

Summer leopard seal ecology along the Antarctic Peninsula

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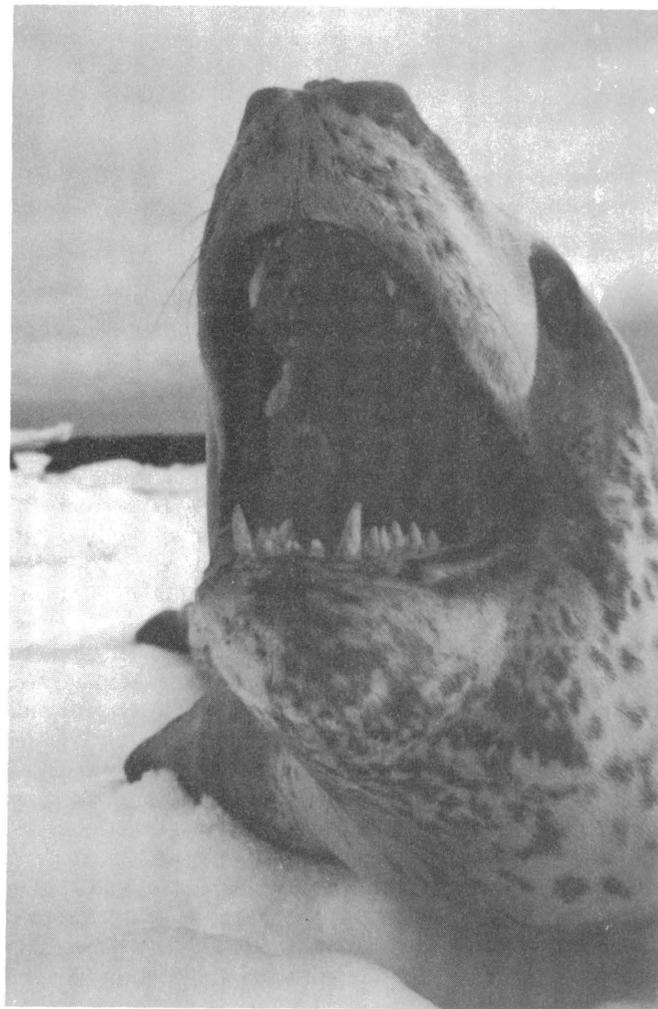
From late December 1980 through March 1981, we studied leopard seals (*Hydrurga leptonyx*) around Palmer Station (64°46'S 64°04'W) and in adjacent waters from the R/V *Hero*. This was the final season of a 3-year study of the species. The objectives were: (1) observe and examine adult females to obtain more precise information on the timing, social organization, and success of mating; (2) handle weaned pups as well as seals of other ages to obtain information on growth and maturation; and (3) quantify information on feeding and food habits and examine age-related food preference and seasonal change in food habits.

We concentrated on capture and release, radio telemetry, collection, and visual and underwater acoustic observation. We also gathered information on crabeater seals (*Lobodon carcinophagus*) and Weddell seals (*Leptonychotes weddelli*) as it pertained to leopard seal ecology (e.g., distribution) and activity (e.g., feeding); we were especially interested in crabeater seal pup predation by leopard seals. We captured leopards on ice floes by injecting them with an immobilizing drug and then, if necessary, pulling a heavy canvas bag over the heads of lightly immobilized seals (Stirling 1966). Nineteen leopard seals were captured, measured, and examined for scars, wounds, and ectoparasites. Toenails (to determine age), blood samples and smears (to identify blood parasites), and vaginal smears from females (to check for evidence of estrus) were taken. Radio transmitters were attached to 14 leopard seals. Radio tracking was conducted from Zodiacs (inflatable rubber boats), the R/V *Hero*, and three antenna masts at islands near Palmer. In addition, 18 adult females were collected for reproductive material, teeth (for aging), blood smears and comprehensive tissue samples (for parasite quantification), and stomach contents (for food type and amount). Preliminary examination of the reproductive material indicates that adult females ovulate and implant by late January or early February. More thorough examination of the ovaries and reproductive tracts should clarify whether delayed implantation occurs in leopard seals and should yield detailed information on the timing of reproductive events. Intraspecific scarring in leopard seals was not as extensive or severe as that seen in crab-eaters and Weddells; fresh wounds were most common in January.

Leopard seals of all ages and both sexes used the waters around Palmer throughout the season. Drifting pack ice was

plentiful when we arrived. We began to see leopards in early January, and they became increasingly common into February. Leopard seals were always present and available for handling as long as ice was accessible to us. Leopards were present even when ice was absent, and sometimes we saw them many kilometers from ice.

Leopard seals, regardless of their sex and age, appear to feed effectively on whatever is most accessible (figure). Within the same bay and at the same time, different leopards fed on seals, penguins, fish, krill, and (rarely) squid. Commonly, one individual was found to have taken two different items at the same feeding or within several hours. Unexpectedly dense concentrations of leopard seals, from 10 to 20 or more in Arthur Harbor, sometimes occurred in midseason when numerous



Leopard seal showing cusped dentition for grasping and straining.

crabeaters and Adélie penguin chicks were also present and feeding on the abundant krill. Leopards showed no inclination to scavenge, either from penguin, seal, or whale carcasses.

In March, weaned crabeater pups with extensive, raking, fresh wounds from leopard seal canines increasingly became apparent. Most pups seen toward the end of summer bore such signs of recent attacks, just as most adult crabeaters bear scars from leopard seal teeth (Siniff and Bengtson 1977). Weddell pups commonly hauled out on beaches around Bismarck Strait, but only one was seen with old scars from canine puncture wounds, possibly from a leopard. None of the weaned elephant seal (*Mirounga leonina*) pups that appeared from mid-summer on showed signs of leopard seal attack.

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References

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