Lineage

Annual distribution of Bollons' rattail

FD1500_1; FD1501_1; FD1502_1; FD1503_1; FD1504_1

1. Electronic databases were used to generate initial maps of species distribution.

    a. Scientific observer records from larger vessels: **obs** database. All records from 1 March 1990 to 30 September 2005 and stored in the new data format were extracted on 20 October 2005. Data were used to estimate mean annual catch and catch rate (kilograms per kilometre towed), and proportion of tows that caught the species, in 0.25 degree rectangles. This small dataset was given very low weight. Bollons' rattail is difficult to identify so there was a low confidence associated with the data set.
    b. Research bottom trawl records: **fish_comm** database. This database is a groomed version of the research trawl database **trawl**. All records from 2 September 1978 to 30 September 2005 were extracted on 19 May 2006. Data were used to estimate total catch, proportion of tows that caught the species, and catch rate (kilograms per kilometre towed) in 0.25 degree rectangles. This small dataset was given moderate weight for hotspots, and 90% and 100% distributions, although the meaningfulness of the two former distributions for this data set is questionable. Most of the identifications are probably valid although older identifications are more likely to be wrong than those from recent surveys. Identifications from south of about 50° 30' S and east of about 170° E on the Campbell Plateau slope are questionable (possibly confused with *Macrourus carinatus*) and were ignored. Recent trawl surveys that are not on the fish_comm database had more reliable identification and they didn't record the species from most of the Campbell Plateau. The absence of Bollons' rattail from most of Campbell Plateau matched the Museum of New Zealand database. Specimens from the Campbell Plateau need to be positively identified to confirm the distribution in the area.
    c. Museum of New Zealand Te Papa records of this species based on voucher specimens held in their collection were searched for distributional information. These records were given high weight to establish the 100% distribution of the species. There were no specimens from the Campbell and Bounty plateaus.
    d. Databases of commercial fishing returns for larger vessels (**TCEPR**), commercial fishing returns for smaller vessels (**CELR),** Russian research bottom trawl records (**trawl**), commercial tuna longline catches (**TLCER**), observer records from tuna longlines (**l_line**), aerial sightings (**aer_sight**), and recreational fishing

surveys (**rec_data**) were not used as they contained no records of this species.

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 Bollons' rattail were the Museum of New Zealand and fish_comm databases. Bollons' rattail is confined to New Zealand (McMillan and Paulin 1993). It is fairly widespread in New Zealand waters but appears to be absent south of about 50° 30' S and east of about 170° E on the Campbell Plateau, including the Campbell and Pukaki rises, and absent from Bounty Plateau. The known depth range is 183–975 m although most captures are in 300–600 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.

Anderson, O.F.; Bagley, N.W.; Hurst, R.J.; Francis, M.P.; Clark, M.R.; McMillan, P.J. (1998). Atlas of New Zealand fish and squid distributions from research bottom trawls. *NIWA Technical Report 42*. 303 p.

McMillan, P.J.; Paulin, C.D. (1993). Descriptions of nine new species of rattails of the genus *Caelorinchus* (Pisces, Macrouridae) from New Zealand. *Copeia 1993*: 819 840.

Roberts, C.D. (1991). Fishes of the Chatham Islands, New Zealand: a trawl survey and summary of the ichthyofauna. *New Zealand Journal of Marine and Freshwater Research 25*. 1–19.