreover, the lack of baseline information would make it difficult to prioritize response and measure impacts.[76] Of course, a catastrophic spill is not certain to occur, but the *Deepwater Horizon* tragedy made it all too clear that such an event is not impossible.[77] In addition, numerous

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73. *See, e.g.*, BEAUFORT SEA PLANNING AREA, FINAL ENVIRONMENTAL IMPACT STATEMENT, VOL. IV 13–15, 30–34, 37–40, 47–49, 73–78, 91–98, 103–108, 118–122, 131–133, 137–139 (2003), *available at* http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Regional-Leasing/Alaska-Region/Alaska-Lease-Sales/Sale-186/Index.aspx; CHUKCHI LEASE SALE 193 FINAL EIS, *supra* note 29, at 132–294.

74. BUREAU OF OCEAN ENERGY MGMT., ECONOMIC ANALYSIS METHODOLOGY FOR THE FIVE-YEAR OCS OIL AND GAS LEASING PROGRAM FOR 2012–2017 67, 69 (2012), *available at* http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Leasing/Five_Year_Program/2012-2017_Five_Year_Program/PFP%20EconMethodology.pdf.

75. *See, e.g.*, BEAUFORT SEA PLANNING AREA, *supra* note 73; CHUKCHI LEASE SALE 193 FINAL SEIS, *supra* note 29.

76. Nat'l Acad. of Scis., *Assessing Impacts of the Deepwater Horizon Oil Spill in the Gulf of Mexico*, SCI. DAILY (July 10, 2013), http://www.sciencedaily.com/releases/2013/07/13071012 2004.htm. Moreover, oil spill response activities themselves can have impacts on subsistence and wildlife resources. *See, e.g.*, CHUKCHI LEASE SALE 193 FINAL SEIS, *supra* note 29, at 32 (describing "significant" effects on subsistence hunters); *see also id.* at 25 ("Impacts from the oil spill itself could be exacerbated during spill response and cleanup activities such as vessel discharge, in-situ burning, dispersants, drilling a relief well, and shoreline cleanup."); *id.* 26 (discussing how "in-situ burning would also cause adverse impacts"); *id.* 28 (noting "[s]pill response and cleanup activities can also displace each species from important habitat areas" and that "cleanup efforts can lead to additional exposure as well as disturbance and displacement of polar bears"); *id.* 34 (recognizing "onshore spill response and cleanup activities . . . can alter site dynamics and increase resource degradation, resulting in potential adverse effects on historic properties").

77. In fact, "[f]rom 1964 through 2010, there have been 33 spills ≥ 1,000 bbl from OCS platforms and pipelines." CHERYL MCMAHON ANDERSON ET AL., BUREAU OF OCEAN ENERGY MGMT., UPDATE OF OCCURRENCE RATES FOR OFFSHORE OIL SPILLS 9 (2012), *available at* http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Leasing/Five_Year_Program/2012-2017_Five_Year_Program/Update%20of%20Occurrence%20Rates%20for%20 Offshore%20Oil%20Spills.pdf); *see also id.* at 10–11 (describing the incidents). In its 2008 Draft Environmental Impact Statement for the Chukchi and Beaufort Planning Areas produced, the gov-

other spills and near misses in the Gulf of Mexico further reinforce this point.[78]

In addition to creating the risk of a catastrophic spill, exploration and production activities also chronically release smaller amounts of oil, toxic muds, and other fluids into the ocean. Drilling muds, in particular, can have toxic effects in the water column.[79] Moreover, discharges of oil are virtually guaranteed to result from routine activities. As one Shell executive made clear, "There's no sugar-coating this, I imagine there would be spills, and no spill is OK."[80] In fact from 1964 to 2009, there were more than 2,700 reported spills from offshore oil and gas activities.[81]

Exploration activities also contribute to air pollution and global warming by releasing greenhouse gases, black carbon, and other pollutants. The activities that Shell proposed for 2012 in the Chukchi Sea were expected to release nearly 420 tons of NOx, a pollutant that can

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ernment estimated a 40% chance of a large spill in the Chukchi Sea and a 26% chance of a large spill in the Beaufort Sea. *See* MINERALS. MGMT. SERV., DRAFT ENVIRONMENTAL IMPACT STATEMENT, BEAUFORT SEA AND CHUKCHI SEA PLANNING AREAS OIL AND GAS LEASE SALES, 209, 212, 217, 221, at 4-454, 4-461 (2008), *available at* http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Regional-Leasing/Alaska-Region/Alaska-Lease-Sales/Sales209-221/Vol4a.aspx.

78. In the first three years after the *Deepwater Horizon* disaster, there were more than 1,700 major environmental and safety violations on offshore energy platforms in the Gulf. *See* COMM. ON NATURAL RESOURCES DEMOCRATS, DANGEROUS DRILLERS: OFFSHORE SAFETY LAPSES CONTINUE THREE YEARS AFTER BP SPILL 11 (2013), http://democrats.naturalresources.house.gov/sites/democrats.naturalresources.house.gov/files/documents/2013-05-10_BP_Spill_DangerousDrillers.pdf. In November 2012, the Black Elk rig exploded, killing three workers. Black Elk Energy Company itself has been cited for numerous safety and environmental violations, drawing strong rebukes from the Bureau of Safety and Environmental Enforcement. *See, e.g.*, Press Release, Bureau of Safety & Envtl. Enforcement, BSEE Director's Statement on Black Elk Report (Nov. 4, 2013), *available at* http://www.bsee.gov/BSEE-Newsroom/Statements/statement11042013/ ("[T]hese deaths were caused by a number of decisions, actions[,] and failures by Black Elk and contractors retained by Black Elk while conducting construction operations. These failures reflect a disregard for the safety of workers on the platform and are the antithesis of the type of safety culture that should guide decision-making in all offshore oil and gas operations."). On July 24, 2013, the Hercules Offshore jackup rig located off the Louisiana coast partially collapsed after catching fire due to a natural gas well rupture. Kristen Hays, *Gulf Rig Partially Collapses in Fire off Louisiana*: *U.S. Government*, REUTERS (July 24, 2013), http://www.reuters.com/article/2013/07/24/us-usa-gulfofmexico-well-idUSBRE96N0SU20130724. The incident indicates the continuing lack of safety in offshore energy activities and the dangers of offshore drilling even in shallow water conditions.

79. *Offshore Energy Production: Hearing Before the S. Comm. on Energy and Natural Resources*, 111th Cong. 5 (2009) (written statement of Dr. Jeffrey Short, Pac. Sci. Dir., Oceana), *available at* http://www.energy.senate.gov/public/index.cfm/files/serve?File_id=0d1cabb7-f29f-1b59-9b61-e8055aef00e2 (written testimony to the Committee).

80. Philip Bump, *Shell VP: Yeah, We're Gonna Spill Some Oil in the Arctic*, GRIST (Nov. 30, 2012, 12:25 PM), http://grist.org/news/shell-vp-yeah-were-gonna-spill-oil-in-the-arctic/ (quoting Shell's Alaska vice president Pete Slaiby discussing the likelihood that smaller spills would occur).

81. ANDERSON ET AL., *supra* note 77, at 10 tbl.10.

have substantial health effects.[82] In addition, the proposed activities were expected to result in the emission of more than 60,000 tons of carbon dioxide and a substantial amount of black carbon.[83] The problems associated with the emissions of black carbon are particularly acute in the Arctic. When they land on white snow and sea ice, particles of black carbon accelerate melting, which in turn accelerates warming in the region.

Seismic testing, exploration and production drilling, and associated activities dramatically increase noise levels in the ocean, and this noise can have significant effects on marine mammals and other wildlife. "Marine mammals use hearing and sound transmission to perform vital life functions. Sound (hearing and vocalization/echolocation) serves four primary functions for marine mammals: (1) providing information about their environment; (2) communication; (3) prey detection; and (4) predator detection."[84] Additional noise can disrupt these functions by displacing animals from breeding and feeding habitats, causing temporary or permanent hearing loss, causing stress and other physiological responses, making it more difficult for animals to hear other relevant sounds and, in extreme situations, causing stranding or death.[85]

Finally, conducting offshore oil and gas activities is a massive industrial undertaking. For example, to support its efforts to drill exploration wells in the Chukchi and Beaufort seas in 2012, Shell brought two drill rigs, a drilling vessel, ice breakers, tugs, barges, other support vessels, aircraft, helicopters, and other industrial machinery.[86] In addition to the direct impacts to the ecosystem discussed above, this large-scale industrialization brings an influx of people and industry from outside the communities along the coast. These changes have economic, social, and cultural impacts to Arctic communities.[87]

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82. BUREAU OF OCEAN ENERGY MGMT., SHELL 2012 EXPLORATION PLAN—CHUKCHI SEA: ENVIRONMENTAL ASSESSMENT 66–69 (2011), http://www.boem.gov/uploadedFiles/2011_1214_FINAL_2012ChukchiSeaEA.PDF.

83. *Id.*

84. NOAA ARCTIC SDEIS, *supra* note 11, at 4-92.

85. *Id.*

86. *See* SHELL GULF OF MEXICO INC., REVISED OUTER CONTINENTAL SHELF LEASE EXPLORATION PLAN CHUKCHI SEA, ALASKA, at section 13 (2011), *available at* http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Plans/Regional_Plans/Alaska_Exploration_Plans/2012_Shell_Chukchi_EP/CS-EP-Public.pdf.

87. *See, e.g.*, JOHN B. KENRIKSEN, OIL AND GAS OPERATIONS IN INDIGENOUS PEOPLES LANDS AND TERRITORIES IN THE ARCTIC: A HUMAN RIGHTS PERSPECTIVE, AT 28–29, 39–40 (2006), *available at* http://www.galdu.org/govat/doc/oilengelsk2.pdf.

b. Shipping

The Aleutian Islands are already a major shipping thoroughfare, and shipping related to oil and gas activities, freight transport, and tourism are predicted to rapidly expand into the Arctic Ocean.[88] In 2009, the Arctic Marine Shipping Assessment reported that "[t]here were approximately 6,000 individual vessels, many making multiple voyages, in the Arctic region during the AMSA survey year; half of these were operating on the Great Circle Route in the North Pacific that passes through Alaska's Aleutian Islands."[89] As sea ice continues to retreat and the demand for goods increases around the world, the number of vessels transiting the Arctic Ocean is predicted to increase.[90]

Substantial risks to the marine environment will result from this increase in shipping. As with oil and gas activities, the most apparent risk is a significant accident in the sensitive and remote Arctic environment. Remoteness, lack of infrastructure and basic information, and difficult conditions increase the likelihood of such an accident and make response very difficult:

> There is a general lack of marine infrastructure in the Arctic . . . compared with other marine regions of the world with high concentrations of ship traffic. Gaps in hydrographic data exist for significant portions of primary shipping routes important to support safe navigation. In addition, for safe operations in the Arctic there is a need for the same suite of meteorological and oceanographic data, products and services as in other oceans, plus comprehensive information on sea ice and icebergs. Except in limited areas of the Arctic, there is a lack of emergency response capacity for saving lives and for pollution mitigation. There are serious limitations to

88. This section focuses on increases in commercial shipping. Other forms of vessel transit are likely to increase as well. As discussed above, vessel traffic is associated with oil and gas activities. In addition, vessel-based tourism is likely to increase. "Tourists now represent the single largest human presence in the Arctic and the overwhelming majority of these visitors travel aboard ships." ARCTIC COUNCIL, ARCTIC MARINE SHIPPING ASSESSMENT 2009 Report, at 99 (2009), *available at* http://www.arctic.noaa.gov/detect/documents/AMSA_2009_Report_2nd_print.pdf [hereinafter AMSA REPORT]. Though relatively little of this traffic occurred in the U.S. Arctic Ocean, a cruise did make an unexpected stop in Barrow in August 2011. *See* Jerry Beilinson, *What If a Cruise Ship Wrecked in Alaska?*, POPULAR MECHANICS (Jan. 25, 2012, 12:30 PM), http://www.popularmechanics.com/technology/engineering/extreme-machines/what-if-a-cruise-ship-wrecked-in-alaska-6645471. "The future of Arctic marine tourism represents serious challenges to public authorities and businesses seeking to address the issues of safe passage and resource management." AMSA REPORT, *supra,* at 99.

89. AMSA REPORT, *supra* note 88, at 4. Of the 6,000 vessels reported, approximately 1,600 were fishing vessels. *Id.*

90. *See id.* at 4–5.

> radio and satellite communications and few systems to monitor and control the movement of ships in ice covered waters.[91]

The report went on to conclude that "[t]he current lack of marine infrastructure in all but a limited number of areas, coupled with the vastness and harshness of the environment, makes conduct of emergency response significantly more difficult in the Arctic."[92]

The *Exxon Valdez* and *Selendang Ayu* accidents and response efforts provide examples of these problems in less difficult Alaskan waters. In 1989, the *Exxon Valdez* ran aground and spilled more than eleven million gallons of oil into Prince William Sound, creating a disaster that brought the risks of oil development and transportation to American shores and people.[93] In December 2004, the *Selendang Ayu* was on its way to China from Seattle, Washington, with a crew of twenty-six and 60,200 metric tons of soybeans. As the ship transited Unimak Pass in the Aleutian Islands, it ran into heavy weather and eventually ran aground, breaking into pieces, and spilling its soybean cargo and more than 300,000 gallons of fuel.[94] While the Coast Guard was able to rescue much of the crew, tragically six crew members and Coast Guard rescuers perished when a rogue wave hit the vessel and downed the rescue helicopter.[95]

Similarly Shell's drill rig, the *Kulluk*, separated from its tow vessel and grounded in harsh but not unusual conditions in the Gulf of Alaska in December 2012.[96] While the situation was quite dangerous, thankfully there was no loss of life related to the loss of control and eventual grounding of the *Kulluk*.[97]

None of the *Exxon Valdez*, *Selendang Ayu*, or *Kulluk* incidents happened in the Chukchi or Beaufort seas. Rather, each took in waters that, while subject to extreme weather conditions and seas, do not have ice, and generally are closer to onshore support assets. In the more remote

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91. *Id.* at 5.

92. *Id.*

93. *See Exxon Valdez Spill Profile*, U.S. ENVTL. PROT. AGENCY, http://www2.epa.gov/emergency-response/exxon-valdez-spill-profile (last updated May 23, 2014).

94. *See* Mike Schuler, *M/V Selendang Ayu Oil Spill and Sinking*, GCAPTAIN MAR. & OFFSHORE NEWS (Apr. 29, 2009), http://gcaptain.com/mv-selendang-ayu-oil-spill-sinking/.

95. *Marine Accident Brief*, NAT'L TRANSP. SAFETY BOARD (Dec. 8, 2004), http://www.ntsb.gov/investigations/fulltext/MAB0601.htm.

96. *See infra* Part V.C.3.f (discussing Shell's problems in 2012).

97. Suzanna Caldwell, *Kulluk Grounding: Shell Oil Testimony Opens Coast Guard Hearing in Anchorage*, ALASKA DISPATCH (May 20, 2013), http://www.alaskadispatch.com/article/20130520/kulluk-grounding-shell-oil-testimony-opens-coast-guard-hearing-anchorage.

and icy Arctic waters, the risk of an incident with catastrophic consequences is even greater.

In addition—and parallel to oil and gas activities—ship traffic in the Arctic Ocean will result in increased noise, air, and water pollution. Increased shipping also raises the likelihood of introducing invasive species from ballast water discharge or other sources. Additionally, the main shipping routes in the Arctic overlap with migration corridors used by many marine mammals and birds, including the endangered bowhead whale. As a result, expanded commercial shipping will increase the likelihood of animal disturbances and ship strikes.

c. Commercial Fishing

Large-scale commercial fishing has been an important force in the southern Bering Sea and Gulf of Alaska for several decades. Some of the world's largest fisheries operate there, and more than four billion pounds of fish is harvested from the region each year. These fisheries have contributed to changes in the marine ecosystem; stocks of pollock, cod, and other species, for example, are currently managed to maintain 40% of their historic biomass.[98] These species, therefore, are managed so that there are 60% fewer fish, by weight, than were there historically.[99] In some cases, these fisheries can compete with marine mammals, such as endangered Steller sea lions, for prey.[100] In addition to biomass removals, some forms of fishing, such as bottom trawling, threaten important seafloor habitat and have a disproportionate effect on the marine environment.

There is currently no large-scale commercial fishing in the Chukchi or Beaufort seas. It has been thought, however, that "[c]limate warming is likely to bring extensive fishing activity to the Arctic, particularly in the Barents Sea and Beaufort–Chukchi region where commercial operations have been minimal in the past."[101] More recent information sug-

98. *See* NAT'L MARINE FISHERIES SERV., ENDANGERED SPECIES ACT—SECTION 7 CONSULTATION BIOLOGICAL OPINION FOR AUTHORIZATION OF FISHERIES UNDER THE FISHERY MANAGEMENT PLAN FOR GROUNDFISH OF THE BERING SEA AND ALEUTIAN ISLANDS MANAGEMENT AREA 103 (2010).

99. *See id.*

100. *See id.* at 345, 348.

101. U.S. ARCTIC RESEARCH COMM'N, THE ARCTIC OCEAN AND CLIMATE CHANGE: A SCENARIO FOR THE US NAVY (2002), *available at* http://www.arctic.gov/publications/other/arctic_and_climate_change.pdf.

gests that it may be a long time before there is sufficient biomass of target species to support commercial fisheries.[102]

If commercial fishing were to occur, it would require careful management to avoid disproportionate or unexpected impacts. Though the Arctic Ocean supports a complex system of marine life, it has lower species diversity and lower levels of production than temperate marine ecosystems. The loss or depletion of a single forage species, such as Arctic cod, could seriously disrupt the Arctic marine food web.[103]

Recognizing these unique challenges, the National Marine Fisheries Service (NMFS) and North Pacific Fishery Management Council have taken a proactive management approach to the Arctic. The Arctic Fishery Management Plan (Arctic FMP) was adopted unanimously by the Council and implemented with broad support by NMFS.[104] It closes the Chukchi and Beaufort seas to commercial fishing until there is adequate information to manage fisheries in an ecologically sustainable manner. Similarly, the Council recommended and NMFS created the Northern Bering Sea Research Plan, which closes a portion of the Bering Sea to bottom trawling to allow for an evaluation of the potential impacts of that gear on benthic species and habitat, before bottom trawling expands into this region.[105] In both cases, the goal has been to ensure that fishing activities do not harm the health of the ecosystem. That shared goal has established common ground between industry, local communities, and conservation entities.[106]

III. CHALLENGES TO EFFECTIVE MANAGEMENT

There are multiple challenges to effective management of human activities in the U.S. Arctic Ocean. The lack of baseline scientific information prevents good predictions and measurement of the impacts of potential activities, undercuts efforts that could eliminate or at least min-

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102. *See, e.g.*, Hannah Heimbuch, *As Globe Warms, Is an Arctic Fisheries Boom on the Way?*, ALASKA DISPATCH (Apr. 7, 2013), http://www.alaskadispatch.com/article/20130407/globe-warms-arctic-fisheries-boom-way.

103. *See, e.g.*, ARCTIC FMP EA, *supra* note 25, at 205 tbl.8-3 ("A fishery, if one turned to be economically viable, that harvested Arctic cod or that took large amounts as incidental catch could have an adverse and may have a significantly adverse impact on species that prey on it.").

104. FISHERY MANAGEMENT PLAN, *supra* note 16; *see also* Fisheries of the Exclusive Economic Zone off Alaska, 50 C.F.R. § 679 et. seq. (2013).

105. *See* Fisheries of the Exclusive Economic Zone off Alaska, *supra* note 104; Groundfish Fisheries of the Bering Sea and Aleutian Islands Management Area, 73 Fed. Reg. 43362 (July 25, 2008); Mary Pemberton, *Commerce Secretary Approves Arctic Fisheries Plan*, USA TODAY, (Aug. 23, 2009), http://usatoday30.usatoday.com/tech/science/environment/2009-08-21-alaska-fish_N.htm.

106. *See* Pemberton, *supra* note 105 (quoting federal government, industry, and conservation organization representatives).

imize or mitigate likely impacts, hinders response efforts, and creates substantial uncertainty. The fact that the U.S. Arctic is remote from existing development and does not have even basic infrastructure makes management and oversight very difficult. The weather can also be extreme at all times of the year, and emergency response is hindered, for example, by a lack of adequate and proven oil spill prevention and response technology. The lack of a comprehensive legal regime to guide decisions about such development also forces decision makers to operate without overarching direction.

A. Research Needs

The lack of baseline information outlined above[107] creates a significant impediment to effective planning and preparedness. The U.S. Commission on Ocean Policy stated as a principle tenet, "Ocean managers and policy makers need comprehensive scientific information about the ocean and its environment to make wise decisions."[108] And as the USGS explained, there are "major constraints to a defensible science framework for critical Arctic decision making."[109] Similarly, an inter-agency government report addressing the need for integrated management in the Arctic noted that "scientific information and data relevant to U.S. Arctic decisions can be difficult to access[,] and it is not clear that the scientific agenda for the U.S. Arctic adequately serves the informational needs of decision-makers."[110] The final recommendations of the Interagency Ocean Policy Task Force (OPTF) call for science-based decision making and a better understanding of our ocean ecosystems, including a special emphasis on the Arctic.[111]

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107. *See supra* Part II.B (discussing missing scientific information)

108. U.S. COMM'N ON OCEAN POLICY, AN OCEAN BLUEPRINT FOR THE 21ST CENTURY 374 (2004), *available at* http://govinfo.library.unt.edu/oceancommission/documents/full_color_rpt/welcome.html.

109. USGS REPORT, *supra* note 17, at 151.

110. INTERAGENCY WORKING GRP. REPORT, *supra* note 43, at 5.

111. *See* WHITE HOUSE COUNCIL ON ENVTL. QUALITY, FINAL RECOMMENDATION OF THE INTERAGENCY OCEAN POLICY TASK FORCE 6, 39–40 (2010), *available at* http://www.whitehouse.gov/files/documents/OPTF_FinalRecs.pdf (noting that one of the priority needs for addressing environmental stewardship of the rapidly changing Arctic Ocean is "[i]mprovement of the scientific understanding of the Arctic system and how it is changing in response to climate-induced and other changes"). The Obama Administration formalized the final OPTF recommendations through an Executive Order in 2010 and has released an implementation plan. See Exec. Order No. 13547, 75 Fed. Reg. 43023 (July 19, 2010); NAT'L OCEAN COUNCIL, EXEC. OFFICE OF THE PRESIDENT, NATIONAL OCEAN POLICY IMPLEMENTATION PLAN (2013), *available at* http://www.whitehouse.gov//sites/default/files/national_ocean_policy_implementation_plan.pdf.

Various other authorities have specifically recognized the need for additional science before more oil and gas activities occur in the Arctic. In March 2010, then-Secretary of the Interior Ken Salazar cancelled scheduled Arctic Ocean leases in the Beaufort, Chukchi, and Bering seas, explaining "that the country must take a cautious approach in the Arctic . . . and gather additional scientific information about resources, risks, and environmental sensitivities before making decisions about potential future lease sales in frontier areas."[112] The National Commission, after convening to study the *Deepwater Horizon* spill and make recommendations about offshore drilling, identified the need for "an immediate, comprehensive federal research effort to provide a foundation of scientific information on the Arctic . . . in order to inform the decision-making process."[113] In the fisheries management context, U.S. regulators have determined that the U.S. Arctic should remain closed to commercial fisheries "until sufficient information is available to support the sustainable management of a commercial fishery."[114]

To the extent that information about environmental resources exists, it is often not sufficiently mapped or incorporated into planning and management. Indeed, response to the *Deepwater Horizon* spill was hindered by response plans that were not appropriately targeted to important areas and the resulting questions about how to prioritize equipment.[115]

B. Remoteness and Lack of Infrastructure

Effective management and response requires proven equipment, trained personnel, and infrastructure. There is very limited capacity near the Arctic Ocean, and the sheer distance, difficult conditions, and limited transportation options would make it very difficult to bring equipment and personnel to the region.

The North Slope Borough, the county-level political subdivision adjacent to the U.S. Arctic Ocean, spans 88,000 square miles—an area larger than the state of Utah. Approximately 9,500 people live in the Borough; Barrow, the largest town, has just over 4,000 residents, and other coastal villages have as few as 200 people.[116] No roads connect the

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112. DEP'T OF THE INTERIOR, FACT SHEET: A COMPREHENSIVE, SCIENCE-BASED OFFSHORE ENERGY PLAN 1 (2010), *available at* http://www.doi.gov/deepwaterhorizon/loader.cfm?csModule=security/getfile&PageID=33566.

113. *DEEPWATER HORIZON* REPORT, *supra* note 33, at 303.

114. FISHERY MANAGEMENT PLAN, *supra* note 16, at ES-1.

115. *See* U.S. COAST GUARD, BP DEEPWATER HORIZON OIL SPILL: INCIDENT SPECIFIC PREPAREDNESS REVIEW (ISPR) 16–17, 20–22 (2011) [hereinafter ISPR], *available at* http://www.uscg.mil/foia/docs/dwh/bpdwh.pdf.

116. *North Slope Borough, Alaska*, U.S. CENSUS BUREAU, http://quickfacts.census.gov/qfd/

towns on the North Slope to one another or to the rest of the state, and most communities rely on small airports or airstrips and small boat docks for traveling between villages and to the rest of the state. There is no deepwater port along the U.S. Arctic Coast capable of supporting offshore development.[117] All existing docks are in shallow water, which severely limits boat access and the types of equipment that can be accessed from the coast.

Very little response equipment is stored on the North Slope, and there are few vessels there that could assist in a response effort. Senator Mark Begich (D-AK) has pointed out that icebreakers are "sorely lacking" as well as U.S. Coast Guard (USCG) "cutters, aircraft hangars, crew quarters, communication capabilities, deepwater ports and other infrastructure . . . ."[118] Characterizing the lack of infrastructure after testifying to a Senate Committee, USCG Commandant Robert Papp explained that "[t]here is nothing up there to operate from at present and we're really starting from ground zero."[119]

In contrast, a substantial number of people and vessels were available in, or easily transported to, the Gulf of Mexico to respond to the *Deepwater Horizon* accident. Eventually, a total of 48,200 people—more than four times the population of the entire North Slope Borough—participated in the response efforts.[120] Similarly, 345 response vessels and over 3,000 vessels of opportunity (i.e., vessels not designed for oil spill response but enlisted in the effort) took part in the Gulf response.[121]

Getting resources of that magnitude to the Arctic Ocean would be nearly impossible. There are no hotels or other housing capable of accommodating thousands of responders.[122] Nor is there an easy way to

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states/02/02185.html (last revised Mar. 27, 2014).

117. In 2013, the U.S. Army Corps of Engineers and the Alaska State Department of Transportation and Public Facilities released a report on the first year (2012) of their co-sponsored three-year study to examine the possible development of a deep water port north of the Aleutian Islands. *See* U.S. ARMY CORPS OF ENG'RS, ALASKA DEEP DRAFT ARCTIC PORTS STUDY (2013), *available at* http://www.poa.usace.army.mil/Portals/34/docs/AKports/1ADDAPSReportweb.pdf.

118. *Experts Say U.S. Needs to Improve Arctic Infrastructure*, ARCTIC SOUNDER (July 27, 2012), http://www.thearcticsounder.com/article/1130experts_say_us_needs_to_improve_arctic (quoting Senator Mark Begich).

119. Deborah Zabarenko, *Arctic Oil Spill Would Challenge Coast Guard*, REUTERS (June 20, 2011), http://www.reuters.com/article/2011/06/20/us-arctic-oil-idUSTRE75J6O620110620 (quoting U.S. Coast Guard Adm. Robert Papp Jr.).

120. ISPR, *supra* note 115, at 156; *DEEPWATER HORIZON* REPORT, *supra* note 33, at 133 (noting that "[a]t the peak of the response, more than 45,000 people participated").

121. *Id.*

122. *See, e.g.*, GENERAL PURPOSES COMM., A JOINT VENTURE, FINAL REPORT, OPERATION ARCTIC SHIELD BARROW/PRUDHOE BAY, ALASKA 6 (2012) [hereinafter ARCTIC SHIELD FINAL REPORT].

move equipment or personnel from one location to another. The nearest Coast Guard station is in Kodiak, AK, roughly 1,000 miles from the likely locations of oil and gas exploration, and the nearest large deepwater port is more than 1,000 nautical miles from Barrow, in Dutch Harbor.[123] Even in Dutch Harbor, the ability of the port to service drilling vessels and house people is limited.[124]

C. Weather

As might be expected in a polar region, weather and other environmental conditions can be severe in the Arctic. The Arctic Ocean is covered with sea ice from approximately October through May, and the air temperature drops below freezing on nearly every day of the year.[125] Throughout the summer and fall, the Arctic experiences extended periods of fog.[126] Long hours of darkness also limit visibility in the late fall and winter, and strong winds are prevalent during the fall, when the daily maximum winds average forty miles per hour.[127]

These conditions can complicate every stage of offshore oil and gas activities—from transporting equipment to and from a drill site, to drilling, maintenance, and emergency response. For example, rough water and weather can affect transportation of drill rigs and their stability during drilling operations. Ice and fog also impede drilling operations, and Arctic weather conditions can affect support vessels and aircraft. Routine issues, such as re-fueling, offloading wastewater, and transferring per-

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123. 123. *See, e.g.*, Marianne Lavelle, *Coast Guard Blames Shell Risk-Taking in Kulluk Rig Accident*, NAT'L GEOGRAPHIC (Apr. 4, 2014), http://news.nationalgeographic.com/news/energy/2014/04/140404-coast-guard-blames-shell-in-kulluk-rig-accident/; *see also Welcome to Kodiak, AK*, MARINE EXCHANGE OF ALASKA, http://www.mxak.org/ports/southcentral/kodiak/kodiak.htm (last visited June 1, 2014) (describing Kodiak port). Smaller ports are available in the Pribilof Islands. *See, e.g.*, *Welcome to St. Paul, AK*, MARINE EXCHANGE OF ALASKA, http://www.mxak.org/ports/northern_west/st_paul/st_paul.html (last visited June 1, 2014).

124. Jennifer A. Dlouhy, *Lawmaker: Did Shell Move Rig for Financial Reasons?*, FUEL FIX (Jan. 11, 2013), http://fuelfix.com/blog/2013/01/11/lawmaker-did-shell-move-rig-for-financial-reasons/ (noting lack of hotel rooms and space for the workers and that the shipyard was not well-suited for the maintenance work).

125. *Barrow*, CLIMATE ZONE, http://www.climate-zone.com/climate/united-states/alaska/barrow/ (last visited June 2, 2014) (tables showing average monthly temperature in Barrow).

126. PEW ENV'T GRP. ET AL., OIL SPILL PREVENTION AND RESPONSE IN THE U.S. ARCTIC OCEAN: UNEXAMINED RISKS, UNACCEPTABLE CONSEQUENCES 94 (2010), http://www.pewtrusts.org/~/media/legacy/uploadedfiles/peg/publications/report/Oil20Spill20Preventionpdf.pdf [hereinafter PEW ENV'T GRP. ET AL.] (noting that 49% of days in the summer and 57% of days in the fall are foggy).

127. *Id.* at 11 (noting that the maximum daily average wind speed for Barrow in October is forty-four mph, forty mph in November, and thirty-five mph in December).

sonnel, are risky in Arctic weather conditions.[128] In addition, bad weather can be difficult to predict, which can make routine operations problematic, increase the risk of an accident, and make emergency response difficult or impossible.

D. Emergency Response

The *Deepwater Horizon* blowout and the inability to stop or clean up the resulting spill has increased attention on and controversy about spill response in the Arctic. There are three primary oil spill response methods currently available: mechanical containment and recovery; *in situ* burning; and dispersants. The successful use of any of these methods in the U.S. Arctic Ocean is limited both by their own efficacy and by Arctic conditions.[129] These limits are so significant that Representative Henry Waxman (D-CA) described spill response planning as follows: "On paper these plans . . . might seem reassuring. . . . But when you look at the details, it becomes evident these plans are just paper exercise[s]."[130] Lloyd's of London concluded that "cleaning up any oil spill in the Arctic, particularly in ice-covered areas, would present multiple obstacles which together constitute a unique and hard-to-manage risk."[131]

1. Limits on Recovery and Removal Techniques

Traditionally, marine spill response has focused on mechanical containment and recovery techniques, such as boom and skimmers. The efficacy of mechanical response is limited, especially for large spills. After the *Exxon Valdez* spill, for example, an estimated 8% of the spilled oil was recovered using mechanical recovery,[132] and only 3% of the spilled

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128. For examples of these problems, see *infra* Part V.C.3.f (detailing problems Shell had in 2012).

129. *See generally* WORLD WILDLIFE FUND, NOT SO FAST: SOME PROGRESS IN SPILL RESPONSE, BUT US STILL ILL-PREPARED FOR ARCTIC OFFSHORE DEVELOPMENT (2009) [hereinafter US STILL ILL-PREPARED FOR ARCTIC OFFSHORE DEVELOPMENT], *available at* http://assets.worldwildlife.org/publications/401/files/original/Not_So_Fast_Some_Progress_in_Spill_Response__but_US_Still_Unprepared_for_Arctic_Offshore_Development.pdf?1345754373; *see also* PEW ENV'T GRP. ET AL., *supra* note 126, at 73–75.

130. *Drilling Down On America's Energy Future: Safety, Security, and Clean Energy: Hearing Before the Subcommittee on Energy and Environment of the Committee on Energy and Commerce,* 111th Cong. 4–6 (2010) (statement of Sen. Henry Waxman), *available at* http://www.gpo.gov/fdsys/pkg/CHRG-111hhrg77911/html/CHRG-111hhrg77911.htm.

131. LLOYD'S OF LONDON & CHATHAM HOUSE, ARCTIC OPENING: OPPORTUNITY AND RISK IN THE HIGH ARCTIC 39 (2012) [hereinafter LLOYD'S REPORT], *available at* http://www.lloyds.com/~/media/Files/News%20and%20Insight/360%20Risk%20Insight/Arctic_Risk_Report_webview.pdf.

132. *Energy Development on the Continental Shelf and the Future of Our Oceans: Hearing Before the Joint Subcomm. on Energy and Mineral Res. and Subcomm. on Insular Affairs, Oceans*

oil was recovered using these techniques after the *Deepwater Horizon* spill.[133] The relative ineffectiveness of these mechanical recovery methods results from the difficulty in finding oil in sufficiently dense concentrations, deploying and maintaining booms, and overcoming limits on storage and the ability to separate spilled oil from water.[134]

The inability to effectively respond to the *Deepwater Horizon* blowout using traditional techniques resulted in the development of new methods, including a capping stack and containment dome.[135] These methods of recovery show some promise, but they have never been tested in Arctic conditions, and there is substantial concern about their use.[136]

In-situ burning means that spilled oil is ignited and burned in the ocean. The efficacy of *in-situ* burning is limited by the need to collect and contain a large amount of the oil to burn and by the emulsification of oil caused by waves, which makes the oil more difficult to ignite.[137] *In-*

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and Wildlife of the H. Comm. Natural Resources, 111th Cong. 2 (2009) (written testimony of Dr. Jeffrey Short, Pac. Sci. Dir., Oceana), *available at* http://oceana.org/sites/default/files/o/fileadmin/oceana/uploads/Climate_Change/Toxic_Legacy/Written_Statement_of_Dr__Jeffrey_Short_3_24_Joint_Subcommittee_Hearing.pdf.

133. JANE LUBCHENCO, NAT'L OCEANIC & ATMOSPHERIC ADMIN. & U.S. GEOLOGICAL SURVEY, BP DEEPWATER HORIZON OIL BUDGET: WHAT HAPPENED TO THE OIL? 1 (2010), *available at* http://www.noaanews.noaa.gov/stories2010/PDFs/OilBudget_description_%2083final.pdf (noting 3% recovery through skimming).

134. *See generally* T.L. ROBERTSON & E.G. DECOLA, JOINT AGENCY EVALUATION OF THE SPRING AND FALL 2000 NORTH SLOPE BROKEN ICE EXERCISES (2000); INT'L TANKER OWNERS POLLUTION FED'N LTD., USE OF SKIMMERS IN OIL POLLUTION RESPONSE (2014), *available at* http://www.itopf.com/fileadmin/data/Documents/TIPS%20TAPS/TIP5UseofSkimmersinOilPollutionResponse.pdf (last visited June 2, 2014).

135. *See* SHELL, CHUKCHI SEA REGIONAL EXPLORATION PROGRAM OIL SPILL RESPONSE PLAN N-13, app. N (2011), *available at* http://www.bsee.gov/uploadedFiles/BSEE/OSRP/Chukchi%20OSRP%20-%20February%202012.pdf (describing capping stack and dome).

136. *See, e.g.*, John Ryan, *Sea Trial Leaves Shell's Arctic Oil-Spill Gear "Crushed Like a Beer Can"*, KUOW (Nov. 30, 2012), http://kuow.org/post/sea-trial-leaves-shells-arctic-oil-spill-gear-crushed-beer-can. Shell's containment dome has been certified for use by the Bureau of Safety and Environmental Enforcement (BSEE) but testing took place only in Puget Sound, Washington. *See* Tim Bradner, *Arctic Drill Rule Advance; Shell Spill Dome OK'd*, ALASKA J. OF COMMERCE (Aug. 15, 2013), http://www.alaskajournal.com/Alaska-Journal-of-Commerce/August-Issue-3-2013/Arctic-drill-rules-advance-Shell-spill-dome-OKd/. Even there, the first tests were a dismal failure. *See infra* notes 149–54 and accompanying text. A court in Alaska has determined that these response techniques are not actually part of the required spill response plan. *See infra* Part V.C.3.c (discussing the challenge to BSEE's approvals of Shell's Beaufort and Chukchi Sea Oil Spill Response Plans). Moreover, prior to its submissions, Shell itself stated that these techniques are unlikely to be effective in the Arctic. *See* Petitioners' Opening Brief at 21–24, Native Vill. of Point Hope v. Salazar, 680 F.3d 1123 (9th Cir. 2012) (No. 11-72891).

137. U.S. ENVTL. PROT. AGENCY, UNDERSTANDING OIL SPILLS AND OIL SPILL RESPONSE: ALTERNATIVE COUNTERMEASURES FOR OIL SPILLS 14 (1999), *available at* http://www.epa.gov/oem/content/learning/pdfbook.htm (last updated Feb. 3, 2014) (click on link for Chapter 3).

situ burning also creates both air pollution and a residue that sinks to the ocean floor, causing a risk of suffocation and contamination to benthic organisms.[138]

Dispersants are chemical agents that enhance dispersion of oil by generating larger numbers of microdroplets of oil that become suspended in the water column "where they are much more susceptible to microbial degradation."[139] To work effectively, dispersants must be applied in calm conditions with moderate to mild mixing energy,[140] and the oil must not be weathered (i.e., condensed) due to time in the ocean. There is limited proof that dispersants were effective after the *Deepwater Horizon* spill, and tests on commonly used dispersants show that they may be even less effective in the Arctic than in the warmer, more saline waters of the Gulf of Mexico.[141]

There are also questions about the acute and sublethal toxicity of dispersants.[142] A recent study shows that dispersants, when combined with oil, can be over fifty times more toxic than oil alone for some organisms.[143] During the Gulf of Mexico blowout, dispersants were responsible for the death of coral, mutated seafood, and high mortality rates for dolphins, whales, and turtles.[144] Dispersants contain known carcinogens and appear to have caused a variety of human health ailments during and after the Gulf of Mexico blowout.[145]

Even in the best of conditions, these response methods can recover only a small amount of the total oil spilled.[146] Arctic conditions are likely to limit this efficacy even further. For example, low visibility or turbulent conditions can ground airplanes needed to spot or ignite oil and ap-

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138. *Offshore Energy Production*, *supra* note 79, at 2–4.

139. *Deluge of Oil Highlights Research and Technology Needs for Oil Recovery and Effective Cleanup of Oil Spills: Hearing Before the Subcomm. on Energy & Env't of the H. Comm. on Sci. & Tech.*, 111th Cong. 3 (2010) (written testimony of Dr. Jeffrey Short, Pac. Sci. Dir., Oceana), *available at* http://science.house.gov/sites/republicans.science.house.gov/files/documents/hearings/060910Short.pdf.

140. *Id.*

141. Dr. Jeffrey Short, Presentation at Alaska Forum on the Environment (2013), http://www.akforum.com/PDFs/agenda2013.pdf; *see also* Letter from Oceana, Ocean Conservancy, to Ivan Nuñz, InterAmerican Dev. Bank (Feb. 14, 2014) (on file with author ("[T]here is a general lack of publicly available data that actually demonstrates the efficacy of dispersants in the field.").

142. NAT'L RESEARCH COUNCIL, OIL SPILL DISPERSANTS: EFFICACY AND EFFECTS 6 (2005).

143. Roberto Rico-Martínez, Terry W. Snell & Tonya L. Shearer, *Synergistic Toxicity of Macondo Crude Oil and Dispersant Corexit 9500A® to the* Brachionus Plicatilis *Species Complex (Rotifera)*, 173 Envtl. Pollution 5, 5–10 (2013).

144. GOV'T ACCOUNTABILITY PROJECT, DEADLY GULF DISPERSANTS IN THE GULF 53–56 (2013), *available at* http://www.whistleblower.org/program-areas/public-health/corexit/.

145. *Id.* at 31–32.

146. *See supra* notes 132–34; *see also generally* US STILL ILL-PREPARED FOR ARCTIC OFFSHORE DEVELOPMENT, *supra* note 129; PEW ENV'T GRP. ET AL., *supra* note 126.

ply dispersants.[147] Wind and waves can limit deployment of boom and the use of skimmers. Similarly, ice can tear boom and clog skimmers.[148] The same problems with boom can occur during *in-situ* burning because boom is often required to corral the oil into pools that are thick enough to ignite.

Response exercises in Alaskan waters have demonstrated the weaknesses of response techniques. Prior to 2012, the most recent tests of response equipment in the Arctic Ocean were held in 1999 and 2000 in the Beaufort Sea. In those tests, skimmers, boom, and vessels were deployed to test mechanical recovery systems. These tests were characterized as a "failure," despite the calm weather.[149] They revealed that even though mechanical recovery is typically assumed to work in up to 30% ice coverage, the system only actually worked in up to 10% ice coverage.[150]

The next known tests were held in August 2012 off Barrow, AK, when the Coast Guard deployed boom and tested a skimmer designed to recover oil in pockets of water trapped by ice.[151] Although the trial focused on deployment, not actual spill recovery, the lessons learned from this exercise demonstrate how difficult it would be to respond to a real spill in the Arctic. As the Coast Guard noted in its report on the exercise, the lack of docking facilities or ports was a challenge.[152] Over the course of nearly a week, the spill response equipment had to be trucked to Prudhoe Bay, loaded onto a shallow draft barge, then transported to the Coast Guard boat offshore Barrow.[153] The Coast Guard also encountered challenges in finding berthing facilities for training personnel–a problem that would be compounded by the much greater number of responders that would have to be housed if a spill occurred in Arctic waters and a

147. RONALD O'ROURKE, CONG. RESEARCH SERV., R41153, CHANGES IN THE ARCTIC: BACKGROUND AND ISSUES FOR CONGRESS 30–32 (2014), *available at* http://digital.library.unt.edu/ark:/67531/metadc282294/m1/1/high_res_d/R41153_2014Feb27.pdf.

148. SAARA HÄNNINEN & JUKKA SASSI, VTT TECHNICAL RESEARCH CENTRE FINLAND, ACUTE OIL SPILLS IN ARCTIC WATERS—OIL COMBATING ICE 26–27 (2010), *available at* http://www.iccopr.uscg.gov/iccopr/i/files/Acute_Oil_Spills_in_Arctic_Waters_11JAN2010.pdf.

149. *See* Oceana, *What If an Oil Spill Happened in the Arctic?*, YOUTUBE (July 7, 2011), http://www.youtube.com/watch?v=2dL3RGwpBaI (showing footage of testing oil spill response capacity conducted by the Alaska Department of Environmental Conversation in 2000).

150. *See* ROBERTSON & DECOLA, *supra* note 134, at 47.

151. Press Release, U.S. Coast Guard, Coast Guard Completes Arctic Spilled Oil Recovery Systems Deployment (Aug. 3, 2012), *available at* http://www.uscgnews.com/go/doc/4007/1508115/Imagery-Available-Coast-Guard-completes-Arctic-spilled-oil-recovery-systems-deployment.

152. ARCTIC SHIELD FINAL REPORT, *supra* note 122, at 1; *see also* U.S. COAST GUARD, PREPSORS 2012 (CGC SYCAMORE) AFTER ACTION REPORT (2012) (on file with author).

153. ARCTIC SHIELD FINAL REPORT, *supra* note 122, at 3–4.

meaningful response effort were underway. Finally, ice and fog inhibited the exercise.[154]

Realities like these led the National Commission to find that "successful oil spill response methods from the Gulf of Mexico, or anywhere else, cannot simply be transferred to the Arctic."[155] The National Academy of Sciences similarly determined that "no current cleanup methods remove more than a small fraction of oil spilled in marine waters, especially in the presence of broken ice."[156]

Generally, oil spill response plans have not reflected the fact that basic response methods are limited. For example, before the *Deepwater Horizon* spill, BP assumed that the boats and skimmers it used could mechanically remove 492,000 barrels of oil per day.[157] In reality, skimmers collected approximately 3% of the spilled oil.[158] BP based its assumptions about skimmers on their Effective Daily Recovery Capacity (EDRC). EDRC is based on the "Name Plate Recovery Rate" of the skimmer, which is based on the amount of liquid that a skimmer's pump can draw, discounted by 20% to account for the lack of efficiency caused by factors such as the percentage of water mixed with oil that is recovered.[159] However, this simple formula does not account for other limitations, such as "moderate sea states, poor encounter rates, oil compositions that were incompatible with offshore skimming systems, and an inability of skimmers to stay within the confines of the largest and thickest patches of fresh crude oil close to the site of the well."[160] Thus, "[c]urrent planning standards for offshore skimming systems relying on EDRC as the measure of skimmer effectiveness during a response proved to be highly inaccurate and unreliable as measures of potential performance."[161]

Similarly, the spill response plans approved for Shell's proposed activities in 2012 rely on the assumption that 90% of a worst-case discharge will be contained at the source and another 5% recovered by skimmers or other mechanical recovery.[162] Neither the plans nor the ap-

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154. *Id.* at 6.

155. *DEEPWATER HORIZON* REPORT, *supra* note 33, at 303–04.

156. NAT'L RESEARCH COUNCIL, CUMULATIVE ENVIRONMENTAL EFFECTS OF OIL AND GAS ACTIVITIES ON ALASKA'S NORTH SLOPE 7 (2003), *available at* http://books.nap.edu/openbook.php?isbn=0309087376.

157. ISPR, *supra* note 115, at 28.

158. *Id.* at 8, 29.

159. *Id.* at 8.

160. *Id.* at 110.

161. *Id.* at 30.

162. SHELL, *supra* note 135, at N-49.

provals recognize the limits on these technologies, the lack of testing, or the past failures.

2. Response Gap

The efficacy of oil spill recovery in water is limited under any conditions, but at times, recovery actions are completely impossible due to environmental conditions. The time during which response is impossible is called the "response gap."[163] As the USGS explained, "[u]nderstanding what combination of countermeasures will likely be available under the temporal and spatial variability of the Arctic is essential to assess environmental risks from any potential spilled oil."[164]

A response gap assessment examines historical weather data and operational limits during various time periods for a particular location to assess when response is likely to be impossible. The Canadian government conducted a response gap assessment for a few locations in Canadian Arctic waters.[165] The study found that, in the Beaufort Sea, visibility precluded any response 20% of the time in July. In November, darkness precluded response approximately 75% of the time, and visibility precluded response 80% of the time.[166] The study did not, however, assess the limitations caused by ice cover, which can also be significant. Ice coverage between 30% and 70% is particularly challenging for any response method.[167] A study integrating ice coverage with the Canadian response gap study found that, in July, thresholds would not be exceeded for at least one response measure about 50% the time, meaning that some response could be mounted roughly half the days in July.[168] By October, response was possible only 20% of the time, and no response at all was possible from November until May.[169]

Thus, each response method is limited in Arctic conditions, and there are times when no response will be possible. As the experts who

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163. *See* S.L. ROSS ENVTL. RES. LTD., SPILL RESPONSE GAP STUDY FOR THE CANADIAN BEAUFORT SEA AND THE CANADIAN DAVIS STRAIT (2011) [hereinafter CANADIAN BEAUFORT RESPONSE GAP], *available at* https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90463/621169/700096/702787/A2A6V0_%2D_SL_Ross_Environmetal_Research_Limited_%2D_Spill_Response_Gap_Study_for_the_Canadian_Beaufort_Sea_and_the_Canadian_Davis_Strait.pdf?nodeid=702903&vernum=-2.

164. USGS REPORT, *supra* note 17, at 130.

165. CANADIAN BEAUFORT RESPONSE GAP, *supra* note 163.

166. *Id.* at 19.

167. US STILL ILL-PREPARED FOR ARCTIC OFFSHORE DEVELOPMENT, *supra* note 130, at 11.

168. Letter from Will Amos, Counsel, WWF-Canada, to Anne-Marie Erickson, Sec'y, Can. Nat'l Energy Board 3 (Sept. 7, 2011), *available at* http://awsassets.wwf.ca/downloads/wwf_canada___letter_of_comment___sl_ross_spill_response_gap_study_for_the_canadian_be.pdf.

169. *Id.* at 1.

conducted the Canadian response gap study observed, "there is a growing recognition" that the primary response method—mechanical response—"has significant limitations when used for large spills in . . . Arctic locations."[170] The other existing methods—*in-situ* burning and dispersal—are limited by many of the same environmental conditions and have the additional disadvantage that they change at lease some of the pollution from one form to another.[171]

E. Lack of Comprehensive Regulatory Regime

The lack of overarching legal or policy direction compounds the challenges to rational decision-making outlined above. Management of Arctic resources has been described as "balkanized":

> More than 20 federal agencies and bureaus have domestic Arctic-related missions that include promoting safety, permitting commercial activities, conducting scientific research, assuring clean air and water, and conserving fauna, flora, and ecosystems. The responsibilities of each of those agencies are spelled out in U.S. law, but how they coordinate with each other can be unclear. State, municipal, and tribal governments also have authorities and responsibilities, further complicating the regulatory landscape.[172]

Decisions about Arctic Ocean resources fall under the purview of the Bureau of Ocean Energy Management (BOEM), Bureau of Safety and Environmental Enforcement (BSEE), U.S. Fish & Wildlife Service (FWS), U.S. Coast Guard (USCG), Environmental Protection Agency (EPA), and National Marine Fisheries Service (NMFS), among others. "These agencies are all separate entities, most of them located in different Cabinet departments. . . ."[173]

Different agencies are charged with making final management decisions about industrial activities—oil and gas, shipping, climate, fisheries—and these decisions by different agencies are not always consistent with each other or reflective of a coherent long-term plan or risk-benefit calculus. There is no single statute that governs Arctic resource management or planning; nor is there a single statute providing direction for ocean management. Instead, federal agencies must implement their spe-

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170. S.L. ROSS ENVTL. RESEARCH LTD. ET AL., BEAUFORT SEA OIL SPILLS STATE OF KNOWLEDGE REVIEW AND IDENTIFICATION OF KEY ISSUES 29–30 (2010), *available at* http://www.esrfunds.org/pdf/177.pdf.

171. US STILL ILL-PREPARED FOR ARCTIC OFFSHORE DEVELOPMENT, *supra* note 129, at 11–12.

172. INTERAGENCY WORKING GRP. REPORT, *supra* note 43, at 38.

173. *Id.* at 39.

cific directions, which are not always in harmony. "For example, some missions focus primarily on facilitating the extraction of minerals and energy resources, while others are charged primarily with understanding, moderating, and mitigating the potential impacts of human activities upon environmental or cultural values."[174] As mentioned above, NMFS has precluded commercial fisheries in the U.S. Arctic at this time due to lack of scientific information.[175] The Department of the Interior, however, with the same information, has moved ahead to allow offshore oil and gas activities.[176]

These problems are complicated by the lack of binding international direction. There is no treaty or agreement governing international waters in the Arctic. Rather, the Arctic Council exists as a policy-making body. Its goals are largely aspirational, and thus far, the work of the Arctic Council has not resulted in significant policy change in the United States.

The multiple agencies and directions can lead to inefficiency, conflict, and poor management. To address some of those concerns, President Obama created the Interagency Working Group on Coordination of Domestic Energy Development and Permitting in Alaska.[177] The Working Group "facilitate[s] coordinated and efficient domestic energy development and permitting in Alaska while ensuring that all applicable standards are fully met."[178] The Working Group is comprised of representatives from the federal agencies that play roles in Arctic management and is chaired by the Deputy Secretary of the Department of the Interior. The Working Group coordinates, but it does not have the authority to change regulations or force specific actions at the member agencies.

F. Increasingly Politicization of Oil and Gas Issues

Management decisions are further complicated by the elevation of offshore oil and gas issues in the national political debate. Exploration and development of offshore oil and gas resources rose to national prominence in the early 1980s as a result of the Arab oil embargo and Reagan Administration push for development.[179] The issue faded from the national political scene in the late 1980s, and public opinion swung against

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174. *Id.* at 38. The government prepares an Arctic Strategy, but the document provides general policy direction, not specific governance. *See* U.S. COAST GUARD, ARCTIC STRATEGY (2013), *available at* http://www.uscg.mil/seniorleadership/DOCS/CG_Arctic_Strategy.pdf.

175. *See supra* text accompanying notes 104–06.

176. *See infra* Part V.C.

177. Exec. Order No. 13,580, 76 Fed. Reg. 41,989 (July 11, 2011).

178. *Id.* § 1.

179. *See infra* Part V.A (describing early history from 1970–2000).

increased offshore exploration and development in the wake of the *Exxon Valdez* spill in 1989. In fact, in the aftermath of that spill, President George H.W. Bush issued a presidential directive preventing leasing offshore most of the continental United States and in Bristol Bay, AK.[180] Congress similarly expanded an annual funding limitation that precluded funds from being used to lease in those places.[181]

1. Increasing Attention

That period of relative calm began to change in the early 2000s as the George W. Bush Administration began to make more offshore areas available to companies.[182] In addition, the issue was a centerpiece of Republican rhetoric in the campaign leading up to the 2008 election. Most famous of these rallying cries, of course, was Republican vice-presidential nominee Sarah Palin's infamous chant, "Drill, baby, drill" and Newt Gingrich's call to "drill here, drill now."[183] The national attention and political gamesmanship had some substantive ramifications. President Bush removed the presidential moratorium implemented by his father, and Congress let lapse the annual funding moratoria.[184] Together, these two actions removed barriers to leasing in much of the U.S. Outer Continental Shelf (OCS). Late in his final term, President George W. Bush released a draft 2010–2015 Five-Year Leasing Program proposing to expand even further offshore leasing of U.S. waters.[185] This draft plan,

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180. CURRY L. HAGERTY, CONG. RESEARCH SERV., R41132, OUTER CONTINENTAL SHELF MORATORIA ON OIL AND GAS DEVELOPMENT 2 n.8 (2011), *available at* https://www.fas.org/sgp/crs/misc/R41132.pdf.

181. *See id.* at 5.

182. *See infra* text accompanying notes 289–96 (detailing expansion of leasing under George W. Bush). At the beginning of the George W. Bush Administration, Vice President Cheney convened an "energy task force" in which he met with oil industry leaders to develop an "energy policy." Dana Milbank & Justin Blum, *Document Says Oil Chiefs Met with Cheney Task Force*, WASH. POST (Nov. 16, 2005), http://www.washingtonpost.com/wp-dyn/content/article/2005/11/15/AR2005111501842.html.

183. Jeffrey Ball, *Palin's Policy: Drill, Baby, Drill*, WALL ST. J. (Sept. 4, 2008), http://blogs.wsj.com/environmentalcapital/2008/09/04/palins-policy-drill-baby-drill/; NEWT GINGRICH, DRILL HERE, DRILL NOW, PAY LESS: A HANDBOOK FOR SLASHING GAS PRICES AND SOLVING OUR ENERGY CRISIS (2008).

184. Steven Lee Myers & Carl Hulse, *Bush Lifts Drilling Moratorium, Prodding Congress*, N.Y. TIMES (July 14, 2008), http://www.nytimes.com/2008/07/14/washington/14drillcnd.html?_r=0; HAGERTY, *supra* note 180, at 1.

185. MINERALS MGMT. SERVICE, U.S. DEP'T OF THE INTERIOR, DRAFT PROPOSED OUTER CONTINENTAL SHELF (OCS) OIL AND GAS LEASING PROGRAM 2010–15 (2009), *available at* http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Five-Year-Program/DPP_FINAL-pdf.aspx.

which was off-schedule (the existing plan did not expire until 2012), included thirty-one lease sales.[186] This draft was never finalized.[187]

Offshore drilling issues were once again thrust into the national spotlight by the 2010 *Deepwater Horizon* accident. Unlike the aftermath of the *Exxon Valdez* disaster, however, public concern about offshore drilling has not yet resulted in fundamental, substantive change in the governing statutes or government policy.[188] High-level officials have repeatedly stated that offshore drilling—in the Arctic Ocean and other places—is an important component of the Obama Administration's "all-of-the-above" energy strategy.[189]

2. The Department of the Interior Seeks to Quiet Its Experts

The sensitive political environment appears to have had a direct effect on substantive work within the Department of the Interior (DOI). For example, during the review of Shell's 2007–09 exploration plans, a num-

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186. *Id.* at 3; *see also* 74 Fed. Reg. 3631, 3633 (Jan. 21, 2009); Wesley Loy, *NOAA, Natives Oppose Much of 2010–15 Leasing Plan; Drillers, Lawmakers Endorse*, PETROLEUM NEWS (Oct. 25, 2009), http://www.petroleumnews.com/pntruncate/612252252.shtml.

187. In fact, the Obama Administration consolidated its review of the draft 2010–2015 program with its reconsideration of the 2007–2012 program. As one of his first acts after being confirmed as Secretary of the Interior, Ken Salazar announced that the comment deadline on the draft 2010–2015 Five-Year Leasing Program would be extended and that a series of public meetings would be held. *See 2012–2017 Outer Continental Shelf Oil and Gas Leasing Program*, BUREAU OF OCEAN ENERGY MGMT., http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Five-Year-Program/2012-2017/DDP.aspx (last visited June 2, 2014). These meetings were held, and before the agency reached a decision, the court invalidated the 2007–12 Leasing Program and remanded it to DOI. *See infra* text accompanying notes 297–302 (discussing challenge to 2007–2012 Five-Year Leasing Program).

188. Congress passed the Oil Pollution Act of 1990 in the wake of the *Exxon Valdez* spill. After this spill, Congress acted to "prevent[] future oil spills . . . and enhanc[e] oil spill response." SeaRiver Mar. Fin. Holdings, Inc. v. Mineta, 309 F.3d 662, 666 (9th Cir. 2002). Among other changes, the Act requires double hulls on oil tankers, specifically mandates that parties responsible for an oil spill will pay for removal and remediation, and obligates operators of offshore drilling rigs to comply with Clean Water Act requirements for spill response planning. *See* Oil Pollution Act of 1990. No substantive legislation addressing identified causes of the *Deepwater Horizon* spill has been passed. In addition, the government has continued to approve exploration proposals, hold lease sales, and publicly state its support for offshore drilling. *See, e.g.*, *infra* Part V.C.3.b (describing approvals of Shell's exploration proposals for the Chukchi and Beaufort seas); Gulf of Mexico OCS Region, *Table 1: All Lease Offerings*, BUREAU OF OCEAN ENERGY MGMT., http://www.boem.gov/OCS-Lease-Sale-Statistics-All-Lease-Offerings/ (last updated Jan. 9, 2014) (showing lease sales held in the Gulf of Mexico since 2010); Wendy Koch, *Obama Calls for Offshore Oil Drilling and Clean Energy*, USA TODAY (Jan. 24, 2012), http://content.usatoday.com/communities/greenhouse/post/2012/01/obama-calls-for-offshore-oil-natural-gas-and-clean-energy/1#.U06ijVIdGoo.

189. Dan Pfeiffer, *Fact Check: All-of-the-Above Approach to American Energy*, WHITE HOUSE BLOG (Feb. 29, 2012), http://www.whitehouse.gov/blog/2012/02/29/fact-check-all-above-approach-american-energy.

ber of DOI's scientists expressed concerns about the potential impacts of Shell's drilling plans. The opinions of these scientists were not disclosed in the final Environmental Assessment, but petitioners otherwise had copies of these expert assessments and were successful in ensuring that they were before the court during the challenge to the approval based on that assessment.[190]

Subsequently, a manager at MMS filed a complaint with the DOI Office of Inspector General (IG), asserting that one of the agency's scientists wrongfully released the documents to outside parties.[191] He asserted that the expert's documents were a critical part of the agency's internal deliberative process and therefore not subject to public access under the Freedom of Information Act (FOIA). In a parallel claim, the manager alleged that two of the agency scientists "intentionally omitted or used false data in their published manuscript" about observations of dead polar bears found floating in the Beaufort Sea.[192] The manager also alleged that the scientists manipulated data in order to influence FWS to list the polar bear under the ESA.[193]

The IG thereafter initiated a multi-year investigation of the allegations. Without public explanation, the agency—by then renamed BOEM—suspended one of the scientists in connection with the IG investigation, but the scientist was restored six weeks later, again without public explanation. The IG report was released in September 2012.[194] At that time, BOEM informed the scientist that it was reprimanding him based on a series of improper disclosures of internal government documents to a non-governmental organization in 2007 and 2008.[195] As BOEM explicitly noted, one of the disclosures listed in the letter of reprimand had been "cited by the U.S. Court of Appeals for the Ninth Circuit in making decisions to vacate BOEM's approval of the Shell exploration plan."[196]

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190. For a more complete discussion of this issue, see *Leaked Emails May Sink Arctic Offshore Lease Sales*, PUB. EMPS. FOR ENVTL. RESPONSIBILITY (Feb. 4, 2008), http://www.peer.org/news/news-releases/2008/02/04/leaked-e-mails-may-sink-arctic-offshore-lease-sales/.

191. OFFICE OF THE INSPECTOR GEN., U.S. DEP'T OF THE INTERIOR, INVESTIGATIVE REPORT OF CHARLES MONNETT 1 (2012), *available at* http://www.peer.org/assets/docs/doi/10_1_12_Monnett_IG_Report.pdf.

192. *Id.*

193. *Id.*

194. *See* Press Release, Pub. Emps. for Envtl. Responsibility, Drowned Polar Bear Paper Vindicated—Again (Feb. 14, 2013), *available at* http://www.peer.org/news/news-releases/2013/02/14/drowned-polar-bear-paper-vindicated-%E2%80%93-again/.

195. Reprimand Letter from Walter D. Cruickshank, Deputy Dir., Bureau of Ocean Energy Mgmt., to Charles W. Monnett, Wildlife Biologist 3 (Sept. 27, 2012), *available at* http://www.peer.org/assets/docs/noaa/10_1_12_Monnett_reprimand.pdf.

196. *Id.*

At some point thereafter, the IG re-opened the case, pursuing a new scientific misconduct investigation. In response, the BOEM Scientific Integrity Officer found no violations of the DOI Policy on Scientific and Scholarly Integrity and declared the case closed.[197]

IV. OIL AND GAS MANAGEMENT AND REGULATORY STRUCTURE

As discussed above, a variety of federal agencies are charged with making management decisions about Arctic Ocean resources under several federal statutes. Decisions about offshore oil and gas activities are a microcosm of this issue. DOI, through BOEM and BSEE,[198] is charged with planning and authorizing offshore oil and gas leasing, exploration, and development. BOEM and BSEE are subject to permitting and other authority that resides in a number of federal agencies. This next section provides a general overview of the central regulatory directives for decisions about offshore oil and gas activities in federal waters.[199]

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197. Press Release, Pub. Emps. for Envtl. Responsibility, *supra* note 194. As part of the final resolution, the letter of reprimand was withdrawn, Dr. Monnett received a $100,000 settlement from the agency, and he was given a conservation award by Interior. Nell Greenfieldboyce, *Polar Bear Researcher Gets $100,000 in Settlement with Feds*, NPR, (Dec. 4, 2013), http://www.npr.org/2013/12/04/248674546/polar-bear-researcher-gets-100-000-in-settlement-with-feds.

198. BOEM and BSEE are two components of what used to be the Minerals Management Service. As another result of the *Deepwater Horizon* blowout, the Obama Administration reorganized the Department of the Interior's oil and gas management agency. *See, e.g.*, HENRY B. HOGUE, CONG. RESEARCH SERV., R41485, REORGANIZATION OF THE MINERALS MANAGEMENT SERVICE IN THE AFTERMATH OF THE DEEPWATER HORIZON OIL SPILL (2010), *available at* http://www.fas.org/sgp/crs/misc/R41485.pdf. It started by dividing the Minerals Management Service (MMS) into the Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE)—which handled regulatory functions—and the Office of Natural Resources Revenue, which handled the accounting functions of the former MMS. *See id.* at 3, 10–11. Later, BOEMRE was further divided into BOEM, which handles planning and approvals, and BSEE, which is charged with enforcement and oversight. *Id.* at 10–11. Unlike the Bureau of Land Management (BLM), which manages federal lands under DOI's purview, BOEM and BSEE are not directed by an organic statute. There is no statutory companion for ocean management agencies, which, as a result, are left solely with the direction provided in OCSLA. *See infra* Part IV.A.

199. Pursuant to the Submerged Lands Act and Equal Footing Doctrine, the state of Alaska has jurisdiction over subsea resources from zero to three nautical miles offshore. *See* Submerged Lands Act of 1953, 43 U.S.C. §§ 1301(a)(2), 1311(a) (2012) (granting the states title to submerged lands beneath a three-mile belt of territorial sea, measured from the state's "coast line"); Alaska Statehood Act § 6(m) (providing that the Submerged Lands Act applies to Alaska). As a result, the state makes decisions about offshore oil and gas resources under those waters. The federal government manages the remainder of the U.S. Outer Continental Shelf, from three to two hundred nautical miles offshore.

A. The Outer Continental Shelf Lands Act

The Outer Continental Shelf Lands Act (OCSLA) governs federal offshore oil and gas activities.[200] OCSLA calls for the "expeditious and orderly development" of offshore oil and gas resources, "subject to environmental safeguards."[201] Congress left it to DOI to find the appropriate balance between those competing objectives, with some guidance provided by the statutory factors addressed below.

Under the Act, decisions about offshore oil and gas activities occur in four main stages.[202] First, the Secretary of the Interior develops a nationwide leasing program, which sets forth a five-year schedule of proposed lease sales.[203] The plan is crafted by BOEM and must indicate, "as precisely as possible, the size, timing, and location of leasing activity [that] . . . will best meet national energy needs."[204] A Five-Year Leasing Program must "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."[205] It must be "conducted in a manner which considers economic, social, and environmental values of the renewable and nonrenewable resources contained in the [OCS], and the potential impact of oil and gas exploration on other resource values of the [OCS] and the marine, coastal, and human environments."[206] The statute sets out a number of specific factors, including the relative environmental sensitivity and productivity of different ocean areas, that the agency must consider in crafting this balance.[207]

Second, should it choose to proceed with a specific lease sale included in a Five-Year Leasing Program, BOEM conducts a more specific analysis and decision-making process related to that specific lease sale and the area in which it is scheduled.[208] The sale areas often cover tens of millions of acres, and the agency sells leases through a competitive bid-

200. *See* 43 U.S.C. §1331, *et. seq.* (2012)

201. *Id.* § 1332(3).

202. For a more detailed review of the statute and some of the difficulties in its implementation, see Andrew Hartsig, *Shortcomings and Solutions: Reforming the Outer Continental Shelf Oil and Gas Framework in the Wake of the Deepwater Horizon Disaster*, 16 OCEAN & COASTAL L.J. 269, 273 (2011).

203. *Id*.

204. 43 U.S.C. § 1344(a) (2012).

205. *Id.* § 1344(a)(3); *see also id.* § 1344(a)(1).

206. *Id.* § 1344(a)(1).

207. *Id.* § 1344 (a)(2)(g).

208. *Id.* § 1336(a).

ding process.[209] Successful bidders obtain a conditional right "to explore, develop, and produce the oil and gas contained within the lease area."[210]

Third, BOEM evaluates exploration plans submitted by lessees.[211] Once an exploration plan is submitted and deemed complete, BOEM has thirty days to approve, request modification of, or deny the plan.[212] If a company obtains all the necessary approvals from BOEM and the other permits described below, it may drill exploratory wells on lease tracts purchased during the second phase. BSEE is part of this approval process, and the ultimate approvals to drill wells require safety and spill response-planning approvals that are granted by BSEE.[213] In addition to exploration drilling, companies may apply to conduct seismic and other activities, which are subject to approvals separate from the exploration plan process.[214]

Fourth, BOEM evaluates proposals for development and production.[215] OCSLA establishes requirements governing the scope and content of development and production plans, and operators must carry out their activities in conformance with approved development and production plans.[216] BSEE is part of this approval process as well.[217]

B. Other Statutory Direction

OCSLA establishes the framework for management, but decisions made by BOEM and BSEE are subject to a series of other statutory obligations, some of which are implemented by other federal agencies.

OCSLA makes clear that the requirements of the National Environmental Policy Act (NEPA) apply at all stages.[218] As a result, BOEM prepares Environmental Impact Statements (EIS) to accompany decisions about Five-Year Leasing Programs, lease sales, and development plans.[219] At the third stage—exploration—DOI has interpreted the thirty-day limit on approvals in such a way that it effectively precludes prepara-

209. *Id.*; *see also infra* Part V.B.2 (explaining that the government offered tens of millions of acres in lease sales in the Chukchi and Beaufort seas).

210. 43 U.S.C. § 1337(b)(4) (2005).

211. *Id.* § 1340(c)(1).

212. *Id.*

213. *See id.* § 1340(a)(1); *see also id.* § 1348(b)(1)–(3).

214. *See* NOAA ARCTIC SDEIS, *supra* note 11, at ES-1 to ES-4.

215. *See* 43 U.S.C. § 1351(a)(1) (2014).

216. *Id.*

217. *Id.* §§ 1351(c)(1)–(6), 1351(b).

218. *Id.* § 1351(e)(1)–(2); *see also id.* § 1331(p).

219. *See id.* § 1351(f).

tion of an EIS.[220] Instead, BOEM prepares less detailed Environmental Assessments to evaluate decisions about approval of exploration plans.

When companies get to the third and fourth OCSLA stages—exploration and development—they must prepare spill response plans to address potential discharges. Although OCSLA contains a statement of policy that offshore operations be conducted "in a safe manner by well-trained personnel using technology, precautions, and techniques" to prevent spills and other accidents, it contains no substantive requirement for spill prevention or preparation.[221] The substantive obligations come from Clean Water Act, which requires operators of offshore facilities to have "a plan for responding, to the maximum extent practicable, to a worst case discharge."[222] Such plans "identify, and ensure . . . the availability of, private personnel and equipment necessary to remove to the maximum extent practicable a worst case discharge (including a discharge resulting from fire or explosion), and to mitigate or prevent a substantial threat of such a discharge."[223] By executive order and subsequent memorandum of agreement, the responsibility for implementing this provision with respect to offshore oil and gas drilling has been delegated to DOI, and DOI has in turn delegated this authority to BSEE.[224] Accordingly, BSEE approves or denies oil spill response plans that have been provided by companies for proposed exploration and development projects.[225]

BOEM and BSEE must also comply with the ESA in granting approvals.[226] The agencies have generally met this obligation by undertak-

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220. *See* Brief of Respondents at 52 n.11, Native Vill. of Point Hope v. Salazar (9th Cir. 2013) (No. 09-73942); This interpretation is not mandated by the text of the regulation and, indeed, it would be possible for the agency to interpret the provision to permit a full EIS. *See* Comments Regarding Shell 2010 EP Submitted by Alaska Wilderness League et al. for Jeffrey Walker, Regional Supervisor, Minerals Management Service, at 17–18 (Aug. 31, 2009) (on file with author). President Obama has blamed this limit for "leav[ing] no time for the appropriate environmental review." *Obama Blames 30-Day Legal Limit for Role in Oil Spill*, POLITIFACT (May 27, 2010), http://www.politifact.com/truth-o-meter/statements/2010/jun/01/barack-obama/obama-blames-30-day-limit-law-role-oil-spill/.

221. 43 U.S.C. § 1332(6) (2014).

222. *Id.* § 1321(j)(5)(A)(i).

223. *Id.* § 1321(j)(5)(D)(iii). Beyond that, the law does not establish specific spill plan requirements or measures that must be met as a condition of executive approval.

224. Exec. Order No. 12,777, 56 Fed. Reg. 54757 (Oct. 18, 1991); *see also* MEMORANDUM OF UNDERSTANDING BETWEEN THE BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT—U.S. DEPARTMENT OF INTERIOR, AND THE U.S. COAST GUARD—U.S. DEPARTMENT OF HOMELAND SECURITY (2012), *available at* http://www.bsee.gov/uploadedFiles/BSEE/Newsroom/Publications_Library/2012%20Coast%20Guard%20MOU.pdf.

225. There is a current controversy about whether considerations of spill response plans themselves require compliance with NEPA and other statutes. *See infra* Parts V.B.3 and V.C.3.c (discussing challenges to spill response plans).

226. *See generally* 16 U.S.C. §§ 1531–1544 (2012).

ing formal consultations at the lease sale, exploration, and development phases of the OCSLA process.[227] At the exploration stage, the consultation has resulted in programmatic Biological Opinions, which evaluate the potential impacts of a series of potential activities rather than individual exploration proposals.[228]

A variety of other statutes apply to decisions at the third and fourth stages of OCSLA. In order to drill exploration or development wells, companies must obtain permits or approvals for air, water, noise, and other pollution that the proposed activities may cause. NMFS and FWS, for example, decide whether to grant approvals for harassment of marine mammals pursuant to the relevant provisions of the Marine Mammal Protection Act and ESA.[229] Companies must also comply with Clean Water Act discharge requirements administered by EPA.[230] In the Arctic, EPA has promulgated general permits pursuant to the National Pollutant Discharge Elimination System (NPDES) for exploration activities.[231] As long as proposed discharges are within the scope of those contemplated by these general NPDES permits, companies can simply apply for coverage.

Prior to 2010, companies seeking to operate in the Arctic also had to comply with Clean Air Act protections administered by EPA.[232] Drill rigs and associated vessels were treated like emitting facilities subject to the Clean Air Act's restrictions on emissions and directive to protect pristine airsheds. A legislative rider attached to the 2011 Omnibus Appropriations Act removed these requirements, and the authority to regulate air emissions from offshore activities in the Arctic Ocean was trans-

227. *See* 50 C.F.R. § 402.14 (2009).

228. *See* NAT'L MARINE FISHERIES SERV., ENDANGERED SPECIES ACT (ESA) SECTION 7(A)(2) BIOLOGICAL OPINION (2013), *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Environment/Environmental_Analysis/NMFS_Arctic%20Regional%20Biological%20Opinion_4-2-13.pdf; U.S. FISH & WILDLIFE SERV., BIOLOGICAL OPINION AND CONFERENCE OPINION FOR OIL AND GAS ACTIVITIES IN THE BEAUFORT AND CHUKCHI SEA PLANNING AREAS ON POLAR BEARS (*URSUS MARITIMUS*), POLAR BEAR CRITICAL HABITAT, SPECTACLED EIDERS (*SOMATERIA FISCHERI*), SPECTACLED EIDER CRITICAL HABITAT, STELLER'S EIDERS (*POLYSTICTA STELLERI*), KITTLITZ'S MURRELETS (*BRACHYRAMPHUS BREVIROSTRIS*), AND YELLOW-BILLED LOONS (*GAVIA ADAMSII*) (2012), *available at* http://www.boem.gov/About-BOEM/BOEM-Regions/Alaska-Region/Environment/Environmental-Analysis/Biological-Opinions-EPA.aspx.

229. *See* 16 U.S.C. § 1362(12)(A) (2012); *see also id.* § 1532(15).

230. 33 U.S.C. § 1311 (2012).

231. *See e.g.*, *Arctic Oil and Gas Exploration General Permits*, U.S. ENVTL. PROT. AGENCY, http://yosemite.epa.gov/r10/water.nsf/npdes+permits/arctic-gp (last updated June 13, 2013) (discussing Permit No. AKG-28-4300).

232. The law includes an exception for offshore activities in the Gulf of Mexico; these requirements applied elsewhere. *See* 42 U.S.C. § 7627(a), (b) (2012).

ferred to DOI.[233] Consequently, future offshore activities in the Arctic will not have to comply with the Clean Air Act.

Until 2011, Alaska's Coastal Management Program applied to oil and gas activities in federal waters. That program included standards designed to limit the impact of oil and gas activities on the state's coastal zone, formalize local involvement in agency decision making, and provide a measure of local control over those activities even though they occur seaward of the state's borders.[234] Over the years, however, Alaska diminished those standards, and it ultimately allowed the program to expire in 2011.[235] In doing so, Alaska gave up its authority to ensure that federally authorized activities are consistent with state coastal policy and lost funds that previously had been used to help local communities manage activities in their coastal zones.[236]

V. OIL AND GAS ACTIVITIES IN THE U.S. ARCTIC OCEAN

Oil was first produced in Alaska in the early 1900s from a small onshore field adjacent to the Gulf of Alaska called Katalla.[237] That production ended in 1933, and starting in the late 1950s, oil was produced from fields on the shores of Cook Inlet.[238] Oil was discovered at Prudhoe Bay in the 1960s, and the first oil made it to market from the North Slope field in the 1970s.[239] The intervening years have seen consistent production of oil produced onshore in the state and offshore in Cook Inlet.[240]

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233. *See* Consolidated Appropriations Act of 2012, Pub. L. No. 112-74, § 432, *available at* http://www.gpo.gov/fdsys/pkg/PLAW-112publ74/html/PLAW-112publ74.htm.

234. Tim Bradner, *State's Coastal Zone Management Authority to Expire This Month*, ALASKA J. OF COMMERCE (June 3, 2011), http://classic.alaskajournal.com/stories/060311/loc_sczm.shtml.

235. *Id.*

236. Richard Mauer, *Loss of Coast Zone Program Hurts State's Beluga Whale Case*, ANCHORAGE DAILY NEWS (Oct. 30, 2011), http://www.adn.com/2011/10/30/2146856/coast-zone-loss-hurts-states-beluga.html.

237. Tricia Brown, *Katalla: Alaska's First Oil Well*, LITSITE ALASKA, http://www.litsite.org/index.cfm?section=Digital-Archives&page=Industry&cat=Oil-and-Gas&viewpost=2&ContentId=2747 (last visited June 4, 2014).

238. *Federal Oil and Gas in Alaska*, BUREAU OF LAND MGMT., http://www.blm.gov/ak/st/en/prog/energy/oil_gas.html (last updated May 21, 2014).

239. Production began in earnest. *See* DANIEL YERGIN, THE PRIZE: THE EPIC QUEST FOR OIL, MONEY & POWER 553, 648 (2009) ("By 1978 over a million barrels per day were flowing through" the Trans Alaska Pipeline. It would double "[w]ithin a few years . . . [to] a quarter of America's total crude oil production.").

240. Production from Prudhoe Bay peaked in 1987 at 1.5 million barrels per day. *See* BRITISH PETROLEUM, PRUDHOE BAY FACT SHEET (2006), *available at* https://dec.alaska.gov/spar/perp/response/sum_fy06/060302301/factsheets/060302301_factsheet_PB.pdf. It has been declining steadily since, though there are sufficient resources to keep the Trans-Alaska Pipeline operating for at least five more decades. *See* Alan Bailey, *A TAPS Bottom Line*, PETROLEUM NEWS (Jan. 15, 2012), http://www.petroleumnews.com/pntruncate/225019711.shtml.

The same is not true for the Chukchi and Beaufort sea resources. In fact, the history of Arctic offshore development is one of great expectations and failed realities. The next section below details those efforts, and the controversy they generated. It is broken into three periods: 1980 to 2000, 2000 to 2011, and 2012 to the present. These time periods correspond generally to the development efforts.

A. 1970–2000

The first big push to develop Arctic Ocean oil and gas resources began in the late 1970s and lasted through the early 1990s. In light of the 1973 Arab oil embargo and corresponding increase in oil prices, President Nixon directed that ten million acres of the OCS be leased in 1975.[241] "This announcement was significant not only because it proposed leasing an amount of territory in one year almost equal to that which had been leased since the OCS program began in the early 1950's but also because it envisioned moving into previously undeveloped or frontier areas off the Atlantic and Pacific coasts and off Alaska."[242] Congress responded by amending OCSLA to create the current regulatory structure.[243]

Within this new framework, companies purchased large swaths of leases in the Beaufort and Chukchi seas and explored for oil. With one exception, those efforts failed, and companies relinquished almost all of the leases they purchased. Here, we describe those leasing and exploration efforts and the controversy they engendered.

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241. *See* G. Kevin Jones, *Outer Continental Shelf Oil and Gas Development During the Reagan Administration—Part I*, 12 W. NEW ENGLAND L. REV. 6 & 11 n.44 (1990).

242. California v. Watt, 668 F.2d 1290, 1295 (D.C. Cir. 1981) (internal citations omitted) [hereinafter *Watt I*].

243. Nixon's announcement led to the 1978 amendments to OCSLA.

> It crystallized growing concern over the impact of OCS activities and the adequacy of the 1953 Act. Although the need to develop national energy independence was clear, state and local governments feared damaging impacts to their coastlines from oil spills and the onshore development that accompanies offshore drilling. Commercial and recreational fishing interests expressed concern over the possible effects on their livelihoods and leisure activities, while environmental and citizens groups raised questions about the effect of OCS activities on the ecology. These interests accordingly sought a role in the offshore leasing policy decisions, which had previously been committed to the virtually unlimited discretion of the Secretary.

Id. at 1295–96 (internal citations omitted).

1. Five-Year Leasing Programs

Against a backdrop of new congressional direction and increasing pressure to expand exploration and development offshore, President Jimmy Carter and Secretary of the Interior Cecil Andrus began developing the first Five-Year Leasing Program in 1978.[244] A draft proposed program was prepared, and in 1979, President Carter used "his second Energy Message to the nation" to "direct[] the Secretary to increase the amount of proposed acreage over that contained in the first Draft Proposed Program."[245] Ultimately, Secretary Andrus selected a Proposed Final Program, which "scheduled 36 proposed lease sales for the period from June 1980 through May 1985, covering virtually the entire Outer Continental Shelf . . . ."[246] The program scheduled "11 proposed sales in the Gulf of Mexico, 6 in the Atlantic, 4 off California, 10 off Alaska, and 5 reoffering sales [in the Gulf of Mexico]."[247]

The final program was greeted by four separate court challenges. Petitions for review were filed in the United States Court of Appeals for the District of Columbia Circuit by the states of Alaska and California, the Natural Resources Defense Council, and the North Slope Borough.[248] In this case, known as Watt I, the petitioners alleged violations of OCSLA, NEPA, and the Administrative Procedure Act (APA) in addition to a special trust responsibility owed to Inupiat Eskimos.[249] The court found that the Secretary violated OCSLA by failing ti: identify the location of two proposed lease sales with greater specificity; consider certain factors required in the balancing that underlies creation of the plan and base the timing and location of leases on consideration of those factors; consider the benefits and environmental risks shared among OCS regions; consider the relative environmental sensitivity and marine productivity among the OCS regions; balance environmental and coastal zone factors and not just economic factors of oil potential; quantify envi-

244. *Id.* at 1299.

245. *Id.*

246. *Id.* at 1300. The "Florida Straits, the Southern Aleutian Shelf in Alaska, and the area seaward of the Washington and Oregon coasts" were excluded; "[a]ll these excluded areas possessed a very low industry rating for hydrocarbon potential." *Id.*

247. *Id*. The sales in Alaska included the following: Gulf of Alaska in 1980; Cook Inlet in 1981; Norton Basin in 1982; Beaufort Sea, Kodiak, and North Aleutian Basin in 1983; Navarin Basin in 1984; and Chukchi Sea and Hope Basin in 1985. *Id.* at 1300 n.53.

248. *Id.* at 1294 n.1. The court described the North Slope Borough as "a local governmental body in Alaska." *Id.*

249. *Id.* at 1294.

ronmental costs; and adequately explain the determination of net economic value.[250]

The court rejected petitioners' other arguments, finding that the Secretary met his trust obligations to Inupiat Eskimos through compliance with other relevant environmental statutes, including the ESA and Marine Mammals Protection Act,[251] and that section 19 of OCSLA (requiring coordination and consultation with local communities) is inapplicable to preparation of a leasing program.[252] The court found it unnecessary to reach plaintiff's NEPA claims.[253]

This case was pending when President Reagan took office. The new President was faced with "rising inflation, record interest rates, further turbulence in the oil market following the 1979 Iranian revolution, and a severe recession."[254] His response, at least in part, was to state support for moving aggressively to develop the country's natural resources and to remove the regulatory hurdles and protections that might limit development. Offshore drilling was one significant focus of this effort, and shortly after being confirmed, Reagan's Secretary of the Interior, James Watt, promised to offer one billion acres of the OCS for lease to oil companies.[255]

While the challenge to the 1980 Five-Year Program was proceeding, Secretary Watt prepared to make good on his promise and "was in the process of revising and reapproving the program pursuant to section 18(e)" when the court issued its order remanding the 1980 plan.[256] In January 1982, "the court issued an order in which it adopted the Secretary's position that he could meet the court's remand in the course of the

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250. *Id*. at 1325.

251. *Id*. at 1324.

252. *Id*. at 1325.

253. *Id*.

254. *DEEPWATER HORIZON* REPORT, *supra* note 33, at 63.

255. *Id.* "If the press is here," Secretary Watt declared during a National Ocean Industries Association meeting in April 1982, "I hope they will write this down. We will offer one billion acres for leasing in the next five years. We will not back away from our plans to have 42 lease sales." *Id.* As part of this commitment, Secretary Watt created the Minerals Management Service (MMS) in January 1982. He was

> aiming from the outset to promote domestic energy supplies by dramatically expanding drilling on the outer continental shelf. He combined, in one entity, authority for regulatory oversight with responsibility for collecting for the U.S. Treasury the billions of dollars of revenues obtained from lease sales and royalty payments from producing wells. From birth, MMS had a built-in incentive to promote offshore drilling in sharp tension with its mandate to ensure safe drilling and environmental protection.

Id. at 56.

256. California v. Watt, 712 F.2d 584, 590 (D.C. Cir 1983) [hereinafter *Watt II*].

revision and approved the Secretary's proposed timetable for completing the revision."[257]

In July 1982, Secretary Watt issued a new Five-Year Leasing Program that scheduled forty-one sales between August 1982 and June 1987. Together, these sales would offer nearly one billion acres in eighteen planning areas. The new sales would be "area-wide," meaning that entire swaths of the ocean—ranging from 8 to 133 million acres—would be offered in the sales rather than only the areas in which oil companies had demonstrated interest.[258] This revised plan also generated substantial opposition in court. The petitioners from *Watt I* challenged the revised plan on the grounds that the Secretary failed to specify the size and location of lease areas with the precision required under OCSLA; failed to consider and base his decision on relevant environmental factors required by OCSLA § 18(a)(2); used an incorrect methodology to evaluate the costs and benefits of leasing; violated OCSLA by failing to insure receipt of fair market value under leases; violated OCSLA and NEPA by failing to consider certain environmental impacts of the program; and failed to indicate when consistency determinations under the Coastal Zone Management Act would be made.[259] The court rejected these arguments and upheld the 1982–1987 Five-Year Leasing Program.[260]

Soon thereafter, DOI began preparing the 1987–1992 Five-Year Program. A Draft Proposed Program was released in 1985, and the program was finalized in July 1987.[261] The plan continued the Reagan Administration's commitment to area-wide leasing, and seventeen sales were held between 1987 and 1992, including five in the Alaskan OCS.[262] Environmental groups and Atlantic and Pacific coastal states challenged the leasing program on a variety of NEPA and OCSLA grounds. In particular, petitioners were concerned that migratory species might be subject to synergistic or cumulative effects from oil and gas activities while migrating through various regions, particularly in the Pacific Ocean and Alaska.[263] The court found that the cumulative effects of the lease sale offerings were not properly evaluated in the Final Environmental Impact Statement (FEIS):

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257. *Id.*

258. *DEEPWATER HORIZON* REPORT, *supra* note 33, at 65.

259. *Watt II*, 712 F.2d at 590.

260. *Id.* at 611.

261. Natural Res. Defense Council v. Hodel, 865 F.2d 288, 293 (D.C. Cir. 1988).

262. *See* PATRICIA R. BRYARS, OFFICE OF LEASING & PLANS, BUREAU OF OCEAN ENERGY MGMT., OUTER CONTINENTAL SHELF LEASE SALE STATISTICS, ALL LEASE OFFERINGS 2–6 tbl.1 (Jan. 9, 2014), *available at* http://www.boem.gov/OCS-Lease-Sale-Statistics/.

263. *Natural Res. Defense Council*, 865 F.2d at 298.

> Although the FEIS contains sections headed 'Cumulative Impacts,' in truth, nothing in the FEIS provides the requisite analysis. The FEIS for the most part considers only the impact *within each area* of non-OCS actions plus OCS development and not the impact of simultaneous OCS development in different areas. The few times the FEIS *does* discuss the impact of simultaneous OCS development in different areas, it makes only conclusory remarks, statements that do not equip a decisionmaker to make an informed decision about alternative courses of action or a court to review the Secretary's reasoning.[264]

The court concluded that "[e]ven under the applicable deferential standard of review, we believe that allowing the Secretary's 'analysis' to pass muster here would eviscerate NEPA" and remanded the matter back to the agency.[265]

In the end, President Nixon's directive resulted in lease sales in the Gulf of Alaska, Cook Inlet, and Beaufort Sea between 1976 and 1980.[266] Leasing pursuant to subsequent Five-Year Leasing Programs occurred but was limited by litigation and congressional intervention.[267]

2. Leasing

The first federal lease sale in the U.S. Arctic Ocean was held in the Beaufort Sea in 1979.[268] During the 1980s and early 1990s, six more lease sales in the Beaufort Sea and two in the Chukchi Sea were held.[269]

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264. *Id*. (emphasis in original). The court went on to say, "The FEIS does devote a few more sentences here to the inter-regional effects on migrating species but these snippets do not constitute real analysis; they merely state (and restate) the obvious . . . ." *Id.* at 299.

265. *Id.* The court concluded that "[i]n each place in which the FEIS even mentions inter-regional impacts of OCS development, it merely announces that migratory species may be exposed to risks of oil spills and other 'impacts' throughout their routes. These perfunctory references do not constitute analysis useful to a decisionmaker in deciding whether, or how, to alter the program to lessen cumulative environmental impacts." *Id.*

266. *See* BUREAU OF OCEAN ENERGY MGMT., ALASKA OCS REGION, LEASE SALES (2013), *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Leasing_and_Plans/Leasing/Historical_Alaska_Region_Lease_Sales.pdf.

267. *See* HAGERTY, *supra* note 184, at 5–6 & n.23. Congressional moratoria, renewed annually for more than two decades, prevented offshore leasing in all OCS in the continental United States areas outside the Gulf of Mexico and in Bristol Bay, Alaska. These moratoria were let to expire in the lead up to the 2008 presidential election. *See id.* at 1.

268. MINERALS MGMT. SERV., BEAUFORT SEA PLANNING AREA OIL AND GAS LEASE SALES 186, 195, AND 202—FINAL ENVIRONMENTAL IMPACT STATEMENT VOL. I, at I-2 (2003) [hereinafter SALES 186, 195 AND 202 FEIS], *available at* http://www.boem.gov/About-BOEM/BOEM-Regions/Alaska-Region/Environment/Environmental-Analysis/2003_001.aspx.

269.*See* BUREAU OF OCEAN ENERGY MGMT., *supra* note 266. With one exception, these sales were area-wide. In 1998, as a result of controversy over leasing in the Arctic Ocean and out of a desire to protect the Arctic Refuge from offshore oil spills, the Secretary of Interior offered a much

These sales resulted in substantial corporate investment. Lease Sale 71, for example, was held in the Beaufort Sea in 1982 and resulted in more than $2 billion dollars of high bids and 121 leases being issued.[270] The 1984 and 1988 Beaufort Sea sales resulted in another 429 leases and nearly $1 billion in high bids. The 1988 Chukchi Sea sale resulted in 350 leases being issued and nearly $500 million of high bids.[271] In total, the 1991, 1996, and 1998 Beaufort Sea sales resulted in 114 leases; the 1991 Chukchi Sea lease sale resulted in twenty-eight leases being sold.[272]

Several of these sales generated controversy and litigation. In *Village of False Pass v. Watt*, Alaskan native, commercial fishing, and conservation entities challenged a lease sale scheduled for the St. George Basin in the Bering Sea.[273] The plaintiffs asserted that the Secretary failed to comply with various duties under OCSLA and NEPA and violated the ESA by failing to adequately protect endangered whales in the lease area.[274] The court found that the Secretary fully complied with OCSLA but violated NEPA by failing to consider the impact of preliminary seismic testing on whales. It also found that the Secretary violated

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more limited area for Lease Sale 170 in the Beaufort Sea. The available area covered only the federal waters offshore of state lands, from the Colville River to Canning River. *See* MINERALS MGMT. SERV., BEAUFORT SEA PLANNING AREA OIL AND GAS LEASE SALE 170, FINAL ENVIRONMENTAL IMPACT STATEMENT II-5 fig.II.E.1 (1998) [hereinafter SALE 170 FEIS], *available at* http://www.boem.gov/About-BOEM/BOEM-Regions/Alaska-Region/Environment/Environmental-Analysis/Sale170_1.aspx. Of the 203 blocks offered, twenty-eight leases were issued. *See* Alaska OCS Region, *supra* note 267. The next sale, Lease Sale 176, was cancelled. The Secretary found that the eighteen months remaining in the five-year planning period was not a sufficient time period in which to conduct an adequate environmental analysis. Press Release, Mineral Mgmt. Serv., Secretary Babbitt Defers Alaska's Beaufort Sea Lease Sale 176 (Jan. 18, 2001), *available at* http://www.boem.gov/boem-newsroom/press-releases/2001/beufort.aspx. In this same time frame the state of Alaska held oil and gas lease sales in its Beaufort Sea waters (zero to three nautical miles offshore). In challenges brought by environmental groups and a local government, the Alaska Supreme Court found that Alaska had not complied with its own laws in offering these lease sales. Trs. for Alaska v. Dep't of Natural Res., 795 P.2d 805 (Alaska 1990); Trs. for Alaska v. Dep't of Natural Res., 851 P.2d 1340 (Alaska 1993); Trs. for Alaska v. Dep't of Natural Res., 865 P.2d 745 (Alaska 1993). Despite these challenges, the lease sales had gone forward with some leasing, although the lessees later relinquished most of the leases. *See* DIV. OF OIL & GAS, ALASKA DEP'T OF NAT. RES., BEAUFORT SEA OIL AND GAS LEASE SALE AREA (1999), *available at* http://dog.dnr.alaska.gov/Publications/BeaufortSea.htm.

270. *See* BUREAU OF OCEAN ENERGY MGMT., *supra* note 266.

271. *Id.*

272. *Id.*

273. Vill. of False Pass v. Watt, 565 F. Supp. 1123, 1131 (D. Alaska 1983) [hereinafter *Village of False Pass I*]. The plaintiffs were the villages of False Pass and Nelson Lagoon; the Bering Sea Fishermen's Association; the United Fishermen of Alaska; Jack U. Williams (a resident of Mekoryuk, Nunivak Island); the Aleutians East Coastal Resource Service Area Board; Trustees for Alaska, Natural Resources Defense Council, Inc., Friends of the Earth, National Audubon Society, and Alaska Center for the Environment. *Id.* at 1129.

274. *Id.* at 1131.

the ESA by failing to take action to carry out the "reasonable and prudent alternatives" identified in NFMS's biological opinion to protect endangered whales.[275] The court enjoined the execution of the leases pending compliance.[276]

Plaintiffs appealed the district court's partial denial of summary judgment alleging that the Secretary violated the ESA by issuing a Final Notice of Sale before receiving a final biological opinion from NMFS; failed to protect endangered whales from oil spills as well as seismic testing; and violated NEPA by failing to provide a worst case analysis for a 100,000 gallon oil spill. Intervenors—oil companies and the Secretary—cross-appealed the district court's partial summary judgment in the plaintiffs' favor and the injunction granted against them.[277] The Ninth Circuit Court of Appeals affirmed the district's court order in all respects.[278]

DOI also offered leases in the Bristol Bay region of the Bering Sea in the 1980s (formally known as the North Aleutian Basin planning area).[279] Before industry could explore those leases, however, the *Exxon Valdez* ran aground in Prince William Sound, vividly illustrating the risk of spilled oil to the offshore environment. In response, Congress placed a moratorium on leasing in Bristol Bay, and in 1995 the United States bought back and retired the leases.[280]

3. Exploration

The leases that were sold during this first period led to limited exploration drilling in the U.S. Arctic Ocean. By 1997, thirty exploratory wells had been drilled in the Beaufort Sea. Five additional wells were drilled in the Chukchi Sea between 1989 and 1991.[281] The exploration

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275. *Id*. at 1165.

276. *Id*. at 1166.

277. Vill. of False Pass v. Clark, 733 F.2d 605, 608 (9th Cir. 1984).

278. *Id*. at 616–17 (Canby, J., concurring in part and dissenting in part).

279. MINERALS MGMT. SERV., NORTH ALEUTIAN BASIN OCS PLANNING AREA: ASSESSMENT OF UNDISCOVERED TECHNICALLY-RECOVERABLE OIL AND GAS 7 (2006), *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Resource_Evaluation/North-Aleutian-Basin-Assessment-Report.pdf.

280. *Id.* These proposals did create controversy. Three tribal villages and several environmental organizations challenged the decision to hold a lease sale in Bristol Bay. In *Tribal Village of Akutan v. Hodel*, 869 F.2d 1185, 1194 (9th Cir. 1988), the Ninth Circuit rejected the plaintiffs' arguments that the Secretary failed to comply with the ESA by rejecting some "reasonable and prudent alternatives" to protect endangered whales; that the Secretary's EIS was flawed; and the Secretary violated the consultation and notice requirements under OCSLA by failing to adopt Governor of Alaska's recommendations to delay and limit the sale area. *Id.*

281. *Alaska Historical Data*, BUREAU OF OCEAN ENERGY MGMT., http://www.boem.gov/

activities caused a significant amount of controversy among Alaska Native and conservation groups, but there were no court challenges to these exploration drilling proposals.[282] The exploration wells in this period included Mukluk, which at the time was recognized as "the most expensive dry hole in history."[283] Oil prices, which had been rising consistently, peaked in 1980,[284] and companies let almost all of their leases in the Arctic Ocean expire. As of 2000, companies owned no leases in the Chukchi Sea and only five leases remained, encompassing less than 10,000 acres in the Beaufort Sea.[285]

Only one development project—BP's Northstar—resulted from that exploration. After an unsuccessful legal challenge regarding the adequacy of the government's approval of BP's development and oil spill response plans,[286] BP began producing oil at Northstar in 2001. Northstar is located on a bottom-founded earthen structure created by raising the level of what was a tidally exposed island three miles off of the Alaskan coast. Through directional drilling Northstar accesses both federal and state leases.[287] Because it is on a man-made island, Northstar does not share all of the characteristics of typical offshore development, which is more directly susceptible to ocean conditions. Nonetheless, these man-made islands have had challenges dealing with Arctic conditions.[288]

About-BOEM/BOEM-Regions/Alaska-Region/Historical-Data/Index.aspx (last visited June 4, 2014); BUREAU OF OCEAN ENERGY MGMT., BEAUFORT SEA EXPLORATION WELLS (2006), *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Historical_Data/Exploration%20Wells%20Beaufort%20Sea.pdf.

282. David Whitney, *Petition Seeks Halt to Oil Well*, ANCHORAGE DAILY NEWS, Oct. 3, 1997.

283. *See* YERGIN, *supra* note 239, at 715.

284. James L. Williams, *Oil Price History and Analysis*, WTRG ECON., http://www.wtrg.com/prices.htm (last visited June 4, 2014).

285. BUREAU OF OCEAN ENERGY MGMT., *supra* note 266.

286. *See* Edwardson v. U.S. Dep't of the Interior, 268 F.3d 781 (9th Cir. 2001).

287. *See AOGCC Pool Statistics*, ALASKA OIL & GAS CONSERVATION COMM'N, http://doa.alaska.gov/ogc/annual/current/18_Oil_Pools/Northstar-%20Oil/1_Oil_1.htm (last visited June 4, 2014); *see also* SALE 170 FEIS, *supra* note 269, at I-1; SALES 186, 195 AND 202 FEIS, *supra* note 268, at I-2.

288. *See Pushing Sea Ice 2009*, YOUTUBE (Jan. 4, 2011), http://www.youtube.com/watch?v=-Ume7Cj8bRM (showing ice pushing up the small drilling island Oooguruk on June 23, 2009). Further, BP initially found another of its prospects, Liberty, to be an economically viable discovery and proposed to develop it from an onshore location six miles from the reservoir using directional drilling. BP shelved this prospect after the *Deepwater Horizon* oil spill resulted in increased regulatory and industry scrutiny of such extended-reach drilling. *See U.S.: BP to Delay Development Drilling at the Liberty Field in the Beaufort Sea*, ENERGY-PEDIA NEWS (July 8, 2010), http://www.energy-pedia.com/news/usa/bp-to-delay-development-drilling-at-the-liberty-field-in-the-beaufort-sea; Wesley Loy, *BP Announces It's Backing off Liberty Development Plans*, ANCHORAGE DAILY NEWS (June 29, 2012), http://www.adn.com/2012/06/29/2526216/bp-announces-its-backing-off-liberty.html.

B. 2001–2011

The second big push to develop Arctic Ocean oil and gas resources began when George W. Bush took office in 2001. As explained above, almost no leases were owned at the time, and the new administration moved aggressively to change that. These efforts resulted in more than three million acres of leases being sold between 2003 and 2008 and an outburst of controversy and litigation. The following section describes the expansion of activities and related controversy.

1. Five-Year Leasing Programs

a. 2002–2007

Soon after taking office, the Bush administration began preparing the 2002–2007 Five-Year Leasing Program. The Program scheduled three lease sales in the Beaufort Sea and two in the Chukchi.[289] As explained below, the three Beaufort Sea lease sales held pursuant to this plan—Lease Sales 186, 195, and 202—are responsible for almost all of the leases owned in the Beaufort Sea and, therefore, underlie the ongoing controversy surrounding Shell's proposals to drill there. In the end, sales were not held in the Chukchi Sea or Bristol Bay under this Program.

b. 2007–2012

The Bush administration continued its aggressive push to sell leases in the Arctic with the 2007–2012 Five-Year Leasing Program, which scheduled two sales in the Beaufort Sea and expanded leasing there from roughly 9.4 million acres that were offered in the 2002–2007 Leasing Program to nearly thirty million acres.[290] The Leasing Program included three lease sales in the Chukchi Sea, which had no current oil development or industry infrastructure and had not been the site of a lease sale since 1991.[291] Each Chukchi sale would have offered roughly thirty mil-

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289. MINERAL MGMT. SERV., OUTER CONTINENTAL SHELF OIL & GAS LEASING PROGRAM 2002–2007: FINAL ENVIRONMENTAL IMPACT STATEMENT VOL. I, at i (2002), *available at* http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Five-Year-Program/FEISVol1-pdf.aspx.

290. MINERAL MGMT. SERV., PROPOSED FINAL PROGRAM: OUTER CONTINENTAL SHELF OIL & GAS LEASING PROGRAM 2007–2012 (2007), *available at* http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Five-Year-Program/MMSProposedFinalProgram2007-2012-pdf.aspx; *see also* MINERAL MGMT. SERV., FINAL NOTICE OF SALE PACKAGE CHUKCHI SEA OIL AND GAS LEASE SALE 193, at 2 (2008), *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Leasing_and_Plans/Leasing/Lease_Sales/Sale_193/Info.pdf.

291. MINERAL MGMT. SERV., OUTER CONTINENTAL SHELF OIL & GAS LEASING PROGRAM 2007–2012: FINAL ENVIRONMENTAL IMPACT STATEMENT (2007), *available at*

lion acres, including the rescheduled Lease Sale 193, which had been included in the 2002-07 Leasing Program but not held.[292] The new program also included a 5.6 million acre lease sale in Bristol Bay.[293]

President Bush justified this expansion by saying that offshore drilling bans were "outdated and counterproductive,"[294] and therefore he would open up more areas where no such ban was in place.[295] President Bush also asserted that new technology allowed offshore oil exploration to be executed so that it "is out of sight, protects coral reefs and habitats, and protects against oil spills."[296]

Conservation groups and an Alaska Native village challenged the decision to approve the 2007–2012 Leasing Program and the underlying environmental analysis in court.[297] One petitioner, Center for Biological Diversity, argued among other things that DOI violated NEPA by failing to consider the climate change impacts of developing these offshore petroleum resources and violated the ESA by failing to consult with expert agencies on the potential impact of the Program on listed species.[298] In a separate petition, the Native Village of Point Hope, Alaska Wilderness League, and Pacific Environment claimed that the agency had violated

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http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Five-Year-Program/Intro.aspx [hereinafter OCS 2007–2012 FEIS]; BUREAU OF OCEAN ENERGY MGMT., ALASKA OCS REGION, LEASE SALES (2014), *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Leasing_and_Plans/Leasing/Historical_Alaska_Region_Lease_Sales.pdf (showing all leasing activity offshore Alaska).

292. *See* OCS 2007–2012 FEIS, *supra* note 291, at II-2, *available at* http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Five-Year-Program/Chapter2Alternatives.aspx; *id.* at fig.II-1, *available at* http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Five-Year-Program/Figures2-1thru2-6.aspx.

293. *Id.* at II-2, fig.II-4; *see also* Outer Continental Shelf (OCS), Alaska OCS Region, North Aleutian Basin, Proposed Oil and Gas Lease Sale 214, 73 Fed. Reg. 19,095 (Apr. 8, 2008), *available at* http://alaskafisheries.noaa.gov/notice/73fr19095.pdf.

294. H. Josef Hebert, *Bush Urges Congress to Lift Offshore Drilling Ban*, SEATTLE TIMES (June 19, 2008), http://seattletimes.com/html/politics/2008002744_apoffshoreoil.html.

295. *See Bush Calls on Congress to Lift Oil Drilling Ban*, NBC NEWS (July 14, 2008), http://www.nbcnews.com/id/25674571/#.UWRrg6KKJdc (noting that increasing supply would "ease market tensions and boost supply"). *See supra* notes 184 and 280 for a discussion of the relevant "bans."

296. Hebert, *supra* note 294.

297. Two challenges were filed in the U.S. Court of Appeals for District of Columbia regarding the approval of the plan and its underlying EIS. The Center for Biological Diversity filed a petition on the first day after approval, and several weeks later a coalition comprised of the Native Village of Point Hope, Alaska Wilderness League, and Pacific Environment filed a second petition. Ctr. for Biological Diversity v. U.S. Dep't of Interior, No. 07-1247 (D.C. Cir. May 21, 2008); Native Vill. of Point Hope v. U.S. Dep't of Interior, No. 07-1344 (D.C. Cir. May 19, 2008). These two petitions were consolidated in *Ctr. for Biological Diversity v. U.S. Dep't of Interior*, 563 F.3d 466 (D.C. Cir. 2009).

298. Opening Brief for Petitioners, Ctr. for Biological Diversity v. U.S. Dep't of Interior, 563 F.3d 466 (D.C. Cir. 2008) (No. 07-1247).

NEPA by failing to account appropriately for the vast amount of missing baseline scientific information about America's Arctic waters and violated OCSLA by irrationally equating the environmental sensitivity of the offshore environment to the environmental sensitivity of the Alaska coastline.[299]

In 2009, the D.C. Circuit Court of Appeals agreed with the petitioners that DOI inappropriately equated the environmental sensitivity of the offshore environment with the sensitivity of the Alaska coastal environment and that this irrational approach skewed the balancing that OCSLA requires DOI to undertake when deciding what areas to include in the Leasing Program.[300] The court found against the petitioners on their other claims, including finding that their NEPA claim related to missing baseline science was not ripe for judicial review.[301] In making this latter ruling, however, the court emphasized the importance of DOI having this information before the lease sale stage.[302]

By the time the court issued its decision, President Obama had taken office. Thus, new Secretary of the Interior Ken Salazar revisited the 2007–2012 Leasing Program on remand.[303] In March 2010, Secretary Salazar announced that DOI would cancel the future Arctic leases scheduled in that Program—two each in the Chukchi and Beaufort seas and

299. Opening Brief for Petitioners at 28–32, Native Vill. of Point Hope v. U.S. Dep't of Interior, 563 F.3d 466 (D.C. Cir. 2008) (No. 07-1344); Opening Brief for Petitioners, Ctr. for Biological Diversity v. U.S. Dep't of Interior, 563 F.3d 466 (No. 07-1247). Amicus briefs were submitted in the consolidated case by a coalition of conservation organizations, which supported the petitioners' argument that there was insufficient scientific information to justify decisions about Arctic resources. An amicus brief was also submitted by two Stanford economists supporting the argument that climate change impacts should be quantified and considered. Briefs of Amici Curaie, Native Vill. of Point Hope v. U.S. Dep't of Interior, 563 F.3d 466 (D.C. Cir. 2008) (No. 07-1344).

300. *Ctr. for Biological Diversity*, 563 F.3d at 487–89. The government's analysis of the relative environmental sensitivity had been based on a single study evaluating coastal areas.

301. *Id.* at 480.

302. *Id.* at 486–87 ("These gaps in information, however, must be considered in conjunction with the 'pyramidic structure' of a five-year leasing program. At this early stage of the Leasing Program, the existence of some gaps in the baseline data for these three seas is not fatal to the Leasing Program." (internal citations omitted)). As described below, DOI did not have this information before it held Lease Sale 193, and, thus, while this D.C. Circuit ruling came too late to directly influence that sale, the decision was relevant to the legal challenge that was brought against it. *See infra* Part V.C.2.

303. The new administration consolidated the remand with its review of the late term 2010–2015 draft leasing program proposal. *See supra* note 185. As one of his first acts after being confirmed as Secretary of the Interior, Ken Salazar announced that the comment deadline on the draft 2010–2015 Five-Year Leasing Program would be extended and that a series of public meetings would be held. These meetings were held, and before the agency reached a decision, the court invalidated the current 2007–2012 Leasing Program and remanded it to DOI.

one in Bristol Bay.[304] Concurrently, President Obama issued an executive order withdrawing Bristol Bay from oil and gas leasing through at least 2017.[305] Consequently, only one Arctic lease sale from this Program was held—the aforementioned Chukchi Sea Lease Sale 193. Notably, Secretary Salazar did recommit to that sale in his March 2010 decision.

In announcing its revision to the 2007–2012 Leasing Program, Secretary Salazar publicly recognized that better science was needed to guide decisions about the Arctic Ocean and directed USGS to prepare a report laying out the state of science in U.S. Arctic waters.[306] Thus, the government appeared to be taking concrete steps to respond to the lack of baseline information about the Arctic Ocean.[307]

2. Leasing

Other than a few thousand acres, lease sales held between 2003 and 2008 are responsible for all of the leases owned by companies in the U.S. Arctic Ocean. Three lease sales were held in the Beaufort Sea pursuant to the 2002–2007 Five-Year Leasing Program, and one was held in the Chukchi Sea pursuant to the 2007–2012 Five-Year Leasing Program. In total, these sales resulted in more than three million acres of leases being sold largely to multinational oil companies for roughly $3 billion. Netherlands-based Royal Dutch Shell was the dominant bidder.[308]

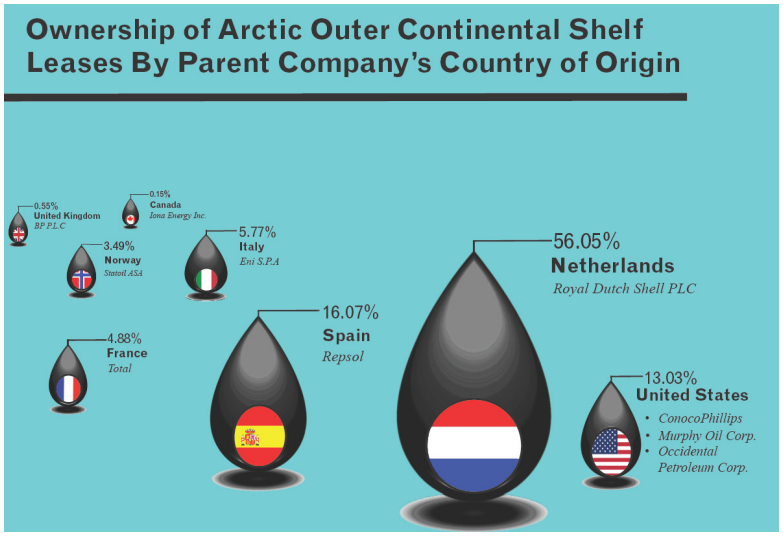
304. Elizabeth Bluemink, *Obama Drilling Policy Excludes Bristol Bay*, ANCHORAGE DAILY NEWS (Mar. 31, 2010), http://www.adn.com/2010/03/31/1206793/bristol-bay-off-limits-arctic.html.

305. *Id.*

306. Press Release, U.S. Dep't of Interior, Secretary Salazar Unveils Arctic Studies Initiative That Will Inform Oil and Gas Decisions for Beaufort and Chukchi Seas (Apr. 13, 2010), *available at* http://www.doi.gov/news/pressreleases/2010_04_13_releaseA.cfm.

307. *Id.*

308. Graphic prepared by Oceana from data included in JOHN TALBERTH & EVAN BRANOSKY, CTR. FOR SUSTAINABLE ECONOMY, NET PUBLIC BENEFITS ANALYSIS OF THE PROPOSED OUTER CONTINENTAL SHELF OIL & GAS LEASING PROGRAM (2012).



a. Beaufort Sea

In a deviation from DOI's historical practice of preparing a new EIS for each sale, BOEM's predecessor, the Minerals Management Service, prepared one EIS to cover all three scheduled sales in the Beaufort Sea.[309] It used this document to support the first lease sale and then prepared less-detailed Environmental Assessments for the two subsequent sales, thus "tiering" the NEPA-required analyses of the latter lease sales to the first one.[310] Substantial public opposition existed to all of the lease sales.[311] The agency held Lease Sale 186 in 2003, and it resulted in the sale of thirty-four leases encompassing 181,810 acres.[312] Lease Sale 195 was held in 2005, and it resulted in the sale of 117 leases, encompassing

309. SALES 186, 195, AND 202 FEIS, *supra* note 268, at I-21.

310. *See* MINERALS MGMT. SERV., ENVIRONMENTAL ASSESSMENT: PROPOSED OIL AND GAS LEASE SALE 195 BEAUFORT SEA PLANNING AREA (2004), *available at* http://www.boem.gov/uploadedFiles/BOEM/BOEM_Newsroom/Library/Publications/2004/EA195without%20linkver4.pdf; MINERALS MGMT. SERV., ENVIRONMENTAL ASSESSMENT: PROPOSED OCS LEASE SALE 202 BEAUFORT SEA PLANNING AREA (2006), *available at* http://www.boem.gov/uploadedFiles/BOEM/BOEM_Newsroom/Library/Publications/2006/2006_EA_202.pdf.

311. SALES 186, 195, AND 202 FEIS, *supra* note 268, AT VII-1 (noting that most of the 4,911 comments supported the no action alternative).

312. BUREAU OF OCEAN ENERGY MGMT., TABLE 6: ALASKA OIL AND GAS LEASE OFFERINGS (2011), *available at* http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Regional-Leasing/Table_6.aspx.

more than 600,000 acres.[313] Lease Sale 202 in 2007 resulted in the sale of 90 leases encompassing more than 490,000 acres.[314]

Among other things, these three sales are notable for the distinct lack of competitive bidding. Of the 247 tracts sold, DOI received only one bid on 241 of them—multiple bids were submitted on only six.[315] In fact, in Lease Sale 195, there were no instances of competitive bidding—each tract sold received only one bid.[316] Shell was by far the dominant bidder in Lease Sales 195 and 202.[317] The company purchased no leases during Lease Sale 186, but it since purchased leases that EnCana bought in that sale.[318]

By the time DOI made its decisions regarding Lease Sale 202, the controversy over the leasing of U.S. Arctic waters had reached a boiling point. The North Slope Borough and Alaska Eskimo Whaling Commission filed a lawsuit challenging the agency's assessment of the environmental impacts of the sale.[319] The plaintiffs claimed that during review of the lease sale, BOEM managers and decision makers changed the conclusions of the agency's scientists about the significance of impacts in order to speed up the lease sale process and avoid having to do a new EIS.[320] The U.S. District Court for the District of Alaska ruled against the plaintiffs.[321] An appeal to the Ninth Circuit also was unsuccessful.[322]

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313. *Id*.

314. *Id.*

315. *See id.* (compare data in table under columns "No. of Tracts Bid On" and "No. of Bids Rec'd").

316. *See id.*

317. *See* MINERALS MGMT. SERV., SALE DAY STATISTICS: BEAUFORT SEA LEASE SALE 195 (2005), http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Leasing/Regional_Leasing/Alaska_Region/Alaska_Lease_Sales/Sale_195/Analysis%20of%20Bids%20by%20Company2.pdf; MINERALS MGMT. SERV., SALE DAY STATISTICS: BEAUFORT SEA LEASE SALE 202, at 2–3 (2007), http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Leasing/Regional_Leasing/Alaska_Region/Alaska_Lease_Sales/Sale_202/SALEDAYSTATS.PDF.

318. Kay Cashman, *Shell, ConocoPhillips Buy EnCana's Alaska Beaufort Sea OCS Leases*, PETROLEUM NEWS (Oct. 23, 2005), http://www.petroleumnews.com/pntruncate/14850948.shtml.

319. *See* N. Slope Borough v. Minerals Mgmt. Serv., No. 3:07-cv-0045-RRB, 2008 U.S. Dist. LEXIS 1502, at *1 (D. Alaska, Jan. 8, 2008).

320. Plaintiffs Opening Brief at *24–26, *29–31, N. Slope Borough v. Minerals Mgmt. Serv., No. 3:07-cv-0045-RRB, 2007 U.S. Dist. Ct. Motions LEXIS 64990 (D. Alaska, July 20, 2007); Press Release, Pub. Emps. for Envtl. Responsibility, Invasive Species Threat from Arctic Offshore Drilling Ignored (Jan. 24, 2008), *available at* http://www.peer.org/news/news-releases/2008/01/24/invasive-species-threat-from-arctic-offshore-drilling-ignored/.

321. *See N. Slope Borough*, 2008 U.S. Dist. LEXIS 1502, at *1 (order denying plaintiff's motion for summary judgment and dismissing the action).

322. *See* N. Slope Borough v. Minerals Mgmt. Serv., 343 F. App'x 272 (9th Cir. 2009).

b. Chukchi Sea

As explained above, Lease Sale 193, held February 8, 2008, was the first sale held in the Chukchi Sea in nearly two decades. High energy prices and the coming change in presidential administration created strong incentives for DOI to offer, and industry to purchase, leases. Public attention was likewise acute given the importance of the Chukchi Sea to wildlife and communities, the national political attention focused on offshore drilling, and DOI's delay in deciding to list the polar bear under the ESA, which eliminated a potential complication from the lease sale in the Chukchi Sea.[323]

Lease Sale 193 resulted in approximately 2.1 million acres being leased at a total price of more than $2.6 billion.[324] Again Shell was the dominant bidder, purchasing more than half of the acreage and spending more than $2 billion.[325] Unlike in the Beaufort Sea, however, other large companies—notably ConocoPhillips and Statoil Hydro—made substantial investments.[326] The sale was one of the largest in terms of acreage and money ever held in the U.S.[327]

A coalition of Alaska native and local and national conservation organizations challenged the sale.[328] Among other claims, the plaintiffs asserted that DOI illegally failed to address missing scientific information about baseline conditions in the Chukchi Sea, failed to account for the likely production of natural gas as well as oil, and failed to appropriately predict or evaluate the potential impacts of oil and gas activities

323. By court order, DOI was supposed to make its polar bear listing decision in early January 2008. Secretary Kempthorne acted contrary to this court order by delaying the listing of the polar bear until after Lease Sale 193 was held the next month. *See* Bryan Walsh, *Polar Bears Wait-Listed As Endangered*, TIME (Jan. 17, 2008), http://content.time.com/time/health/article/0,8599, 1704808,00.html.

324. MINERALS MGMT. SERV., FINAL BID RECAP: LEASE SALE 193, at 9–24 (2008), http://www.boem.gov/BOEM-Newsroom/Offshore-Stats-and-Facts/Alaska-Region/RecapSale_193.aspx.

325. Though other companies invested, Shell's spending dwarfed theirs. Shell bid more than $10 million on several leases that did not receive bids from any other companies. Also, in several instances, Shell vastly outspent the competition, when it existed. Shell bid more than $6,000 per acre, for a total of more than $34,000,000 for lease block 6913. ConocoPhillips bid just more than $10 per acre, for a total bid of just more than $60,000. *Id.* at 15.

326. *See generally id.* (detailing all of the bids received on tracts offered in Lease Sale 193).

327. BUREAU OF OCEAN ENERGY MGMT., *supra* note 291. The second largest sale in the Arctic was in 1982 in the Beaufort Sea, resulting in more than $2 billion in high bids. *Id.* Only two sales in history—both in the Central Gulf of Mexico—have generated higher total bid amounts. Gulf of Mexico OCS Region, *supra* note 188 (showing total high bids, including sales in 2007 and 2008 in the Central Gulf of Mexico that exceeded Lease Sale 193).

328. Native Vill. of Point Hope v. Salazar, 730 F. Supp. 2d 1009 (D. Alaska 2010).

on the Chukchi environment, including on the local people.[329] The agency's EIS concluded that "[b]ased on the paucity of information available on marine mammal ecology in the Chukchi Sea and on specific locations of future developments, we are unable to determine at this time if significant impacts will or will not occur."[330]

The United States District Court for the District of Alaska ruled for the plaintiffs, finding that DOI had violated 40 C.F.R. § 1502.22, which guides an agency's NEPA review when there is incomplete or unavailable information.[331] Specifically, the court found that the agency had identified substantial missing scientific information but had not complied with the obligation to determine whether that information was essential to the decision at issue and whether it could be obtained.[332] The court

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329. *Id.* at 1012–13. During the administrative process leading up to that lease sale, NMFS had expressed concern about the absence of adequate data to assess the individual and cumulative effects of the proposed oil and gas activities on marine resources, and the agency cautioned that the data did not support the impact assessments in the draft EIS. *See* Letter from Robert D. Mecum, Acting Adm'r, Nat'l Marine Fisheries Serv., to John Goll, Reg'l Dir., Minerals Mgmt. Serv., MMS Draft EIS for Chukchi Planning Area (Jan. 30, 2007) (on file with author).

330. CHUKCHI LEASE SALE 193 FINAL SEIS, *supra* note 29, at app. A, A7.

331. *See* Native Vill. of Point Hope v. Salazar, 730 F. Supp. 2d 1009 (D. Alaska 2010). 40 C.F.R. § 1502.22 reads as follows:

> When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.
>
> (a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.
>
> (b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:
>
> (1) A statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment; (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment, and (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. . . .

Id.

332. *See Native Vill. of Point Hope*, 730 F. Supp. 2d at 1018. Moreover, the agency had decided to proceed with Lease Sale 193 while determining that missing information prevented designation of critical habitat for newly ESA listed polar bears. Five months after the polar bear decision was due and just three months after the Chukchi Sea lease sale, DOI stated in the May 15, 2008 polar bear ESA listing, "A careful assessment of the designation of marine areas as critical habitat will require additional time to fully evaluate the physical and biological features essential to the conservation of the polar bear. . . . [and that] critical habitat is not determinable at this time." Endangered

also found that DOI had violated NEPA by failing to consider the possibility of natural gas development in the Chukchi Sea despite incentives to pursue it.[333] The court remanded the EIS to DOI.[334]

In response to the remand, DOI initially released a draft supplemental EIS that concluded that none of the missing information was essential to the decision to hold the sale.[335] DOI retracted that draft and, after the *Deepwater Horizon* blowout in the Gulf of Mexico, issued a new supplemental EIS that also addressed the potential impacts of a very large oil spill, again concluding that none of the missing information was essential to its decision.[336] Specifically, for each of the hundreds of acknowledgments made in the EIS regarding incomplete information, the agency made one of five findings, none relying on new information: 1) though incomplete, there was sufficient information on which to base a sound judgment; 2) the analysis included the assumption that adverse effects would occur (e.g., in event of oil spill); 3) the impacts would be same under all alternatives; 4) the existence of other laws and regulations would preclude significant effects; or 5) that more information would be known at a later stage of development.[337]

The district court ultimately sanctioned this approach.[338] In February 2013, plaintiffs appealed to the Ninth Circuit Court of Appeals, arguing that the rationales on which BOEM based its conclusions that missing scientific information is not essential to its decisions at the lease sale stage were arbitrary and that the agency based its analysis of impacts on a development scenario that was arbitrarily small.[339] As explained below, the Ninth Circuit ruled in favor of petitioners in January 2014.

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and Threatened Wildlife and Plants; Determination of Threatened Status for the Polar Bear (Ursus maritimus) Throughout Its Range, 73 Fed. Reg. 28,212, 28,298 (May 15, 2008). Thus, the government apparently determined that information was sufficient to sell leases but not to designate critical habitat for endangered polar bears.

333. *Native Vill. of Point Hope*, 730 F. Supp. 2d at 1017 ("The Court agrees with Plaintiff that the inclusion of incentives for natural gas production, without addressing the impact of natural gas exploration, is arbitrary . . . .").

334. Initially, the court enjoined all activity under Lease Sale 193 pending the remand. *Id.* at 1019. There were subsequent proceedings on relief, and eventually, the court allowed certain activities—including large-scale seismic surveying, pre-drilling studies, and administrative transactions—to proceed during the pendency of the remand. It would not, however, allow exploration drilling. *Id.* at 1018; *see also* Native Vill. of Point Hope v. Salazar, No. 1:08-cv-0004-RRB, 2010 U.S. Dist. LEXIS 78306 (D. Alaska Aug. 2, 2010).

335. CHUKCHI LEASE SALE 193 FINAL SEIS, *supra* note 29, at 2.

336. *See id*.

337. *Id.* app. A at 10–11.

338. *See* Order Denying Motion for Summary Judgment, Native Vill. of Point Hope v. Salazar, No. 1:08-CV-0004-RRB (D. Alaska Feb. 13, 2013) (No. 269).

339. Native Vill. of Point Hope v. Salazar, No. 12-35287 (9th Cir. Apr. 12, 2012).

3. Exploration

Having purchased leases in the Beaufort Sea in 2005, Shell began the process of seeking approvals to drill exploration wells. The company's push to drill these wells touched off a lengthy public controversy about the company and the manner in which the government makes decisions to authorize activities like those proposed by Shell. This ongoing controversy can be divided into three temporal categories based on the company's efforts: 2007–2009; 2010–2011; and 2012–present. The first two are discussed here, and the last is addressed in the succeeding section. Each section is organized around the approvals that spurred litigation—approvals of exploration plans, the granting of permits under the Clean Air Act and Clean Water Act, and approval of oil spill response plans, etc.

There are some commonalities among Shell's successive efforts to drill exploration wells. First, Shell repeatedly sought to use the *Kulluk* drill rig and the *Noble Discoverer* (the *Discoverer*) drilling vessel.[340] The *Kulluk* was a conical drill barge built in 1983 for use in the Arctic.[341] It was dormant from 1993 to 2005 when Shell bought it and began preparing it for the uses described below.[342] The *Discoverer* was built in 1966 and was not specifically designed for the Arctic.[343] It was owned by the Noble Corporation and contracted to Shell.[344] The vessel suffered significant damage while conducting exploration drilling off Australia.[345] In addition, Shell leased, constructed, or retrofitted a variety of other support and response vessels to complement the *Kulluk* and *Discoverer*.[346]

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340. *Kulluk*, MARINE EXCH. OF ALASKA, http://www.mxak.org/community/kulluk/kulluk.html (last visited June 5, 2014); *see also Kulluk Conical Drilling Unit*, MARINE EXCH. OF ALASKA, http://www.mxak.org/community/kulluk/kullukmore.html (last visited June 5, 2014).

341. *Kulluk*, *supra* note 340 ("After that the rig was stacked for fourteen years in McKinley Bay near Tuktoyaktuk in the Northwest Territories of Canada. The rig was purchased by Shell Offshore Incorporated of New Orleans, Louisiana, in 2005 and spent the next year being refurbished where she had been stacked in Canada.").

342. *Noble Discoverer*, MARINE TRAFFIC, http://www.marinetraffic.com/ais/shipdetails.aspx?MMSI=636014934 (last updated May 24, 2014).

343. *Id.*

344. Rich Miller, *Shell, Conoco Postpone Plans for Offshore Drilling in Arctic Alaska*, PROFESSIONAL MARINER (Jan. 4, 2013), http://www.professionalmariner.com/June-July-2013/Shell-Conoco-postpone-plans-for-offshore-drilling-in-Arctic-Alaska/.

345. Rob Maetzig, *Twinkle, Twinkle, Damaged Drillship*, TARANAKI DAILY NEWS ONLINE (Nov. 5, 2011), http://www.stuff.co.nz/taranaki-daily-news/news/4987045/Twinkle-twinkle-damaged-drillship.

346. SHELL GULF OF MEXICO, INC., EXPLORATION PLAN 2010: EXPLORATION DRILLING PROGRAM POSEY BLOCKS 6713, 6714, 6763, 6764, AND 6912, KARO BLOCKS 6864 AND 7007 BURGER, CRACKERJACK, AND SW SHOEBILL PROSPECTS OCS LEASE SALE 193, at 2 (2009), *available at* http://yosemite.epa.gov/oa/eab_web_docket.nsf/Filings%20By%20Appeal%20Number/555142AF66ACBEAC852577190066D55D/$File/Exhibit%206%20and%20Exhibit%207...3.06.pdf.

Each iteration of Shell's proposals plans for some combination of these vessels.

a. 2007–2009 Beaufort Sea Exploration

For the 2007–2009 drilling seasons, Shell proposed to drill up to twelve exploration wells in the Beaufort Sea over three years using the *Kulluk* and *Discoverer* operating simultaneously, each accompanied by icebreakers and numerous other support vessels.[347] In February 2007, BOEM approved Shell's exploration plan, accompanied by an Environmental Assessment.[348] There was no official opportunity for the public to review or provide comment on the exploration plan or the Environmental Assessment before the permit was issued.[349]

In its proposal, Shell identified the general location of the four wells it planned to drill in 2007 but said that the location of the wells drilled in subsequent years was unknown.[350] The drilling in 2007 was to take place in Camden Bay,[351] which is roughly twelve miles offshore from the Arctic National Wildlife Refuge. At the time, the available information suggested that Camden Bay was a particularly important location for bowhead whales as they transited to and from the Canadian Beaufort Sea.[352] Several exploration wells had been drilled near Camden Bay in the 1980s and one in the 1990s.[353]

In addition to the exploration plan, Shell submitted applications for various other permits and approvals required to begin drilling operations, including an oil spill response plan, Clean Air Act permits, letters of authorization and incidental harassments authorizations under the Marine Mammal Protection Act, and a consistency determination under the Coastal Zone Management Act.[354]

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347. MINERALS MGMT. SERV., ENVIRONMENTAL ASSESSMENT: SHELL OFFSHORE INC. BEAUFORT SEA EXPLORATION PLAN 2 (2007) [hereinafter SHELL 2007 EA], *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Environment/Environmental_Analysis/2007-009.pdf.

348. *Id.* (Finding of No Significant Impact).

349. *See* Letter from McDonnell on Shell's Proposed Drilling in the Beaufort Sea to Goll (Feb. 15, 2007).

350. SHELL 2007 EA, *supra* note 347, at 1–2. Shell did identify several lease blocks on which it sought to drill. *Id.* These leases were purchased in Lease Sale 195 held in 2005.

351. *Id.*

352. Alaska Wilderness League v. Kempthorne, 548 F.3d 815, 818–21 (9th Cir. 2008).

353. SHELL 2007 EA, *supra* note 347, at 1; *see also* Alaska Oil & Gas Conservation Comm'n, *Conservation Order No. 407*, ALASKA DEP'T OF ADMIN. (Oct. 23, 1997), http://www.doa.alaska.gov/ogc/orders/co/co400_499/co407.htm (granting ARCO Alaska, Inc. an exception to allow it to drill an oil pool in Camden Bay).

354. *See infra* Part V.C.3.

As described here, conservation and Alaska native groups challenged a number of these government approvals once they were awarded.

i. Challenge to the DOI's Approval of Shell's Exploration Plan

The North Slope Borough, Alaska Eskimo Whaling Commision, and a number of conservation and Alaska Native groups challenged DOI's approval of the exploration plan.[355] Per OCSLA's jurisdictional requirements, these challenges proceeded directly in the Ninth Circuit Court of Appeals.[356]

Petitioners immediately sought a stay of the government approval of Shell's exploration plan due to concerns about the effect that ice-breakers traveling through the Chukchi Sea and in the Beaufort Sea would have on bowhead and beluga whales and on subsistence hunting.[357] Petitioners asserted that DOI's approval of the exploration plan violated both OCSLA and NEPA. They petitioners argued that the agency could not adequately evaluate Shell's plan under these laws because Shell had not identified the location of the wells it planned to drill in 2008 and 2009.[358] Petitioners also argued that the Environmental Assessment prepared by MMS did not fully evaluate impacts to a number of wildlife species, such as young bowhead whale calves susceptible to separation from their mothers.[359] Agency scientists predicted "the proposed action has the potential to cause significant impacts to a variety of protected wildlife resources,"[360] and were concerned about the consequences

355. *See Alaska Wilderness League*, 548 F.3d at 819.

356. 43 U.S.C. § 1349(c)(2) (2012) ("Any action of the Secretary to approve, require modification of, or disapprove any exploration plan or any development and production plan under this subchapter shall be subject to judicial review only in a United States court of appeals for a circuit in which an affected State is located."). The law was not clear whether a challenge to the exploration plan approval by environmental and Alaska Native groups should be filed directly in the Ninth Circuit, or whether they were required to first file an administrative appeal in the Interior Board of Land Appeals (IBLA). *Alaska Wilderness League*, 548 F.3d at 819. Thus, some groups first filed appeals in the IBLA, while others filed their challenge to the exploration plan approval in the Ninth Circuit Court of Appeals. *Id.* After the IBLA issued an order suspending any further proceedings pending the outcome of the case filed in the Ninth Circuit, groups that were before the IBLA filed their petitions with the Ninth Circuit Court as well. *Id.* Eventually, the three cases before the Ninth Circuit were consolidated and Shell intervened in the case. *Id.*

357. *See* Brief of Petitioners, *Alaska Wilderness League*, 548 F.3d 815, 2007 U.S. 9th Cir. Briefs LEXIS 909, at *11–19.

358. *See* Petitioners' Consolidated Brief, *Alaska Wilderness League*, 548 F.3d 815, 2007 U.S. 9th Cir. Briefs LEXIS 908, at *23–32.

359. *Alaska Wilderness League*, 548 F.3d at 825–27.

360. MMS Analyst Review of EA for Exploration (on file with author); *See also* Juliet Eilperin, *Warnings Ignored by Agency*, HERALD-TRIBUNE (May 25, 2010), http://www.heraldtribune.com/article/20100525/ARTICLE/5251048?p=3&tc=pg.

of a large oil spill, especially to subsistence users and polar bears.[361] In addition, the petitioners argued that the Environmental Assessment was deficient because it avoided consideration of a large spill on the grounds that such an impact, though large, was too unlikely to warrant consideration and that the DOI had violated NEPA by improperly "tiering" to earlier analyses.[362]

The court delayed making a decision on the motion for stay until August 1 based on declarations filed by Shell that gave the court the "understanding that there will be no icebreaking, drilling, or other vessels, or other drilling related activity, in either the Chukchi or Beaufort Seas until after August 1, 2007."[363] However, in July the North Slope Borough informed the court that Shell's icebreakers had begun transiting the Chukchi and Beaufort seas.[364] The court then issued an order requiring Shell to "report to the court on the status of any of its icebreaking vessels, supply ships or other water craft whose activities are potentially related to drilling activities and are currently present in or headed toward the Beaufort and Chukchi Seas . . . ."[365] This order allowed the court to monitor what was happening on the water as it considered the merits of the lawsuit.

In August 2007, the court granted a stay, finding that the environmental and Alaska Native groups had shown there was a probability that they would succeed on the merits of the case and that they faced the possibility of irreparable harm if the court did not grant the stay.[366] The stay remained in effect until the court ruled on the merits of the case in November 2008 and, therefore precluded Shell from drilling in both 2007 and in 2008.[367]

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361. *Alaska Wilderness League*, 2007 U.S. 9th Cir. Briefs LEXIS 908, at *19–21.

362. *Id.* at *39–40. The government's own experts shared the concern about tiering. For example, in a review of Shell's proposed 2007 drilling plans, a BOEM analyst noted that "[t]he tiered concept assumes that subsequent environmental documents will be required to focus the analysis on site-specific, project-level issues, impacts, and appropriate mitigation measures developed. In this instance, I definitely do not feel that this has been the case." *Id.* at *39. Another analyst commented, "[W]e are always told not to worry about our lease sale analyses, because the specifics will be addressed later. Yet when specific projects do roll around, we are given neither the time nor the information necessary to adequately analyze and mitigate the proposed activity." *Id*. at *40.

363. Petitioners' Joint Response to Shell Offshore, Inc.'s Notice to the Court at 2, Alaska Wilderness League v. Kempthorne, 548 F.3d 815 (9th Cir. July 18, 2007) (Nos. 07-71457, 07-71989, 07-72183).

364. *Id.*

365. Order at 1, Alaska Wilderness League v. Kempthorne, 548 F.3d 815 (9th Cir. July 18, 2007) (Nos. 07-71457, 07-71989, 07-72183).

366. Alaska Wilderness League v. Kempthorne, 548 F.3d 815 (9th Cir. 2008) (granting a stay of drilling pending adjudication of the case).

367. *Id.* at 820, 835.

In its opinion on the merits of the case, the court noted that "a number of agency experts expressed concern about the potentially significant impacts the drilling would have on bowhead whales, polar bears, and the Inupiat subsistence harvest."[368] Due to the agency's acknowledgement of the gaps in data and the potential for serious consequences, followed by its unsubstantiated conclusions that any impacts would be insignificant, the court determined that the agency had not taken the requisite hard look at Shell's plans.[369] The court found that there remained "substantial questions as to whether Shell's plan may cause significant harm to the people and wildlife of the Beaufort Sea region."[370] The court also found that the agency's approval of the project violated OCSLA, because the permit application did not identify the location of each proposed well.[371]

In March of the following year, the court, without stating a reason, vacated and withdrew its November opinion, noting that it would issue a new opinion.[372] Shortly after, Shell withdrew its exploration plan, the agency rescinded its prior approval of that plan, and the court dismissed the case as moot without issuing a new opinion.[373]

ii. Administrative Appeals of 2007 Clean Air Act Permits

In addition to the exploration plan approval, Shell also needed permits from EPA under the Clean Air Act for its proposed 2007–2009 activities. EPA issued two minor source permits—one for the *Kulluk* and one for the *Discoverer*.[374] The North Slope Borough, conservation groups, and Alaska Native entities filed administrative appeals challenging both air permits at the Environmental Appeals Board (EAB), an administrative body within EPA set up to review the Agency's decisions.[375] Once such an appeal is filed, the permits at issue are not considered final

368. *Id.* at 819.

369. *Id.* at 831–32.

370. *Id*. at 825, 834–35.

371. *Id.*

372. Alaska Wilderness League v. Kempthorne, 559 F.3d 916 (9th Cir. 2009) (vacated and withdrawn).

373. Alaska Wilderness League v. Kempthorne, 559 F.3d 916 (9th Cir. 2009), *dismissed as moot sub nom.* Alaska Wilderness League v. Salazar, 571 F.3d 859 (9th Cir. 2009).

374. In re Shell Offshore, Inc., 13 E.A.D. 357, 359–60 (EAB 2007), *available at* http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/OCS%20Permit%20Appeals%20(CAA)/5E8F19CE776970DE8525735600525853/$File/Shell%20Oil.pdf.

375. *Id.* at 357. The conservation petitioners included Resisting Environmental Destruction on Indigenous Lands, a Project of the Indigenous Environmental Network; Northern Alaska Environmental Center; Alaska Wilderness League; Center for Biological Diversity; and Natural Resources Defense Council. Air permits from EPA are subject to appeal to the EAB under 40 C.F.R. § 124.19 (2014).

until the appeal is decided.[376] Therefore, pending the EAB's decision, Shell did not have permits and could not proceed with exploration drilling.

Petitioners argued to the EAB that EPA erred in awarding minor source permits for the two vessels rather than requiring regulation under the strictures of the Clean Air Act "Prevention of Significant Deterioration" (PSD) program.[377] Specifically, the petitioners argued that EPA erred by: (1) concluding that the drilling vessels were technically only "OCS sources" subject to regulation when they are attached to the ocean floor and (2) treating each drill site as a separate minor source, rather than aggregating the emissions from multiple wells over the entire season.[378] The petitioners also challenged EPA's conclusion that only wells drilled within 500 meters of each other would be considered part of the same source.[379]

In September 2007, one month after the Ninth Circuit issued its order staying Shell's activities, the EAB affirmed EPA's determination that each well could be counted a separate source, but it found that EPA did not provide adequate explanation to support its conclusion that sources would be considered the same if wells were drilled within 500 meters of each other.[380] The EAB remanded the permits to EPA, thus continuing the automatic stay.[381] In addition to the stay from the Ninth Circuit Court of Appeals, these EAB orders provided a second reason for which Shell was precluded from drilling in 2007, 2008, and 2009.

b. 2010 Beaufort and Chukchi Exploration Plans

Shortly after withdrawing its 2007–2009 exploration plan, Shell submitted two new single-year exploration plans for the 2010 drilling

376. 40 C.F.R. § 124.19(f)(1).

377. *In re Shell Offshore, Inc.*, 13 E.A.D. at 359. The most substantial import of the decision to grant minor source permits was that Shell was not required to apply "Best Available Control Technology" (BACT) to its vessels. *Id.* at 366. BACT is an emissions limitation, which is made on a case-by-case basis based on energy, environmental, and economic impacts. *Guide to Environmental Issues: Glossary of Terms & Acronyms*, EPA OFFICE OF ENFORCEMENT & COMPLIANCE ASSURANCE, http://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&glossaryName=Environmental%20Issues%20Glossary (last visited June 7, 2014). It can include additional control equipment or modification of the production processes or methods. *Id.*

378. *In re Shell Offshore, Inc.*, 13 E.A.D. at 369–70.

379. *Id*. NSB also challenged EPA's calculation of the drill ships' potential to emit (PTE) nitrogen oxides (NOx) and the enforceability of the permits' NOx limitations, the validity of Shell ambient air quality modeling, the adequacy of the opportunity for public participation, and the sufficiency of EPA's environmental justice analysis. *Id.* at 357.

380. *Id.* at 358.

381. *Id.* at 406.

season.[382] Shell planned to use one drill ship (the *Discoverer*) to drill up to five wells in both the Beaufort and Chukchi seas.[383] In the Beaufort Sea, Shell proposed to drill two exploratory wells near Camden Bay and north of Point Thompson, about thirty miles off the coast.[384] In the Chukchi Sea, Shell proposed to drill three wells on any of five potential sites spanning ninety miles, approximately seventy to 135 miles offshore.[385]

Once again, federal agencies granted Shell most of the approvals necessary for the company to proceed with drilling operations.[386] These approvals were granted despite the pending legal challenges to the 2007–2012 Five-Year Leasing Program and Lease Sale 193. Again, local government, conservation, and Alaska Native groups filed various challenges to the federal government's approvals of Shell's exploration plan and Clean Air Act permits.[387]

382. *See* Petitioners' Opening Brief at 16–17, Native Vill. of Point Hope v. Salazar, 378 F. App'x 747 (9th Cir. 2010) (No. 09-73942).

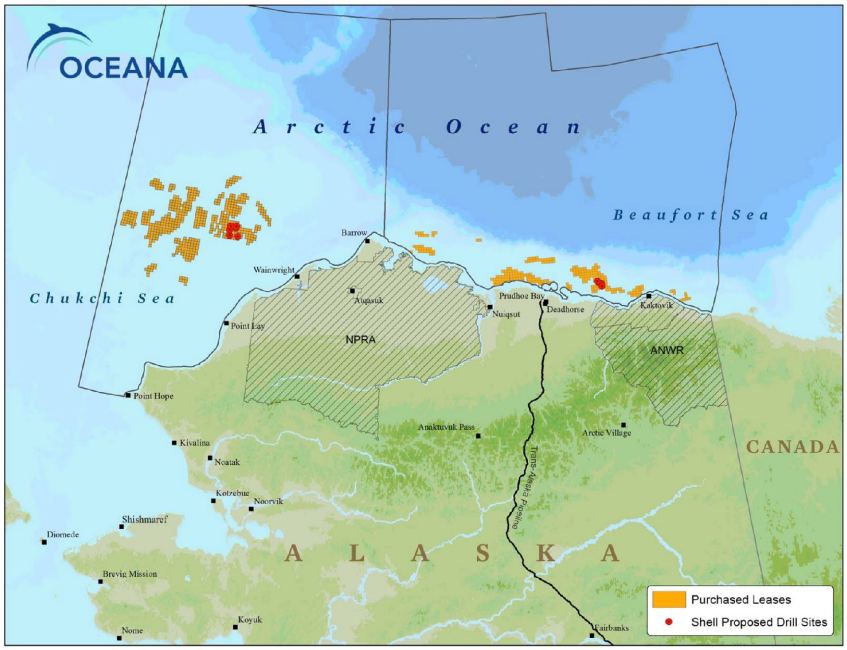
383. *Id.*

384. *Id.*

385. *Id.*

386. *Id.* Concurrent with these developments, and as explained above, the D.C. Circuit Court of Appeals found that the 2007–2012 OCS Leasing program violated OCSLA. *See supra* notes 300–02 and accompanying text. Shell's Chukchi Sea leases were purchased in a lease sale held under that program, and thus while DOI was re-evaluating that program in 2009 and 2010, Shell could not conduct exploration activities on its leases. DOI, however, proceeded to evaluate Shell's exploration proposals. This uncertainty was cleared away when Secretary Salazar let stand the Chukchi Sea lease sale in his final decision on remand, although as explained below by that time the Secretary had suspended consideration of the final approvals for Shell's 2010 exploration activities due to the *Deepwater Horizon* disaster.

387. Discussed more in-depth *infra* Part V.C.3.a.



i. Challenge to MMS's Approval of Shell's 2010 Exploration Plans

MMS approved Shell's Beaufort Sea Exploration Plan in October 2009 and its Chukchi Sea Exploration Plan two months later.[388] Alaska Native entities and conservation groups challenged the exploration plans in petitions for review filed with the Ninth Circuit Court of Appeals.[389]

388. *See* MINERALS MGMT. SERV. - ALASKA OCS REGION, BUREAU OF OCEAN ENERGY MGMT. FINDING OF NO SIGNIFICANT IMPACT (2009), *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Environment/Environmental_Analysis/2009-061-fonsi.pdf.

389. Petitioners AEWC and Inupiat Community of the Arctic Slope filed the Petition for Review for of the Beaufort Sea approval, No. 09-73944, on December 15, 2009, and filed the Petition for Review for the Chukchi Sea approval, No. 10-70368, on February 4, 2010. Petitioners Native Village of Point Hope, Alaska Wilderness League, Center for Biological Diversity, Defenders of Wildlife, National Audubon Society, Natural Resources Defense Council, Northern Alaska Environmental Center, Oceana, Ocean Conservancy, Pacific Environment, Resisting Environmental Destruction on Indigenous Lands (REDOIL), Sierra Club, and The Wilderness Society filed their Petition for Review of the Beaufort Sea approval on December 15, 2009. Those same groups, as well as National Audubon Society, Ocean Conservancy, and The Wilderness Society filed their petition for review of the Chukchi Sea approvals on January 19, 2010. The court consolidated all of the peti-

Among other claims, the petitioners argued that a blowout was a reasonably foreseeable event and that, therefore, MMS must analyze the potential environmental effects of a large spill from exploration drilling.[390] Petitioners also argued that, once again, MMS had failed to consider impacts to bowhead whales and that MMS improperly analyzed the impacts of drilling in the Beaufort and Chukchi seas separately and dismissed any potential for cumulative effects of drilling in both areas or in drilling over multiple years.[391] The Ninth Circuit summarily denied the petitions in May 2010, stating without substantive explanation that MMS had met its obligations under NEPA and that the agency did not act arbitrarily or capriciously.[392]

A month before the opinion was issued, however, the *Deepwater Horizon* exploded and sank in the Gulf of Mexico. As this disaster unfolded over many months, it raised immediate public concern about the safety of offshore drilling and the ability to quickly and effectively respond to any and all problems.

The wholesale inability of industry and government to stop the blowout quickly or clean up spilled oil in the relatively calm and infrastructure-rich waters of the Gulf of Mexico led the Obama Administration to suspend consideration of its final approvals for Shell's planned drilling in the U.S. Arctic Ocean in 2010.[393]

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tions and allowed Shell to intervene on the side of the federal government. Order, Native Vill. of Point Hope v. Salazar (9th Cir. Jan. 15, 2010) (No. 09-73942), *available at* http://yosemite.epa.gov/oa/eab_web_docket.nsf/Filings%20By%20Appeal%20Number/86A9966325DA82A08525771B004FCCB3/$File/Exh.%20C...7.03.pdf.

390. *Id.*

391. *See* Consolidated Brief for Petitioners, Native Vill. of Point Hope v. Salazar, 378 F. App'x 747 (9th Cir. Mar. 8, 2010) (Nos. 09-73942, 09-73944, 10-70166, 10-70368); Opening Brief on the Merits for Petitioners Alaska Eskimo Whaling Commission and Inupiat Community of the Arctic Slope 41–47, Native Vill. of Point Hope v. Salazar, 378 F. App'x 747 (9th Cir. Mar. 8, 2010) (Nos. 09-73942, 09-73944, 10-70166, 10-70368). In its 2008 Biological Opinion, NMFS concluded that "[b]ecause [of] the potential for noise disturbance to displace whales from important feeding areas, *special scrutiny should* be given to . . . drilling operations which may impact these areas." MINERALS MGMT. SERV. & NAT'L MARINE FISHERIES SERV., NAT'L OCEANIC & ATMOSPHERIC ADMIN., BIOLOGICAL OPINION ON OIL AND GAS LEASING AND EXPLORATION ACTIVITIES IN THE U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA 99 (2008), https://alaskafisheries.noaa.gov/protectedresources/whales/bowhead/biop0708.pdf (emphasis added). NMFS had also warned that significant impacts could occur, especially to mothers and calves if important feeding habitat was disturbed. *Id.* at 87. A similar risk of disturbance existed for walrus because they feed at Hannah Shoal, about twenty-five miles from one of the proposed Chukchi Sea drilling sites.

392. *Native Vill. of Point Hope*, 378 F. App'x 747.

393. Memorandum Ken Zalazar, Sec'y, U.S. Dep't of the Interior, to Michael R. Bromwich, Dir., Bureau of Ocean Energy Mgmt., Decision Memorandum Regarding the Suspension of Certain Offshore Permitting and Drilling Activities on the Outer Continental Shelf 1 (July 12, 2010), *available at* http://www.doi.gov/deepwaterhorizon/upload/Salazar-Bromwich-July-12-Final.pdf.

ii. Administrative Appeals of 2010 Clean Air Act Permits

Before the Gulf of Mexico blowout, Shell had applied for two permits pursuant to the Clean Air Act Prevention of Significant Deterioration (PSD) program for its *Discoverer* drill ship, one for drilling in the Beaufort and one for the Chukchi.[394] EPA issued the permits in the spring of 2010.[395] Again Alaska Native and environmental groups appealed the permits to the EAB.[396] Among other things, Petitioners argued that Best Available Control Technology Standard (BACT) should be required on all vessels associated with Shell's drilling operations, not just the drill ship.[397] In its decision, the EAB ruled against the petitioners on this BACT claim.[398] In addition, EPA had determined that a rig became an "OCS source" when a Shell representative declared it secure, stable, and ready to begin exploration. The EAB held that that the agency did not provide a "cogent, reasoned explanation" of its adoption of Shell's approach to determining when the drill ship becomes a stationary source subject to regulation and that this determination inappropriately delegated to Shell EPA's authority to regulate.[399] Finally, the EAB found that EPA's analysis of the potential for adverse health impacts to Inupiat communities along the Arctic coast did not comport with the agency's own concurrent revision of standards for particular emissions.[400]

Ultimately, Shell was unable to drill in 2010 and 2011 because (1) the analysis underlying Lease Sale 193 was illegal and on remand to the agency; (2) EPA did not comply with the law in awarding Clean Air Act permits; and (3) the government put its exploration decision-making on hold in the wake of the *Deepwater Horizon* disaster.

394. In re Shelf Gulf of Mexico, OCS Appeal Nos. 10-01 to 10-04, slip op. at 13, 15 (EAB Dec. 30, 2010), *available at* http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/OCS%20Permit%20Appeals%20(CAA)/41B37138DABA5A54852578090072B80A/$File/Denying%20and%20Remanding....pdf. Unlike in its 2007 applications, Shell acknowledged here that the *Discoverer* was a major emitting facility subject to the Clean Air Act's PSD program.

395. *Id.* at 15, 17.

396. *Id.* at 1. The groups were the Center for Biological Diversity, Natural Resources Defense Council, Native Village of Point Hope, Resisting Environmental Destruction on Indigenous Lands (REDOIL), Alaska Wilderness League, Audubon Alaska, Northern Alaska Environmental Center, Ocean Conservancy, Oceana, Pacific Environment, Sierra Club, Alaska Eskimo Whaling Commission, and Inupiat Community of the Arctic Slope. *Id.*

397. *Id.*

398. *Id*.

399. *Id.* at 2–3.

400. *Id.* at 3, 8.

C. 2012–Present

Beginning with the revised 2007–2012 Five-Year Leasing Program, decisions about offshore oil and gas activities in the Arctic were squarely under the control of the Obama Administration. As it moved forward, the administration completed a new 2012–2017 Five-Year Leasing Program, continued its commitment to Lease Sale 193, and once again granted approvals and permits for exploration drilling in the Chukchi and Beaufort seas. These decisions, again, led to controversy.

1. 2012–2017 Five-Year Leasing Program

The 2012–2017 Five-Year Program and accompanying programmatic EIS were finalized in August 2012. The plan includes two lease sales in the Arctic Ocean: Lease Sale 237 scheduled in the Chukchi Sea in 2016 and Lease Sale 242 in the Beaufort Sea in 2017.[401] The program document explains that the sales are scheduled late in the five-year planning horizon to allow for additional scientific information to be gathered and for improved "contingency planning and infrastructure development."[402] In addition, BOEM committed to moving toward a revised system of leasing for the Arctic Ocean that is "markedly different from the traditional area-wide leasing model applied in the GOM, in which all unleased acreage in the area is typically offered for sale."[403] The agency stated that it

> [i]s developing a process in which it will continue to use incoming scientific information and stakeholder feedback to proactively determine, in advance of any potential sale, which specific areas offer the greatest resource potential while minimizing potential conflicts with environmental and subsistence considerations . . . . To facilitate this approach, BOEM will carefully consider specific subsets of the broader planning area that have the most promising oil and natural gas resource potential, based on analysis of geological and geophysical (G&G) data as well as information developed through any exploration under existing leases from previous sales. BOEM will

401. *See* BUREAU OF OCEAN ENERGY MGMT., PROPOSED FINAL OUTER CONTINENTAL SHELF OIL & GAS LEASING PROGRAM 2012–2017, at 4 (2012) [hereinafter PFP 2012–2017], *available at* http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Leasing/Five_Year_Program/2012-2017_Five_Year_Program/PFP%2012-17.pdf. On August 27, 2012, Secretary Ken Salazar gave final approval to the schedule of lease sales set out in the Proposed Final Program (PFP). *2012–2017 OCS Oil and Gas Leasing Program*, BUREAU OF OCEAN ENERGY MGMT., http://www.boem.gov/Five-Year-Program-2012-2017/ (last visited June 8, 2014); *see also* PFP 2012–2017, *supra*, at 4 tbl.B.

402. PFP 2012–2017, *supra* note 402, at 7–8.

403. *Id.* at 7.

> further refine those areas in order to exclude or protect through mitigation environmentally sensitive habitats and subsistence uses based on ongoing scientific study and the incorporation of traditional knowledge supplied by Alaskan Natives.[404]

It is not clear how these changes will be implemented. A challenge was filed to the plan by Center for Sustainable Economy.[405] Briefing in the case is ongoing.[406]

2. Lease Sale 193

In February 2013, the plaintiffs in the challenge to Lease Sale 193 appealed the district court's decision upholding the supplemental EIS as compliant with NEPA. In their appeal, the petitioners argued that DOI had violated NEPA in two regards. First, they argued that the supplemental EIS did not satisfy the agency's obligations when acting in the presence of significant scientific uncertainty.[407] Specifically, they argued that the reasons given by the DOI—that missing scientific information is not essential to decisions at the lease sale stage—are arbitrary.[408] Second, the petitioners argued that the agency based its analysis of impacts on an arbitrarily limited development scenario.[409]

On January 22, 2014, the Ninth Circuit ruled in favor of the petitioners.[410] The court found that DOI had violated NEPA by relying on an arbitrarily small prediction of the amount of the development that might result from selling leases in the Chukchi Sea. All of the analysis of potential impacts to the environment in the EIS supporting the decision to hold Lease Sale 193 was premised on a scenario in which one billion barrels of oil were developed from the leases sold. One billion barrels reflected the "lowest possible amount of oil that was economical to produce," and DOI chose to use it even though estimates of hydrocarbon potential in the Chukchi Sea ranged up to twenty-nine billion barrels with a mean estimate of twelve billion barrels.[411] The court rejected the

404. *Id.*
405. Ctr. for Sustainable Econ. v. Jewell, No. 12-1431 (D.C. Cir. Oct. 23, 2012).
406. *Id.*
407. Native Vill. of Point Hope v. Jewell, 740 F.3d 489, 492 (9th Cir. 2014).
408. *Id.*
409. *Id.* at 499–502.
410. *Id.* at 502–05.
411. *Id.* at 501.

government's justification for using this low estimate and remanded the case to the district court.[412]

Several days after the court decision, Shell announced that it would not seek approval—as it had planned—to drill exploration wells in the Chukchi Sea beginning in 2014.[413]

3. 2012–2013 Beaufort and Chukchi Sea Exploration

Looking again to drill exploration wells, Shell submitted revised exploration plans in May and June 2011, respectively, seeking approval for 2012 to drill up to four wells in the Beaufort Sea, two wells each at its Sivulliq and Torpedo prospects, and six wells at its Burger prospect in the Chukchi Sea.[414] In August 2011, BOEM conditionally approved the Beaufort Exploration Plan, and in December 2011 BOEM conditionally approved the Chukchi Exploration Plan.[415] The conditional approvals allowed Shell to drill the wells proposed under its exploration plans as long as the company received the permits required by other agencies and met other particular conditions imposed by BOEM.

The use of such conditional approvals has prompted concern because it allows for continued environmental and economic uncertainty beyond the exploration plan approval.[416] Future agency decisions about the conditions can be improperly influenced by the massive industry in-

412. *Id.* at 504–05. The court found that the supplemental analysis satisfied the DOI's obligations to address missing information and rejected the petitioners' argument to the contrary. *See id.* at 496.

413. *See, e.g.*, Steven Mufson, *Shell Says It Won't Drill in Alaska in 2014, Cites Court Challenge*, WASH. POST (Jan. 30, 2014), http://www.washingtonpost.com/business/economy/shell-says-it-wont-drill-in-alaska-in-2014-cites-court-challenge/2014/01/30/72dd06f8-89ab-11e3-916e-e01534b1e132_story.html. In October 2013, Shell had announced plans to return to the Chukchi Sea in 2014 and had been pursuing the necessary approvals.

414. SHELL OFFSHORE INC., REVISED OUTER CONTINENTAL SHELF LEASE EXPLORATION PLAN CAMDEN BAY, BEAUFORT SEA, ALASKA 1–6 (2011), *available at* http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Plans/Regional_Plans/Alaska_Exploration_Plans/2012_Shell_Beaufort_EP/Shell%202012%20Camden%20Bay%20Exploration%20Plan%20Public%20Copy.pdf; SHELL GULF OF MEXICO INC., REVISED OUTER CONTINENTAL SHELF LEASE EXPLORATION PLAN CHUKCHI SEA, ALASKA 1–5 (2011), *available at* http://www.boem.gov/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Plans/Regional_Plans/Alaska_Exploration_Plans/2012_Shell_Chukchi_EP/CS-EP-Public.pdf.

415. U.S. DEP'T OF THE INTERIOR, REVIEW OF SHELL'S 2012 ALASKA OFFSHORE OIL AND GAS EXPLORATION PROGRAM 11–12 (2013) [hereinafter DOI 60-DAY REPORT], *available at* http://www.doi.gov/news/pressreleases/upload/Shell-report-3-8-13-Final.pdf.

416. *See* Letter from Cindy Shogan, Exec. Dir., Alaska Wilderness League et al., to Dr. James Kendall, Reg'l Dir., Bureau of Ocean Energy Mgmt. 39 (July 25, 2011), *available at* https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90463/621169/737117/736922/A2F7W2_-_AWL_Comment_Letter_on_Shell_Beaufort_Sea_Spill_Plan_and_Exploration_Plan_7-25-11.pdf.

vestment that follows conditional approvals, further tilting the decision-making field toward approving risky activities.

Shell also sought and received approvals for its oil spill prevention and response plan and air and water pollution permits. As detailed below, each of these authorizations spurred litigation. Despite this and other active litigation as described above, Shell mobilized its drilling rigs into U.S. Arctic waters in the summer of 2012, though it did not manage to complete any exploration wells.

a. Challenge to Exploration Plan Approvals

For the third time, Alaska Native and environmental groups challenged the approval of Shell's exploration plans in the Ninth Circuit.[417] As the first plans to be submitted in the Arctic since the Gulf of Mexico blowout, Shell's revised plans were required to respond to two Notices to Lessees issued by the Secretary of the Interior as a result of the Gulf incident. The revisions related to the calculation of a worst-case discharge and to Shell's ability to deploy containment equipment in the event of a blowout.[418]

In their challenge, the petitioners focused on BOEM's compliance with the OCSLA regulations governing spill response capabilities. Petitioners argued that the government had improperly approved Shell's exploration plans before Shell had an approved oil spill response plan in place, and had violated the law by relying on a cursory explanation of Shell's well capping and containment system, for which the design had not even been completed, much less was it built or tested.[419] Petitioners also contended that Shell's estimate of the time required to drill a relief well was overly optimistic and that if a relief well could not be drilled in

417. Native Vill. of Point Hope v. Salazar, 680 F.3d 1123 (9th Cir. 2012). Native Village of Point Hope, Alaska Wilderness League, Center for Biological Diversity, Defenders of Wildlife, National Audubon Society, Natural Resources Defense Council, Northern Alaska Environmental Center, Ocean Conservancy, Oceana, Resisting Environmental Destruction On Indigenous Lands (REDOIL), Sierra Club, and The Wilderness Society filed their petition challenging the Beaufort approval (No. 11-72891) on September 29, 2011, and ICAS filed its petition on October 3, 2011 (No. 11-72943). *Id.* The same groups filed petitions challenging the Chukchi Sea approval in February 2012. Again the cases were consolidated, and Shell and the state of Alaska joined as intervenors in the case. *See id.*

418. BUREAU OF OCEAN ENERGY MGMT., REGULATION, & ENFORCEMENT, NATIONAL NOTICE TO LESSEES AND OPERATORS OF FEDERAL OIL AND GAS LEASES, OUTER CONTINENTAL SHELF *(OCS)* (2010), http://www.boem.gov/Regulations/Notices-To-Lessees/2010/10-n06.aspx; BUREAU OF OCEAN ENERGY MGMT., REGULATION, & ENFORCEMENT, NATIONAL NOTICE TO LESSEES AND OPERATORS (NTL) OF FEDERAL OIL AND GAS LEASES, OUTER CONTINENTAL SHELF (2010), *available at* http://www.ocsbbs.com/ntls/10-n10.pdf.

419. *Native Vill. of Point Hope*, 680 F.3d at 1129.

such a short time, the total amount of oil needing to be recovered could exceed the amount anticipated in Shell's plans.[420]

The Ninth Circuit assigned the case to the same panel from previous year, and the court again rejected the challenges.[421] The court sanctioned the agency's reliance on the old spill response plans when it approved the drilling plans and determined that, because the agency had eventually approved the new spill response plans, the issue was moot.[422] The court also deferred to the agency's own expertise in determining that the cursory description of Shell's spill containment plans was sufficient and that the time estimate for drilling a relief well was realistic.[423]

b. Continuing Controversy over Air Emissions[424]

Shell again applied for Clean Air Act permits needed for its proposed drilling. EPA issued two PSD permits for the *Discoverer*—one for the Chukchi Sea and the other for the Beaufort Sea.[425] EPA issued a minor source permit for the *Kulluk*.[426]

Alaska Native and environmental groups again challenged the permits at the EAB. With respect to the *Discoverer* permits, the petitioners again argued that EPA erred by determining that the vessels are OCS sources subject to regulation only when attached to the seabed.[427] In addition, the petitioners challenged EPA's determinations in assessing compliance with the Clean Air Act that ambient air would be measured

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420. *Id.*

421. *Id.* at 1126.

422. *Id.* at 1131.

423. *Id*. at 1134.

424. In December 2012, Congress transferred the authority to regulate air emissions from OCS sources from EPA to the DOI. *See* Consolidated Appropriations Act of 2012, Pub. L. No. 112-74, § 432, 125 Stat. 786, 797 (2012), *available at* http://www.gpo.gov/fdsys/pkg/PLAW-112publ74/html/PLAW-112publ74.htm. These changes do not apply to permits already issued or under consideration, like those at issue for Shell. *See id.* § 432(d). BOEM has committed to revising its regulations to better enable the agency to address the new responsibilities.

425. In re Shell Gulf of Mexico, OCS Appeal Nos. 11-02, 11-03, 11–04, & 11–08, slip op. at 1 (EAB Jan. 12, 2012), *available at* http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/OCS%20Permit%20Appeals%20(CAA)/FFB31450EBD172148525798300737184/$File/Denying%20Review...51.pdf.

426. *See* In re Shell Offshore Inc., OCS Appeal Nos. 11-05, 11-06, & 11-07 (EAB Mar. 30, 2012), *available at* http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Filings%20By%20Appeal%20Number/148252B4723F0450852579D100714934/$File/Shell%20Kulluk.pdf.

427. The groups challenging the *Discoverer* permits were the Native Village of Point Hope, Resisting Environmental Destruction of Indigenous Lands. Alaska Wilderness League, Center for Biological Diversity, Natural Resources Defense Council, Northern Alaska Environmental Center, Ocean Conservancy, Oceana, Pacific Environment, Sierra Club, the Wilderness Society and the Iñupiat Community of the Arctic Slope. *Id.* at 1. In addition, the Alaska Eskimo Whaling Commission initially joined the challenge but later withdrew.

500 meters from the ship and that the emissions would not violate new increment standards for certain pollutants.[428] Finally, the Alaska Native groups argued that EPA's environmental justice analysis regarding disproportionate impacts to the North Slope communities continued to be arbitrary.[429]

The EAB dismissed the appeal, finding EPA's determination that the rig became an OCS source when attached to the bottom was adequately justified. The EAB affirmed EPA's measurement of compliance at 500 meters from the ship, found that Shell's estimated emissions would comply with the new standards, and concluded that the supplemental analysis adequately looked at the disproportionate health impacts on the North Slope as compared to the rest of Alaska.[430]

With respect to the *Kulluk* permit, the petitioners argued that EPA erred in establishing limitations on the *Kulluk*'s potential to emit various pollutants and in declining to require a pre-construction increment analysis.[431] The groups also challenged the 500-meter exemption for measuring ambient air quality and raised environmental justice concerns. On March 30, 2012, the EAB rejected those arguments and upheld the Shell *Kulluk* air permit.[432]

Once the EAB appeals were complete, Alaska Native and environmental groups filed two cases in the Ninth Circuit Court of Appeals challenging EPA's approval of the permits.[433] The court rejected the petitioners' arguments and upheld the permit approvals. With respect to the *Discoverer*, the Ninth Circuit held that the Clean Air Act was ambiguous as to whether best available control technology was required for vessels not attached to an Outer Continental Shelf source, and therefore, deferred to EPA's determination that such technology was not required. [434] The court

428. In re Shell Gulf of Mexico, *supra* note 426, at 2–3. Shell had explained to EPA that this distance was necessary for the ship to comply with the NAAQS.

429. *Id.*

430. *Id.*

431. *See* In re Shell Offshore Inc., *supra* note 427, at 46. The groups challenging the *Kulluk* permit include: Resisting Environmental Destruction on Indigenous Lands, Alaska Wilderness League, Center for Biological Diversity, Natural Resources Defense Council, Northern Alaska Environmental Center, Oceana, Pacific Environment, Sierra Club, the Wilderness Society, and Inupiat Community of the Arctic Slope. *Id.* at 1. "[I]ncrements are maximum allowable increases in pollution concentrations that may occur in particular areas." *Id.* (internal citations omitted).

432. *Id.* at 100.

433. Resisting Envtl. Destruction on Indigenous Lands v. EPA, 716 F.3d 1155, 1163 (9th Cir. 2012) (amended Apr. 23, 2013).

434. *Id.* at 1165.

also upheld EPA's decision to allow measurement of ambient air to begin 500 meters from the ship.[435]

In August 2013, the Ninth Circuit rejected the challenges to the *Kulluk* permit, thereby affirming EPA's decision not to require a pre-construction increment analysis for the *Kulluk*.[436]

c. Spill Plan Approvals and Challenge

As explained above, companies seeking to drill exploration wells must have approved oil spill response plans.[437] Shell first had a Beaufort Sea response plan approved in 2006 to accompany its proposed 2007–2009 drilling program. Renewed approvals were granted in 2010 for both the Chukchi and Beaufort Sea response plans. Drilling never occurred in those years, however, and DOI required Shell to resubmit plans for its proposed 2012 activities.

In the new submissions, Shell's emergency response plan is based on the assumption that "10 percent of the 25,000 [barrels of oil per day (bopd)] discharge escapes the primary offshore recovery efforts at the blowout."[438] Shell's planning assumption means that Shell expects to contain, recover, and remove approximately 95% of any oil spill in the water and that only 5% would remain unrecovered and capable of affecting shorelines.

This response assumption is made despite the fact that, as explained above, less than 10% of the spilled oil that resulted from the *Exxon Valdez* and *Deepwater Horizon* accidents was recovered using mechanical means and that none of the equipment Shell proposed for use had been tested in Arctic conditions. As explained below, some of that equipment had not even been built.

BSEE approved Shell's oil spill response plans in February 2012.[439] In July 2012, a coalition of Alaska Native and conservation organizations filed a lawsuit in federal district court in Alaska challenging those ap-

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435. *Id.*

436. *See* Alaska Wilderness League v. EPA, 727 F.3d 934 (9th Cir. 2013).

437. *See supra* note 222 and accompanying text.

438. SHELL, *supra* note 135, app. C at C-11. According to Shell, "the unrecovered 2,500 bopd is assumed to drift toward the mainland, driven by winds out of the [west-northwest]." *Id.* Shell assumed that "half of the oil reaching the near-shore environment would be recovered by the skimming systems dispatched from the [Shell's nearshore recovery task force]." *Id.* Shell further stated that "[t]he remaining 1,250 bopd are assumed to migrate toward the shoreline where [Shell's spill response contractor] would mobilize personnel and equipment to intercept the oil and deploy boom for shoreline protection." *Id.*

439. Dan Joling, *Shell Spill Response Plan Wins Federal OK*, ANCHORAGE DAILY NEWS (Feb. 17, 2012), http://www.adn.com/2012/02/17/2322791/shell-wins-ok-for-arctic-spill.html.

provals.[440] The plaintiffs argued that BSEE violated the law by approving a plan based on Shell's assertion that it can remove 95% of a worst-case discharge and that the trajectory analyses on which the response plan is premised are faulty because they fail to encompass oil remaining under ice through the winter.[441] The plaintiffs also argued that insufficient information was provided to BSEE for the agency to determine whether and how the worst-case discharge was modeled and that the spill response plan did not contain information about Shell's Arctic containment system, which BOEM and BSEE stated was an important component of response. In addition, several of the plaintiffs argued that BSEE violated NEPA by failing to prepare either an Environmental Assessment or EIS to evaluate the spill plan—or alternatives—and violated the ESA by failing to consult with expert agencies about potential impacts to endangered species.[442]

This is case of first impression, and there is little case law interpreting the statutory provisions at issue. It proceeded in district court in conjunction with an action filed by Shell seeking declaratory judgment that the spill plans comply with the law.[443]

In August 2013, the district court rejected the plaintiffs' arguments wholesale,[444] and they are pursuing an appeal.[445]

d. Clean Water Act Permits

To drill exploration wells, Shell must apply for and receive permits from EPA pursuant to the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act. In lieu of individual permits for each activity, EPA can issue a "general permit" covering categories of similar activities. In May 2009, Shell asked EPA to provide coverage under its existing general permit for discharges from drilling activities in the Arctic Ocean.[446] Shell's proposed discharges dramatically exceeded

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440. Order Denying Motion for Summary Judgment and Granting Cross-Motions for Summary Judgment, Shell Gulf of Mexico, Inc. v. Ctr. for Biological Diversity, Nos. 3:12-cv-00048-RRB, 1:12-cv-00010-RRB (D. Alaska Aug. 5, 2013), *available at* http://earthjustice.org/sites/default/files/files/159Order-denying-MSJ.pdf.

441. *Id.* at 13.

442. *Id.* at 24–36.

443. *Id.* at 1–2.

444. *See generally id.*

445. Shell Gulf of Mexico v. Ctr. for Biological Diversity, No. 13-35835 (9th Cir. argued Aug. 13, 2014).

446. *See* Letter from David Dickson, Alaska Wilderness League et al., to Lisa P. Jackson, Adm'r, Envtl. Prot. Agency et al. (Jan. 19, 2010), *available at* http://www.epa.gov/region10/pdf/permits/ocs/shell/alaska_wilderness_league_petition_shell_chukchi_noi_1-20-2010.pdf.

the amounts anticipated by the general permit.[447] Concerned that approval under a general permit would make it difficult to monitor impacts, environmental and Alaska Native organizations requested that EPA require individual permits for the proposed drilling.[448]

Before EPA ruled on Shell's request, the company repeated and broadened its application, seeking to operate under the general permit for the proposed 2012 activities and beyond.[449] This time Shell was joined by ConocoPhillips and Statoil, who also sought coverage under the general permit for drilling planned in 2012 and 2013.[450] ConocoPhillips and Statoil also proposed to discharge volumes of pollutants including muds, cooling water, and sanitary and domestic waste that exceeded the amounts analyzed by EPA.[451] Concerned again about the general permit approach, environmental groups requested that EPA permit the activities only under individual permits.[452]

In summer 2011, EPA granted coverage to the three operators under the expiring general permit.[453] Subsequently, the Alaska Eskimo

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447. *Id.* at 3. For example, Shell proposed to emit nine times the amount of cooling water compared to the amount that was analyzed in the ocean discharge criteria evaluation (ODCE). Shell also proposed to discharge in the Chukchi Sea almost twice as much drilling mud in a single year of drilling as EPA estimated would be discharged over the five-year general permit period. *Id.* at 3–4.

448. *Id.*

449. *See* ENVTL. PROT. AGENCY, NOTICE OF INTENT INFORMATION SHEETS, SHELL CHUKCHI SEA LEASE BLOCKS (2010), *available at* ftp://ftp.epa.gov/reg10ftp/alaska/ocs/chukchi/water/noi/2010-NOIs/; ENVTL. PROT. AGENCY, NOTICE OF INTENT INFORMATION SHEETS, SHELL BEAUFORT SEA LEASE BLOCKS (2010), *available at* ftp://ftp.epa.gov/reg10ftp/alaska/ocs/beaufort/water/noi/2010-NOIs/.

450. *See* Letter of Notice of Intent from Bruce St. Pierre, Jr., Senior Envtl. Coordinator, ConocoPhillips, to Hanh Shaw, Envtl. Prot. Agency (Apr. 14, 2011), *available at* ftp://ftp.epa.gov/reg10ftp/alaska/ocs/chukchi/water/noi/2011-NOIs/Conoco_Chukchi_cover_letter_Apr_2011.pdf; Letter of Notice of Intent from Bill Schoellhorn, Exploration Dir. Alaska, Statoil, to Hanh Shaw, Envtl. Prot. Agency (April 13, 2011), *available at* ftp://ftp.epa.gov/reg10ftp/alaska/ocs/chukchi/water/noi/2011-NOIs/Statoil_Arctic_npdes_Notice_of_Intent_Chukchi_lease_6206_6211_6260_6306_6310_Apr_2011.pdf.

451. *Id.*

452. Letter from Cindy Shogan, Exec. Dir., Alaska Wilderness League et al., to Hanh Shaw, Envtl. Prot. Agency (Jan. 24, 2011), *available at* ftp://ftp.epa.gov/reg10ftp/alaska/ocs/beaufort/water/noi/2010-NOIs/public_comments_Alaska_Wilderness_League_Shell_Sivulliq_Revised_NOI_CORRECTED_comments_1-28-2011.pdf.

453. Letter from Dennis J. McLerran, Reg'l Adm'r, Envtl. Prot. Agency, to Susan Childs, Alaska Venture Support Integrator Manager, Shell Exploration & Prod. Co. (June 23, 2011), *available at* ftp://ftp.epa.gov/reg10ftp/alaska/ocs/chukchi/water/noi/2011-NOIs/Arctic_GP_EPA_Coverage_Letter_Shell_Exploration_Co_June_23_2011.pdf; Letter from Dennis J. McLerran, Reg'l Adm'r, Envtl. Prot. Agency, to Bruce St. Pierre, Jr., Senior Envtl. Coordinator, ConocoPhillips (June 23, 2011), *available at* ftp://ftp.epa.gov/reg10ftp/alaska/ocs/chukchi/water/noi/2011-NOIs/Arctic_GP_EPA_Coverage_Letter_ConocoPhillips_June_23_2011.pdf; Letter from Dennis J. McLerran, Reg'l Adm'r, Envtl. Prot. Agency, to Bill Schoellhorn, Exploration Dir. Alaska, Statoil (June 23, 2011), *available at* ftp://ftp.epa.gov/reg10ftp/alaska/ocs/chukchi/water/noi/2011-NOIs/Arctic_GP_

Whaling Commission (AEWC) and Inupiat Communities of the Arctic Slope (ICAS) filed a lawsuit that resulted in a settlement whereby EPA agreed to issue a new general permit by a certain date.[454]

EPA ultimately issued new separate general permits for the Beaufort and Chukchi seas in October 2012.[455] Although the new general permits included an analysis of volumes of discharges that were more closely aligned with the proposals by Shell, ConocoPhillips, and Statoil, the permit itself placed no limits on the total volume of any discharge. Thus, even though EPA's underlying analysis of impacts relied on an assumption that discharges would be limited to certain quantities over the five-year period, nothing in the permit actually limited the total amount of discharges permissible. The permit, therefore, left the door open for companies to continue discharges exceeding those analyzed by EPA.[456]

Two lawsuits were filed—one by AEWC and the other by a coalition of conservation organizations. The suits allege that EPA violated the Clean Water Act in setting the terms of the general permits and allowing for coverage of the proposed activities.[457] The cases are currently proceeding in the Ninth Circuit.

e. Shell Lawsuits Against Conservation Groups

Between February and June 2012, Shell filed three lawsuits in federal district court in Alaska related to its proposed exploration drilling.[458] The suits named an Alaska Native and thirteen conservation organizations as defendants and sought declaratory judgments that approvals or

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EPA_Coverage_Letter_Statoil_USA_Inc_June_23_2011.pdf.

454. Motion for Voluntary Dismissal, Inupiat Cmty. of the Arctic Slope v. EPA, No. 11-73182 (9th Cir. Nov. 6, 2012).

455. *Arctic Oil and Gas Exploration General Permits*, *supra* note 231.

456. EPA determined that "it is neither reasonable nor necessary to establish a cap or threshold on the volumes for each discharge." ENVTL. PROT. AGENCY, RESPONSE TO COMMENTS 86 (2012), http://www.epa.gov/region10/pdf/permits/npdes/ak/arcticgp/Response_To_Comments_Beaufort_Chukchi_General_Permits.pdf.

457. Alaska Wilderness League v. EPA, No. 13-60633 (9th Cir. Feb. 25, 2013); Alaska Eskimo Whaling Comm'n v. EPA, No. 13-70697 (9th Cir. Feb. 21, 2013).

458.The first lawsuit sought a declaratory judgment that Shell's oil spill response plans complied with applicable statutes. *See* Shell Gulf of Mexico, Inc. and Shell Offshore, Inc. v. Ctr. for Biological Diversity, No. 3:12 cv-0048-RRB (D. Alaska Aug. 5, 2013), *available at* http://earthjustice.org/sites/default/files/files/159Order-denying-MSJ.pdf. The second sought a declaratory judgment that the Incidental Harassment Authorizations issued by the National Marine Fisheries Service complied with the law. *See* Shell Gulf of Mexico, Inc. and Shell Offshore, Inc. v. Ctr. for Biological Diversity, No. 3:12 CV-0096-RRB (D. Alaska). The third sought a declaratory judgment that the Letters of Authorization issued by the US Fish & Wildlife Service were legal. *See* Shell Gulf of Mexico, Inc. and Shell Offshore, Inc. v. Ctr. for Biological Diversity, No. 3:12 CV-0110-RRB (D. Alaska).

permits obtained by Shell complied with the law.[459] None of these suits named the federal agency that issued the permits as a party, and the defendants moved to dismiss two of them for lack of jurisdiction and a cognizable controversy.[460] The district court denied those motions.[461] Ultimately, the district court dismissed two of the suits as moot, and the third was consolidated with the affirmative challenge to BSEE's approval of Shell's spill plans.[462]

Eventually, as part of its ruling rejecting the conservation groups' challenge to BSEE's approval of Shell's oil spill response plans, the district court granted Shell summary judgment and awarded declaratory relief establishing its response plans as valid. Both of those rulings—the decision in the affirmative challenge to the spill response plans and the grant of declaratory judgment—are now on appeal in the Ninth Circuit.[463]

f. Shell's Operations in 2012

Though litigation did not stop Shell from completing exploration wells in 2012, substantial problems and near-disaster did. These problems reflect the difficult conditions in Alaskan waters and the risks inherent in operating there.

As an initial matter, Shell made public statements that were inconsistent with the commitments made in its Oil Spill Response Plans. As explained above, Shell's spill response plans were premised at least in part on an assumption that the company could recover approximately 95% of a major spill before spilled oil could contact the shoreline.[464] In June 2012, however, a Shell spokesperson contradicted these clear statements in the plan by saying that "we expect to 'encounter' 90 percent of any discharge on site—very close to the drilling rig . . . [and] to encounter 5 percent near-shore between the drilling rig and the coast.

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459. *See generally* Shell Gulf of Mexico, Inc. and Shell Offshore, Inc. v. Ctr. for Biological Diversity, No. 3:12 cv-0048-RRB (D. Alaska Aug. 5, 2013); Shell Gulf of Mexico, Inc. and Shell Offshore, Inc. v. Ctr. for Biological Diversity, No. 3:12 CV-0096-RRB (D. Alaska); Shell Gulf of Mexico, Inc. and Shell Offshore, Inc. v. Ctr. for Biological Diversity, No. 3:12 CV-0110-RRB (D. Alaska).

460. *See, e.g.*, Memo of Points and Authorities in Support of Defendant's Motion to Dismiss, Shell Gulf of Mexico, Inc. and Shell Offshore, Inc. v. Ctr. for Biological Diversity, No. 3:12 CV-0048-RRB (D. Alaska Apr. 17, 2012).

461. Order, Shell v. Ctr. for Biological Diversity, No. 12-80176 (9th Cir. Dec. 18, 2012) (denying petition for writ of mandamus).

462. Shell Gulf of Mexico, Inc. v. Ctr. for Biological Diversity, Nos. 3:12-cv-00048-RRB, 1:12-cv-00010-RRB (D. Alaska Aug. 5, 2013).

463. *See supra* note 446 and accompanying text.

464. *See supra* note 439 and accompanying text.

And we expect to encounter another 5 percent on shore. We never make claims about the percent we could actually recover, because conditions vary, of course."[465] These statements directly contradict the clear language of the plan.[466]

Shortly before drilling was to start in 2012, Shell notified EPA that it would not be able to meet the emissions standards set in January for its Arctic fleet, asking EPA to modify its permit.[467] EPA granted Shell's request and issued a compliance order that allowed Shell to emit higher levels of pollutants than originally allowed.[468] Notwithstanding EPA's allowance of higher emissions levels, Shell's operations in 2012 repeatedly violated the terms of its air permits. EPA cited both the *Discoverer* and *Kulluk* for violating "numerous" conditions of the air permits. The violations included failure to install required air pollution control equipment, failure to properly calibrate air pollution monitoring equipment, operation of unpermitted propulsion engines, numerous violations of emission limits, and the failure to timely report such violations.[469] Eventually, Shell was fined $1.1 million for these violations.[470]

Shell also sought to lower the standards that would be required for its oil spill response barge. After the barge failed to receive U.S. Coast Guard certification, engineers from the company argued that it was no longer appropriate to require them to meet the rigorous weather standards originally proposed.[471] Although Secretary Salazar initially characterized a trial deployment of Shell's oil spill containment dome in the waters of Washington State as successful,[472] DOI documents later revealed that the

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465. *See* Richard Harris, *Ahead of Alaska Drilling, Shell Practices Cleaning Up*, NPR (July 1, 2012), http://www.npr.org/2012/07/01/155129571/ahead-of-alaska-drilling-shell-practices-cleaning-up.

466. *See supra* note 439 and accompanying text (quoting section of Shell's spill response plan).

467. Kim Murphy, *Arctic Oil: Shell Seeks Last-Minute Break on Air Pollution Permit*, L.A. TIMES (July 13, 2012), http://articles.latimes.com/2012/jul/13/nation/la-na-nn-shell-air-pollution-20120713.

468. Neela Banerjee, *EPA Oks Air Pollution Permits for Shell's Arctic Ocean Drilling*, L.A. TIMES (Aug. 31, 2012), http://articles.latimes.com/2012/aug/31/nation/la-na-nn-epa-shell-arctic-20120831.

469. ENVTL. PROT. AGENCY, NOTICE OF VIOLATION ISSUED TO SHELL GULF OF MEXICO INC. (2013) [hereinafter NOTICE OF VIOLATION ISSUED TO SHELL GULF OF MEXICO INC.], *available at* http://www.epa.gov/region10/pdf/permits/ocs/shell/notice_of_violation_discoverer_1-10-2013.pdf.

470. Lisa Demer, *EPA Fines Shell More Than $1 Million for Pollution Violations in Alaska Arctic*, ANCHORAGE DAILY NEWS (Sept. 5, 2013), http://www.adn.com/2013/09/05/3060253/epa-fines-shell-more-than-1-million.html.

471. Kim Murphy, *Shell May Be Ready for the Arctic, But Its Oil Spill Barge Isn't*, L.A. TIMES (July 5, 2012), http://articles.latimes.com/2012/jul/05/nation/la-na-nn-arctic-drilling-shell-barge-20120705.

472. Broder, *supra* note 2.

dome had "breached like a whale" and was "crushed like a beer can" during the test.[473] This failure led Secretary Salazar to prohibit Shell from drilling into hydrocarbon zones at any of its planned wells.[474]

The company also had a series of significant problems moving vessels and other equipment. Most famously, at the end of December, the icebreaker *Aiviq*—a brand-new, highly-touted purpose-built Arctic-class support vessel–was towing the *Kulluk* from Dutch Harbor for a 2,000 mile trip to Seattle. The towrope disconnected, setting the *Kulluk* adrift in rough, but not unusual, seas.[475] The *Aiviq* re-established the towline but then lost engine power, leaving both the *Aiviq* and *Kulluk* adrift.[476] It has since come to light that Shell's contractors made the decision to depart Dutch Harbor to avoid an estimated $6 million in state taxes that would have come due if it had remained in Dutch Harbor on January 1, 2013.[477]

A Coast Guard cutter joined the effort and established a tow with the *Kulluk*, but its towline soon parted and became entangled in the ship's port propeller.[478] Shell's response vessel, the *Nanuq*, then arrived on scene and, along with the *Aiviq*, established towlines again, but again both lines separated from the *Kulluk*.[479] The tug *Alert* then arrived from Prince William Sound to help, but it was forced to release its towline to the *Kulluk* after engine problems made towing too dangerous.[480] The rig grounded shortly thereafter, losing among other things its small support boats, which spilled their fuel and washed further ashore.[481] Despite millions of dollars of upgrades to prepare the *Kulluk* for drilling, its circular design had apparently made it an "ungainly structure" that was particu-

473. Ryan, *supra* note 136 (quoting internal BSEE emails).

474. *See* John M. Broder, *U.S. Approves an Initial Step in Oil Drilling near Alaska*, N.Y. TIMES (Aug. 30, 2012), http://www.nytimes.com/2012/08/31/business/energy-environment/us-approves-trial-drilling-for-shell-near-alaska-with-conditions.html?_r=0. Shell decided to continue with its drilling program anyway. *See id.*

475. Jennifer A. Dlouhy, *Coast Guard Assisting Drilling Rig Stranded near Alaska*, FUEL FIX (Dec. 28, 2012), http://fuelfix.com/blog/2012/12/28/coast-guard-assisting-drilling-rig-stranded-near-alaska/.

476. *Id.*

477. Jim Paulin & Carey Restino, *Shell Hoped to Save Millions in Taxes by Moving Now-Grounded Drill Rig out of Alaska*, ALASKA DISPATCH (Jan. 3, 2013), http://www.alaskadispatch.com/article/was-grounding-shell-drill-rig-kulluk-due-rush-save-alaska-taxes.

478. Dlouhy, *supra* note 476.

479. Paulin & Restino, *supra* note 478.

480. *Id.*

481. *Id.*

larly challenging to tow in bad weather, spinning in circles and acting as "a sail" that hindered rescue efforts.[482]

Shell lost control of its other drillship, the *Discoverer*, during the 2012 open water season as well. On its way to the drill site, the ship was anchored in Dutch Harbor. The anchors were unable to hold the ship in place, and it drifted toward the coast.[483] Tugs were called in to assist the rig, which was very close to shore.[484] During the drilling operations, Shell was unexpectedly forced to use the *Discoverer*'s propulsion engines to stay on site, as the anchor-handling icebreaker was not able to keep the vessel in position during unmooring due to rough weather.[485] This resulted in a violation of Shell's air permit, which forbid the use of propulsion during the operational phase covered by the permits.[486] After the drilling season, the *Discoverer* experienced propulsion problems and was not able to return to Seattle under its own power.[487]

Ice in the Chukchi Sea delayed Shell's plans to drill there by more than one month.[488] Additionally, twenty-four hours after the company finally secured the *Discoverer* over its planned drill site, Shell had to weigh anchor and move because a massive ice floe covering approximately 360 square miles was drifting dangerously close to the site.[489]

Throughout the 2012 drilling season, Shell also faced difficulties transporting people to the drill site because it did not have an easily accessible port on the U.S. Arctic coast from which to make personnel

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482. Lisa Demer, *Was One Ship Enough to Tow Shell Oil Drilling Rig in Gulf of Alaska?*, ANCHORAGE DAILY NEWS (Jan. 14, 2013), http://www.adn.com/2013/01/14/2751969/was-one-ship-enough-to-tow-shell.html (quoting Charlie Nalen, Crowley Marine Services Vice President of Operations, and Lt. Dave Gilbert, U.S. Coast Guard).

483. Kim Murphy, *Shell's Arctic Drilling Rig Runs Adrift in Alaskan Harbor*, L.A. TIMES (July 15, 2012), http://articles.latimes.com/2012/jul/15/nation/la-na-nn-shell-discoverer-drifts-20120715. This was not the first time the *Discoverer* unexpectedly weighed anchor. Maetzig, *supra* note 345. In a late spring storm off the New Zealand coast in November 2010, the *Discoverer*'s mooring system and drilling equipment were damaged when anchor lines snapped, and the ship was forced to drop its riser—the pipe that connects the rig to the undersea well. *Id.*

484. Murphy, *supra* note 484.

485. NOTICE OF VIOLATION ISSUED TO SHELL GULF OF MEXICO INC., *supra* note 470, at 10.

486. *Id.*

487. Tim Bradner, *Shell Rigs in Kodiak, Seward; Endeavor Work Continues*, ALASKA J. COMMERCE (Jan. 16, 2013), http://www.alaskajournal.com/Alaska-Journal-of-Commerce/January-Issue-3-2013/Shell-rigs-in-Kodiak-Seward-Endeavor-work-continues/.

488. Yereth Rosen, *Ice, Logistics Delay Shell Alaska Drilling Plans*, REUTERS (July 6, 2012), http://www.reuters.com/article/2012/07/07/us-shell-alaska-idUSBRE86601P20120707. In the beginning of July, Shell expected the delay to last until the beginning of August. However, Shell did not actually begin drilling until September 8, 2012. *Shell Starts Preparatory Drilling for Offshore Oil Well off Alaska*, CNN (Sept. 10, 2012), http://www.cnn.com/2012/09/09/us/arctic-oil/index.html.

489. Dan Joling, *Drifting Sea Ice Halts Shell's Arctic Drilling*, ANCHORAGE DAILY NEWS (Sept. 10, 2012) http://www.adn.com/2012/09/10/2619205/shell-halts-chukchi-sea-drilling.html.

transfers. "All too often, fog socked in the helicopters Shell used to rotate workers on and off its vessels," and as a result, flights between the rig and land-based facilities were delayed for days at a time.[490] In addition, the pilots operating Shell's helicopters did not have Arctic experience,[491] and the lack of de-icing capability on the helicopters continued to challenge operations after drilling was complete because the crew could not be transported off the *Kulluk* rig.[492]

In addition, the cold weather caused problems with desalination and treatment of water for use on the ship.[493] Shell's cranes froze in the cold conditions and could not be used to move heavy equipment aboard its ships.[494] After the drilling season was over, weather also prevented Shell from conducting required maintenance on the *Kulluk* drill ship.[495] As Deputy Interior Secretary David Hayes stated, "We're no longer talking about these things in the abstract, where . . . the issues seem very manageable. When they actually affect operations, it's a reminder that this is . . . a particularly challenging environment."[496]

Many of Shell's problems appeared to stem from the company's lack of appreciation for the difficulty of operating in Arctic and northern water conditions as well as its high risk-tolerance.[497] Shell's problems led to a series of government investigations. The Department of the Interior undertook a sixty-day review of the drilling season that resulted in recommendations for improved regulations applicable to drilling in the Arctic and additional requirements for Shell.[498] Secretary of the Interior Salazar concluded at the end of this review period that "Shell screwed

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490. Jennifer A. Dlouhy, *Shell Navigates Obstacles in Arctic Drilling*, FUEL FIX (Nov. 4, 2012), http://fuelfix.com/blog/2012/11/04/shell-navigates-obstacles-in-arctic-drilling/; Jerry Beilinson, *Shell Oil Delayed in Arctic Departure*, POPULAR MECHANICS (Nov. 7, 2012), http://www.popularmechanics.com/science/energy/coal-oil-gas/shell-oil-delayed-in-arctic-departure-14544688#ixzz2BaFn6z5f.

491. Beilinson, *supra* note 491.

492. Editorial, *The Perils of Arctic Drilling*, L.A. TIMES (Jan. 3, 2013), http://articles.latimes.com/2013/jan/03/opinion/la-ed-kulluk-beaufort-royal-dutch-shell-20130103.

493. Dlouhy, *supra* note 491.

494. *Id.*

495. Suzanna Caldwell, *Why Did* Kulluk *Leave Dutch Harbor? Essential Repairs to Be Made in Seattle*, ALASKA DISPATCH (Jan. 11, 2013), http://www.alaskadispatch.com/article/why-did-kulluk-leave-dutch-harbor-essential-repairs-be-made-seattle (noting that the *Kulluk* was not able to overwinter in Dutch Harbor because weather would delay the maintenance schedule).

496. Jennifer A. Dlouhy, *Shell Learning About the Arctic the Hard Way*, ANCHORAGE DAILY NEWS (Nov. 11, 2012), http://www.adn.com/2012/11/11/2681986/shell-learning-about-the-arctic.html.

497. *See, e.g.*, Demer, *supra* at 483 (discussing the company's failure to account appropriately for normal but difficult weather conditions).

498. *See generally* DOI 60-DAY REPORT, *supra* note 416.

up."[499] As noted above, EPA's investigation into Shell's violations of its Clean Air Act permits resulted in a $1.1 million fine for the company.[500] In addition, the Coast Guard opened a marine casualty investigation related to the *Kulluk* grounding and asked the Department of Justice to open a criminal investigation of Shell's drilling activities.[501] The Coast Guard reportedly found sixteen safety and environmental violations by the *Discoverer* and almost as many by the *Kulluk*.[502]

On April 3, 2014, the Coast Guard released the final results of its investigation into the circumstances surrounding the grounding of the *Kulluk*. The report details mismanagement and poor risk assessment on the part of Shell and its contractors.[503] It also describes violations of the law and regulations and recommended changes to improve safety and planning. On the very first page of the report, Assistant Commandant for the Coast Guard states that "the inadequate assessment and management of risks by the parties involved was the most significant causal factor in the mishap" and expresses trouble with the "significant number and nature of the potential violations of law and regulations."[504]

Ultimately, Shell's problem-plagued 2012 season is the in-the-water result of the process, controversy, and management difficulties outlined above.

4. Proposal for 2014 Chukchi Sea Exploration

On October 31, 2013, Shell announced that, despite its continuing problems, the company was considering seeking approval to return to the Chukchi Sea in 2014.[505] The announcement included a statement that exploration in the Beaufort was on hold for the immediate future and that the *Kulluk* drill rig might have been damaged beyond repair.[506] Roughly

499. Kim Murphy, *Salazar on Arctic Drilling: "Shell Screwed up in 2012"*, L.A. TIMES (Mar. 14, 2013), http://articles.latimes.com/2013/mar/14/nation/la-na-shell-arctic-interior-report-20130314.

500. Demer, *supra* note 471.

501. *See* Sean Cockerham, *Coast Guard Wants Shell Drill Rigs to Get Pollution Investigation*, ANCHORAGE DAILY NEWS (Mar. 27, 2013), http://www.adn.com/2013/03/27/2842580/coast-guard-asking-justice-dept.html.

502. *Id.*

503. U.S. COAST GUARD, REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE MULTIPLE RELATED MARINE CASUALTIES AND GROUNDING OF THE MODU KULLUK (2014), *available at* http://oceana.org/sites/default/files/KULLUK_COMPLETE_REDACTED_2.pdf.

504. *Id.*

505. *See* Yereth Rosen, *Shell Mulls Chukchi-Only Drilling for 2014, Minus Troubled* Kulluk *Rig*, ALASKA DISPATCH (Oct. 31, 2013), http://www.alaskadispatch.com/article/20131031/shell-mulls-chukchi-only-drilling-2014-minus-troubled-kulluk-rig.

506. *Id.*

a week later, the company did indeed submit a "scaled down" exploration plan.[507] In that plan Shell sought approval to drill up to six wells in the Chukchi Sea, beginning with the one it started in 2012.[508] Shell planned to use the *Discoverer* once again in the Chukchi Sea and to contract with another vessel, the *Polar Pioneer* as a backup.[509] The revisions also include reductions or relocations of spill response capacity and increased noise estimates.[510]

On November 29, 2013, BOEM sent Shell a letter requesting additional information needed to evaluate the plan.[511] The review process resulted in correspondence back and forth between the agency and company. Also, in response to a requirement from the review of Shell's 2012 season, the company has submitted an Integrated Operations Procedure.[512] In the wake of the Ninth Circuit decision invalidating the Lease Sale 193 EIS, Shell announced that it would forego exploration in 2014.[513] The company has since announced that it will pursue an expanded exploration program using the *Discoverer* and *Polar Pioneer* to drill up to six wells over several years in the Chukchi Sea.[514] The company hopes to begin operations in 2015, but the approval process is subject to

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507. *See generally* SHELL GULF OF MEXICO, INC., REVISED OUTER CONTINENTAL SHELF LEASE EXPLORATION PLAN CHUKCHI SEA, ALASKA—REVISION 2 (2013), *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Leasing_and_Plans/Plans/2013-11-06%20Shell%20Chukchi%20Sea%20EP%20Revision%202.pdf.

508. *Id.* at 1-2.

509. *Id.* at 2-2.

510. *See id.*

511. Letter from David Johnston, Reg'l Supervisor, Office of Leasing & Plans, Bureau of Ocean Energy Mgmt., to Susan Childs, Alaska Venture Support Manager, Shell (Nov. 29, 2013), *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Leasing_and_Plans/Plans/Shell%20Chukchi%20Sea%20EP%20Rev%202%20Review%20Letter.pdf.

512. *See* Letter from Susan Childs, Alaska Venture Support Manager, Shell, to Bureau of Ocean Energy Mgmt., U.S. Dep't of the Interior (Nov. 26, 2013), *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Leasing_and_Plans/Plans/2013-11-26_Shell_IOP.pdf. In addition, Shell has submitted a 2014 Integrated Operations Plan. *Id.* The plan responds to one of the recommendations in the report that resulted from DOI's review of Shell's 2012 problems. *See* DOI 60-DAY REPORT, *supra* note 416, at 2. Shell has not responded to other recommendations, and the Department of the Interior has not completed the Arctic safety standards called for in the report. *See id.* at 6–7.

513. Stanley Reed, *After Weak Earnings, Shell Halts Plan to Drill in Alaska*, N.Y. TIMES (Jan. 30, 2014), http://www.nytimes.com/2014/01/31/business/international/shell-to-step-up-asset-sales.html?_r=0.

514. BUREAU OF OCEAN ENERGY MGMT., REVISED OUTER CONTINENTAL SHELF LEASE EXPLORATION PLAN, CHUKCHI SEA, ALASKA (2014), *available at* http://www.boem.gov/EP-PUBLIC-VERSION/.

ongoing remand resulting from the invalidation of the Lease Sale 193 EIS.

VI. WHAT'S NEXT

With that history as background, we look next to the future. Rather than prognosticating, however, the Article offers steps that can and should be taken to help avoid mistakes like those that have plagued Shell and to provide protection for the health and resiliency of the U.S. Arctic Ocean.

The United States is at a crossroads with regard to energy, the environment, and human activities in the Arctic Ocean. Government approvals have led to millions of acres of leases controlled by oil companies, and those companies are seeking approvals to drill exploration wells.[515] As explained above, these decisions have led to controversy, litigation, and substantial risk to the marine environment. Despite consistent efforts over nearly ten years, companies have not been able to complete any exploration drilling, and newly available sources of unconventional fuels coupled with increasingly likely regulation of greenhouse gas emissions create significant uncertainty as to the market need and price to support industry investments in the U.S. Arctic Ocean.[516]

The United States has been down this road before; approvals in the 1980s led to some exploratory drilling but no development, and a decline in oil prices led companies to forego the leases they had purchased.[517] In this section, we distill some of the reasons for this apparent boom-and-bust cycle and the controversy it has generated. We then provide some steps that could be taken to improve the decision-making process and, hopefully, lead to a durable solution that maintains a healthy and diverse Arctic marine environment.

A. Lessons Learned

As the preceding sections demonstrate, the United States has had a troubling history in its efforts to balance the exploitation of Arctic resources while trying to respect and protect wildlife and local communities. Controversy and litigation have met almost every single government decision related to offshore activities, and there is the appearance that political considerations factor into decisions about public resources.

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515. *See, e.g.*, *supra* Part V.B.1.

516. *See, e.g.*, OCEANA ET AL., FROZEN FUTURE: SHELL'S ONGOING GAMBLE IN THE U.S. ARCTIC (2014), *available at* http://oceana.org/en/news-media/publications/reports/frozen-future-shell-s-ongoing-gamble-in-the-us-arctic.

517. *See supra* text accompanying notes 179–80.

Fundamentally, these problems can be attributed to (1) the failure to ensure necessary preparedness to operate in a difficult and remote places; (2) the lack of community involvement; and (3) the need for more specific policy direction for making decisions under conditions of uncertainty.

First, of course, it is clear that the Arctic is a challenging place in which to conduct industrial activities. As Shell's experiences in 2012 demonstrate, even one of the world's largest companies did not appropriately appreciate or manage these risks. Importantly, however, the problems are not solely attributable to Shell. The government granted the approvals that allowed an unprepared company to operate in the Arctic Ocean. Moreover, the government took ill-advised planning steps—in the Five-Year Leasing Program, at the lease sale stage, and during court-ordered remands of those decisions—that provided the leases and momentum for the company to seek those approvals. It is not clear that the government balanced risks and benefits appropriately or that sufficient forethought was given to the ramifications of decisions at the planning and lease sale stages. Allowing companies to purchase leases they are not prepared to explore safely creates a situation in which Shell's poorly planned and executed 2012 efforts can occur. Once companies have invested in leases and equipment, there is an overriding need to demonstrate to shareholders a return on that investment. Proving the reserves by drilling successful exploration wells is one important way companies can achieve this goal. Thus, allowing companies to purchase leases creates a powerful incentive for those companies to explore, which in turn can create pressure on the government to approve those plans.

Second, fundamental decisions about the expansion of oil and gas activities in Arctic waters have been made behind closed doors without meaningful opportunity for the public—and especially local community members—to participate. Regulations do not require public review of exploration plans, Environmental Assessments, or oil spill response plans. Even some of the public hearings that have been held were inefficient and problematic.[518] Though improvements have been made, more remains to be done to fully incorporate the public and communities in the decision-making process.

Third, it seems clear that the relevant government agencies do not have adequate, specific direction to address subsistence and environmental issues when conditions are uncertain. Decisions were made to allow oil and gas leasing and exploration despite widely recognized gaps in the

518. Dan Joling, *Drilling Advocates Dominate Federal Offshore Hearing*, ANCHORAGE DAILY NEWS (Feb. 26, 2011), http://www.adn.com/2011/02/26/1723933/drilling-advocates-dominate-offshore.html.

scientific understanding of the functioning of the marine environment and ways in which it might respond to disturbance.[519] Similarly, oil spill response plans were approved even though the technology being used had never been tested in Arctic conditions, and the assumptions underlying the plans were at odds with all of the historical evidence.[520] Some of these decisions led to clear violations of the law.[521] Others were based on new interpretations of the law that are still being challenged in court or on legal interpretations from other venues applied to the Arctic.[522] There was no clear direction for precaution in the face of scientific or other uncertainty.

Together, these failures have had three overlapping effects that have led to the current state of controversy and failed operations in the Arctic. First, they have contributed to a substantial distrust of government decision makers. DOI, in particular, has appeared to make decisions that favor development rather than focus on science, holistic planning, or precaution.[523] Second, these agency decisions have put marine resources at substantial risk. The grounding of the *Kulluk* with 150,000 gallons of fuel on board is the most dramatic recent example. In addition, Shell exceeded its permitted air emissions and water pollution discharge requirements, putting workers at risk due to apparent safety violations.

Finally, poor decisions have led to significant uncertainty and inefficiency. By making the region available for leasing without proper evaluation of the potential impacts, the government has created a situation in which companies take financial risks and then advocate to government regulators to allow activities that could validate those risks. Analyses have shown that these risks to companies and the ocean are difficult to quantify and manage.[524] Differing views about the appropriate way to balance risks to the environment against the purported benefits of allowing companies to explore and develop has resulted in controversy. This

519. *See supra* Part II.B.

520. *See supra* Part III.D.1.

521. *See supra* Parts V.B.1.b and V.B.3 (discussing 2007–12 Five-Year Leasing Program, Lease Sale 193, and 2007 Exploration Plan litigation).

522. *See supra* Parts V.C.3.a–b (discussing challenges to spill response plan approvals, the 500-meter exclusion zone, and low-probability/high impact analysis for a major spill).

523. *See* *DEEPWATER HORIZON* REPORT, *supra* note 33, at 77–79 (detailing "[a]gency integrity and pockets of corruption" and "[m]ismanagement and [m]isdirection"); *see also supra* notes 360–62 and accompanying text (discussing failure to consider appropriately agency scientists' concerns about the potential for significant effects from Shell's proposed 2007–2009 exploration plan); *see also* note 331 and accompanying text (discussing the agency's failure to fully address missing scientific information in compliance with 40 C.F.R. § 1502.22 in deciding to offer nearly thirty million acres of the Chukchi Sea in Lease Sale 193).

524. *See* LLOYD'S REPORT, *supra* note 131.

controversy has contributed to expense, inefficiency, and distrust. A more careful approach might have prevented it.

B. Moving Forward

Having identified several causes of the controversy and inefficiency related to decisions about offshore oil and gas activities in the Arctic Ocean, we now turn to steps that can be taken to address these problems. Government officials—in congress and in the Executive Branch—can take steps to effect meaningful change.

1. Congressional Action

Though it appears to be unlikely in the short-term, congressional action would be the most comprehensive and effective way to address the problems identified above. Congress should act to reform the process by which decisions about Arctic oil and gas leasing, exploration, and development are made. Many proposals of this nature were made in the wake of the *Deepwater Horizon* spill.[525] Indeed, a series of deficiencies in OCSLA have been identified, and changes have been suggested to address them.[526] Congress could take action that would ensure more effective compliance with NEPA, ensure that maintaining ocean health is given the highest priority, require more effective public involvement and interagency coordination, and improve spill response standards.[527]

More generally, there is no statute that provides general guidance and philosophy for stewardship decisions about ocean resources in the Arctic or elsewhere. Nor is there a broader statute providing a specific mission for BOEM, BSEE, and the Office of Natural Resources Revenue (ONRR). Rather, those three agencies are left to implement OCSLA without additional direction for ocean management. By contrast, for our terrestrial territory, the Bureau of Land Management (a sub-agency within DOI), which oversees 245 million acres of federal land, is guided by the Federal Land Policy and Management Act multiple use and sustained yield objective.[528] The U.S. Forest Service (within the Department of Agriculture) manages roughly 190 million acres of land within the forest system pursuant to a similar standard in the National Forest Management

525. *See, e.g.*, Hartsig, *supra* note 202.

526. *See generally id.*; Michael LeVine & Andrew Hartsig, *Management and Oversight of Offshore Oil and Gas—The Need for Change*, 42 TRENDS 1 (2010).

527. *See, e.g.*, Hartsig, *supra* note 202, at 306–15.

528. 43 U.S.C. § 1701(a)(7) (2012)

Act.[529] The U.S. Fish and Wildlife Service's manages over 150 million acres in the National Wildlife Refuge System and is guided by the National Wildlife Refuge System Administration Act, which requires the conservation, management, and restoration of refuge lands for the benefit of present and future generations of Americans.[530] Finally, the National Park Service management of eighty-four million acres of National Parks land is guided by the National Park Service Organic Act, which requires conservation-oriented management of our parks with a focus on providing for the enjoyment by current and future generations.[531]

These statutes provide a basic structure within which the agencies make public land decisions, and BOEM and BSEE's piecemeal approach to decisions reflects the absence of such guidance. OCSLA addresses only choices about offshore oil and gas activities, and it is not designed to provide stewardship for ocean ecosystems. The ideal federal law would recognize, as we generally do for our terrestrial territory, that the United States has an obligation to manage ocean resources not only for the current generation of Americans but also for future generations. It would ensure that the health and diversity of our marine waters is maintained and that development takes place only in a way that does not risk ecosystem health or other human uses of the ocean. Such a statute would complement OCSLA and provide broader direction to BOEM, BSEE, and other agencies that make decisions about Arctic Ocean resources.

In the absence of such direction—and as explained above—the various federal agencies are left to implement different and often competing mandates related to Arctic Ocean resources in a piecemeal fashion. OCSLA addresses oil, gas, and mineral entry.[532] The Magnuson–Stevens Fishery Management and Conservation Act addresses fisheries.[533] The Marine Mammals Protection Act and the Endangered Species Act address sensitive and at-risk fish and wildlife species.[534] The disparate treatment of the Arctic under some of these laws highlights the need for such legislation. Out of concern for the continued health and diversity of fish and wildlife in Arctic waters, one agency—the National Marine Fisheries Service—looked at the state of the science in the Arctic and decided to close the federal waters to commercial fishing. Another agency—the Department of the Interior—looked at the same science and de-

529. 16 U.S.C. § 1600(3) (2012).
530. *Id.* § 668dd(a)(2).
531. *Id.* § 1.
532. 43 U.S.C. § 1331 (2014).
533. 16 U.S.C. §§ 1801–1884 (2007).
534. *Id.*; Endangered Species Act, 7 U.S.C. § 136 (1996), 16 U.S.C. § 1531 (2014).

cided to offer wide swaths of the ocean for lease to the oil and gas industry and approves risky exploration proposals. Overarching legislation might provide a vehicle through which to harmonize the various needs related to the Arctic Ocean and help foster a productive future direction.

Unfortunately, congressional action to provide additional direction that would alleviate the problem of piecemeal decision making does not appear likely. Despite continued warning signs, including a natural gas blowout and rig explosion at a shallow well in the Gulf of Mexico,[535] the legislation introduced in the wake of the *Deepwater Horizon* spill has faded away. In its place, bills that would expand offshore leasing, remove important environmental safeguards, and prioritize oil and gas activities above all other uses of ocean resources have moved through the House of Representatives.[536]

2. Executive Action

Within its existing statutory authority, the Executive Branch can take steps that would (1) ensure that decisions are based on good scientific information and long-term planning; (2) improve transparency and opportunities for public engagement; and (3) ensure demonstrated spill response technologies. DOI has taken some steps to move in this direction, but more can and should be done.

a. Steps to Improve Planning, Public Engagement, and Response

The controversy and uncertainty outlined in this Article makes clear that decisions have been made in a piecemeal fashion and without a clear plan for the future of the Arctic region. Careful decisions require thoughtful planning, and the government should think holistically about how best to balance competing needs— including healthy oceans, affordable energy, national security, and financial benefits to corporations and the American people—to create a vision for what it wants the Arctic region to look like in fifty or 100 years into the future. Concrete guidelines could be created to help ensure that today's decisions about industrial activities move us toward that vision.

An understanding of the marine ecosystem sufficient to predict and mitigate potential impacts from industrial activities is integral to such a

535. *See* Hays, *supra* note 78.

536. *See* Offshore Energy and Jobs Act, H.R. 2231, 113th Cong. (2013). On a related note, the mechanics of the federal budget process also inhibit informed agency decision making. The congressional system of appropriations makes it difficult for agencies to coordinate their science effort because, for example, ocean-related budget discussions and priority setting are spread throughout multiple uncoordinated congressional committees.

planning effort. That understanding can best be achieved through long-term baseline research and monitoring. Since the 1980s, studies in the Arctic Ocean have not been guided by an overarching monitoring and research plan. Instead, research priorities over the past several decades have been guided by an assumption that enough was known about the basics. DOI, therefore, focused "on more topical studies in smaller areas to answer specific questions and fill identified information needs."[537] These applied research questions are important and have led to a better understanding of specific issues, such as the bowhead whale migration route in the fall through the Chukchi Sea. However continued monitoring of key parameters is needed to understand whether the base of information gathered remains valid. Climate change has altered the region dramatically over the last thirty years, and ecosystems have significant variability on yearly to decadal spans.

The most efficient way to obtain the needed information is through a comprehensive research and monitoring program that would do the following:

1. Integrate existing information to give a more holistic picture of what is known and conduct an analysis of the gaps in information to determine the most pressing research and monitoring needs;
2. Gain a more comprehensive catalogue of identified species, populations, and habitats, including seasonal migrations;
3. Track the physical forcing factors that modulate biological productivity, habitat occupancy, and migration pathways;
4. Secure a better understanding of trophic linkages, physical and biological processes affecting productivity and other facets of ecosystem structure and functioning, and effects of anthropogenic perturbations;
5. Study potential ecological and sociological impacts; and
6. Integrate these scientific data to identify Important Ecological Areas, as well as processes and habitats that are sensitive and vulnerable to perturbation, and furnish a basis for marine spatial planning.

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537. *See* BUREAU OF OCEAN ENERGY MGMT., REGULATION, & ENFORCEMENT, DEP'T OF THE INTERIOR, ALASKA OUTER CONTINENTAL SHELF REGION, ALASKA ANNUAL STUDIES PLAN FINAL FY 2011 3 (2010), *available at* http://www.boem.gov/uploadedFiles/BOEM/Environmental_Stewardship/Environmental_Studies/Alaska_Region/Alaska_Studies_Plan/2011AlaskaStudiesPlan.pdf.

Such a plan must also account for the climate change consequences of decisions to explore. Atmospheric levels of CO_2 recently exceeded 400ppm,[538] and the disproportionate effects of the changes caused by those increases must be taken into account.

As explained below, the government has started to take some of these steps to consider integrated Arctic management, and more can be done.[539]

The planning proposed here can be undertaken without congressional action. Moreover, in this planning process—and in other decisions—it is vitally important to provide ample opportunity for public engagement and to make public the information needed to participate meaningfully. DOI could address these problems by allowing for public input in a timely manner on environmental assessments, spill plans, and other approvals. Moreover, government agencies can and should do more to engage those most affected by decisions. For example, several Alaska Native tribes in the U.S. Arctic are urging the federal government to take the following actions:

1. Develop a "comprehensive and scientifically proven mitigation and monitoring plan . . . to provide oversight to Arctic industrial activities that could impact our food security, way of life, and the health of our peoples. . . ."[540]
2. Commit to formal consultation with tribes in determining the deferral areas and other measures to protect "important cultural, biological, and subsistence use areas of the Arctic Ocean ecosystem to ensure . . .food security, cultural identity, and protect our way of life."[541]
3. Place on hold any new leasing in the U.S. Arctic until the comprehensive plan is created and implemented, deferral areas are imposed, and, importantly, when it is determined that "development can be done without jeopardizing the safety of nearby villages, food security, and the migratory animals that [t]ribes depend upon."[542]

538. Geoffrey Mohan, *Carbon Dioxide Levels in Atmosphere Pass 400 Milestone, Again*, L.A. TIMES (May 20, 2013), http://articles.latimes.com/2013/may/20/science/la-sci-sn-carbon-dioxide-400-20130520.

539. *See infra* VI.B.2.b.

540. 160 CONG. REC. E556 (daily ed. Apr. 9, 2014).

541. *Id.*

542. *Id.*

Providing meaningful opportunity for local people to influence decisions about the Arctic before they are made is critical to ensuring that the human rights of people in the Arctic are respected and honored by the United States.

Moreover, participating effectively in the decision-making process requires access to information. President Obama has committed to create "an unprecedented level of openness in Government" and "a system of transparency, public participation, and collaboration."[543] Consistent with this directive, DOI can and should make available to the public data, studies, and other information relevant to decisions about oil and gas leasing and exploration in the Arctic Ocean. Relatively simple steps—like publishing letters, approvals, and data on agency websites and committing to accepting public comments on exploration and spill response plans (as was the case for Shell's Chukchi and Beaufort Sea plans)—are not routine and would go a long way toward building trust, improving public participation in the decision-making process, and fulfilling President Obama's pledge to ensure openness in government. Similarly, BSEE should post its enforcement activities[544] and make data from incidents and near-misses, including causal information, available to the public. Last, any information BSEE has or learns about significant international offshore incidents—particularly those regarding operators in the United States like Shell—should be posted on its website.

Oil spill prevention and response technology should also be developed and proven in Arctic conditions, and the necessary infrastructure should be put in place before more leasing or exploration occurs in U.S. Arctic waters. As explained above, there has been extensive and ongoing controversy surrounding the available response technologies, the lack of infrastructure, and the fact that none of the response equipment has been tested successfully in Arctic conditions. It is well within the administration's authority to require such testing prior to approval of response plans or exploration plans. As explained above, the administration has relied on an overly restrictive interpretation of Clean Water Act regulations.[545]

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543. Memorandum from President Barack Obama to the Heads of Exec. Dept's & Agencies, Transparency and Open Government (Jan. 21, 2009), *available at* http://www.whitehouse.gov/omb/assets/memoranda_fy2009/m09-12.pdf.

544. For a good example of posting enforcement activities, see *Recent Enforcement Actions*, U.S. DEP'T OF TRANSP. PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., http://www.phmsa.dot.gov/public/enforcement (last updated Mar. 21, 2014) (the posting of pipeline safety enforcement orders).

545. *See supra* notes 438–46 and accompanying text (discussing challenge to Shell's oil spill response plans).

b. Mechanisms and Opportunities

The changes outlined above would go a long way to ensuring that decisions affecting the Arctic Ocean are made in a holistic, inclusive manner that, in turn, would bolster informed decision making and also reduce controversy and risk. As explained below, the Obama administration, and DOI in particular, have taken some steps to move in this direction. Though there is more to be done, these changes evidence the administration's authority to take meaningful action.

In the wake of the *Deepwater Horizon* accident, DOI dissolved the Minerals Management Service and replaced it with BOEM, BSEE, and ONRR. These agencies then implemented some safety and oversight changes.[546] None of these changes, however, went as far as the National Commission on the *Deepwater Horizon* and Offshore Drilling recommended.[547] Nor were they sufficient to prevent the accidents and near-disaster caused by Shell in 2012.

Recently, DOI committed to implementing Arctic-specific standards.[548] This commitment came in part as a result of Shell's 2012 drilling season,[549] and it reflects the clear necessity to account for the unique difficulties of operating in the Arctic Ocean. While a step in the right direction, the new rules do not address planning or leasing. DOI can and should think more broadly about reforming its regulations to address shortcomings in the existing regulatory regime that generate ambiguity, uncertainty, and controversy. In addition to developing regulations concerning containment systems, relief well capability, mutual assistance and resource sharing, and technical drilling issues, BOEM and BSEE should develop regulations to achieve the following:

1. Implement additional Arctic-specific spill prevention and response regulations, such as those detailed in the comments submitted on June 21, 2013, by the Pew Charitable Trusts;
2. Provide specific direction for satisfying the agency's balancing obligations under section 18 of OCSLA and codify the "target-

546. *See supra* Part III.F.2.

547. *See The Offshore Energy and Jobs Act: Hearing on H.R. 2231 Before the H. Comm. on Natural Res.*, 113th Cong. 4–6 (2013) (written testimony of Donald F. Boesch, President of the Univ. of Maryland Ctr. for Envtl. Sci. to the Comm. on Energy and Natural Res.), *available at* http://naturalresources.house.gov/uploadedfiles/boeschtestimony06-10-13.pdf.

548. Press Release, U.S. Dep't of the Interior, Department of the Interior Releases Assessment of Shell's 2012 Arctic Operation (Mar. 14, 2013), *available at* http://www.doi.gov/news/pressreleases/department-of-the-interior-releases-assessment-of-shells-2012-arctic-operations.cfm.

549. *See* DOI 60-DAY REPORT, *supra* note 416, at 6–7.

ed leasing" approach to Arctic leasing described in the 2012–2017 OCS leasing program;

3. Clarify the roles and responsibilities of BOEM and BSEE and formalize the process and timing of various permit approvals (e.g., formalize mandatory public comment periods for oil spill response plans, environmental assessments, and associated analyses; clarify that BOEM will not approve a proposed exploration plan until there is an accompanying approved oil spill response plan, etc.);
4. Explain how the agencies will comply with NEPA requirements at each stage of the OCS process in the Arctic (e.g., at the exploration plan stage, require completion of a full NEPA process before BOEM may deem an exploration plan complete);
5. Develop public disclosure requirements for information concerning seismic exploration, drilling operations, inspections and compliance, and other activities;
6. Ensure that BOEM properly accounts for externalities, including climate change effects and other impacts associated with activities approved on the OCS.[550]

More broadly, the Obama Administration has implemented changes that provide the opportunity for meaningful planning. President Obama created the National Ocean Council and implemented a National Ocean Policy.[551] The Arctic is singled out as a priority area in this planning process, and the National Ocean Council created an Arctic Strategic Plan and intends to implement it.[552] These documents outline steps that can be taken to improve planning, decision making, and science for the Arctic Ocean.

Similarly, President Obama created the Interagency Working Group on Coordination of Domestic Energy Development and Permitting in Alaska "[t]o formalize and promote ongoing interagency coordina-

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550. *See* Letter from Ocean Conservancy, Oceana, & Audubon Alaska, to Tommy Beaudeau, Acting Assistant Sec'y of the Interior (June 21, 2013) (on file with author).

551. *See generally* Exec. Order No. 13,547, 75 Fed. Reg. 43,023 (July 19, 2010), *available at* http://www.whitehouse.gov/the-press-office/executive-order-stewardship-ocean-our-coasts-and-great-lakes.

552. *See generally* NAT'L OCEAN COUNCIL, EXEC. OFFICE OF THE PRESIDENT, CHANGING CONDITIONS IN THE ARCTIC STRATEGIC ACTION PLAN FULL CONTENT OUTLINE (2011), *available at* http://www.whitehouse.gov/sites/default/files/microsites/ceq/sap_8_arctic_full_content_outline_06-02-11_clean.pdf.

tion . . . [and] facilitate coordinated and efficient domestic energy development and permitting in Alaska while ensuring that all applicable standards are fully met."[553] That entity has begun "charting an ecosystem-based management framework for the Alaska Arctic that would focus on particularly important ecological areas that support special wildlife, land or water resources, as well as areas important for the subsistence and culture of local communities."[554] As part of this effort, Interagency Working Group produced a report explaining steps that could be taken to move toward integrated management for the Arctic.[555]

At the end of the day, however, these steps have not ensured the forethought and planning needed to prevent controversy, litigation, and risk. In part that failure may be attributed to the Obama Administration's repeated commitment to allowing exploration.[556] Prior commitment to certain risky activities is, of course, antithetical to a thoughtful planning process.

More fundamentally, however, these efforts provide some cause for optimism and underscore the Executive Branch's authority to change the manner in which decisions are made. None of the actions laid out in this section require changes in existing laws or other congressional approvals—other than possible budget authorizations.[557] A holistic look at these steps and an effort to incorporate them into one vision for the region and a set of principles to guide decisions into the future is well within the Executive Branch's authority.

Such an effort would improve certainty and clear and objective action standards, which would go a long way ensuring protection of the marine environment, reducing risk and controversy, and improving decision making. At the end of the day, industry could benefit from that type of certainty. In its decision not to pursue Arctic drilling in 2014, ConocoPhillips emphasized this exact point and was backed up by Jack Gerard of the American Petroleum Institute who commented that the oil

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553. Exec. Order No. 13,580, 76 Fed. Reg. 41,989, 41,989 (July 11, 2011).

554. Press Release, U.S. Dep't of the Interior, Senior Federal Officials Begin Charting an Ecosystem-Based Management Framework for the Alaska Arctic (Mar. 6, 2012), *available at* http://www.doi.gov/news/pressreleases/Senior-Federal-Officials-Begin-Charting-an-Ecosystem-Based-Management-Framework-for-the-Alaska-Arctic.cfm.

555. *See* INTERAGENCY WORKING GRP. REPORT, *supra* note 43.

556. *See* Pfeiffer, *supra* note 189 (showing that high-level administration officials have stated that the Obama Administration will allow exploration drilling in the Arctic as part of the "all-of-the-above" energy strategy).

557. *See, e.g.*, Press Release, Comm. on Natural Res., House Votes to Halt Funding for Obama Administration's Mandatory Ocean Zoning (May 9, 2012), *available at* http://naturalresources.house.gov/news/documentsingle.aspx?DocumentID=294808.

companies "have to look at political risk [which is] high when there is regulatory uncertainty."[558]

VII. CONCLUSION

As this history suggests, decisions about Arctic Ocean oil and gas leasing and exploration have been made in a piecemeal fashion, without the necessary scientific information, comprehensive planning, or appropriate guidance. These decisions appear to have been unduly influenced by national and international politics, resulting in substantial controversy. An examination of the historical context in which Arctic oil and gas activities have been advanced in the United States reveals that the United States can find ways to make better, more informed, and more grounded decisions about development in the Arctic. The first steps in that process would be to improve planning, scientific understanding, preparedness, and public involvement in order to create a lasting vision for the Arctic Ocean. Implementing those changes is the best path toward management of the U.S. Arctic Ocean that protects all of its tangible and intangible values, ensures sustainability, and is respectful of local people, industry, and concerned members of the more general public.

558. Jennifer A. Dlouhy, *ConocoPhillips Puts Arctic Drilling Plans on Hold*, ANCHORAGE DAILY NEWS (Apr. 10, 2013), http://www.adn.com/2013/04/10/2859931/conocophillips-puts-arctic-drilling.html (quoting Jack Gerard, head of the American Petroleum Institute).