



Annual distribution of black oreo lineage

FD0310_1; FD0311_1; FD0312_2; FD0313_1; FD0314_2

1. Electronic databases were used to generate initial maps of species distribution.
 - a. Commercial fishing returns (larger vessels): **TCEPR** database. All records from 1 October 1989 to 30 September 2005 were extracted on 17 October 2005. Data were used to estimate mean annual catch and catch rate (kilograms per kilometre towed) in 0.25 degree rectangles. Only the top five species caught are reported on these forms so information on the absence of a species is not available, and consequently the distribution was considered unknown where no catch of black oreo was recorded. The species supports a major commercial fishery so TCEPR data were given high weight. Records from north of the Chatham Rise near 179 °W were not included because they were not confirmed by observer or research data, and depths at the locality are beyond the preferred depth range for the species. It is highly likely that records from north of East Cape, Challenger Plateau, Lord Howe Rise and Kermadec Ridge are mis-identifications and are probably spiky oreo (*Neocyttus rhomboidalis*). Black oreo was reported from the Louisville Seamount Chain east of New Zealand but was not confirmed by scientific observer data, so its presence there is uncertain. Probable erroneous data from the south-east end of Chatham Rise, the Bounty Trough, west of Puysegur Trench, and outside the EEZ west of the South Island were ignored.
 - b. 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 dataset was mostly considered to be a subset of the TCEPR data so the latter were weighted higher. The database is very likely to include mis-identifications that were probably spiky oreo.
 - c. 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 dataset was given a high weight. The data confirm the main distribution derived from the TCEPR database but were restricted to areas where surveys were carried out. The database is likely to

include a few mis-identifications that were probably spiky oreo but these will be less than in the TCEPR and obs databases.

- d. Museum of New Zealand Te Papa records of this species based on voucher specimens held in their collection were searched for distributional information. Records fell within the distribution derived from the other sources described above except for a single record from the outer Challenger Plateau that extended the west coast 100% distribution to near 40 °S.
 - e. Databases of 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. Most vessels fishing for this species filled in TCEPR logbooks and therefore the **CELR** data were considered a subset of the TCEPR data and were not used. Russian **trawl** survey data were not used because of problems with species identifications.
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 black oreo were TCEPR, fish_comm, MoNZ, and obs databases. Black oreo is known from New Zealand and Tasmania (James et al. 1988) but may also occur in other Southern Hemisphere localities. In New Zealand it is mainly found in central and southern waters. It favours the south slope of Chatham Rise, seamounts of the south, east and north Chatham Rise, off the Otago/Southland coast, north and east slope of Pukaki Rise, Bounty Plateau, and the Puysegur and Solander Trough slopes. The known depth range is 550–1200 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.

James, G.D.; Inada, T.; Nakamura, I. (1988). Revision of the oreosomatid fishes (Family Oreosomatidae) from the southern oceans, with a description of a new species. *New Zealand Journal of Zoology 15*: 291-326.

McMillan, P.; Hart, A. (1993). The N. Z. oreo fishery – past, present, and future. *New Zealand Professional Fisherman 7(5)*: 41-46.