



Lineage

Annual distribution of alfonsino

FD0050_1; FD0051_1; FD0052_1; FD0053_1; FD0054_1

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. Records of alfonsino (species code BYX) from outer Tasman Bay in depths less than 200 m are probable mis-identifications or mis-codings, and were ignored (alfonsino has never been recorded from these regions in research trawl tows). A few records from the northern Pukaki Rise and southern Auckland Islands Shelf are regarded as doubtful.
 - b. 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.
 - c. 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. Records of alfonsino (species code BYX) from outer Tasman Bay in depths less than 200 m were ignored (alfonsino has never been recorded from these regions in research trawl tows).
 - d. 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.
 - e. Russian research bottom trawl records: **trawl** database. These data are a subset of the research trawl database **trawl**. All records were extracted on 9 August 2003. Data were used to determine the presence of this species north of 37 °S. Because the data are old (the most recent record was 1987), and there are problems with

species identifications, these data were given low weighting. The single observation available north of 37° S was from the Colville Ridge (27.23 °S, 180.68 °E) and was considered insufficient to extend the 100% distribution contour north to include this area. However alfonso occur on the Norfolk, Kermadec and Louisville Ridges to the north and east, and its presence along the Colville Ridge is likely.

- f. 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.
 - g. NORFANZ voyage: **biods** database. Records from a research trawling and dredging survey of the Norfolk Ridge and Lord Howe Rise carried out in May–June 2003 were extracted on 9 January 2006.
 - h. Databases of commercial tuna longline catches (**TLCER**), observer records from tuna longlines (**I_line**), and aerial sightings (**aer_sight**) 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. The number of alfonso records (less than 10 observations) on the **rec_data** database 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. Small numbers of alfonso were reported from exploratory fishing in the Kermadec FMA (from 26.0 °S to 33.0 °S) during 1992–1993 (Langley & Allen 1993). Although these data are not on the **obs** database (D. Allen, MFish Auckland, pers. comm. 2003), they appear reliable and have been used to extend the distribution of alfonso along the Kermadec Ridge.
 - b. Records of alfonso from the ORSTOM/NIWA exploratory fishing programme in the southwest New Caledonian EEZ (Clark and Tracey 1996) are not on the **trawl** or **fish_comm** databases. Alfonso were reported from stations on the Norfolk Ridge.
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 alfonsino were TCEPR, Observer data, and fish_comm databases.
- c. Alfonsino is widely distributed in many subtropical to temperate oceans. The closely-related long-finned beryx (*B. decadactylus*) is also commonly called 'alfonsino', especially in northern Atlantic and Pacific ocean fisheries. These species occur off Australia and New Caledonia, the Kermadec and Colville Ridges and the southern Louisville Ridge, through the mainland waters of New Zealand from the Three Kings Islands to the northern edge of the Auckland Islands Shelf. Alfonsino is most commonly found off the east coast North Island, the Chatham Rise, Puysegur Bank, and the west coast South Island, but is relatively uncommon in more southern waters. The species is generally found in depths of 200–800 m, but has been recorded from 200–1000 m in trawl surveys (Anderson et al. 1998).

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.

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