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Marine Resources Committee Newsletter

Oil Drilling in the Arctic

A joint newsletter of the Marine Resources, International Environmental and Resources Law, and Energy and Natural Resources Litigation Committees

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MESSAGE FROM THE CHAIRS

David S. Johnson, Eric S. Andreas, Andrew B. Schatz, and Kim N. Smaczniak

When a man journeys into a far country, he must be prepared to forget many things he has learned, and to acquire such customs as are inherent with existence with the new land . . . he often must reverse the very codes by which his conduct hitherto has been shaped. To those who have the protean faculty of adaptability, the novelty of such change may even be a source of pleasure; but to those who happen to be hardened to the ruts in which they were created, the pressure of the altered environment is unbearable.

> —Jack London in 1899 describing the Yukon Gold Rush

The Arctic has long been characterized by its treacherous and unforgiving conditions, an isolated region largely untouched by human development. But with rapid shifts in the region's climate and continuous technological advancements, the prospect of procuring oil deposits, once thought to be unobtainable, is swiftly becoming a reality. While such resources may have become accessible, questions still remain as to how they can be effectively and safely extracted, and what impact they will have on the global and domestic energy landscape. It is with emergence of these issues that the Energy and Natural Resources Litigation Committee, the International Environmental and Resources Law Committee, and the Marine Resources Committee present this joint newsletter: **Oil Drilling in the Arctic**.

This issue presents six articles. It begins with Andrew Harstig and Adena Leibman identifying several key environmental concerns raised by oil exploration in the Arctic, including the potential threats posed to the uniquely sensitive biodiversity and ecology of the region. The authors offer their insight as to how Integrated Arctic Management may prove to be an important tool for the U.S. federal government as it attempts to harmonize the development of offshore Arctic resources with social and environmental safeguards.

Next, Amy Chasanov and Sarah Bordelon analyze the myriad of environmental laws and regulations making up the United States' current oversight of Arctic drilling while identifying key regulatory developments on the horizon. From the National Oceanic and Atmospheric Administration (NOAA) to the Bureau of Ocean Energy Management, the authors highlight which agency actions are the ones to watch as the comprehensive framework begins to take shape. In the third article, John Cossa delves into the regulation of air emissions resulting from offshore operations by explaining how the current standards evolved and offering his insights as to where they are going next. In his use of the Shell Oil experience, Mr. Cossa illustrates many practical concerns about oil regulation and demonstrates how the use of certain existing regulatory regimes can be ill-suited and potentially prohibitive for energy development in the region.

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Niki L. Pace, Editor

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The issue then completes its analysis of domestic regulations with Ben Lowenthal's article on the efforts being made to improve the availability and application of technology in the event of an oil spill. Mr. Lowenthal emphasizes the unique and serious challenges that would be faced in the event of an Arctic spill by contrasting it with the technology and environment of the Deepwater spill. With an eye to the future, he then analyzes both the progress and the shortcomings of regulatory, technological, and litigation-based efforts to further disaster prevention and remediation technology.

Next, Kathryn Ely provides insight into how United Nations Convention on the Law of the Sea and its derivative international agreements are providing the framework on the international stage. Expanding from the substantive provisions to the procedural, Ms. Ely describes how Arctic coastal states are already well on their way to staking their claim, and their flag, in the Arctic shelf. Finally, Carolyn Clarkin looks at how countries on the fringe of the Arctic Circle are engaging the matter in her analysis of China's efforts in the Arctic. Specifically, Ms. Clarkin highlights how China has diplomatically, scientifically, and economically positioned itself with regard to Arctic exploration, despite its geographic limitations.

From the foundation laid by international treaties to the intricacies of domestic regulations; from the U.S. shores to the world over, we hope that you enjoy the informative and thought-provoking compilation of articles covering oil drilling in the Arctic. If you wish to contribute to future issues of our newsletters please contact Brittany Tofinchio (SEER ENRL) at bktofinchio@aol.com, Patrick Brosnan (SEER IERLC) at patrickjbrosnan@gmail.com, and Niki Pace (SEER MRC) at nlpace@olemiss.edu.

INTEGRATED ARCTIC MANAGEMENT: A KEY TO BALANCING DEVELOPMENT IN THE ARCTIC WITH ENVIRONMENTAL AND NATIVE COMMUNITIES' STEWARDSHIP

Andrew Hartsig and Adena Leibman

The Arctic—which spans thousands of miles across land, sea, and ice—is experiencing rapid and dramatic environmental changes including increasing temperatures, ocean acidity and coastal erosion, as well as plummeting levels of seasonal sea ice. At the same time, it is attracting increasing interest from a variety of industrial sectors, most notably energy companies seeking to access reserves of oil and gas. These changes threaten the region's marine and coastal ecosystems as well as Native peoples' subsistence way of life. Preserving ecosystem resilience in the face of these changes will require careful planning and management.

It is difficult to overstate the rate of change in the Arctic. Air temperatures in the region have warmed at twice the rate of lower latitudes in the period between 1971 and 2000. James E. Overland et al., *Future Arctic Climate Changes: Adaptation and Mitigation Time Scales*, Earth's Future (2014) (*available at* http://onlinelibrary.wiley.com/doi/10.1002/2013EF000162/pdf). Under a business-as-usual CO_2 emissions model, November through January temperatures in the Arctic may rise more than 13°C above the 1981–2005 baseline by the end of this century. *Id.* at 6. Surface waters of the Arctic have also warmed, and the Arctic Ocean is experiencing ocean acidification, a chemical process in which atmospheric carbon is absorbed by the oceans, which lowers the pH of the ocean and causes surface waters to become more corrosive. Intergovernmental Panel on Climate Change, Technical Assessment, Working Group I, Chapter 3—Observations: Ocean—Final Draft Underlying Scientific Contribution to the IPCC Fifth Assessment Report Climate Change 2013: The Physical Science Basis 3–9 (2013), http://www.climatechange2013.org/images/uploads/WGIAR5_WHI-12Doc2b_FinalDraft_Chapter03.pdf; Marco Steinacher et al., *Imminent Ocean Acidification in*

the Arctic Projected with the NCAR Global Coupled Carbon Cycle-Climate Model, 6 BIOGEOSCIENCES 515, 515 (2009). Acidification in the Arctic will affect organisms that rely upon calcium carbonate in the water column to form their shells, such as mollusks and planktonic species that form the base of the marine food chain. *See, e.g.*, Victoria J. Fabry et al., *Ocean Acidification at High Latitudes:The Bellwether*, 22 OCEANOGRAPHY 160, 167–68 (2009).

Perhaps the most visible evidence of the changing Arctic is the dramatic reduction in seasonal sea ice coverage. The average end-of-summer Arctic sea ice extent is declining at a rate of 13.7 percent per decade relative to the 1981 to 2010 average. Press Release, Nat'l Snow & Ice Data Ctr., Arctic Sea Ice Extent Settles at Record Seasonal Minimum (Sept. 19, 2012) (*available at* http://nsidc.org/arcticseaicenews/2012/09). Computer models predict the Arctic Ocean could be nearly ice-free in the summertime within 30 years, with some scenarios showing a total loss of sea ice as soon as 10 years from now. NOAA, Future of Arctic Climate and Global Impacts: Sea Ice, http://ww.arctic.noaa.gov/future/sea_ice.html (last visited Nov. 25, 2013); Overland et al., at 2. Loss of sea ice is already affecting Arctic shorelines and coastal communities. Without a buffer of sea ice, Arctic shorelines are directly exposed to powerful fall storms that drive large waves ashore, causing erosion and flooding that threaten coastal villages. Nat'l Snow & Ice Data Ctr., Sea Ice and the Arctic Coast, http://nsidc.org/icelights/2011/05/23/sea-ice-and-the-arctic-coast (last visited Nov. 25, 2013). In the areas most affected by coastal erosion, shorelines are retreating by as much as 10 meters each year. *Id.* At times, diminishing seasonal sea ice has made it more difficult or dangerous for indigenous subsistence hunters to pursue marine mammals—a critical source of food for many Arctic communities.

Importantly, Arctic ecosystems have traits that make them especially vulnerable to disruption. The upper trophic levels of the Arctic ecosystem are dominated by long-lived species that are slower to reproduce, making them particularly susceptible to rapid change or disturbance. In addition, a catastrophic event, such as a large oil spill, could be disastrous for certain Arctic species. For example, almost all of the world's spectacled eiders congregate in areas of open water south of St. Lawrence Island in the winter months; an oil spill affecting that area could have devastating consequences.

Drilling exploratory oil wells in Arctic waters exacerbates the risks posed by rapid environmental change in the region. Offshore drilling is often preceded by seismic exploration, which exposes huge areas of the ocean to intense pulses of sound for days on end. *See, e.g.*, Jonathan C.D. Gordon et al., *A Review of the Effects of Seismic Survey on Marine Mammals*, 37 MARINE TECH. SOC'Y J. 14, 16 (2003) ("It is hardly surprising that ears, which have been adapted to be exquisitely sensitive to sound, are also vulnerable to being damaged by it. Underwater explosions can result in gross tissue damage in ears."). Oil exploration also increases vessel and air traffic, introducing more noise, water, and air pollution to the region. Energy development may lead to the construction of pipelines and other infrastructure—both onshore and offshore—that alters the natural environment and changes the character of the region.

Further, oil and gas development is not the only industrial activity on the rise in the Arctic: commercial shipping is also increasing, including shipping along the Northern Sea Route north of Asia. More vessel traffic means more noise and pollution in Arctic waters, as well as increased risk of ship strikes. Both energy development and shipping increase the risk of a catastrophic oil spill, which would be all but impossible to clean up in remote Arctic waters.

Mitigating risks associated with increasing industrial activity in the Arctic requires comprehensive planning and informed decision making. Unfortunately, that has not been the practice to date. Generally, decisions about industrial development in the Arctic have been made on a piecemeal basis, with inadequate science and planning. Moreover, traditional single-project or single-sector decision-making paradigms make it much more difficult to identify and assess the overlapping or cumulative effects of individual decisions.

Addressing these problems—especially in light of the strong interest in oil and gas prospects in the Beaufort

and Chukchi Seas, increasing shipping through the Bering Strait, and the specter of a catastrophic oil spill in Arctic waters—requires a foundation of scientific research and monitoring, integrated planning and management that recognizes connections between marine and terrestrial habitats, and meaningful conservation actions that limit adverse impacts on people and wildlife.

Fortunately, there is movement in the right direction. In March 2013, the U.S. Interagency Working Group on Coordination of Domestic Energy Development and Permitting in Alaska called for the implementation of Integrated Arctic Management (IAM) to coordinate stakeholders and provide a concise and holistic decision-making scheme for resolution of management concerns in the Arctic. JOEL P. CLEMENT, JOHN L. BENGTSON & BRENDAN P. KELLY, INTERAGENCY WORKING GROUP ON COORDINATION OF DOMESTIC ENERGY DEVELOPMENT AND PERMITTING IN ALASKA, MANAGING FOR THE FUTURE IN A RAPIDLY CHANGING ARCTIC: A REPORT TO THE PRESIDENT 46 (2013), http://www.doi.gov/news/upload/ArcticReport-03April2013PMsm.pdf. ("The key is taking a holistic approach and putting a premium on interagency coordination, the traditional knowledge of Native communities, and having a fuller understanding of landscape-level sensitivities and impacts."). The Interagency Working Group defined IAM as an adaptive and science-based "approach to stewardship and planning that integrates and balances environmental, economic, and cultural needs and objectives." *Id.* at 38.

The Working Group and its stakeholders identified three main principles to IAM: (1) the federal government should take the lead in developing an efficient "whole-of-government" approach that provides opportunities for stakeholder participation; (2) management decisions should be forward-looking and integrate input and collaboration among all affected sectors and governments, including Native communities; and (3) decisions should be grounded in science with an eye toward protecting culturally sensitive areas and ecosystem health and resilience. *Id.* at 45. Other components of IAM include adaptive management, region-wide planning, and better analysis of the cumulative impacts of individual actions across time and space. *Id.* at 46.

While the concepts underlying IAM are sound, it remains to be seen how federal agencies will implement this new management paradigm as they confront new proposals for Arctic development. The challenge of translating abstract principles to real-world action should not be underestimated. Nonetheless, if federal agencies adhere to the core concepts of IAM, it should help them better understand the impacts of individual industrial activities, and how those activities may interact with other existing or proposed activities. Armed with this information, decision makers should be better positioned to make more informed choices about managing the impacts of development and protecting the ecological and social health of the U.S. Arctic.

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SEAS IN FLUX: UPCOMING CHANGES IN THE ARCTIC REGULATORY ENVIRONMENT FOR OFFSHORE OIL AND GAS DRILLING

Amy Chasanov and Sarah Bordelon

OCSLA Background

The United States' offshore areas contain significant oil and gas resources, with a total estimated 86 billion barrels of oil and 420 trillion cubic feet of gas in undiscovered fields. *Oil & Gas Energy Program*, Bureau of Ocean Energy Mgmt., http://www.boem.gov/Oil-and-Gas-Energy-Program/ (last visited Feb. 28, 2014). The Outer Continental Shelf Lands Act (OCSLA) was enacted in 1953 and amended in 1978 to encourage "expeditious and orderly development [of oil and gas in the United States], subject to environmental safeguards" and decrease dependence on foreign oil. 42 U.S.C. § 1332(3). OCSLA establishes a four-stage process to develop offshore oil and gas: (1) five-year program for deciding and scheduling Outer Continental Shelf (OCS) lease sales; (2) individual lease sales; (3) exploration plans (EPs); and (4) development and production plans (DPPs). *Sec'y of Interior v. California*, 464 U.S. 312, 336–40 (1984). Each stage is governed by multiple laws, regulations, and guidance.

Leasing in the Beaufort and Chukchi Seas

Over the last decade, Republican and Democratic administrations both supported large-scale OCS lease sales. Two Beaufort Sea sales (Sale 195 in 2005 and Sale 202 in 2007) resulted in 139 active leases covering over one million acres and $89 million in bid revenue. One Chukchi Sea sale (Sale 193 in 2008) resulted in 460 active leases covering over 2.7 million acres and almost $2.7 billion in bid revenue. *Leasing and Plans*, Bureau of Ocean Energy Mgmt., http://www.boem.gov/About-BOEM/BOEM-Regions/Alaska-Region/Leasing-and-Plans/Index.aspx (last visited Feb. 28, 2014). Future sales are planned. Despite the significant acreage leased, limited exploration activity has occurred. Recent events (e.g., the Deepwater Horizon tragedy) and the evolving regulatory and operational permitting regimes are reasons cited for the delays.

Current Federal Regulatory Environment

The Department of Interior's (DOI's) Bureau of Ocean Energy Management (BOEM) enforces compliance with governing regulations and guidance, focusing on leasing, approval of EPs and DPPs, environmental reviews at each stage, resource evaluation, and economic analysis. 76 Fed. Reg. 64,432 (Oct. 18, 2011). BOEM conducts a National Environmental Policy Act (NEPA) analysis at each stage, with increasing detail and site-specific information. DOI's Bureau of Safety and Environmental Enforcement (BSEE) enforces safety and operational permitting, which includes reviewing and approving Oil Spill Response Plans (OSRPs) and individual Applications for Permits to Drill (APDs). *Id.*

Companies must comply with other statutes as well—primarily Clean Air Act (CAA), Clean Water Act (CWA), Endangered Species Act (ESA), and Marine Mammal Protection Act (MMPA). Before exploration activity, other federal agencies must review and approve additional permits and authorizations. Relevant here, the MMPA tasks the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS) and the Fish and Wildlife Service (FWS) with processing industry requests for authorization to "take" (via harassment or injury) small numbers of marine mammals.

Upcoming Changes to the Federal Regulatory Environment

Four pending federal actions are expected to impose new, more prescriptive, requirements on OCS activities: DOI Arctic regulations, BOEM air regulations, NMFS' Arctic Environmental Impact Statement (EIS), and NOAA's guidance for marine mammal acoustic injury. Each is summarized below.

DOI Arctic Regulations

DOI reviewed Shell's 2012 Alaska OCS exploration program and issued a March 2013 report (DOI Report) acknowledging the "extreme, unpredictable

and rapidly changing conditions that exist in the Arctic even during the open water season" and recommending establishment of "an operating model and standards tailored specifically" to Arctic offshore oil and gas exploration. DEP'T OF THE INTERIOR, REVIEW OF SHELL'S 2012 ALASKA OFFSHORE OIL AND GAS EXPLORATION PROGRAM (Mar. 8, 2013), *available at* http://www.doi.gov/news/pressreleases/upload/Shell-report-3-8-13-Final.pdf. Mention of proposed Arctic regulations appeared in DOI's Spring 2013 Semiannual Regulatory Agenda. DEP'T OF THE INTERIOR, SEMIANNUAL REGULATORY AGENDA (July 3, 2013) (Spring 2013 Agenda) at 24, *available at* http://www.noticeandcomment.com/Semiannual-Regulatory-Agenda-Spring-2013-fn-61998.aspx (last visited Mar. 11, 2014), and later in the Fall 2013 Agenda: "The Department of the Interior, through the [BOEM] and [BSEE], is developing joint proposed rules to promote safe, responsible, and effective drilling activities on the Alaska Outer Continental Shelf, while also ensuring the protection of Alaska's coastal communities and the marine environment." DEP'T OF THE INTERIOR, SEMIANNUAL REGULATORY AGENDA (Nov. 26, 2013) (Fall 2013 Agenda) at 35 (BSEE notice, RIN 1014-AA21), *available at* http://www.noticeandcomment.com/Semiannual-Regulatory-Agenda-Fall-2013-fn-74583.aspx (last visited Mar. 11, 2014); *see also id.* at 24 (BOEM notice, RIN 1010-AD85).

No draft rule has been released, but news reports hint at the substance. We expect the rule may incorporate voluntary measures Shell adopted in 2012 and DOI Report recommendations, such as (1) a tested, prestaged subsea spill containment system; (2) a rig readily available for relief well drilling; (3) resource sharing among multiple operators (e.g., joint contracting of response equipment); or (4) a single integrated activity plan.

Although publication of the rule was initially expected by the end of 2013, the Fall 2013 Agenda listed it at the "proposed rule stage" and provided no timeline. Next steps include publishing a Notice of Proposed Rulemaking (NPR), publishing the proposed rule, soliciting public comments, reviewing public feedback and making appropriate changes, and publishing a final rule. The Office of Management and Budget's (OMB's) Office of Information and Regulatory Affairs (OIRA) reviews the draft and proposed final regulation. Exec. Order No. 12866. This process may be time-consuming, particularly if the rule is deemed to be "significant." *See Regulations and the Rulemaking Process*, OMB OFFICE OF INFO. & REGULATORY AFFAIRS, http://www.reginfo.gov/public/jsp/Utilities/faq.jsp (last visited Feb. 28, 2014). Predicting the timing of a draft rule is difficult; however, after the draft is published it will likely be at least six months before the rule is finalized, affecting the 2015 open water season at the earliest.

BOEM Air Regulations

In 2011, Congress transferred jurisdiction for Arctic OCS air quality from the Environmental Protection Agency (EPA) to DOI. Pub. L. No. 112-74, div. E, tit. IV, § 432(d). In 2012, BOEM added a "Clean Air Reporting and Compliance" rule to its regulatory agenda. DEP'T OF THE INTERIOR, SEMIANNUAL REGULATORY AGENDA (Dec. 24, 2013) (Fall 2012 Agenda) at 24 (RIN 1010-AD82), *available at* http://www.noticeandcomment.com/Semiannual-Regulatory-Agenda-Fall-2012-fn-4003.aspx (last visited Mar. 11, 2014). The rule would serve two purposes: (1) correct deficiencies in BOEM's existing air quality regulations to bring them into compliance with the CAA and reflect existing BOEM practice; and (2) "develop new air quality guidelines to address the recent transfer of air quality oversight responsibility for the offshore North Slope." *Id.*

BOEM's current air quality regulations pre-date the 1990 CAA Amendments, which transferred air quality jurisdiction for all parts of the OCS *except* the western Gulf of Mexico to EPA. 42 U.S.C. § 7627(a). The Act provides different mandates for each agency when administering air quality within its jurisdiction. § 7627(a), (b). The 2011 change placed sources "located offshore of the North Slope Borough of the State of Alaska" under DOI's air quality regime.

BOEM's anticipated rule will likely include some changes that are applicable to all OCS areas under DOI's air quality jurisdiction. The rule may affect a broad group of companies using a variety of

infrastructure to support exploration and development operations, and may attract significant public comments, and, potentially, a lengthy finalization process. The agency will also consider whether specialized and different air quality requirements may be necessary in the Arctic, and thus could implicate DOI's Arctic regulations. *See supra* DOI Arctic Regulations.

Since first appearing on DOI's agenda, the rule has had a target date for the NPR. The current target is March 2014, but the rule has not yet been submitted to OIRA, a necessary preliminary step before issuance of the proposed rule. Like the Arctic regulations, revisions to BOEM's air regulations will affect the 2015 season at the earliest.

NMFS Arctic Environmental Impact Statement
NMFS and FWS issue authorizations for "takes" of marine mammals incidental to specified legal activities. Marine noise is the primary source of "takes" caused by Arctic oil and gas operations. *Effects of Oil and Gas Activities in the Arctic Ocean: Supplemental Draft Environmental Impact Statement*, U.S. Dep't of Commerce, Nat'l Oceanic And Atmospheric Admin., Nat'l Marine Fisheries Serv. (Mar. 2013) (Supplemental Draft EIS) at ES-26, *available at* http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm (last visited Mar. 22, 104). When either agency issues an approval, it must conduct a NEPA analysis.

In the past, NMFS has used Environmental Assessments (EAs) to comply with NEPA. In December 2011, it released a Draft EIS that analyzed the impacts of up to two exploratory drilling programs per year in the Arctic. Responding to comments, NMFS released a Supplemental Draft EIS analyzing up to four drilling programs per year in both the Chukchi and Beaufort Seas and expanding discussion of mitigation measures. Most commenters on the Supplemental Draft EIS agreed it would be premature to issue a Final Arctic EIS before NOAA completes its revised acoustic standards. *See infra* NOAA Guidance for Marine Mammal Acoustic Injury.

Public comment on the Supplemental Draft EIS closed on June 27, 2013. The agency has not indicated when, or whether, it will issue a Final EIS. NMFS may have chosen to defer action pending the revised acoustic standards.

NOAA Guidance for Marine Mammal Acoustic Injury
On December 23, 2013, NOAA issued *Draft Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammals, Acoustic Threshold Levels for Onset of Permanent and Temporary Threshold Shifts*, Nat'l Oceanic & Atmospheric Admin. (Dec. 23, 2013), *available at* http://www.nmfs.noaa.gov/pr/acoustics/draft_acoustic_guidance_2013.pdf. This is the first of two sets of guidance that address acoustic impacts.

The guidance adopts a nuanced dual-metric methodology to estimate marine mammal temporary or permanent hearing loss. NOAA applied this approach to five marine mammal groups (sorted by functional hearing range) to develop new acoustic threshold levels for impulsive and non-impulsive sound for each group. The result is a detailed matrix for use in assessing potential takes.

The public comment period closed March 13, 2014. After the public comment period—and likely after the agency's April Open Water meeting—NOAA will issue the final guidance.

NOAA plans to release a second guidance document this year that could impact oil and gas operations. It will address acoustic impacts on marine mammal behavior and may affect estimates of "takes by harassment."

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REGIME CHANGE: TRANSFERRING EMISSIONS JURISDICTION ON THE ARCTIC OUTER CONTINENTAL SHELF

John Cossa

Efforts to develop oil and gas resources offshore of Alaska have recently been dealt a number of legal and administrative blows, calling the short-term future of oil and gas exploration on the U.S. Arctic Outer Continental Shelf (OCS) into question. Recent setbacks include a January 22, 2014, decision by the Ninth Circuit Court of Appeals invalidating the Department of the Interior's (DOI) environmental impact statement supporting a 2011 oil and gas lease sale in the Chukchi Sea, and the Bureau of Ocean Energy Management's (BOEM) January 14, 2014, decision to once again deem Shell Gulf of Mexico's (Shell) Arctic exploration plan incomplete for want of environmental and safety information. *Native Village of Point Hope v. Jewell*, 1:08-cv-00004-RRB (9th Cir. decided Jan. 22, 2014); BOEM Second Request for Additional Information re Shell GOM Integrated Operations Plan (Jan. 14, 2014), *available at* http://www.boem.gov/About-BOEM/BOEM-Regions/Alaska-Region/Leasing-and-Plans/Plans/Shell—Chukchi-Sea-Exploration-Plan-and-Supporting-Documents.aspx.

Other regulatory setbacks have come from less high-profile sources, such as the Environmental Protection Agency's (EPA) offshore air quality permitting program under the Clean Air Act (CAA). Unable to bring the emissions of its Arctic drilling fleet into compliance with its two EPA-issued CAA permits, *Shell, the only company engaged in oil and gas exploration offshore Alaska at the time,* agreed to pay EPA a $1.1 million settlement for 34 violations of its permits on September 5, 2013. Ultimately, on January 30, 2014, citing extensive regulatory and financial uncertainty, Shell announced the indefinite suspension of all its Arctic offshore oil and gas exploration activities. Sean Cockerham, *Shell Won't Drill Offshore in Alaska Arctic this Year*, ADN.Com, Jan. 30, 2014, *available at* http://www.adn.com.2014/01/30/3298785/shell-abandons-plans-for-alaska.html.

Although it arrived too late for Shell's 2012–2013 Arctic exploration efforts, one of the few bright spots for industry came in the form of a little-known provision of the Consolidated Appropriations Act of 2012, Pub. L. No. 112-74 (Dec. 21, 2011) (H.R. 2055), which transferred jurisdiction over air emissions regulation offshore Alaska from EPA to DOI. As a result, oil and gas exploration on the Arctic OCS is no longer subject to federal air permitting requirements or, very likely, to offshore emissions restrictions. While this by no means resolves the host of regulatory issues currently facing the industry in the Arctic, it decreases the likelihood that future efforts to explore for oil and gas offshore Alaska will encounter the air quality issues previously encountered by Shell.

Emissions Regulation Under the OCS Lands Act

The authority to regulate emissions associated with offshore oil and gas activities originally resided with DOI under the Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. §§ 1331–1356(a). Section 5(a) of OCSLA grants the Secretary of the Interior the authority to promulgate regulations

> . . .
>
> (8) for compliance with the national ambient air quality standards pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.), to the extent that activities authorized under [OCSLA] significantly affect the air quality of any state.

43 U.S.C. § 1334(a)(8). The "activities authorized under [OCSLA]" referred to in § 5(a)(8) include, inter alia, approving offshore oil and gas exploration and development on the OCS, which is the responsibility of BOEM, one of the successor agencies to the Minerals Management Service. *See* 43 U.S.C. §§ 1340(c), 1351(h), 1331(k) and (l).

The national ambient air quality standards (NAAQS) are pollution thresholds set by EPA for in-state air quality under section 109 of the CAA. Air containing pollution in excess of these thresholds is considered to be a threat to the public health and welfare. EPA sets

NAAQS for six principal "criteria" pollutants: carbon monoxide, nitrogen dioxide, lead, ozone, particulates, and sulfur dioxide. *See* 40 C.F.R. pt. 50. If the air in a particular area contains concentrations of a pollutant below the NAAQS, it is in "attainment" for that pollutant; if the air in a particular area contains concentrations of a pollutant greater than the NAAQS, that area is in "nonattainment" for that pollutant.

So under § 5(a)(8) of OCSLA, emissions from offshore oil and gas exploration activities may be regulated if those emissions have a "significant" impact on the air quality of a state such that the state's compliance with a NAAQS becomes an issue. The objective is not to protect air quality over the ocean, but to ensure that oil and gas activities on the OCS do not unduly compromise onshore air quality. *See e.g.*, *H.R. Rep. No.* 95-1474, at 85 (1978), *reprinted in* 1978 U.S.C.C.A.N 1674, 1684–85.

Under implementing regulations, BOEM determines whether there will be a "significant" effect on onshore air quality when considering whether to approve a lessee's exploration and development plans. 30 C.F.R. §§ 550.303–.304. For the purpose of making this determination, BOEM considers emissions associated with proposed "facilities," which include drill ships and platforms permanently or temporarily attached to the seabed. 30 C.F.R. §§ 550.302–.304, 550.105. BOEM does not consider emissions associated with vessels or aircraft, likely because the agency does not "authorize" them within the meaning of the statute. *See id.*; *c.f.*, 43 U.S.C. §§ 1332(1) and (2), 1333(a). Consequently, although the regulations require lessees to submit with their plans projected emissions information for vessels and aircraft as well as for "facilities," only emissions from facilities are considered when determining whether there will be a "significant" effect on onshore air quality. *See* 30 C.F.R. §§ 550.212(f) and (l), 550.218, 550.224(b); 30 C.F.R. §550.303.

If anticipated emissions from a facility are below a certain de minimis level, that facility is exempt from emissions controls. 30 C.F.R. § 250.303(d). If, on the other hand, anticipated facility emissions exceed the exemption level, the lessee must model the projected path of pollution to shore to determine whether the emissions will result in onshore ambient air concentrations above certain "significance" levels, which mirror the NAAQS. 30 C.F.R. § 250.303(e). If such concentrations exceed the significance levels, emissions from the facility must be reduced through the use of "best available control technology (BACT);" if not, no emissions controls are required. *See* 30 C.F.R. § 250.303(f) and (g). Because it is unusual for emissions from offshore facilities to "significantly" affect onshore air quality, the use of BACT is rarely required under BOEM regulations.

Transferring Arctic OCS Emissions Jurisdiction to EPA

The CAA amendments of 1990 added a new section 328, which transferred to EPA exclusive jurisdiction over emissions associated with "OCS sources" located offshore the Atlantic, Pacific, and Alaskan coasts, as well as in the Gulf of Mexico (GOM) eastward of 87°30'W longitude (the eastern GOM). 42 U.S.C. § 7627(a). The western GOM, host to the vast majority of offshore oil and gas operations, remained under DOI air emissions jurisdiction pursuant to section 5(a)(8) of OCSLA.

Unlike BOEM's offshore "facility," the "OCS source" defined in section 328 of the CAA includes not only oil and gas drill ships and platforms but also all associated vessels while within 25 miles of those drill ships and platforms. 42 U.S.C. § 7627(a)(4)(C).

Pursuant to its authority under section 328 of the CAA, EPA has created two regimes for regulating OCS sources. For sources within 25 miles of a state's seaward boundary, EPA regulates emissions and ambient air quality the same as it would in an onshore environment, which includes state and local requirements. For sources located beyond the 25-mile boundary, various federal regulations apply, including the enforcement of applicable permit requirements and emissions restrictions. *See* 40 C.F.R. pt. 55. In this way, the regulatory regime contemplated by section 328 of the CAA differs significantly from that under section 5(a)(8) of OCSLA. Whereas BOEM only regulates OCS emissions to the extent they manifest

effects onshore, under the CAA, EPA regulates offshore emissions and air quality regardless of onshore impacts. Perhaps not surprisingly, many of the offshore operations that would otherwise be free from regulation under BOEM's OCSLA regime are now subject to EPA's permitting and emissions requirements under section 328 of the CAA.

In 2011 Shell applied for, and in 2012 obtained, two OCS air permits from EPA for exploration activities in the Beaufort and Chukchi Seas offshore Alaska. Because of the nature of the Arctic environment, these permits covered not only the drill ships, but also a support fleet of icebreakers, oil spill response vessels, and supply ships. *See* EPA Air Permit Summary for Shell Discoverer—Chukchi Sea, *available at* http://yosemite.epa.gov/R10/airpage.nsf/Permits/chukchiap/; EPA Air Permit Summary for Shell Kulluk—Beaufort Sea, *available at* http://yosemite.epa.gov/r10/airpage.nsf/permits/kullukap/. The permits set strict limits on emissions of the entire fleet based on EPA's assessment of the best emission controls available. However, two months of real-world exploration activity during the 2012 drilling season revealed that actual emissions were far higher than anticipated in the permits. Despite Shell's efforts to reduce emissions and the inherent design limitations of the regulated vessels, EPA ultimately cited the company for 34 permit violations, resulting in the historic settlement and ultimate permit termination.

H.R. 2055—Transferring Arctic OCS Emissions Jurisdiction Back to DOI

Perhaps in response to Shell's air permitting issues, Congress included section 432, "air emissions from outer continental shelf activities," in H.R. 2055. Section 432 transferred the authority to regulate air emissions offshore Alaska from EPA under the CAA back to DOI under OCSLA. The clear intent was to reduce the regulatory burden placed on offshore oil and gas exploration activities in the Arctic due to air quality concerns.

Had circumstances permitted Shell to avail itself of this simple transfer in jurisdiction, the company would not have needed to obtain or comply with OCS emissions permits from EPA. Instead, the company would have been subjected to BOEM's OCSLA regulations, which are only concerned with whether emissions associated with facilities will have a significant impact on onshore air quality. Consequently, the overall emissions attributable to Shell's exploration activities would have been lower, because icebreakers and support vessels are not considered "facilities" under BOEM's regulations. Additionally, because the onshore air quality of Alaska is well within the NAAQS for all criteria pollutants, it is very unlikely that the emissions of any drill ship could "significantly" affect onshore air quality such that a violation of the NAAQS is threatened. It is therefore unlikely that the Arctic exploration activities of Shell or any other lessee would be subject to emissions restrictions under BOEM's OCSLA regulations.

Forthcoming BOEM Regulation—Changing the Game?

On May 7, 2013, Deputy Secretary Hayes announced that DOI plans to propose Arctic-specific rules for oil and gas operations offshore Alaska. Tennile Tracy, *U.S. to Release Arctic-Specific Drilling Rules Before Year End*, WALL ST. J., May 7, 2013, *available at* http://online.wsj.com/article/BT-CO-20130507-713028.html. BOEM has since issued an advance notice of proposed rulemaking (ANPR) concerning "clean air reporting and compliance," which indicates that the agency will publish a notice of proposed rulemaking in the spring of 2014. *See* http://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201310&RIN=1010-AD82. The ANPR states that BOEM's OCSLA emissions regulations as currently written are "out of date and no longer reflect[] current BOEM practices and procedures," and that the proposed rule "would bring BOEM regulations into compliance with the requirements of the [CAA]," and will "address the recent transfer of air quality oversight responsibility for the offshore North Slope of Alaska [sic]. . . ." *Id*.

While it is unclear what specific changes BOEM intends to make to its regulations, environmental groups have been urging the agency to impose more EPA-like emissions restrictions on Arctic offshore

exploration activities. *See e.g.*, Inside EPA, *DOI Urged to Set Strict Arctic Air Rules After EPA Loses Permit Authority*, Inside Washington Publishers, Dec. 17, 2013, *available at* http://insideepa.com/201312172456055/EPA-Daily-News/Daily-News/doi-urged-to-set-strict-arctic-air-rules-after-epa-loses-permit-authority/menu-id-95.html. However, section 5(a)(8) of OCSLA clearly limits BOEM's ability to emulate EPA's regulatory model. Moreover, the enactment of H.R. 2055 evinces congressional intent that the BOEM and EPA regulatory regimes for OCS emissions remain distinct. It will be interesting to see whether BOEM intends to propose regulating OCS emissions in the Arctic differently than it does in the GOM, and the degree to which BOEM's proposed regulations emulate EPA's CAA system.

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INNOVATION AND REGULATION: IMPROVING OIL SPILL DISASTER RELIEF TECHNOLOGY IN THE ARCTIC

Ben Lowenthal

On April 20, 2010, the $560-million-dollar Deepwater Horizon offshore drilling rig suffered a catastrophic blowout and caught fire while routinely completing the 18,000-foot-deep Macondo exploratory well in the Gulf of Mexico. Two days later, the 33,000-ton rig collapsed and sank to the sea floor nearly a mile below. For 87 days, an estimated 4.9 million barrels of crude oil spewed uncontrollably into the Gulf of Mexico. *See* U.S. Coast Guard, On Scene Coordinator Report Deepwater Horizon Oil Spill v (2011), *available at* http://www.uscg.mil/foia/docs/dwh/fosc_dwh_report.pdf. The world watched an industry known for its technological innovation resort to seemingly whimsically named plans, such as the Junk Shot, Top Kill, and Top Hat, to plug the hole. An ad hoc army of over 1000 public and private organizations faced an unprecedented oil spill disaster described by U.S Coast Guard Admiral Thad Allen as "omnidirectional" and "indeterminate." *See* Thad Allen, U.S. Coast Guard Commandant, Address before the Senate Committee on Commerce, Science, and Transportation (May 18, 2010). The immediate disaster relief effort required the coordination and mobilization of resources and people on a scale never before seen. On the single most demanding day, the federal government, in coordination with British Petroleum as the responsible party, deployed over 6,000 response vessels, 82 aircraft, and almost 50,000 individual responders. *See* U.S. Coast Guard, On Scene Coordinator Report Deepwater Horizon Oil Spill v-vi (2011), *available at* http://www.uscg.mil/foia/docs/dwh/fosc_dwh_report.pdf. In terms of government personnel, the U.S. Coast Guard mobilized an astonishing 14 percent of its total workforce, and the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration both mobilized 17 percent of their respective workforces. *See id*. at xiii. Over four million feet of boom were deployed, countless controlled burns were ignited, and an estimated 1.9 million gallons of dispersant were sprayed. *See id*.; *see also* Abby J.

Queale, *Responding to the Response: Reforming the Legal Framework for Dispersant Use in Oil Spill Response Efforts in the Wake of Deepwater Horizon*,18 HASTINGS W.-N.W. J. ENVTL. L. & POL'Y 63, 83 (2012). The disaster was an environmental tragedy that "tested the limits of human technology." President Barack Obama, Remarks to the Nation on the BP Oil Spill (June 15, 2010), *available at* http://www.whitehouse.gov/the-press-office/remarks-president-nation-bp-oil-spill.

1. Unique Challenges of an Arctic Spill

In a disaster relief context, the Gulf spill was a walk on the beach. The Deepwater Horizon spill occurred just over 40 miles off the Louisiana coast, in the accessible temperate waters of the Gulf of Mexico. In sharp contrast, any spill in the Arctic, specifically the Chukchi and Beaufort Seas off Alaska's north coast, would take place in one of the earth's most remote and inhospitable regions. As more oil and gas companies explore offshore drilling in the oil rich Arctic, the unique logistical and technological challenges are becoming ever more apparent. Unlike the temperate waters of the Gulf, spilled oil in the Arctic accumulates on top of, in, and under the ice. In addition, storms, high winds, minimal visibility, and the scarcity of physical infrastructure (the closest deepwater port is over 1,100 miles away) would impede any disaster relief. *See* U.S. COAST GUARD, ARCTIC STRATEGY 14 (2013), *available at* http://www.uscg.mil/seniorleadership/DOCS/CG_Arctic_Strategy.pdf. In a recent report by the Department of the Interior (DOI), assessing Shell's now abandoned Arctic Exploration Program, it noted that "the Arctic [Outer Continental Shelf] presents unique challenges associated with environmental and weather conditions, geographical remoteness, social and cultural considerations, and the absence of fixed infrastructure to support oil and gas activity, including resources necessary to respond in the event of an emergency." DEP'T OF THE INTERIOR, REVIEW OF SHELL'S 2012 ALASKA OFFSHORE OIL & GAS EXPLORATION PROGRAM 6 (Mar. 8, 2013), *available at* http://www.doi.gov/news/pressreleases/upload/Shell-report-3-8-13-Final.pdf.

Are we ready to meet these challenges? Probably not. The National Commission charged by President Obama to make offshore energy production safer, among other things, assigned a grade of "C" to efforts by government and industry to adequately prepare for an oil spill in the Arctic. *See* NAT'L COMM'N ON THE DEEPWATER HORIZON OIL SPILL & OFFSHORE DRILLING, ASSESSING PROGRESS: IMPLEMENTING THE RECOMMENDATIONS OF THE NATIONAL OIL SPILL COMMISSION 2 (2012), *available at* http://oscaction.org/wp-content/uploads/OSCA-Assessment-report.pdf. The National Commission has recommended increased research, interagency coordination, and the establishment of a regional citizens council to participate in the planning process for exploration in the Arctic. But these recommendations only go so far. What the National Commission failed to address was how to spur the technological innovation to prevent, respond to, contain, and cleanup an oil spill in the Arctic.

2. Regulation and Innovation

Under the principal federal statute governing offshore oil and gas activity, the Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. §§ 1331–1356a, industries must adopt the "best available and safest technology" (BAST) whenever practical on all exploration, development, and production operations found to be "economically feasible wherever failure of equipment would have a significant effect on safety, health or the environment." 43 U.S.C. § 1347(b). Owners and operators must "protect health, safety, property, and the environment by performing all operations in a safe and workmanlike manner; and maintain[] all equipment and work areas in a safe condition." 30 C.F.R. § 250.107. DOI considers an owner or operator to be using BAST when "in compliance with [Bureau of Safety and Environmental Enforcement] regulations." *Id*. DOI may require additional measures in line with these regulations; however, any BAST must meet a cost-benefit analysis determination.

Although there has been no significant congressional response addressing safety concerns following the 2010 Gulf spill, the Executive Branch, through DOI, has issued several overarching regulatory and policy

changes to offshore oil and gas development. *See* JONATHAN L. RAMSEUR & CURRY L. HAGERTY, CONG. RESEARCH SERV., R42942, DEEPWATER HORIZON OIL SPILL: RECENT ACTIVITIES AND ONGOING DEVELOPMENTS 7–10 (2013), *available at* http://www.fas.org/sgp/crs/misc/R42942.pdf. Apart from addressing specific oversight and managerial shortcomings by disbanding the former Mineral Management Service and then creating the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE), DOI has increased its review of lease-specific exploration, development, production, and oil spill response plans. *See* DOI, INCREASED SAFETY MEASURES FOR ENERGY DEVELOPMENT ON THE OUTER CONTINENTAL SHELF (2010), *available at* http://www.doi.gov/deepwaterhorizon/loader.cfm?csModule=security/getfile&PageID=33598; *see* Oil and Gas and Sulphur Operations on the Outer Continental Shelf – Increased Safety Measures for Energy Development on the Outer Continental Shelf, 77 Fed. Reg. 50,856 (Aug. 22, 2012). In a sign of government/industry cooperation following the Deepwater Horizon disaster, DOI promulgated the SEMS Rule to prevent human errors on offshore rigs, shown to be the primary factor in offshore incidents. The SEMS Rule, short for "Safety and Environmental Management Systems," now allows for "greater protection by supplementing operators' SEMS programs with employee training, empowering field level personnel with safety management decisions and strengthening auditing procedures by requiring them to be completed by independent third parties." *See* Oil and Gas and Sulphur Operations in the Outer Continental Shelf – Safety and Environmental Management Systems, 75 Fed. Reg. 63,610-01 (Oct. 15, 2010). The rule allows for a flexible approach to systematic safety that can keep up with evolving technologies. The SEMS Rule was then revised in 2013 to include additional safety requirements that were not covered in the original rule. *See* Oil and Gas and Sulphur Operations in the Outer Continental Shelf—Revisions to Safety and Environmental Management Systems, 78 Fed. Reg. 20,423-01 (Apr. 5, 2013). The revisions enhanced federal auditing oversight, increased individual employee and management liability for personnel who witness "an activity that [creates an] imminent risk or danger," and clarified incident-reporting procedures. New regulations and leaseholder notice letters are now requiring information on preparedness/plans of action if a spill were to occur. Leaseholders must supplement existing exploration and development plans by providing additional information regarding worst-case discharge scenarios and adequate information demonstrating access and deployment capabilities for a response to a well blowout. *See* NTL No. 2010–N06 (June 18, 2010); NTL No. 2010-N10 (Nov. 8, 2010). In the case of the SEMS Rule and other safety measures now required by DOI in the wake of the Gulf spill, the American Petroleum Institute (API) first opposed these safety regulations for being either unnecessary or too costly.

As far as innovation, DOI has continued pursuing oil spill response research through the Oil Spill Response Research (OSRR) program. The 25-year-old program, now under BSEE oversight, focuses on improving methods and technologies used for oil spill detection, containment, treatment, recovery, and cleanup. A government-industry partnership, OSRR has funded 16 research projects addressing Arctic oil spill response since the Deepwater Horizon spill in April 2010. *See* BSEE, OSRR ARCTIC OIL SPILL RESPONSE RESEARCH, http://www.bsee.gov/Research-and-Training/Oil-Spill-Response-Research/Categories/Arctic-Oil-Spill-Response-Research/ (last visited Mar. 11, 2014). More recently, DOI established the Ocean Energy Safety Institute (OESI). The Institute will try to provide a collaborative forum for dialogue among academia, industry, and government. Initially funded with a five-year, $5 million grant, the Texas A&M Engineering Experiment Station (TEES), a Texas state agency within the Texas A&M University System, will manage the new institute. *See* BSEE, OCEAN ENERGY SAFETY INSTITUTE, http://www.bsee.gov/BSEE-Newsroom/BSEE-Fact-Sheet/FACT-SHEET—Ocean-Energy-Safety-Institue/ (last visited Mar. 11, 2014); *see* TEES, STRATEGIC PLAN FISCAL YEARS 2011–2015 3 (2011), *available at* http://tees.tamu.edu/media/23616/tees_strategic_plan_2011-2015.pdf. One of the Institute's many objectives will be to "[p]rovide recommendations and technical assistance to [DOI] related to emerging technologies

and the determination of [Best Available and Safest Technology], and environmentally sound oil and gas development practices on the Outer Continental Shelf." *Id.* However, with only limited funding and a list of broad objectives, the Institute's impact on improving technological requirements will likely be marginal.

3. Recent Litigation

One area of recent litigation that has done little to spur reliable industry innovation is the use and description of new technologies. A leaseholder must include a "description and discussion of any new or unusual technology [the leaseholder] will use to carry out [the leaseholder's] proposed exploration activities," under 30 C.F.R. section 550.213(d). Environmental groups tested the boundaries of what the regulations require in *Native Vill. of Point Hope v. Salazar*, 680 F.3d 1123 (9th Cir. 2012), and found that they don't require all that much. The Ninth Circuit, giving BOEM great deference, found that a seven-paragraph description of the design and proposed location of a well capping and containment system met the minimal description necessary for a new or unusual technology to satisfy the regulation. *Id.* at 1131.

Considering the formidable challenges the Arctic presents to any oil spill disaster relief effort, technological innovation is needed at every phase of the response. Although industry, and to some degree government, are currently improving disaster relief capabilities in the Arctic, it has yet to be determined whether new technologies, such as nuclear magnetic resonance, submarine drones, and biodegradable dispersants, will be effective. *See* Detecting Oil Spills: Trouble Beneath the Ice, The Economist, Dec. 1, 2012, *available at* http://www.economist.com/news/technology-quarterly/21567196-energy-technology-oil-exploration-moves-arctic-new-methods-are-being.

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THE SOVEREIGNTY OF NATIONS IN A THAWING ARCTIC

Kathryn Ely

The Arctic has seen a decrease in ice by 75 percent since the 1980s and is continuing to change rapidly. James E. Overland et al., *Future Arctic Climate Changes: Adaptation and Mitigation Time Scales*, Earth's Future 2 (2014), *available at* http://onlinelibrary.wiley.com/doi/10.1002/2013EF000162/pdf. The melting ice is leading to an increase in navigable waterways, offering shorter commercial shipping routes and providing access to valuable oil and gas resources. Consequently, the expansion of territorial claims in the Arctic region in order to capitalize on these opportunities has been a major developing issue for over a decade. The significance of an Arctic territorial claim lies in the application of state sovereignty within a defined territory. Such application causes a restriction of activity by foreign nations in the territorial zones of coastal states where the ice is largely receding. The ability of nations to traverse the region either for commercial or research activity, or to extract natural resources, depends on the outcome of a territorial claim.

The Arctic waters, and territorial claims over it, are subject to the United Nations Convention on the Law of the Sea. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS], *available at* http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf. UNCLOS categorizes territorial water boundaries and specifies the extent of coastal state sovereignty applied within each zone. The relevant territorial zones for the purpose of this article are the territorial sea, the contiguous zone (CZ), the exclusive economic zone (EEZ), and the continental shelf.

Territorial Sea

The territorial sea is measured from the coastal state's baseline out to 12 nautical miles. UNCLOS pt. II, sec. 2, art. 17. Baselines are typically determined by the low water mark, with some adjustments outward for

certain land features such as archipelagoes. UNCLOS pt. II, sec. 2. Within those 12 nautical miles, the coastal state has the exclusive right to extract subsoil resources like oil and natural gas, engage in fishing and commercial activities, and conduct scientific research. UNCLOS pt. II, sec. 3. Foreign states are only granted the right of innocent passage in the territorial sea of a coastal state. UNCLOS pt. II, sec. 3, art. 17. Innocent passage is essentially continuing and expeditious passage through the territorial sea that avoids the coastal state's internal waters and is not prejudicial to the peace, good order, or security of the coastal state. UNCLOS pt. II, sec. 3, art. 18, 19.

Contiguous Zone

The contiguous zone extends 24 nautical miles from the coastal state's baseline, typically 12 nautical miles beyond the territorial sea boundary line. The coastal state may enforce its customs and immigration laws within these waters, and pursue and punish those that violate a coastal state's laws or infringe on exclusive rights within its territorial sea. UNCLOS pt. II, sec. 4, art. 33.

The Exclusive Economic Zone (EEZ)

Lastly, the EEZ extends beyond the CZ up to 200 nautical miles from the baseline. UNCLOS pt. V, art. 57. Foreign states are given full freedom of navigation, scientific research, construction of installations, fishing (subject to conservation regulation), and laying of cables and pipelines in a coastal state's EEZ. UNCLOS pt. VII, art. 87. Coastal states, however, retain sovereign rights for the purpose of exploring, exploiting, conserving, and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil. UNCLOS pt. V, art. 56.

A coastal state may extend its EEZ beyond the 200 nautical miles if the continental shelf can be proven to extend beyond that point. UNCLOS pt. VI, art. 76. The continental shelf is the natural prolongation of the landmass to the outer edge of the continental margin. Article 76 defines how a coastal state should measure the continental shelf but also limits the delineation of the shelf not to exceed 350 nautical miles from the baselines used to measure the territorial sea. If a coastal state invests the resources to measure its continental shelf and can substantiate the claim that the shelf protrudes from its landmass up to 350 nautical miles, it may extend its EEZ out to the end of its continental shelf, thereby extending the associated benefits of the EEZ. Article 77 also specifically preserves the sovereign right of the coastal state to explore and exploit natural resources within the area of its continental shelf. This means that a coastal state may drill for oil or natural gas, regulate commercial fishing, and restrict scientific research activity beyond that of other coastal states.

Commission on the Limits of the Continental Shelf

Annex II of UNCLOS created the Commission on the Limits of the Continental Shelf (CLCS). The CLCS serves to assist in the establishment of the outer limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured. *See Commission on the Limits of the Continental Shelf (CLCS): Purpose, Functions and Sessions*, Oceans & Law of the Sea United Nations, http://www.un.org/depts/los/clcs_new/commission_purpose.htm#Purpose (last visited Feb. 28, 2014). A coastal state is given ten years after ratifying UNCLOS to submit evidence that its continental shelf extends beyond 200 nautical miles. UNCLOS Annex II, art. 4. Once a submission is received, a sub-commission is formed and tasked with reviewing the data. A standing committee provides scientific and technical advice to the state in preparing or revising the data. The sub-commission advises the CLCS on the coastal state's claim in order to issue a final and binding recommendation. UNCLOS Annex II, art. 5. If the CLCS disagrees with the claim submitted by the state, the state is given a reasonable amount of time to collect more data and resubmit additional evidence. UNCLOS Annex II, art. 8. After receiving a recommendation from the CLCS, the coastal state then deposits with the Secretary General of the UN to make it public to all other states. UNCLOS pt. VI, art. 76.

The CLCS recommendation is not meant to prejudice states with opposite or adjacent coasts from independently determining the delimitation between their overlapping territories. UNCLOS Annex II, art. 9. States are free to enter into agreements determining maritime boundaries and how future extensions of these boundaries may be determined and finalized. When a state with a territorial interest disagrees with the findings, it may utilize any of the dispute resolution mechanisms prescribed by UNCLOS, which include the International Court of Justice and the International Tribunal for the Law of the Sea. Statute of the International Tribunal for the Law of the Sea Part XI, section 5, Dec. 10, 1982, 1833 U.N.T.S. 397, *available at* https://www.itlos.org/fileadmin/itlos/documents/basic_texts/statute_en.pdf. A tribunal may find a coastal state's claim more credible based on a recommendation from the CLCS, but the recommendation is not the determining factor.

Status of Claims in the Arctic

Russia, Norway, Denmark by way of Greenland and the Faeroe Islands, and Canada all have land bordering the Arctic and have submitted continental shelf claims with the CLCS. The United States has yet to ratify UNCLOS and as a result is unable to submit a continental shelf claim; however, the United States may still negotiate with its Arctic neighbors in an attempt to protect its interests in the region.

Russia was the first to submit its claim in 2001 with a revised submission in 2013. The sub-commission and CLCS made several amendments to the Russian 2001 submission before making a recommendation for adoption by the UN Secretary General. There has not been any action on the 2013 revision regarding the Okhotsk Sea as of yet. Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the progress of work in the Commission, CLCS/34 at 33 (July 1, 2002).

Norway submitted a claim in 2006. It received the recommendation regarding its continental shelf extension into the Arctic Ocean, Barents Sea, and Norwegian Sea in 2009. Committee on the Limits of the Continental Shelf, *Summary of the Recommendations of the Commission on the Limits of the Continental Shelf in Regard to the Submission Made by Norway in Respect of Areas in the Arctic Ocean, the Barents Sea and the Norwegian Sea on 27 November 2006*, CLCS/62 (Mar. 27, 2009), *available at* http://www.un.org/depts/los/clcs_new/submissions_files/nor06/nor_rec_summ.pdf.

Denmark submitted a claim in regard to the area north of the Faeroe Islands in 2009 and 2010, and submitted with respect to Greenland in 2012. Denmark is still awaiting results from review by the sub-commission.

Canada recently submitted a claim in December 2013. *Submissions, through the Secretary-General of the United Nations, to the Commission on the Limits of the Continental Shelf, pursuant to article 76, paragraph 8, of the United Nations Convention on the Law of the Sea of 10 December 1982*, Oceans & Law of the Sea United Nations, http://www.un.org/depts/los/clcs_new/commission_submissions.htm (last updated Feb. 6, 2014). Having submitted so recently, it is only just getting under way in the process and has yet to present its submission to the CLCS or have a sub-commission assigned.

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CHINA POSITIONS FOR ARCTIC ACCESS

Carolyn Clarkin

On March 5, 2010, Chinese Rear Admiral Yin Zhuo individually proclaimed, "The Arctic belongs to all the people around the world as no nation has sovereignty over it" (*China's Arctic Play*, Mar. 9, 2010, as reported in http://thediplomat.com/2010/03/chinas-arctic-play/). While Zhuo did not speak on behalf of the Chinese government, his comments reflected a commonly held view that the deviation of Arctic resources is an international, not regional, issue exclusively belonging to the Arctic Five, the five states with Arctic coastlines—Canada, Denmark, Norway, the Russian Federation, and the United States. In 2012, Chinese Arctic specialists declared China a "near-Arctic state" and demanded a voice in Arctic affairs.

Arctic Resources

The accelerated thawing of the Arctic Ocean, and the availability of its abundant marine resources and shipping lanes, are attracting global attention. In 2008, the U.S. Geological Survey published an assessment estimating that the Arctic accounts for approximately 13 percent of the world's undiscovered oil, 30 percent of its undiscovered natural gas, and 20 percent of its undiscovered natural gas liquids (USGS, *Circum-Arctic Resources Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle*, http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf). Although the global shale revolution has diverted investment away from these fossil fuel resources, they remain essential to China, a country that imports roughly 85 percent of its energy from abroad.

Shorter shipping routes in the Arctic, most notably the Northern Sea Route, are also opening. The Northern Sea Route, running across the Russian Arctic coast, would trim nearly 2500 miles off the route from China to Iceland as compared to the traditional shipping route through the Mediterranean Sea, Suez Canal, Indian Ocean, Malacca Strait, and South China Sea. By diverting trade through the Northern Sea Route, China may save $60–120 billion per year, and ships would avoid the pirate-infested Malacca Strait and unstable areas surrounding the Suez Canal (*Race to the North: China's Arctic Strategy and Its Implications*, http://www.usnwc.edu/getattachment/31708e41-a53c-45d3-a5e4-ccb5ad550815/).

In addition to these major economic considerations, new fisheries would also open. While Arctic international waters are over 5000 miles from the Chinese coastline, Chinese trawlers have been sited fishing near the Antarctic coastline, nearly 7500 miles from the Chinese coastline (Oceans North International, http://oceansnorth.org/faq).

Arctic Governance

The Arctic Ocean and its resources are governed by the United Nations Convention on the Law of the Sea (UNCLOS). UNCLOS gives coastal states special sovereign rights to explore and use marine resources within their exclusive economic zone (EEZ) and continental shelf. As defined under part V of UNCLOS, a coastal state's EEZ extends 200 nautical miles from its baseline, the seaward limit of its territorial claim. A coastal state may also claim its continental shelf, under part VI, which can span past the 200-nautical mile EEZ limit. Beyond each Arctic coastal state's EEZ and continental shelf are the high seas, or the Central Arctic Ocean, to which all states, including China, have claims to exploration and marine resources. However, the Central Arctic Ocean is less enticing as experts have warned that it is "probably the most expensive place in the entire world to drill for oil" (*Race to Claim High Arctic's Oil Resources May Be a Fool's Mission, available at* http://www.cbc.ca/news/canada/race-to-claim-high-arctic-s-oil-resources-may-be-a-fool-s-mission-1.2461910).

Scientific Expertise and Economic Diplomacy

While Zhuo's statement suggested that China should aggressively claim Arctic resources, China has taken a more measured approach. On May 15, 2013, Chinese Foreign Ministry spokesman Hong Lei said, "China recognizes the Arctic countries' sovereignty, sovereign

rights and jurisdiction in the Arctic. . . . China respects the values, interests, culture, and tradition of the Arctic aborigines and other inhabitants in the region" (*China Welcomes Arctic Council's Granting Observer Status*, as reported in http://www.usa.chinadaily.com.cn). Rather than challenging UNCLOS's applicability to the Arctic, China has developed its scientific expertise on polar issues and used economic diplomacy to gain influence in the Arctic.

China has decades of Arctic scientific research experience. In 1989, China founded the Polar Research Institute of China. In 1993, China purchased the Ukrainian-built icebreaker *Xuelong*, or Snow Dragon, which remains in service. China also announced plans to build a second icebreaker. In 1996, China gained membership to the International Arctic Science Committee. Since 1999, the Chinese completed over five Arctic research expeditions organized by the Chinese Arctic and Antarctic Administration, including one reaching the North Pole. On July 28, 2004, China opened its first Arctic scientific research base, the Arctic Yellow River Station, on Svalbard Island of Norway. And on December 10, 2013, the Polar Research Institute of China and other institutes representing Norway, Finland, Iceland, Denmark, and Sweden formed the China-Nordic Arctic Research Center. While media reports question China's motives, China states that its interest in polar research stems from its concerns over global environmental changes and the impacts of Arctic climate and environmental processes on its national economy. According to the late senior Chinese leader Deng Xiapoing, the purpose of China's polar research is "to make due contributions for the peaceful use of the polar areas" (*Polar Research to Be Its Scientific Focus*, as reported in www.china.org.cn).

In addition, China has established economic ties with Arctic Council member states, most notably Iceland. In 2011, Chinese investors courted Iceland to build an "eco-resort" in an isolated area in northern Iceland, which some media reports speculated was a cover for China's geopolitical interests around the Arctic. Ultimately, Icelandic officials did not permit Chinese investors to purchase the land. On April 15, 2013, however, Iceland and China signed a free trade agreement, and mid-2013, Chinese state-owned energy giant China National Offshore Oil Company International Ltd. announced plans to partner with an Icelandic oil company to search for oil off Iceland's northeast coast. China has also developed economic ties specific to energy in Russia, Canada, and Greenland. The Chinese National Petroleum Corporation signed an agreement with Rosneft, one of Russia's national oil companies, to explore three offshore Arctic areas for oil. Chinese firms also acquired shares in two oil companies in Canada that could afford them access to Arctic drilling, and Chinese firms are investing in the mining industry in Greenland.

Arctic Council and Chinese Attainment of Permanent Observer Status

On May 15, 2013, China gained membership to the Arctic Council as a permanent observer, enhancing its position as a scientific expert and its ability to foster economic ties to the Arctic Five. The Arctic Five along with three other non-coastal Arctic states—Finland, Iceland, and Sweden—formed the Arctic Council in 1996 to provide an intergovernmental forum for cooperation and coordination among Arctic states and Arctic indigenous peoples. The eight Arctic states make up the members of the Arctic Council. The Arctic Council also consists of six permanent participants, who are indigenous peoples' organizations that have full consultation rights in the council's negotiations and decisions, and 21 observers. Observer membership is open to non-Arctic states, intergovernmental and inter-parliamentary organizations, and global or regional or nongovernmental organizations. Of the 21 observers, 12 are non-Arctic states (Arctic Council, http://www.arctic-council.org).

China long awaited its admission as a permanent observer to the Arctic Council. It first applied for admission as a permanent observer in 2006, and went on to apply two more times. The Arctic Council denied its application each time. From 2007 until its admission, it was relegated to being an ad hoc observer. To become a permanent observer, China had to demonstrate to the Arctic Council that it accepted

and supported the objectives of the Arctic Council; recognized Arctic states' sovereignty, sovereign rights, and jurisdiction; and recognized that an extensive legal framework applies to the Arctic Ocean, most notably UNCLOS (Arctic Council, http://www.arctic-council.org/index.php/en/about-us/arctic-council/observers).

Unlike an ad hoc observer, a permanent observer is automatically invited to Arctic Council meetings unless senior Arctic officials decide otherwise or the heads of delegation of the Arctic states meet privately. At the discretion of the chair, observers may make statements, present statements, submit documents, and offer their views on issues. Before an observer may participate, however, all speakers from Arctic states and permanent participant delegations must have had an opportunity to discuss the agenda item. Observers are also encouraged to contribute scientific and other expertise and financial resources to the council's six working groups, which cover subjects including climate change and emergency response.

Observers have no voting power. Decision making remains the exclusive right and responsibility of the eight members with the involvement of permanent participants. The Arctic Council also prohibits observers from exercising their financial power to control projects. Observer states may propose projects through a member or permanent participant, but all observers' total financial contributions may not exceed the financing from Arctic states, unless otherwise decided (Arctic Council Observer Manual, *available at* http://www.arctic-council.org/index.php/en/about-us/arctic-council/observers).

Conclusion

Despite Zhuo's overreaching claims, China only has a legal claim to Arctic resources in the Central Arctic Ocean. China, however, has strategically positioned itself to benefit from Arctic resources. It has bound itself to Arctic state affairs by pursuing a common interest, Arctic science, and participates in a common forum, the Arctic Council. These targeted actions help China develop deeper economic ties to the Arctic states, and thus, an ability to exert influence over Arctic exploration and marine resource opportunities.

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