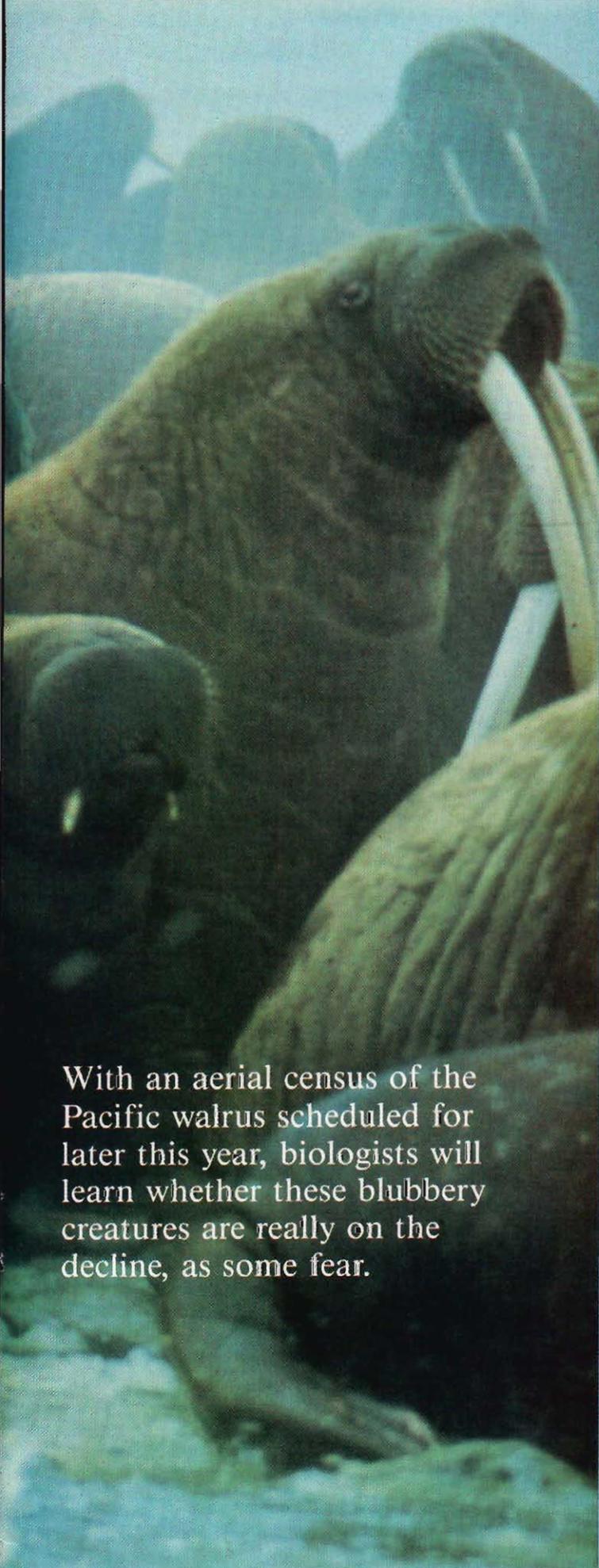


Pacific Walrus — Boom or Bust?

by Lloyd Lowry



With an aerial census of the Pacific walrus scheduled for later this year, biologists will learn whether these blubbery creatures are really on the decline, as some fear.

K. Frost

The walrus, perhaps more than any other species, represents the northern seas. Many people aren't sure whether polar bears live at the North Pole or the South Pole, but nearly everyone associates walruses with the icy waters off Alaska, Greenland, northern Canada, and Siberia. This is due, at least partly, to their conspicuous size and great abundance in some areas, factors that have been important in shaping the relationship between walruses and people, a relationship that years ago threatened the survival of the species. Now, after years of recovery from overharvesting, the Pacific walrus may have entered a new period of decline.

Eskimos were probably the first people to learn to hunt and utilize walruses. The dependence of some villages on these creatures became so great that a poor walrus harvest could mean famine and death for the residents. The number of walruses taken by early hunters was limited by need, hunting technology, weather, and ice conditions, and it is likely that early subsistence harvests had little effect on the walrus population.

This situation changed drastically in the mid-1700s with the arrival of Russian entrepreneurs (*promyshelniks*). In addition to cargoes of furs (from sea otters, fur seals, and foxes), Russian companies acquired nearly 500,000 lbs. of walrus ivory during the period from 1743 to 1860. In those early days, walruses were hunted mostly in Bristol Bay, along the Kamchatka coast, and from islands such as the Pribilofs and Hall Island, areas where bull walruses hauled out during summer. Huge herds were decimated at some of the haulouts causing the walruses to abandon them.

In the mid-1800s, the walrus fell victim to an even more effective group of hunters when the Yankee whalers, who had previously hunted walruses with harpoons and lances, began using firearms. The catch, as well as the number of animals wounded or killed but not retrieved, rose steeply. Perhaps most importantly, the whalers hunted in pack ice north of the Bering Strait where herds of females and young spend the summer months. Historical records indicate that the whalers killed about 140,000 walruses during the period from 1848 to 1914, with as many as 35,000 taken in a single year. This caused a serious decline in the entire walrus population, perhaps the first in history. When the bowhead whaling industry collapsed and the Yankee whalers sailed elsewhere, Pacific walruses were given partial relief from the relentless exploitation.

Eskimo harvests continued for subsistence and for ivory, which they exchanged with arctic traders for manufactured goods. The traders, mostly Americans, Canadians, and Norwegians, bartered for furs and ivory and also hunted walrus as a sideline. The results of this continued harvest are unclear. The easily accessible herds of males that summered south of the Bering Strait, already greatly reduced by the whalers, were virtually eliminated by the traders. The traders didn't hunt in the pack ice and, therefore, they harvested few females and subadults. This may have allowed some recovery of the population after about 1920. However, government-supported hunting of walruses, which was begun in 1931 by the Soviet Union, halted any increase and probably caused a further decline in numbers. These Soviet hunters, in combination with traders

and Eskimos, killed as many as 16,000 animals per year in the 1930s. By the mid-1950s, a great depletion of the walrus population had become apparent.

Recognition of the plight of the Pacific walrus sparked the beginning of research and management efforts. Independent and cooperative programs were developed by the governments of the United States and Soviet Union. In 1960, the newly created Alaska Department of Fish and Game (ADF&G) recognized the importance of walrus to coastal residents and selected that species for particular attention.

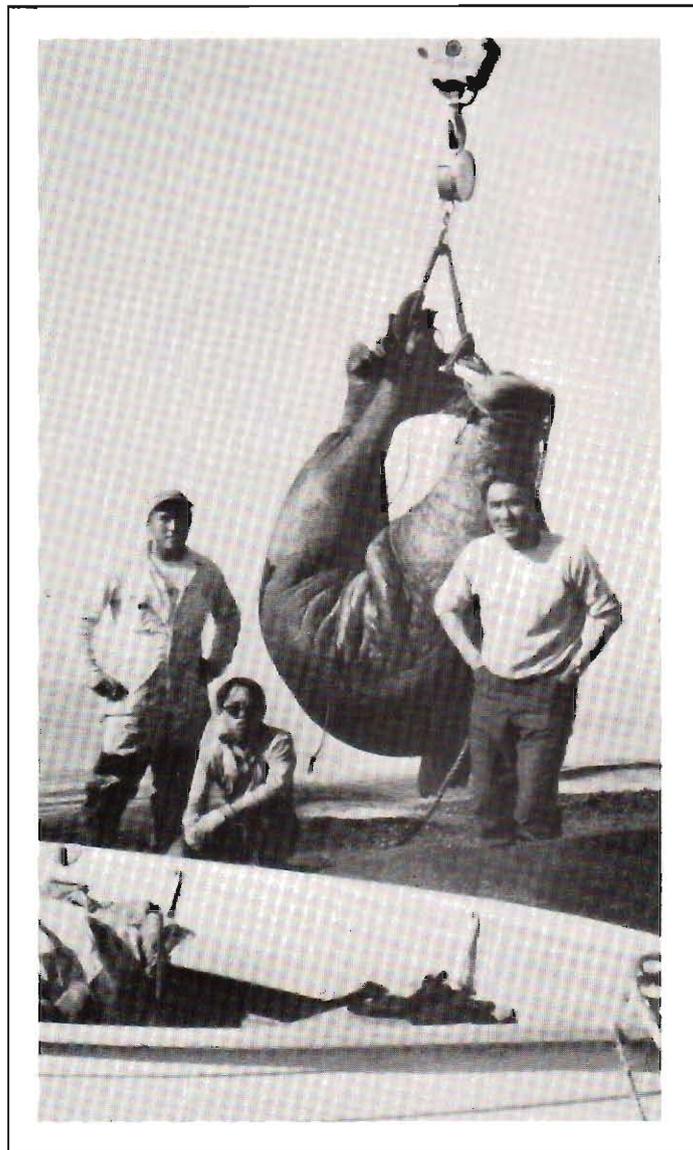
Restrictions imposed by the Soviet Union and the State of Alaska greatly reduced harvests. The estimated total kill dropped from over 9,000 in 1958 to between 3,000 and 4,000 annually during 1967 through 1974. In addition, Alaska's regulations restricted the killing of adult females so that hunting pressure shifted to males. The ratio of bulls to cows in the Alaskan harvest from 1964 to 1972 was three to one.

Steps were also taken to protect walrus on coastal hauling grounds. The Walrus Islands State Game Sanctuary was created in 1960 to maintain the quality of a particularly important hauling area.

In 1960, researchers began counting walrus from airplanes. The techniques used in these surveys and the population estimates derived from them varied considerably for the first few years. Since 1975 a standard survey procedure, developed as part of the marine mammals project of the US-USSR Environmental Protection Agreement, has been used. Surveys are conducted every five years in September, with Soviet researchers counting walrus on coastal haulouts and sea ice in the western Chukchi Sea and along the Chukchi Peninsula, while scientists from the U.S. Fish and Wildlife Service and ADF&G count animals on the pack ice of the eastern Chukchi Sea. Population estimates from these surveys were about 220,000 in 1975 and 250,000 in 1980. Although some have questioned the absolute accuracy of the numbers, all agree that walrus are now much more abundant than they were in 1960.

Harvests by Eskimos and Soviet commercial hunters are now at about 7,500 annually. Although walrus are easy to locate and identify, it is difficult to determine the status of the entire population. Since the mid-1950s, researchers have collected samples from the Eskimo harvest and analyzed them to determine food habits, birth rates, and the condition of the animals. After passage of the Marine Mammals Protection Act in 1972, which took management of walrus (and other marine mammal species) away from the State of Alaska, collection of data and specimens became more irregular.

That was unfortunate because it happened when considerable changes were occurring in the walrus population. Various indicators of population status suggested that the population was healthy and growing during the 1960s and well into the 1970s. In about 1978, however, Eskimo walrus hunters began to report that walrus were thin, had eaten unusual foods, and that there were fewer calves in the herds. Researchers later confirmed these observations. The average thickness of blubber had decreased from 5 or 6 cm in the years 1958 through 1978 to only 3 or 4 cm in 1980 through 1983. Stomachs of walrus were examined and



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sometimes found to contain fish, seals, anemones, and jellyfish, items that had rarely, if ever, been recorded in their diet previously. Composition counts of nursery herds in the Chukchi Sea revealed only five to ten calves per 100 adult females, a ratio far below the 30 to 35 that would be expected in a healthy, growing population. In addition, the average age of animals in the harvest had increased at all major hunting villages. Although all the details are not clear, we can be certain that major changes have occurred in the walrus population in the past few years. The population is no longer made up of fat, young adults, but consists mostly of lean, old animals, and old walrus produce fewer calves than do young adults. Mortality among newborns and miscarriages have increased. These changes, if they continue, will cause the population to decline. Whether the number of walrus has declined already will not be known until after the next joint aerial survey in September, 1985.

What caused these alarming changes? Some biologists believe that before intensive harvests by man, the walrus population in the north Pacific was between 200,000 and 250,000, and



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that the clam beds upon which walrus feed can support only 185,000 to 200,000 walrus over the long term. Probably, walrus have become more numerous than their food supply can support. In technical terms, they may have exceeded the carrying capacity of their habitat. Although this is a well-known occurrence for terrestrial mammals such as deer, the phenomenon has not been documented in marine mammals.

Since it is much more difficult to see and study the clam beds where walrus feed than the forests that support deer, we do not really know the effect walrus have had on their food supply or the present condition of the clam population. However, we do know that the clams walrus eat are slow-growing, and we can assume that their recovery will be slow, even after the predation pressure by walrus has lessened. The result may well be long-term cycles in the abundance of walrus and their prey.

History has shown us that harvesting by humans can greatly affect walrus abundance. We note with particular interest that Yankee whalers and Russian commercial hunters were able to deplete the population, while more recently, the herds grew rapidly in spite of a continued harvest by Eskimos and the Soviet Union. The scarcity of walrus during the early part of this century probably allowed the clam populations to grow.

When hunting pressures were reduced, conditions were set for explosive growth of walrus herds. Not only was food abundantly available, but the surviving population contained a large proportion of young, adult females, the part of the population that inhabited the most inaccessible areas of the walrus's range. The walrus population, then, was unusually productive, and grew to the point of overgrazing the clam population upon which they depend. This is a likely scenario, but biologists are by no means certain that it is accurate. It is a theory that may or may not be supported by the findings of the 1985 joint aerial survey by the U.S. and the Soviet Union.

Harvests in the 1980s have been the highest since the 1930s and are being taken from a less healthy and less productive population. The size and characteristics of current and future harvests will undoubtedly affect the future abundance of walrus. U.S. agencies with management responsibility or interests are currently the U.S. Fish and Wildlife Service, the Eskimo Walrus Commission, and the State of Alaska. These groups will need to develop management plans to ensure that the walrus population rebounds quickly following the decline phase that is apparently beginning. ■

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