



Secretariat of the Pacific Community

Women

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



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Introduction

Welcome to the tenth issue of the *Women in Fisheries* Special Interest Group Bulletin.

This issue reports on the activities of the Community Fisheries Section, and includes an article about the departure of Lyn Lambeth, SPC's Community Fisheries Officer and former coordinator of this bulletin. Section activities include a gender study for tuna management and development in Fiji Islands; participation in the global symposium on women in fisheries held in Kaohsiung, Taiwan in November 2001; a new community-based fisheries management programme in the Marshall Islands; and a New Zealand fisheries training course that specifically targets trainers of women engaged in small-scale, post-harvest fishing activities.

From the region, we have articles and news briefs covering a variety of topics, including an FAO study urging the promotion of sustainable fishing practices, a ban on phosphates designed to save coral reefs in CNMI, the presence of high levels of PCBs in fish from Guam, a ban on scuba fishing in American Samoa, women and sea turtle conservation in Palau, Australian native title and the sea, and more.

From outside the region we include a report on 'Where are the women in fisheries?', red tides in Kenyan waters, fisheries management in the Philippines, a workshop on HIV/AIDS for Malaysian fishing communities, and fishermen replanting mangroves in Malaysia.

I encourage you to submit contributions in the forms of articles, technical papers, or news briefs to future issues. Articles need

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not be strictly limited to women and fishing, but may also cover issues of concern to all members of the fishing community, including marine environmental or health concerns. I also encourage you to write in with comments and suggestions about the bulletin. These can be sent to:

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As the new coordinating editor for the *Women in Fisheries Bulletin* I hope these articles and news reports will be of interest to readers.

Kim Des Rochers

NEWS FROM THE

*Community
Fisheries
Section*



Staff changes - Departure of the Community Fisheries Officer

Lyn Lambeth, SPC's Community Fisheries Officer, left SPC in December after three and a quarter years of service.

During Lyn's assignment with SPC, she dealt with a variety of issues addressing the participation of women in small-scale fisheries. These included training women in sustainable fishing methods, conducting national workshops on seafood processing, coordinating the *Women in Fisheries* bulletin, and assisting in the preparation of training manuals with the University of the South Pacific.

Lyn also conducted a number of baseline studies, which assessed the role of women within fishing communities.



Lyn Lambeth, SPC's Community Fisheries Officer, left SPC after three and a quarter years of service.

She was part of the joint ForSec/FFA/SPC project that assisted in the development of national tuna management plans for certain countries.

Her contribution to the region and to the Community Fisheries Section was invaluable and she will be missed. With the departure of the Community Fisheries Officer and the uncertain future of this position at SPC, the Community Fisheries Section will find it difficult to meet its target outputs in future years.

SPC's Community Fisheries Section wishes Lyn success in her future endeavours.

Gender study for tuna management and development in Fiji Islands

The Forum Fisheries Agency is assisting the Fiji Islands government in the preparation of a national tuna development and management plan; the Canada-South Pacific Ocean Development Program is assisting with funding; and the Secretariat of the Pacific Community and the Pacific Islands Forum Secretariat are providing technical assistance. An integrated component of this tuna development plan includes a report on gender issues in the tuna industry, with proposed strategies to address negative gender impacts.

In November 2001, the Community Fisheries Officer (CFO) visited Fiji Islands to carry out fieldwork for a study on gender impacts related to the development of commercial tuna fisheries. The Community

Fisheries Section, in collaboration with the Pacific Islands Forum Secretariat, has carried out gender studies for tuna management plans for Solomon Islands, Palau and Vanuatu. The CFO was assisted in this work by the Pacific Islands Forum Secretariat Gender Issues Adviser, Margaret Leniston.

The rationale for considering social and gender issues in the preparation of a tuna industry management plan is to ensure that the benefits of any new industry initiatives are distributed as evenly as possible to all Fiji Islands citizens, and that potential costs are considered and addressed. Men and women of different ages and cultures, living in different geographic areas play different roles in Fiji Islands. They have different responsibilities for work

ACTIVITY	MEN'S ROLES	WOMEN'S ROLES	IMPLICATIONS/ ISSUES
Harvesting	Company and boat owners and managers (mainly non-Fijian) Business partners Captains and crew on local and foreign vessels Office and administrative staff Shore-based support staff (workshops, freezer workers, maintenance, etc.) Stevedores Artisanal and subsistence fishers Customary fishery owners receiving royalties for bait	Company and boat owners and managers (non-Fijian) Business partners Office and administrative staff	Occupational health and safety Labour regulations Worker awareness of labour rights Job and wage insecurity (contract crew) Lack of training for new recruits Social and health problems (alcohol abuse, HIV/AIDS and STDs, etc.) Family and community stability Costs and benefits of trading semi-subsistence quality of life/standard of living for formal employment Unequal distribution of wealth, lack of investment and employment opportunities for rural people and women Conflict with customary fishery owners over payment for bait fishing rights, and impact on inshore resources used by men and women
Processing	Company owners and managers Cannery and loining plant workers Support staff (cleaners, freezer workers, security, maintenance, etc.) Office and administrative staff	Company owners and managers Cannery and loining plant workers Support staff (cleaners, freezer workers, security, maintenance, etc.) Office and administrative staff	Occupational health and safety Labour regulations, labour reform Worker awareness of labour rights Lack of training and opportunities for promotion Social and health problems (alcohol abuse, HIV/AIDS and STDs etc.) Low pay for jobs predominantly done by women, & unequal pay for women Family and community stability Reproductive health of female workers Child welfare and health Multiple work loads of women Costs and benefits of trading semi-subsistence quality of life/standard of living for formal employment Unequal distribution of wealth, women's involvement restricted to low paid work
Marketing	Marketing fresh tuna Marketing non-export grade tuna and bycatch	Marketing fresh tuna Marketing non-export grade tuna and bycatch	Food safety Sustainable development Food security
Indirect activities	Private and public sector workers linked to fisheries Sex trade workers and procurers	Private and public sector workers linked to fisheries Sex trade workers and procurers	Lack of women involved in fisheries development and management at the decision-making level Risk of STDs and HIV/AIDS for sex workers and families Underage teens involved in sex trade Violence and exploitation Problems arising from the sex trade (health, protection from violence, etc.)

in the family, economic sector, and in the community. Sustainable development requires an understanding of men's and women's roles and responsibilities within the community, and an awareness of their complementary relations with each other.

Development benefits impact various sectors of society to different degrees, and these sectors include youth, men, women, elderly, Fijians Indians, and foreigners. As a group, women often receive the least number of benefits and suffer the most from negative effects.

The study found that, although women make up only three per cent of the people employed in the harvesting sector of the commercial tuna industry, they make up 64 per cent of those employed in the processing sector. In some processing companies, such as the Pacific Fishing Company Limited (PAFCO), 80 per cent of the staff are women. Some of the roles and subsequent implications are summarised in the table on the previous page.

Global symposium on women in fisheries, Kaohsiung, Taiwan

The Community Fisheries Officer visited Kaohsiung, Taiwan in November to attend a global symposium on women and fisheries. In 1998 the Asian Fisheries Society organised a seminar on Women in Asian Fisheries, coinciding with the 5th Asian Fisheries Forum in Chiang Mai, Thailand. One of the recommendations resulting from the seminar was to organise a global symposium on women in fisheries to discuss this issue at greater depth, and to create opportunities for sharing lessons between countries and regions. The Asian Fisheries Society organised the global symposium to coincide with the 6th Asian Fisheries Forum, in Taiwan. Comprehensive review papers from resource people around the globe — North

America, Latin America, Europe, Africa, Asia and Oceania — were prepared.



Meryl Williams, Director-General of ICLARM

The Community Fisheries Section was requested to coordinate input from key resource people in Oceania, and to present the findings at the symposium. This was a good opportunity to pull together information on women in fisheries, which has slowly been accumulating in the region, and to give the Pacific a voice at a global forum. The response from people contacted in Australia, New Zealand and the Pacific Islands to contribute to the paper was excellent and the resulting paper was written by seven authors and a number of contributors.

Marshall Islands to start a community-based fisheries programme

The Community Fisheries Adviser visited the Republic of the Marshall Islands (RMI) in August 2001, to help design and set up a community fisheries programme for the Marshall Islands Marine Resources Authority (MIMRA) as a response to a request from the RMI government. The proposed programme will assist island communities in managing their coastal fisheries. Through the programme, MIMRA staff will assist island communities in developing fisheries management plans, which contain community actions to help control the unregulated exploitation of RMI's inshore fisheries resources.

The Community Fisheries Adviser presented a draft report to MIMRA's Board of Directors, underlying the importance of the programme for RMI, especially for the outer island communities. The report contains some urgent and crucial rec-

ommendations that MIMRA must take on board if the programme is to be successful and sustainable. The most urgent recommendation contained in the adviser's report was the need to recruit two



Danny Wase, Director of the Marshall Islands Marine Resources Authority (MIMRA)

new staff members, specifically assigned to carry out the activities of the community programme. The Board of Directors has approved, in principle, this recruitment. The Community Fisheries Adviser will return to RMI to carry out training for MIMRA staff.

According to the Director of MIMRA, '...the approach for maximising the benefits from the resources of our EEZ must be examined in view of

our domestic industry development. Options should be examined to find out how our own communities can better participate in the management and exploitation of our fishery resources because subsistence fisheries provide our communities with their main source of protein, these fisheries must be taken seriously. Their management and conservation to guarantee their continued availability for future generations must now be addressed before it is too late.'



New Zealand fisheries trainers course

In December the Community Fisheries Officer visited New Zealand to assist in a course organised by SPC's Fisheries Training Section: the Regional Course for Trainers of Women Engaged in Small-scale Post-harvest Fisheries Activities.

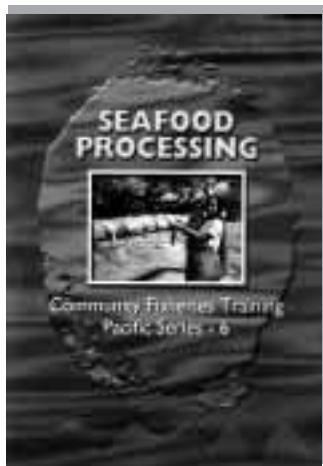
The first two weeks of the three-week course covered extension skills, adult learning styles, communication and presentation skills, seafood handling and processing, and food safety. The final week covered shellfish processing, fisheries conservation and

management, and small business skills. The course was designed for people who teach women in fisheries subjects at the grassroots level. The course was attended by men and women from Cook Islands, Federated States of Micronesia, Kiribati, Papua New Guinea, Wallis and Futuna, Samoa, Solomon Islands, Tuvalu, Tonga and Vanuatu.



Publications and Information

The final two manuals in the *Community Fisheries Training* series will be available soon. Business Skills and Fisheries Management complete the eight modules that make up this series, developed by the University of the South Pacific and SPC's Community Fisheries Section. Originally designed to serve the needs of the fisheries module delivered each year to students at SPC's Community Education and Training Centre, the manuals are now developed for use throughout the region. The complete set of manuals cover the following topics:



1. Fishing
2. Seafood in our meals
3. Sea plants
 - 3a. Guide to the common edible and medicinal sea plants of the Pacific Islands
 - 3b. Sea vegetable recipes for the Pacific Islands
4. Seafood spoilage and sickness
5. Seafood handling
6. Seafood processing
7. Business skills
7. Fisheries management

WHAT'S HAPPENING WITHIN THE REGION



GENERAL

Regional countries urged to promote sustainable fishing practices

A likely switch from subsistence to commercial fishing in Pacific Island countries could lead to over-fishing, according to the United Nations' Food and Agriculture Organization (FAO).

FAO has been in the forefront of pushing the regional countries to implement the Code of Conduct for Responsible Fisheries, endorsed by more than 170 FAO-member nations to prevent over-fishing and wasteful fish capture methods.

The threat of depleting this natural resource has been made significant as small regional countries try and compete in a free-for-all global market.

Pacific Island countries significantly depend on the ocean for food and livelihood for their peoples, and many view their ocean resources as their biggest wealth and foreign exchange earner.

The FAO-member countries, which include Cook Islands, Fiji Islands, Kiribati, Marshall Islands, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu, annually produce nearly 200,000 tonnes of fish worth about USD 400 million. Tuna species are especially important as a source of foreign exchange for the Pacific Island countries, which also earn a sizeable income in license fees from foreign tuna

fishing vessels operating in their exclusive economic zones (EEZs).

About one million tonnes of tuna worth about USD 2 billion – 30 per cent of the global tuna catch is caught annually in the Western and Central Pacific Ocean. The Pacific Island countries supply 60 per cent of the tuna used by the global tuna processing industry.

The main fish producers are Solomon Islands, Fiji Islands, Papua New Guinea and Kiribati. Fishing income makes up nearly half of the gross domestic product (GDP) of Kiribati, about 20 per cent of the GDP of Solomon Islands and 18.5 per cent for the Marshall Islands.

However, even this abundant natural wealth will not last for long without wise fishing practices and policies. At the recent meeting in Port Vila, Vanuatu, Agriculture Ministers of Kiribati, Marshall Islands, Niue, Samoa, Solomon Islands, Tonga and Vanuatu along with a representative from Fiji Islands, stressed the need for fishing practices, that leave enough for future generations.

They are also party to a series of multi-lateral fish conservation treaties. The most important treaty for Pacific Island nations is currently the Convention for the Conservation and Management of Highly Migratory Fish Stocks (WCPT Convention) in the western and central Pacific region.

Subsistence fishing, close to the coastal areas, is an important source of food for these countries and often yields more than commercial fishing. A likely

switch from subsistence to commercial fishing in the coastal areas could lead to overfishing. A surge in demand for live reef fish for restaurants in the southeast and east Asian countries has led to worries about overuse of fish spawning grounds in the Pacific and highlighted the urgent need for policies to regulate the live reef fish trade.

Fishery managers in the Pacific Island countries experience difficulties in conservation and management of coastal fish stocks because of lack of adequate statistical information. In response to a recommendation by the April 1999 meeting of southwest Pacific ministers of agriculture, the Samoa-based FAO sub-regional office for the Pacific Islands (SAPA) has commenced a five-year project to improve fishery statistics in the region. Funded by the Government of Japan, the regional project is assisting the countries in improving coastal and subsistence fisheries and aquaculture statistics information.

Pacific Island countries will also have to improve fish food safety practices to comply with new seafood import rules being put in place in Australia, Canada, the European Union, Japan, New Zealand and the United States.

The FAO has continued to assist regional countries to comply with the Hazard Analysis and Critical Control Point (HACCP)-based food safety norms to meet conditions of developed world importers.

(Source: Pacnews, 6 September 2001)

Pacific Islands region is not starving, but there are worries

Some of the Pacific's agricultural ministers met in Vanuatu to discuss what position the region should present at a Food and Agricultural Organization (FAO) summit.

This is to debate what has been achieved since a summit five years ago at which 186 nations agreed on action to cut the number of hungry people in the world by half by 2015. The target was to cut the number by 20 million a year. The achieved rate is only eight million.

What does this have to do with the Pacific Islands? At the FAO regional office in Samoa they agreed that it's difficult to present the Pacific Islands as being a region of starving people. True, a few years back, many Papua New Guineans, needed food supplies after a drought and then unusually cold weather destroyed food gardens in the highlands. True, after a hurricane that destroys crops, or a

spell of drought, or fallout from a volcano, or some other natural disasters, people in some other parts of region do from time to time become dependent on emergency food supplies from outside.

But for pretty well most of the time, doesn't food fall from trees and bushes, or pop out of the ground, or jump out from the lagoon?

Yes and no. It is a fact that generally, Pacific Islanders are fortunate in having steady and adequate supplies of food more or less bestowed on them by nature. True, for some atoll dwellers, supplies may be of a limited range, but normally they are adequate.

But can food supplies always be counted upon to be adequate? If the environment that produces them remains intact, then the answer is that most countries of the region should be reasonably self-

sufficient in producing enough food for their growing populations in the clearly foreseeable future.

In that case why is it that so many Pacific Island countries are such heavy food importers? One reason is that some imported foods are cheaper. Another is changing diet.

For half a century Pacific Islanders have been becoming hooked on imported foods that are killing them. Imports are, generally, cheaper and easier to store for long periods and eliminate the hard work of planting and fishing. Diets sickeningly rich in fat, sugar, and excessive amounts of other substances are saturating the entire Pacific Island nations with some of the world's worst rates for obesity, hypertension, diabetes and heart diseases. Also, with malnutrition.

Malnutrition? Yes. Pacific Islanders are starving to death not for want of quantity, but quality. Throughout the Pacific they are dependent on imported junk food because it is easier and cheaper than the highly nutritious vegetables, fruit, fish and animals their ancestors thrived on.

This is not a new problem. Health authorities have grappled with it ineffectively for years. Tonga recently banned the importation of cheap fat-laden

lamb flaps dumped on its people by New Zealand. Tonga hopes to cut a horrific obesity rate.

But perhaps island governments need to go further, perhaps by closing down the McDonald's, Kentucky Fried Chicken, Coca-Cola and so-called 'snack food' factories they greet now as development landmarks.

Other threats to the status of local food supplies, and hence national health, are becoming evident. New insect pests and plant diseases are advancing into the region. Agricultural departments are waking up to the havoc that imported pesticides and agricultural chemicals and fertilisers are causing to local environments. Soil erosion caused by the unthinking reshaping of landscapes by engineers and builders is a problem everywhere, as is deforestation.

Yes, the Pacific's food and agricultural ministers do have some worries to talk about at the World Food Summit: Five Years Later conference. But it could be that the talk is too late. The food supply outlook for Pacific Islanders is not as sure, sound and safe as many of them believe.

(Source: *Pacific Magazine/PINA Nius Online*, 3 September 2001)

PALAU

Palauan women targeted in sea turtle education campaign

by Elizabeth Matthews, Palau Conservation Society

Women are a prime target in an education and conservation campaign aimed at protecting the endangered sea turtles in Palau. Men hunt the turtles, and the capture of a large turtle is seen as an enviable accomplishment. However, women play several key roles in the traditional and cultural uses of turtles, and may become significant advocates for turtle conservation. Recognising women's importance in the current high levels of turtle capture and consumption, Palau Conservation Society, Palau Division of Marine Resources, Koror State Rangers, and The Nature Conservancy are working to influence women's attitudes about the declining status of sea turtles.

Two species of sea turtles nest and feed in Palau: the green turtle (*Chelonia mydas*, **melob**) and the hawksbill turtle (*Eretmochelys imbricata*, **ngasech**). Green turtles are captured for food and hawksbills are prized for their shells, but also taken in limited quantities for their meat. Females of both species are preferred because they are seen as having a higher

fat content and because of the possibility of finding eggs. Eggs of both species are collected from beaches as well. In 1999, a study noted that as many as 95 per cent of the turtle nests observed had been poached.

Sea turtle populations in Palau are under increasing strain. Key informants in a study initiated by the Palau Conservation Society felt that the commercial trade in turtle meat and shells has increased significantly in recent years. Turtles are still a challenge to catch, but motorised boats make the capture and transport of more turtles at one time possible. Turtle habitat, especially beaches, are under threat. Eggs are collected. Turtles are slow growing and may not reproduce until they are 25 or 30 years old.

Hawksbill shell is the source of one form of women's money in Palau, an oval tray called **toluk**. Women both give and receive **toluk**. **Toluk** is given to women by their husband's clan to pay for food preparation services performed for a

traditional custom. **Toluk** is made by special craftsmen who place heated pieces of shell into molds. Once the shell has hardened it is carved and polished. Hawksbill shells are also a highly valued source of material for jewellery such as earrings and bracelets. Wearing several turtle shell bracelets (**klilit**) was once a sign of wealth. Today, anyone can buy turtle shell jewellery. It is sold in many shops around Palau, especially those catering to tourists.

Large turtles are becoming scarcer. As a result, the **toluk** that is currently being made tends to be thinner and smaller than older pieces. Older, larger **toluk** are more valuable than newly made **toluk**. Although it is not possible to place a true monetary value on a traditionally valued item, some of the older pieces of **toluk** may be worth more than USD 1000. Women are keeping the older pieces of **toluk** out of circulation. Instead of giving away their more valuable pieces, women are buying cheaper, smaller **toluk** to exchange. They keep the older, more valuable pieces for emergencies, such as a big funeral, when there is no choice but to give away the very best pieces. If a ban was placed on the creation of new **toluk**, perhaps more of the older, more valuable pieces would be returned to circulation.

Turtle meat, especially that of the green turtle, is a popular food. It is seen as a high-quality, inexpensive source of protein. At one time, turtle meat was reserved for special occasions, such as the inauguration of a chief.

Today it is possible to buy turtle meat for lunch in local markets. Turtle is also served at more traditional feasts and celebrations. Although it is not required for these feasts, turtle meat adds to an event's prestige.

Women play a central role in the distribution of turtle products in Palauan society. They create the menus for feasts, they completely control the exchange of **toluk**, they wear the jewellery made from turtle shell. Thus, educating women about the status of sea turtles in Palau is essential. Bilung Gloria Salii, the highest ranking woman in Palau and sister of Paramount Chief Ibedul of Koror, has become involved in a community education campaign spearheaded by the Palau Conservation Society. As part of this campaign, chiefly men and women were invited to a talk given by Dr Nicolas Pilcher, a regionally known expert on sea turtle biology and conservation.

In a Palauan legend, a pair of young lovers witness the return of a hawksbill turtle to a nesting beach. The lovers first met on Ngemelis Island on a moonless night. In the morning, the woman noticed that her grass skirt had vanished from the rock that she had placed it on. She made a makeshift skirt, and the lovers left the island after agreeing to meet on the island again in two weeks. They returned to the island and were embracing on the beach when they were disturbed by a noise. They watched as a hawksbill turtle came ashore to lay her eggs in the sand. Wrapped around the turtle's legs was the woman's missing grass skirt. In the darkness of their original encounter, the woman had mistaken the turtle's back for a rock. The two-week nesting cycle of hawksbills was thus well-known to the ancient Palauans who began telling this legend.

Several women voiced their concern about the status and vulnerability of sea turtles after they had heard the talk.

One woman, Ebilrechebong Adelina Isechal, the second ranking woman in the state of Melekeok, said she would stop eating eggs and turtle as a result of what she had learned in the talk. Another participant, Honorable Laura Ierago, the governor of Sonsorol (a state that supplies a significant amount of turtles to the market in Koror), has begun educating her constituents about the long lifespan of turtles.

More women will be involved in the education campaign over the next several months. Sea turtles have been placed on the agenda of Palau's national women's conference (**Mechesil Belau**) to be held on 21–22 March. This annual conference draws more than 300 women from throughout Palau.

There will also be smaller community presentations made in states throughout the country from April until July. It is hoped that by influencing the decisions women make about food, **toluk** and jewellery, sea turtle populations will remain viable and healthy in Palau in the future.

MARSHALL ISLANDS

FAO backs seaweed for Marshall Islands atolls as alternative to copra

The United Nations Food and Agriculture Organization (FAO) is investing in a six-atoll pilot seaweed growing project in the Marshall Islands, Minister John Silk said.

Marshall's fisheries staff are expected to visit Kiribati, where seaweed is being grown commercially, as part of preparing for the project, Silk said.

The project, developed by the Marshall Islands Marine Resources Authority, will target Majuro, Arno, Jaluit, Ailinglaplap, Wotje and either Rongelap or Enewetak. The FAO is contributing USD 179,000.

The project proposal points out: 'Local communities, especially in the atoll islands, really and urgently need another choice for income other than copra.'

The plan is for the Marshall Islands Marine Resources Authority and the Marshall Islands

Development Bank to develop a revolving trust fund. This would enable local communities to initiate small-scale fisheries-related activities.

Outer island farmers would be able to initiate seaweed cultivation in a sustainable manner using start-up funding, the proposal says.

The project includes the involvement of five College of the Marshall Islands students who will be trained in seaweed farming techniques.

Seaweed cultivation has been an alternative source of income for such countries as the Philippines, Malaysia, Indonesia, Fiji Islands and Kiribati, according to the FAO.

(Source: Marshall Islands Journal/PINA Nius Online, 27 August 2001)

Majuro too polluted

The College of the Marshall Islands (CMI) summer school teaches students from Majuro and the outer islands during June and July, many of whom are teachers in various schools throughout the country. A questionnaire was given to over 120 students about Majuro and its environment. Questions such as 'Do you think coral reefs are important?' and 'Why do you enjoy living in Majuro?' were asked to find out the views of these students, who represent many atolls of the Marshall Islands.

Of the 26 per cent of students from the outer islands in Majuro for the summer, 70 per cent would not want to live in Majuro permanently. Why? They think that despite all the advantages the capital offer, Majuro is too crowded and the lagoon too dirty for them to want to live here all the time.

But what do the students from Majuro think of their island? The majority (65 per cent) enjoy living here for the main reason that educational opportunities are widely available here, but also because there are many different resources available to them in Majuro (different foods, Internet, transportation). As well as it's fun!

However, 99 per cent of all the students say that the reef should be protected. Because if it is not, how would their families eat? No coral reef means no marine life, and that means no food. So it follows that 81 per cent believe less dredging of coral

should occur around Majuro, at the expense of construction on the island.

Dredging coral to produce building materials severely affects the health of a coral reef. When coral is removed, a myriad of factors is affected. Fish populations decrease (less food), natural protection from the reef is removed (leaving Majuro open to bombardment from high tides and large waves), and also beautiful ecosystems are lost to make way for 'essential construction'.

But how do the students suggest solving these problems? Eight-five per cent realise there are far too many cars on the island, and would like to see a reduction of imported vehicles into Majuro. Eighty-seven per cent believe there is too much trash around Majuro, both in the lagoon and on land, and think that it is essential for trash to be collected in the bins provided, not on the reef and in the lagoon.

Many suggestions were put forward for how to protect the coral reefs around Majuro and one fundamental theme came out – people must work together. Why not have clean-up drives? Or at least more trash cans. Why not have more legislation (which is enforced) fishing those people (or groups of people) who pollute the environment? Why not police the lagoon more rigorously so that the oil from fishing boats, and also household wastes are not dumped in the water?

If steps such as these are taken, perhaps Majuro's water, air and land would not suffer so much from the pollution it is facing now.

But what are the simple steps each person can do to help, starting from today?

Make sure trash is put into the bins provided, NOT in the lagoon or the ocean.

Recycle your drinks cans with the CMI recycling programme.

Try to re-use materials such as plastic bags and

plastic bottles, instead of throwing them away and buying more.

Why not put your views into writing?

A letter to the local government or to EPA concerning this issue will only help the situation.

The CMI summer school students from many islands of the Marshall Islands realise the problems the environment of Majuro is facing and want their voice to be heard. Are you listening?

(Source: Marshall Islands Journal, 31 August 2001)

GUAM

High levels of PCBS found in Guam fish

Tissue samples from fish and shellfish found in the waters near the Navy's old landfill at Orote Point have elevated levels of PCBs and people are advised to avoid eating them, officials said yesterday.

There were levels of PCBs, or polychlorinated biphenyls, well above the U.S. Food and Drug Administration standards for ingestion, environmental officials said. At some levels of exposure, PCBs are suspected of causing a wide variety of health problems, including cancer and neurological problems.

The Navy announced Saturday that the fish and shellfish were contaminated with 'pesticides and other chemicals' after receiving results from tests conducted in June. The areas identified were Orote Point seawall, north seawall and Barracuda Rock. Yesterday, Guam Environmental Protection Agency spokeswoman Grace O. Garces said the Navy's tests of the 28 tissue samples showed PCBs at levels from .5 to 267 parts per million. The FDA's allowable level is 2 parts per million, Garces said.

Navy spokeswoman Lt. Monica Richardson said yesterday the source of the contamination is not yet known and the Navy is working with Guam EPA officials on how to proceed.

Garces said Guam EPA administrators are drafting a letter with recommendations on how to proceed. The letter is likely to include requests to study the now defunct Orote Point landfill to find the quantity and location of PCBs dumped there.

According to a Navy fact sheet, residential, industrial and construction waste was dumped at the 9.4-acre landfill from 1944 to 1969. The fact sheet also noted that some non-flammable debris was dumped over the cliff onto the beach below.

The Navy has since capped the landfill and in March completed a seawall to protect the site from ocean surge and erosion, Richardson said. The testing in June was part of that project, she added.

(Source: Pacific Daily News, 25 September 2001)

NORTHERN MARIANA ISLANDS

Northern Mariana Islands phosphate ban will help save reefs

Here's good news for the environment! The bill that would ban the sale, manufacture, distribution, and use of cleaning agents containing phosphates now heads to the desk of Governor Pedro P. Tenorio after it sailed through the Northern Marianas Senate on a unanimous vote.

Phosphate, though a naturally occurring substance, has been proven to be harmful, as it is non-biodegradable. When mixed with detergents, it eventually ends up at sea, which causes nutrient overload in the seas surrounding the islands, leading to potential eutrophication of coastal waters.

Eutrophication – or the overloading of nutrients which leads to lack of oxygen in the water – leads in turn to the destruction of the coral reefs and the habitat they provide for many marine organisms. Besides banning the use of detergents containing phosphate, the bill also empowers the Division of Environmental Quality to pass rules and regulations necessary to regulate the sale and use of phosphorus base chemicals.

The bill was primarily authored by Rep Rosiky F. Camacho, but among those who are pushing for the bill's passage is the Hotel Association of the Northern Mariana Islands, which originally came up with the idea for the bill.

Earlier, the House Committee on Health and welfare chaired by Rep. Maria 'Malua' T. Peter recommended the passage of H.B. 12-167, saying that the

bill is consistent with the goals and desire of the House in protecting the environment, 'most especially the pristine beauty of our lagoons and reefs.'

The bill provides exceptions, though, to cleaning agents that are used in hospitals, health care facilities and veterinary hospitals; the ones used in agricultural production; and those used in any laboratory.

Those detergents or cleaning agents that are exempted from the bill must contain phosphates, or elemental phosphorus, that do not exceed .5 percent.

If passed, those who violate the provisions of this measure will face up to \$25,000 in fines for each day of continuing violation of the law.

(Source: Saipan Tribune/PINA Nius Online, 4 September 2001)

FEDERATED STATES OF MICRONESIA

More oil seeps from sunken ship in Yap State

More oil is leaking from a World War II-era shipwreck in Yap State, and officials fear the latest threat to the region's ecosystem.

The State of Yap governor's office said in a press release yesterday that a private plane spotted an oil sheen several miles long off Ulithi Atoll, and photos confirmed the sighting.

Oil was released Aug. 6 from the USS *Mississinewa*, a 553-foot naval vessel sunk in the lagoon in 1944 by a one-man Japanese suicide submarine.

That leak began after a storm shifted the ship's position, officials believe.

'Unlike the first leak in August, this leak is occurring in the middle of the typhoon season and pointing potentially to a disaster of astronomical proportions,' Yap Gov. Vincent Figir wrote in a letter to Federated States of Micronesia President Leo Falcam.

The earlier spill caused a ban on fishing in the Ulithi lagoon, which is the main food source for the 700 residents of Ulithi.

Approval required

Divers contracted by the Navy in late August were able to seal the holes on the *Mississinewa*.

Yap officials said at that time they believed large amounts of oil remained on the ship and future

storms could result in more releases. The governor yesterday repeated Yap's request that the US government drain the rest of the oil because the FSM state lacks the financial resources, personnel and equipment.

Local Navy spokeswoman Lt Monica Richardson has said if the United States were to remove the remaining oil, Congress must first approve the expenditure and the Department of Interior or Secretary of State would have to make that request. 'If that (remaining oil) were to leak, the atoll would be finished,' John Sohlith, Yap disaster management officer, said in August.

The Aug. 6 spill reached as far as Fais Island, 48 miles east of the leak site. A ban on fishing in the lagoon – the main food source for the 700 residents of Ulithi – was lifted in mid-September.

Yap State solicited proposals to remove the remaining oil from *Mississinewa*, and the solicitation period ended Dec. 20.

(Source: Pacific Daily News, 24 December 2001)

PAPUA NEW GUINEA

Papua New Guinea key nation in fight to save the world's coral reefs

Papua New Guinea is on the front line of the growing battle to save the world's reefs, according to scientists who compiled the most detailed assessment yet of coral reefs.

Papua New Guinea is the world's fifth largest reef nation, their new study confirmed. But the scientists said these precious marine ecosystems occupy a much smaller area of the planet than previously assumed. Although distributed in 101 countries and territories, where they are vital for fisheries, coastal protection, tourism and wildlife, they now occupy less than one-tenth of one percent of the oceans.

Their World Atlas of Coral Reefs, prepared by the United Nations Environment Programme World Conservation Monitoring Center (UNEP-WCMC), provides a new global estimate for coral reefs worldwide.

'Our new Atlas clearly shows that coral reefs are under assault', says Klaus Toepfer, UNEP Executive Director. 'They are rapidly being degraded by human activities. They are over-fished, bombed and poisoned. They are smothered by sediment, and choked by algae growing on nutrient rich sewage and fertilizer run-off.

'They are damaged by irresponsible tourism and are being severely stressed by the warming of the world's oceans. Each of these pressures is bad enough in itself, but together, the cocktail is proving lethal.'

Papua New Guinea has 13,840 square kilometers of reef, according to the study. It follows Indonesia, with 51,020 square kilometers, Australia (48,960 square kilometers) and the Philippines (25,060 square kilometers). France comes in fourth, with 14,280 square kilometers of reefs located in its overseas territories. (NOTE: 1 square kilometer = 0.4 square miles)

But 46 per cent of Papua New Guinea's reefs are identified as threatened.

The scientists say their findings give new urgency to protect and conserve these important, valuable and seductively beautiful habitats.

Says Mark Spalding, lead author for the Atlas: 'Many coral reefs are under the ownership of the world's wealthiest nations. Between them,

Australia, France, the UK and the USA account for over one quarter of the world's coral reefs – a critical resource in powerful hands.

Previous estimates of coral reef area, which didn't have the benefit of our detailed maps, have been double or in some cases ten times over what we have now found to be the case. 'Furthermore, we also found that coral reefs are degrading fast in almost every country of the world. The Atlas provides a critical baseline and a focus for action to reverse these trends.'

Human Benefits

Coral reefs are an important source of food for hundreds of millions of people, many of whom have no other source of animal protein. They also provide income and employment through tourism, and marine recreation, and export fisheries, and for many coastal villages, and some entire nations are the only source of this income and employment.

They offer countless other benefits to humans, including supplying compounds for medicines. AZT, a treatment for people with HIV infections is based on chemicals extracted from a Caribbean reef sponge and more than half of all new cancer drug research focuses on marine organisms.

Often referred to as the 'rainforests of the oceans', coral reefs host an extraordinary variety of marine plants and animals (perhaps up to 2 million) including one quarter of all marine fish species. It has been estimated that so far only about 10% of these species have been described by scientists.

The Atlas contains the latest information on coral biodiversity. The most diverse region of the world for coral reefs is centered on the Philippines, Indonesia, Malaysia and Papua New Guinea, with between 500 and 600 species of coral in each of these countries.

Unfortunately, these are also some of the most threatened coral reefs in the world. In Indonesia, 82% are 'at risk', threatened by such human activities as the illegal practice of blast fishing. This is the most destructive fishing method on reefs. Explosives are typically thrown towards the reef and explode on the water surface. The shock wave from the blast kills the majority of fish species on the reef and causes severe damage to its structure.

Threat and Conservation

This new Atlas from UNEP-WCMC builds on earlier scientific work that found some 58 per cent of the world's coral reefs were threatened by human activities. It includes new information on the impacts of global warming and coral bleaching, including the El Niño.

The Atlas also provides new data on the spread of coral diseases that affect 106 types of coral in 54 countries. It shows that entire coral reefs have been decimated by disease in the Caribbean.

For the first time, the Atlas also maps the 660 marine protected areas worldwide that incorporate coral reefs. It notes that unfortunately, many of the protected areas exist on paper only, that they are poorly managed and have little or no support or enforcement.

It says they often only focus on controlling the direct impacts of humans on coral reefs ignoring the more remote sources of threats to reefs, notably pollution and sedimentation from the adjacent land.

Says Toepfer: 'Often remote from reefs, deforestation, urban development and intensive agriculture are now producing vast quantities of sediments and pollutants which are pouring into the sea and rapidly degrading coral reefs in close proximity to many shores.

'UNEP, as secretariat to the Global Program of Action for the Protection of the Marine Environment from Land-based Sources is trying to coordinate an integrated response to this problem. This and related topics will be high on the agenda of the upcoming GPA ministerial review in Montreal later this year.'

Economic Potential

The Atlas looks at the economic arguments for better reef management and the potential income from 15 million scuba divers worldwide. It describes a new database listing 2500 dive centers in 91 countries. It says that diving, well planned, can add value to the reefs for local people and promote conservation.

Tourism can become a force for good, giving an added value to reefs in the eyes of the local communities, and often providing a direct income, through park fees, for the management of marine protected areas.

According to Dr J.E.N. Veron, Chief Scientist with the Australian Institute of Marine Science and a

contributor to the Atlas, reefs are among the most valuable assets of developing countries and if managed well they can be a permanent source of foreign income.

'Australian foreign earnings from tourist industries in the Great Barrier Reef alone is greater than income from all of Australian fishing industries combined', says Veron.

Signs of Hope

'One of the saddest facts about the demise of reefs is that it is utterly nonsensical,' says Spalding. 'Protecting and managing reefs is not just for the good of the fishes. In every case it also leads to economic and social benefits for local communities.' 'We now have dozens of examples from around the world of small-scale, often community led, systems for managing reefs. These have led to massive booms in productivity and some very happy local fishermen. They stand out as clear sparks of hope which we must use to teach others the message', Spalding adds.

The most important global initiative to respond to the challenges documented in the Atlas is the International Coral Reef Action Network (ICRAN), in which UNEP and the UNEP World Conservation Monitoring Center have joined with other partners to reverse the decline in coral reefs. After two years of preparation, the action phase of ICRAN was recently launched with a major grant from the United Nations Foundation (see <http://www.icran.org>).

'Through ICRAN, many separate activities are being brought together in a coherent way to make a real difference on the ground, where peoples' needs count', says Toepfer. 'The ICRAN Partners are now working to raise the significant financial resources needed to put coral reef management in all these regions on a more sustainable basis. We hope that additional support will allow us to extend ICRAN to all the coral reef areas of the world. The Atlas we are launching here today is an important supporting tool for such practical action.'

UNEP has established a Coral Reef Unit to take the lead in the UN system on this issue and has agreed to support the ICRAN Coordinating Unit (see <http://www.unep.ch/coral.html>).

It is also working actively to promote responsible tourism in coral areas, and other sensitive environments, via its Tour Operators Initiative (see <http://www.unep.org/pc/tourism/>) and is one of the United Nations coordinators for the 2002 International Year of Ecotourism.

'The growth of mass-tourism, combined with the boom in popularity of scuba diving, has brought the plight of coral reefs to public attention across the planet, 'says Toepfer. 'Let us all now commit ourselves to the strenuous efforts needed to respond to the crisis of declining coral reefs doc-

umented in this Atlas, and to ensure that this unique ecosystem continues to feed, protect and dazzle us and our descendants for generations to come.'

(Source: PINA Nius Online, 11 September 2001)

AMERICAN SAMOA

Scuba fishing banned in American Samoa

People caught scuba fishing in American Samoa face a fine, jail time, or both under new laws.

Director of the Department of Marine and Wildlife Resources Ufagafa Raymond Tulafono signed approval of revisions to administrative rules that include a permanent ban on scuba fishing.

Scuba gear and high-tech fishing equipment have been blamed for the depletion of reef fish stocks.

Officials said if nothing was done to stop the use of scuba gear for fishing, certain species of coral reef fish would have been wiped out.

'This is a happy day for our department,' Ufagafa said.

Fines range from USD 35 to 500.

Any use of spears and other scuba equipment for daytime and nighttime fishing is illegal.

Meanwhile, the department's Community-Based Fishery Management Program has drawn the interest of several more villages.

They want to join the first three villages that started off the program, according to project manager Fatima Sauafea.

'The move by these villages is an indication that there is awareness of the positive impact of the programme to the island's coastal reefs,' Sauafea explained.

She added that there had been positive feedback from villages that had already joined the programme since its launching last year.

Programme officials had been working closely with these villages in monitoring the results of their efforts at marine management. So far, the villages report that their efforts are 'going well.'

The programme was developed after research found that there is a major problem with the depletion of marine life. Sauafea said that if local villages fully understand the consequences of over fishing and join the programme, they would eventually see the benefit of the programme.

(Source: Samoa News/PINA Nius Online, 30 January 2002)

SAMOA

Overfishing, cutting of mangroves blamed for Samoan seafood shortages

There has been a noticeable decline in the number of reef fish available at the Savalalo Fish Market.

Samoa's commercial fishermen blame overfishing and destruction of mangroves. 'Our village, through the years, has relied mainly on our reef resources for sustenance,' Mikaele Faraimo, of Puipa'a, said.

'As a career fisherman, I have noticed a steady decline in fish stocks in our area. 'As our population

continues to climb and the lure of financial gain continues to grip the villagers, fishing in the Puipa'a and Toamua lagoons becomes highly unsustainable.'

Mr Faraimo pointed out that an increasing number of people have permanent fish traps strung all over the lagoon.

Unsustainable net fishing also has become very popular in these outlying villages.

Another Puipa'a fisherman, Shinn Ete, pointed to the depletion of mangroves as another major contributing factor.

'Many people are not aware that mangroves serve as breeding habitats for reef fish,' he said.

'People are cutting these invaluable mangroves for firewood and clearing mangrove areas for house building.

'They should be aware of the environmental consequences of their actions and the impact it has on fish stocks.

'Government should be more stringent on clamping down on this practice.'

He also pointed out that continued use of oxygen cylinders and other snorkelling equipment has also contributed to the reef fish decline. 'A fisherman with an oxygen supply can practically submerge in the reef for two hours,' he said.

'In that space of time he could catch all the fish in that area.

'What's the next guy in a canoe going to catch?'

Mr Ete also maintained that changes in the weather and especially the sea temperatures were other factors.

Niko Petana, of Leusoali'i village, said that his village traditionally was blessed with seasonal rising of the anae or mullet. The untitled men would build high wooden structures to observe when schools of anae enter the lagoon.

'Back then, fish were caught by the basket loads. Fishing then was a matter of pulling fish by hand off the water,' he said.

When villagers started to sell fish for money, the village was no longer visited by the anae, he said.

'That is the one taboo of the anae. It can only be fished as a communal activity and shared in the village.'

'When families started selling fish on the road, we started to lose our blessing.

'Hardly any anae are found in Leusoali'i anymore.'

(Source: PINA Nius Online, 27 January 2002)

AUSTRALIA

Native title extends to the sea, court rule

Native title does exist in Australia's seas and seabeds after the High Court yesterday dismissed the Federal Government's appeal in a landmark legal case.

But Aborigines and Torres Strait Islanders who hold the title will not be able to stop commercial fishing or public access to the waters.

The decision in the Croker Island case means that at least another 120 native title applications to the seas around Australia can now be decided.

By a 5-2 majority, the High Court dismissed the Commonwealth's appeal against the Full Federal Court's earlier ruling that native title can exist beyond the low water mark. The Full Federal Court had itself dismissed a similar appeal against the 1998 decision of the Federal Court's Justice Howard Olney.

The series of decisions mean the Croker Island claimants have rights to hunt and fish in the

waters, and to protect any sites that have spiritual or cultural significance.

In 1994 Mary Yarmirr, a senior traditional member of the Mandilarri clan, one of six clans in the region, led a native title claim to about 3300 square kilometres of waters off Croker Island, northeast of Darwin.

But, by a margin of 6-1, the High Court also dismissed the appeal of Ms Yarmirr and the other Aboriginal claimants that they should have exclusive rights to the waters.

This means that local Aborigines cannot control or stop commercial fishing, mining or tourism operations in the seas and seabeds.

But they retain some rights of consultation or negotiation about activities in the affected area.

Ms Yarmirr said that while she was happy that native title had been extended from the land to the sea, she was disappointed that the High Court did

not go further. She called on the Federal Government to follow the path of Justice Michael Kirby, the only judge to uphold Aborigines' appeal.

'Kalu marruka nganwinjku ba ngarri yurru -no one can wash away our law,' she said, summing up the feelings of the six Arnhem Land clans.

'I am very happy that during our struggle that native title has been recognised to be extended to the waters and seas. Our law, as we have always said, extends to the waters.

'But I am very disappointed that the governments of today don't understand our law, that our legal system is not recognised.'

Ms Yarmirr, deputy chairwoman of the Northern Land Council, said she hoped Federal Parliament would eventually introduce laws to give indigenous people greater native title rights.

'We will continue our struggle as first Australians until our laws are embedded in the common law of Australia,' she said.

ATSIC chairman Geoff Clark described the decision as 'a major step forward in having our rights recognised and respected'.

He said the Federal Government had wasted millions of dollars fighting the recognition of indigenous rights in the courts.

Federal Attorney-General Daryl Williams said the decision would resolve any legal uncertainty.

'The Commonwealth welcomes the court's finding that if native title sea rights do exist they must be non-exclusive,' he said.

National Native Title Tribunal president Graeme Neate said 120 claims covering the seas or the seas and land could now go ahead.

Some applications have been on hold for years pending the final court decision in the Croker Island case.

Another 61 applications include claims on the seas between the high and low water marks.

Melbourne University senior law lecturer Maureen Tehan said the judgment was one of the most significant in the native title field since the decisions of Mabo and Wik.

(Source: *The Age*, 12 October 2001)

WHAT'S HAPPENING OUTSIDE THE REGION



GENERAL

Where are the women in fisheries?

'All too often we think of the fishing industry as a male domain. But in Oceania, as in other parts of the world, women often dominate the processing and small-scale marketing sectors, and contribute significantly to the subsistence harvesting sector', said Lyn Lambeth, Community Fisheries Officer of the Pacific Community, at a recent symposium on women in fisheries. 'It's important that researchers,

fisheries agencies and industry acknowledge this so men and women are included equally in fisheries development and management activities.'

In the supermarkets and restaurants of North America and Europe, fish and shellfish have become fashionable, especially for the health conscious. Few consumers stop to reflect that fish and

other living aquatic resources are the world's largest remaining food harvest from the wild nor do they stop to think where the seafood they eat comes from. These days, more and more fish comes from aquaculture — the fastest growing food production sector. For most people in the Asia-Pacific and much of African and Latin America, fish is not for fashion but is tradition and life. The greater part of the world's fish supply comes from these countries where much of it is harvested or grown by millions of small and very small scale producers. More than 120 million people depend on fisheries for all or part of their incomes and an estimated billion for their major source of animal protein.

Not surprisingly, women play a key role in getting fish to the table and their role is different depending on where and who they are. These roles are also changing rapidly. In many parts of Africa and Asia, women do much of the fishing in rivers, lakes and wetlands. In offshore and deep-sea fishing, women are mainly responsible for performing the skilled and time-consuming jobs that take place on-shore, such as net making and mending, processing the catch and marketing it. Women have also assumed a leading role in the rapid growth of aquaculture. In places such as the USA, Taiwan, Thailand and Vietnam, they have become important fish entrepreneurs. Women are also actively involved in the processing of fish, whether this is done in the home on a small scale or on an export factory line. In the US and Canada, the wives and family of fishermen often take the responsibility for ensuring that all the necessary licences and regulations are followed up and they are becoming the industry advocates in fisheries management debates. All over the world, the number of women scientists and educators is on the rise in fisheries.

Despite the trendy image of fish and seafood, many fishing families in developing countries are mired in poverty and the solutions to getting people out of their poverty will have to involve the whole family,



especially women and youths. Yet, most women in fisheries lack access to physical and capital resources, a voice in decision-making and access to leadership positions, training and formal education. What challenges will globalisation and its attendant features — privatisation, cutbacks or removal of subsidies to the agricultural sector and public spending on social services, demands for higher product quality, greater international interaction, often conducted in English — present for small-scale fishers and women in particular. Can they cope?

The answer is only a 'maybe' so far, according to a recent gathering of experts on the topic — a global symposium, 'Women in Fisheries: Towards a Global Overview', held in Kaohsiung, Taiwan on 29 November 2001. The Symposium was part of the Sixth Asian Fisheries Forum, 25-29 November 2001. The Symposium heard papers from all regions of the globe, examined how women were faring in fisheries and identified research and development directions.

The Symposium concluded that, while considerable progress has been made in increasing recognition of gender inequality and the gender dimensions of poverty, women's economic advancement and rights in the fisheries sector have lagged behind those of other sectors. 'Unlike plants, you cannot see fishes in the water or pond except during feeding time. So, perhaps we can begin 'feeding the fish' here to make women in fisheries a more visible issue,' said Dr Stella Williams, an economist from Obafemi Awolowo University in Nigeria. Gender and women's programs rarely reached out to women in fisheries and the fisheries sector programs were slow to understand and improve the lot of women in that sector.

In developing countries, the work of women fishers remain mainly within the informal economy and/or subsistence economy, where they not only continue to receive low incomes and little job and social security but lack recognition and assistance. Many are confronted with a gender wage gap and lag behind men in access to income and services that would improve the efficiency, profitability and sustainability of their activities. If a fisheries activity is enlarged or mechanised, it often becomes the domain of men. Where women do work in the production sector, for example in the tuna processing plants in the Pacific, they do low paid production line work, said Lyn Lambeth, Community Fisheries Officer of the Secretariat of the Pacific Community (SPC), New Caledonia.

Around the world, women along coasts and rivers traditionally catch fish and invertebrates by hand, with nets, traps, baiting or diving. 'In Samoa, 18% of village fishers are women, harvesting around 23% of the total weight of seafood. In Niue, women collect and recognise at least 40 different species of invertebrates and seaweed for food. In Kiribati, women are the main harvesters of the bivalve, *Anadara* sp., which forms one of the largest fisheries on the main island, South Tarawa. Women are reported to catch more than 25% of the annual catch of marine resources in Papua New Guinea. And in Kosrae State, in the Federated States of Micronesia, women are acknowledged and respected as highly skilled net fishers', said Lyn Lambeth of SPC.

Speakers at the Symposium also reported on the increasingly significant role women play in the field of aquaculture. According to Dr Ida Siason, Vice Chancellor of the University of the Philippines in the Visayas, 'in Southeast Asia, women have made some headway as fish farmers.' In Africa, according to Stella Williams, however, 'there is a predominant gender imbalance in fish farming in fishing and farming communities. In most cases men are the owners of the ponds while women and children manage these ponds.'

Some national and regional progress on addressing women's and gender issues in the sector is demonstrated by the initiation over the last five years of expert networks in Cambodia, Laos, Thailand, Vietnam, Philippines and Latin America.

The changes being wrought by globalisation presents new challenges for small-scale fishers, especially women, but the gender impact of globalisation on women fishers has not been systematically documented or evaluated and the Symposium attendees felt that the issue warrants immediate attention. In Taiwan, for example, Drs Nai Hsien Chao and Dr Chang reported on studies that showed that most women worked in husband and wife enterprises with one or two helpers. These small family firms were not attractive to the next generation and were not able to attract the assistance to upgrade their technologies to compete in open markets.



As women in developing countries are mainly subsistence producers and users of environmental resources, it would be useful to recognise and integrate women's knowledge in the conservation and management of these resources to ensure their sustainability. This rarely happened, according to Dr Parvin Sultana of the World Fish Center. Her studies on community-based management of the beels (small seasonal, inland water bodies) in Bangladesh showed that attempts to empower women through women's only management regimes failed because little respect was given in the community to women's management. 'However,' said Dr Sultana, 'new committees involving men and women are having more success for beel management. The focus on women has also revealed that the snails traditionally harvested by the women and previously ignored in fisheries management, are declining and these resources need to be managed against overharvesting as well as the fish.'

The health and safety of men and women in fishing communities are also urgent issues addressed by the Symposium. The HIV/AIDS pandemic does not discriminate. As of the end of 2000, there were a total of 36.1 million people living with HIV/AIDS in the world and in that year alone 5.3 million people were infected.

Epidemiological studies on HIV/AIDS by occupation show that seafarers are among the group most prone to infection, probably due to some of the peculiarities of their jobs. Unsafe sex and unsafe seafaring have much in common

such as drug addiction, alcohol abuse, long periods away from home and visits to commercial sex workers. Various studies have cited HIV prevalence levels among fishermen in Asia from 7% to as high as 15%. In Tanzania in Africa, fishers were 5 times more likely to die from AIDS as were agricultural workers.

The Symposium concluded that new knowledge must be gathered through gender-sensitive research to better understand the complexities of gender issues in the fisheries sector in order to develop appropriate actions, programmes and

policies. A focus on women alone would not be sufficient. Along with the changes occurring in society, women's roles were changing in the sector and more should be done to ensure that women became more equal partners and productive participants in fisheries activities so as to improve their own and their family's nutritional and living standards.



They should be given the opportunity to acquire appropriate technologies that will enable them to contribute effectively to sustained fisheries development and growth. It is therefore essential to increase women's participation and decision-making in fisheries development efforts as the survival and well-being of fishing communities depend on women's contribution in partnership with men.

Top 10 coral reef hot spots identified

A recent study contradicts the long-held belief that marine species are resilient and resistant to extinction from human activities because of their wide geographic ranges. The study mapped the ranges of over 3000 species of reef fish, corals, snails and lobsters, all of which require a healthy reef habitat for their survival. The authors found that comparatively rare species (with a restricted range) are clustered within eighteen 'centres of endemism'. These centres of endemism include both geographically isolated island groups, such as the Cape Verde Islands (Atlantic Ocean) and the South Mascarene Islands (Indian Ocean), but also highly interconnected regions such as the Philippines and the Sunda Islands (southeastern Indonesia), where marine biodiversity is at its highest. This indicates that many reef species are potentially at risk of extinction, even within the diverse 'coral-triangle' of Southeast Asia. Within the tropical Pacific, centres of endemism include the Hawaiian Islands, Easter Island, New Caledonia, and the Great Barrier reef.

The study named the ten centres of endemism facing the greatest threats as coral reef 'hot spots', where rapid conservation action is needed to pre-

vent species loss. The scope of the problem is indicated by the fact that nearly 60 per cent of the world's coral reefs are threatened by human activities. The Philippines and Sunda Islands are two hot spots, and further reef degradation in high-risk areas such as these could also severely impact the livelihood of local fishing communities, which depend heavily on the sea for food. Many of the world's reefs have been destroyed or severely degraded because of global warming, destructive fishing methods, and land activities such as logging, agriculture and development.

The study suggests that conservation efforts should be applied not only to the identified hot spots, but also to other centres of endemism, and reef 'wilderness' areas, which are relatively undisturbed by human activities. One such wilderness area is New Guinea, which has reefs in near-pristine condition, relative to other reefs around the world. The study also indicates that there is opportunity for the integration of marine and terrestrial conservation, as 14 of the 18 centres of endemism are adjacent to terrestrial biodiversity hotspots.

(Source: *Science* 15 February 2002 (295:1280–1284))

Women oceanographers

'Our knowledge of the earth and its oceans has been pieced together through the work of many individuals. Increasingly, women have made significant contributions to marine science.' This statement comes from a website that encourages young women to pursue careers in marine science, and features the careers of remarkable women in

oceanography, offering their unique insights about their profession. Learn how these women are contributing to our understanding and appreciation of the ocean and how they go about their daily work by checking out the website:

www.womenoceanographers.com

MALAYSIA

The power of knowledge: Men, women and children of fishing communities in Malaysia come together to learn about drug addiction and HIV/AIDS

By P Balan, Advisor/Coordinator of the Penang Inshore Fishermen Welfare Association (PIFWA)

In the tranquil village of Batu Kawan, the Penang Inshore Fishermen Welfare Association (PIFWA) brought together inshore fishermen, youth, children and women for a workshop on HIV/AIDS and Drug Abuse. PIFWA invited distinguished speakers from the State Health Department, the National Drug Agency and the Police Department to speak to the group on these two social issues. Even the woman representative from the state assembly of the area was present to lend her support to the workshop.

The workshop provided a good opportunity for fishermen and their families to learn more about these two issues. In some fishing villages the incidence of drug addiction among fishermen is quite high, and authorities conduct frequent raids to arrest drug traffickers and drug addicts. Wives and children are negatively affected when their husbands and fathers become involved in such activities. The workshop also strove to raise awareness on HIV/AIDS among the fishing community-women, youth and children. The possibility of contracting this deadly disease is

real considering the use of injected drugs and the low level of education in the community.

Women – mostly wives of fishermen-contrast HIV/AIDS as a consequence of the sexual escapades or drug habits of their men and are then shunned by society. It was definitely a turning point in PIFWA's activity when the women, with their husbands and children, came to learn about HIV/AIDS and drug abuse.

It is hoped that this workshop will be a turning point in their lives enabling them to take control of their health and their families. By giving these women the power of knowledge, it is hoped that they will be empowered to speak out against the negative activities taking place within their communities. It is well established that women in fishing villages have always had a strong family and community tradition. Their active involvement on any issue could certainly make a difference.

The author can be contacted at pifwa@hotmail.com

Fishermen replant mangroves

P. Balan, Advisor/Coordinator, Penang Inshore Fishermen Welfare Association, Penang, Malaysia

In February, the Penang Inshore Fishermen Welfare Association (PIFWA) hosted a workshop on the importance of mangroves. The main objectives of the workshop were to: understand the importance of mangroves to fishermen; the many uses of mangroves; and the general status of mangroves forest in Penang.

There are only 900 ha of mangroves left in Penang and only half is set aside as forest reserve. It is estimated that 130 ha of mangroves have been lost every year since 1966. Reasons for mangrove destruction include aquaculture projects (namely shrimp farming), construction and other 'development' activities.

In the wake of declining fish catches in the last ten years, inshore Penang fishermen rightly suspected that the loss of mangroves contributed significantly to this alarming situation. What used to be a lush, healthy stretch of mangrove forest in Balik Pulau is now being invaded with hundreds of hectares of shrimp ponds in Kuala Sungai Pinang and Pulau Betong. The same can be seen in Sungai Chenaam and Batu Kawan in Seberang Perai Selatan.

In Batu Kawan, inshore fishermen once spoke about not having to venture deep into the sea because the mangroves provided them with more than enough food. Now, what's left are residential areas, tarred roads and more construction. The Jejawi river is now polluted and fishermen must go further out to sea for their daily catch, and even then, it is not enough to justify the time and cost. The fact is, mangroves are directly linked to the livelihood of inshore fishermen because they affect the fish stock in the sea

The mangrove species found in Penang are **api-api** (*Avicennia* sp.), which is the prevalent species, **bakau minyak** (*Rhizophora* sp.) and **bakau kura** (*Bruguiera* sp.). Aquatic animals living in the mangroves include many species of fish, snails, cockles, shrimps and crabs. There are also reptiles such as snakes and monitor lizards, migratory and local birds, insects, mammals (e.g. monkeys), wild boars and otters.

The mangroves ecosystem thrives within the tidal zone where high and low tide embrace the forest at different times of the day. The trees grow out of the

mudflats with their complex roots system shooting out of the mud. This is an ideal place for many aquatic species to breed and feed their young, and the roots provide shelter for juvenile fish. Mangroves are also a source of food and medicine. Without mangroves, many aquatic species would lose their refuge and become vulnerable to predation and other dangers. Penang fishermen reported that areas where mangroves have been felled, have registered a gradual decline in fish catch over the years.

During the workshop, Penang fishermen were passionate when talking about mangroves. They understood perfectly the need to protect mangroves, which in turn would protect their livelihood. For fishermen, mangroves and fish are closely related; without mangroves there will not be fish in the sea.

Since 1997, fishermen have planted more than 25,000 mangrove saplings in Penang alone and they are committed to planting more saplings in the future.

PHILIPPINES

Blue crab management in the Philippines

The blue crab is the Philippines' sixth most important export fishery. Yet despite its importance, overfishing and habitat destruction are negatively impacting this fishery, which in turn threatens the future of local fishing communities.

According to a recent study by the World Wide Fund for Nature's Sulu-Sulawesi Fisheries Programme, the average blue crab catch 10 years ago was 20 kilos per fisherman per day. Now on a good day the daily catch per fisherman barely reaches 10 kilos. According to the study, resolution of the problems facing the fishery are hampered by the lack of a management plan for the fishery, insufficient policies enabling effective and sustainable management, and inadequate law enforcement.

Approximately two-thirds of the blue crabs taken in the region are exported to Asia and the United States. Worried about their livelihood, some local communities have considered the possibility of a certification scheme. WWF is doubtful about this option, however, in part because better data about blue crabs is needed.

In the meantime, WWF will continue with its theatre performance, called 'Blue Crab Primer', which is an interpretive theatre drama on the how good fisheries management is the key to continued benefits of this fishery.

(Source: World Wide Fund for Nature, 14 December 2001)

KENYA

Red tides impact Kenyan fishermen

Thousands of dead fish and marine animals, including rays, sharks, tuna, turtles and octopus washed up along 1000 kilometres of coastline in Kenya and Somalia in early February. Scientific studies at the University of Nairobi indicate the cause was a bloom of toxic microscopic algae that paralyses fish. 'Red tides' (so-called because they turn coastal waters a reddish-brown) occur when sea surface waters are particularly warm, high in nutrients and calm. The excess nutrients generally come from sewage and fertiliser washing into the sea from the land.

A red tide last December in Zanzibar, Tanzania and elsewhere suggests a growing pollution problem in the western Indian Ocean, and one that has serious

consequences for fishing communities. Many fishermen have reportedly stopped fishing for fear of poisoning. Fisheries authorities in the region are concerned that the toxins are building up in fish tissues, thereby creating a continued public health risk.

Because of local upwelling of cool, sub-surface water Kenya's coastal seas are already high in nutrients. Some fishermen have reported that an ocean current that normally flows northwards towards Somalia has recently been flowing south and towards the shore. These two events in combination may account for the unprecedented red tide.

(Source: New Scientist, 05 February 2002)

BOOKS & PUBLICATIONS



World Atlas of Coral Reefs

By Mark Spalding, Corinna Ravilious and Edmund Green

Coral reefs are one of the most biologically diverse habitats in the world, host to an extraordinary variety of marine plants and animals. They are also one of the world's most fragile and endangered ecosystems. The growth of mass tourism, combined with the boom in popularity of scuba diving, has brought these spectacular ecosystems to public attention across the planet. Coral reefs provide essential fish habitat, support endangered and threatened species, and harbour protected marine mammals and turtles. They are a significant source of food, provide income and employment through tourism and marine recreation, and offer countless other benefits to humans, including supplying compounds for pharmaceuticals.

Yet coral reefs around the world are rapidly being degraded by a number of human activities, such as overfishing, coastal development, and the introduction of sewage, fertilizer, and sediment.

World Atlas of Coral Reefs provides the first detailed and definitive account of the current state of our planet's coral reefs. With its wealth of authoritative and up-to-date information, the

finest maps available, and detailed descriptive texts and images by leading experts, this full-colour volume will be a critical resource for anyone interested in these vital environments.

World Atlas of Coral Reefs contains eighty-four, full-page newly researched and drawn colour maps, together with more than two hundred colour photos illustrating reefs, reef animals, and images taken from space by NASA astronauts during the 2000 and 2001 space shuttle flights. The authors provide a wealth of information on the geography, biodiversity, and human uses of coral reefs, as well as details about the threats to their existence.

Prepared at the UNEP Conservation Monitoring Centre in Cambridge, England — the United Nations office responsible for providing authoritative information on the condition of global biodiversity—the Atlas will be a critical tool for scientists, students, policymakers, and planners at local, national, and international levels alike.

(Source: Amazon.com (<http://www.amazon.com/>))

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PIMRIS is a joint project of five 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.