

Lineage – Scientific methodology

Annual distribution of Killer whale

1. Literature sources were searched for distribution information.
 - a. Scientific papers, published texts, unpublished reports and university theses
 - b. BIOSIS Previews(1993–2009)
 - c. Aquatic Sciences and Fisheries Abstracts (1960–2009)
 - d. Fish and Fisheries Worldwide (1971–2009)
 - e. NZ Science (1800–2009)
 - f. Scopus and Science Direct (1960–2009)
 - g. Department of Conservation library databases
2. Other sources.
 - a. Strandings database maintained by the Museum of New Zealand Te Papa Tongarewa, Wellington, for the Department of Conservation (the 47 records span 1915–2009).
 - b. Cetacean sightings database held by Department of Conservation, Wellington. This contained 208 records of sightings of killer whales reported mainly by DoC staff and dolphin-watching tour operators between 1990 and 2009. It is assumed that the locations and identifications provided are correct.
3. Summary
 - a. Information was integrated from the literature and expert opinion and distributional zones were hand-drawn on a template map.
 - b. A distributional “hotspot” is where the species would be expected to be found in high density relative to its density elsewhere. 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.
 - c. The New Zealand population is classed by the Department of Conservation as Nationally Critical (Hitchmough et al. 2007).
 - d. Baker (1999) describes killer whales as common in New Zealand waters; however, no robust population estimates are available. At least 117 individuals have been photo-identified (Visser 2000). Some killer whales live only around the North Island or the South Island, and others frequent waters of both

islands. Killer whales are most often seen in groups of 12 animals or less, usually with a calf and juvenile present. Animals move north as the temperatures cool; animals sighted in the winter months in the Hauraki Gulf and Bay of Islands were in Kaikoura and Cook Strait waters in summer months (Visser 2000).

- e. Stranded animals have been reported mainly from the east coasts of the North Island and South Island to south of Dunedin, and occasionally from the North Island west coast (including around Wellington), Farewell Spit, and the Chatham Islands (stranding database, Visser & Fertl 2000). Multiple strandings were reported at Paraparaumu Beach (17 animals) and Chatham Islands (11 animals) (Baker 1999).
- f. All sightings reported to DoC were between 32° (north-east of North Cape) and 51° S (on the south-eastern edge of the Auckland Islands Shelf). Killer whales were sighted in all months, particularly in the summer months, and reports were from both coastal waters of the North Island and South Island and from deeper offshore waters.

4. References

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

Baker, A. (1999). Whales and dolphins of New Zealand and Australia. Victoria University Press, Wellington. 33 p.

Hitchmough, R.; Bull, L.; Cromarty, P. (Comps.) (2007). New Zealand Threat Classification System lists—2005. Department of Conservation, Wellington. 194 p.

Visser, I.N.; Fertyl, D. (2000). Stranding, resighting, and boat strike of a killer whale (*Orcinus orca*) off New Zealand. *Aquatic Mammals* 26(3): 232-240.

Visser, I.N. (2000). Orca (*Orcinus orca*) in New Zealand waters. PhD. Thesis, University of Auckland. 193 p.