

A bibliography of tuna fisheries and research in New Zealand 1960–85

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Cover illustrations

Front: A circle hook used by the Japanese for tuna longlining in New Zealand waters. This type of hook, with its point directed towards the shank, is very effective in holding tuna.

Back: A more recent form of Japanese longline hook that is easier to handle than the circle hook.

(Photographs by Alan Blacklock)

INTRODUCTION

Twelve species of tuna and mackerel of the family Scombridae are residents or regular migrants in New Zealand waters. They are listed overleaf. The blue mackerel is the only true resident species; it spends its entire life in coastal waters. The tunas, however, pass through the New Zealand Exclusive Economic Zone (EEZ) at various times of the year as juveniles or adults. Temperate species such as butterfly and slender tuna probably occur here throughout the year, but migrate to warmer waters to spawn. A third temperate species, southern bluefin tuna, passes through the zone between January and September on a migration from the breeding grounds in the Indian Ocean. Skipjack, yellowfin, frigate, longtail, albacore, and bigeye are tropical species present during our summer months. Large albacore and bigeye also occur in winter, but usually in small numbers and at depth.

At present the New Zealand EEZ supports a number of domestic and foreign fisheries for tuna and mackerel. Domestic and foreign catches in 1986 totalled 9092 and 3178 tonnes, respectively. The major domestic fisheries consist of purse-seining for skipjack (6320 t in 1986) and blue mackerel (1402 t), trolling for albacore (1292 t), and a combination of handlining and trolling for southern bluefin (78 t). Tuna and mackerel are also caught in small quantities in other domestic fisheries. Foreign fisheries include a Japanese longline fleet targeting southern bluefin (1337 t in 1986) and Japanese and Korean fleets longlining for albacore (231 and 398 t, respectively). The foreign operations take regular by-catches of bigeye and yellowfin. A N.Z.-U.S. joint venture purse-seine fishery for skipjack achieved prominence between 1975 and 1983, but has since stopped due to declining world prices and the discovery of richer fishing grounds in the tropical western Pacific.

This bibliography presents a comprehensive list of reports, scientific papers, and popular articles on the fisheries for and research on tuna in New Zealand waters. Although it has been compiled primarily for fisheries scientists and managers, the inclusion of articles on fishing technology, marketing, and economics will make it of use to anyone interested in New Zealand's growing tuna industry. The year 1960 is taken as a starting point because it was early in that decade that fishermen and scientists became interested in the tuna resource.

Papers and reports on the potential bait species for a tuna pole-and-line fishery are also included. Pole-and-line has proved effective in other South Pacific countries on surface schooling tuna including skipjack, yellowfin, and southern bluefin. Pole-and-line surveys of the New Zealand skipjack resource have identified four local fish species (see page 4) that, because of their size and behaviour, can be used as bait. Recent New Zealand attempts at commercial pole-and-line fishing have not been successful for various reasons, one of which is the lack of information on baitfish distribution and biology.

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TUNA AND BAITFISH OF THE NEW ZEALAND EEZ

Tuna - Family Scombridae

<i>Allothunnus fallai</i> Serventy, 1948	slender tuna
<i>Auxis thazard</i> (Lacepède, 1800)	frigate tuna
<i>Gasterochisma melampus</i> Richardson, 1845	butterfly tuna
<i>Katsuwonus pelamis</i> (Linnaeus, 1758)	skipjack tuna
<i>Sarda australis</i> (MacLeay, 1880)	Australian bonito
<i>Scomber australasicus</i> Cuvier, 1831	blue mackerel
<i>Thunnus alalunga</i> (Bonnaterre, 1788)	albacore
<i>Thunnus albacares</i> (Bonnaterre, 1788)	yellowfin tuna
<i>Thunnus maccoyii</i> (Castelnau, 1872)	southern bluefin tuna
<i>Thunnus obesus</i> (Lowe, 1839)	bigeye tuna
<i>Thunnus thynnus</i> (Linnaeus, 1758)	northern bluefin tuna
<i>Thunnus tonggol</i> (Bleeker, 1851)	longtail tuna

Baitfish - Family Clupeidae

<i>Sprattus antipodum</i> (Hector, 1872)	slender sprat
<i>Sprattus muelleri</i> (Klunzinger, 1880)	sprat
<i>Sardinops neopilchardus</i> (Steindachner, 1879)	pilchard

- Family Engraulididae

<i>Engraulis australis</i> (White, 1790)	anchovy
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SUBJECT INDEX

This index is arranged alphabetically by common name of species, with the tunas first followed by the baitfish. There are five major subject categories for each species; Morphology/Taxonomy, Geographic distribution, Habitat and biology, Fisheries, and Research and management. The last three categories are further subdivided into various aspects of biology, research, and countries and methods of fishing where there are a number of entries.

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