SPANISH MACKEREL
AS A COASTAL RESOURCE

By Tony Lewis
Formerly*, Biologist, Kanudi Fisheries Research Station

INTRODUCTION

In most of coastal Papua New Guinea, the land is good and the people have not needed to develop the fishing skills of other Pacific Islanders. The handling and marketing problems caused by the hot climate and the distances between villages have also tended to limit the development of coastal fisheries.

Recently, imported tinned fish has become very important in the national diet. As a result of this, more attention is being paid to developing the Papua New Guinea coastal fisheries to reduce the need for imports.

This article is about one group of coastal fishes, the spanish mackerel, and their possible role in future development.

Spanish mackerel have many names such as seerfish, tangir, kingfish, tagar and tanguigue. They are found in the tropical and sub-tropical areas of the world. These fish are prized as food because of the flavour, firmness and keeping qualities of the flesh. They are also respected because of their size, strength and razor-sharp slashing teeth. They stay near to reefs, banks or the shoreline and so are truly coastal fishes.

THE SPECIES

Five species of spanish mackerel are found in Papua New Guinea waters. Only one of them is important enough to discuss here. That is the narrow-banded spanish mackerel. The other four species are only found in the Gulf of Papua where they are sometimes caught by prawn trawlers.

Two more species of fish are closely related to the spanish mackerel. The wahoo is a large fish which weighs more than 60 kg and is rarely caught in coastal waters. The shark mackerel is found on the inner edges of some reefs but fish over 5 kg are rare.

HABITS

The narrow banded spanish mackerel is found throughout the Indo-Pacific. It can grow as big as 55 kg and some fish bigger than

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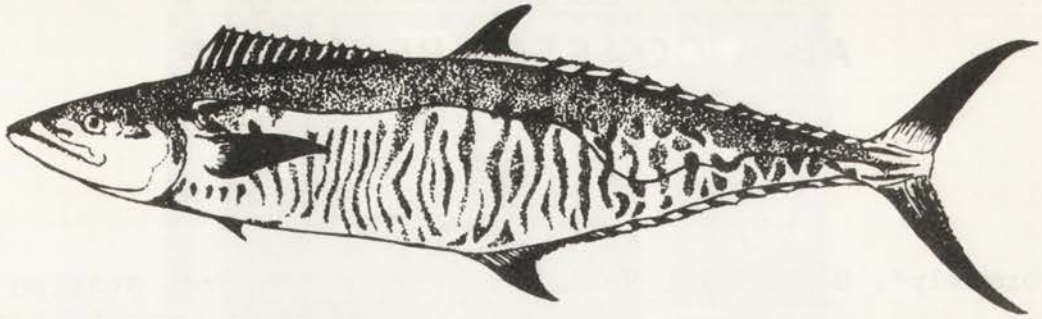
Present Address: School of Biological Sciences. Australian National University, Canberra, Australia.



Narrow banded spanish mackerel

35 kg are caught each year in Papua New Guinea.

Larvae and very small fish are usually found in cloudy, less salty water which provides them with plenty of food. Young adults are found in bays and inshore reefs while older adults are more common in deeper water along reef edges and passages.

Spawning (egg laying) takes place in most months of the year in Papua New Guinea but is most common from October to February. The mackerel travel to special areas to spawn and the best fishing is often at the time of these movements (migrations).

Bramble Cay is the best known spawning area and Orangerie Bay, Arawe Island, Hansa Bay and Kavieng are other good areas. Most fish spawn for the first time at 70-75 cm length when they weigh about 3-4 kg.

Large mackerel (bigger than 12 kg) are usually female but it is not known whether this is due to females growing faster or due to them living longer than males.

Mackerel feed on many different fish, especially surface fish such as flying fish, sardines and herrings. They also feed on squid. The mackerel swim very quickly when chasing their food and often jump several metres clear of the water.

Tagging studies show that these fish can travel long distances along the coast. This means that the fisheries of neighbouring countries may not be completely separate. Present studies on mackerel blood may show the relationship between Queensland and Papuan stocks.

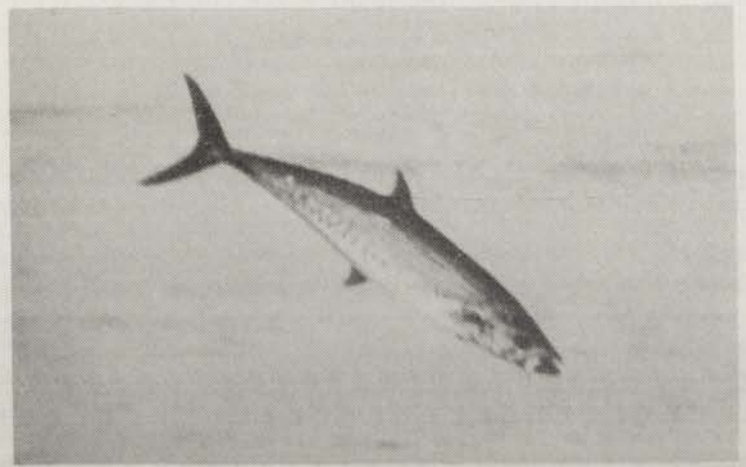
CAPTURE METHODS

Many different methods are used to catch spanish mackerel. Most of the fish are caught by trolling which is towing a bait or lure behind a moving vessel. When feeding, mackerel will strike at almost any moving object but each fisherman has a favourite bait or lure for when biting is not so fierce. In parts of Papua New Guinea, lures are traditionally made from swamp lily stems. Some

fishermen in north Queensland use garfish wired to linked hooks. Many other dead baits and artificial lures can be used.

Trolling is usually carried out at the surface but it is sometimes better to use lead weights and fish at different depths. The fisherman is kept busy jerking the line to attract the fish and checking baits and lures for proper swimming action. At normal trolling speeds of 4-6 knots, inboard diesels are as good as outboard motors.

Best troll catches are usually made near dawn and just before dark but fish can be caught at any time. Tides and the moon can affect catches although it is not understood how this works.



Spanish mackerel jumping out of the water

Some fishing methods do not need a moving boat. In one of these the mackerel are attracted by small bait fish to lights hung over or in the water. The mackerel can then be caught easily with live or dead bait just outside the area where the light is shining. Some coastal fishermen use flying fish bait and a pressure lantern from their canoe to catch mackerel in this way.

Drifting gill nets trap fish in the meshes by their gill covers. They are most effective at night or where the water is cloudy. Sunk nets are gill nets which are weighted to lie near the bottom. They have also been successful in Papua New Guinea.

Mackerel are sometimes hooked by line fishermen but they are strong fighters and usually get away unless a wire leader is used.

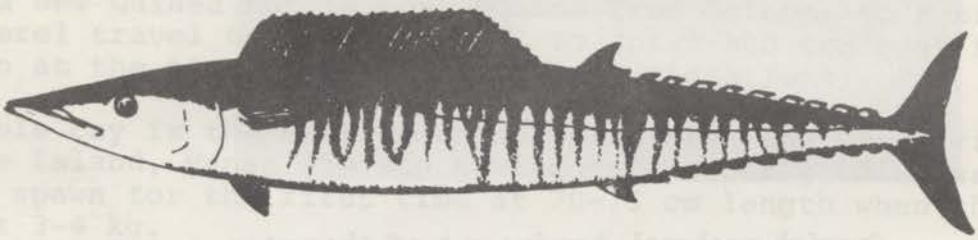
POTENTIAL

The present annual catch of spanish mackerel from Papua New Guinea is less than 200 tonnes. The Indo-Malayan region is very similar to large areas of the Papua New Guinea coast but many more of these fish are caught there. According to recent estimates, 34 000 tonnes were caught there in 1974. This suggests that these fish have great potential for fisheries development in Papua New Guinea.

Survey work gives further evidence of this. During one 18 month survey of Papua New Guinea waters, mainly in Milne Bay Province, the average daily catch for the three best areas was 170 kg.

In a survey of Bramble Cay in 1950, an average of over 1 300 kg of narrow banded spanish mackerel were taken per day in five half-days of trolling using two dories. Similar "runs" of fish occur in other areas such as Kavieng and Orangerie Bay but plenty of mackerel can also be caught by trolling in many other areas throught the year.

The potential of other fishing methods is not known. For example very little survey work has been done on night fishing and this is usually used with daytime trolling rather than as a method on its own.



Wahoo

Offshore gill netting surveys have been carried out by foreign ships along the Papua New Guinea coast. Most of the fish caught were shark but mackerel made up a large part of the value of the catch.

Village fishermen have also had good mackerel catches sometimes, especially in cloudy water.

PROSPECTS

The author believes that present catches of spanish mackerel can be increased at least ten times from 200 tonnes to 2 000 tonnes per year.

The main problem is the distance of the fishing grounds from the processing facilities. However, there are plans to service village freezers from Government ships. Catches from villages may then increase to supply the local market. It is hoped that commercial developments will follow if this is successful.

For the export market there will need to be high standards of quality. These could be met by freezer ships servicing their own fleets of efficient dories. These ships would be capable of going all around Papua New Guinea to take advantage of local "runs"

of fish. Traditional claims to the nearshore fishing grounds would need consideration in this case.

CONCLUSIONS

Spanish mackerel is a popular and valuable fish which can be sold both in Papua New Guinea and overseas. The rewards for solving the problems of developing this fishery are probably greater than for any other under-used coastal fish. It remains to be seen if anyone will accept this challenge.

Fisherman with narrow banded spanish mackerel