

A KEY TO THE MARINE MAMMALS OF AUSTRALIA AND ITS TERRITORIES

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NOTE: For additional information FAO Marine Mammal Species Guide is available online at:

ftp://ftp.fao.org/fi/document/sidp/T0725E_Mammals/t0725e00.pdf

The positive identification of stranded marine mammals (whales and dolphins, seals and dugongs) is a critical initial step in the incorporation of stranding data into biological research and marine mammal management strategy. For example, the correct identification by the finder of a stranded animal could be valuable in assessing the most appropriate action for management or the level of urgency for retrieval of valuable data and materials by a research team. The necessity for correct identifications in biological work is self-evident.

Unfortunately identifying marine mammals in the field to species is not always a simple matter. Useful distinguishing characters, such as colour patterns and body form, change with age in many species, and their usefulness may be further compromised by damage during stranding or subsequent decomposition, especially for cetaceans. The identity of several species, particularly beaked whales, needs to be confirmed from skull characters; two species, *Mesoplodon bahamondi* and *A. pacificus*, are known only from one and three skulls, respectively. Further, the true distributions of many species, rather than those apparent from stranding records, are poorly known, so that keys for identification need to be broad enough to cover apparent "vagrants" to a region where they were previously unknown.

The present key to Australian marine mammals incorporates characters which are least affected by age and decomposition, with the emphasis on those requiring little specialist knowledge and minimal inspection of the stranded animal. Such restrictions do limit our current ability to distinguish juveniles and adult females of at least two species of beaked whales in the field: *Mesoplodon layardii* and *Tasmacetus shepherdi*. Beaked whales are usually identified from the form and position of the one or two pairs of mandibular teeth, which generally erupt only in adult males. This key uses shape and proportions of gape and melon; growth changes in these characters are most evident in calves and juveniles less than 2.5 m long. It is essential to collect the skull of every stranded beaked whale, from which its identity can be confirmed. Identification of seal pups may also require a skull examination for a positive identification.

The cetacean key covers the 45 species listed in the Australian Cetacean Action Plan (Bannister, Kemper & Warneke in press). This list also includes two species which reasonably could be expected to occur in Australian waters or those of its territories; the Finless Porpoise, *Neophocaena phocaenoides*, which may reach northern Australia, and the Peruvian Beaked Whale, *Mesoplodon peruviamus*, now recorded from New Zealand.

Characters used in the key focus on the head region, supplemented by some features of the tail, dorsal fin and flipper, and illustrated by simple line drawings. Parentheses around valuable characters in key couplets indicate that they may be limited in their use; the relevant feature may be missing (for example, baleen may fall out during decomposition). Tooth counts may also be misleading (teeth may not be fully erupted in newborn animals, juveniles or females animals), but can generally be determined within the limits of the present key even in newborn animals from gum-covered bumps along each lower jaw; counts indicate the number of teeth on one side only. Color patterns have not been used as characters, except when the effect of colour change after stranding is likely to be minimal. The range of total length (length at birth to maximum length) is given for each species, but the extent of overlap greatly diminishes the value of total length for identification purposes.

KEY- correct species ID is critical. Take photos for confirmation. If in doubt- contact (contact for co-ordinator)

- AA.** Hindlimbs absent: tail expanded into flukes **BA**
AB. Hindlimbs present ~ webbed tail a short nub between hindlimbs. Pinnipedia **BB**
BA. Line of mouth directed downwards: muzzle and face bristly (Fig I.). Sirenia. Dugongidae *Dugong dugon*
- BB.** Line of the mouth (gape) horizontal or directed forwards and downwards (Figs 2-5); bristles absent on face. Cetacea (whales and dolphins) **: I**
- IA. Two blowholes (Fig. 2b. (row of baleen plates on each upper jaw) **Baleen Whales 2**
 IB. Single blowhole (Fig. 2a); (erupted or non-erupted teeth present) **Toothed Whales 7**
- 2A. Upper jaw and line of gape arched in profile (Fig. 2c.d); no throat grooves. baleen elongate, narrow **Right Whales 3**
 2B. Upper jaw and line of gape straight in profile (Fig. 2e.f); numerous longitudinal throat grooves; baleen broad..... **Rorquals 4**
- 3A. Callosities on head; no dorsal fin (Fig. 2c); (baleen black); (6=17 m) **Southern Right Whale, *Eubalaena australis***
 3B. No callosities on head; dorsal fin present (Fig. 2d); (baleen yellowish with dark outer edge); (ca. 1.6-6.4 m) ... **Pygmy Right Whale, *Caperea marginata***
- 4A. Large round knobs on rostrum and lower jaws; flipper very long, with knobbly leading edge and rounded tip (Fig. 2f); (4-13.5 m) **Humpback Whale, *Megaptera novaeangliae***
 4B. Rostrum and lower jaws smooth; flipper short. with smooth leading edge and pointed Lip (Fig. 2e) **5**
 5A. Single dorsal ridge along midline of rostrum to tip (Fig. 2g-l,k) **6**
- 5B. Additional ridge on each side of mid-dorsal ridge from blowholes to rostral tip (Fig. 2j); throat grooves reach navel; (baleen black with coarse creamy inner fringe); (3.4-13 m) **Bryde's Whale, *Balaenoptera edeni***
- 6A. In dorsal view rostrum broad and rounded at tip, and weak mid dorsal ridge posteriorly on rostrum (Fig. 2g); throat grooves reach navel; (baleen black and symmetrical in colour); (6-30 m) **Blue Whale, *Balaenoptera musculus***
 6B. In dorsal view rostrum tapers to acute tip, and well-formed mid~dorsal ridge on rostrum (Fig. 2h); throat grooves reach navel; (baleen grey with yellow streaks); (6.4-20 m) **Fin whale, *Balaenoptera physalus***
 6C. In dorsal view rostrum tapers to acute tip. and prominent mid-dorsal ridge on rostrum (Fig. 2i), throat grooves do not reach navel: (baleen greyish-black. tinged with white): (4.5- 16 m) **Sei Whale. *Balaenoptera borealis***
 6D. In dorsal view rostrum triangular with acute tip, with a prominent mid-dorsal ridge (Fig. 2k); throat grooves do not reach navel; (baleen off-white, outer edge of some plates black); (2.8-10 m) **Minke Whale. *Balaenoptera acutorostrata***
- 7A. Mouth narrow, set under the head; erupted teeth in lower jaw only; notch in centre of tail (Fig. 3a~c) **Sperm Whales 8**
 7B. Mouth opens anteriorly; pair throat grooves forming a V; no notch in tail; (one or two large teeth in each lower jaw. usually erupting only in adult males) (Fig. 4) **Beaked Whales 9**
 7C. Mouth opens anteriorly; notch in tail; three to 60 teeth in each lower jaw (Figs 3d-k, 5) **Dolphins and porpoises 18**
- 8A. S-shaped blowhole at top left front corner of the massive head; dorsal fin a series of humps; flipper rounded (Fig. 3a); 18-28 teeth in each jaw; (4-18 m) **Sperm Whale, *Phvseter macrocephalus***
 8B. Blowhole more than 10% body length from snout tip; dorsal fin small, less than 5% of body length in height (Fig. 3b); 11-16 teeth in each lower jaw; (1.2-3.3 m) **Pygmy Sperm~ Whale, *Kogia breviceps***
 8C. Blowhole less than 10% body length from mouth tip; dorsal fin small, more than 5% of body length in height (Fig. 3c); 7-11, rarely 12 teeth in each lower jaw; (1.0-2.7 m)..... **Dwarf sperm Whale, *Kogia simus***
- 9A. Crescentic form of blowhole is directed forwards; melon moderate in size, rising vertically from medium-length rostrum; dorsal fin a small, rounded nub (Fig. 4a); (*two* pairs of erupted Teeth at tip of lower jaw in all adults); (ca 3-9.7 m) **Arnoux's Beaked Whale, *Berardius arnuxil***
 9B. Crescentic form of blow hole is directed posteriorly (Fig. I a): well-developed. triangular to falcate dorsal fin **10**

10A. In profile. rostrum short. snout tip to anterior point of melon less than half length of gape (Fig. 4b~d)	11
10B. In profile. rostrum moderate to long, snout tip to anterior point of melon half or more than length of gape (Fig. 4e-1)	12
11 A. In profile. melon rising steeply from medium-length rostrum. its apex defined by short crease. and overhangs rostrum in whales more than 3.5 m long (Fig. 4b). (pair of cylindrical teeth erupt at rostral tip in adult male): (ca 2.9-7.5 m)	Southern Bottlenose Whale, <i>Hyperoodon planifrons</i>
11 B. In profile, moderately swollen melon. rising at about 45° from or very close to rostral tip; no crease anterior to melon (Fig. 4c): (pair of cylindrical teeth erupt at rostral tip in adult male); (ca. 2.6~7 m) .	Cuvier's Beaked Whale, <i>Ziphius cavirostris</i>
11 C. In profile, melon rises evenly with no anterior crease at less than 45° from the stubby rostrum becoming bulbous anterior to the blowhole (Fig. 4b); (one pair of flattened columnar teeth erupt at the tip of the mandibles in adult males): (ca 2.2-5.4 m)	True's Beaked Whale, <i>Mesoplotion mirus</i>
12A. In profile, gape is more or less straight and may rise slightly, evenly or abruptly, at about its midlength (Fig. 4e-h) ..	13
12B. In profile, gape is straight for less than half the gape length before rising markedly or strongly, and then curving ventrally in the direction of the eye (Fig. 4i-1)	16
13A. In profile, melon rounded and full (Fig. 4g,h), arising steeply from moderate to long rostrum	14
13B. In profile, melon small to medium sized, moderately swollen (Fig. 4e,f) and arises gradually from short to longrostrum	15
14A. (One pair of long, strap-like teeth erupt in adult male anterior to the melon); (ca 2.2-6 m) (Fig. 4g)	Strap toothed Whale, <i>Mesoplodon layardii</i>
14B. (One pair of enlarged teeth at tip of lower jaws and 17-29 smaller posterior teeth erupt in adult males); (ca3-7m) (Fig. 4h)	Shepherd's Beaked Whale, <i>Tasmacetus shepherdi</i>
15A. In profile, rostrum long and slender, and the small. moderately swollen melon rises evenly from rostrum and curves steeply towards the blowhole; (one pair of flattened triangular teeth erupt at mid length of gape in adult males); (ca 1.8-5.7 m) (Fig. 4f)	Gray's Beaked Whale, <i>Mesoplodon grayi</i>
15B. In profile. rostrum medium in length tapering to the tip. and the small. evenly curved melon rises slightly above the line between rostral tip and blowhole: (one pair of flattened triangular teeth erupt ca 3cm posterior to rostral tip in adult males); (ca 1.6~4.5 m) (Fig. 41)	Hector's Beaked Whale, <i>Mesoplodon hectori</i>
16A. In profile. Length of gape approximately 50YO of length rostrum to eye, arched moderately, or strongly in adult males; (single tooth at mid-length of mandible, erupted in adult male); (ca 1.9-4.5 m) (Fig. 4j)	Andrew's Beaked Whale. <i>Mesoplodon bowdoini</i>
16B. In profile, gape more than 50%.of length rostrum to eye (Fig. 4i,k 1)	17
17A. In profile. melon small. rising from rostrum in an even curve; posterior corner of gape ventral to or level with eye; (pair of flattened columnar teeth erupt on raised pulpitis 33~50%. of length of gape from rostral tip in adult males); . (up m 3.7 m) (Fig. 41)	Peruvian Beaked Whale, <i>Mesoplodon peruvianus</i>
17B. In profile, melon small. rising from rostrum in an even curve, distinctly flattened anteriorly: gape rises sharply at about midlength nearly to level of rostrum before curving down to end above the level of the eye; (pair of massive tusk-like teeth rise up to 40 mm above the level of the rostrum at midlength of the gape in adult males); (1.9-4.7 m) (Fig. 41)	Dense-beaked Whale, <i>Mesoplodon densirostris</i>
17C. In profile, melon medium to large, full, rising steeply from rostrum and descending slightly to the blowhole; gape rises smoothly u about midlength in females, sharply to the tooth pulpitis in adult males, and descends to end at the level of the eye; (pair of large flattened leaf-shaped tooth at midlength of gape which erupt a few millimeters in adult males); (up to ca 5 m) (Fig. 4k)	Ginkgo toothed Beaked Whale. <i>Mesoplodon ginkkodens</i>
18A. Dorsal fin absent (Fig. Sb,c)	19
18B. Dorsal fin present	20
19A. Blunt rounded head. small tubercles on back in place of fin: 13-22 teeth in each jaw, some spatular: (0.55-1.9 m) (Fig.4b)	Finless Porpoise. <i>Neophocaena phocaenoides</i>
19B. Distinct broad beak in front of sloping melon: 44~49 conical tethh in each jav.: (ca 1.0-2.4 m) (Fig. 4c).....	

Southern Right Whale Dolphin. *Lissodelphis peronii*

20A. In profile. head round or blunt melon generally large, and rostrum absent or very short	21
20B. In profile. distinct beak at all ages anterior to small to medium-sized melon	28
21 A. Dorsal fin about one-third body length from head	22
21B. Dorsal fin at about midlength of body	23
22A. Flipper length 14-19% of body length; 7-10 teeth in each jaw; (Fig. 3f).....	
Short-flipped Pilot Whale, <i>Globicephala macrorhynchus</i>	
22B. Flipper length 18-27% of body length; 9-12 teeth in each jaw. (Fig. 3g)	
Long-flipped Pilot Whale, <i>Glabicephala melas</i>	
23A. Short rostrum present at all ages	
23B. Rostrum absent at all ages	24
24A. 10-12 large teeth (less than 15 mm in diameter), flattened on anterior and posterior surfaces. in each Jaw; (Fig. 3e).	
Killer Whale. <i>Orcinus orca</i>	
24B. 21-25 small teeth (more than 10 mm in diameter), in each jaw: (Fig. 3j)	
Melon-headed Whale. <i>Peponocephala electra</i>	
25A. 2-7 teeth in anterior of each lower jaw only; shallow longitudinal groove on anterior face of melon: (Fig. 31)	
Risso's Dolphin, <i>Grampus griseus</i>	
25B. 8 or more teeth in lower jaw; anterior face of melon smoothly rounded	
; 26	
26A. Leading edge of flipper S-shaped. 8-11 large teeth (more than 10 mm in diameter) in each jaw; (Fig. 3d)	
False Killer Whale, <i>Pseudorca crassidens</i>	
26B. Leading edge of flipper entirely convex. teeth less than 10 mm in diameter	
27	
27A. 8- 13 pointed teeth in anterior two-thirds of each jaw: shallow groove on ventral midline: (Fig. 3h)	
Pygmy Killer Whale, <i>Feresa attenuata</i>	
27B. 12-20 pointed teeth over whole length of each jaw; shallow groove on ventral midline: (Fig. 3k)	
Irrawaddy Dolphin, <i>Orcaella brevirostris</i>	
27C. 16-23 spatulate teeth over whole length of each jaw: no ventral groove: (Fig. 3a)	
Spectacled Porpoise, <i>Auorhocaena dioptrica</i>	
28A. Melon merges smoothly and indistinctly into rostrum	
28B. Apex of melon distinct at its junction with the rostrum	29
29A. Rounded, 611 melon; triangular fin on broad base 29-34 teeth in each jaw: (Fig. 3m)	
Indo-pacific Humpback Dolphin, <i>Sousa chinensis</i>	
29B. Sloping melon (head conical in profile) falcate dorsal fin. 20-27 teeth in each jaw; (Fig. 3n)	
Rough-toothed Dolphin. <i>Steno bredanensis</i>	
30A. Short to very short rostrum (less than 1/4 of length from rostrum tip to eye)	
30B. Short to medium-length rostrum (1/4 to 1/3 of length from rostrum tip to eye); 19-29 in each jaw; (Fig. 3k,l)	31
Bottlenose Dolphin, <i>Tursiops truncatus</i>	
30C. Medium-length to long rostrum (more than 1/3 of length from rostrum tip to eye)	
31A. Rostrum 10% or less of length from tip of rostrum to eye. gray stripe from flipper to near posterior end of gape: 34- 44teeth in each Jaw (broad dark stripe from gape through eye to vent in animals longer than 2.2 m); (Fig. 3f).....	32
Fraser's Dolphin. <i>Lagenodelphis hosei</i>	
31B. Rostrum about 20% of length from tip of rostrum to eye. black stripe from flipper to corner of gape. 24-36 teeth in each jaw: (chevron pattern on posterior flank); (Fig. 3e)	
Dusky Dolphin. <i>Lagenorhynchus obscurus</i>	

- 31 C. Rostrum about 20% of length from tip of rostrum to eye; broad black stripe from flipper to eye; about 28 teeth in each jaw: (two linked white patches forming "hourglass" on side); (Fig. 5d)**Hourglass Dolphin, *Lagenorhynchus cruciger***
- 32A. Dark stripe from flipper to eye, and eye to anus. 39-52 teeth in each jaw; (Fig. 5f)**Striped Dolphin, *Stenella coeruleoalba***
- 32B. Dark stripe from flipper to eye; 45-59 teeth in each jaw; (Fig. 5g) **Spinner Dolphin, *Stenella longirostris***
- 32C. Dark stripe from flipper to gape; 34-48 teeth in each jaw; (Fig. 5h) **Spotted Dolphin, *Stenella attenuata***
- 32D. Dark stripe from flipper to mid-length of gape : 47-60 teeth in each jaw; (Fig. 5j)
 **Common Dolphin, *Delphinus delphis***