Environmental Case Study
Exploiting Oil in ANWR

A narrow strip of coastal plain in Alaska’s Arctic National Wildlife Refuge (ANWR) presents one of nature’s grandest spectacles as well as one of the most contentious environmental battles in recent years (fig. 1). For a few months during the brief arctic summer, the tundra teems with wildlife. It is the calving ground of the 130,000 caribou of the Porcupine herd; a nesting area for millions of snow geese, tundra swans, shorebirds, and other migratory waterfowl; a denning area for polar bears, arctic foxes, and arctic wolves; and a year-round home to about 350 shaggy musk ox.

Figure 1 The Trans-Alaska pipeline is conveniently located to transport oil from the Arctic National Wildlife Refuge.

The coastal plain may also be the site of the last big, onshore, liquid petroleum field in North America. Although only limited exploratory drilling has been permitted in the refuge, geologists estimate that it may contain as much as 12 billion barrels of oil and several trillion cubic feet of natural gas, mostly in small, isolated deposits. Can we extract these valuable fossil fuels without driving away the wildlife and polluting the pristine landscape? The oil industry believes it can access resources without doing lasting environmental harm; biologists and environmentalists doubt this is so.

Conservationists argue that oil drilling would do irreparable harm in this fragile arctic environment. They claim that excavating gravel for drill pads and pumping millions of gallons of water for ice roads would destroy wetlands on which wildlife depend for summer habitat. The noise and odors of up to 700 workers and their vehicles, construction equipment, drill rigs, helipads, and giant power-generating turbines could drive away wildlife. Pointing to the problems of other arctic oil drilling operations where drilling crews dumped garbage, sewage, and toxic drilling waste into surface pits, environmentalists predict disaster if drilling is allowed in the refuge. Pipeline and drilling spills at Prudhoe Bay have contaminated the tundra and seeped into waterways. Scars from bulldozer tracks made 50 years ago can still be seen clearly today.
Oil company engineers, on the other hand, claim that old, careless ways are no longer permitted in their operations. Wastes now are collected and either burned or injected into deep wells. Heavy equipment is hauled to the sites during the winter when most wildlife is either absent or hibernating. Modern directional drilling will allow up to 50 wells to be placed on a single pad, greatly reducing land impacts. The native people of Alaska are divided on this issue. Inupiat people, many of whom work in the oil fields, and who will benefit from oil royalties, generally favor oil development. The Gwich’in people, most of whom live south of the Brooks Range (and therefore don’t work in the oil fields or get oil royalties), and who still depend on caribou for much of their diet, oppose drilling.

In total, ANWR contains about 7.9 million ha (19.6 million acres) of land, but it’s the 600,000 ha of coastal plain where all the oil is thought to be and where the most crucial caribou calving grounds are located (fig. 2). When the wildlife refuge was expanded to its present size in 1980, Congress exempted this “1002 area” (called that because of the section of the bill designating it) and reserved it for possible future oil exploration. Although the coastal plain represents less than 10 percent of the refuge, biologists worry that industrial activity there may frighten away the caribou and jeopardize calving success. It may not take very many years of calving failure to doom the whole herd.

Figure 2 Alaska’s Arctic National Wildlife Refuge is home to one of the world’s largest caribou herds as well as 200 other wildlife and plant species.

The amount of economically recoverable oil in ANWR depends not only on geology but also on market prices and shipping costs. At current wholesale prices of $60 (U.S.) per barrel, the U.S. Geological Survey estimates that about 7 billion barrels could be extracted profitably from ANWR. If prices drop back below $20 per barrel, where they were in the early 1990s, the economic resource might be less than a billion barrels, or only about 2 months supply at current consumption rates. Under the most optimistic
scenarios, it will take at least a decade to begin to get this oil to market, and the peak production rate will probably be about one million barrels of oil per day in 2030. Conservationists point out that improving the average fuel efficiency of American cars and light trucks by just one mile per gallon would save more oil than is ever likely to be recovered from ANWR, and it would do so far faster and cheaper than extracting and transporting arctic oil. Furthermore, because there are few ports on the U.S. West Coast to receive ANWR oil, it will probably be sent to China or Japan, helping meet their demands, but doing little for us.

Oil companies have been pressing to drill in ANWR for 25 years. As oil supplies have dwindled in adjacent Prudhoe Bay and the oil revenues on which the state of Alaska has come to depend have shrunk, the pressure for drilling has mounted. Opening of the National Petroleum Reserve east of Prudhoe Bay to oil leases in 1998 didn’t eliminate pressures on ANWR.

In 2005, the Republican-controlled Congress passed an energy bill that authorized ANWR oil exploration. Citing rising gasoline prices and our growing dependence on foreign oil, supporters of this bill claimed that drilling in ANWR is essential for maintaining a strong economy. Conservationists agree that we need independence from foreign oil, although they’d generally prefer that our energy come from sustainable sources such as solar and wind power. What do you think? Can we have all the energy we want and still have a tolerable environment? Will drilling in Alaska give us a stopgap while we develop other resources, or will it just postpone that development?