BROKEN PROMISE #4

The Winter-Only, Ice Road Fallacy

Tire marks from seismic testing conducted in winter remain visible on the tundra in summer.

Anne Gore

The Promise

Many oil development activities take place in winter months when animals are not around; roads and drill pads built from ice melt away in spring.

The Reality

Oil development occurs year-round and winter exploration and ice roads are not without impacts.

A common misperception about oil development on Alaska's North Slope is that it takes place only in winter and therefore has no impact on wildlife. Ice roads are cited as an example of how oil companies conduct business without damaging the fragile Arctic tundra. These claims not only overlook the fact that oil production requires permanent installations that operate year-round, but they also ignore the full scope of impacts that the oil industry has on wildlife and the environment, even in winter.

"Tussock tundra can be quite easily disturbed by ice road construction techniques [and] disturbance can be of long duration."[1]

Alaska Department of Natural Resources, 2007

Year-round impacts

Although oil exploration in Arctic Alaska is mostly restricted to winter months, once oil is discovered, efforts to recover it take place year-round. Construction, drilling and other operations carry on through every month and season,[2] with attendant vehicle and air traffic, noise and air pollution, and inevitable impacts to wildlife and the environment.

Ice roads

Although touted as such, ice roads are no panacea for development in fragile Arctic environments. According to the Alaska Department of Natural Resources, North Slope oil exploration and development consumed 1.5 billion gallons of water in 2000, mostly for ice roads and pads.[3] Pumping such massive amounts of water not only affects water balance, chemistry, aquatic organisms and fish,[4] but can also limit the ability to use ice roads. Already, in areas where water supplies are scarce, ice roads are not a practical option. At the same time, warming temperatures have reduced the number of days that ice roads can be used.[5] Since 1970, ice road use on the North Slope has been shortened from 204 to 124 days.[6]

Permanent gravel roads already cover more than 8,000 acres of America's Arctic,[7] including three miles and more planned at the Alpine oil field,[8] which industry promotes as a "roadless development." Permanent gravel roads remain a standard fixture on Alaska's North Slope and are likely to remain so as a result of water availability and climate change, which are making ice roads less practical.[9]

- ▷ Oil development activities take place year-round.
- ▷ Ice roads require massive water withdrawals.
- ▷ Most oil fields utilize permanent gravel roads.
- ▷ Seismic exploration disturbs fragile tundra, soil, and wildlife.

Subhankar Banerjee

Winter exploration

It is not feasible to use ice roads for 3-D seismic exploration,[10] which requires making multiple passes over land in a grid profile with a line spacing of a few hundred meters,[11] so large vehicles are driven directly across the tundra. Multiple trucks and a large crew of people are typically required to do this exploration work.[12] Fragile tundra soil and plants are easily compressed under the weight of these heavy vehicles, even in winter. Seismic lines are often visible on the Arctic tundra for years after exploration, and studies have shown that tundra plants can take decades to recover.[13]

During the spring of 2006 satellite images were used to monitor the Teshekpuk Lake Special Area for melting ice. During review of these images, scientists discovered that the satellite images could detect features on the landscape associated with winter oil exploration activity. "Focused analysis of the image time series revealed various aspects of the exploration process such as the grid profile associated with the seismic line survey as well as trails and campsites associated with the mobile survey crews."[14]

Oil spills are also a concern with seismic testing. According to WesternGeco, a seismic contracting company:

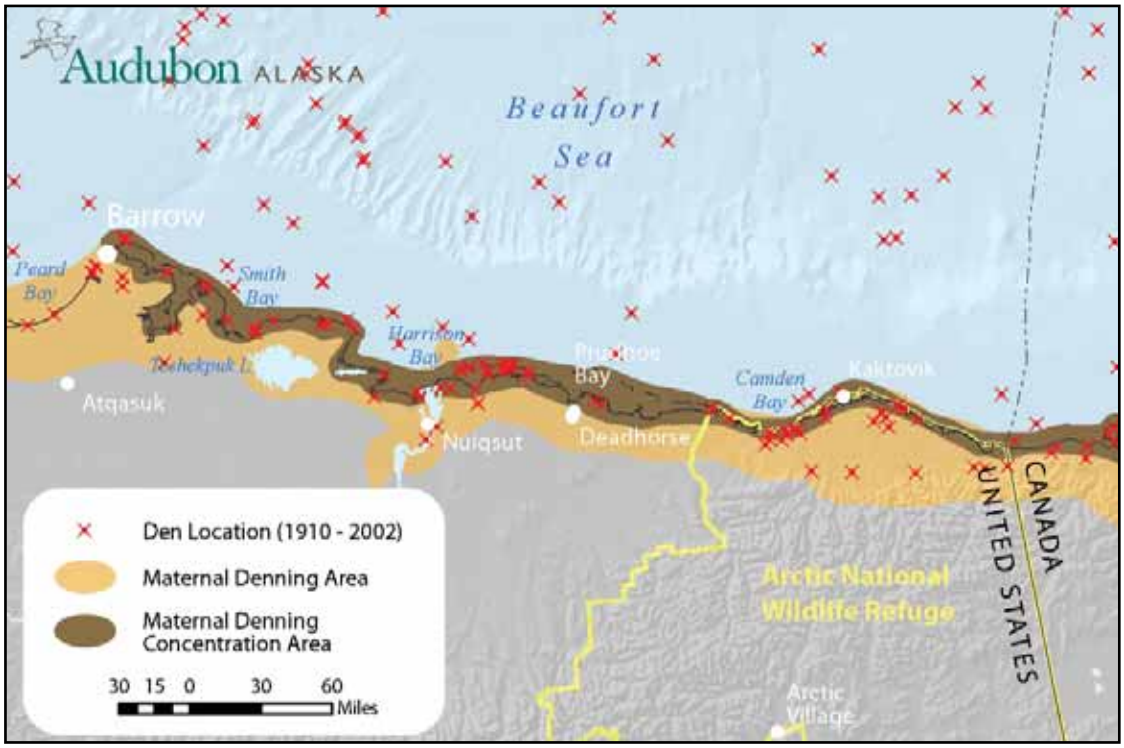
> *"With so many vehicles on hand, special care must be taken to avoid contaminating the snow with…spills of hydrocarbon-based product during refueling, maintenance and ordinary operation. A vibroseis truck circulates hydraulic oil at pressures of thousands of psi to power the vibrator. If a hose breaks, up to 150 liters [40 gal] of oil may escape."*[15]

Winter wildlife

Many species of fish and wildlife, including brown bears, polar bears, caribou, muskoxen, and Arctic cisco, remain in Alaska's Arctic all winter and are subject to impacts from exploration and other oil development activities.[16] Muskoxen, for example, frequently use habitats along or adjacent to rivers—locations that are likely to be gravel and water extraction sites for winter road construction.[17] When muskoxen encounter humans or vehicles, they may expend energy that they need to conserve during the long winter in order to successfully reproduce in spring.[18]

National Oceanic and Atmospheric Administration

Seismic exploration involves caravans of heavy trucks making multiple passes directly across the tundra.



Polar bear denning habitat. Source: Audubon Alaska. 2009. Draft atlas of Chukchi and Beaufort seas.

In 1985, a female polar bear, thought to be pregnant with her first litter, abandoned her den after seismic exploration vehicles tracked within 700 feet of it, although regulations required a half-mile buffer from known dens.[19] Onshore oil development impacts to polar bears in winter may become an increasing concern as sea ice habitat shrinks and these animals increasingly den onshore.[20]

As recently as February 2009, an ice road construction crew encountered a sleeping polar bear. While building the same 50-mile road, Exxon violated a water use permit when it extracted 28,000 gallons of fresh water from a river that is important to whitefish.[21] Less than 5% of stream habitat remains available to fish in winter,[22] making them especially vulnerable to water withdrawals and other oil development activities.

[1] Alaska Department of Natural Resources, 2007. North Slope Tundra Travel and Ice Road Construction. Presentation of the Alaska Climate Impact Assessment Commission. April 12, 2007. Anchorage, Alaska. http://housemajority.org/coms/cli/dnr_menefee_schultz.pdf

[2] U.S. Bureau of Land Management. (2004). Alpine satellite development plan: Final Environmental Impact Statement, Vol. 1. Table 2.3.10-1. Sec. 2, p. 53.

[3] National Research Council. (2003). Cumulative environmental effects of oil and gas activities on Alaska's North Slope. National Academies Press, p. 65.

[4] University of Alaska, Fairbanks. Tundra lakes project, overview. Retrieved July 20, 2009 from Alaska Center for Climate Assessment & Policy web site: http://www.uaf.edu/accap/research/tundra_lakes.htm.

[5] Smith, O.P., and W. B. Tucker. (2003, January 24). Start to plan for Arctic warming. Anchorage Daily News editorial. P. B-6.

[6] U.S. Bureau of Land Management. (2002). Environmental Assessment: EA: AK-023-03-008. National Petroleum Reserve-Alaska (NPR-A) Exploration Drilling Program Puviaq #1 and #2 Exploration wells. ConocoPhillips Alaska, Inc. p. 4-22.

[7] National Research Council, p. 156.

[8] U.S. Army Corps of Engineers Alaska District, Permit Evaluation and Decision Document, Alpine Development Project, Colville River 18 (2-960874), p. 2 (February 13, 1998); U.S. Army Corps of Engineers Alaska District, Colville River 17 (4-960869) to Nuiqsut Constructors (Alpine gravel pit) (June 24, 1997).

[9] U.S. Bureau of Land Management. (2008, November) Northeast National Petroleum Reserve-Alaska Final Environmental Impact Statement. Vol. 2, 4-463.

[10] Energy API. Updated march 10, 2009. New technology minimizes impact of arctic operations. Online article retrieved April 28, 2009 from: http://www.api.org/aboutoilgas/sectors/explore/newtechnology.cfm.

[11] National Research Council, p. 35.

[12] As one example, BP Exploration Alaska contracted WesternGeco to survey an area of 180 square miles and utilized a crew of 80 personnel and two fleets (5 trucks in each fleet) of rubber-tracked equipment. Source: Gibson and Rice, Oilfield Review p. 20. (Felix and Raynolds 1989; National Research Council, Jones et al).

[13] U.S. Fish and Wildlife Service. Seismic trails. Retrieved July 20, 2009 from Arctic National Wildlife Refuge website: http://alaska.fws.gov/nwr/arctic/seismic.htm.

[14] Jones, B., R. Rykhus, Z. Lu, C Arp and D. Selkowitz. (2008). Radar imaging of winter seismic survey activity in the National Petroleum Reserve-Alaska. Polar Record 44 (230): 227-231.

[15] Gibson, D. and S. Rice. (2003, Summer). Promoting environmental responsibility in seismic operations. Oilfield Review: Schlumberger Oilfield Review magazine (p. 21).

[16] National Research Council. p. 98, 123, 117.

[17] Reynolds, P.E., K.J. Wildson, and D.R. Klein. 2002. Muskoxen. Pp. 54-64 in: U.S. Geological Survey. 2002. Arctic Refuge Coastal Plain Terrestrial Wildlife Research Summaries. Biological Science Report USGS/BRD/BSR-2002-0001. p. 60, 62-63; National Research Council. p. 117.

[18] Reynolds, et al. (2002). In USGS. (2002). p. 60.

[19] Garner, G.W. and P.E. Reynolds. 1986. Arctic National Wildlife Refuge Coastal Plain Resource Assessment: Final Report, Baseline Study of the Fish, Wildlife, and their habitats. Section 1002c, ANILCA. U.S. Fish & Wildlife Service, Anchorage, p. 518. U.S. Fish & Wildlife Service now recommends a 1-mile buffer zone from denning polar bears.

[20] DeMarban, Alex. (2009, June 24). Polar bear appearances grow on oil fields. The Arctic Sounder.

[21] Loy, Wesley. (2009, February 11). Exxon violates water-use permit on North Slope. Anchorage Daily News. P. A-3.

[22] National Research Council, p. 123.