

The logo for NABIS (New Zealand Biodiversity Information System) features the word "NABIS" in a bold, blue, sans-serif font. To the right of the text is a stylized graphic of a magnifying glass with a black handle and a circular lens. The lens is positioned over a map of New Zealand, which is shown in a light green and white color scheme. The map highlights the Chatham Islands region.

To view this as a map and many more go to:

www.nabis.govt.nz
web mapping tool

Type the map name into: *Search for a map layer or place*

Lineage – Scientific methodology

Annual distribution of Pitt Island shag lineage

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 - a. Scientific papers, published texts, unpublished reports and university theses available to the expert who prepared the distributional layers.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 1960-2009.
 - c. *OSNZ News* and *Southern Bird* for 1977–2009.
2. Other sources.
 - a. NZSAS (New Zealand Seabirds at Sea) database maintained by Natural Environment, Museum of New Zealand Te Papa Tongarewa, Wellington.
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 - b. The primary sources of distribution data for Pitt Island shag were the NZSAS database, published texts and unpublished reports.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. The Pitt Island shag is endemic to New Zealand, with all breeding pairs restricted to the Chatham Islands. A distribution hotspot is centred on this region. Pitt Island shags are reported to feed well out to sea (Marchant & Higgins 1990). However, they feed primarily on demersal fish (mainly cockabully), polychaetes, gastropods, and

hermit crabs (Lalas 1983) which presumably they captured from the sea floor, and so are unlikely to have fed in water off the shelf surrounding the Chatham Islands. It is this feeding method that makes them prone to being caught in crayfish pots, as reported by Bell & Bell (2000).

- e. The Pitt Island shag is restricted throughout the year to coastal areas of the Chatham Islands and none has been recorded elsewhere (Lalas 1983; Marchant & Higgins 1990; Taylor 2000).

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.

Aikman, H.; Davis, A.; Miskelly, C.; O'Connor, S.; Taylor, G. 2001. *Chatham Islands threatened birds: recovery and management plans*. Department of Conservation, Wellington.

Bell, M.; Bell, D. 2000. Census of the three shag species in the Chatham Islands. *Notornis* 47: 148-153

Bester, A.J.; Charteris, M. (2005). The second census of Chatham Island shag and Pitt Island shag – are numbers declining? *Notornis* 52: 6-10.

Heather, B.D.; Robertson, H.A. (1996). *The field guide to the birds of New Zealand*. Viking, Auckland. 432p.

Lalas, C. (1983). Comparative feeding ecology of New Zealand marine shags (Phalacrocoracidae). Unpublished PhD thesis, University of Otago. 291p.

Marchant, S.; Higgins, P.J. (1990). *Handbook of Australian, New Zealand and Antarctic birds. Volume 1, Part B*. Oxford University Press, Melbourne. 665p.

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.