

result of an oil spill from Industry activities, is low.

B. Polar Bear

Polar bears could encounter oil spills during the open-water and ice-covered seasons in offshore or onshore habitat. Although the majority of the Southern Beaufort Sea polar bear population spends a large amount of its time offshore on the pack ice, it is likely that individual bears will encounter oil from a spill regardless of ocean conditions.

Small spills (1–50 barrels) of oil or hazardous wastes throughout the year by Industry activities could impact small numbers of bears. As stated previously, the effects of fouling fur or ingesting oil or wastes, depending on the amount of oil or wastes involved, could be short term or result in death. In April 1988, a dead polar bear was found on Leavitt Island, approximately 9.3 km (5 n mi) northeast of Oliktok Point. The cause of death was determined to be poisoning by a mixture that included ethylene glycol and Rhodamine B dye; however, the source of the mixture was unknown.

During the ice-covered season, mobile, non-denning bears would have a higher probability of encountering oil or other production wastes than denning females. Current management practices put in place by Industry attempt to minimize the potential for such incidents by requiring the proper use, storage and disposal of hazardous materials. In the event of an oil spill, it is also likely that polar bears would be deliberately hazed to move them away 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 (*i.e.*, 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 clean-up would be. For example, spill response has been unsuccessful in the clean-up 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% annually based on data from 1982 through 1992, although the population is believed to have slowed their 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. The additive effect, however, of numerous bear deaths (*i.e.* in the range of 20–30) caused by an oil spill coupled with the subsistence harvest and other potential impacts, both natural and human-induced, may reduce 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 Industry Activities on Pacific Walrus and Polar Bears

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

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 between 1976 to 1986 due to encounters with industry. Since the beginning of the incidental take program, 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 encounters that alter 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 of encounters anticipated to occur between polar bears and Industry are unlikely to have any significant effect on the polar bear population.

We conclude that it is unlikely that large numbers of polar bears will be taken by Industry in the future based on the proceeding information. Based on this discussion, any take reasonably likely to or reasonably expected to be caused by routine oil and gas activities will not result in more than a negligible impact on this species.

Risk Assessment Analysis

For marine mammals oil spills are of most concern when they occur in the marine environment, where spilled oil can accumulate at the water surface, ice edge, in leads, and similar areas of importance to marine mammals. Thus, offshore production activities, such as Northstar, have the potential to cause