

This workshop will serve as a useful backdrop for the SPC regional workshop on Ecosystems Approach to Fisheries and Aquaculture (EAF) and Aquatic Biosecurity planned for October

2007. It also supports an SPC Governing Council directive in 2006 for its Marine Resources Division to build regional capacity in the area of aquatic biosecurity.

Workshop outcomes are to be developed into an FAO Manual on Understanding and Applying Risk Analyses in Aquaculture.



■ NEARSHORE FISHERIES DEVELOPMENT AND TRAINING SECTION

Technical assistance to a New Caledonia domestic longline fishing company

The New Caledonian fishing company, Navimon¹, has been in the business of longline fishing, processing, wholesale local marketing, and export marketing of fresh longline caught fish since the mid-1990s. Navimon's initial fishing operations, which began with four French-built 16-m aluminium longliners, operated with varying degrees of success. Since 1996, however, Navimon has divested itself of all of the original 16-m vessels and has gradually acquired a fleet of eight 20-m steel vessels that are better suited to the type of fishery they are involved in. In 2002, the company was restructured and efforts were concentrated on fishing alone. Since then, processing and marketing of Navimon's catch is carried out by other New Caledonia-based companies under contract arrangements.

Despite this attempt at restructuring, the company experienced difficulties, due partly to a downturn in overall catches that was experienced by many SPC member countries in the early 2000s. By 2005, fishing had begun to return to more normal conditions but Navimon was still facing the recurring problems that affect most longline fishing operations in New Caledonia and elsewhere in the Pacific: rising operating costs, diminishing returns due to market fluctuations and currency exchange rates, and difficulties in attracting and retaining com-

petent captains and crew members. With a high turnover of vessel personnel, crew training became a priority, at least as a short-term solution.

In late 2006, Navimon asked SPC to provide some short-term monitoring and training of the newer captains and crews in their fleet. SPC's two Fisheries Development Officers (FDOs), Steve Beverly and William Sokimi, accompanied some of the newer and less successful captains on regular tuna longline trips to determine why they weren't as successful as their counterparts with more experience. (The fleet's eight boats were identical and had the same infrastructure and ground sup-

port.) Steve and William worked with Navimon crews between February and June 2007, making four fishing trips on four separate vessels: F/V *Katia*, F/V *Keitre*, F/V *Lanesera*, and F/V *Gossanah*.

In addition to providing onboard advice and training to Navimon's skippers and crew, the FDOs held debriefing meetings with Navimon's management and skippers, and offered specific advice and information on how to improve the vessel performance, fishing strategies, and fish quality. On completion of the project, a report highlighting the FDOs' findings and providing general recommendations was submitted to. Insights into the



Preparing a longline buoy for deployment during line setting

¹ Navimon is owned by SODIL (Société de développement et d'investissement de la Province des Iles Loyauté, the investment organisation of the Loyalty Islands Province of New Caledonia)



F/V Lanesera crew freeing a tangled branchline during the hauling process

problem of retaining captains and crew were also given.

The project report has been finalised will soon be submitted to Navimon's management. The report makes some recommendations which, if implemented, may improve the company's overall profitability. Recommendations are broad ranging and include improving fishing gear and strategies, experimenting with longline setting parameters, skippers providing onboard training to crew, adjusting onboard catch handling procedures, changing vessel management methods, introducing a Safe Operational Plan on the company's vessels, and improving crew welfare.



Economic benefits of a domestic tuna longline fishery

Tuna longlining is a commercial tuna fishing method that targets large deep-swimming tunas. Most Pacific Island countries have domestic and locally based fleets because the capital cost of longliners is lower than for other large commercial tuna boats, and because the highest prices are paid for fresh fish, which must be landed near the fishing grounds and sent to markets by airfreight. There is also a large fleet of distant-water longliners, mainly from Korea, Taiwan and China, which fish on the high seas and under access arrangements with some Pacific Island countries. Although the access fees paid by these vessels are normally higher than the fees charged for licensing domestic vessels, it is generally agreed that a domestic fishing fleet brings much greater benefits to the local economy. However, no one has actually measured these benefits across the region, or compared different fishing and processing operations.

MEASURING ECONOMIC BENEFITS

There are different ways of measuring the benefits of an economic activity such as fishing. Some economists believe that the most important measurement is the economic rent, which is the difference between the value of the catch and the cost of production. While this is a good measure of efficiency, it does not consider the question of who benefits. A national tuna fishery could have a high economic rent, but with most of this taken offshore as profits by foreign companies. Most Pacific Islanders would consider this a poor deal for their country because they are more interested in benefits to the national economy. It is also important to use measures that can compare different fishery development approaches in different countries (e.g. a small fishing boat will not earn as much as big one) and to convert values to a common currency.

In this study, the key measurement used is value added, which is calculated in US dollars

for each tonne of tuna. It is a measure that tells us the net economic impact of an activity such as fishing. It includes not only the profit made by a fishing operation, but also the wages of the crew (an important factor in most Pacific Islands where there are not enough jobs). It can be measured not only for fishing, but also for processing and other activities after the fish is landed. In the United States, value added is measured for different fisheries at each stage of production from catching to the final consumer, and this information is used to calculate the impact on the economy of changes in the fishery.

Value added

Value added is an economic term to express the difference between the value of goods and the cost of materials or supplies used in producing them (intermediate costs). Value added is thus defined as the gross sales of a firm minus the cost of goods and services purchased from other firms.

Five other measures were also calculated, all in US dollars per tonne of tuna:

- Net local purchases – this added up the value of supplies bought by fishing companies, less the cost of import of supplies from overseas;
- Employment earnings – the wages paid to crew and onshore workers who are resident in the country;
- Gross profit – measured as earnings before interest, tax, depreciation and amortization (earnings before interest, taxes, depreciation and amortization – EBITDA);
- Contribution to the balance of payments – the value of export sales less the cost of imported goods used; and
- Government revenue from licence fees and other charges.



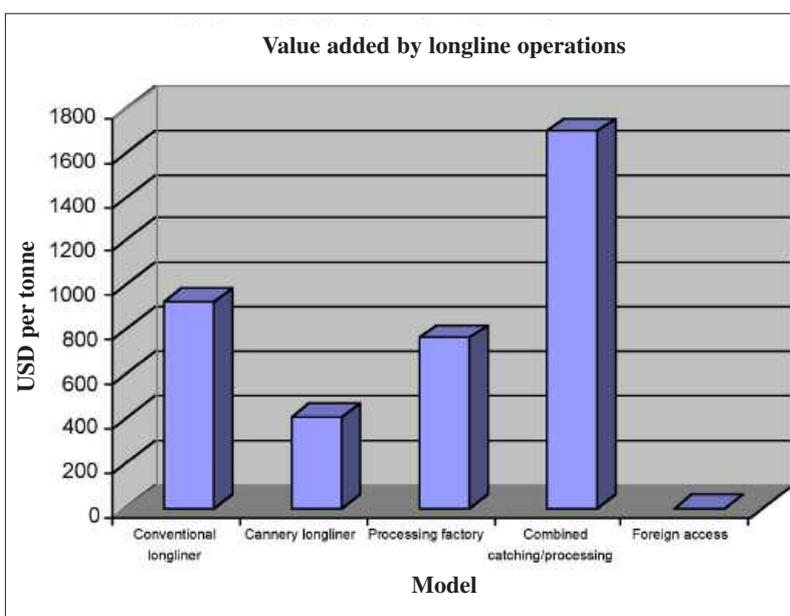
Value added by processing can also be worked out

COLLECTING INFORMATION

Data were collected from tuna fishing and processing companies in four countries: Cook Islands, Fiji, Marshall Islands and Papua New Guinea. These enterprises operate some 70 longline vessels, catching around 15,000 tonnes of tuna per year, as well as most of the larger processing plants for longline caught fish in the region. Unlike some previous studies, we used actual financial results for 2005 – not data from elsewhere in the world – and few assumptions were made.

The study found that the tuna longline fishing and processing companies in the region fit into one of five models, depending on how they operate:

- A 'conventional' domestic longliner exporting most of the catch as chilled whole fish;
- A domestic (local flag) longliner that is based at, and



lands fish directly to, a foreign cannery;

- A factory that processes tuna and bycatch for export as loins, steaks, etc;
- A combined longline fishing and processing operation; and
- A foreign vessel fishing under an access agreement and landing its catch overseas.

Each of these has different impacts on the local economy.

ECONOMIC BENEFITS

The graph above shows the value added to the national economy, per tonne of tuna, for each of the operational models. These are average values, across

several companies, and typically for more than one country. The study found that the average value added by a conventional longline operation, although substantial, is only about 20% of the final value of the catch (more in some countries, less in others). Processing of the catch, however, can add value to the national economy — nearly as much as fishing — and a combined fishing and processing operation provides the greatest benefits to the country.

Other measures are shown in the table below. The combined fishing and processing model shows the greatest benefits for most of these. Access agreements give relatively poor returns, except in the area of government revenue, although most domestic fishing and pro-

Model	Net local purchases	Employment earnings	Balance of payments	Gross profit	Government revenue
Longliner – conventional	525	562	1,830	365	174
Longliner – foreign cannery	0	0	416	416	13
Value added processing	602	201	1,364	602	46
Combined catching and processing	602	763	1,110	968	220
Foreign access longliner	0	0	350	n/a	350

All values in USD per tonne of tuna (catch or factory throughput)

cessing companies only reported direct payments to the government in the form of licence fees and port dues. When income tax, import duties and other charges are taken into account, revenues are somewhat higher from domestic operations. It is also interesting to note that the conventional longline model, on average, is the least profitable domestic operation. Although the export of sashimi grade fresh fish still gets the best return for a small proportion of the most valuable tuna, companies that can process the remainder of their catch are performing much better than those which rely on the export of whole fresh and frozen fish.

CONCLUSIONS

There are four main findings of the study.

- An integrated fishing/processing/ marketing longline sector returns the greatest benefits to the national economy. Most government policies focus on developing the catching sector. This study found that catch processing provides important extra benefits. Most large-scale processing operations have involved foreign investment, and governments may need to attract this kind of investment if they want to capture maximum economic benefits.
- National longline fleets were largely established when the conventional model was
- Domestic ownership of the fishing boats is not important in terms of national economic benefits. Although government licensing regimes tend to favour locally owned and flagged vessels, the economic benefits depend mainly on having the boats based locally and landing their catches at a local port. Benefits can be increased by ensuring that the industry employs national, or at least resident, workers and that local companies are able to provide services and supplies.
- Although there is value in a regional assessment, each country is different and there is need for analysis at the national level.

highly profitable, however this is no longer the case. Although the highest returns can be made from exporting whole fresh sashimi grade tuna, the economics of the industry have changed over the last 10 years, and it is often only profitable to export a small proportion of the total catch in this form. Companies that can process the

remainder of the catch into value added products are more profitable, and many small companies that relied on the conventional model are struggling to survive.



This is based on a report by Peter Philipson, which was commissioned by the DevFish Project of the Forum Fisheries Agency (FFA). A copy of the full report can be downloaded from FFA's website at www.ffa.int. A printed copy can be requested from: Jonathan Manieva, DevFish Project, Secretariat of the Pacific Community, BP D5, 98848 Noumea Cedex, New Caledonia.



A longliner offloads in Majuro, Marshall Islands

Sea safety posters for Tokelau and Nauru

At the request of the fisheries departments in Tokelau and Nauru, SPC has produced its small boat safety checklists in the vernacular language of each country. In line with Mike McCoy's 1991 recommendation that "education through publicity campaigns, repeated and reinforced over a long period of time...seems to offer the best chance for improving the safety at sea for artisanal fishermen", SPC's Nearshore Fisheries Development and Training Section

relentlessly promotes small boat safety in the Pacific. After producing a number of awareness-raising materials in English and French in the late 1990s, the Section has started to translate the same materials into the vernacular language of its member countries and territories. The Tokelau (Figure on the left) and Nauru (Figure on the right) checklists have been printed in both poster form and A-4 size. While the posters will be displayed in government offices and villages, it is

intended that the laminated A-4 placards will be distributed to individual fishermen as an ongoing reminder of the things to do and the safety items to take onboard before going to sea.

Work is underway to produce a Cook Islands-specific safety checklist in the Maori language. This will accompany the small boat regulations currently being developed in that country.



Development of an innovative training programme

The development of a new training course — Fisheries Evidence Training and Investigation Course (FETIC) for Pacific Island Fisheries Officers — is the result of a joint initiative between the Pacific Islands Forum Fisheries Agency (FFA), the Australian

Fisheries Academy (AFA) and SPC. The FETIC programme is adapted from the Australian Basic Evidence Training and Investigation Course (BETIC) programme, which is a major component of the nationally accredited Certificate III in the

Seafood Industry (Fisheries Compliance).

Early in 2007, the Port Adelaide-based AFA was contracted by SPC to develop a training curriculum for Pacific Island Fisheries Compliance Officers.

AFA liaised with staff of the FFA Fisheries Operations Unit to adapt the Australian BETIC course for the Pacific, and develop lesson plans, learners' materials and assessment guidelines. A complete training package was completed at the end of July, and AFA staff were ready to deliver a three-week pilot course at the PNG National Fisheries College in Kavieng (6–24 August). Sixteen Fisheries Officers have been

selected by FFA to attend the course.

The will enhance Pacific Island Fisheries Officers' skills in:

- fisheries management principles and legislation;
- monitoring fish catches;
- patrol operations, including methods and resources; and

- investigative techniques, including evidence gathering, note taking, chain of evidence, interviewing and statement taking, brief preparation, and court procedures.

A report on the 2007 FETIC programme will be published in the next issue of the SPC *Fisheries Newsletter*.



Start Your Fishing Business (SYFB) training in Polynesia

Regular readers of Fisheries Newsletter are aware of the Start Your Fishing Business (SYFB) project jointly coordinated by SPC and the Commonwealth Secretariat. The purpose of this project is to facilitate the establishment in the region of a pool of certified trainers in small fishing business planning and management. Following the successful introduction of the SYFB training programme in Vanuatu and the Solomon Islands, a training needs analysis (TNA), funded by the Commonwealth Fund for Technical Co-operation (CFTC), determined there was a need to train fishing communities in small fishing business planning and management in Polynesia. Funding to facilitate the export of the SYFB programme to Polynesia was subsequently approved by the Commonwealth Secretariat.

Based on the TNA findings, and in collaboration with training institutions in Papua New Guinea, SPC's Nearshore Development and Training Section arranged for a sub-regional Training of Trainers (TOT) SYFB course. Early in 2007, SPC invited nominations from relevant institutions in Polynesia to participate in the TOT course. Fifteen nominations were received from three Polynesian countries and 12 participants

were selected: four from the Cook Islands, five from Tonga and three from Samoa. In addition, SPC invited one participant from Kiribati, following a request from that country for assistance in small fishing business management training. The TOT course was held in Apia, Samoa, from 16 April–2 May.

The resource persons were Brenda Sainol from Papua New Guinea's National Fisheries College (NFC) and Peter Piawu from the Small Business Development Centre (SBDC). Both Brenda and Peter are accredited SYFB master trainers. Their assignment with SPC included:

- Liaising with trainees to assess individual training needs and fine-tune course content as required;
- Conducting a two-week TOT course in small fishing business management (SYFB);
- Planning in-country SYFB training programmes with participants;
- Distributing relevant documentation and course materials to participants;
- Adapting the PNG SYFB course materials to the small-scale fisheries sector of participating countries.

SPC Fisheries Training Adviser Terii Luciani travelled to Apia to assist with course coordination and supervise its implementation. He noted the high quality training and great motivation of participants. After the successful delivery of the TOT course, participants seemed well prepared for the implementation of the follow-up SYFB workshops in their respective countries. Those workshops will be conducted by the TOT course participants under the supervision of the PNG Master Trainers. They are scheduled in July and August and will be reported on in the next issue of *Fisheries Newsletter*.

SPC and the Commonwealth Secretariat thank the PNG National Fisheries Authority and Small Business Development Centre for their inputs into the development of networks of SYFB trainers in the Pacific region. Both organisations are also grateful to the individuals and local institutions that are supporting and making possible the introduction of the SYFB training programme in the Cook Islands, Tonga, Samoa and Kiribati.



In brief

- Fisheries Development Officer Steve Beverly is currently in the Cook Islands providing technical and training assistance to the local tuna longline industry. This project, which is similar to one that was recently implemented in New Caledonia (see p. 26), will involve a number of fishing trips onboard domestic (Rarotonga-based) longliners engaged in the southern fishery. A side-trip to Aitutaki is also envisaged in order to assist a couple of small-scale longliner operators entering the fishery. This project follows and complements a series of three tuna handling workshops (two in Rarotonga and one in Aitutaki) implemented by the Neashore Fisheries Development and Training Section earlier in July. As part of the project, Steve is expected to provide onboard training and advice to vessel skippers and crew. Follow-up recommendations on ways to improve fishing efficiency and vessel profitability will be made to company managers during post-trip debriefings. Details on the project will be available in the next issue of the *Fisheries Newsletter*.
- Nearshore Fisheries Development and Training Adviser (NFDTA) Michel Blanc represented SPC's Marine Resources Division in the Cook Islands during an official SPC visit from 25–29 June. The purpose of the visit was to develop the Cook Islands/SPC Joint Country Strategy (JCS), a document that will guide SPC programmes' inputs into the 2006–2010 Cooks Islands National Sustainable Development Plan. The SPC Marine Resources Division component of the joint strategy highlights planned and
- potential assistance from both the Oceanic and Coastal Fisheries Programmes of SPC for the period 2007–2010. This was developed during a one-day consultation between the NFDTA, the Secretary for Marine Resources, Ian Bertram, the team leader of the NZAID-funded Cook Island Marine Resources Institutional Project (CIMRIS), Geoff Mavromatis, and key Ministry staff including Joshua Mitchell, Peter Graham and Koroa Raumea. A number of activities listed in the JCS document have been implemented earlier in 2007, or are underway. These include the surveys undertaken by the PROCFISH team in Palmerston and Aitutaki, the facilitation by the DEVFISH project of an industry study tour in Tahiti, the training of local trainers in small business management, the printing of two posters on local reef fish, some ongoing assistance in relation to the production country reports to the Western and Central Pacific Fisheries Commission, as well as the above tuna handling workshops and technical assistance to the domestic tuna longline industry.
- Fisheries Development Officer William Sokimi and Fisheries Training Adviser Terii Luciani have started working on arrangements for the forthcoming Practical Safety and Fishing Course for Fisheries Officers to be held at the Vanuatu Maritime College (VMC), in Santo (1–26 October). Logistical arrangements are being looked after by William in close collaboration with VMC fisheries instructors Nare Wolu and Joseph Ouma. This includes setting-up the college's vessels and ordering gear for the fishing
- methods that will be demonstrated on the course on small-scale tuna longlining: both horizontal and vertical, tuna handlining, trolling, deep-bottom snapper fishing with reels and bait netting. The FAD that SPC helped deploy for the 2006 course disappeared so a new deployment will have to be made prior to this year's course. This will be a joint effort and cost-sharing exercise between SPC, the Vanuatu Fisheries Department and VMC. Terii is coordinating other arrangements, including the selection of course participants, correspondence with countries, travel arrangements and shore logistics at VMC (booking of classrooms, workshops, accommodation and meals for the trainees). The assistance provided by Norman Davies (VMC Head of Administration) in facilitating the above arrangements is much appreciated by NFDTA Section staff.
- The work programme for Steve and William for the last quarter of 2007 will include three FAD fishing skills workshops. Steve will start in October with a one-week training workshop in Lifou (Loyalty Islands Province of New Caledonia). The training will be conducted in collaboration with provincial and territorial fisheries officers and will partly occur onboard the F/V *Darmad*, the training and research vessel of Service de la Marine Marchande et des Pêches Maritimes (territorial fisheries administration). The participants will be five selected commercial fishermen of the Loyalty Islands who will use their own vessel during the workshop. Training will focus on

safety aspects of FAD fishing, FAD fishing technology, and practical fishing trips to demonstrate commonly-used techniques such as vertical longlining, handlining and trolling. This training is part of efforts by the Loyalty Islands to promote small-scale tuna fisheries. After the Lifou workshop, Steve will conduct a similar workshop for small-scale fishermen from Wallis and its sister island Futuna. It is envisaged the training will be two weeks in duration and that it will occur during the first half of November. William is scheduled to go to Kavieng in November to conduct a two-week handline training project in collaboration with staff of the Institute for Sustainable Marine Resources (ex-National Fisheries College). The project was supposed to be implemented during the mid months of this year but the logistics for the fishing

operations were delayed due to unforeseen circumstances so it was agreed to conduct the project later in the year after all the logistics are put in place. This project aims at exporting the successful Morobe 'pumpboat' fishery to the New Ireland Province. William and Samol Kanawi (National Fisheries College instructor) will train local fishermen in FAD fishing methods and sea safety. The DEVFISH project will contribute to this training by funding the FAD that still needs to be deployed off Kavieng, ahead of the workshop. It is envisaged the vessels used for the practical fishing trips will include the institute's F/V *Leilani* as well as a couple of boats constructed as part of the recent EU-Rural Coastal Fisheries Development Project.

- The DevFish project is in the process of providing assis-

tance to the Samoa alia fishery with the installation of an ice-making machine at the new wharf in Apia and also with funding for the construction and installation of a prototype sail to be trialled on alia vessels by the Samoa Fisheries Division. These activities are expected to be completed by the end of the third quarter of 2007. DevFish is also facilitating a session in the September Heads of Planning and Statistics meeting. This will be an opportunity to provide participants with an overview of domestic tuna industries in the region and to promote the inclusion of new and value-added tuna products in the development of national economic and trade statistics. The DevFish/USP scholarship was finalised in July with Monte Depaune from Nauru selected to take part in the whale depredation study in Fiji for the next two years.



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