GRAPHIC 10

MARINE & COASTAL BIRD RESOURCES

III. B. 3

3. Marine and Coastal Birds:

Abundance-Distribution: Over 100 species of marine and coastal birds, with an overall abundance of several million, occur in the proposed lease sale area. More than 60 marine bird colonies are located in the lower Cook Inlet region, including the Barren Islands National Wildlife Refuge which is the most important marine bird colony and nesting area in lower Cook Inlet. Over 500,000 seabirds breed on these islands alone (ADF&G, 1978).

About 120 bird colonies have been identified in the Shelikof Strait area. Major colonies for this portion of the proposed sale area occur on David Island (south of Wide Bay on the Alaska Peninsula), in the Puale Bay-Dry Bay Region, and at Noisy Island in Uganik Bay on the west side of Kodiak Island (see graphic 10). Major breeding colonies occur just south of the Shelikof Strait portion of the proposed sale area on Uganishak Island, and on the Semidi Islands. The presence of bird colonies is unknown on the southwest side of Afognak Island and the west side of Shelikof Strait, north of Puale Bay. These areas have never been surveyed. The most abundant nesting species in the sale area include common and thick-billed murres (Uria aalge and U. lomvia), tufted puffins (Lunda cirrhata), fork-tailed storm petrels (Oceanodroma furcata), black-legged kittiwakes (Rissa tridactyla), and glaucous-winged gulls (Larus glaucescens). Nesting takes place primarily from late April-May through September.

During the spring millions of waterfowl migrate through the lower Cook Inlet area with major stopover staging areas in Kamishak, Iniskin, Chinitna, and Tuxedni Bays (Erikson, 1976). Nesting migrants such as gulls and kittiwakes congregate in the nearshore waters and murres move into the offshore waters in large numbers. Greater concentrations of marine birds generally occur in the Kachemak Bay and southeastern part of lower Cook Inlet than in the northwestern part (Erikson, 1976). Little information is available on bird concentrations in the Shelikof Strait; however, murres, seaducks, and other wintering birds probably move from the inner bays to offshore feeding areas while nesting species congregate in the bays during the spring.

During the summer, peak bird densities occur in August. Bird activity in nearshore waters is centered around marine bird colonies with kittiwakes, gulls, puffins, and murres the predominant species. Waterfowl and shorebirds are common nesters in the inner bays and tidal marshes. The predominant species in offshore waters are sooty and short-tailed shearwaters (Puffinus griseus and P. tennuirostris) with flocks of 25,000 to 50,000 not uncommon (Lensing, et al., 1978). The shearwaters are by far the dominant avifauna for the Kodiak and lower Cook Inlet regions during the summer. The importance of Shelikof Strait to this species, as well as other marine birds, is essentially unknown. Expected and known offshore concentration areas for marine birds are shown on graphic 10.

During the fall (including late July and August) migratory birds coming from nesting areas in the north and west begin to stopover during fall migration to utilize bays such as Kachemak. By September, post-nesting birds begin to move offshore from the colonies. Most kittiwakes and gulls migrate south along the north Pacific coast; some remain over the winter. The large flocks of shearwaters migrate to breeding areas in the southern hemisphere. By October there is a general decrease in bird abundance, although flocks of waterfowl are still passing through the area. As fall progresses, bird utilization of offshore waters diminishes and distribution generally shifts to inshore areas (Erikson, 1976).

During the winter, about 30 species of marine birds winter in lower Cook Inlet. They utilize ice-free bays and sheltered coves especially in the Kachemak Bay area. This area provides wintering habitat for several species of sea ducks including oldsquaws, goldeneyes, mergansers, scoters, scaups, eiders, and mallards with an overall abundance of over 20,000 (Erikson, 1976). In the Shelikof Strait area, preliminary data indicate that inner bays and passages are important wintering concentration areas for murres, crested auklets (Aethia cristatella) and several species of sea ducks (Forsell, 1980 and Trapp, 1977). The common murre is considered the predominant wintering species (Forsell, 1980), although sea ducks as a group are the major wintering avifauna. Inner Kupreanof Strait/Whale Passage is apparently the highest winter concentration area for marine birds around Kodiak Island (Gould, P.J., USFWS, personal communication, 1980).

On the Shelikof Strait side of Kodiak Island, the following bays have been identified as important winter concentration areas: Uyak Bay, Spiridon Bay, Uganik Bay, Terror Bay, and Kupreanof Strait (see graphic 10). On the Alaska Peninsula side of the Shelikof Strait, no winter bird surveys have been made. However, sheltered bays and inlets along the peninsula are probably important bird concentration areas.

Food Sources-Trophic Relationships: Five major prey species have been identified for marine birds during the spring and summer seasons for the western Gulf of Alaska. They include capelin, pollock, sand lance, euphausiid crustaceans, and squid (Sanger, Hironaka, and Fukuyama, 1978; Baird and Moe, 1978). Fish, specifically capelin, may be the most important food source for pelagic bird species on the eastern side of Kodiak Island during the spring and summer. However, euphausiid crustaceans are probably more important food items for the predominant short-tailed shearwaters. Because knowledge of feeding ecology is based on only 1 or 2 year's data, little information is available on possible shifts in major food sources. However, reasonable speculation suggests that many of the common species such as murres, puffins, and shearwaters are opportunistic in their foraging habits and may concentrate on whatever prey species of appropriate size is most abundant in the area.

Little information is available on the winter food habits of sea ducks and alcids in the region. Studies in Kachemak and Chiniak Bays indicate that sea ducks and alcids utilize several food items (Sanger, Jones, and Wiswar, 1979; Krasnow, Sanger, and Wiswar, 1979). Sea ducks feed primarily on benthic invertebrates, with clams and mussels important for oldsquaw and scoters, respectively. Common murres utilize a variety of crustaceans, fish, and polychaetes (Sanger, Jones, and Wiswar, 1979; Krasnow, Sanger and Wiswar, 1979).

Preliminary data on the feeding ecology of marine birds indicate that most species rely on two or three food sources during the spring-summer seasons. For wintering bird species, seasonal shifts in primary food sources apparently occur. Other shifts in utilization of major food items probably occur on a year by year basis as the abundance and availability of such species as capelin, pollock, squid, and crustaceans fluctuates both spacially and temporally.

Foraging methods vary with bird species, prey species, abundance of prey species, season, and location. Large feeding flocks of 5,000-50,000 or more marine birds occur over concentrations of fish, squid, or crustaceans. Shearwaters are often the major bird species. Flock occurrence varies considerably in duration and location. Other large flocks involving more than one species occur regularly where local water mass discontinuities (involving down welling (rips)) apparently act to concentrate zooplankton and small fish (Wiens, et al., 1978). Upwelling areas and the steep slopes between banks and troughs are other important foraging areas for large flocks of birds. Certain species such as kittiwakes probably play an important role in locating food sources in mixed feeding flocks, and alcids, particularly puffins, may be partially dependent on the kittiwakes (Wiens, et al., 1978). However, such interspecific relationships are probably more opportunistic than permanent. Interspecific foraging activities involving marine mammals and birds have been observed on a regular basis (Moe and Day, 1977) and are probably quite common in marine environments.

Migration: Seasonal shifts in avian populations in the area are largely a result of bird migration. Numbering in the millions, pelagic birds (shearwaters, petrels, and fulmars), gulls, waterfowl, and shorebirds are the primary groups that migrate through the proposed sale area. Spring migration begins in late March and peaks from late April to early May (Erikson 1976, Gill, Handel, and Petersen, 1978).

In addition to the large migratory breeding populations that inhabit the Barren Islands and other large colonies and nesting areas, millions of subadult birds and southern hemisphere migrants spend the summer season or their nonbreeding season in the western Gulf of Alaska. Several million waterfowl and shorebirds move through the sale area in the spring. Important staging areas are located at Kachemak Bay, Douglas River mud flats, Kenai River mud flats, Tuxedni Bay, the Drift River, Chinitna Bay, Iliamna Bay, Ursus Cove, and other areas in lower Cook Inlet (Erikson, 1976). Utilization of bays and inlets in Shelikof Strait by migratory birds, especially along the Alaska Peninsula, is essentially unknown.

Fall migration movements in lower Cook Inlet begin in July and end in November. Shorebirds are the first to move into the sale area and probably the last to leave (Gill, Handel, and Petersen, 1978). By August, waterfowl begin to move south through the area and wintering sea ducks begin to arrive. By early October, most breeding migrants and nonbreeding summer season migrants have left.

Other Coastal Birds: In addition to the abundant pelagic bird species and waterfowl, there are several species of shorebirds and birds of prey that feed and nest along the shores of the proposed sale area.

Endemic shorebirds include oyster-catchers, plovers, turnstones, sandpipers, and phalaropes. Most shorebirds feed on marine invertebrates, which range from insect larvae to clams. They utilize various coastal habitats from rocky shores to tidal flats and protected salt marshes (Easton and Spencer, 1979).

The two major coastal birds of prey in the sale area are the bald eagle (Haliaeetus leucocephalus) and the peregrine falcon (Falco peregrinus). The bald eagle is a breeding, year-round resident along the coasts of lower Cook Inlet and Shelikof Strait. This species is common along the coast of Kodiak Island and the southern Kenai Peninsula. Over 200 pairs have been counted along the coast of the Kodiak National Wildlife Refuge (Troyer and Hense, 1965). Bald eagles feed on fish or act as scavengers.

Peales peregrine falcon (P. f. pealei), nests regularly at scattered coastal locations around the Kodiak Archipelago. This subspecies is not endangered. Some nesting is known to occur on the Barren Islands (Bailey, 1976). Peregrines frequent the heads of bays where they prey on waterfowl and shorebirds.