

Chukchi Sea Oil and Gas Development

by Bretwood Higman, Erin McKittrick, Andrew Mattox, David Coil, Elizabeth Lester

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Ground Truth Trekking

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(Note: Given the events of late 2015 as detailed below, we stopped updating this article at that time)

Summary

Offshore drilling for oil and gas in Alaska’s Chukchi Sea has both great economic potential and a significant risk of adverse environmental impact.

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STORM BATTERED CHUKCHI COAST —

A century ago permafrost strengthened these bluffs and sea ice protected them from waves during storms like this, but now each storm takes its toll on this coastline and many others along the arctic coasts.

Proposed oil and gas development on the Chukchi coast (/Issues/AlaskaOilandGas/ChukchiSeaOilandGasDevelopment.html) has seen opposition in part because the weather conditions, including thick moving sea-ice, storms, and fog would make spill response very difficult.

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    <a class="figure-caption__link" href="/photos/storm-battered-chukchi-coast/">Get Photo</a></figcaption></figure>
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The Chukchi Sea (http://en.wikipedia.org/wiki/Chukchi_Sea) forms part of the Arctic Ocean, bordered in the east by northwestern Alaska between the Seward Peninsula and Barrow, and the west by Wrangel Island and northeastern Siberia. Estimates of oil and gas reserves on the US portion of the Continental Shelf, including both the Chukchi and the neighboring Beaufort Sea, range up to 30 billion barrels of oil equivalent, a reserve even greater than Alaska's famous Prudhoe Bay oil field (http://en.wikipedia.org/wiki/Prudhoe_Bay_Oil_Field).

The U.S. government began offering oil and gas leases in the Chukchi in the 1980s, but little exploration and no development occurred on them, and all these older leases have expired. A lease sale in 2008 prompted a new fight over offshore drilling in the Arctic. There is significant opposition to exploration/drilling in the area.

Environmental concerns include effects on wildlife, risks of a major spill, and effects on climate change. In July 2010, a federal judge halted exploration activities in the region (http://www.alaskajournal.com/Alaska-Journal-of-Commerce/July-2010/Judge-halts-oil-gas-development-on-Chukchi-Sea/), citing inadequacies in the Environmental Impact Statement (EIS). In August 2011, a revised version of EIS was made public (http://www.alaskadispatch.com/article/feds-move-forward-shells-arctic-offshore-plans) by the government, paving the way for exploration to proceed. Dramatic issues with Shell's exploration operations in 2012, including the grounding of drill rig Kulluk (http://www.adn.com/article/20140403/kulluk-grounding-coast-guard-report-finds-series-failures-questionable-decisions) in late 2012, halted exploration plans for two years. In August 2014 Shell announced new plans (http://www.adn.com/article/20140828/shells-new-chukchi-plan-two-rigs-drilling-wells-same-time) for exploration in summer of 2015.

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Chukchi Oil and Gas Leases

In 2008 the Federal government held an Outer Continental Shelf (OCS) lease sale in the Chukchi Sea for the first time since 1991, offering over 29 million acres (http://alaska.boemre.gov/lease/hlease/LeasingTables/lease_sales.pdf). The sale successfully auctioned off 2.7 million acres (http://alaska.mms.gov/cproject/Chukchi193/Chukchiindex.htm) of oil and gas leasing blocks in the Chukchi Sea and garnered over $2.6 billion, of which $2.1 billion was paid by Shell Gulf of Mexico Inc. (http://www.shell.us/home/content/usa/aboutshell/projects_locations/alaska/), and most of the rest by ConocoPhillips Company (http://www.conocophillips.com/Pages/default.aspx). The Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE) (http://www.mms.gov/), formerly known as the Minerals Management Service (MMS) and now broken into BOEM (http://www.boem.gov/) and BSEE (http://www.bsee.gov/), managed the sale. BOEMRE is responsible for managing and regulating oil and gas leases in all federal waters–those waters between the 3-mile state-owned line and the 200-mile exclusive economic zone. While many of these leases have been abandoned, Shell retains its claims, and the federal government is aiming for new lease sales in 2017 (http://www.adn.com/article/20140730/oil-companies-cooling-arctic-leases).

Numerous environmental organizations and local residents filed lawsuits in opposition to the sale. Earthjustice (http://www.earthjustice.org/), representing 15 environmental and native groups, alleged that the MMS had not sufficiently considered the environmental impacts of the lease sale, persuading a federal judge to order the a halt in exploration (http://www.alaskajournal.com/Alaska-Journal-of-Commerce/July-2010/Judge-halts-oil-gas-development-on-Chukchi-Sea/) in July 2010. As of 2014, drilling was still disallowed under an April 2014 injunction (http://www.latimes.com/nation/nationnow/la-na-nn-arctic-drilling-new-environmental-

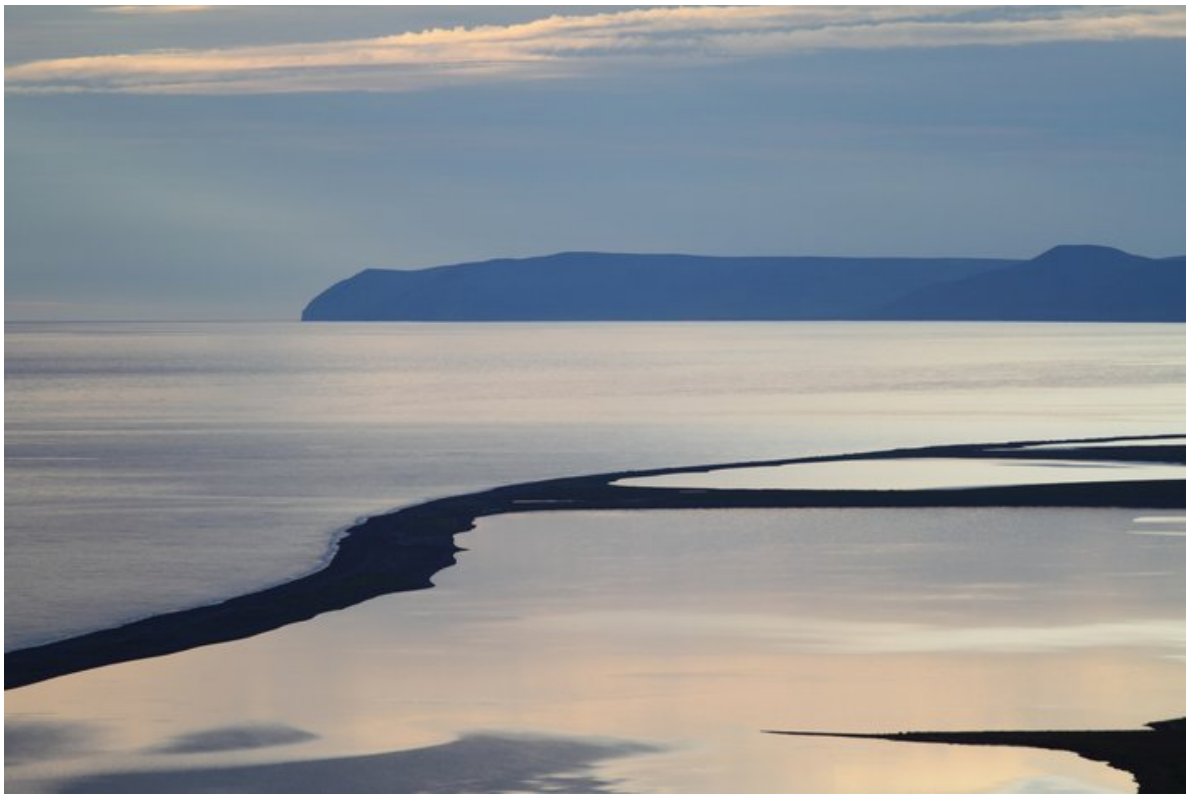
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report-20140424-story.html), however BOEM plans to deliver the required EIS by March (http://www.adn.com/article/20140828/shells-new-chukchi-plan-two-rigs-drilling-wells-same-time) 2015, clearing the way for Shell's 2015 drilling plans.

The MMS estimated (http://www.doi.gov/whatwedo/energy/ocs/QA_2012-2-17.cfm) the resources present in these future leases in the range of 0.15-12 billion barrels of oil and 0.5-54 trillion cubic feet of natural gas. The EIS that the MMS prepared for the lease sale only analyzed development of 1 billion barrels, the lower end of what is economically feasible. The minimal study was one reason cited in the 2010 injunction halting exploration on the leases.

While oil production on Alaska's North Slope began in 1977, all oil production to date has been on state lands and in nearshore waters of the Beaufort Sea.

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CHUKCHI COAST — The Chukchi Sea coast has long sections where ribbons of barrier spit enclose shallow lagoons, and other sections where cliffs drop straight into the sea. — Get Photo (/photos/chukchi-coast_1/)

Environmental Concerns

Concerns about drilling for oil and gas in the Chukchi Sea fall primarily into four categories:

- Direct impacts on wildlife
- Risk and impacts of a catastrophic spill
- Difficulty of cleaning up a spill in a remote and ice-choked ocean
- Effects on and from climate change

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Ice has historically made marine operations and logistics difficult in the Chukchi Sea. Response to oil spills and other accidents can be severely hampered by unstable or moving sea ice (as occurs in freeze-up and break-up), darkness, extreme cold, and strong winds. With the retreat of sea ice in recent years, drilling has become more feasible in the area.

The region has not permanennt major ports, tugboats, salvage vessels, or other major resonse assets. Infrastructure is very limited, without roads between settlements. Airports and harbors have limited facilities. Current drilling operations must be self-supported. This raises the concern that there are few available assets to respond to environmental accidents. Shell oil's Chukchi drilling plans (http://www.adn.com/article/20140828/shells-new-chukchi-plan-two-rigs-drilling-wells-same-time) were delayed 2012-2014 in part by difficulty in providing sufficient response forces.

Impacts on wildlife

A common objection (http://ak.audubon.org/chukchi-sea) to drilling and seismic exploration in the Chukchi Sea is that very little is understood about the ecosystems that are present there. It is known that the Chukchi Sea is an important breeding and/or feeding ground for bowhead whales, beluga whales, polar bears, walruses, and a huge variety of bird species (http://bwfov.typepad.com/birders_world_field_of_vi/2008/01/alaskas-importa.html). However, very little is understood about the populations of these animals, their interactions, and the wealth of smaller organisms that make up the food web and ecosystem. Our ignorance makes it very difficult to predict the impact of oil and gas resource development on wildlife. The EIS prepared by MMS for the 2008 lease sale noted the lack of data for many of the species of concern, and the recent court decision halting exploration in the Chukchi cited this as one of the primary objections

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to the sale–MMS noted the absence of information, but did not determine whether the information was necessary, or whether it could be obtained without exorbitant cost.

Several aspects of the Chukchi Sea ecosystem make it especially vulnerable to potential impacts of oil development. Many species in the region, like polar bears and bowhead whales, are long-lived with a low reproductive rate. Longevity makes them more vulnerable to toxin accumulation, and low fecundity means they are slower to recover population size after a disaster. Ecological activity is concentrated at ice edges and in narrow ice openings, where oil is expected to concentrate in the event of a spill. And arctic ecosystems are already under stress due to climate change.

Explorers for oil and gas often employ seismic surveys (http://en.wikipedia.org/wiki/Reflection_seismology), which can disturb bowhead whales and other marine animals. Bowhead whales will avoid areas of excessive noise from seismic surveys and vessel traffic, potentially abandoning important feeding and migration areas. Displacement could have an especially large impact during spring and fall migrations in the Chukchi, when bowheads are confined to a relatively narrow corridor. From the EIS for the lease sale:

> _"We note that the period of just a single 3-D seismic survey could be half or more of the bowhead Beaufort Sea open water autumn migration/ autumn feeding habitat use period. If another company or companies are interested in the same area (this is especially likely to occur in the Chukchi Sea evaluation area where there are no active leases) seismic survey activities could potentially exclude, through avoidance, bowhead whales from survey areas for the entire Beaufort Sea open-water autumn migration/autumn feeding period. .... Concentrations of loud noise and disturbance activities during the open-water period have the potential to cause large numbers of bowheads to avoid using areas for resting and feeding for long periods of time (days to months) while the noise producing activities continue."_

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Bowhead whales are unlikely to be the only species affected since for example both seals and dolphins also rely on sound for navigation. Displacement of all these species makes them less available to local hunters. This is particularly important for Inupiaq villages along the coast that subsist on these animals.

Risks of a spill

Drilling for oil and gas is more technically challenging offshore than on land, and the cleanup of spills is far more difficult. The 2010 Deepwater Horizon spill (http://en.wikipedia.org/wiki/Deepwater_Horizon_oil_spill) has garnered much media attention and political intervention, but it should also be noted that there have been 573 other offshore well blowouts or releases since 1955 (http://www.sintef.no/home/projects/sintef-technology-and-society/2001/SINTEF-Offshore-Blowout-Database/). Many of these were relatively small, but in total they have resulted in the spillage of many hundreds of thousands of tons of oil into the ocean.

Mediation of a large spill or blowout in the Chukchi Sea would be dramatically different from the response to the mess in the Gulf of Mexico in 2010. The nearest Coast Guard base is over 900 miles away and the nearest current oil company cleanup assets are also hundreds of miles away. There is almost no infrastructure along the northwestern Alaska coast; no deepwater ports, no large airports, few helicopters, limited accommodations for emergency responders, and many fewer boats to assist in a cleanup operation. The Chukchi Sea is often subject to violent storms, extreme temperatures, and gale force winds. It is covered by ice and darkness much of the year. Drilling of a “relief” well such as the ones undertaken for the Deepwater Horizon spill could be delayed for many months under these conditions, particularly in winter.

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CHUKCHI COAST BIRD ROOKERY — Towering spires and cliffs host giant rookeries on Cape Thompson. — Get Photo (/photos/chukchi-coast-bird-rookery/)

“We estimate the chance of a large spill greater than or equal to 1,000 bbl occurring and entering offshore waters is within a range of 33-51%. … If a large spill were to occur, the analysis identifies potentially significant impacts to bowhead whales, polar bears, essential fish habitat, marine and coastal birds, subsistence hunting, and archaeological sites.”

(from theEnvironmental Impact Statement (http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Environment/Environmental_Analysis/2007-026-Vol%20I.pdf) prepared by the then-MMS for the 2008 OCS lease sale)

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While the Federal government concludes that the risk of a “large spill” is quite high, they are still willing to accept the now-famous claim of both BP and Shell Oil (http://newsminer.com/view/full_story/7449457/article-Drilling-critics-warn-of-spill-in-Arctic-Ocean) that:

“A large oil spill, such as a crude release from a blowout, is extremely rare and not considered a reasonably foreseeable impact.”

In May 2011, the BOEMRE released a revised EIS (http://www.alaskadispatch.com/article/offshore-oil-regulators-say-chukchi-leases-ok?page=0,0) for the lease sale in which they estimated that a “large” spill could take up to 74 days to be contained and could release over 2 million barrels of oil. _

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Oil spill impacts

Research on past oil spills, including the Exxon Valdez (/Issues/AlaskaOilandGas/ExxonValdezSpill.html), have increased our understanding of the long term consequences of a spill. Oil has been shown to persist following a spill for decades and to continue to exert toxic effects. Recovery of affected organisms may be more difficult in the Arctic where many organisms are slow growing. Oil degrades (/Issues/AlaskaOilandGas/OilDegradation.html) more slowly in cold water; it would likely persist far longer than oil from spills like the Deepwater Horizon rupture.

Oil particularly impacts the eggs and larvae of many marine organisms. Fish may be affected for many generations after the spill, as was the case with salmon and herring after Exxon Valdez. Effects on critical species such as the Arctic Cod would have a major impact on the entire food web in the Chukchi Sea. Marine mammals are at risk through the oiling of fur and the inhalation of volatile compounds from

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the oil, which killed thousands of otters and hundreds of seals during the Exxon Valdez spill. Also at risk in the Chukchi Sea would be walruses, whales, and polar bears, all of which could suffer direct effects as well as long-term toxicity from the biomagnification (http://en.wikipedia.org/wiki/Biomagnification) of contaminants in their prey.

Climate change

Both the production and consumption of fossil fuels such as oil and natural gas result in increased atmospheric levels of carbon dioxide and other greenhouse gases. The effects of the resultant climate change are not felt equally in all places; the Artic is an area that is already seeing dramatic changes (/Issues/ClimateChange/ClimateChangePacificCoast.html) including coastal erosion, changing weather patterns, ocean acidification (/Issues/ClimateChange/OceanAcidification.html), melting permafrost, and retreating glaciers (/Issues/ClimateChange/GlacierRetreatInAlaska.html) and sea ice.

Within the arctic, scientists believe that warming may have an accelerating feeback loop (http://www.washington.edu/news/2014/07/29/huge-waves-measured-for-first-time-in-arctic-ocean/): as sea ice retreats, the exposed, dark ocean absorbs solar heat more efficiently than white ice. The ocean warms further, and ice melts more quickly. Likewise, larger expanses of open ocean allow larger waves to form, which in turn help break up sea ice. In September 2012, unprecedented 16-foot waves (http://onlinelibrary.wiley.com/doi/10.1002/2014GL059983/pdf) were measured in the nearby Beaufort Sea, at location which is believed to have been permanently covered by ice in the recent past.

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SHELL DRILLING SHIP — Shell Drilling Ship wintering in Seward after unsuccessful 2012 season.

— Get Photo (/photos/shell-drilling-ship_2/)

Timeline of Recent Developments

In January 2010, a multi-party lawsuit (http://www.earthjustice.org/news/press/2010/shell-oil-chukchi-sea-drilling-plans-challenged.html) was brought against the then-MMS, claiming that insufficient consideration had been given to environmental concerns during the Chukchi OCS lease sale.

In March 2010, the Obama Administration announced a new "Outer Continental Shelf Oil and Gas Strategy (http://www.doi.gov/whatwedo/energy/ocs/index.cfm)" which would encompass revisions to the old 5-year OCS plan already being modified under court order as a result of the ongoing lawsuits.

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In April 2010, the US Department of the Interior called for a halt (http://www.mcclatchydc.com/2010/04/14/92105/interior-dept-to-study-alaskas.html) on the proposed future lease sales, and announced a review of the scientific understanding of the region to be undertaken by the then-MMS and USGS. One week later, the Deepwater Horizon oil spill (http://en.wikipedia.org/wiki/Deepwater_Horizon_oil_spill) began.

Also in April 2010, the EPA granted air emission permits (http://yosemite.epa.gov/R10/airpage.nsf/Permits/chukchiap) to Shell oil to begin exploratory drilling of up to three wells located on the 2008 OCS leases. However, these permits have been appealed (http://www.ktuu.com/global/story.asp?s=12428056) by a coalition of local residents and environmental groups.

In May 2010, the 9th U.S. Circuit Court of Appeals struck down (http://www.alaskajournal.com/Alaska-Journal-of-Commerce/May-2010/Ninth-Circuit-upholds-MMS-approval-of-Shell-Arctic-drilling/) the January lawsuit against the then-MMS.

In June 2010, the Interior Department postponed (http://www.mms.gov/5-year/) the planned scoping meetings and comment period for the future OCS leases in light of the ongoing Deepwater Horizon spill (http://en.wikipedia.org/wiki/Deepwater_Horizon_oil_spill).

In July 2010, Shell Oil cancelled their 2010 exploration plans (http://www.adn.com/2010/07/11/1362725/shell-puts-arctic-drilling-plans.html) in the Chukchi Sea as a result of the offshore-drilling moratorium instituted by the Interior Department.

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Also in July 2010, a federal court injunction halted drilling activity (http://www.alaskajournal.com/Alaska-Journal-of-Commerce/July-2010/Judge-halts-oil-gas-development-on-Chukchi-Sea/) pending a revision of the EIS for the lease sale - citing lack of ecological data and a failure to consider development scenarios beyond 1 billion barrels. In August, this injunction was modified (http://www.alaskapublic.org/2010/08/09/shell-statoil-to-conduct-seismic-studies-in-chukchi-sea/) to allow Shell and Statoil to begin conducting seismic surveys in the area.

In October 2010, the nationwide moratorium on offshore drilling was lifted (http://edition.cnn.com/2010/US/10/12/drilling.moratorium/index.html?hpt=T2). At the same time the BOEMRE released (http://www.petroleumnews.com/pntruncate/495500876.shtml) a supplemental EIS that satisfied the July injunction against drilling in the Chukchi Sea, although it was quickly condemned (http://earthjustice.org/news/press/2010/feds-rush-incomplete-environmental-review-of-oil-and-gas-drilling-in-arctic-ocean-0) as a rush job by environmental groups.

In November 2010, the BOEMRE held a series of public hearings (http://classic.alaskajournal.com/stories/111110/oil_boem.shtml) throughout Alaska as part of the EIS revision process. Shortly after The Department of the Interior's U.S. Fish and Wildlife Service designated 187,000 square miles (http://www.theguardian.com/environment/2010/nov/25/polar-bear-alaska-critical-habitat) of the region as critical polar bear habitat, which may impact proposals to drill in the area.

In December 2010, Shell announced (http://www.alaskajournal.com/Alaska-Journal-of-Commerce/December-2010/Salazar-says-Interior-will-process-Shells-Beaufort-Sea-drilling-permit-for-2011/) that they were planning on focusing on their Beaufort leases for 2011. Also in December, the Interior Department announced (http://yubanet.com/

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usa/Big-Oil-moves-one-step-closer-to-drilling-in-the-Arctic-s-Chukchi-Sea.php) that the Chuckhi Sea leases were still be valid and would be honored.

In March 2011, the BOEMRE announced (http://www.google.com/hostednews/canadianpress/article/ALeqM5iXzO8_rbdDY1P1o_243klpZ1thpA?docId=6147640) that they were revising the EIS to include an analysis of a “large-scale” spill in the Arctic and hoped to have an initial release in May and a final release in October.

In May 2011, the BOEMRE announced revised estimates of the amount of economically recoverable oil in the Chukchi and Beaufort Seas. The Chukchi Sea is estimated to contain 11.5 billion barrels of oil and over 34 trillion cubic feet of natural gas.

Also in May 2011, a new EIS was released (http://www.alaskadispatch.com/article/offshore-oil-regulators-say-chukchi-leases-ok?page=0,0) for the 2008 lease sale. It discussed the impact of a large spill (74 days to contain and over 2 million barrels released). This review concluded that the 2008 lease sale was appropriate, no further studies were needed, and that development could proceed.

In July 2011 the EPA released draft air quality permits (http://yosemite.epa.gov/opa/admpress.nsf/0/8358789ab7d22891852578d50063c60a?OpenDocument) for ConocoPhillips to begin exploring the Chukchi Sea starting in 2013. This was followed by full approval (http://eponline.com/articles/2011/09/20/epa-issues-final-air-quality-permits-to-shell-for-arctic-oil-and-gas-exploration.aspx) in September 2011. The first legal appeal (http://abcnews.go.com/US/wireStory/groups-appeal-shell-air-permit-granted-epa-14805867) against the permits was filed in October 2011.

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In August 2011, the BOEMRE made public (http://www.alaskadispatch.com/article/feds-move-forward-shells-arctic-offshore-plans) the revised version of the EIS and opened the issue for public comment.

In November 2011, a group of Alaska Native groups and environmental organizations again filed suit (http://fuelfix.com/blog/2011/11/18/groups-file-again-to-block-chukchi-drilling/), arguing that the background studies were inadequate for the 2008 lease sale.

In December 2011 the BOEMRE issued a conditional permit (http://www.boem.gov/BOEM-Newsroom/Press-Releases/2011/press12162011.aspx) to Shell for drilling in the 2012 season.

In February 2012, the EPA issued air quality permits and the U.S. government issued approval of Shell Oil's spill response plans. This was followed by environmental lawsuits (http://www.businessweek.com/news/2012-02-23/shell-epa-permits-for-alaska-drilling-challenged-in-court.html) over the EPA permits as well as a pre-emptive lawsuit (http://www.foxnews.com/us/2012/03/01/shell-files-pre-emptive-offshore-drilling-lawsuit/) by Shell Oil.

In August 2012, Shell was approved (http://www.ogj.com/articles/2012/08/shell-gets-bsee-clearance-for-limited-chukchi-sea-activities.html) for very limited drilling in non-oilbearing regions only while the rest of their certification was being processed. At the same time Statoil, a Norwegian company, announced (http://www.adn.com/article/20120906/oil-company-delays-exploration-arctic-waters-alaska) that they would not proceed with drilling their Chukchi Sea leases until they had observed Shell's progress. Drilling by Shell commenced (http://www.latimes.com/news/nation/nationnow/la-na-nn-arctic-drilling-chukchi-shell-20120909,0,4913812.story) in September 2012 and ended (http://www.latimes.com/news/nation/nationnow/la-na-nn-

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arctic-shell-20120917,0,5228028.story) days later without reaching oil due to failures in their containment system. By the end of the season Shell had only (http://www.washingtonpost.com/business/economy/shells-alaska-drilling-season-falls-short/2012/10/31/db0bd9ca-2386-11e2-8448-81b1ce7d6978_story.html) drilled the tops of two wells. Further problems arrived in December when the drilling rig became grounded (http://www.huffingtonpost.com/2013/01/06/alaska-oil-rig-sitkalidak-island-weather_n_2421447.html) in rough weather.

By February 2013 the drilling rig was still grounded and the drilling ship itself was inoperable and needed to be dry-hauled to port (http://www.alaskadispatch.com/article/20130228/massive-lift-ship-arrives-seward-haul-troubled-noble-discoverer-drilling-vessel) in Asia. In March 2013 the Department of the Interior issued a report (http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&pageid=348469) that was highly critical of the 2012 drilling attempt by Shell. Not long after, ConocoPhillips announced (http://www.marinelink.com/news/conocophillips-drilling353378.aspx) that they would not drill in 2013 or 2014. Shell is currently working (http://seattletimes.com/html/businesstechnology/2020736649_apeurussiaarcticoil.html) with Gazprom to develop oil/gas field on the Russian side of the Chukchi Sea.

In September 2013 the BOEM announced (http://www.ogj.com/articles/2013/09/boem-seeks-data-for-possible-chukchi-sea-lease-sale-in-2016.html) they were researching the possibility of a lease sale in the Chukchi Sea in 2016.

In March 2014, a federal court ruled (http://www.alaskadispatch.com/article/20140122/appeals-court-rules-2008-chukchi-sea-lease-sale-fell-short-considering-oil-impacts) that the original 2008 sale did not adequately consider environmental impacts and should be

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reconsidered. This announcement was followed (http://www.platts.com/latest-news/oil/juneau/shell-official-says-issue-in-chukchi-sea-court-21152893) the decision by Shell to not drill during the 2014 season.

In July 2014 some of the leases were put into a suspended state (http://www.alaskajournal.com/Alaska-Journal-of-Commerce/July-Issue-3-2014/Clock-stopped-for-Shell-in-Chukchi-Sea/) due to ongoing legal action, however in August 2014 Shell filed exploration permits (https://www.indybay.org/newsitems/2014/09/02/18760991.php) for 2015. The proposed plan (http://www.adn.com/article/20140828/shells-new-chukchi-plan-two-rigs-drilling-wells-same-time) would entail two rigs drilling at the same time.

Popular lawsuits in November 2014 included one (ongoing (http://www.upi.com/Science_News/2014/11/12/Environmental-groups-sue-to-protect-Pacific-walrus/7021415827439/)) by environmental groups to block drilling because of walrus populations in the area and one (failed (http://arcticjournal.com/press-releases/1137/federal-court-tosses-shell-oil-companys-preemptive-suit-against-environmental)) lawsuit by Shell to preempt future litigation.

The revised SEIS was released (http://www.petroleumnews.com/pntruncate/4338716.shtml) by the BOEM in October 2014 and followed by a series of public hearings through early December. Shell submitted a drilling plan late in the year and in February 2015, the BOEM released proposed drilling rules (http://www.ktuu.com/news/news/interior-releases-proposed-drilling-rules-for-beaufort-chukchi-seas/31386730) for the Chukchi and Beaufort seas. Also in February, the federal government placed (http://www.adn.com/article/20150202/chukchi-sea-shoal-newly-closed-oil-leasing-well-known-biological-hot-spot) part of the Chukchi Sea off-limits to future leasing.

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While Shell obtained permits (http://www.desmogblog.com/2015/07/26/shell-gets-final-permits-begin-drilling-arctic) and then began drilling during summer 2015, the results were disappointing (http://www.bloomberg.com/news/articles/2015-09-28/shell-to-stop-exploring-offshore-alaska-on-regulations-costs) and Shell announced the closure of their Arctic drilling program. This was followed by the cancellation of the next lease sale (http://www.oilandgas360.com/interior-department-puts-alaska-offshore-lease-programs-on-ice/), and then by the pullout of Statoil (http://www.adn.com/article/20151117/statoil-withdraws-oil-exploration-alaskas-chukchi-sea-after-shell-pullout) who also held leases in the Chukchi Sea.

Further Reading

> Economic Analysis of Future Offshore Oil and Gas Development: Beaufort Sea, Chukchi Sea, and North Aleutian Basin. Report prepared for Shell Oil (2009) (http://www.iser.uaa.alaska.edu/Publications/Econ_Analysis_Offshore_O&GDevpt.pdf)

> Beaufort and Chukchi Sea Planning Areas. Draft Environmental Impact Statement. MMS (now BOEMRE) 2008 (http://alaska.boemre.gov/ref/EIS%20EA/ArcticMultiSale_209/_DEIS.htm)

> The Challenges of Oil Spill Response in the Arctic (2010). Prepared by The National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. (http://permanent.access.gpo.gov/gpo179/Working%20Paper.Arctic.For%20Release_0.pdf)

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> "Environmental Assessment: Shell Gulf of Mexico, Inc. 2010 Exploration Drilling Program; Burger, Crackerjack, and SW Shoebill Prospects Chukchi Sea Outer Continental Shelf, Alaska" report by Alaska OCS office (2009) (http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Environment/Environmental_Analysis/2009-061.pdf)

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