

The seals' periods at sea lasted from 5 to 10 days; a record of the entire time was obtained. In all, about 100 days of sea time were recorded. These data are now undergoing intense computer analysis. A cursory review of the raw data shows that there were no dives to greater than 100 meters and that the great majority were less than 50 meters. In addition to diving depth, frequency of diving depths and

frequency of occurrence of dives on an hourly basis will be analyzed.

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Aspects of leopard seals (*Hydrurga leptonyx*) in the Antarctic Peninsula pack ice

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From 6 through 22 November 1979 our field party of four used NSF research vessel *Hero* to concentrate on the study of leopard seals (*Hydrurga leptonyx*). Additional observations on crabeater seals (*Lobodon carcinophagus*), Weddell seals (*Leptonychotes weddelli*), and Ross seals (*Ommatophoca rossi*) were taken. Our primary objectives were: (1) to obtain counts of each species based on daily observations of all seals' ice floes; (2) to locate female leopard seals with pups for behavioral observations and documentation of the approximate time of parturition; (3) to collect female and male leopard seals for preservation of reproductive tracts, stomach contents, toenails, and tissue and skeletal material; and (4) to document further the underwater vocal repertoire of these pack ice seals. The studies were conducted in pack ice areas from King George Island south to Anvers Island, including the Bismarck and Gerlache Straits and Wilhelmina, Andvord, and Dallmann Bays, between 61° to 65°S and 58° to 65°W.

We took the counts on 11 days; the habitat was fair-to-good pack ice. Observations were made from the ice house of the *R/V Hero* from approximately 0700 through 2200 hours each day. For each seal observed, the species, sex, age, location, floe size, and behavior were noted.

Sixteen adult leopard seals (seven males and nine females) were collected and weighed. Reproductive organs were preserved to document reproductive history. Teeth and toenails were collected for sectioning and aging, for correlation with reproductive history. One female was pregnant; another had given birth, but it was not possible to determine whether the pup had been lost or weaned. Preliminary analyses indicate that most leopard seals breed for the first time at age 3 or 4 years.

This work constituted the 2nd year of a 3-year research program on the leopard seal during the pupping season. Although the results are not conclusive at this time, the bulk of evidence from our collections supports the idea that leopard seals breed at some time several weeks and perhaps months after the pupping season. The follicular development during November is very slight, and in all specimens examined ovulation appeared unlikely in the near future.

Stomach contents included remnants of squid, penguin feathers, fish, krill, and up to 41 kilograms of seal hide, meat, and blubber. Feeding seemed to be most active in early to midmorning, and again near late afternoon, although actual digestion rates are unknown. Gastrointestinal parasites—tapeworms and roundworms—ranged from few to very abundant in the stomach and intestine. No definite parasites were found in any other internal organs. Samples were preserved for further examination. Various other tissues and organs, including blood samples, were collected for later analyses.

This year we recorded our first resights of tagged seals in the Peninsula area. All were at King George Island: five adult female Weddell seals tagged there 1 year earlier, and two adult male crabeater seals, one each tagged in the austral springs of 1976 and 1977.

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