



Development versus conservation in Alaska's Arctic wilderness: the case of the oil and gas industry

Introduction

The Arctic wilderness areas of Alaska are facing potential dramatic new changes as a result of the rising world price of oil and gas (Fig. 1). In Autumn 2003 the world price of standard crude oil was \$25 per barrel. By July 2006 the price had risen to \$75 per barrel but by late 2007 the price had rocketed to over \$99 per barrel. These dramatic price rises have triggered a renewed search for 'politically safe' oil and gas deposits on US soil. These deposits would help to reduce the US dependence on imported oil and gas. Alaska is already an important oil producing area, from the oil wells on the North Slope region, centred on Prudhoe Bay. It is likely that there are further deposits in the area, although they would be expensive to extract and transport, but some drilling has already taken place. Now that world oil prices have risen so sharply there is renewed interest amongst the oil companies in further exploration in Alaska's wilderness areas.

The North Slope oil field lies close to the Arctic coast of Alaska. Nearby is the Arctic National Wildlife Refuge. This is a 19 million acre expanse of wilderness in the north-east corner of Alaska (Fig. 2) It has been in the spotlight in recent years as the centre of a battle between conservationists and the oil and gas industry. However there is also a less well known but equally bitter battle between the oil and gas industry and conservationists in an area further west called the Western Arctic Reserve (WAR).

Fig. 1 Oil prices 2006-08.

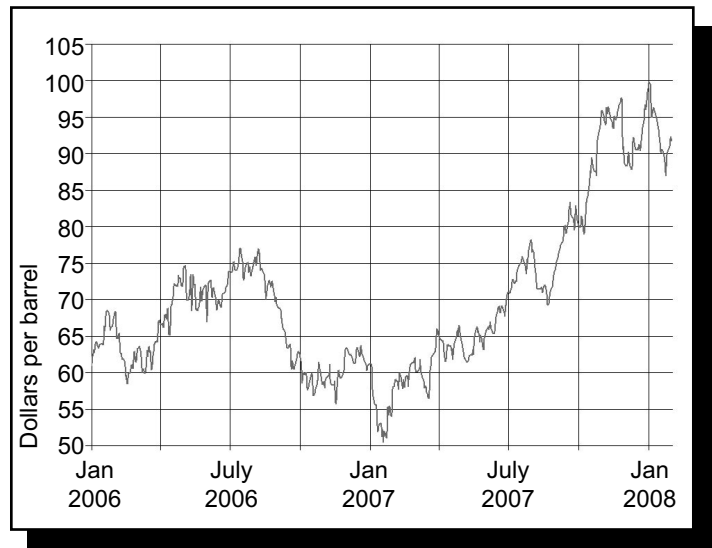


Fig. 2 Alaska's oilfields.

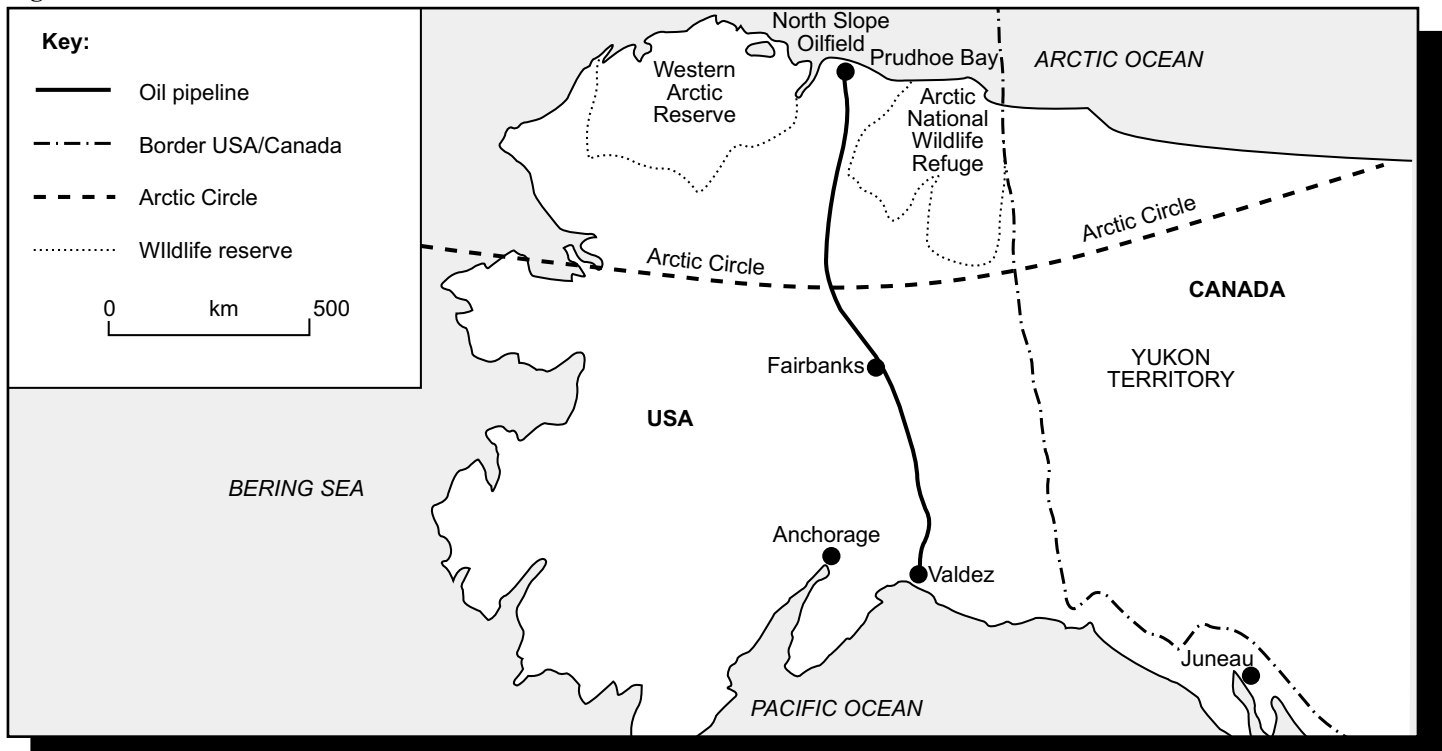
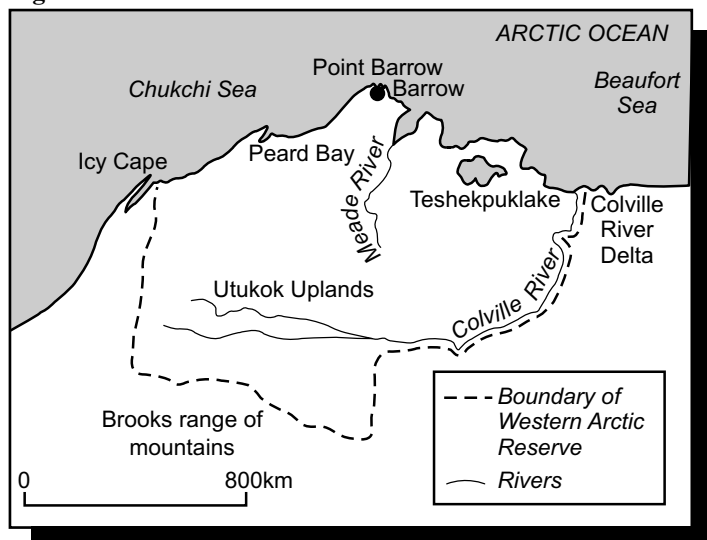


Fig. 3 The Western Arctic reserve.



The Western Arctic Reserve used to be called the National Petroleum Reserve because in 1923 it was designated by the US Congress as an area of strategic oil and gas reserves which the nation could draw on in a time of national emergency such as a war. It is a wilderness area which stretches across the north-west portion of Alaska's Arctic. This is America's largest single block of unprotected wilderness. It consists of two main ecologically distinct but interrelated regions. The northern area includes the Arctic coastline and includes a huge wetlands complex around Teshekpuk Lake (Fig. 3). The second area, to the south is higher and contains the foothills of the Brooks Range, the Utukok uplands and the Colville River. The northern region is one of a vast network of coastal lagoons, wet sedge grass meadows and braided streams. A quarter of the world's population of the Pacific Black Brant Goose use this area, as well as the threatened Steller's Eider Duck. It is a region of pristine wetlands which are the summer habitat for millions of migrating birds, as well as larger animals such as moose, caribou, wolves and brown bears. The southern region has the world's highest numbers of peregrine falcons, gyrfalcons and rough-legged hawks. It has the largest herd of caribou (430,000) in Alaska and this is the main migration route for the caribou from north to south.

The WAR is also home to groups of native Americans who live in villages across the region, and depend on the wildlife for food, clothing and shelter.

The marine environment offshore from the WAR is rich in spotted seals and the endangered bowhead whale. The Kasegaluk Lagoon fronts the Chukchi Sea and is one of the largest coastal barrier systems in the world. It is important for polar bears and migrating waterfowl as well as 3500 beluga whales which gather here to bear and feed their young. In other words WAR is an area of outstanding conservation value, and an extremely fragile and vulnerable area.

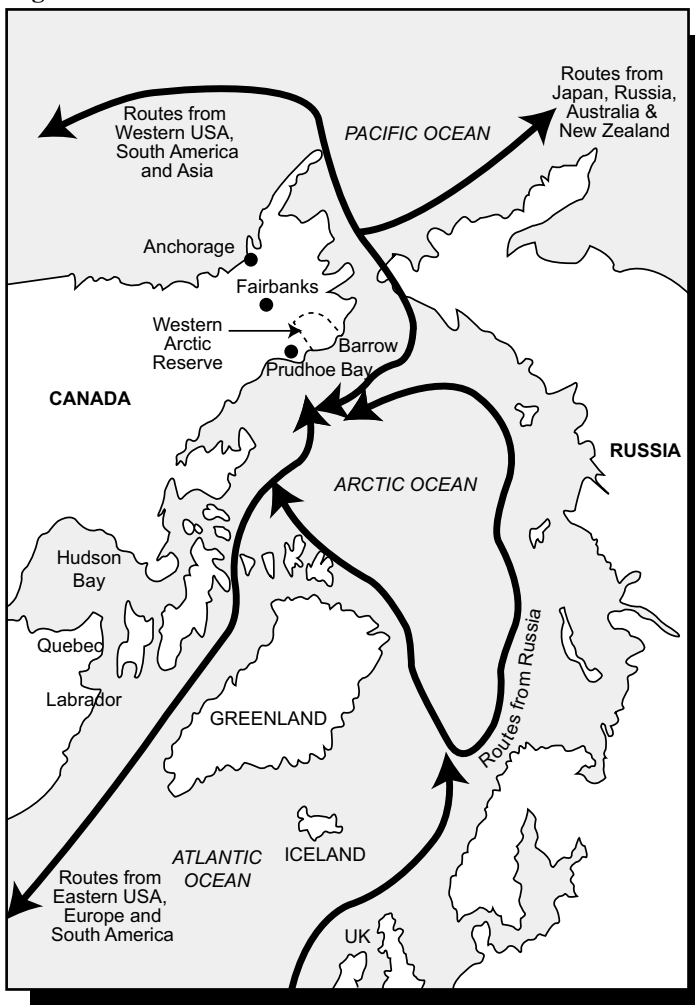
What are the recent threats?

- Despite the environmental and ecological importance of the WAR the area has little protection because of the need to retain it as an area to be developed in an emergency. Since 1999 oil companies have been lobbying the Bureau of Land Management, which manages this area for leases to drill for oil and gas. A few "Special Areas" were established in places such as Teshekpuk Lake but these are now being largely ignored in the scramble by oil companies to gain leases on large areas for drilling.
- As oil and gas resources in the nearby Prudhoe Bay development on Alaska's North Slope start to decline, and as the price of oil rises to nearly \$100 per barrel the oil industry is desperate to develop more

resources on US soil. Now oil companies hold leases on over 80% of the WAR and are drilling test wells to establish if there are substantial deposits of oil and gas. Similarly Shell and other companies are keen to drill test wells offshore in the Beaufort Sea, the Chukchi Sea (Fig. 3) and the nearby Arctic National Wildlife Refuge (ANWR). The US Geological Survey estimates that there are 11.6 billion barrels of economically recoverable oil at \$90 per barrel within the WAR. Americans currently use 7.2 billion barrels of oil per year, so all the oil in the WAR would only sustain the USA for about 18 months (and it would take the best part of 10 years before oil recovery started in earnest).

"It makes no sense to industrialise this incomparable wilderness area when there's so little economically recoverable oil in the entire Western arctic Reserve," Chuck Clusen Press Secretary, Natural Resources Defense Council, New York.

Fig. 4 Possible Arctic Ocean routes.



- There has been a recent (2007) successful navigation of the north-west passage, which is a sea route from the Atlantic Ocean to the Pacific Ocean across the north of the American continent. This has been made possible by the impact of global warming, which is causing the sea ice which used to close this sea route for nine months of the year to melt earlier. So now the oil companies are looking at the possibility of bringing oil tankers to the arctic and transporting the oil and gas from northern Alaska to the rest to the USA and Canada by sea. Already in 2007 Shell was able to assemble a small armada of ships and emergency craft to prepare for the drilling season, which now lasts for 90 to 120 days in the summer.

What are the main environmental threats from oil and gas exploration in the area?

- On the land oil production will require miles of new roads (one estimate is 280 miles) new drilling pads, pipelines, pumping stations and airports. All these will damage the fragile arctic ecosystems, leading to a loss of habitat, fish and wildlife
- The drilling pads would require massive quarrying of local rivers to produce gravel for construction sites, again leading to a loss of important riverine ecosystems. The quarrying would create huge holes in the landscape, as well as interfering with both the permafrost and the natural drainage systems.
- Rivers in the area flow north into the Arctic Ocean. Pollution of these rivers and streams by oil or drilling mud would spread quickly to the ocean itself.
- Drilling creates about 40,000m³ of oily waste per well. This has to be disposed of so pits would need to be dug in the sands and gravels. However the waste may seep through the sand and into water supplies, as well as killing local fish and birds.
- The area would produce over 50,000 tons of nitrous oxides which contribute to both acid rain and global warming.
- Oil spills on land are hard to clean up and would again kill wildlife, plants, insects and animals
- Oil spills from drilling rigs at sea in this frozen area are extremely difficult to clean up, and would lead to massive damage to the marine ecosystems
- Oil drilling at sea would disturb the Beluga whales who would be forced to change their migration routes and this would mean that the local Inupiat people would be deprived a mainstay of their lives
- Drilling on land would also force a change to the migration pattern of the massive caribou herds, leading to the potential loss of thousands of animals and again the livelihood of native peoples.
- Other animals which would be severely disrupted by drilling activities are the polar bears. The Beaufort and Chukchi Seas together are known as the Polar Bear Seas and with the polar bears at Teshekpuk Lake these groups form over 20% of all the world's polar bears. They would be forced to change their patterns of life, particularly with regards to feeding patterns and areas used to bear their young, with the large scale drilling operations.
- Several native villages are located close to the Arctic Ocean both within and close to WAR. These people practice traditional lifestyles and rely for subsistence purposes on local wildlife, such as seals, walrus, Bowhead and beluga whales, fish and birds.

Other threats in the areas around the Western Arctic Reserve

Just to the east of the WAR, there is an alpine oil field in the delta area of the Colville River. The oil was discovered here in 1994 and production began in 2000. This area is cited by the US government as an example of environmentally responsible exploration and development. This is because development uses directional drilling and ice roads instead of permanent roads and bridges. However, the US government may be about to approve the construction of 25 miles of permanent roads, airstrips, drilling pads and bridges. These developments could threaten the endangered Bowhead Whale colony which migrates past this area every spring.

Conclusion: What future for WAR and the Arctic Seas?

As long as the oil price remains high (over \$50 per barrel) the oil companies will continue to drill wells to establish the extent of any oil and gas fields in both WAR and the seas around it. It seems likely that in the next 20 years the oil and gas deposits of this part of Alaska may be developed in order to try to make the USA less dependent on imported oil and gas. This would be a strategic as well as economic decision. The results for wildlife and the environment could be severe. However, pressure from the numerous environmental and wildlife groups in the USA might prevent his happening as would a fall in the world oil price to around \$30 per barrel. So watch the news. Equally, the opening up of the Arctic seas may lead to pressures on other resources such as minerals and fish.

Useful websites

- www.arcticgems.org
- Alaska Conservation Foundation www.akcf.org
- Alaska Friends of the Earth www.alaska.net
- Alaska Wilderness League www.alaskawild.org
- Alaska Wildlife Alliance www.alaska.net
- Arctic Network www.igc.apc.org
- Earthjustice Legal Defense Fund www.earthjustice.org
- Greenpeace Alaska www.greenpeace.org
- National Audubon Society www.audubon.org
- National Parks and Conservation www.npca.org
- National wildlife federation www.nwf.org
- Oilwatch Alaska www.alaska.net
- Sierra Club Alaska www.sierraclub.org
- The Wilderness Society www.tws.org

Glossary	
Ecology	The study of life forms in their natural environment and the relationships between them.
Ecosystem	A community of plants, animals, insects and other organisms and the environment in which they live and react with each other.
Braided streams	Streams which split into many smaller streams, often as they near a coast or a lake
National Petroleum Reserve	Area of north western Alaska that in 1932 was designated by the US Congress as a region where reserves of oil and gas were believed to exist and which would be a strategic reserve to be used in times of oil shortage.
Oil Leases	Permits that allow companies to prospect for oil and gas and to drill test wells
Wetlands	Areas of marsh, bog and water
Wilderness	Wilderness is defined in the USA by the 1964 Wilderness Act as being areas which are: <ul style="list-style-type: none"> • mainly affected by the forces of nature (not human activity) • possessing excellent opportunities for solitude • Underpopulated and underdeveloped • Over 2,000 hectares • Protected and managed to allow natural ecological processes to operate freely • Often containing ecological, geological or other features of scientific, scenic, educational or historical interest

Acknowledgements

This Factsheet was written and researched by David Flint who is Head of Primary Teacher Education at the University of Worcester. He is a geographer who is a well-known author. Curriculum Press, Bank House, 105 King Street, Wellington, TF1 1NU. Tel. 01952 271318. Geopress Factsheets may be copied free of charge by teaching staff or students, provided that their school is a registered subscriber. No part of these Factsheets may be reproduced, stored in a retrieval system, or transmitted, in any other form or by any other means, without the prior permission of the publisher. ISSN 1351-5136