



Lineage – Scientific methodology

Annual distribution of Grey-faced petrel

1. Literature sources were searched for distribution information.
 - a. Scientific papers, published texts, unpublished reports and university theses available to the expert who prepared the distributional layers.
 - b. Aquatic Sciences and Fisheries Abstracts for 1960-2007.
 - c. *OSNZ News* and *Southern Bird* for 1977–2007.
2. Other sources.
 - a. NZSAS (New Zealand Seabirds at Sea) database maintained by Natural Environment, Museum of New Zealand Te Papa Tongarewa, Wellington. Also, a database of daily seabird sightings off Kaikoura (www.oceanwings.co.nz).
3. Summary
 - a. An expert scientist integrated information from the literature and expert opinion, and produced hand-drawn distributional zones on a template map. These maps were then digitised and imported into a GIS software package as layers. The areas of the zones were calculated, and the layers were linked to attribute and metadata files.
 - b. The primary sources of distribution data for Grey-faced petrel were the NZSAS database, published texts and unpublished reports.
 - c. A distribution “hotspot” for New Zealand seabirds is defined as “an area of increased abundance of a species, as considered by the expert compiling the species account”. Typical examples of hotspots include areas around breeding locations during the breeding season, regardless of the absolute size of the breeding colony, and areas that are consistently and repeatedly favoured as feeding locations.
 - d. Grey-faced petrel is an endemic subspecies, breeding at numerous island and mainland sites around North Island, from near New Plymouth in the west, north to the Three Kings Islands and south to Portland Island off the Mahia Peninsula in the east. A distribution hotspot, based on breeding locations, is located around the coastal fringe of the northern half of North Island. An additional distribution hotspot is located to the east of central New Zealand, the main feeding area for birds breeding in the Bay of Plenty based on diet (G.A. Taylor pers. comm.).

- e. Grey-faced petrel is a winter-breeding species, the breeding season extending from June through to January, although birds visit the breeding colonies before June to clean out burrows and to court. Grey-faced petrel is a moderately sedentary species and is seen near breeding sites throughout the year, although feeding tends to be far offshore beyond the continental shelf where birds range widely between 25-50°S (Marchant & Higgins 1990, Taylor 2000). Off Kaikoura, grey-faced petrels have been recorded in all months, although less frequently during February-May (www.oceanwings.co.nz), and during this period birds have been recorded off eastern Australia (Marchant & Higgins 1990), suggesting some post-breeding dispersal into the Tasman Sea.
- f. Grey-faced petrel forms a relatively minor component of commercial fishery bycatch, only 14 birds have been killed and returned for autopsy between 1996/97 and 2001/02 (Robertson *et al.* 2004), the vast majority of these (12) were recovered during 2000/01 from between North Cape and the Coromandel Peninsula (Robertson *et al.* 2003a), within the North Island hotspot.

4. References

The following sources provided useful information on the distribution of this species. This is not an exhaustive list of all references to the species.

Marchant, S.; Higgins, P.J. (1990). Handbook of Australian, New Zealand and Antarctic birds. Volume 1, Part A. Oxford University Press, Melbourne. 735p.

Robertson, C.J.R.; Bell, E.; Scofield, P. (2003a). Autopsy report for seabirds killed and returned from New Zealand fisheries, 1 October 2000 to 30 September 2001: birds returned by Ministry of Fisheries observers to the Department of Conservation. DoC Science internal series 96. Department of Conservation, Wellington. 36p.

Robertson, C.J.R.; Bell, E.; Scofield, P. (2004). Autopsy report for seabirds killed and returned from New Zealand fisheries, 1 October 2001 to 30 September 2002: birds returned by Ministry of Fisheries observers to the Department of Conservation. DoC Science internal series 155. Department of Conservation, Wellington. 43p.

Robertson, C.J.R.; Bell, E.A.; Sinclair, N.; Bell, B.D. (2003b). Distribution of seabirds from New Zealand that overlap with fisheries worldwide. Science for conservation 233. Department of Conservation, Wellington. 102p.

Taylor, G.A. (2000). Action plan for seabird conservation in New Zealand. Part A: threatened seabirds. Threatened species occasional publication No. 16, Department of Conservation, Wellington. 233p.