

## MARINE MAMMALS

## III. B. 4.

4. Marine Mammals: (Fur seal, sea lion, harbor seal, sea otter.) There are 21 marine mammal species which are found as resident or seasonal migrants in the Gulf of Alaska. This section addresses the natural history, distribution, and abundance of the northern fur seal (*Callorhinus ursinus*), Steller sea lion (*Eumotopias jubatus*), harbor seal (*Phoca vitulina richardii*), and sea otter (*Enhydra lutris*) as relevant to proposed sale 60. Cetaceans and endangered species are discussed in section III.B.6. The former species are protected under the Marine Mammal Protection Act (MMPA) of 1972. In the act, it was declared that it was the intent of the Congress that marine mammals "be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies resource management, and that the primary objective of their management should be to maintain the health and stability of the marine ecosystem." Congress specified that efforts should be made to protect mating grounds, rookeries, and similar areas of importance from the adverse effect of man's actions. Except for subsistence use by certain Alaskan Natives and for display and scientific collections, the MMPA of 1972 prohibits the harvest of marine mammals. An exception is made for the fur seal which is regulated by international treaty. The harvest of these seals is shared among four countries: the United States, Canada, the Soviet Union, and Greenland.

**Northern Fur Seal:** The northern fur seal has been managed since 1911 under the authority of the Treaty for the Preservation and Protection of Fur Seals (37 Stat. 1542), and under the Interim Convention on Conservation of North Pacific Fur Seals. It is probably the species for which most information exists among the pinnipeds of Alaska.

The annual migration and distribution of the northern fur seal has been described by Kenyon and Wilke (1953), Wilke and Kenyon (1954), Baker, et al. (1970), and Fiscus, et al. (1976). Of the estimated world population of about 1.6 million northern fur seals, approximately 1.2 million congregate on the Pribilof Islands from about May to November. The Gulf of Alaska represents an important wintering area for adult males. However, a few adult males remain in the Bering Sea. Young males and females typically migrate farther to the south in the winter, some as far as southern California. They are found in feeding areas above the continental shelf from the Bering Sea south along both sides of the Pacific Ocean to about 32° N. latitude. Fiscus, et al. (1976) reported that during the northward migration (primarily March through May), large concentrations of fur seals have been observed in the northeastern Gulf of Alaska. The latter authors indicated May as the time of peak fur seal occurrence in the gulf. During late winter and spring, fur seals concentrate on the Fairweather Ground in the north-central and eastern gulf and on the Portlock Bank northeast of Kodiak Island (Baker, et al., 1970). In June, females are known to concentrate in the Portlock Bank area (graphic 11); they move west in July and are replaced by younger males and females. By the end of June, no breeding males are in the north-eastern gulf; by the end of July, all pregnant females are also gone (Scheffer, 1972).

According to Fiscus, et al. (1976:19), fur seals are most abundant in the Gulf of Alaska along the edge of the continental shelf and on the banks off Kodiak Island in May, where large schools of capelin and sand lance can be found in that season. Thus, graphic 11 has delineated Portlock Bank, the Albatross Banks, and areas south of Kodiak (circumscribed approximately by the 100-m isobath) as "Important Feeding Areas." Fur seals are widely distributed on a seasonal basis in offshore areas, but according to Baker, et al. (1970:8), are usually seen 16-145 kilometers offshore, and are frequently most abundant between 48

and 113 kilometers. Thus, graphic 11 depicts an area of "Most Probable Occurrence" which has a landward boundary varying from 15 to 30 kilometers from the shores of the Kodiak Archipelago and the Kenai Peninsula. Lower Cook Inlet is probably of little importance to fur seals, although occasionally, sightings may occur there. Hamilton, et al. (1979), do not discuss fur seals in their analysis of potential impacts of oil exploration in lower Cook Inlet, a further implication that lower Cook Inlet is of minor significance in terms of fur seal habitat. There is some speculation on the importance of Shelikof Strait to fur seals and the extent of their occurrence in the area. Easton and Spencer (1979:17), citing Burns (1978), stated that Shelikof Strait is within the fur seal winter range, and that they are found in low density in the Strait. Fiscus, et al. (1976:20), concluded that few if any fur seals use Shelikof Strait during spring migration. There have been no systematic surveys of fur seal use of Shelikof Strait, but most evidence to date indicates that the bulk of the population of this species migrates east of Kodiak Island and the Kenai Peninsula in the Gulf of Alaska.

**Steller Sea Lions:** The sea lion is a common inhabitant of the littoral zone above the continental shelf of the Gulf of Alaska. According to Fiscus and Baines (1966), sea lions generally forage in waters less than 50 fathoms deep and within 15 miles of shore; however, Kenyon and Rice (1961) observed sea lions 70 to 85 nautical miles offshore in the Bering Sea. Also Fiscus, et al. (1976), reported sea lion occurrence as far as 40 miles off Kodiak Island.

Sea lions have an affinity for specific, well-defined locations for breeding and pupping rookeries and hauling grounds. These rookeries and hauling grounds occupy isolated rocks, islets, rocky points, and sometimes beaches along the mainland and outer island coast of the Kodiak and Shelikof Strait area. According to Calkins and Pitcher (1977), the most important breeding rookeries in the proposed sale area and in the entire gulf are located on Sugarloaf Island of the Barren Islands, and Marmot Island in the northern Kodiak area, the latter being noted for higher counts of adult sea lions. Average (over spring, 1976; summer and fall, 1978) counts of adult sea lions at Sugarloaf Island and Marmot Island were approximately 5,200 and 9,250, respectively (Calkins and Pitcher, 1977, 1979). In July 1978, 5,021, and 6,140 pups were counted at Sugarloaf and Marmot Islands, respectively. Thus, although fewer adults have been observed at Sugarloaf Island than at Marmot Island, the two islands appear to be nearly equal in importance in terms of pup production. These two rookeries alone contribute close to half of the entire sea lion productivity in the Gulf of Alaska. As shown in graphic 11, dispersals to areas throughout the Gulf from these two areas has been documented. Sugarloaf Island is known to be nearly abandoned by sea lions in winter, whereas Marmot Island is used extensively throughout the year. In addition, considerable movement of sea lions between two major rookeries is known to occur. Calkins and Pitcher (1978), reported observing an estimated 20,000 sea lions at Puale Bay in March of 1977, significantly in excess of the usual 1,000-3,000 animals observed there. Therefore, it is likely that movements of large segments of the sea lion population may occur throughout the Shelikof Strait area, possibly in response to changes in food supply. Graphic 11 also shows the Portlock and Albatross Banks as important feeding areas for this species. Sightings of sea lions offshore out to the shelf break have been made consistently over the years, indicating the banks provide important and consistent food resources for local populations of the species.

Although Steller sea lions are considered to be primarily fish eaters, they also feed on a vari-

ety of marine invertebrates such as octopus, squid, and various crustaceans. In the Kodiak area, Calkins and Pitcher (1977, 1978) found the primary food items of sea lions to be capelin, walleye pollock, and Pacific cod.

**Harbor Seal:** The harbor seal is distributed throughout the western Gulf of Alaska region and is the predominant nearshore seal species in ice-free waters north of 35° N. latitude. While commonly found in coastal waters, harbor seals have been sighted as much as 100 kilometers offshore (Fiscus, et al. 1976; Spalding, 1964). They usually favor sandy beaches or sand bars along either offshore islands or the mainland for breeding, pupping, and hauling out. However, Pitcher and Calkins (1977, 1979), indicated that offshore reefs, rocks, ledges, and ice flows are also utilized for hauling out.

Pupping occurs from mid-May to late June with weaning completed by mid-July. Breeding occurs from late June to late July (Pitcher and Calkins, 1977, 1979).

Generally, the Kodiak Archipelago provides abundant habitat favorable for harbor seals. High density concentrations occur on six locations along the coast of Shuyak Island, North Afognak Island, several locations along the east and west shorelines of Kodiak, the south side of the Alaska and Kenai Peninsulas, and what is probably the largest known concentration in the world (13,000 minimum) occurring on Tugidak Island of the Trinity Island group (Pitcher and Calkins, 1977).

Augustine Island, in lower Cook Inlet, is also a major hauling area (850-1,500 seals observed, September 1976) where many pups were born. Seal Island, east of Perenosa Bay (graphic 11), was similarly described (Pitcher and Calkins, 1979). Pupping occurs at nearly all concentration areas. Although survey coverage was not complete, Pitcher and Calkins (1979) identified harbor seal concentrations along the Alaska Peninsula from Cape Douglas to Wide Bay, including Alinchak Bay, Puale Bay, and Wide Bay where totals of 200, 150, and 117 seals were counted in June 1978, respectively. Shaw Island (north of Cape Douglas) was noted for being occupied by 500-1,000 harbor seals in June 1978. Graphic 11 shows other hauling areas used by harbor seals. A maximum estimate of harbor seals counted in lower Cook Inlet, Kachemak Bay, Chinitna Bay, and Kamishak Bay hauling areas was approximately 4,150 (Pitcher and Calkins, 1979:12); however, this estimate does not include animals which were not in concentration areas.

Movements of harbor seals tagged at Tugidak Island showed that they may move considerable distances between hauling areas; one tagged animal was found 194 kilometers from Tugidak Island at Ugak Island. Also, certain animals seemed to show fidelity to one or two hauling areas. Thus, harbor seals can be expected to be found throughout the proposed sale area, with concentrations occurring at various locations as illustrated in graphic 11.

The diet of harbor seals varies according to season and location. According to Pitcher and Calkins (1977, 1979), fish comprise 73.8 percent, cephalopods 22.2 percent, and decapod crustaceans 4.1 percent of the occurrences of prey items in the diet of harbor seals for the entire gulf and for all seasons. For the Kodiak area, octopus and capelin were the top-rated food items followed by walleye pollock, flatfishes, and Pacific sand lance (Pitcher and Calkins, 1979).

**Sea Otter:** Originally, the sea otter ranged along the northern coastal areas of the Pacific Ocean and Bering Sea south to the Kurile Islands and Hokkaido Island on the west and to southern California on the east (Lensink, 1962). The Kodiak area population of sea otters, which was reduced to a very low level at the turn of the century, is concentrated in three important areas: Barren Islands, Shuyak-Afognak Islands, and Trinity Is-

lands-Chirikof Island (Lensink, 1962; Schneider, 1976, 1979). Animals from these areas are slowly beginning to recolonize former ranges in favorable habitat over the rest of the Kodiak Archipelago coast (Schneider, 1976; Calkins, et al., 1975). Most recent information suggests that the Kodiak Archipelago, including the Barren Islands, should contain a sea otter population well over 2,000.

Areas of local significance in lower Cook Inlet include an area offshore between Anchor Point and Homer, the Kamishak Bay-Augustine Island vicinity, the Barren Islands, and Kenai Peninsula from Seldovia to Gore Point (graphic 11). Range expansion of sea otters from the latter area appears to be continuing into Kachemak Bay and northward. Sea otters in Kamishak Bay appear to be expanding southward along the Alaska Peninsula. Schneider (1976) estimated that between 500-1,000 sea otters might be found in Kamishak Bay with at least as many (if not more) southward of Cape Douglas in Shelikof Strait habitats. Southward expansion is occurring from populations adjacent to Shuyak and Afognak Islands as well. Helicopter counts made in this area in 1975 (Schneider, 1976, Table 12) indicated that a minimum of 2,000 sea otters may occur in the Shuyak-Afognak Island area; and most likely a larger number occurs there. The Barren Island population is probably at carrying capacity, with counts as high as 300 animals made there in 1970 (Schneider, 1976). In 1975, pup densities were particularly high from Foul Bay to Party Cape, Perenosa Bay, Tonki Bay, Tonki Cape, and the west side of Marmot Island (Schneider, 1976).

As mentioned above, other areas of importance include a population situated to the south of the Trinity Islands (graphic 11), and a colony at Chirikof Island (not shown). The Trinity Island population is larger than that at Chirikof Island, but population estimates are not available due to data limitations. Population estimates for any of the areas discussed above are rather subjective since they have been based on counts made under varying conditions by a variety of methods.

Sea otter breeding and pupping occurs year-round. Pupping peaks have been observed in spring, and mating peaks in the fall for Aleutian populations (ADF&G, 1973). Although hauling out does occur, pupping and mating take place in the water (Kenyon, 1969).

Sea otters inhabit shallow coastal waters less than 90 meters deep. Rocky reefs and shoals exposed to the open ocean, offshore rocks, and kelp beds are their preferred areas (Lensink, 1962). Their primary habitat requirements are clean water and an abundance of marine invertebrates (molluscs, echinoderms, and crustaceans) and demersal fish for food (ADF&G, 1973; Calkins, et al. 1975). The primary factor limiting sea otter population growth in specific locales has been found to be food availability (Schneider, 1976; ADF&G, 1973).

No indication has been found that the sea otter is able to obtain pelagic food items. Thus, long migratory movements through the open ocean are precluded. At Amchitka Island, the home range of individual sea otters was about 5 to 10 miles of coastal water (Kenyon, 1969).