

The Snapper Fishery

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The New Zealand snapper is a very desirable trade commodity and an important recreational resource.

This species supports New Zealand's traditional inshore fishery around much of the North Island. In the early to mid 60s Japanese vessels, particularly longliners, made significant catches also. The exclusion of these vessels by extended fishing zones encouraged a strong export trade to Japan and other markets.

Snapper is taken commercially throughout New Zealand by trawling, Danish-seining, longlining and set-netting.

Fishing is year round on most grounds, with largest catches during spring spawning (October-December). Often good catches are made again in late summer. There can be annual and

regional (particularly inshore) variations to this pattern.

Landings from New Zealand vessels in recent years have been around 14 000 tonnes, most of this coming from the Hauraki Gulf.

Auckland and Manukau are the main ports, followed by Tauranga. Other important ports include

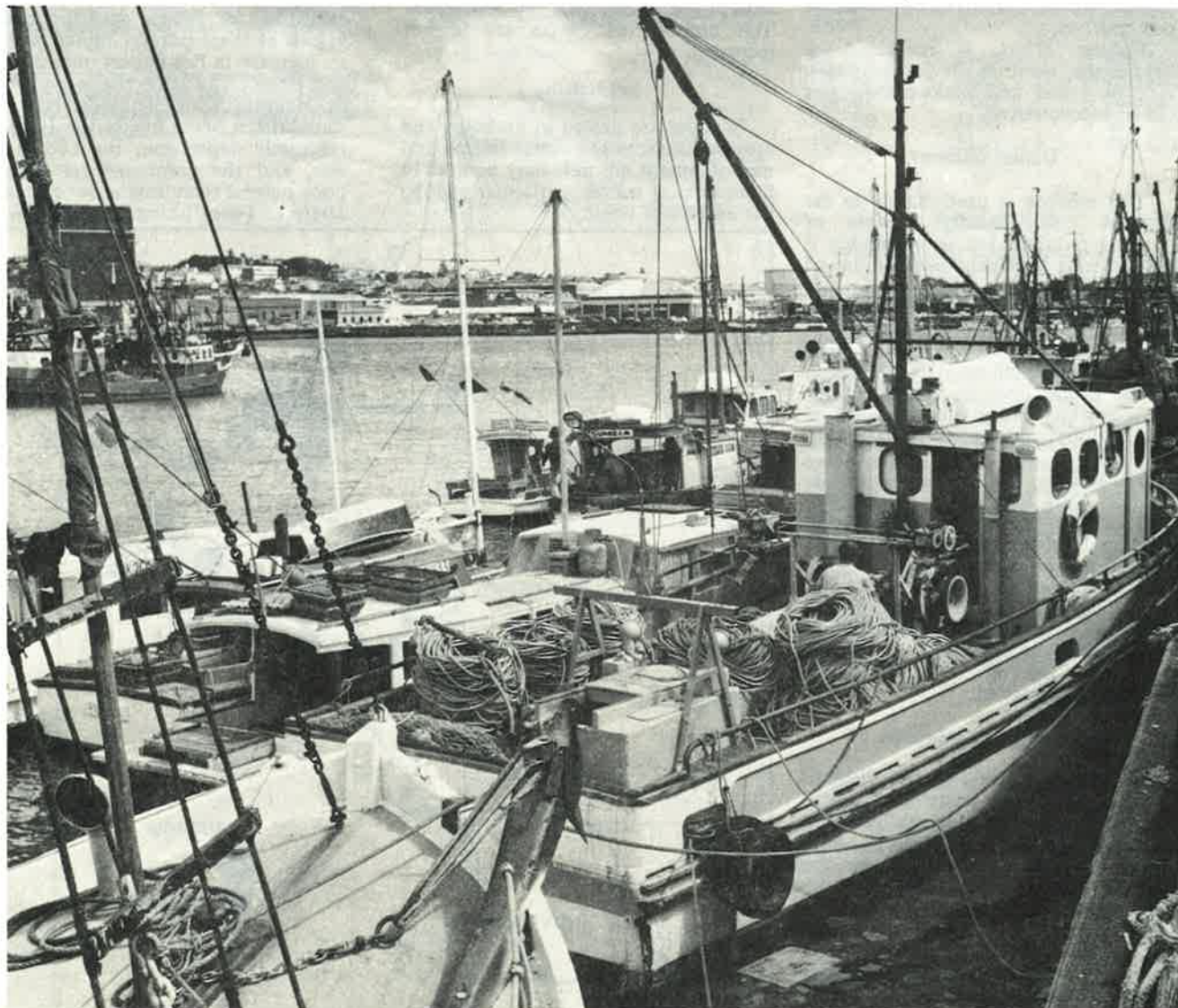
Mangonui, Whangaroa, Russell, Whangarei, Thames, Coromandel, Mercury Bay, Whakatane, Gisborne, Napier, Nelson, Wanganui, New Plymouth and Raglan.

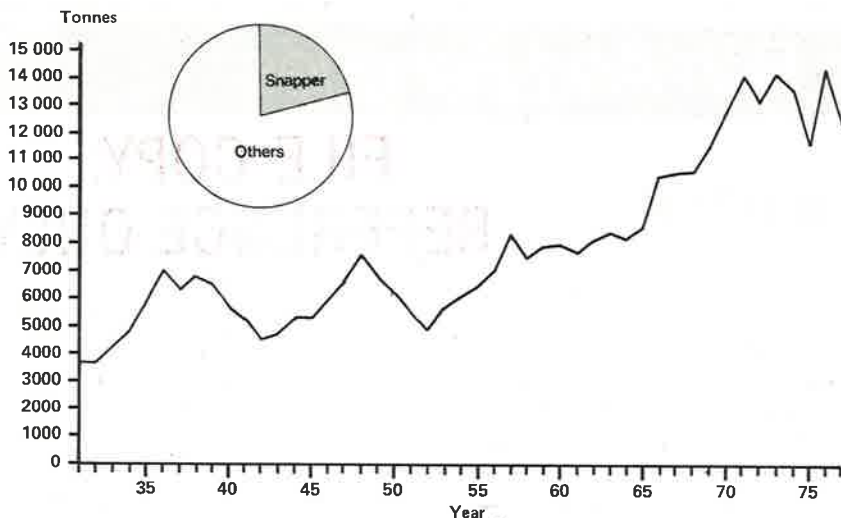
Trawling

Main trawling areas are the Hauraki Gulf, some east Northland grounds between extensive rough-bottom areas, Ninety Mile Beach south to New Plymouth, Wanganui to Kapiti Island, Tasman and Golden Bays, Hawkes Bay, Bay of Plenty from Te Kaha northwest to the Hauraki Gulf.

Working the trawl fishery is a wide size range of vessels, from 12-30 m, built of either wood or steel. Most fish singly, although during the early 1970s there was a move towards pair trawling

The commercial fishing fleet of trawlers, Danish seiners, and net and line vessels at Auckland, the country's main snapper landing port.





Trends in New Zealand snapper landings, 1931-77 from NZ-registered vessels only; foreign vessels have taken moderate quantities from time to time (see text). Inset: proportion of snapper in total NZ catch.

by all sizes of vessel. Pairing arrangements are often temporary and frequently seasonal. (A crew of three to five, and a trip length of 5-6 days.)

Nets used range from single granton-type trawls to large wing or balloon trawls, employed by the larger pair trawlers.

Fishing effort is measured as days-at-sea, landings, or trawler-years. Size of vessel and brake-horsepower can be incorporated.

Danish-seining

This method is used mainly in the Hauraki Gulf, mostly inshore of trawling grounds, but some seining is done in east Northland and the Bay of Plenty.

Danish seiners are generally smaller than trawlers, 10-20 m, and built of wood or steel. Some of the older boats are converted small trawlers, and many of the newer ones are fitted out for both trawling and seining. (A crew of two to four men and a trip length of 3-4 days).

Pair-seining was developed in the Hauraki Gulf but is now prohibited.

Traditionally, the English haddock-style net has been used, but since 1968 there has been a move to the higher-opening Skagen net.

Fishing effort is measured as days-at-sea, landings, or seiner-years. One important measure of effort, length of hauling rope (coils per side), is not recorded.

Longlining

Snapper are taken by longline all around the North Island and north-western South Island, generally within short distances from fishing ports. The main grounds occur along the coasts of east Northland, the Hauraki Gulf and the Bay of Plenty.

Line vessels come in various shapes and sizes. They range from 5-10 m, and are wood or fibreglass motor boats or launches. Some fish only part-time, being essentially pleasure craft, and many are engaged in other inshore fisheries, especially set-netting.

(One or two men per crew, and a trip length of 1-2 days.)

Gear varies but is mainly synthetic lines in 100-hook units, with about 1000 hooks being set per trip.

Fishing effort is measured as days-at-sea, landings, or boat-years. The number of hooks set is not recorded.

Set-netting

Snapper are netted in harbours and estuaries around the North Island, and monofilament gill nets may be used in inner coastal waters, particularly along the north-east coast.

A variety of vessels, from 3 m dinghies to 10 m launches, work the nets. Many also work in the line fishery. (One, sometimes two men per crew, and a trip length of 1/2-3 days.)

Gear includes various types and sizes of gill nets.

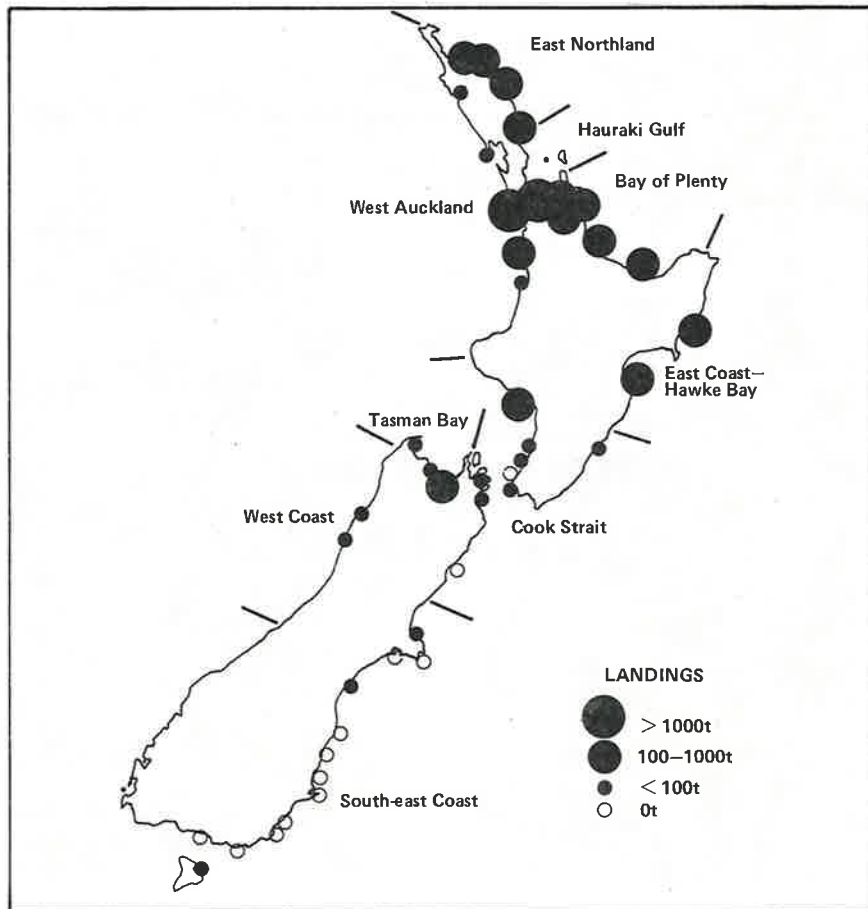
Fishing effort is measured as days-at-sea, landings, or boat-years. No record of gear type or size is kept.

NZ catch

Landing trends for different fishing regions are shown below.

Most regions show a fluctuating increase, particularly in recent years. Points worth noting include:

- the increase in west Auckland landings in 1953, resulting from Auckland boats working western grounds being permitted to land into Manukau;
- the mid-60s Tasman Bay peak, which arose from two large stern trawlers working for only 2 years from Nelson;
- the notable increase in post-1950 landings from Bay of Plenty to Hawkes Bay, owing to a steady expansion of fishing facilities and vessels at these ports, coupled with an increase in fish-export quantities and prices. The same rise is evident in Hauraki Gulf landings, earlier fluctuations being due to the 1930s economic depression, the 1939-45 war, and the combined result of poor natural recruitment during the 1940s and overfishing after the war.



Landings of snapper, 1931-1977 with the grouping of ports.

The NZ catch by fishing method for 1973-76

	1973	1974	1975	1976
Pair trawl	1 864	3 842	4 271	7 418
Single trawl	5 632	5 413	3 753	2 865
Danish seine	4 616	3 011	2 101	2 304
Lines	1 527	1 119	1 000	1 196
Nets	494	495	479	582
Total (t)	14 133	13 880	11 604	14 365
(\\$)	2,661,155	3,428,984	3,091,775	4,855,931

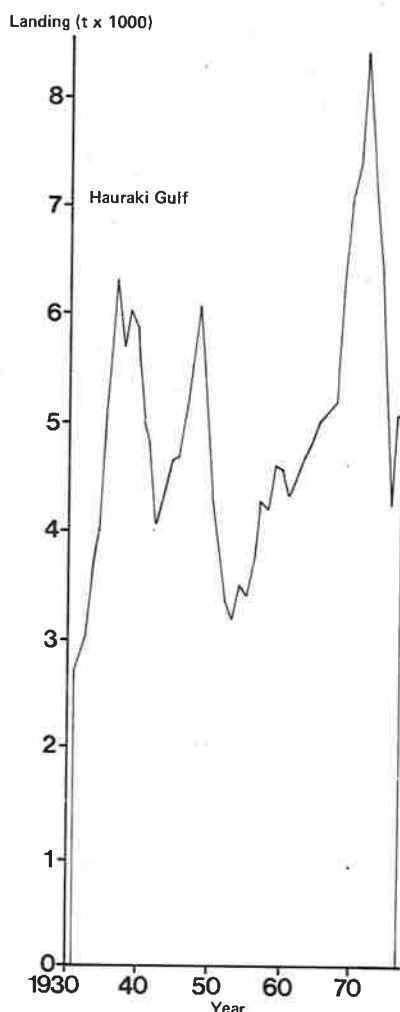
Associated species

In the trawl fishery, snapper is the main target on many northern grounds, important secondary species being trevally and gurnard on shallower grounds and tarakihi in deeper areas (the target itself in 150-200 m). John dory and jack mackerels are also taken as a by-catch. On southern grounds various combinations of these species, plus flatfish, predominate in the trawl catch.

The Danish-seine fishery takes almost exclusively snapper, with very small quantities of gurnard and John dory.

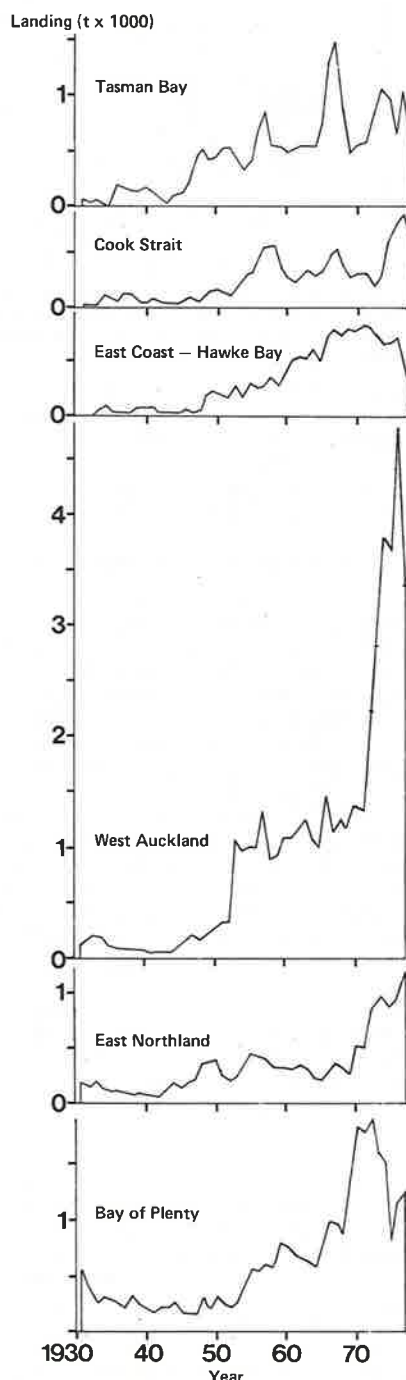
The line fishery for snapper also takes almost exclusively this species,

Landings of snapper by region, 1931-1977, showing the relative importance of ports in the Auckland area, particularly those in the Hauraki Gulf.



with small numbers of gurnard, tarakihi, rig, and in some areas school shark.

The net fishery takes a number of species, depending on locality, season, and fishing technique. Snapper is sometimes the target species, but is at other times a by-catch when the gear is being worked for flounder.



Product and markets

Snapper are landed green (ungutted) in most major trawling and Danish-seining ports. In others they are landed gutted and sometimes headed. In some ports there is a special class of undamaged snapper of uniform size, selected for export to Japan.

Fishermen supply wholesalers, who sell processed or unprocessed fish to retailers, or process it for the export market. In some areas the wholesalers own the catching units and/or the retail outlets. Some fishermen sell to retailers or direct to the public (mostly from the line and net boats).

Snapper is exported frozen as fillets to Australia and the United States or as small to medium-sized whole fish to Japan.

Locally it is sold whole, headed and gutted (sometimes smoked), or as fillets. The frames are sometimes sold as rock lobster bait or reduced to fish meal.

New Zealand exports of snapper over the last 5 years are:

July- June	Total	
Export Years	t	\$
74-75	2745	1 934 142
75-76	3486	3 408 451
76-77	5292	6 760 402
77-78	6193	8 360 752
78-79	7137	9 936 771

Food quality

Nutritionally snapper is a lean fish. The edible flesh is low in oil, about 2%, high in protein 21%, contains 76% moisture, significant minerals 1.5% and vitamins particularly of the B group.

The flesh is white and flaky particularly when the fish are small. Larger fish are coarser and tend to divide into large flakes so must be prepared and cooked with minimum handling.

Small up to 1 kg snapper can be pan dressed and cooked whole.

Larger fish can be steaked or filleted. Snapper can be poached, grilled, fried, baked or served marinated uncooked.

The fine delicate flavour, and attractive appearance are maintained when cooking is minimised.

Foreign involvement

Beginning about 1960, Japanese vessels (mother ships plus dories) longlined for snapper on most of New Zealand's productive fishing grounds outside the 3-mile territorial limit. In 1966 New Zealand's fishing zone was extended to 12 miles, but Japan claimed some traditional fishing rights and was allowed to fish in the outer 6 miles of this zone until 1970.

From 1971 the Japanese were virtually excluded from the main snapper grounds and withdrew their coastal line-fishing fleet. They took

relatively small quantities of snapper from the large stern trawlers, which fished for jack mackerel and barracouta well offshore from New Plymouth to Kaipara between 1968 and 1977. Their offshore line vessels continued making a catch of snapper until 1977.

In 1977 Korean trawl and line vessels reported a moderate catch of snapper.

Following declaration of the 200-mile fishing zone in 1978, foreign countries including Japan were allocated only token by-catch quotas for this species, all stocks being reserved for New Zealand fishermen.

Resource size

During the late 1970s total N.Z. snapper landings were in the order of 15 to 20 000 tonnes per annum, comprising 12 to 14 000 tonnes reported commercial landings, some unreported commercial landings, 2 000 to 3 000 tonnes reported by foreign registered vessels, and probably a few thousand tonnes by recreational fishermen. All major snapper grounds are probably now known, and the majority are heavily fished. The catch rates on several grounds declined during the late 1970s. The annual yield of snapper will probably remain at the present level.

NZ sport fishery

Apart from the "spotty" (a wrasse) and "herring" (mullet) caught by wharf fishermen, snapper is probably the most sought-after fish in New Zealand.

It is taken by almost all recreational fishing methods: bottom-fishing or drift-line fishing from small boats with handline or rod and reel; surf-casting from sandy shores or rocky headlands; or set-lining — either from small boats or by sending the line offshore on a small wind-driven raft.

It is caught in beach seines dragged for flounder and sole, and in gill nets set in harbour channels. Charter fishing launches seek snapper from northern New Zealand harbours.

Skindivers spear relatively few, owing to the snapper's wariness when approached underwater.

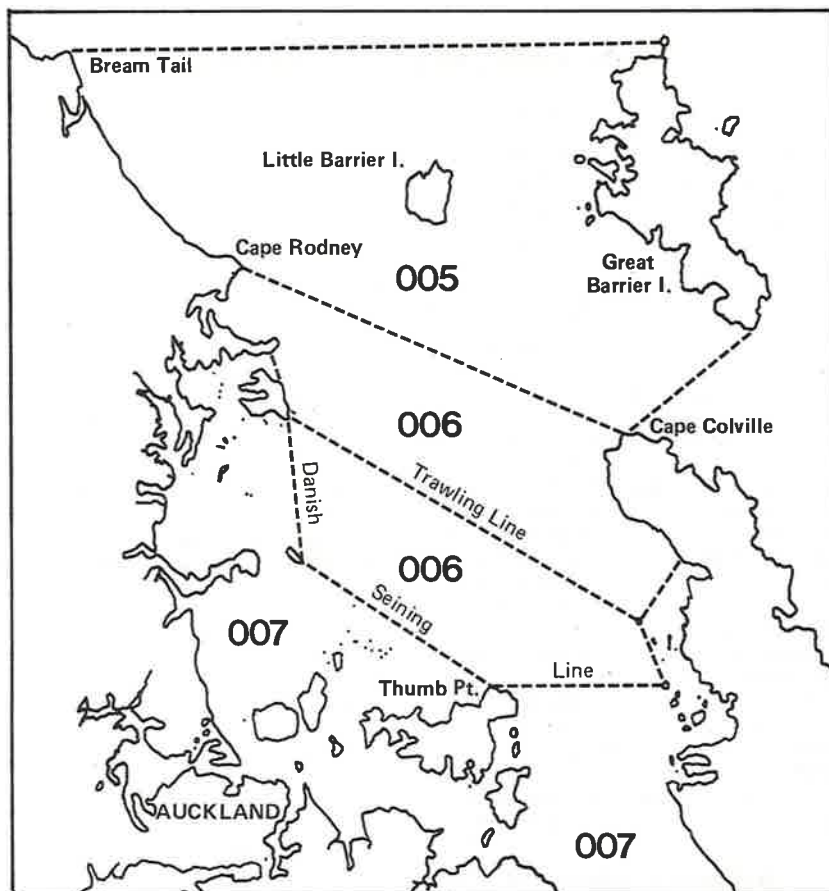
Regulations

There is a size limit of 25 cm for amateur line-caught fish, and minimum mesh sizes of 100 mm for trawl nets (125 mm in the Hauraki Gulf), 125 mm for Danish-seine nets and 55 mm for set nets.

Several fishing grounds are closed to trawlers and Danish seiners.

Trawlers are excluded from all harbours and estuaries; most large bays and some coastal waters on the north-east coast; most of the inner Hauraki Gulf; and some South Island bays.

Closed to Danish seiners are all harbours and estuaries; most large bays and some coastal waters of the north-east coast; much of the inner Hauraki Gulf; and all coastal waters out to 3



The Auckland Fishery Management area, showing the inner permitted limits of trawling and Danish seining, and the areas 005, 006 and 007 established for statistical recording of fish catches.

nautical miles south of Reef Point and Gable End Foreland (which includes two-thirds of the North and all of the South Island).

Seasonal quotas apply in the Hauraki Gulf and Tasman Bay.

Auckland fishery management area

Auckland has the most important snapper fishery in New Zealand. Since 1902 it has been regulated by closed areas to protect spawning and nursery grounds, and to physically separate areas fished by the different methods.

In 1972 these regulations were simplified, though the closed areas remained essentially the same.

In 1977, MAF introduced a total catch quota for snapper taken by trawl and Danish seine in the inner Hauraki Gulf, there was some further re-arrangement of closed areas, mesh size increase for trawl nets, and a prohibition of pair trawling and seining.

Now the Hauraki Gulf Snapper Advisory Committee, which represents the fishing industry, advises MAF on the suitability and subsequent effectiveness of different management procedures.

Conservation

Although there are some areas where snapper are still lightly or only moderately exploited, MAF believes the total New Zealand stock is being exploited at about its maximum sustainable level. As an abundant but long-lived and slow-growing species, snapper can yield high catch rates for

several years when a new ground is discovered or a new fishing technique developed, but catches then drop to a much lower level.

Conservation is usually defined as "wise use of a resource", so its interpretation can vary. In some areas where the fishing industry is important it may be best to commercially harvest the resource at its maximum sustainable level. In areas important to recreational fishermen it may be better to maintain a higher standing stock of snapper to allow good catch rates.

Conservation does not usually mean "protection", but in some areas, as in the Leigh Marine Reserve north of Auckland, it may be appropriate to completely ban fishing and protect coastal ecosystems including the snapper population, for scientific study and visual appreciation.

Further reading

Paul, L.J. 1977: The commercial fishery for snapper, *Chrysophrys auratus* (Forster), in the Auckland region, New Zealand from 1900 to 1971. Fisheries Research Bulletin 15, NZ Ministry of Agriculture and Fisheries.

Paul, L.J. and Elder, R.D. 1979: The Hauraki Gulf snapper fishery. pp. 77-79 in Prospects and Problems for New Zealand's Demersal Fisheries. Proceedings of the Demersal Fisheries Conference October 1978.



L.J. Paul,
Fisheries Research Division,
MAF.