

from the area, further reducing the likelihood of impacting the population.

To date, large oil spills from Industry activities in the Beaufort Sea and coastal regions that have impacted polar bears have not occurred, although the development of offshore production facilities has increased the potential for large offshore oil spills. In a large spill (e.g., 3,600 barrels: the size of a rupture in the Northstar pipeline and a complete drain of the subsea portion of the pipeline), oil would be influenced by seasonal weather and sea conditions. These would include temperature, winds, and, for offshore events, wave action and currents. Weather and sea conditions would also affect the type of equipment needed for spill response and how effective spill cleanup would be. For example, spill response has been unsuccessful in the cleanup of oil in broken ice conditions. These factors, in turn, would dictate how large spills impact polar bear habitat and numbers.

The major concern regarding large oil spills is the impact a spill would have on the survival and recruitment of the Southern Beaufort Sea polar bear population. Currently, this bear population is approximately 2,200 bears. The most recent population growth rate was estimated at 2.4 percent annually based on data from 1982 through 1992, although the population is believed to have slowed its growth or stabilized since 1992. In addition, the maximum sustainable harvest is 80 bears for this population (divided between Canada and Alaska). In Alaska, the annual subsistence harvest has fluctuated around 36 bears. The annual subsistence harvest for the Southern Beaufort Sea population (Alaska and Canada combined) has been approximately 62 bears.

The bear population may be able to sustain the additional mortality caused by a large oil spill of a small number of bears, such as 1–5 individuals; however, the additive effect of numerous bear deaths (i.e., in the range of 20–30) caused by an oil spill or secondary effects of the spill caused through a local reduction in seal productivity or scavenging of oiled seal carcasses coupled with the subsistence harvest and other potential impacts, both natural and human-induced, may reduce population rates of recruitment and survival. The removal rate of bears from the population would then increase higher than what could be sustained by the population, potentially causing a decline in the bear population and affecting bear productivity and subsistence use.

Actual Impacts of Oil and Gas Industry Activities on Pacific Walrus and Polar Bears

Pacific Walrus

The actual impact to Pacific walrus in the central Beaufort Sea from oil and gas activities has been minimal. From 1994 to 2000, only three Pacific walrus were encountered in the Beaufort Sea. All were sighted during open-water seismic programs.

Polar Bear

Actual impacts on polar bears by the oil and gas industry during the past 30 years have been minimal as well. Polar bears have been encountered at or near most coastal and offshore production facilities, or along the roads and causeways that link these facilities to the mainland. During this time, only 2 polar bear deaths related to oil and gas activities have occurred. In winter 1968–1969, an industry employee on the Alaskan North Slope shot and killed a polar bear. In 1990 a female polar bear was killed at a drill site on the west side of Camden Bay. In contrast, 33 polar bears were killed in the Canadian Northwest Territories from 1976 to 1986 due to encounters with industry. Since the beginning of the incidental take program, including measures that minimize impacts to the species, no polar bears have been killed due to encounters associated with current Industry activities in the Prudhoe Bay area (Alpine to Badami).

The majority of actual impacts on polar bears have resulted from direct human-bear encounters. Monitoring efforts by Industry required under previous regulations for the incidental take of polar bears and walrus have documented various types of interaction between polar bears and Industry. During a 7-year period (1994–2000), while incidental take regulations were in place, Industry reported 258 polar bear sightings. During this period, polar bears were sighted during 32 of the 115 activities covered by incidental take regulations. Approximately two-thirds of the sightings (171 of 258 sightings) occurred during production activities, which suggests that Industry activities that occur on or near the Beaufort Sea coast have a greater possibility for encountering polar bears than other Industry activities. Sixty-one percent of polar bear sightings (157 of 258 sightings) consisted of observations of polar bears traveling through or resting near the monitored areas without a perceived reaction to human presence, while 101 polar bear sightings involved bear-human interactions.

Twenty-one percent of all bear-human interactions (21 of 101 sightings) involved anthropogenic attractants, such as garbage dumpsters and landfills, where these attractants altered the bear's behavior. Sixty-five percent of polar bear-human interactions (66 of 101 sightings) involved Level B harassment to maintain human and bear safety by preventing bears from approaching facilities and people. We have no indication that these types of encounters that cause this type of minor alteration of the behavior and movement of individual bears have any long-term effects on those bears, related to recruitment or survival. We, therefore, believe that the small number and types of encounters anticipated to occur between polar bears and Industry are unlikely to have any significant effect on the polar bear population.

Risk Assessment Analysis

For Pacific walrus and polar bears, oil spills are of most concern when they occur in the marine environment, where spilled oil can accumulate at the water surface and ice edge, in leads, and similar areas of importance to marine mammals. Thus, offshore production activities, such as Northstar, have the potential to cause negative impacts on marine mammals because as additional offshore oil exploration and production occurs, the potential for large spills increases.

Due to the concern of a potential offshore oil spill, a risk assessment was performed to investigate the probability of mortality in polar bears due to an oil spill and the likelihood of occurrence in various ice conditions. Pacific walrus were not included in the risk assessment due to a lack of data regarding walrus abundance and distribution in the Beaufort Sea and because small numbers are present only seasonally in the Beaufort Sea.

The Northstar production field was used as a basis for the assessment because Northstar is currently the only offshore production field not connected to the mainland and serviced by an island. Northstar transports crude oil from a gravel island in the Beaufort Sea to shore via a 5.96-mile buried subsea pipeline. The pipeline is buried in a trench in the sea floor deep enough to reduce the risk of damage from ice gouging and strudel scour (i.e., erosion to the sea floor caused by large volumes of water siphoning at high velocities through openings in the sea ice resulting in unstable pipeline bedding). Production of Northstar began in 2001, and currently 70,000 barrels of oil pass through the pipeline daily.