1

Identification of species

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Introduction

The Order Pinnipedia is related to the Carnivora and was formerly classified within that Order. It includes three Families: the Otariidae or eared seals, including fur seals and sea lions; the Odobenidae, including the Atlantic and Pacific walruses; and the Phocidae or true seals, including the Phocinae (northern species) and the Monachtinae (Antarctic ice breeding seals and the elephant seals).

Of seven species of seal considered here, three (elephant seal and two species of fur seal) tend to be sub-Antarctic in distribution, but penetrate further south, particularly in the maritime Antarctic. The other four (Weddell, Ross, crabeater, leopard) are primarily fast ice or pack ice animals. The Weddell (at South Georgia only) and leopard seals also have sub-Antarctic populations. In elephant and fur seals, the males are much larger than the females; in the other species the females are slightly larger than the males (Laws, 1984). There is no sexual dimorphism of colour or pattern. The elephant and fur seals are grey brown, lighter ventrally but with no patterned markings (except small, lighter scars); the other species are all strikingly marked with spots, stripes or blotches, particularly when freshly moulted. Juvenile and adult coats are similar; pups of elephant and fur seals are born with uniform black fur or lanugo; in other species the newborn coat is mottled greyish brown (Weddell), pale 'milk coffee' coloured (crabeater) or strongly patterned like the adult (leopard, Ross). The degree of wetness of the fur or hair alters the colouration, generally making it darker; there may be a sharp colour contrast between wet and dry parts. With time elapsed since the moult the coat colour becomes browner (often creamier in the crabeater) and in patterned species this lessens the contrast of the pattern. From a distance,

body size and shape, the profile of head and body, are useful for distinguishing adults. The behaviour on disturbance is also characteristic – in the pack ice it may be necessary to wake sleeping seals by a blast from the ship's siren in order to identify them.

The seven species (Fig. 1.1) are dealt with below, with illustrations drawing attention to characteristic features, such as size, shape, colour and behaviour. Sufficient information is given so that distance identification of adults should be possible but this is difficult if the animals do not move. Other information is given, so that in doubtful cases if a

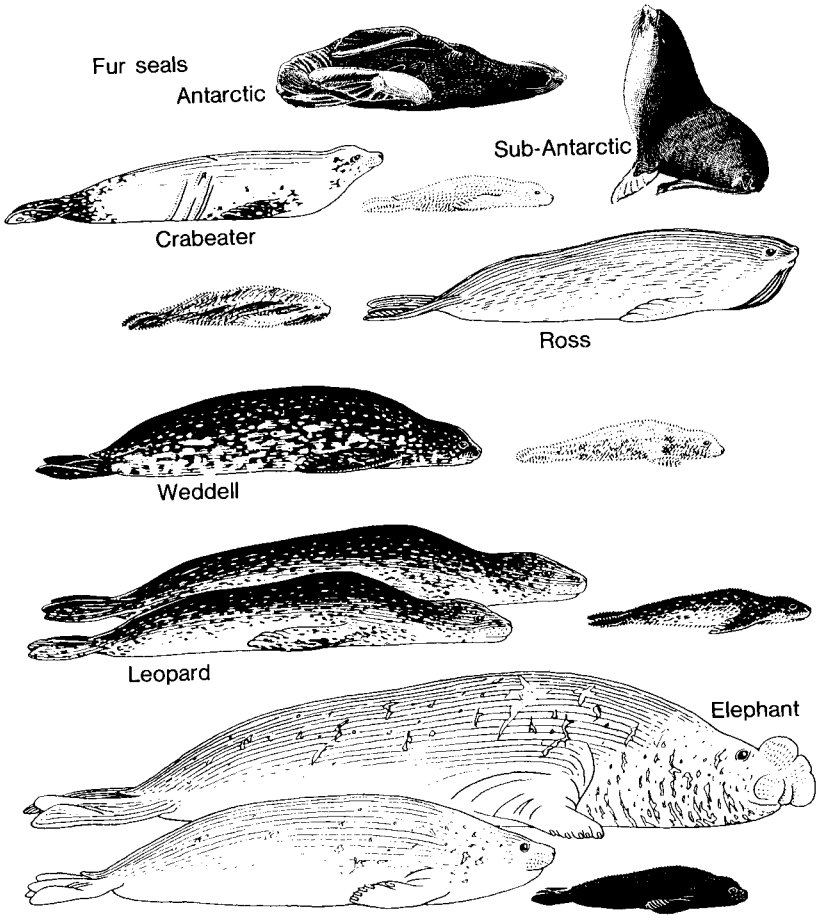

Fig. 1.1 Antarctic seals drawn to same scale for comparison of size, form and colour patterns.

close approach is possible, or if the seal is collected or has died naturally the identification may be confirmed, using additional criteria. Skulls are illustrated by species so that skeletons may be identified. (See Figs. 1.2–1.14.)

Finally, a condensed summary key is presented which may be helpful to observers with or without any biological training.

Elephant seal, *Mirounga leonina*, (Linnaeus, 1758).
Figs. 1.2, 1.3.

Fig. 1.2 Elephant seal characteristic attitudes.

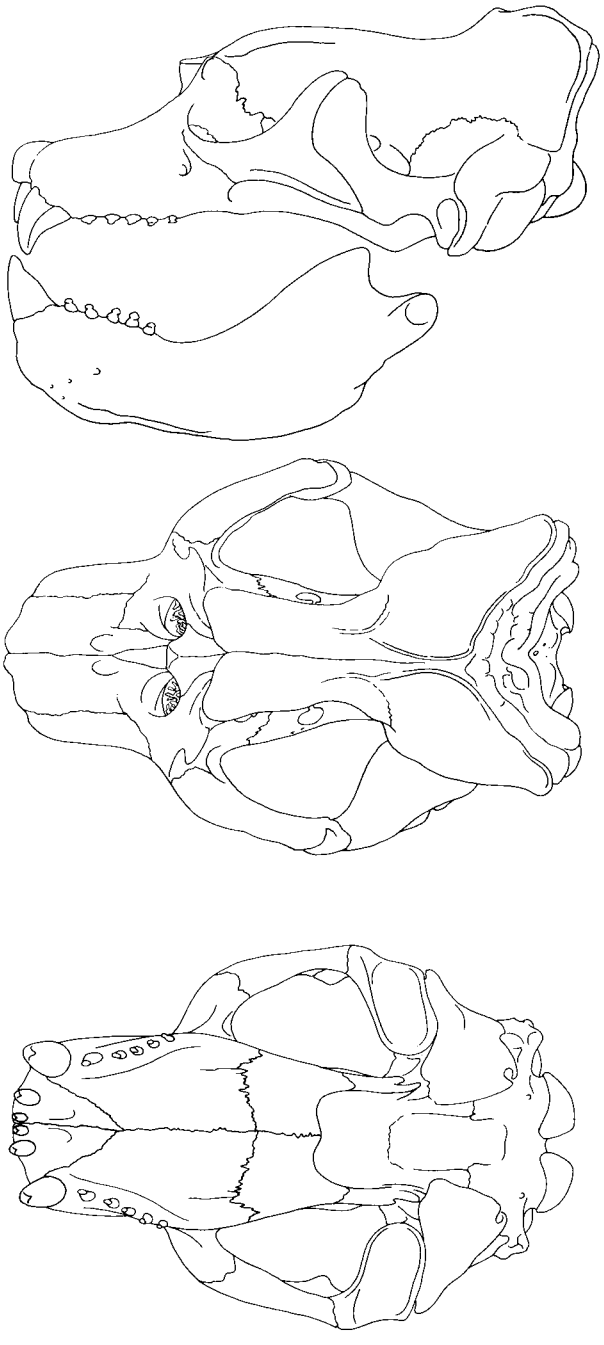

Fig. 1.3 Elephant seal skull.

Profile

Heavily built, neck inconspicuous, large thorax. The species is strongly sexually dimorphic – males after the first three years being conspicuously larger than females (Laws, 1953). The adult male has a conspicuous proboscis that enlarges during the breeding season. Females and younger males have a more pointed snout than the other Antarctic phocid seals.

Size

Newborn:	length 127 cm; weight 40–46 kg.
Adult female:	length 2.6–2.8 m; weight 400–900 kg.
Adult male:	length 4.2–4.5 m; weight 3000–4000 kg.

Colour

Dark grey, lighter ventrally, fading to various shades of brown. No superimposed pattern of spots or other markings, but adults have scarring about neck and chest, adult females a lighter yoke around neck from bites during mating.

Pup

Black neonatal fur (lanugo), fading to very dark brown; in South Orkney Islands about 3% have prenatal moult of lanugo.

Yearling

Medium grey, lighter ventrally with yellowish staining.

Behaviour

Virtually never observed at sea even around South Georgia where the stock is about 360 000. In water near shore often floats with head and hind flippers clear of water. Submerges tail first; head pointed up and withdrawn vertically. Rarely seen in pack ice; if so, only solitary.

Breeding

On land in dense aggregations in spring. Dominant and subordinate males maintain position among breeding cows. Challenging roars, rear up in threat displays, fights.

Moulting

In summer in dense close packed aggregations, inactive for 30–40 days often in muddy wallows. From December to April; females and juveniles first, breeding bulls last.

Sand flipping

Reaction to heat and dryness; also a displacement activity.

Movement

Clumsy lumping motion, fore flippers spread out to lift body, then pelvic thrust to straighten out – like quasi-'looper' caterpillar; moves in short bursts of activity with frequent halts; often stops by falling on chest. Can back away also easily and quickly. To turn often arches tail and head upwards and pivots on belly, swivelling around with aid of fore flipper.

Vocalization

Large males have deep resonant pulsed roar; female barks, moans and howls. High pitched bark for short time after birth of pup. Both sexes produce a variety of belching noises.

Close-up

Teeth

Large canines especially in males; small peg-like post-canines (see Fig. 1.3).

Skull

Overall length up to: male, 561 mm; female, 333 mm.

Fore flippers

Relatively small in relation to body length; with large nails (to *c*. 5 cm × 1 cm).

Hair

Stiff, short; moult of epidermis and hair in large patches.

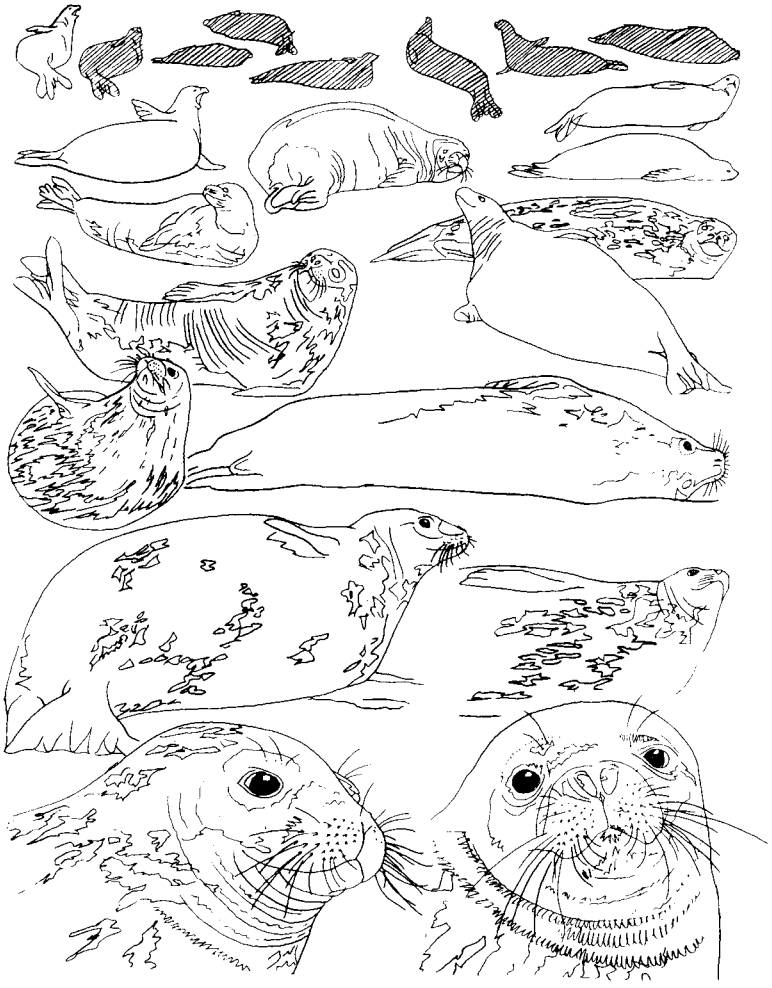

Fig. 1.4 Weddell seal characteristic attitudes.

Weddell seal, *Leptonychotes weddellii*, (Lesson, 1826). Figs. 1.4 and 1.5.

Profile

Large, heavy 'barrel-shaped' body with relatively small head, moderate snout and no distinct neck.

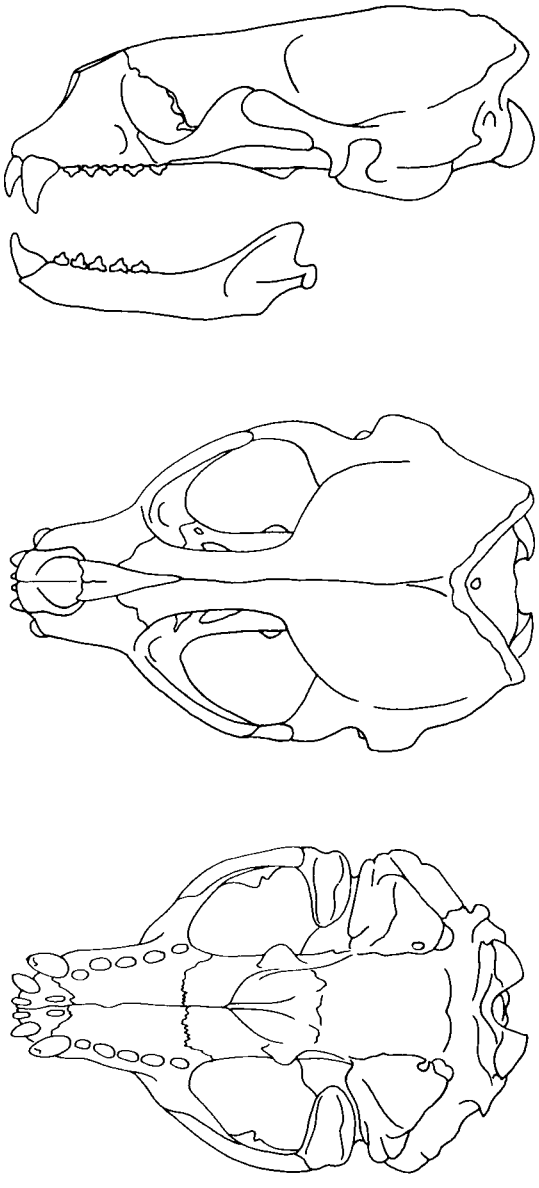

Fig. 1.5 Weddell seal skull.

Size

Newborn: length 120 cm; weight 25 kg.
Adult: length to 3 m; weight 500 kg.

Colour

Typically dark, slightly lighter ventrally, mottled with large darker and lighter patches, white patches predominant ventrally. Some individuals lighter generally, but never bleaches to whiteness of crabeater.

Pup

Soft grey, grey brown or golden, often with indistinct darker mottling.

Moult

December to March.

Behaviour

Inshore distribution on fast ice and pack ice. Forms large colonies (of many hundreds) on inshore fast ice during breeding season, September to November, often in hummocked ice and near tide cracks. Individuals relatively evenly spaced, not close. Small relict breeding population of about 100 based on Larsen Harbour, South Georgia. In pack ice found usually singly, normally on large smooth floes, occasionally in association with crabeater seals. Hauls out on beaches or fast ice during summer, usually singly or in small scattered groups, occasionally in close aggregations of up to 60.

In water

Floats vertically in leads with head pointing upward or level. Submerges by sinking tail first without showing back. May float at an angle, particularly in leads or at breathing holes, or horizontally in larger pools with much of the back exposed. Adult males defend three dimensional territories in water under breeding colonies.

Disturbed

Usually rolls on side with flipper raised in 'salute' (crabeaters also occasionally do this). Usually travels slowly on ice, jerking itself forward with small 'humping' movements with both fore flippers together, but pressed to sides; head usually slides along the ice on its chin. (But occasionally moves by lateral movements like crabeater.) When wishing to turn usually rolls until facing in right direction. May make 'ice sawing' movements of head and neck on ice – a displacement activity. Often makes dull glottal 'clapping' or gulping sound in throat while opening and closing mouth.

Close-up

Teeth

Incisors and canines often greatly worn; upper incisors procumbent for ice sawing; teeth blunt, molars with central prominent point, smaller one behind (Fig. 1.5).

Skull

Overall length up to 295 mm.

Fore flippers

Relatively small, centrally placed on body.

Underwater sound

Underwater calls readily audible to a person on surface of ice; highly vocal in repertoire and volume; pulsed trilling and explosive glottal sounds.

Ross seal, *Ommatophoca rossii*, Gray, 1844. Figs. 1.6 and 1.7.

Profile

Plump and rather shapeless; at a distance superficially like elephant seal and may be confused with it. Head short and wide; can be withdrawn into rolls of fat about neck; no external trace of neck. Short snout gives blunt pointed profile like elephant seal. Raises head near vertically, chest enlarged, back arched.

Size

Newborn: length 105–120 cm; weight 27 kg.
Adults: length to 2.6 m; weight to 225 kg.

Colour

Dark grey to chestnut dorsally, with little spotting and sharp line of demarcation from buff underside. Light and dark pattern about the eyes gives mask-like appearance. Often broad dark stripes from chin to chest, and on side of head; spotted or obliquely streaked on sides and flanks;