

Dugong 3F

The Dugong is one of Africa's most endangered large mammals and is vulnerable to extinction. These animals are plump, grey, streamlined creatures that propel themselves slowly, using a crescent-shaped tail and paired flippers. They are almost naked of hair and have a blunt nose, small eyes and lack external ears. Like whales and dolphins they never leave the water. They are found throughout the shallow warmer coastal waters of the Indian Ocean from northern Australia to Mozambique and occasionally venture into KwaZulu-Natal.

Sea sirens, mermaids or sea cows

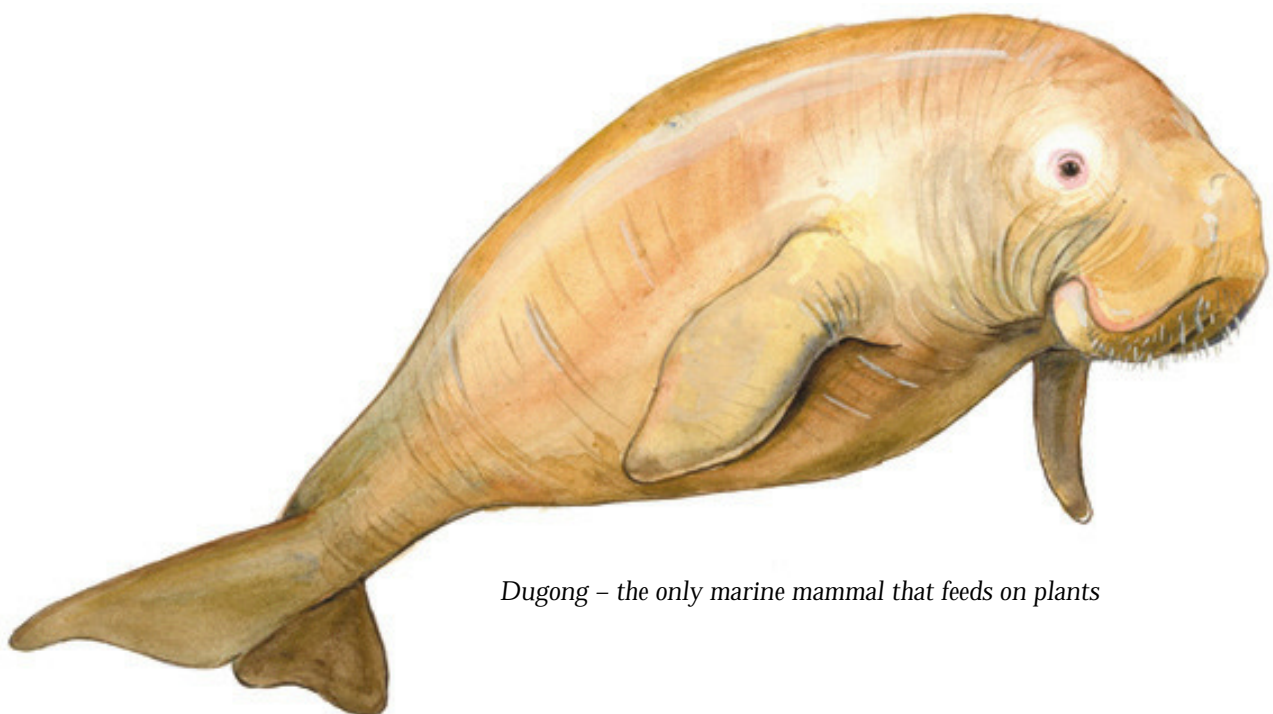
What seafarers of old called mermaids were probably dugongs or manatees, sea creatures with human-like faces and mammary glands. The name of the scientific order, Sirenia, is derived from the mythical sirens of Greek folklore who lured sailors to their deaths. The order is represented by four living species: one dugong and three manatees. Manatees occur in both fresh and salt water and can be distinguished from dugongs by their rounded paddle-like tails. The largest species, Steller's sea cow, occurred in the cold north Pacific and fed on kelp. It was hunted to extinction by 1768. Only the dugong occurs in southern Africa.

Biology

Dugongs are the only strictly marine mammals that feed primarily on plants. They browse on seagrasses (flowering plants which are distinct from seaweeds). Dugongs dig up the nutritious rhizomes of seagrasses using a horseshoe-shaped disc at the end of the snout. Stiff curved bristles on the snout rake up and manoeuvre the food, which is then 'chewed' between rough horny pads on the upper and lower palates. Adults have only a few peg-like molar teeth located at the back of the jaws. They are not ruminant herbivores, but they do have an extremely long intestine with a large midgut (caecum) with paired blind-ending branches in which bacterial digestion of cellulose occurs. They may consume up to 25% of their body weight per day. In Moreton Bay, Australia, dugongs eat quantities of ascidians (sea squirts), which are rich in nitrogen needed for the production of proteins. Adult dugongs have a pair of incisors. These barely project from the upper jaw of the female but in the male they form a pair of protruding tusks, up to 300 mm long. These may be used to guide the slippery females during mating. Females reach 3.05 m in length and males are larger – up to 3.15 m.

Dugongs rise to the surface every 1 to 3 minutes to breathe through their two dorsal nostrils which are set a little back from the snout. The nasal ducts can be closed under water by muscular constriction of the nasal tubes. Dugongs will drown if trapped underwater in nets.

Relative to their body size, dugongs have smaller and less complex brains than whales and dolphins. They use their



Dugong – the only marine mammal that feeds on plants

eyes to locate objects. They have no vocal chords and their calls are limited to faint squeaks.

Reproduction and behaviour

Dugongs usually travel in herds. They have an estimated life span of about 70 years but a low reproductive rate. Females become sexually mature after about 10 years; pregnancy lasts 12 months and a single calf is produced every 3 to 7 years. Calves are born in shallow water and nursed for as long as 18 months, although they start to feed on seagrass after 3 to 4 weeks. The mother suckles the young while lying near the surface on her back, holding it with one of her flippers. The bond between mother and calf is strong. Observations of adult males trying to free females and juveniles from nets suggest that there are also strong family ties. Little is known of the dugong's behaviour and means of communication because the animals are shy and difficult to observe.

Distribution and exploitation

Although dugongs occur widely in the Indian Ocean their distribution is patchy and discontinuous owing to their habitat requirements. Dugongs are disappearing rapidly from the western Indian Ocean. In some countries they are fished, and, even where it is illegal to catch them, many are drowned in fishing nets. The flesh is eaten, the oil has many uses, including medicinal, and the skin is used for shoes and shields. The bones are ground up as a treatment for rheumatism and the tusks are incorporated into the handles of swords and daggers. Dugongs are susceptible to oil pollution, especially in the Arabian Gulf.

The status of the dugong

In 1990 the West Indian Ocean Dugong Research Programme was launched by the Port Elizabeth Museum and includes 25 countries. So far data are scanty but aerial surveys indicate

that dugongs are extinct from the Seychelles, Mauritius and Tanzania. There are small numbers (up to 100) off Madagascar and Mozambique, only 7 were counted off Kenya. Little is known about their status in the Red Sea although reports in 1987 suggested they were plentiful in Eritrea. The population in the Arabian gulf has dropped from 7300 in 1986, to between 3 000 and 4 000. The largest populations occur off Northern Australia.

Because dugongs are shy and difficult to approach by boat, conservation and management strategies require regular and accurate population assessments by aerial survey. It is hoped that tagging dugongs with special satellite transmitters will provide information about their distribution, movement and even how deep and long individuals dive. It is essential to involve the western Indian Ocean states in research, conservation and public awareness to ensure that the dugong does not go the way of Steller's sea cow!

Author: Margo Branch September 2000

Classification:	
PHYLUM:	Chordata
SUBPHYLUM:	Vertebrata
SUPERCLASS:	Mammalia – Mammals
ORDER:	Sirenia
FAMILY:	Dugongidae – Dugong
GENUS & SPECIES:	<i>Dugong dugon</i>
FAMILY:	Trichechidae – Manatees
GENUS & SPECIES:	<i>Trichechus manatus</i> – American Manatee <i>Trichechus senegalensis</i> – West African Manatee <i>Trichechus inunguis</i> – Amazon Manatee
FAMILY:	Hydromalidae
GENUS & SPECIES:	<i>Hydromalis stelleri</i> – Steller's sea cow

FURTHER INFORMATION:

- *All the world's animals – sea mammals*. 1984. Torstar books, New York
 - Centre for Dolphin Studies, Port Elizabeth Museum
- Korrubel, J & Cockcroft, V. 1997. *Dire days for dugongs*: Africa Environment and Wildlife, Vol 5 (1):29-33
- Skinner, J. D. & Smithers, R. H. N. 1990. *Mammals of the Southern African Region* 2nd ed University of Pretoria

RELATED FACTSHEETS:

- Dolphins • Southern Right Whales • Humpback Whales • Baleen and Toothed Whales • Seals • Otters



Baleen and Toothed Whales 3F

Whales and dolphins are known collectively as cetaceans. They are the most highly modified and specialised of all mammals, being totally aquatic and never coming ashore, except when stranded. They retain all the attributes of mammals – breathing air and suckling their young. However they differ from other mammals in that they do not have a coat of fur. Instead they are insulated from the icy water by a very thick layer of blubber just beneath the streamlined skin. Cetaceans evolved from a group of extinct land mammals which adapted to life at sea many millions of years ago. They have streamlined bodies with a powerful tail. The forelimbs are adapted as flippers but there is no external trace of the hind limbs (which are reduced to tiny internal bones). Most cetaceans have a dorsal fin that acts as a keel.

Cetaceans are intelligent and highly sociable, living in herds or pods and communicating using a variety of clicks, squeaks, bellows and even songs. They usually breed from the age of seven to twelve years and only bear one calf every two or three years.

There are two main types of living whales: baleen whales and toothed whales. They have adopted vastly different feeding strategies. Baleen whales strain plankton from the water while the toothed whales and dolphins are active hunters and predators.

Baleen Whales – “moustached sea monsters”

Baleen whales, known as the gentle giants of the oceans, include the largest known creatures ever to have lived. These are the blue whales which grow up to 33 m long. Baleen whales have two blowholes, or nostrils, situated on the top of the head, making it easier for them to breathe when they surface. They lack teeth, having instead a series of baleen plates (or whalebones) that hang from the upper jaw on either side of the palate. The baleen is a horny, flexible material ending in a fringe of hairs used to strain plankton from water when it is expelled from the mouth. Baleen whales have overcome the problems of small size of prey by filtering vast volumes of water – a blue whale may take in as much as 70 tonnes of water with each mouthful.

There are three families of baleen whales: the Balainidae (right whales), the Neobalainidae (pygmy right whales) and the Balaenopteridae (the rorquals which include all the groove-throated whales such as humpback, blue, sei, Minke, Bryde's and fin whales).

Southern right whales are the most common whales seen in southern African waters. They have smooth throats, no dorsal fin and have the longest baleen plates (2-3 m) of all southern hemisphere species. They skim-feed along the surface collecting zooplankton which is mainly made up of small crustaceans known as copepods. Pygmy right whales are small and uncommon in this region. They have two throat grooves and a small dorsal fin and also feed on copepods.

The rorquals have huge grooved throats, a dorsal fin and relatively short baleen plates, and feed mainly on much bigger zooplankton, known as krill. These are shrimp-like creatures. *Euphausia superba* is the largest (about 70 mm long) and

Baleen whale sieves plankton



Toothed whale catches fish and baby seals



most abundant krill in the Antarctic, where in summer their collective mass may reach many times that of the global human population with estimates ranging from a few million to tens of millions of tonnes. The **blue whales**, in common with other rorquals, have throat grooves that fold out to greatly enlarge the volume of the mouth cavity. **Humpback whales** have an additional adaptation that allows them to temporarily dislocate the lower jaw to increase the gape during feeding. The humpbacks have developed ingenious methods of prey capture using a bubble net feeding technique. The whales dive deep and spiral around emitting air bubbles that rise to the surface, effectively corralling krill and small fishes inside a bubble-wall. The whales then surge to the surface, mouths agape, to engulf their victims. The whales often work in groups and co-ordinate their fishing activities even using their long white fins to herd fish.

The remarkable planktonic feeding of baleen whales provides concentrated sources of food with little need for rapid swimming or deep diving. These placid creatures grow to enormous sizes, their bulk buoyed up by the water. They gather to feast in the Antarctic during summer when the krill is plentiful and then migrate north to breed and calve during the winter months.

Baleen whales have been targeted by whalers for their baleen, oil and meat. The baleen has been largely replaced by synthetic plastics. These large whales have been severely depleted, and only now are afforded international protection.

Toothed whales and dolphins

There are three families of toothed whales in our subregion: the Ziphiidae (beaked whales), the Physeteridae (sperm whales) and the Delphinidae (dolphins, pilot whales and killer whales). Toothed whales all have a single blowhole and are highly efficient predators with one or more pairs of teeth. The teeth are peg-like with a single root and are used to hold the prey which is swallowed whole.

The **sperm whale** is the biggest of the toothed whales and is found far out to sea where it preys chiefly on squid. It is known to dive to great depths, over 2000 m, which enables it to capture giant squids of over 19 m. The sperm whale has no visible teeth in the upper jaw, only sockets into which the

teeth from the narrow lower jaw fit when the mouth is closed. Calves cannot accompany their parents on deep dives and during this time baby-sitters from the pod protect the calves.

Glossy black and white **killer whales** employ the most sophisticated feeding techniques of all marine mammals. They usually move in pods with several generations of related whales. Off Patagonia they use the spectacular technique of leaping on to the beach to capture elephant seals or sea lions before wriggling backwards into the water. They regularly rob anglers and long-line fishers of their catches and work in packs even attacking other whales.

Dolphins sometimes form large schools to help locate the patchy food supplies in the ocean. They leap from the water looking for signs of fish, such as fishing birds, while in the air. They herd fish together and take turns to feed.

As predators, toothed whales and dolphins are active swimmers and divers. Being at the top of the food chain they are particularly susceptible to pollutants such as pesticides that are concentrated up the food chain.

It is clear that the two vastly different feeding strategies adopted by the baleen and toothed whales have had major influences on their behaviour, migration patterns, speed, diving ability and ultimate size.

Author: Margo Branch September 2000

Classification:

CLASS:	Mammalia
ORDER:	Cetacea – Whales and dolphins
SUBORDER:	Mysticeti – Baleen whales
SUBORDER:	Odontoceti – Toothed whales and dolphins

- FURTHER INFORMATION:** • Best, P. 1998. *Whale watching in South Africa. The Southern Right Whale*. Mammal research Institute Pretoria.
 • Cockcroft, V. & Joyce, P. 1998. *Whale Watch*. Struik, Cape Town
 • Plaganyi, E. 1997. *Feasting and Fasting – Feeding Strategies in Whales and Dolphins*: Africa Environment and Wildlife, Vol 5 (5): 37-42
 • Skinner, J. D. & Smithers, R. H. N. 1990. *Mammals of the Southern African Region* 2nd ed University of Pretoria pp 564-566

- RELATED FACTSHEETS:** • Southern Right Whale • Humpback whale • Rare and Endangered Baleen Whales • Sperm and Beaked Whales
 • Krill • History of Whaling • Whale Watching • Killer and Pilot Whales • Baleen Whales seen around South Africa



Humpback Whale 3F

Humpback whales, *Megaptera novaeangliae*, occur in all the world's oceans and can be seen off the southern African coast between May and December each year. They are the second most commonly observed whale species in our waters, after the southern right whale.

Identification

Humpback whales can be recognised by the dorsal fin set well back on a gradually sloping hump (hence the common name), although this is often only seen as the whales dive with characteristically arched back. They are thus easily distinguishable from southern rights, which have no dorsal fin and a flat back. Humpbacks also have exceptionally long flippers (almost one-third of the body length) that are normally white on the underside. Most of the body is black, but there are usually white areas on the throat and belly region, as well as on the tail. In fact, the black and white pattern on the underside of the serrated tail flukes is unique for each whale, and is used by researchers to identify individuals. On the head and lower jaw are rows of fleshy knobs, and the throat region has long grooves.

Humpbacks are 12-16 m long and weigh about 40 t. They usually dive for 6-7 minutes, but can remain submerged for up to 45 minutes. The blow is a single spout up to 3 m high.

Natural history

Humpback whales are baleen whales, all of which are filter-feeders requiring dense concentrations of prey that are found only in the cold, high-latitude oceans around the Arctic and Antarctic. Conditions here are probably too harsh for new-born calves, so humpbacks migrate to warmer waters to breed.

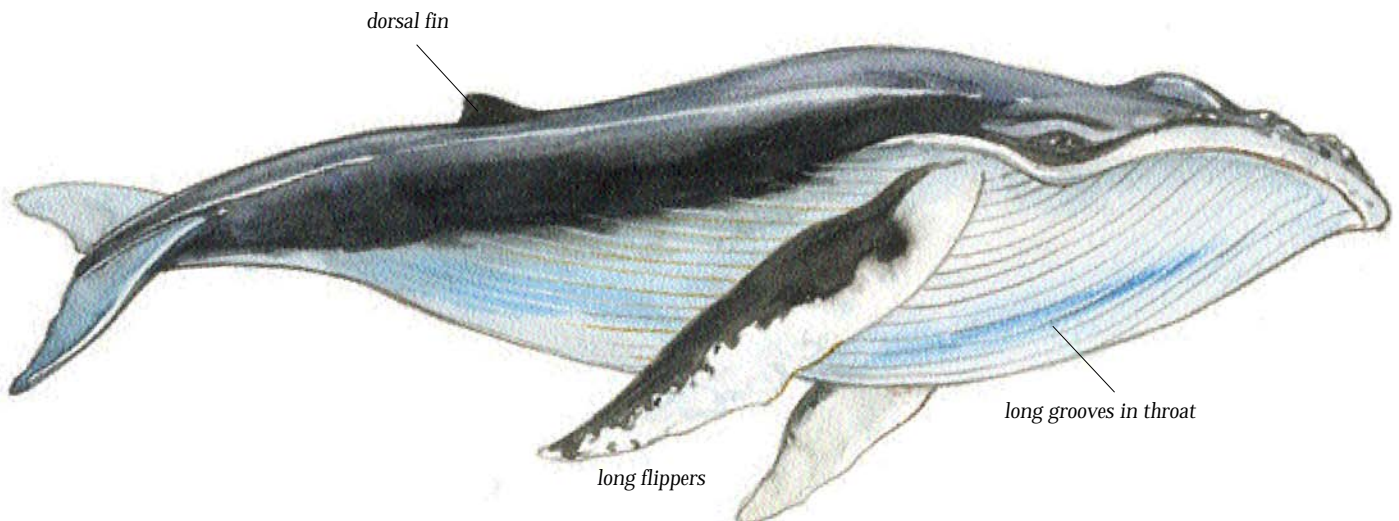
In the southern hemisphere they begin the northward migration in April-May, with peak numbers passing South Africa in June-July. Little or no feeding takes place during the migratory period, so the humpbacks must rely on their thick blubber reserves. By mid-July the whales have arrived in the tropical breeding areas as far north as Gabon and Mozambique, where they give birth, usually to a single calf but sometimes to twins. The calf is about 4.2 m long when born, after a gestation period of 11-12 months. Sexually mature whales also mate in the breeding areas, before embarking on the return trip with accompanying calves in late August. Most are back in the Southern Ocean by December, where they feed almost exclusively on large swarms of krill. By contrast, humpbacks in the northern hemisphere feed on small fish, crustaceans and squid.

Humpbacks are rorqual whales (Family Balaenopteridae), the grooves on the throat being a characteristic feature. During feeding the grooves allow the throat to be ballooned out as the whales gulp large volumes of water. The throat muscles then push the water out through the baleen plates, which strain out food.

Humpbacks in the northern hemisphere also have a method of feeding, known as "bubble-net feeding", in which whales often work co-operatively. One or more whales spiral around a shoal of fish, emitting a stream of bubbles from the blow-hole so that the prey is trapped within a net of bubbles. The whales then lunge up open-mouthed and engulf the prey.

Other observed behaviours are:

Breaching – humpback whales are known for their spectacular leaps from the water, usually in an arching back-flip displaying the white underparts, and causing a large splash as they plunge back down.





Lob-tailing – the tail is often repeatedly lifted out of the water and rapidly brought down again, creating a loud slapping sound.

Flipper-slapping – the whales sometimes lie motionless on the surface with one flipper raised for long periods, but occasionally slapping it down on the water.

All of these behaviours are thought to be some form of communication to other whales. Humpbacks are also famous for their mournful “songs” comprising long moans and screams of varied pitch. These songs are distinctive for whales in different localities but gradually change from year to year. It is thought that only the males sing, possibly to attract females.

Conservation

Humpback whales were heavily exploited by whalers, particularly in the early part of the 20th century. In southern Africa they were the first to be taken by modern whaling methods, using a harpoon cannon attached by a line to the boat. Twenty five thousand humpbacks were killed by whalers operating along the southern African coast between Gabon and Mozambique, targeting migrating whales on their way to and from the breeding grounds.

At the same time whaling activities were developing rapidly in the feeding grounds in the south-western Atlantic, with at least 21 000 humpbacks being taken in the Falkland Island

Dependencies in the period 1909 -1913. As numbers of migrating whales dwindled, local whalers switched to other species. In the Southern Ocean feeding grounds, catch limits for humpbacks were set in 1946, but the species was only fully protected in 1963, when the International Whaling Commission (IWC) banned hunting of the species. The IWC's moratorium on commercial whaling, effective since 1986, together with the declaration of the Indian Ocean and Southern Ocean Sanctuaries in 1992 and 1994 respectively, has also ensured that the humpback whale population is recovering, albeit slowly. The whales are now believed to number approximately 20 000 in the southern hemisphere, and almost 2 000 migrate past Cape Vidal on South Africa's east coast each year.

Author: Sue Matthews September 2000

Classification:

PHYLUM:	Chordata
SUBPHYLUM:	Vertebrata
SUPERCLASS:	Mammalia – Mammals
ORDER:	Cetacea – Whales and dolphins
SUBORDER:	Mysticeti – Baleen whales
FAMILY:	Balaenopteridae – Rorquals
GENUS:	<i>Megaptera</i>
SPECIES:	<i>novaeangliae</i>
COMMON NAME:	Humpback whale

FURTHER INFORMATION:

- Cockcroft, V. & Joyce, P. 1998. *Whalewatch: a guide to whales and other marine mammals of southern Africa*. Struik, Cape Town
- MTN Whale hotline: 0800 228 222

RELATED FACTSHEETS:

- Whale-Watching • Southern Right Whale • History of Whaling • Baleen and Toothed Whales • Baleen Whales seen from our Coast



Southern Right Whale 3F

The southern right whale, *Eubalaena australis*, is the whale commonly seen along the south coast of South Africa between June and November. It was named by early whalers, who considered it the “right” whale to hunt as it was a slow swimmer and occurred close inshore, making it accessible from small, open boats rowed out from land-based whaling stations, and also because it floated when dead and yielded large quantities of oil and baleen.

Identification

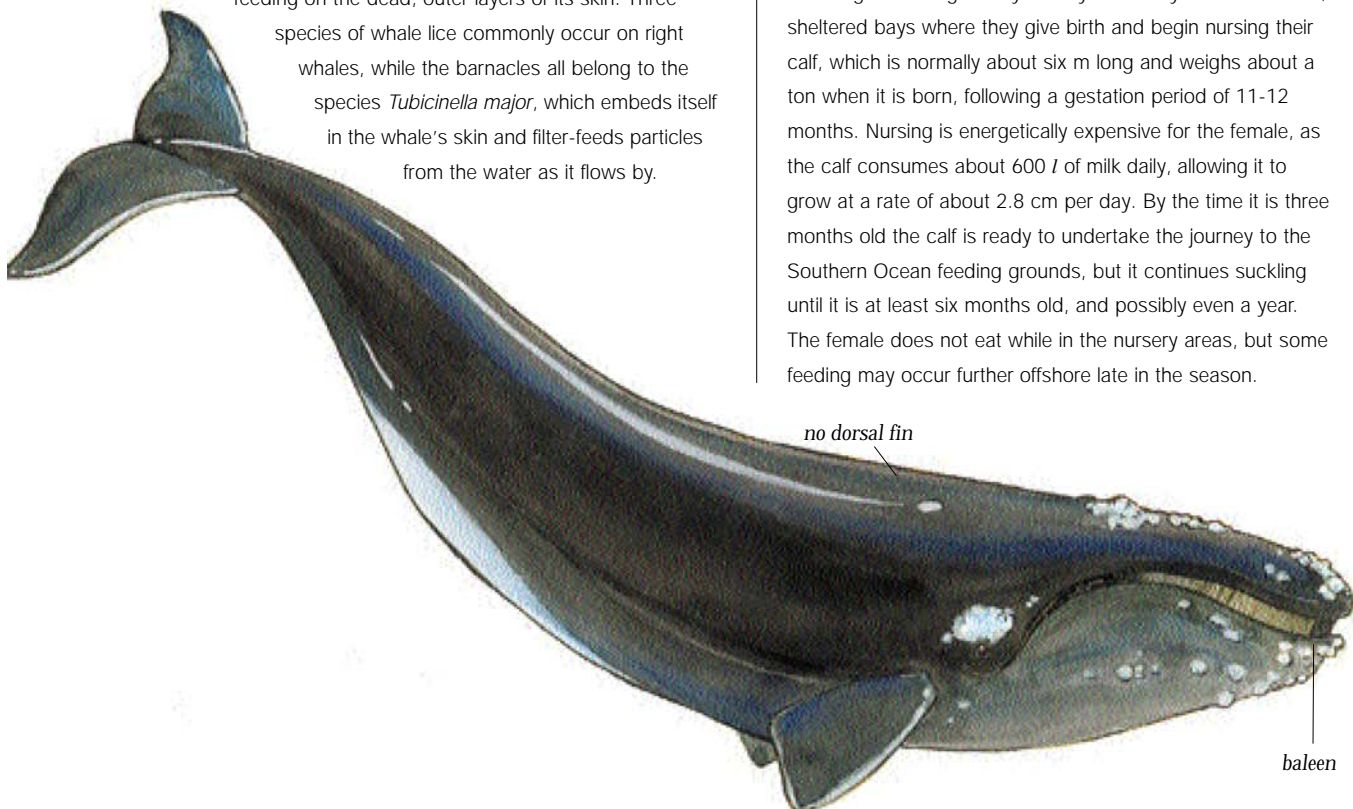
The southern right whale is distinguishable from other whale species seen in our waters by the absence of a dorsal fin, and the double or V-shaped “blow”, which is the spout from the blowhole as the whale surfaces. In addition, the head is covered with pale, wart-like patches, called callosities. The function of these callosities is not known, but their pattern on each whale is unique, enabling researchers to identify individual whales during annual surveys. The callosities are inhabited by barnacles and “whale lice” – small crustaceans known as amphipods that are specially adapted for life on a whale, feeding on the dead, outer layers of its skin. Three species of whale lice commonly occur on right whales, while the barnacles all belong to the species *Tubicinella major*, which embeds itself in the whale’s skin and filter-feeds particles from the water as it flows by.

Southern right whales are generally black, but may have white patches on the belly or back. Some calves are born almost entirely white, but darken as they grow. Adult females average 14 m in length and weigh about 41 t, while the males are slightly smaller. Normal swimming speeds are 0.5 – 4 km/h, but escape responses of up to 17 km/h have been recorded. The whales can sometimes be heard making bellowing grunting sounds, presumed to be a form of communication.

Natural history

Southern rights are baleen whales, belonging to the Family Balaenidae. Hairy baleen plates, about 2 m long and 30 cm wide, hang from the upper jaw and act as a giant sieve, straining small crustacean zooplankton, mainly copepods, from the water column as the whale swims open-mouthed. Dense swarms of these zooplankton, occur in the Antarctic’s cold Southern Ocean, where the whales do almost all their feeding, laying down food reserves for their long north-ward migration. The whales need to consume an estimated 600-1 600 kg of food daily, while in the Southern Ocean, to meet their energy requirements for the entire year.

In late April the whales leave the Antarctic and in June begin arriving in our coastal waters, where conditions are more suitable for newborn calves. Most of the whales that make the migration are pregnant females, with individual females returning on average every three years. They choose shallow, sheltered bays where they give birth and begin nursing their calf, which is normally about six m long and weighs about a ton when it is born, following a gestation period of 11-12 months. Nursing is energetically expensive for the female, as the calf consumes about 600 l of milk daily, allowing it to grow at a rate of about 2.8 cm per day. By the time it is three months old the calf is ready to undertake the journey to the Southern Ocean feeding grounds, but it continues suckling until it is at least six months old, and possibly even a year. The female does not eat while in the nursery areas, but some feeding may occur further offshore late in the season.



The southern right whale has very long baleen plates

It is not known when mating occurs, but groups of up to seven whales have been observed at localities along our coast, rolling around and jostling one another. It is thought that this may be the courtship of a single female by a number of consorting males, all competing for her attention.

Other behaviours commonly observed in southern right whales are:

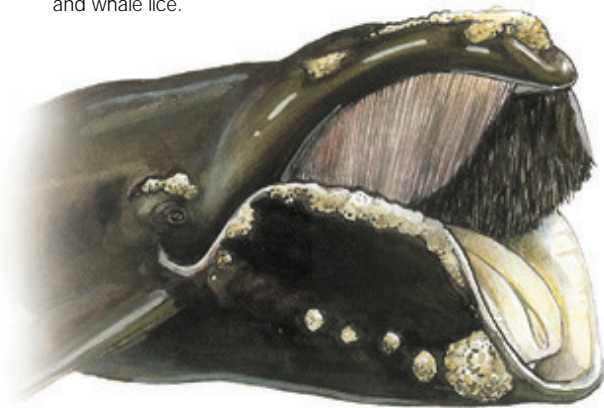
Breaching The function of this behaviour, in which the whale leaps almost clear of the water and falls back with a large splash, is not known. It may be a means of communication with other whales, a way of dislodging dead skin and whale lice, or even just a form of play behaviour.

Lobtailing Whales are often seen lifting the tail out of the water and repeatedly slapping it down on the surface. This may be some type of social communication, expressing alarm, annoyance or threat.

Sailing Sometimes the whales spend long periods doing vertical "head stands" with the tail held out of the water. One theory is that the whale is using its tail as a sail, while another is that the tail is being used either to absorb heat through solar radiation or lose heat through evaporative cooling.

Spyhopping This behaviour, in which the head is lifted vertically out of the water, may simply allow the whale to have a look at its surroundings.

Playing with kelp Whales can sometimes be seen at the edge of a kelp bed, rubbing themselves against the fronds. Perhaps this allows them to scratch off irritating dead skin and whale lice.



Conservation

Southern right whales were heavily exploited during the whaling era – an estimated 12 000 right whales were taken from the southern African coast between 1785 and 1805 alone. Whaling continued into the 20th century, by which time numbers had drastically declined. In 1931 the species was the first of the large whales to be protected, under the League of Nations' Convention for the Regulation of Whaling, which was adopted by 26 nations. South Africa legislated this protection in the Sea Fisheries Act of 1940, which was later amended to prohibit the killing, injury or disturbance of whales. Today, the Marine Living Resources Act 18 of 1998 also prohibits anybody from approaching or remaining within 300 m of a whale in any vessel or craft unless a permit has been obtained from the Department of Environmental Affairs & Tourism.

Since 1969, aerial surveys of cow-calf pairs have been conducted annually (118 pairs were recorded between Nature's Valley and Muizenberg in 1998). These surveys have revealed that the southern right whale population is recovering at the maximum rate biologically possible – 7% per year. The number of right whales in the entire southern hemisphere is now estimated at 7 000, while the South African stock comprises some 2 000 whales. However, despite a doubling of the population every ten years, this is still only 10% of the original pre-whaling population.

Author: Sue Matthews September 2000

Classification:

PHYLUM:	Chordata
SUBPHYLUM:	Vertebrata
SUPERCLASS:	Mammalia – Mammals
ORDER:	Cetacea – Whales and dolphins
SUBORDER:	Mysticeti – Baleen whales
FAMILY:	Balaenidae – Right whales
GENUS:	<i>Eubalaena</i>
SPECIES:	<i>australis</i>
COMMON NAME:	Southern right whale

FURTHER INFORMATION:

- Best, P. B. 1995. *Whale watching in South Africa: the southern right whale*. Mammal Research Institute, University of Pretoria.
- Cockcroft, V. & Joyce, P. 1998. *Whalewatch: a guide to whales and other marine mammals of southern Africa*. Struik Publishers, Cape Town.

- RELATED FACTSHEETS:** • History of Whaling • Whale-Watching • Humpback Whale • Baleen and Toothed Whales
• Baleen Whales seen from our Coast • Baleen Whales that are Rare and Endangered



The Cape clawless otter *Aonyx capensis* is relatively common along the eastern and southern coasts of South Africa, but its secretive habits mean that it is seldom seen. Although it regularly enters the sea to hunt for food, it appears to use marine habits only where there is also fresh-water, such as rivers and dams.

Identification

Four of the 13 otter species worldwide are found in Africa, but only the Cape clawless otter and the spotted-necked otter *Lutra maculicollis* occur in South Africa. While the latter is limited to the permanent inland waters of the eastern half of the country, the Cape clawless otter occurs throughout the eastern half of the country and along the southern coast. It is the larger of the two species, reaching a total length of 1,5 m, including the tail. The adults weigh 10-18 kg (average = 13 kg), males being larger than females.

The coat of the Cape clawless otter varies in colour from light to dark brown, apart from a white area covering the chin, throat and upper chest. A thick, water-repellent layer of guard hairs covers a dense, softer underfur, which helps keep the otter warm during long periods in the water.

The long, thick tail is flattened underneath, and acts as a rudder during swimming. Most of the propulsion for swimming is from the hindfeet, which are webbed. In contrast, the forefeet are unwebbed, clawless and have an opposable thumb, allowing the otter to probe under stones and in rock crevices to capture prey.

Natural history

The Cape clawless otter feeds mainly on crustaceans, and has broadened molar teeth that are specially adapted for crushing the hard exoskeletons. In freshwater environments, crabs are usually the most important food source, followed by frogs and fish, but smaller amounts of insects, birds, reptiles, molluscs and small mammals are also taken. In marine environments, crabs and rock lobsters make up the crustacean component of the diet, supplemented with fish, octopus and abalone.

This variation in the diet reflects the fact that Cape clawless otters are opportunistic predators, and seem to be able to alter foraging behaviour and target prey according to availability. A study in False Bay revealed that although the otters feed mainly on crustaceans in spring and summer, bottom-dwelling fish are the main prey in autumn and winter, when they are more easily caught in the cold water.

The otters hunt for prey underwater, with dive duration averaging about 20 seconds, but feed on the surface. Fish and frogs are normally eaten head-first while the prey is held with the dextrous forefeet. After they have finished eating, otters sometimes go through an elaborate ritual of cleaning their faces and feet. When they emerge from the water, they shake off excess water vigorously and then roll and rub themselves on the ground to dry off.

The otters are very playful, and are often seen chasing each other around in the water, or treading water and mock fighting. They will play with small stones and sticks for lengthy periods, both in the water and out of it.

Cape clawless otters sometimes travel up river corridors or even overland in search of new food sources. They are most

Cape clawless otter



active at dusk and dawn, and spend the day in holts that can be located by their characteristically strong musky odour. Sometimes the otters hollow these out themselves in reeds or dense vegetation along river banks, but more commonly they use burrows constructed by other species, such as rabbits, porcupines and aardvarks, amongst rocks or roots. A study in the Tsitsikamma National Park found that males had home ranges extending from 8.8-12.8 km of coastline, with one individual using 15 holts in a 12.8 km stretch.

Adult Cape clawless otters are generally solitary, living in pairs only during the mating season, although cubs usually stay in a family group with their mother for some years. Little is known about reproduction in this species, but inferences can be made from the better-studied European otter. In that species, mating occurs in the water, and the female gives birth to 2-3 blind and scarcely mobile cubs. The cubs take their first solid food at seven weeks, and are completely weaned by 14 weeks. At 10 weeks they start venturing from the holt, and at three months they begin swimming around after their mother.

Conservation

Although not endangered, the Cape clawless otter is negatively impacted in a variety of ways by human population growth and development. Destruction of its riverine habitat and ribbon development along the coast may sever the otter's vital link to its feeding grounds. Pollution from sewage, fertilizers and industrial effluent, as well as toxic chemicals such as pesticides that accumulate up the food chain, may reduce the numbers and diversity of prey available to these top predators. In addition, development and agricultural activities in the catchment may increase erosion and hence the silt load in the river, smothering many benthic invertebrates.

Author: Sue Matthews September 2000



Spotted-necked otter, found in inland waters on the eastern part of South Africa – a shy carnivore feeding mainly on fish but frogs, crabs and invertebrates may make up 50% of its diet.

Classification:

PHYLUM:	Chordata
SUB-PHYLUM:	Vertebrata
CLASS:	Mammalia – Mammals
ORDER:	Carnivora
FAMILY:	Mustelidae
GENUS & SPECIES:	<i>Aonyx capensis</i>
COMMON NAME:	Cape clawless otter
GENUS & SPECIES:	<i>Lutra maculicollis</i>
COMMON NAME:	Spotted-necked otter

FURTHER INFORMATION:

- Hunter, L. 1999 Spotted-necked otter. *Africa Environment & Wildlife*. 7(4): 45-47
- Skinner, J. D. & Smithers, R. H. N. 1990. *Mammals of the Southern African Region* 2nd ed University of Pretoria

RELATED FACTSHEETS:

- Southern Right Whale • Baleen and Toothed Whales • Seals • Dugongs



The Cape fur seal *Arctocephalus pusillus* is the only seal that breeds in southern Africa, although other species sometimes wander here from the sub-Antarctic islands. It breeds at 25 colonies between Algoa Bay (Port Elizabeth) and Cape Frio (northern Namibia), with approximately two-thirds of the population in Namibia and a third in South Africa. The mainland colony at Kleinsee, near Port Nolloth, is South Africa's largest colony, but most of the other colonies are on offshore islands. Seals are a popular tourist attraction on islands in Hout Bay and Mossel Bay, as well as at the V&A Waterfront in Cape Town and at Cape Cross in Namibia.

Life history of the Cape fur seal

Adult seals are covered in coarse brown fur, while the pups are born with a smooth, black pelt. By counting the clearly visible pups on aerial photographs of the colonies, the size of the seal population can be reliably estimated, as all the pups are confined to land. In contrast, at any one time many of the adults are at sea, diving for prey such as fish, squid and rock lobster. Adult males average 2.5 m in length and weigh about 300 kg, while the females are generally less than 2 m long and weigh under 100 kg.

The breeding males, or bulls, come ashore at colonies in late October to set up territories which they rigorously defend. The females, or cows, arrive soon afterwards and join a bull's harem, which usually consists of about 20 females. The pups from the previous year's breeding are born in late November or early December, and six days after giving birth the females mate again. However, the implantation of the embryo is delayed for four months, and followed by an eight-month gestation period, resulting in the pups being born a year after conception. The females remain at the colony for almost a year, feeding at sea but returning every few days to suckle their young. At the age of four months the pups moult for the first time, and it is the sleek new pelt that is valued by the fur trade.

Interactions with humans

Seal harvesting along the west coast of southern Africa was initiated by sealers from the Netherlands, later joined by those from France, the United Kingdom and USA, in the 17th century. By the time measures were introduced in 1893 to control the slaughter, the population had been reduced to about 100 000 seals. Since then, small-scale harvesting has allowed the population to increase to its current size of 1.5 million seals, which are estimated to consume up to 2 million tons of fish per year. This has led to calls by the fishing industry for seals to be culled to reduce their population size.

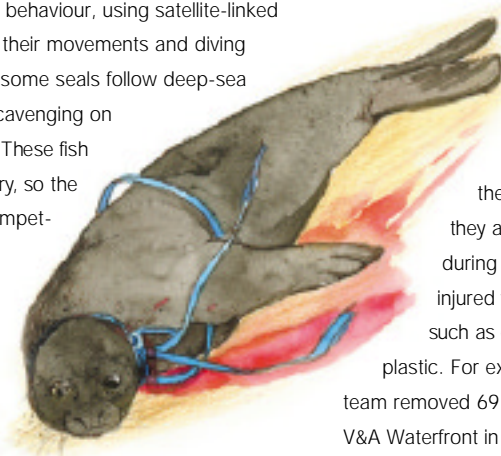
There has been no harvesting or culling of seals in South Africa since 1990, when a proposal to kill 30 000 seals at Kleinsee led to a public outcry. A moratorium on sealing was imposed until further research had



been conducted to predict the effect of seal culls on fish catches. Modelling studies have since indicated that the impact of seal culls on the hake fishery would be minimal. Furthermore, research on seal behaviour, using satellite-linked time-depth recorders to track their movements and diving patterns, reveal that although some seals follow deep-sea trawlers, most are probably scavenging on discarded fish on the surface. These fish represent no loss to the industry, so the seals cannot be said to be competing with the trawl industry.

Other research on the interactions between seals and fishing operations revealed that seals are a relatively minor problem to the deep-sea trawling industry, which targets hake, but are major pests during inshore trawling for sole and kingklip, as fish are either taken whole or are damaged by seals biting through the net. Seals also cause loss of fishing time in the purse-seine industry because of their habit of jumping into the net and disturbing the shoal. Worst affected is the snoek fishery, where part or all of a hooked fish, often with the tackle, is snatched as it is being reeled in, causing losses in the region of at least half to one million Rand per year. Overall, based on 1992 figures, the detrimental effect seals have on fishing operations causes losses of 0.3-0.7% of the total value of the fishing industry.

At the same time, there is no scientific reason not to harvest according to the principle of sustainable utilisation, as the seal population is not endangered and could tolerate a harvest of 50% of pups born. Sealing, however, is unlikely to resume in South Africa, largely because of the negative publicity it would attract in the international arena. The practice has continued in Namibia, where the 1998 quota was 35 000 pups and 5 000 bulls. Bulls are killed primarily for their genitals, which fetch high prices in the Far East as aphrodisiacs, but also for their leather and blubber oil. They



are shot with rifles, while the pups are clubbed to death for their pelts. If properly conducted, clubbing is a humane method of killing pups, as they have soft skulls and can be rendered unconscious or killed instantly with one well-aimed blow.

Conservation

In South Africa, seals are protected under the Seabirds and Seals Protection Act, but they are frequently shot by fishermen, especially during the snoek season. They may also be injured when they become entangled in marine litter such as discarded nets, fishing line, strapping or plastic. For example, a Marine & Coastal Management team removed 69 "entanglement" items from seals at the V&A Waterfront in Cape Town for the twelve-month period up to 13 August 1999, comprising 22 pieces of nylon fishing line, 13 box straps, 28 pieces of "tuna cord" and 6 pieces of rope. Two seals had to be put down during this period as a result of their injuries.

However, seals may in turn be a threat to other conservation-worthy species. As the seal population recovers and colonies at offshore islands expand, vulnerable seabirds such as African Penguins may be displaced from nesting sites, further compromising their status.

Author: Sue Matthews September 2000

Classification:

PHYLUM:	Chordata
SUB-PHYLUM:	Vertebrata
CLASS:	Mammalia
ORDER:	Pinnipedia
FAMILY:	Otariidae
GENUS:	<i>Arctocephalus</i>
SPECIES:	<i>pusillus</i>
COMMON NAME:	Cape fur seal

FURTHER INFORMATION:

- Payne, A. I. L., Crawford, R. J. M. & Van Dalsen, A. 1989. *Oceans of Life off Southern Africa*. Vlaeberg Publishers, Cape Town.
- Wickens, P. 1994. The Cape fur seal: a management quandary. *Africa: Environment & Wildlife* Vol. 2 No. 5.

RELATED FACTSHEETS:

- Islands around South Africa • Plastic Pollution • Aquariums in South Africa



Dolphins 3F

Dolphins epitomise glorious free movement in the sea. They are a joy to watch leaping and surfing or riding the bow-wave from a boat. Whales and dolphins are known collectively as cetaceans. They are warm-blooded milk producing mammals and have a long ancestry, with fossils dating back 50 million years. Although their ancestors were land mammals the dolphins have adapted to their life in water, which is denser than air, making movement and vision difficult and yet supporting the body weight.

Their bodies are torpedo-shaped, their forelimbs have become paddles and the rear limbs have been lost altogether. They swim by moving their tail flukes up and down. Fur, that hallmark of land mammals, has been lost and the insulation needed against the cold water is provided by a layer of fat beneath the skin. Dependency on air for breathing must be considered a real handicap in water, but dolphins minimise the problem by breathing more deeply than land dwellers and thus require fewer breaths. The blowhole is situated on the top of the head and is sealed shut when they dive. Dolphins do not have a sense of smell but can taste quite well.

Hunting for fish

Dolphins sometimes form large schools to help locate the patchy food supplies in the ocean. The annual sardine run along

the KwaZulu-Natal south coast provides an opportunity to observe how dolphins herd fish together and take turns to feed. They leap synchronously from the water and are thought to look for signs of fish, such as fishing birds, while in the air. This is very important as visibility under water is restricted to 10 to 20 m at the best of times. Leaping also enables them to surface and breathe without being slowed down by the turbulence at the surface. Dolphins can reach speeds of 40 kph and at these speeds, even their skin ripples to accommodate the changes in pressure due to drag, thus enabling them to slip through the water with minimal turbulence.

Navigation by echolocation

Movement at high speed means that navigation becomes critically important. Dolphins navigate like bats, using ultrasound, producing high-pitched sounds that bounce off obstacles ahead, allowing them to identify approaching objects and food with remarkable accuracy and speed. Dolphins produce ultra-sounds in their larynx, aided by an organ in the front of the head, the melon. The discovery of echolocation in dolphins stimulated the development of underwater listening and recording devices, used by submarines to detect submerged objects, and by fishing boats to locate shoals of fish. There is evidence that some dolphins use high intensity sound waves to stun their prey. Dolphins produce a great variety of noises and there has been considerable speculation and research as to whether these sounds constitute a language. They are able to hear six times the sound range of the human ear.

The most common dolphins in southern African waters

Bottlenose dolphin – *Tursiops truncatus*
(common along the south and east coast)

Common dolphin – *Delphinus delphis*,
(occurs in groups of 200 or more)

Heaviside's dolphin – *Cephalorhynchus heavisidii*
(endemic between Cape Point and Angola)

Humpback dolphin – *Sousa chinensis*
(possibly endangered)



Reproduction

Dolphins mate underwater after a period of courtship that includes fondling and aerobatic acts. The gestation period lasts about 8-16 months depending on the species. The single calf is born tail first and is nudged upwards as soon as the umbilical cord breaks, so that it can take its first breath of air. It swims perfectly from the moment it is born, keeping in the slipstream of its mother. Calves suckle under water, nudging the mother's mammary area to cause the nipple to protrude from a slit. The calf grabs the teat and the mother pumps the rich milk into its mouth. Dolphin milk is four times richer in fat than human milk. The calf suckles for up to 18 months but starts its solid diet of fish and squid after about 6 months.

Intelligence

Dolphins have large brains. Relative to body weight, their brain size is second only to that of humans. They are capable of imitating and learning tricks and can perform complex tasks using their echolocation and vision. They have complex social behaviour and will support and rescue animals in trouble. There are many cases of dolphins rescuing people. All this suggests a high level of intelligence. It is, however, extremely difficult to assess the level of their intelligence, as they cannot talk or write and have no hands to manipulate things. There is no evidence yet to suggest that they are more intelligent than other social mammals such as chimpanzees.

Dangers to dolphins

Being predators at the top of the food chain dolphins are particularly susceptible to pollutants such as pesticides that are concentrated up the food chain. DDT stored in the blubber and milk of dolphins during the years while they mature can be off-loaded in potentially lethal concentrations in the milk suckled by first-born calves. Shark nets placed at 45 locations along the KwaZulu-Natal coast to protect bathers from sharks are a real threat to dolphins and many of them are caught and drown every year. In an attempt to solve this problem the nets are removed during the sardine run, and there are plans to reduce the number of nets. Other methods of repelling sharks are being investigated by the Sharks Board.

Many countries like Japan harvest dolphins for food. Vast numbers were once ensnared in the high-sea drift nets, but these have now been banned. At one time hundreds of thousands of dolphins were killed during the seine netting of tunas off America but the design of these nets now allows dolphins to escape. South Africa has stringent laws protecting cetaceans from killing and harassment in her waters.

Other dolphins found off South Africa

Rough-toothed dolphin *Steno bredanensis*

Spotted dolphin *Stenella attenuata*

Spinner dolphin *Stenella longirostris*

Fraser's dolphin *Lagenodelphis hosei*

Risso's dolphin *Grampus griseus*

Dusky dolphin *Lagenorhynchus obscurus*

Striped dolphin *Stenella coeruleoalba*

Southern right dolphin *Lissodelphis peronii*

Dolphins and porpoises

Many people confuse dolphins with porpoises. No porpoises are found in southern African waters. They belong to a family of small beakless whales and have spade-like blunt teeth. Dolphins have beak-like snouts with sharp conical teeth. Most species of dolphin have prominent curved dorsal fins while those of most porpoises are small and roughly triangular.

How you can help a stranded dolphin

Prevent the stranded animal from overheating and suffering sunburn by shading it and wrapping damp towels around the flippers, fin and tail. Pour water over it, being careful not let water enter the blowhole or the dolphin will drown. Do not make a noise and keep crowds away. Contact your local authority.

Author: Margo Branch September 2000

Classification:

CLASS:	Mammalia – Mammals
ORDER:	Cetacea – Whales and dolphins
SUBORDER:	Odontodeti – Toothed whales and dolphins
FAMILY:	Delphinidae – Killer whales, pilot whales and dolphins

FURTHER INFORMATION:

- Centre for Dolphin studies, Port Elizabeth Museum
- Cockroft, V. & Joyce, P. 1998. *Whale Watch*. Struik, Cape Town
- The Dolphin Action & Protection Group Tel (021) 782 5845
- Payne, A. I. L. Crawford, J.M. 1995. *Oceans of Life off Southern Africa*. 2nd ed. Vlaeberg Publishers, Cape Town.
- Skinner, J. D. & Smithers, R. H. N. 1990. *Mammals of the Southern African Region* 2nd ed. University of Pretoria pp564-56

RELATED FACTSHEETS: • Baleen and Toothed Whales • Killer and Pilot Whales • Sperm and Beaked Whales • Whale Watching



Baleen Whales Seen Around South Africa

Baleen whales are the largest known creatures ever to have lived. The name of the suborder Mysticeti, to which they belong, means 'mouse-tailed sea monsters' and refers to the hair-fringed baleen plates that hang from the upper jaw. Mouthfuls of water are squirted out through these plates to trap the plankton on which these whales feed. There are three families of baleen whales in the Southern Hemisphere: the right whales, the pygmy right whales and the rorquals, which include all the groove-throated whales such as humpback, blue, sei, Minke, Bryde's and fin whales. The four baleen whales most likely to be seen along the coast of South Africa are described.

THE RORQUALS family Balaenopteridae

This family includes the largest animals ever known on earth, the blue whales, which are even bigger than the biggest dinosaurs. Rorquals have huge, expandable, grooved throats, a dorsal fin and relatively short baleen plates. They gather in the Antarctic in summer to feast on enormous swarms of krill, a large shrimp-like type of zooplankton. Rorquals are all essentially shallow feeders and do not dive very deep for very long. After surfacing they blow a single spout. In winter they move to warmer latitudes where they mate and usually give birth to a single calf, after a gestation period of about 11 months. There are two genera and six species of rorquals found in southern-hemisphere waters. The most distinctive is the Humpback whale, which has long flippers. The other species have similar body shapes and short flippers, but they differ greatly in size.

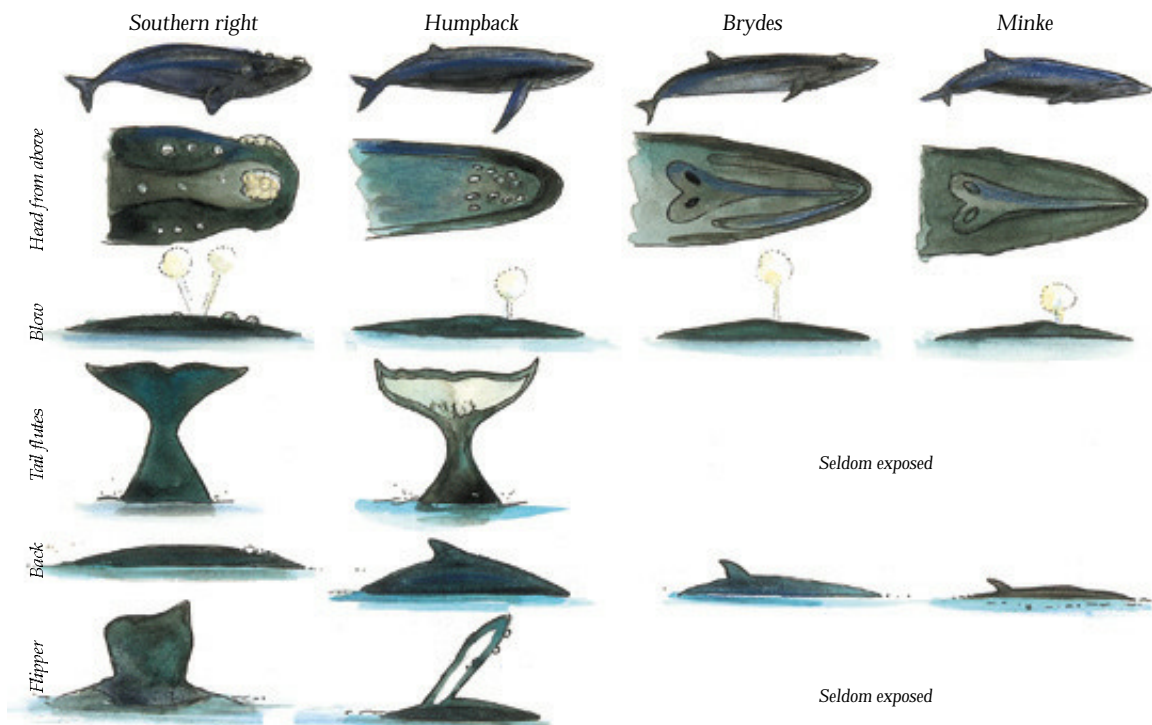
RIGHT WHALES family Balaenidae

The southern right whale, *Balaena glacialis*, is the most common whale seen in southern African waters. It is almost black and is identified by the absence of a dorsal fin, and by its smooth throat and strongly arched jaws, which bear the longest baleen plates (two to three metres) of all southern-hemisphere species. It can also be distinguished from other whales by the V-shaped spout that it blows. It skim-feeds surface water to gather small crustaceans known as copepods. (Refer to factsheet: Southern Right Whale.)

Humpback Whale *Megaptera novaeangliae*

Reaching up to 14 m, the humpback whale's most striking feature is its extremely long white flippers that contrast with its black upper body surface. The leading edge of the flippers and the end of the tail are scalloped. The dorsal fin is short and thick, set on a long humped back. The humpback whale has a large head and can temporarily dislocate the lower jaw to increase its gape during feeding. They have developed ingenious methods of prey capture - blowing curtains of bubbles to concentrate their prey and using their long fins to herd fish. (Refer to factsheet: Humpback Whales.)

IDENTIFICATION GUIDE



Whale bones or 'whalebone'?

- The bones of whales (not to be confused with 'whalebone', another name for baleen) are lighter than those of terrestrial animals because they do not have to support the weight of the animal. The bones constitute only 17% of the total body weight and they float because they are spongy inside with lots of spaces filled with marrow and oil. The neck vertebrae are fused together to help support the very big heads of right whales. Dolphins, on the other hand, have mobile necks with articulating vertebrae. Whales have no external back limbs but some, such as the blue whale, have a vestigial pelvis with two rudimentary femurs – a left over reminder of their land ancestors.
- Baleen in the whale mouth is known as 'whalebone' – it is a horny flexible substance ending in a fringe of hairs. There can be up to 350 baleen plates hanging from each side of the upper jaw. Before the era of plastics, baleen was used for umbrella spokes, corset stays and combs, while the hairs were used in helmet plumes, shoulder pads and stuffing furniture.

Minke whale *Balaenoptera acutorostrata*

The Minke whale is the smallest of the rorquals, reaching 10 m. It is the same spindle-shape as the blue whale and, in fact, was named in jest after a Norwegian whaler, who mistook this little whale for the giant blue whale. Another common name, 'piked whale', refers to the sharply pointed V-shape head, with a ridge running down its centre. Minkes are inquisitive, often following ships and leaping from the water in a spectacular breach. Many adults have pale bracket-shaped marks on the dark back above the short flippers. The dorsal fin is prominent and erect, located two-thirds from the front of the body. The baleen is cream in colour with thin black stripes. Minkes occur world-wide but their numbers are very low in the Northern Hemisphere due to prolonged exploitation. In summer they occur in high densities circumpolar in the Antarctic, where they feed on krill and copepods. Some females and calves stay in our warmer waters year round and apparently feed on fish and crustaceans.

The world population is probably between 200 000 and 300 000. In the Antarctic, Minke whales benefited from the decline of larger whales and multiplied rapidly on the abundant krill. Consequently, whalers have targeted the species in recent years and there is continuing pressure to allow exploitation of Minke whales in the Antarctic.

Bryde's whale *Balaenoptera edeni* (pronounced 'Breeders')

Also known as the tropical whale, Bryde's whale is found primarily near the shore in most tropical and sub-tropical waters. It is very like the sei and fin whales but Bryde's whale can be recognised by the three ridges along the head and the sharply pointed fin – often with notches. It swims with jerky movements and rolls over with an arched tail before diving. Along the South African coast there appear to be a non-migratory inshore population that feeds on shoals of small fish, and an offshore population that migrates into the area in spring and summer and may feed on small crustaceans and fish. Bryde's whales are not particularly fast swimmers or deep divers. Stranded Bryde's whales can be identified by the long throat grooves that extend right down to the navel and by their distinctive grey to white baleen with coarse bristles suitable for trapping fish. Little is known about the world population numbers of Bryde's whales. They have not been heavily exploited.

Author: Margo Branch September 2000

Classification:

PHYLUM:	Chordata
SUBPHYLUM:	Vertebrata
CLASS:	Mammalia – Mammals
ORDER:	Cetacea – Whales and dolphins
SUBORDER:	Mysticeti – Baleen whales
FAMILY:	Balaenidae – Right whales Balaenopteridae – Rorquals – humpback, minke, Bryde's whale

FURTHER INFORMATION:

- Best, P. 1998. *Whale watching in South Africa*. The Southern Right Whale. Mammal research Institute Pretoria.
- Cockroft, V. & Joyce, P. 1998. *Whale Watch*. Struik, Cape Town.
- South African Museum, P O Box 61, Cape Town 8000, Tel. (021) 243 330

RELATED FACTSHEETS:

- Baleen and Toothed Whales • Southern Right Whale • Humpback Whale • Rare and Endangered Baleen Whales • Krill • History of Whaling • Whale Watching



Killer and Pilot Whales 3F

Killer whales are the most striking of the toothed whales. They belong to the same family as the dolphins and like their relatives are active predators.

KILLER WHALE *Orcinus orca* (Family Delphinidae)

The spectacular killer whale, or orca, is a large robust dolphin with a short round head and a glossy black and white body. Females reach 8m and males up to 9m. The sexes can be distinguished by the shape and size of the dorsal fin which is short in the females (12% of the body length) and slopes backwards, whereas males have large triangular fins (18% of the body length) that project vertically.

Killer whales are the only real meat-eating whales and employ sophisticated feeding techniques to capture seals, whales, dolphins, fish, penguins and squid. They have 10-13 robust teeth in both jaws, which interlock to provide an efficient grip. Orcas are distributed worldwide in tropical and polar seas and small numbers can be seen anywhere along the South African coast. They usually move in pods of up to 200, made up of several generations of related whales.

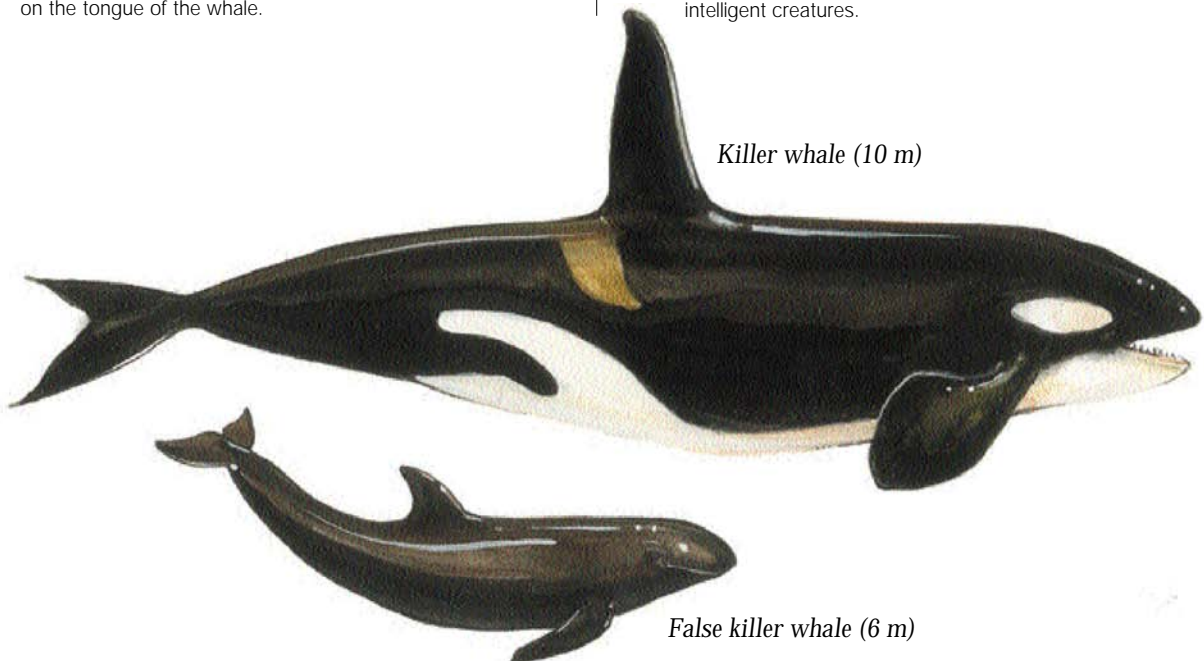
Different feeding habits have developed in different areas. In Patagonia they leap on to the beach to capture elephant seals or sea lions before wriggling backwards into the water. In other areas they regularly rob anglers and long-line fishers of their catches. They often co-operate to attack large whales, and will bite the flippers or prise open the jaw to feast on the tongue of the whale.

Killer whales communicate with whistling sounds and different pods develop different dialects. They use clicks to echolocate their prey. The sound of killer whale clicks will cause other creatures to flee or clamber ashore in panic. Sperm whales will encircle their calves to fight off killer whales.

Killer whales are fast swimmers and capable of making spectacular leaps out of the water. They are propelled forward by the up and down movement of the tail and use their paddle-shaped flippers to turn and manoeuvre. Like all whales and dolphins they are sleek and streamlined and both the mammary glands and male sex organs are withdrawn into slits on the underbelly. They mature at about 14 years and some may live for 80 years. They mate and calve throughout the year and have a gestation period of about 12 months. To prevent them drowning calves are born tail first and lifted to the surface for a first breath. The mammary glands, on either side of the genital slit, swell with milk and the nipples are exposed so that the calf can get a grip. The milk is squirted into the calf's mouth by muscular contractions of the mother. Care of the young is well developed in all cetaceans, but especially so in the killer whale. Injured group members are not deserted and even held up to the surface to breathe.

Performing animals

Despite their apparent ferocity they have been kept in aquaria, respond well to training and provide a spectacular display when leaping vertically from the water. However, there are reports of trainers being injured and killed by these animals and one does question the need to confine such beautiful, intelligent creatures.



Killer whale (10 m)

False killer whale (6 m)

What to do if you find a stranded whale or dolphin

Contact

- Marine and Coastal Management (branch of Department of Environmental Affairs and Tourism)
Mike Meyer Tel: (021) 402 3911 After hours: (021) 790 2675
- The Dolphin Action & Protection Group. Tel (021) 782 5845
- South African Museum Tel. (021) 243 330
- Your local authority.

Action

Keep the animal cool by shading it and pouring water over it – but be careful to prevent water entering the blowhole or it will drown.

Take careful measurements of the length and width of the body, the fins, tail and flippers. Note the number of teeth or the colour and length of the baleen plates. If possible, photograph the animal showing any distinctive features so that scientists can identify the species and even possibly the individual for their records.

Southern African records of small toothed whales include:

- Pygmy killer whale *Feresa attenuata* (up to 2.7 m)
- False killer whale *Pseudorca crassidens* (up to 6 m)
- Melon-headed whale *Peponocephala electra* (up to 2.7 m)
- Short-finned pilot whale *Globicephala macrorhynchus* (up to 6 m)
- Long-finned pilot whale *Globicephala melas* (up to 6.7 m)

Author: Margo Branch September 2000



Long-finned pilot whale

SMALL TOOTHED WHALES WITH ROUNDED HEADS (family Delphinidae)

Pygmy and false killer whales, pilot whales and melon whales are dolphin relatives with rounded heads. Most of them are deep-water species, but they occasionally wash ashore on the coast of South Africa. A mass stranding of false killer whales occurred off St. Helena Bay on the west coast in 1981. In April 1978 over 259 false killer whales beached near Auckland in New Zealand. The only way to reduce these mass mortalities is to silence the beached individuals so that they do not summon others with their cries of distress. Maritime countries need to develop procedures to allow quick action to reduce these mortalities. In sharp contrast to the efforts of many countries to protect these creatures, the Faeroe islanders still carry on a long tradition of chasing passing pilot whales into shallow bays where thousands are slaughtered using knives, spears and lances in a killing frenzy.

Classification:

PHYLUM:	Chordata
SUBPHYLUM:	Vertebrata
CLASS:	Mammalia – Mammals
ORDER:	Cetacea – Whales and dolphins
SUBORDER:	Odontoceti – Toothed whales and dolphins
FAMILY:	Physeteridae – Sperm whales Ziphiidae – Beaked whales Delphinidae – Killer whales, pilot whales, melon whale, dolphins

FURTHER INFORMATION:

- South African Museum, P O Box 61, Cape Town 8000, Tel. (021) 243 330
 - Cockcroft, V. & Joyce, P. 1998. *Whale Watch*. Struik, Cape Town
- Payne, A. I. L. Crawford, J.M. 1995. 2nd edition. *Oceans of Life off Southern Africa*. Vlaeberg Publishers, Cape Town.
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 - Watson, L. 1985. *Whales of the world*. Hutchinsonson & Co. Publishers, London.
- Lockley, R. M. 1979. *Whales, dolphins and porpoises*. David and Charles Publishers, Brunel House Newton Abbot, Devon.

RELATED FACTSHEETS:

- Dolphins • Baleen and Toothed Whales • Sperm and Beaked Whales • Baleen Whales seen around South Africa



Rare and Endangered Baleen Whales

3F

During the hey-day of whaling, in the late 19th century, whales were targeted for their meat, baleen and abundant oil. Whalers hunted the blue whale almost to extinction and then turned progressively to smaller species causing them to become endangered as well. The International Whaling Commission has placed a moratorium on all whaling and a whale sanctuary has been declared in the Antarctic but it will be many years before these species are out of danger of extinction. In this factsheet we deal with the most endangered deep-water rorquals (the blue whale, the fin whale and the sei whale). The Pygmy right whale is a small baleen whale rare in the Southern Hemisphere.

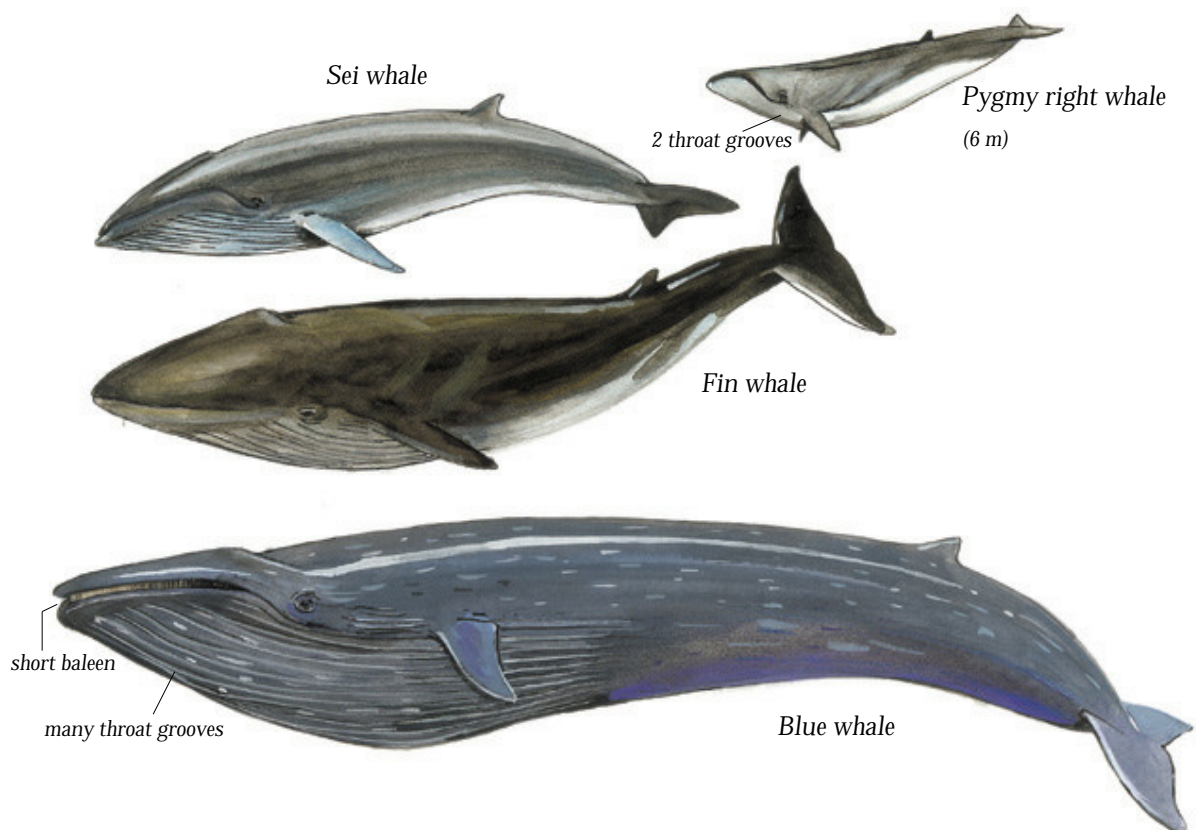
THE RORQUALS family Balaenopteridae

Rorquals are baleen whales with a large grooved throat, short flippers and a small dorsal fin set far back on the body. All the rorquals have spindle-shaped bodies, counter-shaded dark grey above and white beneath, but the species differ greatly in size from the giant blue to the small Minke whale. They have a thick layer of blubber that provides vital insulation in the cold

polar zones, and serves as a store of energy. In winter they migrate to warmer oceans where they mate, give birth and nurse their calves for about 8 months without feeding, sustained only by their blubber store. (Refer to factsheet: Baleen whales seen around South Africa)

Blue whale *Balaenoptera musculus*

The blue whale is the largest creature that has ever lived on earth, reaching up to 33 m long, with a weight of about 140 t. Even its penis is 2.9 m long! Despite its enormous weight the blue whale gives an impression of sleek grace as it glides through the water at speeds of 4-16 knots. When it exhales, it blasts up a single spout 6-12 m high. Its fin is small and set very far back on the long body and the flippers are only exposed for a fleeting moment. The head is broad, with a rounded snout and occupies less than 25% of the body length. It has 65-95 throat grooves that expand out to greatly enlarge the volume of the mouth cavity. There are about 320 pure black baleen plates on either side of the jaw, each about 1 m long. Blue whales use the baleen to collect about 4 t of food a day, consisting almost exclusively of krill. Each whale has three compartments to its stomach: the first stores and crushes up to a ton of krill, the second compartment deals with digestion, and the third absorbs food. The calves are 7-8 m long, and are born tail first, and raised to the surface for their first breaths. They are suckled for 7 months, drinking about 600 l of rich milk a day.



Distribution Blue whales occur worldwide but they are seldom seen, submerging quickly if disturbed. It is possible that there are three distinct subspecies; a smallish one in the Northern Hemisphere, a more abundant large form that spends summer in the Antarctic, and a pigmy form found around Crozet and Kerguelen Islands in the southern Indian Ocean.

Conservation status The blue whale is 'endangered.' The total population is probably less than 10 000 down from an estimated 400 000 before whaling began. The latest estimate on the Antarctic population is about 1 000. Despite the ban on whaling it will be many years before they are beyond danger of extinction.

Fin whale *Balaenoptera physalus*

Fin whales are dark grey and second in size only to the blue whales (up to 27 m and 70 t). Fin whales generally rise obliquely to the surface so that the flat wedge-shaped head breaks the surface first. They are unusual in that the right side of the head, jaw and baleen is paler than the grey left side – providing counter shading when feeding. Fin whales locate shoals of fish, squid or krill using echolocation, and circle the prey at speed, roll onto their right sides, mouth agape and left flipper in the air, and skull the food in with the right flipper.

Distribution Fin whales occur in all the oceans at all temperatures and can dive to 200 m or more, staying down for 4-15 minutes. They tend to migrate towards the equator during winter and may travel 20 000 km a year. Mating, accompanied by social play and ponderous courtship, occurs in winter in the tropics. They may reach an age of 100 years.

Conservation status Fin whales were decimated by whaling but since protection there has been some recovery. They are considered to be 'vulnerable' with total numbers of about 70 000.

Sei whale *Balaenoptera borealis*

The sei whale is smaller than the blue and fin whales (length up to 21 m, weight to 55 t) but its body is proportionally more robust and the fin further forward. The sei whale is one of the fastest whales and yet it usually swims sedately and dives quietly (unlike the Bryde's whale). Like the blue and fin whales

it has a single ridge along the head, whereas Bryde's whale has three ridges. The Sei whale feeds close to the surface on small crustaceans, fish and squid and usually rises horizontally to breathe, exposing the back and fin. The throat grooves are short and stop just behind the flippers. It has about 340 baleen plates up to 75 cm long, black with a metallic sheen and a fringe of fine silky white hairs. Other rorquals have coarser bristles on the baleen.

Distribution Sei whales frequent the deeper offshore water in all warm and temperate oceans. They seem to breed year round but peak in June. They live for about 60 years.

Conservation status Sei whales were not exploited until the 1960s because being warm water species they yield less oil than the larger whales. Nevertheless at least 100 000 were taken between 1961 and 1979 and they are now considered to be 'vulnerable' with a total population at about 80 000.

PYGMY RIGHT WHALES family Neobalaenidae

The grey and white pygmy right whale, *Caperea marginata*, is the smallest of the baleen whales, about 6 m, and is an uncommon Southern Hemisphere species. It has a rounded head, only two throat grooves, a strongly curving mouth and cream-coloured baleen plates with a dark outer margin. It has a small dorsal fin, which seldom shows above the water. Like the southern right whale the pygmy right whale feeds mainly on copepods.

Author: Margo Branch September 2000

Classification:

PHYLUM:	Chordata
SUBPHYLUM:	Vertebrata
CLASS:	Mammalia – Mammals
ORDER:	Cetacea – Whales and dolphins
SUBORDER:	Mysticeti – Baleen whales
FAMILY:	Neobalaenidae – Pygmy right whale Balaenopteridae – Blue, sei and fin whales

FURTHER INFORMATION:

- South African Museum, P O Box 61, Cape Town 8000, Tel. (021) 243 330
- Payne, A. I. L. Crawford, J.M. 1995. 2nd edition. *Oceans of Life off Southern Africa*. Vlaeberg Publishers, Cape Town.
- Skinner, J. D. & Smithers, R. H. N. 1990. *Mammals of the Southern African Region* 2nd ed University of Pretoria pp564-566
- Watson, L. 1985. *Whales of the world*. Hutchinsonson & Co. Publishers, London.

RELATED FACTSHEETS:

- Baleen and Toothed Whales • Baleen Whales Seen around South Africa • History of Whaling • Southern Right Whale • Humpback Whale • Krill



Sperm and Beaked Whales 3F

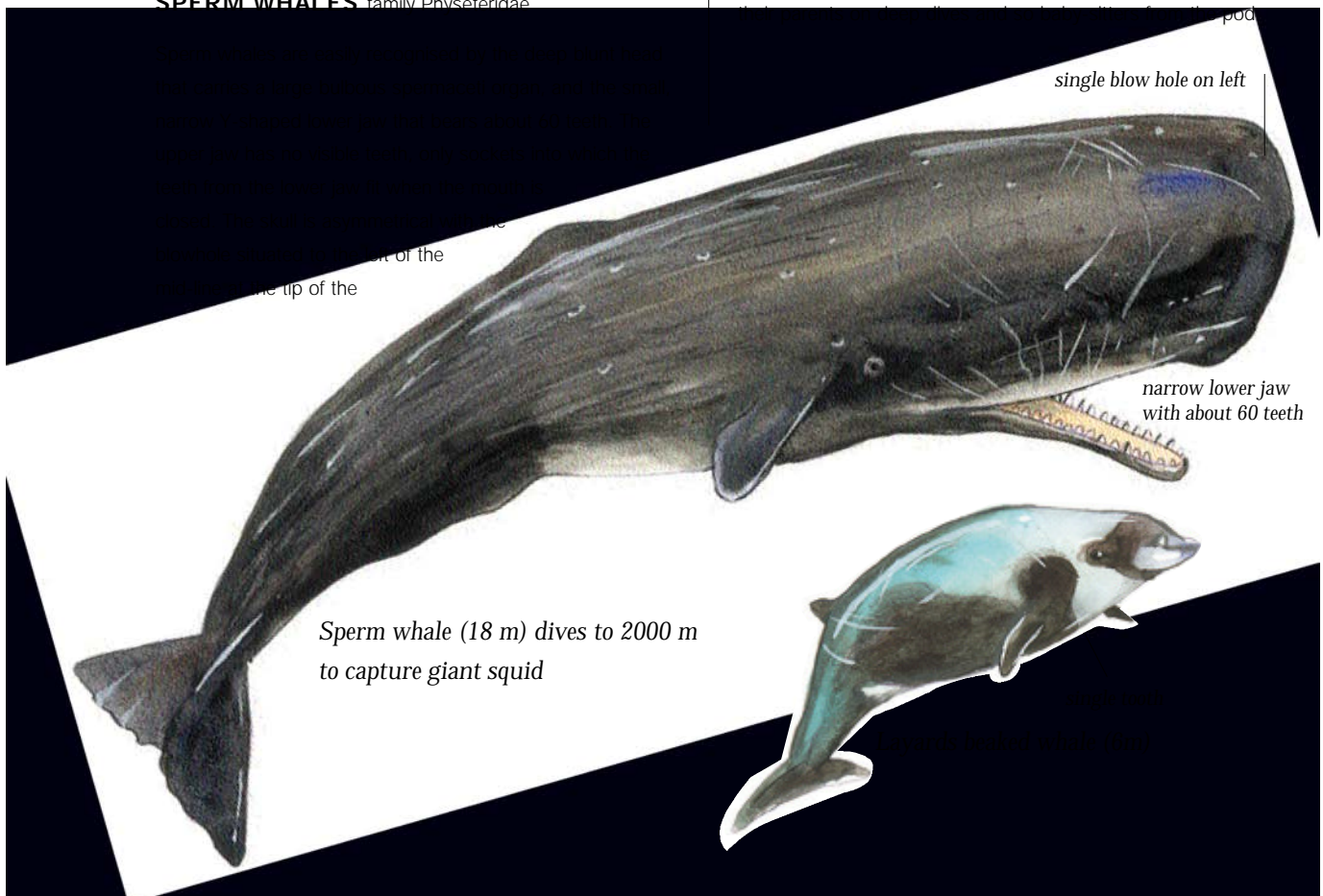
Toothed whales and dolphins are highly efficient predators at the top of the food chain in the ocean, feeding primarily on fish and cephalopods (squid and octopus). They are marine mammals that spend their entire life in the water, rising to the surface periodically to breathe air through a single blowhole. In our subregion there are 29 species in three families: the sperm whales, the beaked whales and the dolphin family which includes pilot and killer whales. The teeth and the shape of the head are used for identification of the different species. The number and arrangement of the teeth vary with the species but the teeth are all similar in appearance, being peg-like with a single root. The teeth are simply used to grasp the prey, which is swallowed whole. In toothed whales the air cavities and sinuses in the cheekbones are developed into a maze of air and foam-filled passages that play an important role in the supply of oxygen during deep diving.

snout and so they produce a characteristic forwardly-angled blow. There are three species of sperm whales. Two are smaller species that only occasionally strand on the shores of South Africa. These are the **Pygmy sperm whale** *Kogia breviceps* (3.5 m long, with a square head and 12-16 teeth) and the **Dwarf sperm whale** *Kogia simus* (2.7 m long, with a rounded head and 8-11 small teeth). The third is the giant **Sperm whale**.

Sperm whale *Physeter macrocephalus*

Giant sperm whales are the biggest of the toothed whales, with females reaching 12 m and males 18 m. They are found far out to sea and tend to live in small groups called 'pods'. They are known to dive for as long as 90 minutes and down to 2 000 m, which enables them to capture deep-water giant squids of over 19 m. During the dive their lungs collapse and the oxygen needed for energy is obtained from the blood and muscles, rather than from the air. This prevents these whales from ever getting 'the bends' that divers can suffer if they stay too deep for too long. Sperm whales, like dolphins, emit sounds that bounce back from their prey. The enormous reservoir of spermaceti oil in the sperm whale's gigantic head acts as a highly directional sonar detector thus allowing sperm whales to 'echolocate' their food. This is particularly useful in deep dark water where the only light is luminescence emitted by the giant squid. Calves cannot accompany

SPERM WHALES family Physeteridae



remain at the surface to protect them from killer whales or sharks. They surround the calves, forming an outward-facing circle to ward off attackers. Sperm whales can be very aggressive. They can communicate over many kilometres and will respond to a distress call. Whalers knew that a securely harpooned injured whale was the best way of enticing others within shooting distance. But they had to place barrels in the sea for the sperm whales to vent their anger on, hopefully distracting them from attacking and sinking their boats.

Sought-after sperm-whale products

'The lives of the early whalers were permeated with the foul odour of whale oil, which nevertheless was the reek of prosperity'. The sought-after blubber oil of the sperm whale is a liquid wax unlike that of baleen whales. In addition, spermaceti, a waxy oil that solidifies rapidly at low temperatures, is an almost perfect lubricant for refined machinery and once fetched high prices – the oil of the jojoba bean now replaces it. Ambergris, a resinous mass found in the lower intestine of the sperm whale, becomes sweet-smelling when voided and is valued as a base for the perfume industry. The large teeth, like ivory, are in great demand for ornaments and carvings and have cultural significance for many peoples, such as the Maoris.

Strandings

Much has been learnt about sperm whales from whaling and from stranded animals. In New Zealand observers have noted that individuals stranded on the beach called in distress, while the pod mills offshore. One or two whales at a time then move inshore and also become stranded and eventually the whole pod is beached. In one case over 70 whales were beached. However the loss of the whole pod can be forestalled by silencing the first whale ashore. The initial cause of stranding may be due to illness, parasitic infection, disorientation during storms or an unusual configuration of the ocean bed.

BEAKED WHALES Family Ziphiidae

The beaked whales are small to medium-sized whales (4 -12m) with narrow protruding beaks and one or two pairs of large

teeth, which are used as weapons by the males. Bulls carry scars inflicted by the battle teeth of rival males. In Arnoux's beaked whale both sexes have two pairs of teeth. In *Mesoplodon* species the male has a single pair of flattened teeth, and in Cuvier's beaked whale and the Southern bottlenosed whale the males alone have a single pair of cylindrical, pointed teeth. Beaked whales are deep-water inhabitants and only stranded specimens are likely to be seen on South African shores. The following species have been recorded.

Arnoux's beaked whale *Berardius arnuxii*

Blainville's beaked whale *Mesoplodon densirostris*

Layard's beaked whale *Mesoplodon layardii*

Hector's beaked whale *Mesoplodon hectori*

Gray's beaked whale *Mesoplodon grayi*

True's beaked whale *Mesoplodon mirus*

Cuvier's beaked whale *Ziphius cavirostris*

Southern bottlenosed whale *Hyperodon planifrons*

Things to do

Visit the 'Whale Well' at the South African museum in Cape Town to see their magnificent display.

Author: Margo Branch September 2000

Classification:

PHYLUM:	Chordata
SUBPHYLUM:	Vertebrata
CLASS:	Mammalia – Mammals
ORDER:	Cetacea – Whales and dolphins
SUBORDER:	Odontoceti – Toothed whales and dolphins
FAMILY:	Physeteridae – Sperm whales Ziphiidae – Beaked whales

FURTHER INFORMATION:

- South African Museum, P O Box 61, Cape Town 8000, Tel. (021) 243 330
- Skinner, J. D. & Smithers, R. H. N. 1990. *Mammals of the Southern African Region* 2nd ed University of Pretoria pp564-566
- Watson, L. 1985. *Whales of the world*. Hutchinsons & Co. Publishers, London.

RELATED FACTSHEETS:

- History of Whaling • Toothed and Baleen Whales • Killer Whales and Pilot Whales
- Baleen Whales seen around S Africa • Rare and Endangered Baleen Whales • Dolphins

