



Secretariat of the Pacific Community

# Women

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## *in Fisheries*

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



**Coordinator:** Lyn Lambeth, Community Fisheries Officer, SPC, B.P. D5, 98848 Noumea Cedex, New Caledonia. [Phone: +687 262000; Fax: +687 263818, E-mail: LynL@spc.int]. **Production:** Information Section, Marine Resources Division, SPC [Fax: +687 263818; E-mail: cfpinfo@spc.int]. **Printed with financial assistance from Australia and New Zealand.**

### Introduction

Welcome to the seventh issue of the Women in Fisheries Special Interest Group Bulletin. This and other SPC bulletins are available online at <http://www.spc.int/coastfish/>

This issue of the bulletin reports on the activities of the SPC Community Fisheries Section, and includes information on staff changes within the section, work on the Vanuatu tuna industry management plan, a workshop in Pohnpei, Federated States of Micronesia (FSM), and preliminary findings from field work for Kosrae, Chuuk and Yap.

From around the Pacific region we have a possible tuna processing plant for Asau, Samoa; a report on the success of a Marshall Islands tuna loining plant; a comprehensive paper on marine biological knowledge and management in a village in Tonga; a fish smoking business taking off in Nauru; a record of some of the traditional beliefs concerning fishing practices and behaviour in Pohnpei; and the second regional course on seafood enterprise operations for Pacific Island women to be held in New Zealand.

The news from outside the region includes a summary of an article on eco-labelling and fair trade initiatives for seafood; a paper on the importance of men's involvement in gender and development work; a study on the role of women in aquaculture in Southeast Asia; and an article on Japan's experiences in community-based fisheries management.

Reviews of books and publications can be found at the end of the bulletin. This section also includes details of an e-mail conference on aquatic resources management for sustainable livelihoods of poor people.

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

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Contributions in the form of articles, papers, news and information are welcome. Articles can be in French or English; the bulletin is published separately in both languages.

Please address all inquiries to:

Lyn Lambeth  
Secretariat of the Pacific Community (SPC)  
BP D5, 98848 Noumea Cedex  
New Caledonia  
Phone: +687 262000  
Fax: +687 263818  
E-mail: LynL@spc.int

## **NEWS FROM THE**

*Community  
Fisheries  
Section*



*The Community Fisheries Section continues to emphasise and support the fisheries activities of women to ensure a balanced approach to fisheries management and development within the region. Some of the activities of the Section since the previous bulletin are outlined below.*

### **Staff changes within the section**

Patricia Tuara, the Community Fisheries Adviser, has left after five years with SPC. Patricia will be missed by her colleagues and we all wish her and her husband, Andreas, well in their next adventure. Patricia and Andreas, have gone to New York where Andreas has a position as demographer with the United Nations.

Patricia's contribution to the establishment and direction of the section and to the advancement of women in fisheries issues throughout the region, will be remembered by all.

Patricia's replacement will be decided shortly.



## SPC Community Fisheries Section resource materials

### Training manuals

- Setting up a small-scale business: a guide for women in fisheries (English or French)
- Practical methods for preserving seafoods: salting and drying (English or French)
- Fisheries management for communities: a manual on promoting the management of subsistence fisheries by Pacific Island communities (English only; French version in press).

### Videos

- Shellcraft: an income-generating venture for women “The Cook Islands Experience” (English or French)
- The Reef: Our Heritage, Our Future (English or Nauruan)

### Reports

- An Assessment of the Role of Women in Fisheries in Nauru
- An Assessment of the Role of Women in Fisheries in the Republic of the Marshall Islands

- An Assessment of the Role of Women Within Fishing Communities in the Republic of Palau
- An Assessment of the Role of Women in Fisheries in Pohnpei, Federated States of Micronesia

Most of the Community Fisheries Section's reports and some of its training manuals are available online (in PDF version) at:  
<http://www.spc.int/coastfish/Sections/Community/index.html>

For details on how to obtain SPC resource materials, including fisheries training manuals and videos, please contact:

The Publications Distribution Assistant  
 Secretariat of the Pacific Community  
 BP D5, 98848  
 Noumea Cedex  
 New Caledonia

Phone: +687 262000  
 Fax: +687 263818  
 E-mail: [IdaT@spc.int](mailto:IdaT@spc.int)

## Vanuatu tuna industry management plan

Fieldwork on the gender aspects of the Vanuatu tuna industry was carried out in March 2000 by the Forum Secretariat's Gender Issues Adviser and the SPC Community Fisheries Officer. A draft report was compiled as a component of the Vanuatu Fisheries Department project on Sustainable Tuna Industry Development. The report seeks to present information on women's and men's roles in fisheries in relation to the tuna industry and a gender analysis of the general issues surrounding development of that industry.

The rationale for considering social and gender issues in the preparation of a tuna industry management plan is linked to principles of sound development. This type of analysis supports commitments to ensure that benefits and costs of any new industry initiatives are distributed as evenly as possible to all Vanuatu citizens. The aim of the

report is to assist the Vanuatu government in achieving its long-term goals for social, economic and environmental sustainability

Sustainable tuna industry development can only be achieved with the active participation of all members of the community.

The report considers social and gender implications of four main areas: development of the domestic tuna industry; employment of ni-Vanuatu crew on foreign fishing vessels; transshipment and increased foreign fishing fleet activity in Vanuatu; and, environmental issues with potential social impact. Both positive and negative impacts of each issue are examined in order to emphasise the potential costs of each development option – costs that are often overlooked when development options are considered.

## Pohnpei workshop

In 1999 FSM requested the assistance of the Community Fisheries Section in assessing, documenting and subsequently training women involved in small-scale fisheries. Due to differences in traditional and modern fishing practices between the four states, the FSM National Fisheries Section requested that each state be examined independently. In July and August 1999 the Community Fisheries Officer (CFO) participated in the Fifth FSM Women's Conference and began the first part of the SPC Community Fisheries Section work in FSM – an assessment and report of the situation in Pohnpei. One of the recommendations of the report resulting from this visit was that the SPC Community Fisheries Section assist in a training workshop for women involved in small-scale fisheries activities.

This workshop was held from May 1 to May 5 2000 and was attended by eleven women involved in small-scale fisheries activities in Pohnpei State. Half the participants were involved in running small seafood markets while the remainder were involved mainly in subsistence fisheries activities. The workshop covered a number of topics: processing, quality, and control of fish spoilage; fish smoking, drying and salting; small business skills; conservation and management; and nutrition and

healthy lifestyles. During the workshop the participants built a simple drum smoker and tried different methods of brining and smoking fish.

The session on conservation and management included an introduction to coral reefs and the importance of marine resources; sustainable harvesting and the management of renewable resources; destructive fishing methods; community management of marine resources; marine protected areas; community conservation measures; and the reasons behind present and potential regulations.

At the beginning of the workshop, women were asked to list the workshop topics in order of priority.



Lyn Lambeth

**Starting the fire for smoking the fish**



Lyn Lambeth

**Marinating fish before smoking**

**Workshop evaluation**



Lyn Lambeth

Conservation and management of marine resources was listed last by the majority of the women. By the end of the workshop, however each participant listed conservation and management as the topic of most use to them!

**Closing ceremony, Pohnpei workshop**



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### Kosrae, Chuuk and Yap fieldwork

Following the Pohnpei workshop the CFO travelled to Kosrae, Chuuk and Yap to undertake fieldwork and produce reports for the remaining states of FSM. First stop, for one week, was Kosrae where the CFO, with the assistance of Roosten Abraham of the Fisheries Division, met with people from Tafunsak, Walung, Lelu, Malem and Utwe municipalities. The work also benefited from the assistance of Ropina D. Aloka the Coordinator of the Women's Affairs Program.

Preliminary findings for Kosrae indicate a high interest in training for subsistence and artisanal

fishermen and women, specifically in the areas of seafood handling, quality control, small business management and marine conservation. Most people are keen to explore fisheries management and conservation issues and there is a high level of awareness and concern at the grassroots level, especially in Walung municipality.

Some work on community resource management has been done but most of that work does not directly tackle fisheries issues. There is also strong support for community fisheries management from within the Fisheries Division.



**Handlining, Kosrae**

Lyn Lambeth

**Okat Marina, Kosrae**



Lyn Lambeth

There is potential for a pilot aquaculture project (for an alternative food fish), particularly for Malem municipality. Malem is in need of an alternative fish source due to the lack of reef resources and difficult access to outer reef fishing areas.

Next stop was Chuuk State, where the CFO worked with the Conservation and Management Officer of the National Fisheries Section, Estephan Santiago, and Research Assistant for Chuuk Marine Resources, Kichy Joseph. Most meetings concentrated on Weno (Moen) the main island of Chuuk lagoon, but visits were also made to Tonoas, Fefan and Parem to talk with people involved in small-scale fisheries activities.



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**Small market on Weno, Chuuk**



Lyn Lambeth

**Women fishing on Fefan, Chuuk**

sometimes similar, fisheries activities, they would feel more comfortable with separate workshops. Due to the traditional, separate roles of men and women in many parts of the Pacific women often remain quiet and unassertive in a mixed group. A group of women on their own however can be a different story...

The final stop on the FSM journey was Yap, known in Micronesia for the strength of its traditions and culture. Traditionally, fishing and the use of marine resources in Yap was subject to a complex structure of authority that determined ownership of geographical areas, habitat sites, gears, species, and fishing methods. In addition, Yapese

Preliminary findings for Chuuk indicate a high level of interest for including women in fisheries training, especially for those who are currently involved in small-scale marketing activities on Weno.

Both Kosrae and Chuuk have requested workshops for both men and women who are involved in fisheries activities – to be run concurrently but separately, with perhaps a joint discussion at the end. In other words, two workshops to be run at the same time, one attended by women and the other attended by men, with the two groups coming together for a joint discussion at the end. This is in recognition of the fact that, although men and women are both involved in various, and nowadays



Lyn Lambeth

**Weno, Chuuk**

social organisation regulated the distribution of the catch according to the rank, or prestige, of the fishing method, species, people or villages involved. Strong taboos existed against women going fishing or having anything to do with men's fishing gear or boats. Women and children were, on the whole, restricted to the collection of invertebrates from nearshore areas and handlining inside the reef. In general, fishing done farther from land was more prestigious. Men involved in certain fishing methods were subject to social restrictions and spiritual rituals associated with that fishing method. Some of the methods required fishermen to isolate themselves at the men's house for periods of time before and after fishing.

Reef ownership, fishing rights, catch distribution, dispute resolution and punishment are still well-defined in Yap but there are very few elements that are actually observed in practice. What remains is a very strong resistance to consider women as being involved in fisheries in any way - despite their involvement in reef gleaning, inshore fishing, processing, customary distribution and, more recently, small-scale marketing. At a meeting with the Yap Women's Association it was decided that training was needed to ensure that those women who are involved in fisheries activities are recognised and assisted in their activities.



Lyn Lambeth

**Buying a string of fish, Yap**

## Future work

Finalising the reports for Kosrae, Chuuk and Yap are high on the Section's work agenda for the second half of 2000. The second fisheries module for the SPC Community Education and Training Centre (CETC) programme was due to run in July in Fiji. This unfortunately was postponed as students were sent home following the coup. The module, developed by the University of the South Pacific's Post Harvest Fisheries Development Project and the SPC Community Fisheries Section, will now run in August.

A French version of the CFS manual, Fisheries Management by Communities, should be ready for

distribution by the end of the year. The South Pacific Forum Secretariat is publishing the three background reports on gender issues for the tuna industry management plans of Solomon Islands, Palau and Vanuatu. These reports were completed by the Gender Issues Adviser of the Forum Secretariat and the SPC Community Fisheries Section.

Two reports, *An Assessment of the Role of Women in Fisheries in Niue*, and *An Assessment of the Role of Women Within Fishing Communities in Tuvalu*, will be ready for distribution in the second half of 2000.



# WHAT'S HAPPENING WITHIN THE REGION



## SAMOA

### Tuna processing plant planned for Asau, Samoa

Reports from *Samoa News* and *Pacific Islands Report* indicate that StarKist Samoa is planning to set up a fish processing plant in Asau, a coastal village in the northwestern part of Savai'i, Samoa.

According to one report, the plan is to process and freeze albacore at the plant before shipping it to the Satala, American Samoa plant for canning and export. A direct charter flight from Pago Pago International Airport to the Asau airstrip is being proposed by Samoa Air. This would serve the needs of StarKist Samoa if the landing rights application is granted.

The Asau plant will benefit Samoan albacore fishermen who have been selling to American Samoa canneries. StarKist Samoa is the largest private employer in American Samoa, employing around 3,000 people. It is envisaged that the processing plant in Asau would at first employ more than 100 people, expanding to about 1,600 as the plant moves towards more involved processing procedures.

**Source:** Pacific Islands Report, April 26, 2000. Samoa News/PINA Nius Online, April 30, 2000.

## MARSHALL ISLANDS

### Fish loining plant moves into high gear

by Giff Johnson

Majuro's fish loining plant added a night shift at the end of January in order to increase its pace of tuna processing. Opened last October, the loining operation is approaching its 50-ton per day output envisioned by company planners, said general manager Rod McLachlin.

In early February, a dozen containers filled with processed tuna were shipped from Majuro to American Samoa on PM&O Line, which is the major investor in the plant. It marks the third fish export from the PMO Processing plant since it started there

last year. The night shift has brought the level of employees up over 315 – delivering on the company's pre-opening promise to employ 300 islanders.

The plant is buying tuna from Star Kist purse seiners and shipping the tuna to Star Kist's cannery that is based in American Samoa. "It's coming together," McLachlin said of the production levels. He's been happily surprised, too, he says, by the quality of the work and the reliability of the workforce. "The workmanship is good and the turnover is much less than I expected," he said.



The factory asked for and received an exemption from the country's minimum wage law of \$2 an hour – and the level of pay has been an occasional issue in the national parliament, with opposition politicians raising concern and demanding to know why workers don't make at least two dollars. The plant pays entry level workers \$1.50 per hour – a salary that McLachlin says is still high compared to other Pacific island and Asian loining plants, but that at two dollars it could never compete with other companies in the region. "It's nice to see more than 300 people with jobs who otherwise wouldn't be employed," he said of government incentives that made it financially feasible to build the plant in Majuro.

The Majuro plant "has to be competitive with other loining plants" in Fiji, the Solomons, Papua New Guinea, Philippines and Thailand, he said, adding that the wages in the Marshalls are three times what is paid in Thailand.

The \$5 million Majuro factory represents one of the most significant foreign investments in the Marshalls. The principle mover and investor behind the loining plant is PM&O Shipping Lines President Robert T. Colson, who is based in San Francisco. For the shipping company, the plant is

generating cargo for the backhaul from the islands to the US – a route that has rarely, if ever, had locally-generated cargo, as exports from the region are nearly non-existent.

But PMOP is changing that. Through early February, it had made three shipments totalling 26 containers of processed fish. The plant offers Star Kist's purse seine fleet the option of an easy off-load with no lines – a contrast to the wait at the Pago Pago cannery which can be weeks. With time translating into huge amounts of money for purse seiners, every day saved by using Majuro to off-load, is a day sooner the vessel can get back to nearby fishing grounds.

The plant cooks, cleans, fillets, packs and freezes the tuna for shipment. The leftover "waste"—bones, guts, etc.—flows into another section of the plant where it is processed into fish meal for animal feed and fertilizer. Some fishmeal is sold locally, though the market in Majuro is insignificant. The plant, in February, was stockpiling the fishmeal and shopping for a good price on the international market.

**Source:** *Pacific Islands Monthly* – March 2000

## TONGA

### Local Marine Biological Knowledge and Management Practices in Hihifo Village, Ha'apai, Kingdom of Tonga

by Nola Tonga, Milika Naqasima-Sobey and Norman Quinn  
School of Pure and Applied Sciences  
The University of the South Pacific, Suva, Fiji

#### Abstract

This study is a preliminary documentation of the local marine knowledge and subsistence fishing practices of fishers in Hihifo village on Lifuka, the largest island in the Ha'apai group in the Kingdom of Tonga. Interviews with villagers and direct participation in fishing activities were methods used to obtain information. The villages still follow many traditional practices and retain a rich natural history knowledge of the movements and behaviour of many species of fish. Many of the present fishing practices do not conform to the rules and regulations set by the Fishing Department.

#### Introduction

The Kingdom of Tonga is located between latitude 15° S and 23° S and longitude 173° W and 177° W. The country consists of three main island groups: Tongatapu, Eua, Ha'apai and Vava'u. The Ha'apai island group is the geographical center

of the Kingdom's three major groups. Most of the ~ 50 islands are low lying small coral islands with the exception being the volcanic islands of Tofua and Kao.

Lifuka is the largest island in the Ha'apai group and has a population of ~ 1000 people. Pangai is the

administrative center with various government offices. Hihifo is a typical village on the island. Most of the people on the island are subsistence farmers and fishers with any surplus catch sold. About 85% of fish sold in the Tongan capital city of Tongatapu come from the outer islands (S Latu, pers. comm). Only women fish in the inshore tidal flats at low tide where they glean for shellfish, sea cucumbers and reef fishes. At other times they are either engaged in household duties or are weaving mats. Men obtain much of their income from the plantation.

There are four outer island family groups in Hihifo. The people in these groups catch and smoke fish and octopus for sale to meet their living expenses. There are 14 small boats with outboard engines and four gill nets in Hihifo.

This study is preliminary work and does not represent a complete documentation of all the fishing practices and local knowledge of the village.

## Methods

The senior author (N.T.) grew up in Hihifo village and relies on her knowledge as the basis for the information presented. This was supplemented and verified by interviews and personal observations made during December 1996 and January 1997 by N.T. and M.N-S.

### Fishing Methods

#### 1. Hand casting (*sili*)

This technique is only done by men. It involves tossing a weighted nylon net into the water. The nylon net is woven by the fishermen so he decides on the mesh size. The usual mesh size is 1.5-2.5 inch. The best time for fishing is when the tide is going out or low either during the day or the night. During moonless nights it is believed that the fish come close to land and the fishing is best. It's also done in deeper lagoonal waters from a boat or a dugout. There is no special house or place to keep the net, it can be left in the boat for next time.

When *sili* is done near the land it is used to catch bait fish. When it is done off shore the purpose is to catch fish for eating. About 5 kg of fish is the average caught by one man for food and 1 or 2 kg of bait fish. The bait used is for hand line fishing. They target goat fish, convict surgeon fish and *Scarus* sp.

#### 2. Gill net fishing (*kupenga*)

The use of the gill net involves at least six men. The *kupenga* is no longer made of traditional fibre but of

nylon because of it is more durable. The net has four different mesh sizes ranging from the 4" at the top to 3", 2.5" and 2" at the bottom. This gives a greater efficiency to catch different fish sizes at one time. The net is set at low tide and hauled at high tide. If the tide is low at night they will haul the net the next morning. There are uninhabited islands such as Uoleva and Nukupuleset set aside for gill net fishing for special occasions.

When the catch from the gill net is not good it is left for the families meal. If there is a lot caught then it is sold. In most cases they go out fishing to sell catches around 50 to 60 kg. When the sea is rough they stay in the inshore areas and when the weather is good they go out into the deep. They avoid rocky places because it will tear the net. The target species are goatfish, long tom and rabbit fish.

#### 3. Hand line fishing (*taumatau*)

This method is done in the deep ocean from a boat or dugout using nylon lines and modern steel hooks. The size of the line and hooks vary depending on the target species. Larger fish found in deeper water would require thicker lines and larger hooks. During certain seasons large quantities of big fish (TL > 35 cm) are caught in deeper waters using a line with 7 or 8 hooks tied 25 cm apart. There is no social restrictions when this technique can be done. Long tom (*otule*), tuna (*valu*) and other small fishes caught using the *sili* are used for bait.

Hand line aims for subsistence use only. In most cases only one person goes out with ice blocks to preserve his catch. The time he spends in fishing depends on the amount of ice he takes. If he has a good storage container he stays overnight. An average of 10 to 15 kg is caught, mainly snapper (*palu*), grouper (*ngatala*), dogtooth tuna (*valu*) and emperor fish (*fangamea*).

#### 4. Wading for Cephalopods (*a'a feke*)

Wading on the reef at low tide for cuttlefish or octopus is done by a group of women who specialise in this fishing practice, called *a'a feke*. *A'a feke* is only done from March to August and from September to February during the breeding months. The fisher carries her small basket woven out of coconut leaves on her back and holds an iron rod sharpened on one end. The best time is when low tide is in the morning. At that time the cuttle fish come out from their place among the coral (*pae*) and are easily spotted. In the middle of the day they are better camouflaged. The fishers are very observant and can tell if preferred hiding locations have been disturbed (*maesiesi*) and that a cuttle-fish is probably in the area. Once she spots the cuttlefish she

uses her sharp point to spear it. No fishing is done when the tide is low during midday because it is believed that not a lot will be found. This is called *tahi tu'unga'a*. If a white one is observed it is considered to be a sign of rain.

#### 5. Catching rabbit fish (ta o)

*Ta o* is community fishing which is done by anybody in the village including children. It is done in December and January. Traditionally a long fishing net (*au*) was made of rope and the stem of the *valai*. Several stems were twisted together to form a strong twine. Coconut leaves were then twisted around the rope. Traditional fibres are no longer used because it takes too much time. The middle of the rope was left open for the scoop net (*talaki*) which had a 3/4" mesh. Once you come back from *ta o* the net has to be rinsed and dried.

*Ta o* targets juvenile *Siganus* spp. In one fishing effort about 30–35 kg is caught. This is never sold at any time. The whole community joins in to provide for their meals and some people do it for fun of catching a lot in a short time. Those that cannot join in are still given a share and the whole village eats fresh fish. There are about five family groups with their own *au*.

The best time to fish is when the tide is going out or coming in either during the day or night. *Siganus* spp. (rabbit fish) are schooling fish). Several people go out looking for a school while the rest follow with the *au*. The leader holds the scoop net (*talaki*) and walks in the middle of the *au* while two people hold the two ends of the rope ready to pull it around a school of fish. Once they encircle the school the leader selects a good spot to hold the net down. Snorkelers then enter the circle and chase the fish into the scoop net while others splash the water to keep the fish in. There is much shouting and screaming.

When the weather is hot and breadfruit trees are bearing a lot of fruit it is believed that there is plenty of *Siganus spinus* and it is a good time to go *ta o* fishing. There is also a belief that the first group that does the *ta o* has to share all they catch. If they don't then the fish will go away. The first catch of the season must be given to the priest in every church and to the king's representative if he is in the village. It is believed that failure to do this will result in diminished future catches.

#### 6. Sea shell collecting (hoka fingota)

*Hoka fingota* is done by knowledgeable women only at low tide during the day all year round. Not every woman is good at *hoka fingota* and *a'a feke*.

There are only a few women that are known for their knowledge and skill at this technique. These women use a long (1 m) sharp iron to poke the sandy substrate. Their ears can differentiate between the sound of a rock from that of shellfish. Target shellfish include *Codakia tigrina* (*tu'ulalo*), *Andara* sp. (*kaloa'a*), and *Fimbria fimbriata* (*tava'amanu*). Women commonly collect about 12 kg of clams per trip. These clams make one of the favourite dishes at feasts. Clams are never stored in refrigerators. Any surplus catch is given away to family or the neighbours.

#### 7. Sea eel trap (tauhele ioke)

Sea eel trap fishing is done by younger boys and older men that are too old to go out fishing. It is done at low tide only. A 35 cm long string is made from two twisted fibers of *fau* (*Hibiscus tiliaceus*). It is then tied to a stick about 50 cm long. One end of the string forms a loop where the head of the eel is trapped and the other end is left free to tie the bait. These eels stay under coral rocks (*punga*). Pieces of crushed food are thrown on top of the *punga* to attract the eels.

The bait used is fish which is also tied to the free end of the string. When the eels come out the fisher then puts the bait down for the eel to eat while he tries to put the loop around its head. Once the head is in the loop the fisher tightens the string. When the sea is rough the fishers chew coconut and throw it into the sea making it calm and easier to see the eels. Boys commonly catch 4 to 5 kg of sea eels per trip. This fishing is done only if there is nothing else for the family to eat.

#### 8. Venus shell collecting (fa to'o)

This is a young girls' fishing practice and involves gleaning the reef at daytime low tides for sea shells. No gear is used. The girls learn which place to get different seashells. Shells found in sea grass meadows are different from those found among corals. By touching the sand she can tell if there is a lot of shell in that area. If the sand is soft and is covered with seagrass one finds a lot. If the sand is hard, few are found. At low tide there is commonly 8 or 9 women out fishing. *Fa to'o* is done almost everyday except Sunday. A lady can catch 8 kg of tumid venus (*to'o*), sea mussel (*kuku*), triton (*kele'a*), holothurian (*muli'one*, *ngou'a*), and clam (*kaloa'a*) for their daily meals. The length of the low tide determines the time spent in fishing.

#### 9. Parrot fish fishing (ta'ufu)

Catching *Leptoscarus vaigiensis* (*'ufu*) is done mainly by young boys at low tide both during the day

and night. No gear is used except for a cane knife and a rope to hold the catch. It looks easy but one has to be very fast and with good eyes to spot the fish in the sea grass. This method is used almost everyday and typically catches 5 to 6 kg of parrot-fish ('*ufu*).

## Discussion

For years people have viewed the ocean as a limitless source of food. Consequently, there are no restrictions on the fishing ground. It is open to anyone to take as much as they can. Presently the population is increasing so the demand is rising and there are areas that are overexploited. It is easy to access fishing grounds because the reef is close to land and is fished almost everyday.

Almost all the people of Hihifo are subsistence fishermen or women. Since one or two people in a household have a job, the lack of money is not a serious concern, so people fish mainly for their food requirements. Family ties are still very strong and money is sent from families overseas which is used to pay off any loans and school fees. Villagers do not commonly rely on the sea for money but on the sales of their woven mats. These mats are sold to Tongatapu or to friends living overseas. Only three or four men are engaged in commercial fishing using a *kupenga* (gill net). The fish are sold locally and in Tongatapu.

Women's fishing practices are distinct from men's fishing activities. Women only fish in inshore areas and do not go out in boats. In the local language there is no term for fisher women. *Hoka fingingota*, *a'a feke* and *fa to'o* are done by women only, but they join men in *ta o*. The rest of the methods mentioned are only done by men.

Local natural history knowledge helps increase catch rates. Those that are good at one fishing method know the best time and month for fishing. Gill net fishers know that from January to May the fish go to the deep to release eggs and from May to December they come closer to shore.

Knowledge of the wind direction and where it blows gives an indication on the time that is right to go out fishing. If the wind is blowing from the south shows the best time to catch octopus and if it's from the north nothing will be caught. The phase of the moon is also important for the fishers. Gill netting, hand casting and catching rabbit fish are only done when the moon rising to the full moon phase.

Everyone who goes fishing knows which fish are poisonous and which shellfish should not be taken.

Fish like puffer fish (*pe'e*), sardine ('*ulukau*), *Arothron manilensis* (*te'ete'e*) are poisonous and released if caught.

There are other fishes such as *fangamea* that are eaten in Hihifo, but are poisonous in other island and are not eaten by the people of Tofua. Sardine ('*ulukau*) is not eaten in Hihifo but is eaten in the villages of the Vava'u group. If someone is stung by a *nofu* they are rushed to the hospital and are treated with special leaves that will bring the poison out. Additionally when the *kaloa'a* is *momona* (containing a lot of fat) it is considered not safe to eat raw because it can be poisonous.

In almost all of the methods, the first catch using new gear has to be given to the priest or the *mehikitanga* (father's sisters) who has the highest rank in the family. This belief will bring good luck and their blessing to the fishermen and also the new gear.

People of Hihifo do not practice any management for their resources except for the observance of the Sabbath. The Fisheries Department does have regulations, but these are not observed.

Rules such as a seven month close season for catching turtles, prohibition of fish fences, banning for nets with less than a 2 inch mesh size and requirement that boat be registered are not observed. Even the use of fish poison is not allowed, but is still practiced. These rules are there but are very seldom enforced. The villagers believe that God provides for their needs and that they are free to take as much as they like. There is no real concern for the problem of overexploitation because mostly they do not commercially fish.

Even though the Fisheries Department is unable to enforce the regulations they try to educate and train people. About 95% of the fishermen who own an outboard engine have received training from the department (S. Latu, pers. comm). This is to encourage them to stay out fishing for two or three days to save petrol. They are also given free booklets on how to manage their engine.

## Acknowledgements

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**Table 1: Selected fish found in Hihifo**

English name	Tongan name	Scientific name
Barred garfish	<i>Hu'ila</i>	<i>Hemirhamphus far</i>
Bicolor parrotfish	<i>Hohomo</i>	<i>Cetoscarus bicolor</i>
Convict surgeonfish	<i>Manini</i>	<i>Acanthurus triostegus</i>
Darkfinned barracuda	<i>Momotu</i>	<i>Sphyraena qenie</i>
Dogtooth tuna	<i>Valu</i>	<i>Gymnosarda unicolor</i>
Emperor fish	<i>Fangamea</i>	<i>Lethrinus sp.</i>
Goatfish	<i>Vete</i>	<i>Mulloidichthys vanicolensis</i>
Grouper	<i>Ngatala</i>	<i>Epinephelus sp.</i>
Horse mackerel	<i>'Otule</i>	<i>Selar sp.</i>
Long tom	<i>Haku</i>	<i>Tylosurus crocodilus</i>
Mullet	<i>Unomoa</i>	<i>Liza macrolepis</i>
Parrotfish	<i>'Ufu</i>	<i>Leptoscarus vaigiensis</i>
Parrotfish	<i>Pose</i>	<i>Scarus sp.</i>
Pufferfish	<i>Te'ete'e</i>	<i>Arothron manilensis</i>
Pufferfish	<i>Pe'e</i>	<i>Lagocephelus sp.</i>
Rabbit fish	<i>Ma'ava</i>	<i>Siganus argenteus</i>
Spinefoot rabbit fish	<i>O</i>	<i>Siganus spinus</i>
Snapper	<i>Palu</i>	<i>Etelis coruscans</i>
Surgeonfish	<i>Pone</i>	<i>Acanthurus sp.</i>
Sardine	<i>'Ulukau</i>	<i>Sardinella sp.</i>
Stonefish	<i>Nofu</i>	<i>Synanceia verrucosus</i>

**Table 2: Selected shellfish found in Hihifo**

English name	Tongan name	Scientific name
Basket lucina	<i>Tava'amanu</i>	<i>Fimbria fimbriata</i>
Clams	<i>Kalao'a</i>	<i>Andara sp.</i>
Lucina clam	<i>Tu'ulalo</i>	<i>Codakia tigerina</i>
Pearl oyster	<i>Tofe</i>	<i>Pinctada margaritifera</i>
Sea mussel	<i>Kuku</i>	<i>Modiolus philippinarum</i>
Spider conches	<i>Angaanga</i>	<i>Lambis sp.</i>
Topshells	<i>Takaniko</i>	F. Trochidae
Triton	<i>Kele'a</i>	<i>Charonia tritonis</i>
Tumid venus	<i>To'o</i>	<i>Gafrarium tumidum</i>
Turban snail	<i>'Elili</i>	<i>Turbo sp.</i>
Turban shell	<i>Topulangi</i>	<i>Turbo chrysostomus</i>

the Tonga family is recognized for their support and encouragement. Kaufusi Vungamoeahi, was particularly helpful in being a source of ideas and contacts. Malo aupito. We would like to acknowledge the support of the University of the South Pacific Research Committee (grant # 6291-1311-70766-15).

**Source:** Reprinted from Fisheries and Marine Resources. Papers presented at Symposium 8, VIIIth Pacific Science Inter-Congress. The University of the South Pacific, Fiji. 13–19 July, 1997. Convenor: Professor Robin South. Editors: Johnson Seeto and Nanise Bulai. 166–174.

## Commercial fishing in Tonga

The March 2000 issue of *Islands Business* includes an article on fisheries in Tonga, profiling in particular Tricia Emberson who, with her partner Bill Holden, owns Alatini Fisheries. Alatini began with bottom fishing for snapper but is now moving more towards catching tuna. They run five boats and plan to have three more boats in the 60–80 foot class built in New Zealand over the next three years. Tricia Emberson obtained a Master's of Business Administration by correspondence while running Alatini. She runs all aspects of the business after the fish are landed.

*Islands Business* also talked with the Director of Fisheries in Tonga, 'Aka'ola. The Fisheries Department there is praised as being one of the most "vigorous, high morale departments of Tonga's government" and much of the credit goes to its director. The department is presently engaged in writing management plans for various sectors of the fishing industry with help from the Forum Fisheries Agency, the Pacific Community (SPC), Australia, and other contributors.

**Source:** *Island Business*, March 2000

## FEDERATED STATES OF MICRONESIA

### How to catch more fish

There are many beliefs worldwide concerning fishing—how to increase your success with fishing or how to avoid bad luck while fishing—and Pohnpei is no exception.

Pohnpeians, especially the older people, believe there are women who know special chants to call fish to them. Women who know chants apparently never come back empty-handed.

But there is a downside to this method of catching more fish and some women are reluctant to pass on the chants to their daughters and granddaughters because of it. According to the old belief, fish called to the net or line with the chant will spoil more quickly than those caught by normal methods.

Both men and women in Pohnpei believe you should not eat chicken, or any type of bird, the

night before or the day of going fishing. To eat it will cause the fish to swim away from you. Other means of avoiding bad luck with the fishing are:

- not sleeping with your partner;
- not talking about going fishing beforehand; and
- not wishing someone good luck or otherwise drawing attention to the fact that they are going fishing.

Mothers shouldn't eat tuna or turtle when breast-feeding as this can give the baby a fever – turtle being especially dangerous and able to kill the baby.

**Source:** An Assessment of the Role of Women in Fisheries in Pohnpei, Federated States of Micronesia. L. Lambeth, 2000, SPC.

### Japan and FSM sign economic agreement

An exchange of notes between Japan and the FSM to begin the second phase of the Teketik Fishing Port in Pohnpei project was signed in Palikir June 9. The agreement will result in a grant from Japan of almost \$4 million and will be made available during the period between now and March 31, 2001, unless the period is extended upon mutual agreement. The grant will be used by the FSM to purchase products from Japan or the FSM and the

services of Japanese or Micronesians, as necessary, for improving the quay and other related facilities at the port. This will include purchasing services necessary for the transportation of required project products to the FSM.

Upon signing, Secretary of Foreign Affairs Epel Ilon noted that "the Japanese government has made a significant contribution to our (FSM) devel-

opment over the years and continues to do so. Signing the document for the Japanese government was Chargé d’Affaires Shigeatsu Nakajima and, for the FSM, Secretary of Foreign Affairs Epel Ilon.

**Source:** PALIKIR, Pohnpei, Federated States of Micronesia (14 June 2000 – FSM Information Service)



Lyn Lambeth

**Pohnpei, in the Federated States of Micronesia, is the home of Nan Madol, the mysterious ruins of a city built with huge basalt pillars.**

More information on Nan Madol can be found at <http://pats.edu/nanmadol.htm>

## NAURU

### Fish smoking business started after training

Ebelina Tsiode of Nauru has started a small, home-based fish smoking business for the local market – most of the product is used for various parties and functions on the island. Ebelina attended the first SPC Women in Fisheries workshop in Nauru in 1998 and went on to do a course in fisheries enterprise management for Pacific Island women held in Nelson, New Zealand. This regional course was organised by the SPC Fisheries Training Section and implemented by the Nelson School of Fisheries.

Fish smoking was a popular part of the 1998 Women in Fisheries workshop in Nauru. The women invented their own recipe that Ebelina is now using in her small business – smoked, stuffed milkfish. This was based on a recipe for stuffed milkfish from the Philippines. No one had thought

to smoke the stuffed fish before and it turned out to be the most popular dish!

Ebelina cooks other seafood dishes for parties including fish cakes and creamy crab. She hopes to expand the business by making fish sausages, fish jerky and other seafood products and meals.

Ebelina works at the recently constructed Nauru fish market and is able to buy her fresh tuna and snapper for smoking from there. She assisted at a recent workshop run by the Nauru Women’s Fisheries Officer, Lara Atto of the Nauru Fisheries and Marine Resources Authority. The workshop was attended by 9 women and covered harvesting, processing and cooking seafood.

**Source:** E. Tsiode, pers. comm.

## NEW ZEALAND

### Second regional course on seafood enterprise operations and management for Pacific Island women to be held in November/December

Following recommendations made at the 25th Regional Technical Meeting on Fisheries, the SPC Fisheries Training Section has been implementing organisational and enterprise management training for the Pacific region. In collaboration with the New Zealand School of Fisheries in Nelson, six regional courses for enterprise managers and commercial fishing skippers have been held.

One of these courses, the first SPC regional course for Pacific Island women on seafood business operations was held in Nelson, New Zealand in 1999. This was the first of the Fisheries Training Section's regional courses to specifically target women and was very successful in upgrading the skills and experience of 13 women involved in fisheries enterprises. For most women it was their first opportunity for training.

A second enterprise management course for women is planned for November 6 to December 1, 2000. The overall objective of the course is to: *provide Pacific Island women who are involved in the operation and management of a large seafood enterprise, with a unique learning experience which will upgrade their technical skills and assist them to develop strategies for enhancing the commercial viability of their enterprise.*

The two main subject areas to be covered during the course will be seafood technology and seafood business.

Seafood technology will include seafood quality and handling; seafood spoilage; hygiene, sanitation and food safety (including HACCP); seafood legislation; seafood products, processes and technologies; product development and improvement; factory visits; practicals in the laboratory. Seafood business will include staff performance management; accounting and financial reporting; budgeting and business planning; marketing.

If necessary, the course content can be altered at short notice to take into account participants' specific training needs. The women selected to attend will either be those currently responsible for the management of some aspects of a large seafood enterprise or those willing to develop or consolidate a career in commercial seafood production or processing. Provided funding can be secured, a regional course that targets small-scale seafood business will be conducted in 2001.

Enquiries for further information should be addressed to:

Michel Blanc  
Fisheries Training Adviser  
Secretariat of the Pacific Community  
BP D5, 98848 Noumea Cedex  
New Caledonia  
Tel: +687 262000  
Fax: +687 263818  
E-mail: MichelBl@spc.int





# WHAT'S HAPPENING

## OUTSIDE THE REGION



### GENERAL

#### Sustainable development and social well-being: which approach for fish trade?

The April 2000 issue of *Bridges Between Trade and Sustainable Development*, contains an article on eco-labelled and fairly-traded fish, written by Sebastian Mathew, Executive Secretary of the International Collective in Support of Fishworkers (ICSF). The article explores the implications for developing countries of consumer-oriented fisheries programmes such as those implemented by the Marine Stewardship Council (MSC), and the German Fair Trade initiative, Fairly-traded Fish and Seafood. The MSC, a joint initiative of the World Wide Fund for Nature and the multinational company, Unilever, designs and implements market-driven incentives aimed at encouraging sustainable fishing. The Fairly-traded Fish and Seafood initiative aims to improve the living and working conditions of marine artisanal fishworkers.

The article raises a number of concerns over the implications of the MSC certification process for artisanal and small-scale fisheries in developing countries. Concerns raised in 1998 by ICSF included the lack of consultation with fishworker organisations from developing countries in designing the accreditation programme; the potential for the programme to limit market access for those with a lack of financial means to undertake the elaborate and expensive certification process; and the inability of fishery-wide certification to distinguish between responsible artisanal fishing methods and destructive fishing activities co-existing within the same fishery.

The first seafood products from MSC-certified fisheries were launched in March 2000 and include

herring from the UK Thames-Blackwater herring fishery and lobster from the West Australian rock lobster fishery. According to the article the “seafood firms that have endorsed the MSC seem to be interested in the MSC logo mainly to improve market access and their own public image.”

Unlike the MSC, the Fair Trade fisheries initiative is not a labelling scheme and does not require certification by third parties. The Fair Trade system works at establishing as direct a link as possible between marine artisanal fishworkers and Fair Trade buyers. It is based on a partnership arrangement between Fair Trade and marine fishworker associations in developing countries. The fishworker association must comply with four sets of criteria based on labour standards; fishing operations; nutritional, economic and social impacts; and ability to continue to meet local demand for seafood. Once the agreement is signed Fair Trade promotes the products of the partner amongst potential buyers who will pay the fishworker association a Fair Trade premium for each kilogram of raw fish. Fair Trade can withdraw from the programme if the sustainability of the fisheries resources under the arrangement is perceived to be under threat. The article reports that there are currently two such agreements: one with the Collectif National des Pêcheurs du Sénégal, and the other with the South Indian Federation of Fishermen Societies.

According to the article, the goal of MSC is to promote sustainable fishing while that of Fair Trade is to “improve living standards of those who are

already practicing responsible fishing in developing countries.” The article goes on to compare MSC and Fair Trade and asserts that the Fair Trade definition of what comprises sustainable fishing is more practical and something developing countries can comply with. However, the Fair Trade initiative is less clear than the MSC scheme on the programme’s potential benefits to the seafood import industry.

The article concludes that in the light of growing interest in linking environment and labour standards to international trade, developments in eco-labelled and fairly-traded fish could be seen as an opportunity as well as a matter of concern. The author urges national fisheries authorities, fish-worker organisations and the scientific community to work together in developing realistic and practical sustainability criteria and workable management mechanisms.

**Source:** The full text of this article can be found in the monthly review, *Bridges Between Trade and Sustainable Development*, Year 4, No. 3. April 2000. International Centre for Trade and Development.

International Environment House  
13 chemin des Anémones  
1219 Châtelaine  
Geneva, Switzerland  
Phone: (41-22) 917-8492  
Fax: (41-22) 917-8093  
E-mail: ictsd@ictsd.ch

The monthly review in English, Spanish, French and German can also be downloaded in pdf format from the ICTD website:

<http://www.ictsd.org>

## ICLARM headquarters relocated

**Malaysia** – The headquarters of the International Centre for Living Aquatic Resources Management (ICLARM) has moved from Makati, the Philippines, to Pulau Pinang (Penang), Malaysia. During the signing ceremony to formalise the relocation, Malaysia’s Agriculture Minister said that the establishment of the Centre in the country was a major achievement and would go a long way towards helping the development of the domestic fisheries sector. He also said that although

ICLARM was self-financing, the government would “ensure that the Centre would be given every facility to enable it to continue its impressive work since its incorporation as a research organisation in March 1977”. The World Bank, through the Consultative Group on International Agriculture Research (CGIAR) has committed funds of US\$ 2.5 million for the setting up of the headquarters.

**Source:** INFOFISH *International* 2/2000

## Putting men onto the gender agenda

by Sylvia Chant

Will gender and development efforts fail because they exclude men? Will involving men help women’s empowerment? If so, how best to include men in gender and development work?

London School of Economics research examines the negative consequences of women-only development initiatives and suggests strategies for change. Ignoring men can push them to sabotage projects and can entail greater workloads for women. Positive strategies to include men could have a beneficial impact on development projects for women and increase their chances of success. The study suggests that including men could also encourage them to take responsibility for more equal gender relations.

Interest in men and gender and development (GAD) work has increased in recent years. Three decades old, GAD is now beginning to question the ‘women-only’ approach. Men the world over are going through a ‘crisis of masculinity’ and, in some countries, are experiencing higher levels of violence and unemployment than women. Yet, how should men be included in gender planning when so few practical, concrete guidelines exist? Analysing first the negative consequences of excluding men from GAD, the findings suggested that:

- Much GAD work is based on stereotypes: men are seen as universally bad and women as universally good.

- Excluding men gives them little chance to challenge these stereotypes.
- Excluding men can increase hostility between men and women and can cause men to sabotage or block efforts to improve women's lives.
- Projects that target women alone can lead to greater workloads for women.
- Lack of male involvement can mean that women's 'empowerment' projects have little impact: teaching women about 'rights' is ineffectual if they cannot exercise these rights at home.
- Acting as if men are irrelevant can impose impossible demands on women: HIV programmes, for example, often assume that women are able control their own bodies.
- Encouraging men to invest time and energy in changing gender relations is critical to achieving real gender equality.
- Active efforts to engage men in gender projects could help men take on greater responsibility for change.
- Male staff are brought into gender-related development work so that men are given the chance to listen to and communicate with each other.
- Including men may lead to more resources for gender and development work
- A rights-based strategy may be effective in getting men to take on board gender issues.

Men are also experiencing the negative effects of rigid gender ideologies which may well ease efforts to help men get involved. Strategies to increase male participation and responsibility include suggestions that:

**Source:** 'From 'Woman-Blind' to 'Man-Kind': Should Men Have More Space in Gender and Development?' IDS Bulletin June 2000. The Institute of Development Studies (IDS) Bulletin and other publications can be found online at <http://www.ids.susx.ac.uk/ids/>

## ASIA

### Women for aquaculture or aquaculture for women?

*by Malene Felsing, Cecile Brugere, Kyoko Kusakabe & Govind Kelkar*

*As aquaculture becomes more intensive and commercial in nature, the role of women in the sector has often been adversely affected. An interesting study looks at the issues involved so as to identify ways to alleviate the problem.*

Traditionally, aquaculture in Southeast Asia has been carried out at the household level with family members often contributing to different activities at specific times. In recent years, aquaculture has intensified and commercial aquaculture, located in easily accessible peri-urban areas with access to inputs and markets, has increased. Improvements in breeding and husbandry technologies, as well as the introduction of new or modified species, mainly through government and non-governmental organisation (NGO) intervention, also helped to increase production levels in small-scale rural aquaculture.

The 'technologicalisation' and intensification of production has often led to a decrease in the participation of women. Even in the areas where aquaculture is promoted as a novel supplementary or alternative livelihood strategy, women are commonly excluded from management and decision-making. Most extension efforts are directed at men.

#### Why women?

The economic importance of women's work is increasingly acknowledged. Since the 1980s, some have argued that neglecting women's needs and roles results in inefficient development. Studies have shown that there is a close link between women's education and the well-being of their children. A World Bank report pointed out that this is even more so when women are in control of intra-household resource use. Research has also demonstrated that poverty reduction and development efforts are most sustainable (both economically and environmentally) if women and men are consulted and participate equally in management and decision-making. Not surprisingly, development agencies increasingly aim to implement and agenda of gender equality in their projects, especially in agriculture and forestry. The gender differentiation in benefits from aquaculture development has, however, received little

attention, with the exception of some recent initiatives highlighting the role of women in fisheries.

### Diversity of gender roles

The role of women in aquaculture in Southeast Asia cannot be generalised as cultural traditions and local customs play a vital role in determining to what extent women are involved in, or are in control of, aquatic resources. In many Asian cultures, men traditionally have a role that includes decision-making, providing for the family and dealing with the outside world, whereas women are responsible for nurturing and maintaining the family.

Women have a larger involvement in aquaculture when it is for home consumption, rather than commercial. Their participation in aquatic production generally decreases with increasing intensification. This is more so because men deal with operation, control and maintenance of technological equipment and women are generally excluded from this development. As aquaculture becomes more market-oriented and commercialised, there is a corresponding significant decline in women's aquaculture activities and control over resources, including financial capital. For example, in intensive finfish cage or shrimp culture, two of the biggest aquaculture businesses in Southeast Asia, women's involvement is largely limited to that of factory workers in processing plants.

Women are generally involved in the management of aquaculture in small water bodies such as backyard ponds, but not in large water bodies, *eg* lakes, reservoirs and along the coast. The gender division of labour in this different water bodies seems to have connections with the gender division of labour in fisheries. In many places, fish harvesting is generally carried out by men. For example in the Philippines, the cultural belief that women bring bad luck to boats effectively restricts their involvement in fishing and most mariculture. On the other hand, in small-scale inland aquaculture, women are reasonably active.

In Southeast Asian countries such as Malaysia and Thailand, women are generally engaged in the marketing and processing of fish. This is different from Southeast Asian countries such as Bangladesh where the *purdah* tradition restricts women's movement. Hence their involvement is often confined to small-scale home processing and feeding of the fish if the pond is located within the homestead. In many areas of Bangladesh



Malene Feising

**A lady cage operator in Thailand repairs her cage net**

and India, it is culturally unacceptable for women to harvest fish, whereas in Vietnam and China, women can be involved in all aspects of fish production. In Bali, women are active in fish marketing, but in South Sulawesi, men control marketing completely and women are only involved in small-scale fish processing.

Unlike middle-class households, women from marginal and poorer households and widows cannot afford to follow traditions and culturally imposed restrictions on women's mobility. Hence they are involved in a wider range of activities. In areas where seasonal migration takes men away to the cities, the abundance of female-headed households necessitates women's involvement in all aspects of crop and fish production. Such women face the 'double burden' of having to contribute substantially to income or food generating activities, while still being wholly responsible for the care of the family. On the other hand, a handful of more charismatic women have also managed to turn this situation to their advantage on their own initiative by starting up commercially-oriented aquaculture operations, *eg* backyard shrimp hatcheries on the southern coast of Sumatra, or finfish farming on the east coast of Malaysia.

### Information and extension

Many factors contribute to the restriction of women's access to information. Presently, extension is organised on the assumption that the family is an altruistic institution and there is an unrestricted flow of information for the benefit of all concerned members. Extension efforts tend to be directed solely at male members of the community. Extension agencies generally regard men as the heads of households or find it easier and faster to teach men. Further, childcare and other household



Cecile Brugere

**A lady shrimp hatchery manager in Sumatra, Indonesia, displays her production**

duties often prevent women from attending meetings, and cultural factors may inhibit them from leaving home or the local area for training courses. In most South and some Southeast Asian countries, the female literacy rate is much lower than that of men, further limiting the access of women to extension and training materials.

NGOs and research institutions have tried various approaches to aim aquaculture extension messages at women. In Northeast Thailand, the AIT Aquaculture Outreach Program made a conscious effort to target children, in the hope that they could then impart their knowledge to their illiterate parents. In the same project, aquaculture extension posters and leaflets were positioned in community health centres in an attempt to reach women. In Bangladesh, the CARE CAGES (Cage Aquaculture for Greater Economic Security) project has successfully targeted landless women for their participation in cage culture in common property water resources.

Most government aquaculture extension agencies are less gender sensitive, and make no particular

effort to reach women. However, there are exceptions – amongst them the Department for Environmental and Natural Resources (DENR) in the Philippines which obliges staff to carry out a gender analysis, taking into consideration how best to target the different members of the household, prior to the start of any project.

Unfortunately, only a small proportion of the Philippine aquaculture extension is done by DENR, as most of it is undertaken by the Bureau for Aquatic Resources (BFAR), an institution that pays as little attention to gender issues as the Thai Department of Fisheries. This differential highlights the problems generated by diverging development agenda between institutions of the same government and the need to develop common goals.

One of the constraints in reaching women in aquaculture extension is the shortage of women extension workers. Within aquaculture and other 'technical' areas, the number of women extension workers is generally much lower than in areas such as health and child care. In countries such as Bangladesh and India, religio-cultural norms, *pardah* and women's restricted mobility limit the interaction between male extension workers and a woman fisher.

### Access to resources

In order to support women's participation in aquaculture, effective access to credit is important. Women generally have limited access to formal credit as compared to men, largely because they rarely own property, which can be used as collateral. Further, they have lower literacy, less exposure to official institutions, and are victims of bank managers' prejudice, while an effective access to credit and socio-cultural support makes it relatively easy for men to start small and large-scale commercial activities. Access to large water bodies such as lakes, reservoirs and rivers are another issues to take into consideration. Women are disadvantaged in gaining access to these water bodies because it requires contact and connection with local official structures, which are highly male-dominated. The distance of these water bodies from the homestead also prevents women from attending to aquaculture activities frequently.

### Participation, decision-making and avenues for change

Women do play a considerable role and make substantial contributions to aquaculture. But can aquaculture considerably enrich the livelihoods of women while making a difference in their position within society?

A higher level of participation concerns women's involvement in decision-making and management. Women have some control over household finances in countries like Thailand and the Philippines, but male family members are the major decision-makers for large investments. Challenging traditional gender relations is often neglected or avoided in development projects because of the difficulties it entails, the conflicts it may generate within the household and the unpopularity of government policies that may result from it. However, the dimension of gender relations cannot be neglected if we aim to improve women's capability and increase food and other benefits to poor and marginal households through aquaculture.

To ensure better involvement of women in aquaculture development as well as improve the economic condition of women, the following aspects are to be considered:

A better understanding of the existing gender relations in the community and the household must be gained by institutions/organisations working for the development of aquaculture. Participatory technology development offers more scope to incorporate women's experiences.

Workshops and meetings should be organised to cultivate awareness on gender equality in the community and among people working for aquaculture development. Successful cases of women's involvement in aquaculture can be emphasised. For example, in Vietnam, it was reported that when women are able to attend training themselves, they are able to be the major decision-makers for aquaculture.

Integrated aquaculture with livestock and vegetables has been a successful model in terms of women's involvement. Since women are the ones who are the major caretakers of these activities, and have more control over the output from it, the development of such models has shown to have direct benefit to women.

In line with this, aquaculture training and extension efforts should be improved by taking a more holistic approach that encompasses women's time use, household responsibilities, literacy levels, as well as all aspects of their daily chores. This could be done, for example, by providing child-care services during training; by offering a community "one-stop shop" where women can gain all the necessary inputs in one place, and which reinforces women's informal networks within the community; by taking into consideration women's specific problem of mobility and providing "training on

wheels" that goes where the women are; by offering separate training for men and women to encourage their active participation, by recruiting female extension staff; and by involving women in technology development and technological designs to ensure that these are suited to women's needs and physical capacity in order to facilitate their activities in aquaculture.

Development of indicators to ensure that the involvement of women is monitored on a regular basis so that their activities or participation in aquaculture can be re-focused regularly.

Even though women are the ones who do the retail marketing of fish in many of the Southeast Asian countries, their information on market is very limited. A mechanism is necessary to expose women to more extensive market information and to link them to a wider market network.

However, one basic question still remains. Why do we want to involve women in aquaculture? Is it only to improve household income, or are we seriously aiming to improve their capabilities and socio-cultural and political status? What do we want women to be involved in? More lucrative but environmentally less sustainable aquaculture? Or subsistence aquaculture for food? Merely increasing the involvement of women without considering specific benefits to them and increased or equal control over resources may worsen the women's present social situation and also increase their work burden.

**Source:** INFOFISH *International* 3/2000

*Malene Felsing is a marine biologist working as a research assistant for the Institute of Aquaculture, University of Stirling, UK while Cecile Brugere is a socio-economist working as a research assistant for the same organisation. Kyoko Kusakabe and Govind Kelkar are assistant professor and associate professor, respectively, of Gender and Development Studies, Asian Institute of Technology, Thailand. This article is based on a joint Institute of Aquaculture – Asian Institute of Technology research study funded by the Asia-Pacific Economic Co-operation (APEC).*



## International experiences in community-based fisheries management – successes and pitfalls

by Masamichi Hotta  
Adviser, Tetra Co, Ltd., Tokyo, Japan

This article provides some examples from Japan's rich experiences in community-based fisheries management. It has been condensed from a presentation by the author at a seminar on "Smart partnerships for sustainability in the fishing industry", held in Penang, Malaysia, in November 1997.

Management of small-scale fisheries has become very critical during the past decade, and poses an extraordinary challenge both for local communities and governments. Unlike large-scale fisheries, small-scale fisheries at the national level is difficult to manage. Reasons:

- Limiting the effort of small-scale fishermen means lower incomes and fewer job opportunities for them.
- Doing away with the practice of free and open access to fishery resources, and imposing management curbs, often leads to serious economic and social problems for fishing communities. But if the open-access condition remains untouched, resources get depleted, economic returns fall, and community stability is endangered.

An FAO-Japan expert consultation on fisheries management was held in Kobe in 1992. It emphasized the need for bottom-up rather than top-down approaches to manage small-scale fisheries. Since then, numerous studies have been undertaken. There is now widespread acceptance of the concept that sharing of authority between a government and a community is important for effective fishery resource management. This concept is known as community-based fishery management or CBFM. Interest in decentralized management systems is now growing in Malaysia, Philippines, Sri Lanka, Thailand, Indonesia and Viet Nam.

The basic principles of CBFM are participation of fishermen in (a) planning and decision-making on measures to be taken; and (b) implementation, control, surveillance and evaluation of management activities.

### Why CBFM?

When fishermen themselves help design management, a high rate of compliance can be expected. There will be no need for external enforcement of regulations; consequently, the enforcement will be

both effective and cost-effective. Further, in a close-knit fishing community, social sanctions are far more effective than legal sanctions.

Key factors in the design of CBFM are — devolution of management authority to the community; establishment of territorial boundaries; and incentives and motivations to fishermen to set up local management systems.

### *Devolution of management authority to the community*

Adequate village-level fishermen's organizations are needed for the purpose. But governments are often handicapped by the dearth of such organisations. Even where such organisations do exist, they cannot immediately assume CBFM responsibilities in the absence of any experience or expertise in CBFM. Acquiring it is a gradual process. Fostering viable community-level organisations is the first step to CBFM.

The community-level organisations entrusted with fisheries management responsibility should be economically and socially viable. Else, fishermen will not trust the organization. In fact, such organisations should win fishermen's trust in their competence and capacity even before they get involved with resource management.

When fisheries management authority is delegated to fishermen, care should be taken to ensure a fairly equitable sharing and distribution of benefits among fishermen. "Fishing by rotation" is one way this objective can be achieved — fishing spots are rotated among fishermen so that all of them get to fish in the most fertile areas. A "pooling system" that distributes all fishing earnings in an area equally among fishermen of that area is another method. This is practised in Japan. In Sri Lanka, fishermen return some of their earned money to the community by donating cash or a social facility for the community.

Whether the local community can manage the fishery resource depends partly on government support. Some fishery administrators may be reluctant to relinquish authority and power. CBFM should be integrated into the national legal framework, because community-based organisations need legal recognition for their decisions to

be enforceable. They can regulate the behaviour of local fishermen through informal community sanctions, but they have no control over fishermen from other communities. If they are given legal authority, they will be able to enforce regulations on fishermen outside the community.

### ***Establishment of territorial boundaries***

Establishment of territorial boundaries in the area adjacent to the community is a basic element of CBFM. This is done, for example, in the traditional fisheries systems of Japan, the Philippines, Indonesia, Sri Lanka, Papua New Guinea, Solomon, Fiji etc.

The merit of demarcating waters for the exclusive use of fishermen is that it gives fishermen incentives to establish self-regulating systems – they own a wealth-producing property. Compliance is built on trust. Control over resources by fishermen would make a management regime feasible – they will be motivated to preserve their resource.

### ***Incentives to fishermen to establish local management systems***

Such incentives could be created through collective action in fishing and fish marketing. Development of co-operative marketing would be one such incentive. It would strengthen the bargaining power of fishermen. Co-operative marketing can be combined with management. For example, the local management authority can instruct fishermen on whether fishing should be carried out on that day, after studying market trends for fish. If prices are unfavourable, fishing trips would be cancelled.

In Japan, coastal fisheries resources are managed by some 1,200 fisheries co-operatives throughout the country. Each co-operative has its own by-laws within the framework of national fishery laws and fisheries co-operative laws. This legal system empowers co-operatives to exercise a fishery right or some kind of property right over resources within their jurisdiction. Access to territorial boundaries is limited to members of co-operatives. The co-operatives establish regulations concerning boats, gear, season, area, mesh size, marketing of fish etc.

Could the legal framework for decentralized fisheries management practised in Japan be a model for other countries? Thorough studies are needed to determine the answer. Very careful adaptation to local conditions would be necessary if Japan is indeed taken up as a model.

Fisheries research institutes in Japan play a very constructive role in fisheries management by alert-

ing fishermen about the state of resources. Smaller-sized fish, falling fish prices, lower incomes from fishing, greater fishing competition — all these are warning signals. Fishermen then take up management measures themselves.

In the past, fisheries management was taken up only during a crisis. Nowadays, fishermen are more careful, thanks to support from research institutes.

Coastal fisheries in Japan is classified into three types from the management standpoint — reef fisheries, mobile-species capture fisheries and aquaculture. Management methods for the three differ, and are classified into five by objectives:

- *Discipline and order in fishing grounds:* Management is designed to prevent a mad rush to fertile fishing spots such as artificial reefs. “Fishing by rotation” regulates the type of gear used, the fishing periods and hours, the position of the gear to be set.
- *Management of fishing grounds:* The carrying capacity of a fishing ground is limited. If you introduce more fishing boats, the total output will remain the same, while individual catches will decrease. Therefore the optimum number of fishing vessels is determined, and surplus vessels are transferred to other areas to improve cost-effectiveness.
- *Fish price stabilization:* Fish prices are stabilized by a policy of quotas and effort control. Two days of fishing followed by a non-fishing day is an example.
- *Resource conservation:* The use of larger mesh size has not merely helped conserve fish stocks, it has also improved returns by increasing the size of fish and raising the price of fish.
- *Enhancement of fish stocks:* Fish farming and the setting up of artificial reefs can help enhance fish stocks.

The common objective of these measures is to maximize economic returns under a sustainable fishery environment.

In sum, fisheries co-operatives in Japan play a vital role in CBFM. Their characteristics:

- All members of the co-operative assign sale of fish to the co-operative. This enables the co-op to understand and assess production trends and the status of management effort.
- Successful co-ops have a committee to ensure smooth coordination among fishermen on management measures. Such committees have helped mediate and monitor views among fishermen and establish a consensus on management action.



- Without exception, successful co-ops comprise an active study group of young fishermen who help generate new ideas. Practices such as the "pooling system" for catches and "rotation in fishing", now widely prevalent in Japan, were set up by such study groups with the help of fisheries research stations.

A law concerning conservation and management of marine aquatic resources, commonly known as the law of the TAC, came into effect in 1997. Sardine, jack mackerel, mackerel, saury, Alaska pollack and crab are the fish species to which TAC is applied. Continuing efforts will be made to integrate TAC systems into existing fisheries legislation and management mechanisms. The law of the TAC obliges fishermen to report their catches.

Issues to be taken up in future will include (a) Application of TAC to Chinese and Korean vessels that operate in the waters around Japan (b) estab-

lishment of a single management authority (c) setting up early catch reporting systems and (d) withdrawal of vessels.

About the Author: Dr Masamichi Hotta, formerly Senior Fisheries Planning Officer with the FAO headquarters in Rome, presently serves as Adviser to the Overseas Consulting Department of Tetra Co. Ltd., Tokyo, Japan.

**Source:** Bay of Bengal Programme

Dr. Kee-chai Chong  
Bay of Bengal Programme  
P.O. Box 1054  
91, St. Mary's road  
Abhiramapuram  
Madras 600 018  
INDIA

## INDIA

### Seaweed Industry in India

The January - March 1999 volume of *Naga*, the ICLARM Quarterly (Vol. # 22 No. 1) contains an article by P. Kaladharan and N. Kaliaperumal on the seaweed industry in India. According to the Abstract, "The seaweed industry in India is mainly a cottage industry and is based only on the natural stock of agar-yielding red seaweeds, such as *Gelidiella acerosa* and *Gracilaria edulis*, and algin-yielding brown seaweed species such as *Sargassum* and *Tubinaria*. India produces 110-132 t of dry agar annually utilizing about 880-1,100 t of dry agarophytes, and 360-540 t of algin from 3,600-5,400 t of dry alginophytes."

No attempts have been made to increase production by mariculture despite the great number of sheltered bays and lagoons suitable for mariculture. Nearly 1,200 people are involved in collecting and processing seaweed, 70 per cent of these women. Females outnumber males (70:30) in the harvesting of the seaweed from natural beds, while in the processing industry male and female workers are almost equal. A typical seaweed cottage industry unit consists of one skilled worker (always male) and 8 to 10 assistants, male and female. The skilled worker receives Rs. 1,200-1,500/month, other male workers receive Rs. 900-1,200/month and female workers Rs. 750-900/month (US\$1 = Rs. 40).

Problems in the seaweed industry include overexploitation leading to a scarcity of raw material; poor-quality raw material; labour shortage during the paddy harvesting and transplanting season; lack of technology to improve processed product quality; and a lack of information on new and alternative sources of raw materials.

**Source:** *Naga*, January - March 1999



# Books & PUBLICATIONS



## Fishing for women: understanding women's roles in the fishing industry

The major finding of a Bureau of Rural Sciences (BRS) study of women in the fishing industry reports that women perform 50 per cent of administrative tasks and contribute between 26 and 50 per cent of the family income and, while most respondents were satisfied with their role, 50 per cent want more recognition and status for their work.

The study forms part of a larger research project initiated by the Women's Industry Network (WIN), a South Australian-based non-governmental organisation for women in the fishing industry, and the Social Sciences Centre of the BRS. The research deals with women in the commercial fishing industry and covers wild catch fisheries and aquaculture. The research is based on the view that women's roles in the Australian fishing industry are poorly reflected in industry statistics, and women's contributions to industry output and productivity are not acknowledged.

In March 2000, WIN launched an Action Plan for women in the seafood industry. The Plan, *Empowering Fishing Women to Capitalise on Networks*, responds to findings in the BRS report and provides a national framework for women in the seafood industry to work from and set goals towards.

The BRS report – *Fishing for Women: Understanding Women's Roles in the Fishing Industry*, commissioned by WIN, is an important part of the Action Plan. It provides the preliminary research necessary to bet-

ter understand the role of women in the fishing industry. The report is designed to address an immediate need for information on the roles of women in the fishing industry and to assist women in developing those roles. In addition, a major aim of the study is to seek women's views about the value of networks and the services these networks need to provide. This is to help WIN to further its action plan and possibly provide a model for similar organisations to follow elsewhere in Australia. The report indicated that the main services wanted overall from networks were the provision of a forum to meet other industry women, and the promotion of industry-related training for women.

The full text of the BRS report by Heather J. Aslin, Trevor Webb and Melanie Fisher can be found online at: [http://www.brs.gov.au/social\\_sciences/fishwomen.pdf](http://www.brs.gov.au/social_sciences/fishwomen.pdf) (109 pages, pdf-503 kb. Acrobat Reader needed to download) OR Contact:

Melanie Fisher, Director  
Telephone: +61 2 6272 5600  
Mobile: +61 419 255 005  
Facsimile: +61 2 6272 4687  
E-mail: [socialsciencescentre@brs.gov.au](mailto:socialsciencescentre@brs.gov.au)

Postal Address:  
Social Sciences Centre  
Bureau of Rural Sciences  
PO Box E11  
Kingston ACT Australia 2604

## The subsistence fishery productivity and marine resource knowledge of resettled Polynesians from Tikopia Island, Solomon Islands

by Norman Quinn and Melchior Mataka

### Abstract

This study documents the fishing practices and local knowledge of marine resources of a group of Polynesian Tikopians who were resettled to Nukufero Village in the Russell Islands in the 1950s. Both the exploitation of the marine resources and cultural attitudes associated with the resource utilization in their new location are described. Technological advances like the use of monofilament lines, metal fish-hooks, and iron spears have been incorporated into the fishing practices. Marine organisms have provided food, materials for tools and utensils, weapons, ornaments, and

medicine for many generations for this society. With the introduction of commercial fishing there has been a gradual change in the perception of the utilization of marine resources. The people of Nukufero are presently reevaluating the values they place on their marine resources and considering ways that traditional approaches to the resource exploitation can be respected and yet development can proceed without damage to either cultural values or fish stocks.

*Micronesica* 32(1): 95-107, 1999

## E-mail conference on aquatic resources management for sustainable livelihoods of poor people

The UK Department for International Development (DFID) started an e-mail conference in June 2000 on aquatic resources management for sustainable livelihoods of poor people. The e-mail conference was organised by the DFID Aquatic Resources Management (ARM) Programme, Southeast Asia and included the participation of individuals, groups, international organisations, government and non-government organisations. The objective was "to provide a forum for professionals who have been involved in aquatic resources management in the context of poor peoples' livelihoods, to share experiences, reflect on approaches and contribute to their development." Discussions were organised around five key issues:

- Issue 1* : The role of aquatic resources in the livelihoods of poor people.
- Issue 2* : Evidence for the role of aquatic resources in poor peoples' livelihoods.
- Issue 3* : Technologies and processes that enhance poor peoples' management of aquatic resources.
- Issue 4* : Learning and communication processes, which enhance the capability of poor people to manage their resources.
- Issue 5* : Institution, organisations, policies and legislation that shape aquatic resources management for poor people.

E-mail conferencing is regarded as a rapid and cost-effective way to reach large, diverse groups of

persons with access to the Internet. The conference was promoted via direct e-mailing and hot links and intranet announcements from suitable collaborating organisations and websites including Department for International Development (DFID) Livelihoods Department, Network of Aquaculture Centres in Asia-Pacific (NACA), Food and Agriculture Organisation of the UN (FAO), International Centre for Living Aquatic Resources (ICLARM), International Institute for Rural Reconstruction (IIRR), the Asian Institute of Technology (AIT) and Newcastle University, Centre for Land use and Water Resources Research (CLUWRR) as well as New Agriculturalist on-line bulletin (WRENMedia) and the Agriculture Network Information Centre: Aquaculture Network Information Centre AQUANIC.

E-mail conference participants were self-selected and correspondence relevant to the conference themes from registered participants were posted on the website (in English only). After the online conference a secretariat comprising a range of specialists edited the proceedings during a two-day post-conference meeting to produce a published document, posted onto the website:

<http://naca.fisheries.go.th/dfid>

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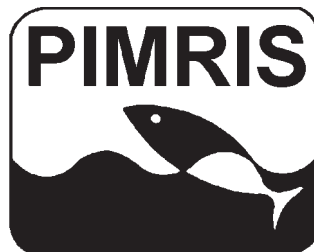
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Pacific Islands Marine Resources Information System

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.