

3 Introductory Remarks on the Natural History of Fur Seals

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Fur seals are distributed worldwide. The genus *Arctocephalus* consists of eight species, four of which occur in the eastern Pacific. These are from south to north, the South American fur seal (*A. australis*), the Juan Fernandez fur seal (*A. philippii*), the Galapagos fur seal (*A. galapagoensis*), and the Guadalupe fur seal (*A. townsendi*), which is the only *Arctocephalus* occurring north of the equator. The northern fur seal, *Callorhinus ursinus*, is the only species of its genus.

We have data on two *Arctocephalus* species, the South American and the Galapagos fur seal. The South American fur seal is distributed from Uruguay in the east to Peru in the west all around the southern tip of South America, and also occurs on the Falkland Islands. Its distribution over this wide range is very spotty. The Galapagos fur seal (at 0° lat.) is most abundant along the coasts of the western islands of the archipelago. The northern fur seal breeds in the Bering Sea and the Sea of Okhotsk (between 47° and 57°N) as well as on San Miguel Island off the coast of California (at 34°N).

All fur seal females, of the species described in this book, have a body mass of 30–50 kg, although bigger individuals may occasionally be observed. Females grow throughout life, but growth slows down very much once they reach sexual maturity at an age of 2–5 years. Males are much bigger than females. They grow faster than females and begin to partake in reproductive activities as territorial males when 7–12 years old. The size dimorphism is most pronounced in the northern fur seals where males may be five times heavier than females (York 1987). No data are available for the size dimorphism in South American fur seals, but it seems to be intermediate between that of the northern and the Galapagos fur seal, where males may be only twice as heavy as females (Trillmich 1987).

The social organization and maternal behaviour of all fur seals are very similar and differences between species, which will be described in more detail in the following chapters, are variations on a general theme. Females are gregarious on land, either during the breeding season only, as in the migratory northern fur seal, or almost year-round, as in the nonmigratory Galapagos fur seal. During the breeding season, when females give birth and enter estrus, males establish territories in female aggregations which they defend vigorously against each other. Females can give birth to a single pup every year. After parturition they remain on land with their newborns for about 1 week. They then enter estrus and copulate, usually with the territorial male. Following copulation females make their first postpartum trip to sea. This is usually a very short trip. For the remainder of the nursing period they alternate between foraging at sea and nursing the pup ashore. We refer to the pattern

of stays ashore as the "attendance pattern". Most fur seals feed offshore over deep water predominantly during the night when organisms (fish, squids, and crustacea) of the deep scattering layer migrate closer to the surface (Gentry and Kooyman 1986a). The alternation between hunting at sea and suckling the pup onshore continues for about 4 months in the northern fur seal, but may extend over 1–3 years in the South American and Galapagos fur seal.

After weaning, mothers and pups of the northern fur seal live pelagically until the next breeding season. The South American fur seal in Peru is much less migratory. Mother-young pairs can be observed year-round in the breeding colony. Some animals, however, may migrate and this may have been particularly pronounced during the 1982–83 EN (Guerra and Portflitt, this Vol.). The Galapagos fur seal appears to be entirely nonmigratory.

In the following section, Guerra and Portflitt describe the immigration and establishment of the South American fur seal in northern Chile in the course of the 1982–83 El Niño (EN). Majluf has followed the fate of a population of this species in Peru during EN in 1982–83 and was able to compare these data with observations of the same population during the much weaker EN in 1986–87. Finally, Trillmich and Dellinger observed the effects of the 1982–83 EN on the Galapagos fur seal.

Gentry observed northern fur seals from the Pribilof Islands during the 1982–83 breeding season and York reports on EN effects on survival of juveniles during the first 2 years of pelagic life. DeLong and Antonelis describe the effects of EN on the southern population of northern fur seals on San Miguel Island.

In the three papers on southern fur seals some additional information is also given for the sympatric sea lions, the South American sea lion (*Otaria byronia*) in Chile and Peru and the Galapagos sea lion (*Zalophus californianus wollebaeki*) in the Galapagos. More information on the natural history of sea lions of the genus *Zalophus* is given by Ono (Chap. 10, this Vol.).