



Whales and Whale Strandings

Our attitudes towards whales have undergone a massive change in the past few decades. Growing worldwide concern for these gentle marine creatures has fuelled the transition from a commercial exploitation that severely depleted the global population of large whales to an almost universal ban on whaling. Today, a rapidly growing tourist industry provides people with the opportunity to see these remarkable animals in their own environment, while instances of mass strandings bring great public support in efforts to return the animals to the sea.

Biology

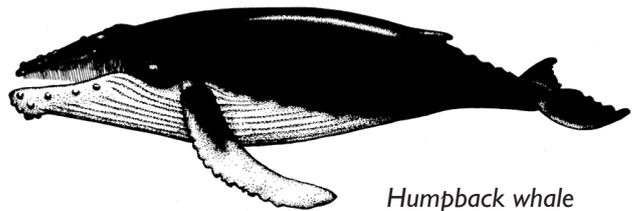
Whales are mammals and like their land-based cousins, whales are warm-blooded, breathe air and suckle their young on milk. Some species possess hair, particularly around the mouth, but in most species hair has been lost to minimise drag. Whales and dolphins belong to a group of mammals collectively known as cetaceans and are believed to share a common ancestry with the ungulates, a diverse group of hoofed mammals that includes modern-day horses, pigs, sheep, deer, antelopes and camels. Their land-based ancestors adopted a marine existence over 50 million years ago.

Cetaceans are divided into two groups — the baleen whales and the toothed whales. The toothed whales, as their name suggests, use teeth for feeding, possess only one blowhole opening and have asymmetrical skulls. Baleen whales use baleen (a rigid, keratin-like material similar to our fingernails) which hangs in vertical strips from the upper jaw. Baleen acts like sieves to filter out the tiny crustaceans (krill) on which they feed. Large whales, such as the humpback, can consume over two tonnes of krill each day.

A number of feeding strategies are used to maximise the intake of krill. A remarkable example is the 'bubble-netting' behaviour of the humpback whale, in which the animal expels a stream of bubbles from the blowhole while slowly ascending in a spiral to the surface. The bubbles form a cylindrical wall which surrounds the krill and traps them. The whale then swims upwards through the cylinder with its mouth open, consuming the concentration of krill.

Adaptations to the marine environment

Many aspects of cetacean biology reflect their adaptation to the marine environment. Increased size and the development of a thick, insulating layer of fat, or blubber, allows whales to maintain a constant body temperature despite the cold environment in which they often live. The buoyancy provided by water has led to decreases in bone density and a reduction of supportive tissues for internal organs. Because of this, large, stranded whales are in a perilous situation. Their bones can break easily and damage can occur to internal organs due to increased pressure.



Humpback whale

Whales must come to the surface to breathe, although species such as the sperm whale have been known to remain submerged for over 1 1/2 hours and dive to depths in excess of two kilometres.

The blow of a whale is the result of expired air (not water) and an oily residue secreted from the lining of the windpipe being forced out through the blowhole. The particular size and shape of the blow can be used as an aid to identification of the species.

Most species of toothed whale are able to use echolocation to form what is effectively a mental picture of their surroundings. These whales produce pulses of very high frequency sound which strike objects and return as echoes. From these echoes, the animal is able to gain detailed information on the size, shape, distance, and even texture of the objects around them. It is believed that the spectacular behaviour known as breaching also serves as a means of communication. Whales such as the humpback often smack the surface of the water with their tail to warn of danger.

Cetaceans in Tasmanian waters

The most frequently seen cetaceans are the common and bottle-nosed dolphins. Among the larger species of baleen whale, southern right whales and humpback whales can be seen at east coast vantage points such as Frederick Henry Bay and Great Oyster Bay. While most species migrate some distance off the continental shelf, the humpback and southern right whale come sufficiently close to the coast to allow regular sightings from land. Humpbacks travel northward to breeding areas off the coast of Queensland and Western Australia between May and July and return southward to their sub-antarctic feeding grounds between September and November.

Southern right whales travel north from June to September to the waters of southern mainland Australia and return southward between September and late October. A proportion of the population gives birth in Tasmanian waters. Most sightings occur on the east coast. Although this may be simply a consequence of the higher population of human observers in the east, it is likely that the humpback and southern right whales prefer the calmer waters of the east coast.

Research

The Nature Conservation Branch is currently assisting in research into the recovery of the southern right whale. Along with many other species, the southern right whale suffered massive population declines during



Sperm whale



Pygmy right whale

the years that commercial whaling ventures operated in Australia, with an estimated 26,000 individuals taken from southern waters of Australia and New Zealand. Today, only some 500-700 southern right whales migrate to the southern waters of Australia, but numbers are increasing.

The stranding record provides an indication of the species that occur in Tasmanian waters. Some species have been recorded only once and have never actually been observed live in Tasmanian waters.

Whaling in Tasmania

Whaling got off to an early start in Tasmania. Indeed, the HMS *Lady Nelson* and the whaling ship *Albion*, sailing with the first band of officers, settlers and convicts to arrive on Tasmanian shores in August 1803, caught three sperm whales en route. Two years later, the first Australian whaling station was established at Ralphs Bay on the Derwent River. In the first half of the nineteenth century, whaling ventures were almost solely conducted in the bays and inlets around the east coast from Eddystone Point to Recherche Bay, a practice which became known as 'bay whaling'.

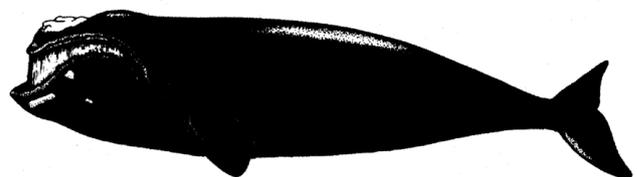
The southern right whale, so-called because it was the 'right' whale to kill, had all the characteristics of an easily exploitable species — it came close to the shore, was a slow swimmer, was rich in oil and floated when dead.

With the depletion of the southern right whales by the 1840s, bay whaling declined and a new quarry was pursued — the sperm whale. 'Sperm whaling', as it was known, required crews to venture out to sea for long periods in pursuit of this ocean going species.

Humpback whales yielded only small quantities of a poor quality oil and were therefore not pursued by Hobart-based whalers, although these were pursued by ships operating out of Sydney. Other whales less vigorously pursued included the smaller pilot and fin back whales which provided significantly smaller quantities of oil.

Oil derived from whales was used for lighting and industrial purposes, while the baleen (whalebone) was used to fashion corsets, bustles and items such as knife handles, brushes and ornaments.

The enormous head of the sperm whale provided much of the spermaceti oil extracted from these creatures. A single whale provided an average of 252 gallons of this oil, as well as ambergris (a product of the intestine) which was used in the perfume industry. Additionally, the teeth were used for carving, producing a form of art known as scrimshaw.

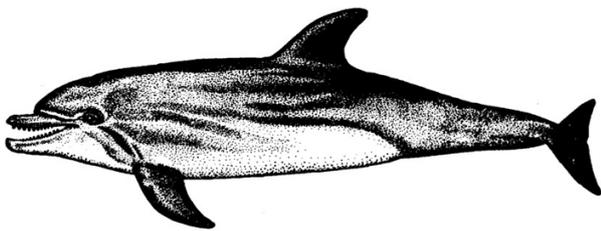


Southern right whale

Whale strandings

Of all Australian States, whale strandings occur most frequently in Tasmania. A disproportionate number of these strandings have occurred in the Circular Head and Macquarie Harbour — Ocean Beach areas.

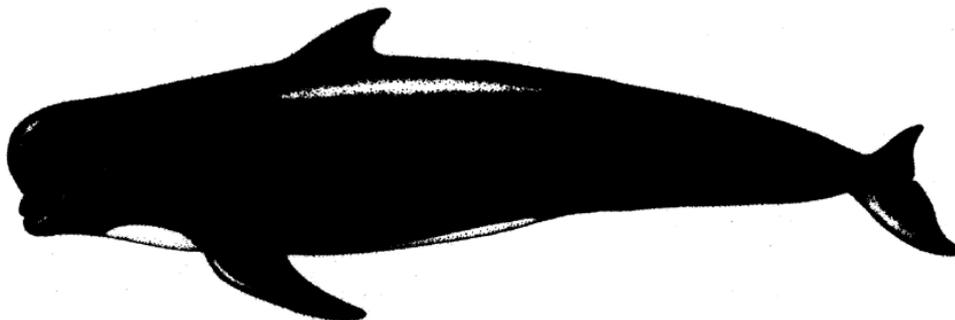
Common dolphins and pygmy right whales, both of which typically strand singularly, are the most commonly reported species. Sperm whales and long-finned pilot whales also are frequently reported, the latter usually in herds. In 1992, for example, 198 individuals were reported stranded near Bicheno. Most strandings are reported in the summer months, although it is not clear whether this is a consequence of increased human activity along the coast during this time of the year or an increase in the number of whales passing the coast.



Common dolphin

Why whales strand

The reasons whales strand are not yet fully understood. Fanciful explanations have ranged from the Romans belief that stranded whales were being punished by Neptune, to more recent, but equally dubious theories about suicide. While some single strandings may be accounted for by a whale dying at sea and being washed ashore, many strandings are believed to occur due to other factors. It is likely that these factors act in combination.



Long-finned pilot whale

Occasionally, stranded whales are found to be suffering from infections of the inner ear which may affect their ability to navigate using echo location. Confronted with rough seas, a single individual may stray too close to the shore. If such an animal touches the bottom, the resultant distress calls can lead to the rest of the pod encountering a similar fate as they attempt to maintain the social cohesion of the herd.

Also, certain topographical features may lead to strandings. Wide, gently sloping beaches are not detected by the reflection of sonar pulses. This may result in the whales approaching too close to the shore. Heavy seas combined with ebb-tides may result in the pod becoming stranded. Similarly, bays with narrow mouths flanked by rocky headlands may give the impression of being trapped with no way out. This can cause panic which may result in beaching. In the case of stranded small whales and dolphins, it is possible that killer whales (orcas) have panicked the herd, forcing them shoreward.

How you can help

As a result of experiences gained in a number of strandings around the Tasmanian coast, the Biodiversity Conservation Branch within the Department of Primary Industries, Water and Environment, and the Parks and Wildlife Service have developed a strategy that aims to maximise the success of rescue efforts. The Whale Stranding Handbook and Directory is a set of protocols to be followed at whale strandings. The Biodiversity Conservation Branch and the Parks and Wildlife Service DO NOT have a euthanasia policy.

In the case of single strandings of small whales such as dolphins, it may be possible to successfully return the animal to the sea with little assistance. However, a mass stranding is a more formidable problem, and requires a coordinated approach.

- The first priority in any attempt to save a stranded pod of whales is to seek help. Contact the Biodiversity Conservation Branch on its 24 HOUR WHALE HOTLINE NUMBER: 0427 WHALES 0427 942 537.
Provide details on the exact location of the stranded animals, their numbers, condition, the species (if you know), their size — any details which may be useful.
- Once this is done, it is important to ensure that the animals are stabilised. Whales can survive for a considerable time providing the dangers to them are minimised. After removing nearby sharp objects, such as shells, attempt to place the whale on its belly. Sand and water can enter the blowhole causing the animal to drown if they are left lying on their side.
- Try to turn the animal so it is facing the shore. This will allow it time to feel a wave coming with its tail and then close its blowhole. Don't use the fragile tail or fins as handles.
- Overheating is a big problem for stranded whales. Dig holes for the flippers so that they are hanging free. Allow water to enter these holes to assist in cooling, as the flippers and tail are important areas for heat exchange. Cover the body from the burning and drying effects of sun and wind — towels or seaweed will suffice — but don't cover the blowhole. Wet the animal down, ensuring that water does not enter the blowhole.
- Once authorities have arrived, the animals are taken to a holding area and the release is coordinated so that the entire surviving pod is released. If released individually the animal will often restrand simply because it does not know where to go or responds to the continued distress calls of the individuals that are still stranded. Whales are highly social creatures. It is important not to underestimate the need to maintain their group structure.

Take care

Despite their formidable size, whales appear reluctant to cause any harm to their rescuers. Nonetheless, accidents can happen. Don't stand on the shoreward side of a whale, as a wave can easily roll the animal on top of you. Beware of sudden movements of the tail. Most importantly, beware of hypothermia. Tasmanian waters are cold. Rescuers should be well equipped with thick wetsuits and a change of warm clothes. Remain well aware of how long you have spent in the water.

Further information

Dalton, T. and Isaacs, R. (1992). *The Australian Guide to Whale Watching*. Weldon Publishing, Sydney.

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Tucker, M. (1989). *Whales and Whale Watching in Australia*. Australian National Parks and Wildlife Service.

Contact

Biodiversity Conservation Branch: DPIPWE
134 Macquarie Street, Hobart. 7000
Phone: (03) 6233 6556
Fax: (03) 6233 3477



Pilot whale stranding - Ocean Beach, Strahan