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SEASONAL TRENDS IN THE OCCURRENCE OF MARINE MAMMALS IN THE GOLFE DU MORBIHAN, KERGUELEN ISLANDS

Three mysticetes (*Balaenoptera acutorostrata*, *Eubalaena glacialis*, and *Megaptera novaeangliae*), seven odontocetes (*Cephalorhynchus commersonii*, *Globicephala melas*, *Lagenorhynchus cruciger*, *Mesoplodon layardii*, *Orcinus orca*, *Phocoena dioptrica*, and *Physeter macrocephala*) (Robineau 1989), and three pinnipeds (*Arctocephalus gazella*, *Hydrurga leptonyx*, and *Mirounga leonina*) (Paulian 1953) have been reported so far from the waters and the shores of the Kerguelen Islands (48°30'–50°S, 68°30'–70°45'E). Minke whales, *Balaenoptera acutorostrata*, and Commerson's dolphins, *Cephalorhynchus commersonii*, are commonly sighted in the Golfe du Morbihan, an enclosed, sheltered, shallow-water bay of about 350 square miles (~1,200 km²) in the southeastern part of Kerguelen's Grande Terre.

From December 1983 to March 1985, I made regular outings in the Golfe du Morbihan on board diesel-powered vessels. Here I add one mysticete species (*Balaenoptera borealis*, the sei whale) to the above list, and I summarize the sightings of marine mammals at sea with emphasis on the temporal patterns for *B. acutorostrata* and *Cephalorhynchus commersonii*. Information on the seasonal cycle of elephant seals and occurrence of leopard seals have been reported elsewhere (Pascal 1979, Borsa 1990), and the frequency of occurrence of Commerson's dolphins has been reported on a monthly basis, from April 1986 to March 1987 (de Buffrénil *et al.* 1989).

The data reported here were gathered from about 252 h (1,595 nm) of full-time watch from the deck of a 15-m research vessel (speed 8–10 kn depending on weather conditions) or a 19-m landing craft (4–6 kn).

Balaenoptera species—Twenty-three rorquals were sighted, all between November and April. Ten of these were southern minke whales. Two minke whale pairs were observed in November (0.2 individuals per hour of watch), and the remaining six were isolated individuals, seen in March (0.2/h) and April (0.1/h). These animals usually approached the vessel and stayed swimming in

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its vicinity once the latter stopped. Thus, the occurrence of minke whales in Kerguelen waters so far is restricted to November and March–April. (Five unidentified whales of moderate size that exhibited surfacing patterns similar to minke whales' were also sighted in January, however). This coincides with the known respective periods of southward and northward migrations of the southern minke whale (Kasamatsu *et al.* 1995), suggesting that the Kerguelen region lies on this species' route of migration from its breeding areas in the tropical Indian Ocean to its feeding areas in antarctic waters and *vice versa*.

Two sei whales were also observed, one each in January and March. I identified these on the basis of their size (moderately large to large: estimated as $\geq \sim 10\text{--}15$ m), uniformly gray pigmentation, narrow and vertical blow of several metres, large snout, prominent rostral ridge from the blowhole to the tip of the snout, tall and falcate dorsal fin, and shallow-angle surfacing and sounding. Another rorqual, encountered in April, displayed the same characteristics except that it was of moderate size ($\leq \sim 10$ m).

Cephalorhynchus commersonii—I sighted this dolphin in all regions of the Golfe du Morbihan, either as singles (16% of sightings, mostly in December) or in groups of 2–15 individuals. The total number of individuals sighted over the whole period (December 1983–March 1985) was 216. The number of individuals per hour of watch peaked in October–November (1.9–2.6/h) and February–April (1.0–1.4/h). Lower densities were observed in September (0.1/h), December–January (0.3/h), and May (0.5/h). No individuals were sighted from June to August. This overall pattern is very similar to that reported for 265 individuals sighted in years 1986–1987 by de Buffr enil *et al.* (1989), except that these authors observed a single, more-marked peak in October (4.2/h) with comparatively few observations in November (0.4/h), and the density from November to April was constant (0.3–0.5/h).

To summarize, both surveys report a peak of density for this species in October or November and its absence in the Golfe du Morbihan in the winter. Winter (June–August) sea-surface temperatures in the Golfe du Morbihan during 1984 ranged between 0.5°C and 3.5°C with an average of 2.6°C. The average temperature in summer months (December–March) was 6.5°C, and it was intermediate in spring and autumn. I speculate that the winter inshore temperatures lie below the preference of the Kerguelen *C. commersonii* population, which then migrates to the warmer ($\sim 4^\circ\text{C}$) offshore waters of the Kerguelen shelf, where pods of ~ 10 individuals have been sighted in the winter (Robineau 1989).

Other cetaceans—Mother-calf pairs of southern right whales (possibly the same pair) were regularly encountered in the open part of the Golfe du Morbihan between 25 January and 20 February 1985. Pods of 10–15 killer whales, possibly the same group, were regularly observed in the western part of the Golfe du Morbihan from August to November 1984. Two individuals at each sighting were large males. Paulian (1953) observed a group of 12 killer whales in the western part of the Golfe du Morbihan in March. It is possible, then, that this species occurs year-round in the inshore waters of Kerguelen Islands.

Pinnipeds—Kerguelen fur seals of both sexes were present on the shores of the Golfe du Morbihan from December to March. Most were young individuals. Groups of 2–3 adult males were seen in June and July. I observed a newborn Kerguelen fur seal together with its presumed mother and a large harem bull at Pointe Suzanne (49°25'S, 70°26'E) in late December 1984. To my knowledge, this is the first report of a newborn *A. gazella* on Kerguelen's Grande Terre. Pupping was known previously to occur only in the northerly Nuageuses Islands (48°47'S, 68°40'E) (P. Jouventin and H. Weimerskirch, personal communication), but the species is presently undergoing a phase of demographic expansion following a long period of low population size due to overhunting (Paulian 1953).

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LITERATURE CITED

- BORSA, P. 1990. Seasonal occurrence of the leopard seal, *Hydrurga leptonyx*, in the Kerguelen Islands. *Canadian Journal of Zoology* 68:405–408.
- DE BUFFRÉNIL, V., A. DZIEDZIC AND D. ROBINEAU. 1989. Répartition et déplacements des dauphins de Commerson (*Cephalorhynchus commersonii* (Lacépède, 1804)) dans un golfe des îles Kerguelen; données du marquage individuel. *Canadian Journal of Zoology* 67:516–521.
- KASAMATSU, F., S. NISHIWAKI AND H. ISHIKAWA. 1995. Breeding areas and southbound migrations of southern minke whales *Balaenoptera acutorostrata*. *Marine Ecology Progress Series* 119:1–10.
- PASCAL, M. 1979. Essai de dénombrement de la population d'éléphants de mer (*Mirounga leonina*) des îles Kerguelen (49°S, 69°E). *Mammalia* 43:147–159.
- PAULIAN, P. 1953. Pinnipèdes, cétacés et oiseaux des îles Kerguelen et Amsterdam. *Mémoires de l'Institut Scientifique de Madagascar, Série A* 8:111–234.
- ROBINEAU, D. 1989. Les cétacés des îles Kerguelen. *Mammalia* 53:265–278.
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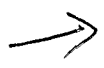
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