



Secretariat of the Pacific Community

Women

in Fisheries

Number 4 – March 1999

I N F O R M A T I O N B U L L E T I N



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Introduction

The fourth of the SPC *Women in Fisheries Information Bulletin* issue reflects the understanding that subsistence and artisanal fishing communities should be considered as a whole rather than separating men's and women's fishing activities. The bulletin continues to provide articles of interest and concern to women directly involved in fisheries activities, but will also include information on small-scale fishing activities and other items of interest to fishing communities around the region.

- **Subsistence fishing** refers to the capture of fish for the family/community.
- **Artisanal fishing** refers to small-scale fishing to supply the local market.

This issue of the bulletin reports on the activities of the SPC Community Fisheries Section (formerly the Women's Fisheries Development Section), including a workshop in Vanuatu, the preliminary findings of the Palau field survey, follow up activities in Niue and future work planned.

News from around the region includes drying of fish in Tonga, shark fishing in the Solomon Islands, a review of women in fisheries in Kiribati, traditional fishing practices in Palau and Native Title claim to the sea in Australia. Outside the region we have a report on the International Symposium on Women in Asian Fisheries held in Thailand in November 1998, news of the success of women seaweed farmers in Africa and an extensive review of fishing methods in the atolls of Lakshadweep, off the southwest coast of India.

Details and reviews of books and publications appear at the end of this issue.

This bulletin also marks the changeover of coordinators. Aliti Vunisea has done a wonderful job with the last three bulletins,

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despite the logistical problems involved in gathering information and ensuring publication of the New Caledonian produced bulletin from her base in Fiji. The role of coordinator will, for now, be performed by the SPC Community Fisheries Specialist in Noumea.

Once again, as with every bulletin, we are crying out for articles and pictures! Information you might like to have published in the next issue could include:

- fishing techniques and equipment,
- research activities,
- development and management projects,
- community initiatives (cooperatives, local projects),
- training opportunities,
- conferences,
- books and publications, and
- issues that may impact on fishing communities (forestry, agriculture, tourism, pollution etc.).

We also welcome any questions, requests for information, contact addresses and other relevant information about institutions and individuals who should be receiving this bulletin. Articles can be in French or English and the bulletin is published separately in both languages.

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COMMUNITY FISHERIES SECTION



News from the Section

by Patricia Tuara & Lyn Lambeth

The Women's Fisheries Development Section of the SPC has changed the name to the Community Fisheries Section. This is in line with the section's expanded role in looking at the activities and needs of all sectors of communities involved in the small-scale harvesting, processing and marketing of seafood. The emphasis of this work will remain on assisting women, as they have often been overlooked in regional and national development activities.

The Women's Fisheries Development Section has been involved in a number of activities since the last bulletin was compiled. The following is a summary of some of these activities.

Vanuatu workshop

The *Fisheries Course for Vanuatu Women* was held from 21 to 25 September 1998. The workshop was funded by the SPC Community Fisheries Section and organised by the Department of Women's Affairs and the Fisheries Department. Ten women from the Shefa province in the south participated in the workshop which was held at the Fisheries Training Centre in Luganville, Santo.

At the workshop the participants covered a wide range of topics:

- knots, splices, whipping and net repair,
- setting and use of gill nets,
- how to collect and sell lobsters and fresh water prawns,
- fish handling and quality control (how to pre-

pare an ice slurry; how to pack fish in an ice box; cleaning, gutting and filleting of fish; knife sharpening; and alternative methods of fish preservation, with a practical hands-on demonstration of bottling fish),

- marine resource management and conservation,
- small business skills, and
- fish poisoning (ciguatera).

Guest speakers from the Departments of Health, Forestry and Fisheries made presentations on various topics such as the environment, conservation and awareness, fisheries regulations, fish as food, handling of shellfish and food hygiene.

At the completion of the course an assessment was carried out and the women indicated that they

found all the topics relevant and useful. They were most interested in net repair, small business skills and fish preservation. All of the women would have preferred the course to be longer.

Joseph Abel and Nicole Rutherford from the Fisheries Training Centre were the resource people for the workshop. The value of this type of training was demonstrated by the fact that a participant from an earlier course, Rachel Borine, was able to assist the trainers during the course.

Both this course and previous ones were very popular with the participants, and the organisers are looking forward to running similar courses in the future.

Palau field survey

A field survey on the role of women in fishing communities was completed in Palau (16 to 30 November 1998) and a draft report compiled. The assessment was requested by the Government of Palau in response to an identified need for more information on the participation of women in the fisheries sector. The SPC Community Fisheries Officer was assisted in the survey by Evelyn Oiterong (Division of Marine Resources, Palau) and Roberta Louch (Bureau of Women's Interests, Palau).

The main objectives of the field survey were to:

- review the social and economic role played by women in the fisheries sector, including activities undertaken in the harvesting, processing and marketing of marine resources;
- provide details on both government and non-government services available to support the interests of fishing communities and identify support services specifically aimed at women in the fisheries sector;
- outline the problems faced by fishing communities and the constraints that inhibit effective participation of women within the fisheries sector;
- identify changes in the situation for women in the fisheries sector since a 1991 report, *The Role of Women in the Fisheries of Palau* (Matthews & Oiterong, 1991); and
- provide guidelines to assist the effective participation of women within the fisheries sector.

The major findings of the survey were:

- Fishing is an important activity in Palau, both for the production of food for the family and community, and for small-scale income generation. The majority of women in the villages practice some form of fishing including handlining, spearing, netting, trapping and reef gleaning at low tide. Men are involved in spearfishing, netting, handlining and trolling using small motor boats. Marketing is done either directly to outlets in Koror or through village fishing cooperatives. An increasing number of women in and around Koror are fishing with small motor boats, by themselves and with other women. The women process and package their own catch and some of the men's catch for sale in Koror.
- Government fisheries development has focussed on projects that support the activities of fisher-



Palau is renowned for its spectacular diving and the beautiful Rock Islands



Cleaning the mangrove clam catch



Searching with the feet in the mud for mangrove clams



Japanese-funded boat used by the Ngeremlengui Fisherman's Cooperative

men rather than women. This has been due to the focus on income-generating, commercial fisheries development, which has mainly involved men.

- The main restrictions on fisheries activities for women are transportation problems (to fishing areas and to market) and the lack of a central market. Competition for reef resources and the effects of development have increased the distance women must travel in order to fish and harvest seafood. Men also identified the lack of a central market as a restriction to their fishing activities.
- Since the previous report on the role of women in the fisheries of Palau (Matthews & Oiterong, 1991) the number of women in and around Koror using small motor boats to catch fish for sale has increased significantly. There are also more women marketing their produce than previously. Some of the transport problems identified in the 1991 report have been addressed by the Japanese-funded state boats in some villages, but many women feel their transport needs are still not considered.
- A draft report of the survey has been submitted to the Government of Palau and a number of recommendations will be made once the people involved in the survey have had a chance to comment on the draft. A workshop is being planned for the women of Peleliu State following requests for training in the following areas:
 - seafood quality, processing and preservation;
 - marketing (packaging, developing business skills, etc.);
 - new recipes (for marketing pre-cooked lunch packs); and
 - aquaculture.

Following the change in focus of the Women's Fisheries Development Section the survey and subsequent report sought to examine women's role in the context of the fishing community, rather than looking at women's activities in isolation.

Searching
for sea cucumbers
on the morning low tide



Using the feet to
find mangrove clams
in the mud

Preparing
steamed tapioca



Tuvalu field survey

The Community Fisheries Officer was in Tuvalu from 24 January to 12 February. The aim of the visit was to carry out a baseline survey, gathering relevant information for a report on fishing communities in Tuvalu and the involvement of women in fisheries activities. The report is to provide direction for the Tuvalu Fisheries Department on addressing the needs of their subsistence and artisanal fisheries and to assist the SPC Community Fisheries Section in developing the training and income-generating activities of the project.

The survey was undertaken at the request of the Tuvalu Fisheries Department and carried out with their assistance and that of the Tuvalu National Council of Women. While in Tuvalu the Community Fisheries Officer worked with Sikela Ulumutu of the Fisheries Department and Sua Pesenga of the National Council of Women. Details of the findings of this survey will appear in the next *SPC Women in Fisheries Information Bulletin*.

Niue follow-up activities

In the last bulletin we provided details of two workshops held for women in Niue in September and October 1998. Representatives of the 14 villages in Niue attended the workshops on shellcraft production and marketing, and seafood processing and marketing.

The women have conducted a number of village workshops teaching others skills in shellcraft and seafood. Their shell handicraft and seafood dishes have been displayed at the closing ceremonies. In addition, the Niue Council of Women was planning to hold a national show day on shellcraft.

We are happy to hear from Ms Charlene Funaki (local counterpart) that the graduates of the two workshops have put their knowledge and skills to good use by conducting a number of follow-up activities in their villages.

It's great to hear of such national initiatives.

Regional collaborative work

CETC fisheries curriculum

This year the Community Fisheries Section will be working in collaboration with USP's Post Harvest Fisheries Project to develop a fisheries module for the SPC Community Education Training Centre (CETC) in Fiji. Operating for over 30 years, the Centre's aim is to provide community training to female community workers (aged between 20 and 45 years), from SPC member countries and territories. Graduates of the Centre return to their communities and train others in extension work.

Courses are provided in such subjects as agriculture, home economics, communications, health, business skills, environmental management, gender and development, and appropriate technology. The SPC Community Fisheries Adviser and the Director of the USP Post Harvest Fisheries Centre will commence work on a student questionnaire and the fisheries module in April 1999. It is hoped that the topic of fisheries will be included in the curriculum in September 1999.

Tuna industry management plans

The Solomon Islands Government has plans to publish a report analysing the gender aspects of the Solomon Islands tuna industry. Based on the field study carried out in July 1998 by the SPC Community Fisheries Adviser and the Forum Secretariat's Gender Issues Adviser, the report documents the roles of men and women in the tuna industry, together with the impacts of the tuna industry upon them. The study is one of several which were undertaken to assist the government to produce a national Tuna Industry Management Plan.

Work on the Palau and Vanuatu plans has been delayed due to the staff changes at the Forum Secretariat. However, it is hoped that work on these will commence this year.

The Plans are being funded by the Canadian Government, with technical assistance provided by the Forum Fisheries Agency, Secretariat of the Pacific Community, and the Forum Secretariat.

Seafood business operations and management for Pacific Island women

Candidates for the Regional Course on Seafood Business Operations and Management for Pacific Island Women have been chosen and participants will be trained at the New Zealand School of

Fisheries from 12 April to 7 May 1999. Depending on other work commitments, the Community Fisheries Section hopes to be able to send a staff member to assist on this course.

Future Work

A workshop has been planned for the women of Peleliu, Palau. The dates for the one-week workshop have yet to be finalised, but topics will include fish spoilage; handling and processing of seafood; salting, drying and smoking of seafood; small business skills and new recipes for marketing pre-packed seafood meals.

A workshop is also being planned for Tuvalu, to be held in Funafuti later in the year. Topics to be included at this workshop are still being discussed. Training has been requested in alternative methods of seafood preservation, seafood quality and handling, new recipes for seafood, marketing and small business skills, the role of fisheries regulations, and the conservation of marine resources.

A second workshop for the Marshall Islands similar to the one held in Ebeye in August 1998 is being organised for Jaluit. The June 1999 workshop will be on seafood processing and marketing, and topics will include conservation of marine resources, fish quality control, primary and secondary fish-processing methods, packaging and marketing.

Work is underway on a community fisheries management manual. This is designed to be used as a training manual in the work of the Community Fisheries Section. In addition, a seafood recipe manual is also being put together, which will be of use to participants who attend seafood processing workshops.

SPC Women in Fisheries Information Bulletin on-line

We are pleased to report that, beginning with this issue, this Information Bulletin is now available on-line. As resources permit, all earlier issues will gradually be made available that way. To access to the SPC Coastal Fisheries Programme menu, go to: <http://www.spc.org.nc/coastfish/>

Then scroll down to the bottom of that menu and open 'Newsletters'. Now, you can select any of the SPC information bulletins available, including your favourite title: *SPC Women in Fisheries Information Bulletin*.



Fishing from the reef in Niue

WHAT'S HAPPENING WITHIN THE REGION



TONGA

Fresh fish with a difference

The farming of fresh water fish in the interior of Tongatapu sounds unusual considering that Tonga has more sea area than land, but the TP\$50,000 project now being trialed means more to the University of the Nations than a local supply of fresh water fish.

Bernie Tsao, a missionary from Hawai'i who established the farm, said that the project, called Applied Aquatech Systems International, is an educational project and will also be a source of water for an irrigation system for the University's farm.

"It took eight years of hard work" explained Bernie, as he took guests through rows of water tanks at the opening of the farm at the end of September 1998. "This is a pilot prototype training project."

Bernie said that they are rearing the red bellied paku, a native of the Amazon River, but the 750 fish were brought over from Florida, USA. The fish will be ready for harvesting within 18 months. "Our priority is food for the Campus, and any extra will be sold to the public."

The plant draws water from two 33 metre wells, each pumping 45 litres of water per minute. In a growing tank the fish will reach their full weight of 1.5 to 2 kg after being fed with nuts, cassava, banana, papaya, taro leaves and other fruit and vegetables grown on the Campus.

Source: *Matangi Tonga*, December 1998

Tonga helps Vanuatu revive breeding of green snails

Tonga is helping Vanuatu with efforts to revive the breeding of green snails. The Tonga Ministry of Fisheries has agreed to send baby green snails in

exchange for giant snails from Vanuatu. Ten baby snails from Tonga will be exchanged for each mature snail from Vanuatu. About 300 of these sea molluscs will leave for Vanuatu this weekend.

Fisheries Officer, Ulungaa Fa'anunu says Vanuatu has been struggling to farm green snails for several years now, while the same project in Tonga is successful. Vanuatu donated green snails to Tonga four years ago, which started off the breeding process.

Source: *PACNEWS*, November 1998

Improved drying of fish

The Tonga Improved Drying of Fish Project started in September 1998 with the objective of improving the fish-and shellfish-processing facilities for island fishermen and women. The project is funded by the Food and Agriculture Organization's TeleFood Special Fund. The money has been used to pay for a smoking house with stainless steel racks, one big chiller bin to hold 300 kg of fish, six coolers, a 5000 gallon steel tank, a freezer and all the tools and clothing necessary for the staff.

The processed product is intended for home consumption as well as providing increased income for families through sales of quality dried fish and shellfish. The smoked product will be promoted as *Kava-Snack* in the local market at a reasonable but profitable price. The salted products are to be sold locally.

Source: *Food and Agriculture Organization*, January 1999

FIJI

US\$ 100 million seaweed industry

Fiji's Ministry of Agriculture wants the government to give it 50 million dollars (US\$ 25 million) to develop Fiji's seaweed industry. Agriculture Minister Militoni Leweniqila says the bulk of the funding will be used for farm development costs, including the purchase of punts, outboard engines, drying platforms and planting materials.

The plan is to set up 10,000 farms, which would earn more than 200 million dollars (US\$ 100 million) in export revenue every year. The seaweed farming extension plan aims to establish farms in 12 of Fiji's 14 provinces.

Source: PACNEWS, December 1998

Community TV in Fiji

An overseas couple has set up Fiji's first community television station. John and Regina Yates, British and Australian citizens respectively, set up a film and video production company, Iconics, in 1990, the year they arrived in Fiji. Launching tonight, their

community television project has been three years in the making. The station will initially cover only the greater Nadi area, Fiji's international airport town. Set-up with the help of local and overseas donors and sponsors, the station is a local, free-to-air educational channel, planned to run along the lines of the BBC, ABC and SBS. It aims to include programmes for every member of the community and will broadcast local educational programmes ranging from farming, to computer science, health issues and environmental stories.

Regina Yates says the effort has only been possible with the dedicated effort and incredible enthusiasm of many people from all around Fiji. The station is manned totally by volunteers, many of whom were unemployed young people.

Yates says the station does not want to compete with Fiji's first and only commercial TV station, Fiji Television Limited, but wants to give locals the choice of being able to watch their own people and local programmes on television.

Source: PACNEWS, January 1999



Government micro-finance programme

The Fiji Government hopes to set up a micro-finance scheme, in a move aimed at reducing poverty and helping the poor get into small business without the burdens of high-interest bank loans.

The Ministry of Finance is organising the setting up of a micro-finance co-ordinating unit. The development follows a second national micro-finance workshop in Suva recently, organised by the Ministry and the United Nations Development Programme.

Under the micro-finance scheme, the poor will be able to put in whatever savings they have to qualify for small, low interest loans from the government, to start their own small businesses.

The Finance Ministry says it has received numerous inquiries from individuals and organisations interested in starting up micro-finance programs.

Source: PACNEWS, December 1998

SAMOA

Fresh fish exports drive increase in export earnings

Samoa's export earnings in the last quarter of 1998 increased 41 per cent over the same period in 1997, confirming earlier government optimism that the Samoan economy performed relatively well last year.

According to the Central Bank of Samoa's latest figures, Samoan exports earned 43.6 million dollars (14.5 million US dollars) in the fourth quarter of last year, a 41 per cent increase over export earnings in the same period the previous year.

According to the Central Bank, the increase was driven by booming fresh fish exports. Samoa's fish exports mainly to canneries in American Samoa, which has emerged as the country's biggest market. Star Kist Samoa from American Samoa wants to lease Samoa's fish market in Apia and equip it with costly refrigerators for greater control of product quality. Talks between the cannery and the Government of Samoa took place late last year. A bigger, newer ferry has started sailing between the two countries, encouraging Samoa's farmers to sell greater quantities of their products in the territory. Other factors that boosted export earnings were a seven per cent increase in private remittances to 88.1 million dollars (29.3 million US dollars), - and a 21 per cent increase in tourism earnings to 90.5 million dollars (30 million US dollars).

The increase in export revenue increased import coverage to 7.4 months in October, compared to 6.5 months during the same period last year. Inflation continued on its downward trend, reaching 2.8 per cent in October compared to 3.1 per cent in September.

The Central Bank's figures are current as of October 1998 but Prime Minister Tuilaepa Sailele Malielegaoi, also Finance Minister, has already declared in his 1999 New Year's speech that 1998 was a year of progress and positive developments for his country. He says it was the best year ever for Samoa's tourist industry, while the fishing industry rose to the challenge with fish becoming the top foreign exchange earner for the first time. Kava also overtook coconut as the second highest export product.

Tuilaepa says despite the worldwide economic difficulties, the Samoan economy further improved in 1998 while most of the Pacific Island countries experienced either very low or negative economic growth.

Source: PACNEWS, January 1999

Giant clam project in Fusi Safata

Fishing has always been an integral part of village life in this South Pacific Island nation. However, increased population, overfishing, use of destructive fishing methods and natural disasters have contributed to declining stocks of fish and marine invertebrates.

The Samoan Government is trying to rejuvenate the fisheries through better management, both at the national and village levels. Fusi Safata, a village of 500 people, has established a giant clam nursery to enhance natural stocks in adjacent reefs. The nursery was established in 1996 with the assistance of the Fisheries Division under the AusAID funded Samoa Fisheries Extension and Training Project (see *SPC Women in Fisheries Information Bulletin #3*).

In order to expand the programme, the Food and Agriculture Organization's Telefood Special Fund provided giant clam seed stock, material for protective cages for the juvenile clams and equipment for the maintenance and protection of the nursery. Villagers will contribute labour and time to the project and provide 24-hour-a-day security. "This project is very important to the village because it is an effort to bring back this important source of food that is disappearing from our reefs," said Falefata Koale, chairman of the Village Project Committee. "One of the spin-off developments from this project is the establishment of a small-scale tourism project."

Source: Food and Agriculture Organization of the United Nations, 1998



AMERICAN SAMOA

American Samoa wins award for saving coral reefs

The United States Government has issued a special award to American Samoa for its participation in regional environmental programmes, especially efforts to preserve coral reefs. The award was recently presented to Governor Tauese Sunia in Florida by the United States Secretary of Interior, Bruce Babbitt.

It commends American Samoa's commitment to protecting coral reef resources and its leadership in the U.S. Coral Reef Initiative between 1994 and 1998. Florida, the Virgin Islands, Puerto Rico, the

Northern Mariana Islands, Guam and Hawaii also received awards but American Samoa was given special recognition because of its role in promoting environmental care and preservation in the South Pacific, through the South Pacific Regional Environment Programme (SPREP).

As a SPREP member, American Samoa not only represents itself but also carries the United States flag in its dealings with the region's environment organisation. Other U.S. Pacific Island members of SPREP are Guam and the Northern Mariana Islands.

Source: PACNEWS, November 1998

SOLOMON ISLANDS

Solomon Islands launches women's policy

The Solomon Islands Government has launched a national women's policy. Launched in December 1998 by the Minister for Youth, Women, Sports and Recreation, Gordon Mara, the policy aims to enhance the status of women in the country, as well as their participation in decision making and national development. The implementation of a national policy for women by the Solomon Islands Government will help women in the country reverse the situation they face in national development.

The Minister responsible for women's affairs, Gordon Mara, says the national women's policy launched in Honiara will help the Government involve women in development, while representing their diverse roles in society. Mara says women play major traditional roles in their communities and should therefore continually contribute to the country's social, political and economic development.

The launching of the policy was followed by a two-day seminar titled *Partners in Women's Development*. The seminar looked at the policy and recommended how to restructure the roles and functions of the Government, aid donors and non-government organisations, which are the main partners in women's development.

Source: PACNEWS, December 1998

Coral farming

In July 1997, Mr Simon Gower and two women from Marau started to culture coral specifically for the aquarium market. Samples were given to

Solomon Islands Marine Exports, a company exporting fish, clams and coral to aquarium markets internationally. The response was very positive. Mr Gower then organised various workshops in Marau. There was a lot of interest from the local women, and 25 women with good sites and enthusiasm for the venture were chosen for the next stage of the coral farming. After much trial and error the procedure was fine-tuned, and the women are now able to produce a good product. Experimentation with different species is continuing.

The women are growing about 12 different species of colourful hard corals with a couple of soft corals also being tried. Small shoots of live coral are cut and attached to concrete discs and placed in trays, on trestles. The coral takes about four to six months to reach a saleable size. During growout the coral must be checked regularly to make sure it is not being eaten by predators and that the trestles are still in place. The choice of a suitable site is important to the success of the farming.

The cultured coral was recently shown at an aquarium conference in the U.S. and met with a positive response. Solomon Islands Marine Exports is planning to organise advertising material to be made and sent to prospective buyers. The women farmers are starting to earn regular money and do not have to leave home to earn it.

There is also a potential market for the farmed corals that die during the farming process. Small corals that have attached well to the concrete discs and look like small trees have a market in the aquarium trade.

Source: ICLARM

Gilbertese shark fishermen in the Solomon Islands

The Gilbertese people settled in the Solomon Islands in the 1960s as a result of the British colonial system, pressures of resource depletion and population increase. The Gilbertese people are very much sea people. At home, existing on fish and coconut they avoid gardening. In the sea they are fearless and think nothing of spearfishing at night for hours on end. These are the shark fishermen of the Solomon Islands, although some Melanesians participate because of the high prices obtained for dried shark fin. Shark fishing has greatly increased in recent years due to the rapid price rise of dried shark fin which is marketed as a luxury item to the Chinese in Singapore and Hong Kong.

Fishing methods

There are three main methods of shark fishing used by the local village fishermen: handlines, floaters, and nets. Handlining is done from dugout canoes that are paddled to the fishing sites. These short lines are heavy monofilament with wire traces and shark hooks that are baited with a variety of baits. The site is often selected near a school of bonito, the canoe drifts while the fisherman baits the line and throws it into the sea. The customary bell or rattle is shaken to attract the sharks. When the shark takes the bait the fisherman holds tight to the line and then pulls it in. This method is also used by fisherwomen.

'Floaters' may be anchored if the fishing site is close to shore, or they just float with the current near the rafts. In the latter case the 'floater' consists of one or two floats, a shark clip, a light nylon rope of about 7 metres, a heavy swivel, a stout wire trace and then the baited hook. The floater is thrown into the water upcurrent of the raft. The rattle is shaken and the canoe stands off to wait or goes around trolling for other fish. In some cases 4 or 5 floaters will be attached to each other about 10 metres apart, forming a short 'longline.' Where this happens the ends of the 'longline' are anchored. The nets are only used by a few people. A fisherman will set a net at dusk and come back at dawn. The nets are about 6 or 7 inch mesh size and of varying lengths.

A traditional Gilbertese fishing method involves a hidden way of calling the sharks. A piece of specially made string is tightly wound while at the same time an incantation is spoken. The incantation must finish at the same time as the string winding is completed. This will bring good luck to the fisherman.

Processing

The processing of the shark fins is straightforward, and is usually done by both the men and the

women, although in some areas the women do all the processing. The fins are scrubbed clean, the cut end is often salted, and then the fins are dried and stored in a dry place. The skin of the shark is considered excellent eating. A little meat must be left on the skin, which is then salted and finally sun dried or smoked. At this stage it is preserved and can last a long time. Then it must be boiled for some time and have the denticles (toothlike projections of the shark skin) rubbed off. Finally it is 'souped' (cooked in a pot with coconut).

The stomach is treated in a similar way to the skin. The gills are boiled and eaten, while the liver is cut, salted then eaten.

The meat may also be processed in a similar way to the skin. First, the shark is filleted and cut into thin strips. These are then salted and sun dried or smoked. At this stage they can be eaten, cooked in a soup or taken to market. Another way to rid the flesh of its characteristic ammonia taste is by squeezing the meat to remove all the blood. It is then cooked, washed, then cooked again and finally dried. The flesh is then brittle, and does not have the ammonia taste. Lime can be used to preserve it.

One story told of how to prepare a special food for the old people with no teeth. This was done a long time ago in the Gilbert Islands before the coming of the English and the church. The shark meat was boiled and then dried. It was then pressed into a tight ball and put into a coconut shell. The coconut shell was wrapped well to keep the flies out and then hung in the kitchen for 3 to 4 weeks. The meat then gets a 'special worm'.

Shark fishing taboos in Marovo

In Marovo, there is very little shark fishing carried out by the village people. Marovo people say there is no taboo against catching sharks or eating the meat, however most people just do not like to eat the meat. There is a superstitious feeling about sharks that is common amongst Melanesian people. This feeling is exemplified by the following story that supposedly happened long ago:

'One man was in a canoe between Hele Islands and Vangunu. A big wind came which whipped up huge waves and his canoe sank. He thought that he was finished, but called out to a shark who came and let him hold onto its dorsal fin. The shark took him back to Vangunu and so the shark is a special friend.'

Some people in Marovo tried shark fishing, but other people in their village told them to stop because they were going against an old taboo. They kept fishing but noticed that things started to change. A dog from the village was taken by a

shark. One person became ill. A shark swam straight at a spearfisherman instead of just taking the fish on the spear. The people were told to stop shark fishing by relatives and the chief. They were glad to stop, even though they made quite a lot of money in the time they were shark fishing.

Adapted from: *The Oceania Region's Harvest, Trade and Management of Sharks and Other Cartilaginous Fish: An Overview*. Edited by Glenn Sant and Elizabeth Hayes (1996). Chapter Four, Solomon Islands, Western Province. By Peter Matthew.

KIRIBATI

Foreign fishing vessels pollute lagoon

Local fishermen in the Kiribati capital, Tarawa, have complained that foreign fishing vessels are polluting the Tarawa lagoon. They've told the *Te Uekera* newspaper that they've seen huge plastic bags being thrown overboard from many of the vessels late at night. Reacting to the fishermen's allegations, Ministry of Environment officials have said they will conduct an investigation. Violators will be required to clean up the lagoon and pay a fine. They also will be banned from Kiribati.

Source: PACNEWS, November 1998

Women in fisheries in Kiribati

In Kiribati society special recognition, respect and status are awarded to fishermen with outstanding fishing experience, skill and knowledge. In contrast women, who are engaged in collecting and gleaning for marine resources in shallow sea areas, are not publicly recognised as participating in 'real fishing', and thus their contribution to the fishing sector is often ignored.

The involvement of women in fishing and collecting activities has generally been restricted to the inner reef areas accessible by foot. They usually collect nearshore invertebrates, especially small clams which are either dug up from the mud or collected from the reef. It is only recently, with the introduction of outboard motors and nylon fishing lines and nets, that women's fishing has extended beyond the reefs and lagoons. Much of the women's fishing activities in the past have been subsistence-related; however, with the increasing monetary requirements for rural households, there has been a shift towards part-and full-time involvement in fishing activities.

It is widely believed that women's fishing activities continue to be confined to reef gleaning activities in Kiribati. However, women can be found fishing in a variety of ways. Gill nets are increasingly used by women; sometimes this method is used by both men and women. Women also fish using traditional fish traps, which are still in use in the outer islands. Women use rods and lines on the reef: fish

at night, catching octopus at night using coconut frond flares or pressure-kerosene lamps as the light source. In the reef islands where there is no lagoon, the women have perfected a method called **te urakarakaka**, i.e. gathering small fish stranded at low tide on the reef. Traditionally, women also used a method of catching fish on the reef flats using a poison derived from a sea cucumber (*Holothuria atra*). This poison has now been replaced by cigarette rolls. Collecting land crabs is also an important activity in the northern and central islands, which mainly consist of lagoon islands with mangrove areas.

Like most countries in the region, the rapid and steadily growing population in Kiribati will ultimately increase fishing pressures on the marine resources. The popularity of commercial fishing of invertebrates by women in some areas raises the question of responsible resource management. There is a growing concern that many of the most frequently harvested shellfish are in danger of becoming depleted.

Since women are closely involved in coastal resource exploitation, they need to be trained through extension and other appropriate means to become resource managers and to exploit the resource more rationally, whether for home consumption or for the market.

There is a need to understand and promote the fishing methods that women are using. Development schemes and conservation strategies should attempt to advance women's basic fisheries knowledge. At the same time, attempts should be made to enhance women's knowledge and skills. Women's fishing activities, although small-scale and involving simple techniques, could contribute positively to the sustainable utilisation of nearshore marine resources.

Extracts from: *A Review of Women in Fisheries: with specific reference to Kiribati and Fiji* by L. Fay-Sauni, V.C. Vuki and S. Sauni, Research Paper for the Marine Studies Programme, USP, Fiji (1998).

NAURU

Buada Lagoon project underway

The Buada Lagoon Owners Association (BLOA) is seeking the assistance of the Nauru Fisheries and Marine Resources Authority (NFMRA) to rejuvenate Nauru's milkfish stocks. BLOA aims to rejuvenate milkfish farming on the island, with the initial stages carried out at Buada lagoon.

The project's future aims include utilisation of existing ponds on the island and promotion of Nauru's own milkfish resource.

The non-government organisation BLOA has also asked NFMRA to provide expert assistance in aquaculture and environmental impact assessment to aid the project.

Source: PACNEWS, November 1998

Japan helps Nauru in fisheries and marine resources development

The Government of Japan will give Nauru a grant of 675 million Yen (US\$ 5.7 million) for the development of a community boat harbour at Anibare in the republic. The grant is the first to Nauru under the Japanese Government's Official Development Assistance programme.

The project includes the construction of a wharf and apron, car parking space, access roads, and improvements to the Anibare reef channel. The project is expected to boost Nauru's long-term fisheries and marine resources development strategy, which sets out measures between 1996 and 2001 to ensure the development of coastal fisheries into an important and valuable industry. Nauru's fisheries sector is seen as the most likely source of national development in its post-phosphate economy era.

Source: PACNEWS, December 1998

PALAU

A life of fishing and fisheries

Evelyn Oiterong started collecting seafood from the inshore areas at a very early age. She would usually go out before school, with a neighbour or an auntie, as her mother, who had 14 children, was usually too busy to leave the home. Evelyn's father didn't fish as he was working, first as a policeman and later as a judge.

Evelyn started work part-time with the Division of Marine Resources (DMR) while she was still at high school. In 1974 she finished school and began working with DMR full time, the only woman there at that time. Her first job, as a Fisheries Aide, involved her in various aquaculture projects.

At that stage the DMR had four ponds around Palau, two on land and two in the mangroves. Evelyn was



Evelyn collecting *ngimes*, the sea cucumber *Stichopus variegatus*, for their intestines

involved in their construction and maintenance, and the measuring and feeding of the stock.

Then, as a Fisheries Technician, Evelyn learnt on the job about giant clam culture and rabbitfish farming, and was in charge of the shrimp hatchery. Her first formal training came in 1988, with a basic course in statistics with SPC in Noumea. Later Evelyn undertook courses in stock assessment (Fiji), milkfish and pond aquaculture (Philippines) and two short computer courses with the Forum Fisheries Agency.

The Division of Marine Resources obtains information from market invoices and exports for the government and for the Food and Agriculture Organisation records. Evelyn is now in charge of the Export Monitoring Project but still helps with extension work when needed.

Evelyn has continued to fish in her spare time, for enjoyment, and goes fishing every weekend with family (all her seven children love fishing) or with women from her village of Ngermid. The women collect sea cucumbers, mangrove clams and other shellfish, fish and crabs, sometimes going by boat, bamboo raft or wading.

Source: Lyn Lambeth & Evelyn Oiterong, 1998

Olengimes: sea cucumber collection in Palau

The Palauan name for the sea cucumber *Stichopus variegatus*, **ngimes**, means 'to stretch' which is exactly what this sea cucumber does if it is held too long. **Ngimes** are usually collected during the morning low tide, called **bor**. Since the intestines are the parts used, **ngimes** are collected before they have eaten, when the intestines are clean and free of sand. The sea cucumber is cut open or cut in two, intestines are removed and the body is thrown back in the water, allowing for a regeneration process.

Ngimes are found in seagrass beds within the inshore areas. The intestines are sold in markets in bottles, jars or plastic ziplock bags. Usually the intestines of around 20 animals are needed to fill a half a litre bottle.

It is believed that both halves of the cut sea cucumber will regenerate into a complete organism. There are many small individuals in areas where they are often collected. Some women prefer to obtain the intestines by just making a small slit in the underside of the animal rather than cutting them in two – they believe that cutting the animal in two makes it slower for it to regenerate and results in too many small **ngimes**. Other women believe that **ngimes** taste better if they come from animals recently cut in half. If the **ngimes** from an area have never been

collected by this method, some people said they have a bad aftertaste. If this is the case, collecting this species on a regular basis is practically a farming operation.

Source: *The Role of Women in the Fisheries of Palau.* Elizabeth Matthews & Evelyn Oiterong (1991)

Editor's note:

Surprisingly, little research has been undertaken on this process of regeneration after the removal of intestines for food in the Pacific (also practiced in Tonga, Samoa and the Cook Islands). Women in Palau believe the animal regenerates its intestines within a few days, while the women in Tonga collect from the same area day after day and believe the regeneration occurs overnight. Scientific literature suggests it takes from 15 to 120 days for different species to regenerate.



Cutting the *ngime*, *Stichopus variegatus*, to remove the intestines

Japan to build coral reef research centre in Palau

Japan will construct a global centre for research and protection of coral reefs on the Palau Islands in the western Pacific as part of its grant-in-aid projects, the Japanese news agency Kyodo reports.

The project — intended to demonstrate Japan's new type of assistance to developing countries — will be approved by the cabinet by the end of the year after the governments of the two countries discuss the details of the plan, the sources said.

Japan declared at the 1992 UN Conference on Environment and Development in Rio de Janeiro, Brazil, that it will greatly enhance its official development aid for environmental concerns. Researchers from all over the world are expected to use the planned coral reef centre to study how environmental changes, such as weather conditions, affect coral, the sources said. It will also be used as an educational facility to teach Palauans and visitors to the islands about coral reefs and show why the reefs need to be protected, the sources said.

Marine researchers say more than 10 per cent of the world's coral reefs have been destroyed, and another 60 per cent will become endangered in the next 40 years. They say the Palau Islands, a group of some 200 small islands, is one of the world's most precious habitats for coral and sea animals.

Japan's aid to small island nations has been primarily for the construction of infrastructure facilities, and the country has been criticised for its lack of awareness regarding environmental protection.

Source: PACNEWS, February 1999

GUAM

Coral reef restoration

The United States government's proposed trillion-dollar budget for fiscal year 2000 includes 11 million dollars for preservation and restoration of coral reef systems in states and territories bounded by oceans and reefs.

Guam's delegate in the US House of Representatives, Robert Underwood, says 10 million dollars will go to the National Oceanographic and Atmospheric Administration for coral reef ecosystem restoration. And, for the first time, one million dollars has been added to the budget of the US Office of Insular Affairs to help address coral reef problems in the Pacific Ocean and Caribbean Sea.

Traditional shark fishing in Palau

Rich and extensive reefs and lagoons have provided Palauans with more than enough seafood. Traditionally, therefore, fishermen seldom ventured much beyond the outer reef slope. But one type of offshore fishing, **oungueuol**, was practiced by a few prestigious specialists. On special occasions at the request of the chiefs these men fished the open ocean for several species of shark.

During the season of the northeast trades, **oungueuol** fishermen sailed up to ten miles off the east coast of Babeldoab looking for floating driftwood around which they knew sharks often congregated. Flying fish were caught and used to lure the sharks close to the canoe where they were caught with a noose made from hibiscus fibre. This was devised in response to the fact that sharks are liable to cut through a conventional bait-fishing line with their teeth.

Whereas sharks used to be esteemed as food by Palauans they are not popular today. Their prestige was related not to their flavour, but to the romance and danger associated with their capture. The **oungueuol** fisherman had a special tattoo on his wrist. When holding out a flying fish to entice a shark to swim through the noose, he was not supposed to let go of the bait until the shark's snout reached the tattoo.

Extracted from: *Words of the Lagoon: Fishing and Marine Lore in the Palau District of Micronesia.*
R.E. Johannes (1981).

An additional two million dollars is proposed to help carry out the broader Oceans 2000 resources initiative.

Representative Underwood says it is important to understand that the ocean's coral reefs are like tropical rain forests on land. He says they provide a way to understand how the whole ecosystem fits together, noting that they allow us to gauge the overall health of the environment.

Most of the coral reef and ocean funding will be made available to states and territories as grants.

Source: PACNEWS, January 1999

HAWAII

Attacking fish poisoning with science

It is almost folklore now, the story of the man in the Marshall Islands who survived a near lethal dose of ciguatera fish poisoning through a remarkably timely medical discovery. It was a couple of years back when he was brought into the Majuro Hospital. They tried what they had but nothing worked, and the man's fate seemed sealed. Two doctors, Luis Jain and Neal Palafox, had one last throw of the dice and looked at manitol, a diuretic drug used to prevent swelling of the brain in patients who've had head injuries. They gave it to him intravenously and within an hour the crisis was over.

Now a Hawaiian company, Oceanit Test Systems, Inc. (Oceanit), has come up with a pioneering kit, 'Cigua-Check', that promises to take the risk out of eating fish. Ciguatera poisoning is caused by a neurotoxin found in dinoflagellate algae called *Gambierdiscus toxicus*. It is related to the deadly 'red tides' that occur around the world and kill millions of fish. In warmer tropical waters the algae settles on seaweed near the shore. Reef fish, in particular, eat the seaweed and take in the toxic dinoflagellate.

Scientists disagree as to whether the cause of the increase in ciguatera poisoning is due to an increase in the overall number of people fishing or whether the degradation of the ocean environment has caused an increase in the number of dinoflagellates. Ciguatera poisoning can increase dramatically after cyclones have damaged reefs.

When larger fish eat the smaller toxic fish, the toxin becomes concentrated in the fat, muscles, and organs of the carnivorous fish. The most dangerous parts of the fish are the head and viscera where the toxin tends to concentrate. The risk to people increases as the toxin moves up the food chain into larger and larger fish. Symptoms typically show up four to eight hours after eating a toxic fish. The symptoms include general weakness, diarrhoea, muscle pain, joint aches, numbness around the mouth, hands and feet, and sometimes a reversal of the sensations of hot and cold. Symptoms can persist for days or weeks, but in a few cases, up to 14 months. Occasionally, as in the case of a fisherman on the Hawaiian island of Kauai, who died after eating an afflicted Marquesan sardine, ciguatera poisoning can be fatal within a few hours.

Cooking does not eliminate the toxin, but rather actually concentrates it by cooking away water in the flesh of the fish. Ciguatera has been around for a long time and was reported as early as 1606 in Vanuatu, while Captain Cook described it in New Caledonia in 1774. He wrote of his sick crew, whose

symptoms coincide with those described today. Viscera from the same fish eaten by Cook's crew were given to pigs, causing their death. Fishermen know the dangers and often take the risk, while others will avoid areas where they believe ciguatera to be hot. But until now there has been no easy way to know for certain. Palafox, who now practices medicine in Hawaii after nearly a decade in the Marshall Islands, believes the new test will make a big difference in the region. 'During my time in the Marshall Islands I learned that it was usually the job of the head fisherman of a village to say what fish were safe and what places to fish were safe,' Palafox says.

Cigua-Check put science into the issue. It was developed by Doctor Yoshitsugi Hokama, a professor with the John A. Burns School of Medicine at the University of Hawaii. In the test, a rice-grain-sized sample of fish flesh is placed in a vial of liquid methanol. A stick is placed into the vial then removed, air-dried and placed in a second vial of purple solution. After the specified period, the test stick is removed and rinsed in tap water, and the results are read. If after the test, the stick remains white, the fish is safe to eat. However, if the stick turns purple, it means the fish is dangerous to eat.

In laboratory tests Hokama claims a high level of accuracy, around 95 per cent. Oceanit environmental scientist, Bob Bourke said that the problem developing the test revolved around a simple test trying to find very low concentrations of the toxin. Ingesting just 32 nanograms of the toxin could make a sensitive person ill while others might need up to 235 nanograms. The body, he added, did not develop immunity to the toxin and fishermen, even with a steady diet of fish, may find themselves in the sensitive category. In testing the product, Bourke said, they had only one instance where a fish was declared safe to eat and where the person who later ate it got sick. In laboratory testing later they found the fish contained another poison, not ciguatera. Bourke said the kit was currently undergoing certification from the US Association of Official Analytical Chemists. Once received they will approach the World Health Organization and aid organisations to see if the kit can be more easily offered around the world.

'The goal is to take a minute to use and a dollar per test,' he said. Currently Cigua-Check costs US\$ 20 for five tests, and it takes 40 minutes to perform each test. It is attracting the interest of sailboat owners who often have to risk eating fish a long way from help. Outside Hawaii the product is available on the Internet at <http://www.cigua.com>

Source: *Pacific Islands Monthly*, December 1998

NEW ZEALAND

Maori still waiting

New Zealand's High Court has ruled that urban Maoris have no claim on NZ\$500 million of fisheries assets held by the Treaty of Waitangi Fisheries Commission. Justice Barry Patterson QC ruled that traditional *iwi*, comprised of those Maori claiming descent from a common ancestor, were to be the recipients. He ruled that urban Maori authorities did not constitute *iwis* in the context of the 1992 Sealord settlement and, therefore, were not entitled to an allocation of the assets. But the Commission had to ensure that all Maoris shared in the benefits as Maori relinquished all commercial claims on fish with the 1992 deal in return for fishing quotas, cash reserves and shares in the Sealord Group.

The Commission received the assets on behalf of *iwi* and was charged with allocating them to the people. The new ruling was the climax of a case brought by four urban Maori groups and hinged on the interpretation of *iwi*, which could mean 'the

people' or 'the tribe.' The quartet argued that the word should include urban Maori groups, thereby capturing the third of all Maori not affiliated to traditional tribes.

Justice Paterson backed the Commission's interpretation and decided that it meant traditional genealogical tribes. He said that the genealogical tribes are the inheritors of the fishing rights guaranteed to Maori in the Treaty of Waitangi. 'Urban Maori authorities do not have a tribal basis in the sense they do not have genealogical or kinship or blood links,' he said.

Robin Hapi, chief executive of the Commission, said that the Commission could now get on with the job of allocating assets. The latest battle may be virtually over. But, six years after the Sealord deal hailed as a 'full and final' settlement of all Maori fishing claims, all Maoris have yet to receive the proceeds.

Source: *Fishing News International*, October 1998

AUSTRALIA

Women in South Australia maximising their potential

The Women's Industry Network (WIN) in South Australia is growing in size and support following a workshop last year funded by the Fisheries Research and Development Corporation (FRDC). 'Thirty-five women took part,' said co-organiser Gloria Jones, 'and many of them from the more remote rural parts of the State wouldn't have been able to come without FRDC's help.' The workshop assessed and essentially endorsed the objectives and strategies of WIN, which is now in its third year. 'We are all actively involved in the seafood industry — most of us working alongside our partners — and as major stakeholders we wanted to no longer be the invisible partners. 'Everything official has tended to revolve around the fisheries license-holders who, inevitably, are male.' She said the workshop allowed the women to transfer skills and knowledge.

Initially, WIN set its sights on raising industry awareness through information and education, promoting training and participation for the widely-dispersed and often isolated women involved in fishing and improving working relationships with other primary industries. In its first year it also initiated what is now the biennial South Australian Fishing and Seafood Industry Awards Night. 'That was a great success, bringing people together from all areas of the seafood industry,' Gloria Jones said.

She sees decision-making as another important role for WIN. 'Many decisions make an impact on families, and families generally are not considered when decisions are made. Women are also good communicators, in industry and beyond.' Gloria Jones believes WIN is progressing towards a national focus, which would bring women in the industry together at a national conference with the aim of maximising the human potential that has always existed in seafood production.

Gloria Jones and her husband Henry are Lakes and Coorong fishers, working in a sustainable heritage fishery established in 1854. Here the Jones family catches callop, redfin, boney bream and European carp in the freshwater lakes; flounder, mullet and seabream in Coorong and mulloway in the sea rip off the mouth of the river Murray. They market much of this catch in their restaurant at Clayton. Demand for their European carp exceeds supply. 'We've fished them down to 10 per cent of their biomass and now sometimes have to buy carp from Victoria to meet demand,' she said.

Boneless fillets of carp are used in the family restaurant, some of the fish become pet food, but the bulk are frozen in 25 kg blocks and sold as lobster bait.

Source: Fisheries Research and Development Corporation, 1998

Croker Island: Native Title decision in perspective,

'Native Title rights go to sea', 'Title certainty springs a leak', 'Island families win historic victory', these were just a few of the headlines in the press around Australia in the days following the decision in the 'Croker Island' native title claim to sea in July 1998. The articles that accompanied the headlines, however, were notable for the absence of one key point — the rights, now given the name Native Title, have been law in the Northern Territory for many years under the Fisheries Act and have been supported by the professional fishing industry.

Justice Howard Olney determined the following key issues in the Croker Island claim:

- Native Title does exist in relation to the sea and seabed within the claimed area, and Native Title is held by the Aboriginal people who are yuwurumu members of the Mandilarri-Ildugi, the Mangalara, the Murran, the Gadura-Mingara and the Ngaynjaharr clans (the common law holders).
- The Native Title rights and interests do not confer possession, occupation, use and enjoyment of the sea and the seabed within the claimed area to the exclusion of all others.
- The Native Title rights and interests which the court considers to be of importance are the rights of the common law holders, in accordance with and subject to their traditional laws and customs to have free access to the sea and the seabed within the claimed area for all or any of the following purposes:
 - to travel through or within the claimed area;
 - to fish and hunt for the purpose of satisfying their personal, domestic or non-commercial communal needs including the purpose of observing traditional, cultural, ritual and spiritual laws and customs;
 - to visit and protect places which are of cultural and spiritual importance;
 - to safeguard their cultural and spiritual knowledge.
- The Native Title rights and interests of the common law holders cannot override any valid Commonwealth or NT laws.

For the professional fishing industry the most significant points are that the applicants have not been granted the exclusive possession of the claim area that they sought, that access to the area and its resources by relevant professional licensees is not

restricted by the Native Title granted and that the Native Title rights specifically exclude commercial utilisation of the area's resources.

The 'Croker Island' Native Title claim was referred to the Federal Court early in 1996 and the fishing industry parties' interests have been represented by Graham Hiley QC as Senior Counsel and Neville Henwood of the Darwin-based legal firm, Cridlands. 'While the Croker decision is an important development in our understanding of Native Title and its impact on other interests, unfortunately, however, because the judgement is largely based on the facts of the case, it will not be determinative of future applications. Other applicants may choose to pursue their claims on the basis of different facts,' Neville Henwood says. "However, because Justice Olney found that common law rights, such as the public right to fish and the right of free passage, meant that exclusive Native Title rights could not exist, other cases should reach the same result.'

At this stage it is not known whether an appeal will be lodged against Justice Olney's decision. One of the questions that has often been asked since the introduction of the Native Title Act is how can Native Title and non-Aboriginal licensed interests involving the sea and its resources co-exist in a practical way? Given the determination of what Native Title rights there are in the Croker Island area, the answer to that question can be clearly seen in the Northern Territory, where those rights and licensed interests have co-existed for many years. Any difficulties that have arisen have generally been associated with claims by various Aboriginal spokespeople that the resources of the sea belong to Aboriginal people only.

Just days after Justice Olney's determination of non-exclusive rights in early July 1998, the amendments to the Native Title Act were passed by Federal Parliament. Contained within these there is the provision that the National Native Title Tribunal cannot accept claims for exclusive possession to water for determination.

Virtually all the native title claims to sea currently before the Tribunal seek 'the right to exclude others' from the claim areas. Advice received from Federal Government sources is that all these claims will now have to be re-evaluated by the Tribunal. Only time will tell what the outcome of this process will be.

Source: Article by Ian Smith in *Professional Fisherman*, September 1998

Australian Expert Service Overseas Program (AESOP)

The Australian Expert Service Overseas Program (AESOP) operates in 23 countries, primarily in the Pacific and South East Asia. Since its establishment in 1981, AESOP volunteers have successfully completed more than 1700 projects. AESOP works with businesses and enterprises in an advisory capacity. The emphasis is on training, transfer of skills and expertise, and mentoring.

AESOP operates two main programmes. The first programme receives funding from the Australian Agency for International Development (AusAID), and its focus is on the developing nations of the Asia-Pacific region. Under this programme, AESOP works with businesses and enterprises that have majority indigenous ownership. The second programme is funded by a range of other agencies and by larger business operations, including Australian business.

Whatever the business, AESOP can usually locate volunteers to train people. Better trained staff means the skill level in the country is increased and the business is improved. AESOP brings together, in a productive and lasting partnership, volunteers with expertise and experience and clients that need those skills. The volunteer receives no remuneration but does receive an allowance for food and incidentals.

AESOP volunteers offer a lifetime of experience and expertise in a range of professions and industries, for example: Administration; Agriculture; Automotive; Business Services; Clothing and Footwear; Computing; Construction; Education; Finance, Property and Business Services; Fishing and Shipping; Health; Hospitality; Manufacturing;

Media; Mining; Utilities; Vocational Training; Wholesale and Retail.

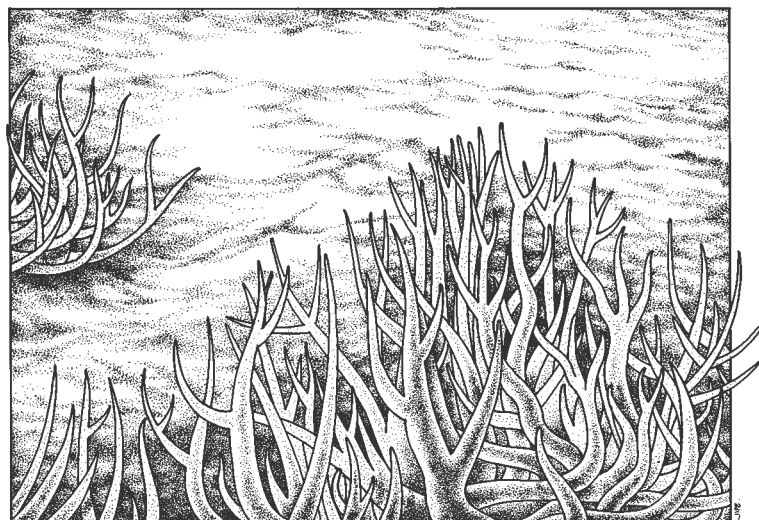
AESOP clients in Vanuatu, Papua New Guinea, Tonga, Kiribati, the Marshall Islands and the Federated States of Micronesia presently require volunteers with experience in aquaculture, longline and purse seine fishing, pearl farming, inshore and fresh water fish development and management, fisheries management, cold storage and refrigeration and sashimi marketing.

The impact volunteers have on small businesses is often dramatic. A retired food technologist, with canning expertise, proved invaluable to a Kiribati company by helping it achieve increased sales and diversification of product by improving its tuna jerky product and developing a suitable cat snack from waste tuna. The transfer of expertise and skills can make all the difference to a business or organisation and is often the turning point for success and development. Self-sufficiency and employment opportunities are spin-offs.

Further information by prospective volunteers or clients may be obtained from:

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Source: AESOP and *Professional Fisherman*, December 1998



WHAT'S HAPPENING OUTSIDE THE REGION



ASIA

International Symposium on Women in Asian Fisheries

Women and children make highly significant but undervalued contributions to fisheries, aquaculture, fish processing, retailing and fisheries sector services, according to the experts who gathered on 13 November 1998 in Chiang Mai, Thailand, at the first International Symposium on Women in Asian Fisheries. Appropriately, the Symposium was conducted in Thailand during the Fifth Asian Fisheries Forum. Thailand is the biggest exporter of seafood in the world today and women play a big role in the Thai fisheries sector, including holding 33 per cent of professional positions in the central Directorate of Fisheries, according to the Director-General of Fisheries, Mr Dhammarong Prakobboon, who spoke at the Opening Ceremonies.

Men and women from diverse specialist backgrounds gathered for the Symposium. They included rural bank managers, non-governmental organisation staff, university chancellors, research managers, international and regional bureaucrats, fish product inspection experts, biologists, social scientists and fisheries information specialists. The keynote address was delivered by Senator Helena Benitez, who is renowned internationally and in her home country, the Philippines, for her contributions to women's rights, rural development and environmental conservation. The Symposium was chaired by Dr Meryl Williams of the International Center for Living Aquatic Resources Management and co-chaired by Dr M. C. Nandeeshya of CARE Bangladesh. Presenters came from Bangladesh, Cambodia, India, Italy, Indonesia, Malaysia, Philippines, Taiwan, and Thailand.

Knowledge of the contributions of women in the fisheries sector is only evolving slowly and still lags

behind that of other rural sectors in Asian countries. The experts concluded that one way to help rectify this situation would be for the governments in Asia to cover gender questions on fisheries and aquaculture in their regular agricultural censuses. Participants were urged to go back to their ministries of agriculture and alert them to this vehicle for data collection. Despite the lack of comprehensive data, the Symposium learnt from several programmes and studies in India, Bangladesh and the Philippines that agricultural banks and non-government organisations are already helping hundreds of thousands of women entrepreneurs and fish producers through technical assistance, loans and credit and fostering self-help groups.

The Symposium recognised that Asian women in fisheries usually carry multiple roles in their lives and careers, thus making time allocation a critical issue to address when developing assistance programmes. Men's and women's sense of confidence and self-worth were intrinsically linked and embedded in their culture. Therefore, social support systems need to be organised to help bring about changes that may be resisted at first.

Gender relations should not be seen as competitive but rather as complementary and mutually reinforcing. Support systems should also help to raise the aspiration levels of women. More generally, formal service and delivery agencies are realising that they can only do their jobs these days if they are gender sensitive and more participatory with their clients, such as through involving fish farmers in designing curricula for farmers' field schools. In most cases, this means a major internal effort in organisational transformation. The workshop learned how some non-governmental organisations have already embarked on these internal cultural changes.

Women in the sector are marginalised in planning and policy-making, and unless this is changed, they will continue to suffer inequalities and discrimination. Even some Asian women fisheries scientists and academics rated their chances of making a significant policy contribution as 'hopeless'. Several speakers stressed that community-based coastal resource management was one activity related to fisheries that would only be successful if both men and women were active in it. Although such management was becoming more inclusive of stakeholder groups generally, women were still rarely involved.

Women frequently participate in the fisheries sector under conditions of great inequality, bordering on blatant exploitation, even though they do gain economically from their participation in the labour force. Young and unmarried women were often preferred because they were cheaper to employ and have fewer family responsibilities. Studies showed that women labourers in some offshore fisheries in the Philippines and in fish processing plants in India were paid below minimum wages, received little in basic health and welfare benefits and, because they lacked power and legal protection, could even be exposed to sexual harassment on the job. Such labour and personal discrimination was often well hidden because the women could not speak out, and their basic human rights were not adequately protected.

Speakers at the symposium revealed the results of studies that showed women were productive and efficient when they had access to the right technologies and opportunities. Studies in Malaysia and other countries showed, however, that more than 80 per cent of rural women's activities were carried out in or close to the home. New technologies and modernisation in the sector tended to marginalise these backyard activities.

The new development included the introduction of large-scale, centralised fish processing aimed at high quality export markets and the mechanization of fishing vessels. However, small scale aquaculture, low-capital fish processing, value-added fish products, rice-fish farming and rearing of fingerlings from fry were examples of fisheries activities which were well suited to cottage-industries. In addition, complementary activities such as tourist lodging, handicrafts and seasonal farming were showing promise for diversifying, stabilising and raising fishing family incomes.

Attention to women's issues in fisheries lags behind that in other sectors, and since this Symposium was a first for the Asian Fisheries Society, various comments on it were raised. For example, other attendees at the Fifth Asian Fisheries Forum suggested to some of the experts that there was too much talk

and not enough action! To demonstrate their intentions, the experts pointed out that already some agencies with which they were involved, including banks, non-government agencies and some government departments, had made major strides in helping women's contributions in the sector.

The participants will broadcast their findings through the proceedings of the Symposium that will be published in collaboration with ICLARM. The results will also be distributed to sectoral magazines read by policy-makers, and by spreading the message through personal actions and networks such as the women in fisheries networks in the Indo-China countries. In addition, the participants have written to urge the Asian Fisheries Society to maintain the momentum built up at the Symposium through taking the following actions itself:

1. Continue the 'women in fisheries' photographic competition at the Sixth Asian Fisheries Forum in Taiwan in 2001. The competition started in 1995 at the Fourth Asian Fisheries Forum in Beijing. The 1998 competition drew 54 entries, many of outstanding quality, and some of these will be used widely in regional and international fisheries magazines such as *Naga*, *Aquaculture Asia*, *INFOFISH* and *Catch and Culture* of the Mekong River Commission.
2. Sponsor another women in fisheries section at the Sixth Asian Fisheries Forum and ensure that this does not clash with related sessions such as rural aquaculture. Early planning could make this special session into a global forum on women in fisheries, showing the world that Asia not only leads the world in fish production but in addressing some of the major social, economic and political issues in the sector.
3. Select both men and women keynote speakers at each forum and major conference or workshop.
4. Ensure gender equity in selecting session chairs for the forum.
5. Undertake a self analysis of its gender sensitivity and encourage the branches to do this also so as to reach down to the grass roots.
6. Strive for gender equity in the Council, while upholding the principle of merit and the balance of nationalities.
7. Investigate forming a gender in fisheries section of the society, along the lines of the Fish Health Section and the Asian Fisheries Social Science Network.

More general recommendations from the Symposium were that:

1. Training and extension programmes in fisheries should specifically target women in areas where they contribute to fisheries activities.

2. Microcredit programmes, along the lines of the successful programmes in Bangladesh and India, should be tried to benefit women in other countries.
3. Networks should be formed at the national level with the active participation of all the players. Actions initiated by the Mekong River Commission to form networks in each of the four riparian countries of the Indo-China region at the national level should serve as examples for others in the region. The Asian Fisheries Society could help the National branches and organizations to take the lead in the formation of national networks.

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INDIA

Fishing methods in Lakshadweep

by P. E. Vijay Anand

Fish landings of 29,562 tonnes were recorded in Lakshadweep, India in 1995. The potential landings from the Laccadive sea are estimated at around 90,000 tonnes. Despite high potential yields from coral reefs in India, exploitation is of a relatively lower magnitude due to constraints in fishing operation gears. As reef fish are generally sedentary and habitat specific, they require special gear and methods of exploitation. Behavioural situations can also be used to efficiently capture them. Before the introduction of modern fishing methods, coral reef fisheries in India were mainly based on traditional methods.

Fishing methods operating in Lakshadweep are diverse and usually not organised. Most of them are traditional, and depend either on the biotope or the habits of fishes. These traditional methods are dwindling due to changes brought into the lifestyles of inhabitants by the government. Fishing, which was once the main occupation of the inhabitants, has almost been replaced by other activities. The fishery resources of Lakshadweep, currently underexploited, can be efficiently harvested by reviving some of the traditional methods, with modification.

Though fishing methods are mainly traditional, a few modern methods have also been successfully introduced and practiced. They are classified into broad groups, namely, covering gear, drive-in gear, encircling gear, falling nets, fishing without gear, light fishing, lifting gear, line gear, seine nets, traps and wounding gear.

Covering gear

The gear is called **Kallumoodal** and is operated by a single person. A conical net resembling a cast net with lead weights at the base is used to cover small coral boulders during low tides. The boulder is shaken thoroughly to scare out all hiding fish into the net. This method makes use of the hiding habits of fishes. Commonly caught species are a variety of *serranids* and a few *acanthurids* (*Cephalopholis argus*, *Epinephelus hexagonatus* and *Acanthurus triostegus*). A varied version of **Kallumoodal** is operated on large, submerged massive corals. A brown or red fine-meshed net is spread on the desired substratum around midnight and is hauled up just before dawn. The nocturnal behaviour of the fish is used in this capture method. Such fishes leave their day-



time refuge to feed in the water column soon after it is dark. The nets are placed around midnight after they leave their homes. When these fish try to get back to their daytime refuge they are captured (entangled). Commonly caught fishes are *apogonids* (for use as tuna bait), *holocentrids* and *pemphrids*.

Drive-in-gear

This principle is used in three indigenous fishing methods and is based on the habits of the fish, nature of tides and seasons.

Chaal: This involves construction of pathways on the reef margin by piling up dead coral boulders. These paths have wider openings on the seaward side and taper into a narrow channel on the lagoon side where a bag net is placed. The mouth of the bag net varies in size between 0.5 to 1.5 metres, and tapers to about 20 cm at the far end. The mouth is fitted to the channel using wooden sticks. Provision is made for a single person to sit and wait for fish to enter. The fish are normally chased using a stick to beat the water or are caught when trying to enter the lagoon from the adjacent reef flat and reef slope areas. Entry of some schooling fishes like *mullids*, *polynemids* and *scarids* results in heavy catches. **Chaal** is operated both during the day and night. Entry of fish is normally judged by visibility during the day, while a string, diagonally passing through the net, acts as a feeler line when operated at night. All small fishes trying to enter the lagoon comprise the catch.

Padhi: This is similar to **Chaal** in construction, but the open end faces the lagoon while the seaward end is usually closed. Unlike **Chaal**, this construction does not involve width variations and resembles a shallow pond. Fish that try to leave the lagoon during the receding tide enter and remain in the enclosure, and at times they are also chased. Once the fish enter **Padhi**, the mouth is closed and the trapped fish are caught using nets or harpoons. **Padhi** is operated both during the day and night and the fish are usually removed after dawn. Both **Chaal** and **Padhi** are family-owned properties that are acquired by inheritance.

Kandalivalai: This gear involves a scare line and three different types of nets and are operated in lagoons where corals do not form obstacles. They are positioned parallel to the reef margin. The scare line (300–600 m), made of dried coconut leaves, is payed opposite the **Kandalivalai** in a semi-circular manner over ramose or massive coral substratum from where more fish can be scared into open lagoon waters. The distance between the scare line and the net ranges between 500 and 700 m. The operation involves dragging the net and scare line towards each other, the former at a slower pace and the latter at a faster pace. The two ends of the scare

line are pulled by two boats positioned at opposite ends. Two nets, namely the **Fathivalai** and **Manakathavalai**, are operated behind the scare line and **Kandalivalai** respectively, to capture small fish escaping through the **Kandalivalai**. The **Fathivalai** is operated by four persons while the **Manakathavalai** is operated by three. This method captures a wide variety of fishes inhabiting the lagoons. Some of the common groups include *acanthurids*, *balistids*, *carangids*, *hemiramphids*, *lethrinids*, *lutjanids*, *mullids* and *siganids*.

Encircling gear

This gear is operated using the same principle. A desired fish aggregation is spotted and a net is set around them. Nets are either pursed by an individual fisherman in deeper waters or the fish are gilled without pursing in shallow waters. This method is commonly used to capture bait fish for tuna. Operations are either large scale involving mechanised boats and scare lines or are small scale, with or without country crafts (traditional non-mechanised wooden boats). Encircling is also done around massive coral zones by encompassing them in their habitats. A single person enters the enclosed region and scares the fish using coconut leaves. Fish are normally gilled or entangled. Encircling nets do not have fixed specifications. The use of polyamide material has been recently replaced by monofilament nylon twine so that nets are not easily visible to fish in clear, coral reef waters. Four to six persons operate such nets. **Kudakavalai** is a type of encircling gear made of monofilament and ranges in length between 50 to 70 m. The operation is conducted in the outer sea by six or eight fishermen and two boats powered by outboard engines. This is seasonally practiced, just before the onset of the monsoon, to capture half-beaks (*Hemiramphidae*). Nets are payed around fish schools in a circular manner and fish are gilled.

Entangling gear

Fish are normally caught by gilling in either passive or active gear.

Arigalavalai: This gear captures long-beaked fish (*Belonids* or *Hemiramphids*). When a school is spotted, the net is operated in the lagoon by dragging it from the centre toward the reef margin in a perpendicular manner. The beaks of the fish get entangled or they are at times gilled. This method is used only in the monsoon seasons when the fish enter the lagoons to breed. Ten to twelve people are needed to operate this gear.

Fathivalai: Set gill nets are normally operated by two persons on a local boat in the lagoon. Nets are payed parallel to the shore or reef margin. Fish are

normally gilled and hauled up at 10:00 p.m. The net is set again at 3:00 a.m. and finally hauled up at 8:00 a.m. Fish catch composes of *acanthurids*, *belonids*, *balistids*, *caesionids*, *carangids*, *elasmobranchs*, *holocentrids*, *lethrinids*, *lutjanids*, *scarids*, etc. of varying sizes. Between two and eight people are needed to operate this gear.

Set gill nets are also operated outside the lagoon on reef flats or reef slopes (3 to 6 m water depth) during calm weather. The nets are made of stronger material. A typical gill net operated outside the reef is called **Halakvalai**. The net is either payed parallel to the reef margin or in a perpendicular manner at dusk. Gilled or entangled fish are removed from the net around midnight. The remaining catch along with the fresh catch is hauled up at dawn. Eight persons normally operate this net. Drift gill nets are less popular, but if they are used a constant watch is kept and they are repositioned or hauled up before reaching the reef.

Falling Nets

These nets are thrown on fish aggregations after spotting them in shallow waters.

Veechualai: This is a common, well-known cast net that is used to catch fish along the shore of lagoons or in shallow waters of the reef flat. Small perches, *acanthurids*, *belonids*, *carangids*, *hemiramphids*, *kuhlids*, *labrids*, *lethrinids*, *lutjanids*, *mullids*, *polynemids* and *scarids* are commonly caught.

Idupumanakam: This method is employed to catch only *mullids* (goatfish). A number of fishermen (up to 50) stand in a row on the shallow reef flat with cast nets and wait for passing schools of goatfish. When the first person spots a moving school he throws the net and this is subsequently followed by the others. By the time the school passes the last fisherman it is almost fully fished.

Fishing without gear

This method involves the use of hands or substances that narcotise the fish in water.

Shark fishing by hand: This is not a regular fishing practice and is used to catch sharks measuring 0.5 to 3 m long. Schools of tuna and sharks are frequently associated with flotsam. Fishermen begin catching tuna using the pole-and-line method with or without live bait. Once the tuna have been caught, a few are cut and their blood is trailed alongside the boats. Sharks attracted to the smell of blood surface up near the boats and swim around with their dorsal fins above water. The fishermen take hold of the dorsal fins that swim close to the boat. Only elderly, experienced fishermen attempt on such techniques.

Fish poisoning: A poisonous dried fruit, called **Nengi**, is obtained from the mainland. It is mashed into a paste along with fiddler crab meat and rolled into small balls, for feeding fish aggregations. Fish that consume this mixture react by jumping out of the water and then falling back to die. Fishermen skin-dive and remove the fish from the water, cut them open immediately and remove the entrails in order to make them safe for human consumption.

Light fishing

This method involves the use of lights at night either to attract fish or stun them and make them vulnerable to capture.

Paravichadal: This method is seasonal and is practiced before the onset of the monsoon, for flying fish. Six to nine persons on country crafts or mechanised boats set off for fishing after it is dark. Fishing is performed outside the reef using fire torches made of dried coconut leaves and old rubber tyres. The torches are held by one or two fishermen with their left hands and wounding gear, **Chilla**, are held in their right hands while others operate the boat. Flying fish that get attracted to the light are harpooned using the **Chilla**.

Meenukoothal: This method is practiced at night using fire torches and pronged harpoons. Fishermen wade in shallow waters of the lagoons usually at low tides using fire torches. Fish that are stunned by light stay motionless and are harpooned.

Night-light fishing: A bright torch light is used to stun fish hiding in their shallow, nocturnal shelters. Usually three people are required: one for overturning or moving dead coral boulders, one for focusing the light and one for capturing the fish. Commonly caught fish are *acanthurids*, *apogonids*, *chaetodontids*, *serranids*, *pleusiopids*, *pomacentrids* etc.

Lifting gear

This comprises nets of variable sizes that are operated in the lagoons or in the outer sea with boats.

Chalalai valai: This involves a large net with two ends secured to fixed points. The other ends are tied to long bamboo poles that are dipped into water and held close to the boat by two fishermen. Once a small school of fish is spotted, a scare line is payed by a swimmer to enclose them. The line is slowly pulled into the boat to concentrate all the fish. When they are drawn close to the boat, the long poles are pushed away from the boat in such a manner that the net is spread beneath the fish aggregation and is subsequently lifted up along with the fish. This method is usually used to capture live bait for tuna.

Vhotundha valai: This is a rectangular or squarish net with a fine mesh. Two ends are fastened a little above the water level to two firmly fixed stakes. The net is in a slanting position, with the free end weighted by coral stones. Fish are chased towards the net by four to six fishermen from an adjacent area either by dragging a scareline or beating the water. The free ends are lifted by the ropes after the fish enter. Commonly caught fish are *labrids*, *mullids* and a variety of tuna bait fish.

Line Fishing

This method involves the use of monofilament nylon twine and hooks to capture fish. The hooks may or may not be baited.

Trolling: This has been introduced by the Department of Fisheries, Lakshadweep, and has become increasingly popular with the introduction of mechanised craft and outboard engines for the local country craft. Troll lines measuring 30 to 40 m long are operated in the open sea. Usually four troll lines are used, two from each side of the boat. The rigging support is provided by bamboo poles on the transom frame of the mechanised boat, while oars are used as supports in the country boats. The ideal time for operation is considered to be the onset of low and high tides when the fish surface. Troll lines may or may not have baited hooks. Unbaited hooks have a lead weight to which coloured plastic filaments are fastened. The colour of the filament is frequently matched with the colour of the bait fish available in the particular season. When troll lines are intended to be baited, belly flanks of precaptured fish or freshly caught flying fish are used. Commonly caught fishes include tunas, seerfish, dolphinfish, *carangids*, perches and gars.

Handlines: Simple hooks and lines using monofilament twine and bait are operated both during the day and night either from the beach, rafts, boats or the reef margins. Sizes of hooks, lengths and strength of monofilament twines, types of sinkers and baits used are highly variable. Baits frequently used are small fish, octopus, squid, *sipunculids*, hermit crabs, fiddler crabs, seaweed, wheat flour dough, belly flanks and stomachs of tuna. A special method called **Karainool** is operated for large perches on the leeward side of the island. Entire fish (usually *labrids*) are used as baits and the line is hurled far from the shore. The ends of the line are tied to firm supports. The catch is normally checked after an hour.

Longlines: Set longlines and drift longlines are operated using nylon ropes of No. 12 or 15 as the main line and No. 10 for snood lines. The main line ranges from 100 to 500 m long with snoods at an interval of

10 to 15 m. Only manageable lengths of longlines are operated based on the craft size. Lines are operated both during the day (early hours) and at night. Large buoys marked with flags at either ends denote the orientation of the lines. Set longlines have an anchor at one end and are usually set by fishermen on their way to fishing, while drift longlines are accompanied by boats. Sharks, seerfish, dolphinfish and tuna are caught by this method.

Seine Nets

Shore seines: These vary greatly in dimensions and materials used. Nets are operated parallel to the shore by either two people or by boats with 10 people. Depending on the size of the nets, they are payed in deeper waters and are dragged onto the shore or the reef crest. Small nets measure about 10 to 12 m while larger ones may be 50 to 70 m long. Catch composition is similar to that of **Kandalivalai** but the fish caught are usually small.

Chalal fishing: This is a term used for small fish and bait fish, and the method of capture is mainly used by women. Three or four women drag a velon screen around fish aggregations while other women spread themselves out, covering a large area, and chase the fish towards the net by beating the water. Juveniles and sub-adults of reef fishes inhabiting sand flats and seagrass beds are caught.

Traps

There is a locally-made triangular fish trap that is 1.5 m long, 1 m wide at the base and 0.5 m in height. It is made from locally-available reeds and shrubs. The entrance at the centre of the base leads into the trap in a zigzag manner. The trap is transported on a raft or country craft to a desirable place in the lagoon. It is lowered into the water perpendicular to the shore, and is weighted with coral stones. Trapped fish are emptied out through a separate opening, at regular intervals. Traps are operated during all seasons. *Labrids*, *lutjanids*, *mullids* and *serranids* are usually caught.

Other gears such as wounding gear, using harpoons with different operational procedures have declined in practice.

Source: INFOFISH 3/96

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AFRICA

In Guinea, a women's group gets new fish ovens

Women in fishing communities living along the coast of Guinea, West Africa, are responsible for preserving the local catch by smoking it over open fires. It is a long, hot job and the result is often of poor quality because the fish dries unevenly or becomes charred. In the villages of Temenetaye and Bonfi, TeleFood funds have been used to support local cooperatives of fish-smoking women. About 150 women in the two villages have been able to replace their ovens with an improved type, which conserves scarce wood and reduces smoke by concentrating the heat. The processed fish is therefore of better quality and fetches a higher price.

The FAO Representative in Guinea chose the best organised cooperatives as recipients for TeleFood funds. The women's group in Bonfi, for example, received a helping hand from FAO in 1984 and is still in operation. This spirit of self-help and independence is confirmed by the president of a local non-governmental organisation: 'You really need to know the Bonfi area in order to appreciate how much work has been done here. Before the TeleFood project, we, as an NGO, were already working on the ground and, frankly, we knew that there was a great deal to be done.' The new smoking ovens have now been built, using locally available mud bricks and stone. The women were also given basic literacy training to enable them to manage the modest resources available to them. The impact of the project has been significant: a reduction in production costs thanks to more efficient use of wood for smoking; less damage to the environment as a result of the reduced consumption of fuelwood; and, most important of all, an improvement in the health of the women doing the smoking, some of whom are among the poorest in the community.

Source: FAO 1998

Women seaweed farmers in the Zanzibar Islands, Tanzania

by Flower E. Msuya

Tanzania's Zanzibar Islands began a successful seaweed industry in 1989 when the seaweed *Eucheuma* was imported from the Philippines and planted on the East Coast of Unguja Island. Its growth rate was remarkable, and soon commercial seaweed farming flourished on the island. Seaweed farming has begun in mainland Tanzania as well.

Many villagers, both men and women, initially joined in the venture. Slowly, men left the industry,

and now more than 90 per cent of the farmers on Unguja Island are women. Because so many of the farmers are women, farming seaweed has changed life in the villages. The number of children suffering from malnutrition has decreased, which indicates that the health of the mothers has improved. Women also have economic power now. This has enabled them to take a greater part in the decision-making at home. Men, who are mostly employed in fishing, have accepted women's making significant economic contributions to the household.

Since fish catches in Zanzibar have been decreasing over the years, contributions from women have been important. Seaweed farming has also fostered self-employment, bringing youths who migrated to towns back to the villages to work for themselves, thus increasing the population of the villages.

Women seaweed farmers are able to buy necessary household items. Each woman in Paje village, for example, has been able to purchase about 30 pairs of **khanga** (a clothing common to East African women) where before they would not have been able to afford more than five. Women seaweed farmers can now buy school uniforms for their children and improve old homes. Some have even built new houses.

Before seaweed farming, families were forced to camp at land-based farm sites and work in the fields to earn enough money to support themselves, doing everything from ploughing the land to harvesting. During these seasons children missed their school classes. Now camping at farm sites is unnecessary and children are able to attend the coastal schools regularly. Women in the villages used to earn very little money. Rope making, which involves burying coconut husks at the beach for six months before removing them to make rope, earned them a meager income. A metre of rope sold for US\$0.01. Women also made capes, which took up to eight months to make. These sold for about US\$2.

Other activities done by women included octopus hunting and net fishing to catch small pelagics. All these activities are still being done by women, but now products of such activities are more for home consumption than for sale. Petty trade and small businesses have been replaced by seaweed farming as a major income-generating activity.

Women in the village are enjoying the economic benefits of seaweed farming. 'I also buy clothes for my husband,' some women have said. Others state proudly that their children dress better than those living in town. One woman in Paje village said,

'Now I do not have to wait for my husband to bring home everything.'

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BOOKS AND PUBLICATIONS

Bibliography for "Women in Fisheries" in the Pacific Region

L. Fay-Sauni, C. Whippy-Morris, V. C. Vuki, & S. Sauni
Marine Studies Programme, University of the South Pacific, P.O. Box 1168, Suva, Fiji

This bibliography (1998) is an update of a 1995 bibliography compiled by Cherie Whippy-Morris. The list of references in the current bibliography are directly or indirectly related to the USP unit topic of 'Women in Fisheries in the Pacific Region.' The gaps in qualitative and quantitative data available in this area throughout the region, and the outdated nature of some of the references, underscore the need for applied research focussing on the contribution women make in harvesting, processing and marketing seafood.

A review of women in fisheries: with specific reference to Kiribati and Fiji

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Abstract : In the history of fisheries in the Pacific region, women's activities are either strictly confined to low-technology or traditionally ignored. The former refers to basic gleaning on reef or coastal shallow habitats, while the latter deals with the domestic role of women, forbidding them from involvement in fishing activities. Over time, with the influence of western traditions which include the drive towards monetisation and the declining trend of coastal marine resources, more women are now seen actively participating in fishing activities on a part time or full-time basis. As a consequence, the traditional barriers, though remaining vitally important, are contin-

ually eroding among most societies in the region. This review highlights some aspects of this shift from subsistence to artisanal-commercial fishing among women in the Pacific region and its consequences; with specific references to Kiribati and Fiji.

Extracts from this report can be found in the *What's happening within the region* section.

Their Fathers' Work: Casting Nets With the World's Fishermen

William McCloskey, 1998
(352 pages, hardcover, colour insert, US\$24.95)
Publisher: McGraw-Hill; ISBN: 0070453470
Can be ordered on the internet at :
<http://www.amazon.com>

Those who put to sea for a dangerous and chancy living could ask for no better chronicler than McCloskey, who has sailed with fishermen and women in all the seas of the world. In this thrilling account, his vivid prose puts readers right on deck as the nets are hauled in. His love of the boats, the fishermen, and the sea shines through this moving and fascinating tribute to a way of life.

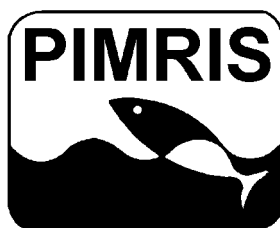
The Faces of Fishing

Brad Matsen, 1998
(120 pages, paperback, colour pictures, US\$ 19.95)

This book examines fishing cultures around the world — from factory trawlers in the Gulf of Alaska to subsistence fishermen in the Philippines and off the west coast of Africa.

Order from: National Fisherman/FISH GEAR,
P.O. Box 7438, Portland, Maine 04112-7438, USA

PIMRIS is a joint project of 5 international organisations concerned with fisheries and marine resource development in the Pacific Islands region. The project is executed by the Secretariat of the Pacific Community (SPC), the South Pacific Forum Fisheries Agency (FFA), the University of the South Pacific (USP), the South Pacific Applied Geoscience Commission (SOPAC), and the South Pacific Regional Environment Programme (SPREP). This bulletin is produced by SPC as part of its commitment to PIMRIS. The aim of PIMRIS is to improve



Pacific Islands Marine Resources
Information System

the availability of information on marine resources to users in the region, so as to support their rational development and management. PIMRIS activities include: the active collection, cataloguing and archiving of technical documents, especially ephemera ('grey literature'); evaluation, repackaging and dissemination of information; provision of literature searches, question-and-answer services and bibliographic support; and assistance with the development of in-country reference collections and databases on marine resources.