

The logo for NABIS (New Zealand Aquatic Biodiversity Information System) features the word "NABIS" in a bold, blue, sans-serif font. To the right of the text is a stylized map of New Zealand, with a magnifying glass icon overlaid on it, symbolizing search and discovery.

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Lineage – Scientific methodology

Annual distribution of red moki

1. Electronic databases were used to generate initial maps of species distribution.
 - a. Commercial fishing returns (smaller vessels): **CELR** database. All records from 1 October 1989 to 30 June 2003 were extracted on 15–17 July 2003. Data were used to estimate mean annual catch in statistical areas. Information from statistical areas 1–10 was down-weighted because of likely mis-recording of Fishstock instead of statistical area. Only the top five species caught are reported on these forms so information on the absence of a species is not available. Records of red moki from Southland and Stewart Island are not supported by other data, and were ignored.
 - b. Recreational fishing database: **rec_data**. All records were extracted on 24 July 2003. Data were used to determine the presence of a species in a variety of statistical reporting areas.
 - c. Commercial set net fishing returns: **NCE** forms. All records from 1 October 2006 to 30 September 2008 were extracted on 4 August 2009.
 - d. Museum of New Zealand Te Papa records of this species based on voucher specimens held in their collection were searched for distributional information that added to the distributional ranges determined from other databases.
 - e. Databases of commercial offshore and pelagic fishing (**TLCER, TCEPR, I_line, COD, aer_sight**) and research trawling (**fish_comm, trawl**) were not used as they contained no records of this species, or the number of records was too small to provide useful additional distributional information.
2. Literature sources were searched for distributional information that added to the distributional ranges determined from databases.
 - a. Unpublished electronic bibliography of New Zealand fishes compiled by L. J. Paul and held on a NIWA computer.
 - b. Aquatic Sciences and Fisheries Abstracts.
 - c. *New Zealand Professional Fisherman* and *Seafood New Zealand* for 1986–2002.
 - d. *New Zealand Fishing News* for 1998–2002.

- e. Scientific papers, unpublished reports and university theses available to the expert who prepared the distributional layers.
3. Other sources.
- a. Nil.
4. Summary
- a. Maps generated from the electronic databases were provided to an expert scientist who integrated this information with other information from the literature, and expert opinion, and produced hand-drawn distributional zones on a template map containing depth contours at 250 m, 500 m, and 1000 m. 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 distributional data for red moki was the CELR database, and published literature.
 - c. Red moki are a shallow water rocky reef fish species, found in New Zealand and Australia. In New Zealand, they range from the Three Kings Islands to Otago and Fiordland, and the Chatham Islands. It is not known whether they occur around Southland. Red moki are most abundant in the northern part of this range, and are rare south of the Marlborough Sounds. The known depth range is 0–50 m

5. 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.

Brook, F.J. (2002). Biogeography of near-shore reef fishes in northern New Zealand. *Journal of the Royal Society of New Zealand* 32: 243-274.

Francis, M. (2001). Coastal fishes of New Zealand. An identification guide. Third edition. Reed Books, Auckland. 103 p.

Francis, M.P. (1979). Checklist of the marine fishes of Kaikoura, New Zealand. *Mauri Ora* 7: 63-71.

Francis, M.P. (1996). Geographic distribution of marine reef fishes in the New Zealand region. *New Zealand Journal of Marine and Freshwater Research* 30: 35-55.

Graham, D.H. (1938). Fishes of Otago Harbour and adjacent seas with additions to previous records. *Transactions and Proceedings of the Royal Society of New Zealand* 68: 399-419.

Graham, D.H. (1956). A treasury of New Zealand fishes. Second edition. Reed, Wellington. 424 p.

Hardy, G.S.; Grace, R.V.; Francis, M.P. (1987). Fishes observed at the Three Kings Islands, northern New Zealand. *Records of the Auckland Institute and Museum* 24: 243-250.