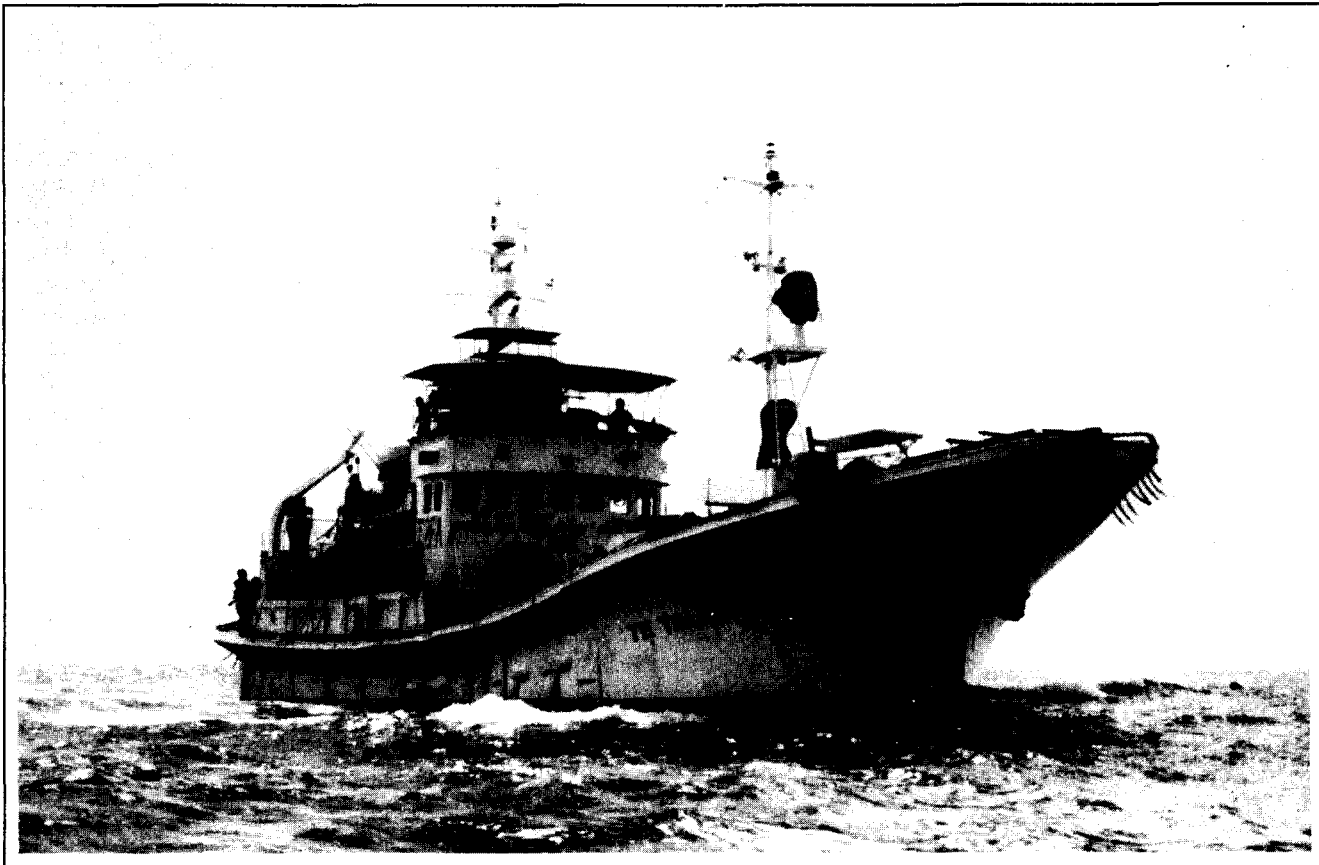


Focus

on



The regional tuna tagging project

SPC's Regional Tuna Tagging Programme (RTTP) is part of the Tuna and Billfish Research Project of the Tuna and Billfish Assessment Programme (TBAP).

Eight o'clock one morning in April finds the Tuvaluan pole-and-line vessel *Te Tautai* approaching a seamount situated off the west coast of New Ireland, Papua New Guinea. The undersea mountain rises 1400 metres from the sea floor and comes to within 280 metres of the surface. The signs are not promising; there are no visible

schools of tuna and only a few seabirds circling in the vicinity, but currents around the seamount may have concentrated small fish and squid, and the tuna that feed on them.

As the vessel slows, live baitfish, mostly sprats and anchovies, are thrown into the water from tanks on the bow and stern. The crew wait expect-

tantly, their fishing poles at hand. Within seconds yellowfin tuna and skipjack turn the surface into a mass of leaping, iridescent bodies, bursting through the small schools of bait in their rush to feed. In this frenzy, the feathered hooks are easily mistaken for prey, and it is not long before fish are being poled on-board. The four tagging stations, two on

the bow and two on the stern, move into action.

Each tagging station comprises a tagger and his assistant. When a fisherman brings a tuna on-board, the assistant will catch it, gently remove the hook from its mouth and place the fish on the tagging cradle. The cradle is a canvas-covered table that is equipped with a holder for tags, a padded headpiece for the fish to nose against, and a one-metre rule marked in centimetres. The tagger measures each fish, inserts a numbered plastic tag into the musculature of the tuna directly below the second dorsal fin, records the length and tag number on a tape recorder, and then drops the fish back into the sea. This operation usually takes about five to ten seconds, so that a large number of tuna can be tagged very quickly.

The *Te Tautai* can carry up to 600 kg of baitfish, but on this particular day there are only 80 kg on board. This supply is rapidly exhausted, and eventually the fishing comes to a halt. Fish that have been landed on deck, because they were

unsuitable for tagging, are counted, and a sample is measured, weighed and examined for sex, stomach contents, and other biological information.

Once the deck is clear, the taggers transcribe their tagging data from cassette tape to paper and then into a database on laptop computers. This information will eventually be carried back to SPC, Noumea, where it will be stored in a central database along with data on any tags that have been recovered.

Today the *Te Tautai* is lucky. Within 90 minutes over 1000 fish are tagged and released. Forty per cent are yellowfin, and 60 per cent are skipjack. This is an exceptional day for the Regional Tuna Tagging Project, and helps to bring the total number of releases in the first 5 months of field operations to 21,000.

The Regional Tuna Tagging Project (RTTP) consists of 20 months of field work over a two-year period, followed by 6-10 months of analysis of tag returns and report writing. The project is being implemented

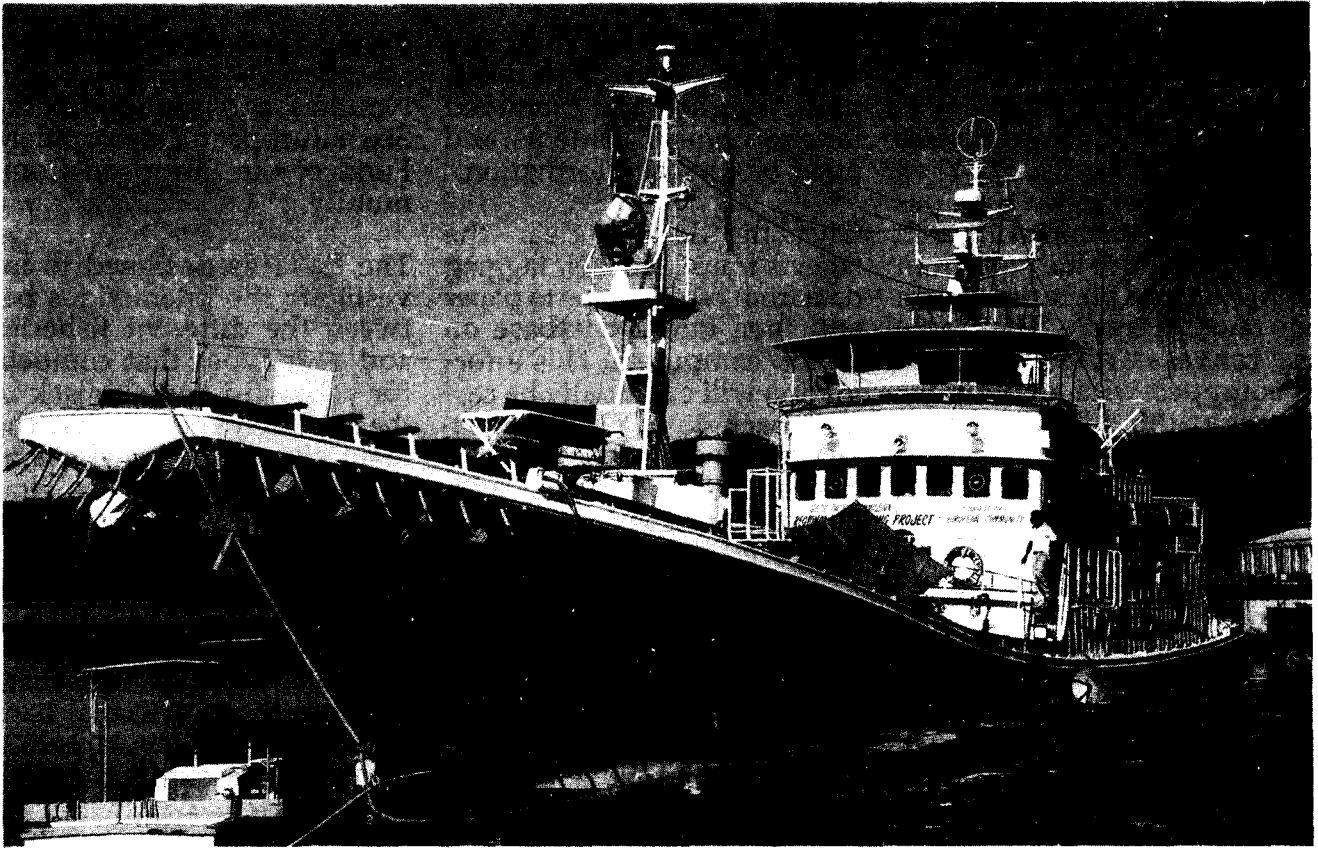
by the Tuna and Billfish Assessment Programme of SPC, Noumea, and is funded by the Sixth European Development Fund of the European Community.

The RTTP is designed to investigate the interactions between the different fisheries and gear types that compete for yellowfin and skipjack in the tropical western Pacific. The main aim of the project is to determine whether the dramatic increase in purse seining activity over the last decade has affected the stocks of yellowfin and skipjack tuna in the region, and whether other fisheries, such as industrial longlining and artisanal handlining and trolling, targeting the same stocks of tuna, have been affected.

The project will also provide information on the population dynamics and biology of yellowfin tuna, and update the information gathered on skipjack by the SPC Skipjack Survey and Assessment Programme ten years ago.



Poling, measuring and tagging tuna on board the TE TAUTAI. The tagged tuna are then returned to the sea.



The *Te Tautai*, which is Tuvaluan for 'master fisherman', has been chartered specifically for the RTTP. She is a 39-metre-long Japanese-style pole-and-line vessel of 173 GRT, and was built in Japan in 1982 for use by the Government of Tuvalu as a fisheries training vessel. Usually she operates with a crew of 40, but for the charter with SPC this number has been reduced to 21. This allows space for SPC personnel and limits the number of fishermen to four or five per tagging cradle. If there were any more fishermen, each tagger would be deluged with fish and many would have to be discarded.

The *Te Tautai* comes equipped with essential electronic equipment for locating tuna. This equipment includes a highly-sensitive 'bird' radar that is capable of picking up birds that may be circling over a school of tuna, and a sonar for

searching for fish aggregation under tree trunks and other floating objects. Most searching is done with hand-held binoculars from an open flying bridge above the main bridge. This area is also equipped with a set of mounted 25 x 150 binoculars.

Tagging operations began shortly before Christmas 1989 in Solomon Islands and shifted to Papua New Guinea in early January 1990. The *Te Tautai* remained in Papua New Guinea for two months, working in January to the north of New Ireland and Manus Island, where purse seiners traditionally operate, and in February along the south coast of New Britain. March was spent in Solomon Islands, and April back in the northern waters of Papua New Guinea. The first five months of operations ended with the vessel leaving Papua New Guinea and steaming to Pohnpei in early May.

During the five months, 21,000 tuna were tagged and released, comprising 48 per cent yellowfin, 50 per cent skipjack, and 2 per cent bigeye tuna. The majority of releases (85 per cent) were made in Papua New Guinea waters.

In the short time that the project has been running, SPC has received almost 100 recovered tags. These tags have mainly come from Japanese, Korean and Solomon Islands purse seiners.

For the remaining five months of field work this year, the *Te Tautai* will fish in the waters of the Federated States of Micronesia, Palau, and possibly back in Papua New Guinea. This will depend largely on the movements of the main fishing fleets. There are also plans to operate in the Philippines, which are probably an important nursery ground for tuna that enter the various Western

Pacific fisheries. Because the stocks of juvenile tuna in the Philippines appear to be heavily exploited, it is important to be able to define the level of interaction between the two areas.

At the end of ten months, the *Te Tautai* will return to Funafuti for a much deserved two-month break. Tagging operations will recommence in January 1991, probably back in the waters of Papua New Guinea.

As it is important to tag a representative size-range of tuna being caught by the various fisheries, tagging will also be undertaken on other fishing vessels, when access to the vessels and availability of tagging personnel permit. Purse seiners often target on large

yellowfin (over 100 kg) that are usually not caught by pole-and-line gear. Although the *Te Tautai* will employ different fishing methods in an attempt to catch the larger fish, for example trolling and handlining under logs, it is likely that most large fish will be tagged from purse seiners.

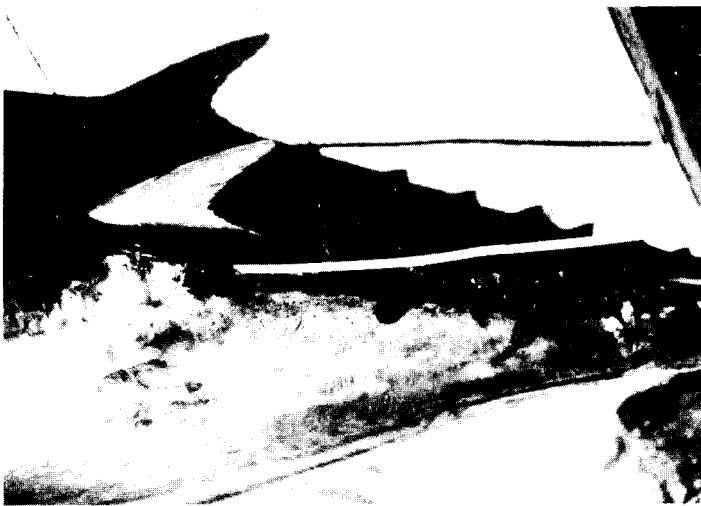
One such trip on a purse seiner has already been completed. SPC Fisheries Research Scientist David Itano spent two weeks in April on a Japanese seiner fishing in a group operation off the Federated States of Micronesia (FSM), and tagged 300 tuna. Although this total does not compare with what can be achieved in the same period with the *Te Tautai*, the trip was particularly successful in showing that it is

possible to tag large, seine-caught yellowfin, and in developing techniques for removing fish in taggable condition from the net.

A second trip on a Japanese seiner is planned for later in the year. SPC gratefully acknowledges the FSM Micronesian Maritime Authority and the Japan Purse Seine Association for making access to these vessels possible.

Reports on the continuing progress of the Regional Tuna Tagging Project will appear in future editions of *Pacific Impact*.

At left, yellowfin, the targeted species. Large numbers of bigeye (at right) have also been tagged. ▶



▲ This skipjack was tagged in Papua New Guinea on 20 January 1990; the photo was taken at its recapture a few months later south-east of Pohnpei, Federated States of Micronesia.



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