

## Annual distribution of bottlenose dolphin

1. Literature sources were searched for distribution information.
  - a. Scientific papers, published texts, unpublished reports and university theses
  - b. BIOSIS Previews (1993–2005)
  - c. Aquatic Sciences and Fisheries Abstracts (1960–2005)
  - d. Fish and Fisheries Worldwide (1971–2005)
  - e. NZ Science (1800–2005)
  - f. Department of Conservation library databases
  
2. Other sources.
  - a. Strandings database maintained by the Museum of New Zealand Te Papa Tongarewa, Wellington.
  - b. Cetacean sightings database held by Department of Conservation, Wellington. This contained 24 records of live bottlenose dolphin sightings from a variety of sources including fishing vessels and DoC staff.
  
3. Summary
  - a. Information was integrated from the literature and expert opinion and distributional zones were hand-drawn on a template map. The timing of sampling effort of the research and the sighting and stranding records used to describe the distribution of bottlenose dolphins may constrain our knowledge of the annual and seasonal distribution, though sampling effort in Northland and Fiordland is year round. The seasonal distribution for Northland and Fiordland changes slightly, but not at the level of resolution used here. There is not enough consistent information for the seasonal distribution of the ‘offshore’ bottlenose dolphins (see below).
  - b. A distributional “hotspot” is where the species would be expected to be found in high density relative to its density elsewhere.
  - c. The 90% distribution is the area in which 90% by number of the species are to be found. The 100% distribution is the full range – the area in which virtually all individuals of the species are to be found. For bottlenose dolphin, the three main areas of distribution are treated as containing separate populations (northern east coast of the North Island, Marlborough Sounds, and Fiordland), as recommended by Rochelle Constantine (University of Auckland).
  - d. The distribution shown is for the ‘inshore’ form of bottlenose dolphin, the most commonly sighted bottlenose dolphin in New Zealand waters. These dolphins are restricted to north of about 47° S and to waters less than 500 m deep. The larger ‘offshore’ form is seen off the east coast of Northland in late summer and early autumn, often with pilot whales (*Globicephala* spp.) and false killer whales (*Pseudorca crassidens*); its presence is associated with warmer water currents (R. Constantine pers. comm.).
  - e. Bottlenose dolphins are found in coastal waters in temperate and tropical regions. In New Zealand waters they are classed as ‘Range Restricted’ under the DoC Threat Classification system (Hitchmough & Bull in prep.).
  - f. The inshore form of bottlenose dolphins utilises very shallow water, including estuaries. In Fiordland, they are found close to shore in deep water. These dolphins are generally found within a few kilometres of land.
  - g. The northern population concentrated in the Bay of Islands resides year round along the east coast of Northland and in the Hauraki Gulf and is isolated from other populations (Constantine et al. 2003). Photo-identification work in this area provided a closed population estimate of 446 (95% CI = 418–487) adult dolphins, with a potential home range from at least 400 km to the south

(Tauranga) to about 80 km north (Doubtless Bay) (Constantine et al. 2003) but recently some individuals were found to range as far away as Manukau Harbour (R. Constantine pers. comm.).

- h. The mean water depth preferred by the northern population of bottlenose dolphins was 23 m. Dolphins were generally in deeper water (mean of 31 m) outside the inner islands of the Bay of Islands in summer when water temperatures were higher and shallow water (mean 15 m) in winter (Constantine & Baker 1997). The inshore form of bottlenose dolphins is infrequently associated with other marine mammals or birds (Constantine et al. 2003).
- i. A small population of bottlenose dolphins lives in Fiordland. This is considered the southern limit of this species. These dolphins remain in the area all year round (Lusseau 2005).
- j. Recent photo-identification surveys of Fiordland indicate that the home range of Fiordland bottlenose dolphins includes seven sounds, from Lake McKerrow to Charles Sound (Lusseau 2005). Bottlenose dolphins were sighted during a 1995–97 small boat survey in Milford Sound, Bligh Sound, Doubtful Sound, Dusky Sound, and Chalky Inlet (Bräger & Schneider 1998).
- k. A survey of the full extent of Milford Sound found that dolphins were more likely to be resident in the sound during winter. Lusseau (2005) suggests that this seasonal residency pattern is determined by the distribution of boat traffic within Milford Sound and that the recent tourism development may explain the inconsistency between seasonal patterns he described and those given by Gaskin (1972). This population numbers between 45 and 55 animals (Lusseau 2005).
- l. Bottlenose dolphins were more numerous in Doubtful Sound in summer than winter (Bräger & Schneider 1998). The year-round population in Doubtful Sound numbers about 66 individuals (Williams et al 1993, Haase & Schnieder 2001). Bottlenose dolphins have preferred areas of the sound in which to rest and socialise (Lusseau & Higham 2004).
- m. Bottlenose dolphins were sighted rarely in a 1995–97 boat survey of near-shore waters of the South Island west coast north of Fiordland (Bräger & Schneider 1998). One identifiable individual sighted off the west coast also used the Marlborough Sounds, where a population exists (Gaskin 1968, Webb 1973). This Marlborough Sounds-Tasman Bay population may therefore range south along the South Island west coast (Bräger & Schneider 1998).
- n. Perhaps the most northern sighting of bottlenose dolphins in New Zealand waters was of a large pod near McCauley Island in the Kermadec Islands group (Dawson 1985).
- o. All reported strandings held in the strandings database are from the northeast North Island. Bottlenose dolphin strandings have also been reported from Cloudy Bay and Waitarere Beach (Warneke 2001).
- p. Reported sightings of bottlenose dolphins are generally of small pods travelling in offshore deeper waters off the west coasts of the North Island and South Island and on the Chatham Rise and in inner harbours of the northeastern North Island and Cook Strait. All sightings were in waters north of 47° S.

#### 4. References

The following sources provided useful information on the distribution of bottlenose dolphins in New Zealand waters. This is not an exhaustive list of all references to bottlenose dolphins.

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