



Secretariat of the Pacific Community

**AN ASSESSMENT OF  
THE ROLE OF WOMEN  
IN FISHERIES IN  
POHNPEI, FEDERATED STATES OF MICRONESIA**

COMMUNITY FISHERIES SECTION  
Secretariat of the Pacific Community  
Noumea, New Caledonia

New Zealand Official Development Assistance  
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# ABBREVIATIONS AND ACRONYMS

CETC	Community Education Training Centre
CFC	Caroline Fishing Company
COM	College of Micronesia
CSP	Conservation Society of Pohnpei
EDA	Economic Development Agency
EEZ	Exclusive Economic Zone
EPA	Environmental Protection Authority
FAD	Fish Aggregating Device
FAO	Food and Agricultural Organization of the United Nations
FSM	Federated States of Micronesia
GDP	Gross Domestic Product
HACCP	Hazard Analysis Critical Control Point
JICA	Japanese International Co-operation Agency
MCRM	Marine and Coastal Resource Management
MERIP	Marine and Environmental Research Institute of Pohnpei
MIC	Micronesian Island Conservation
MLFC	Micronesian Longline Fishing Corporation
NFC	National Fisheries Corporation
NGO	Non-Governmental Organisation
OFCF	Overseas Fisheries Cooperation Foundation
PFC	Pohnpei Fisheries Corporation
SBGFC	Small Business Guarantee and Finance Corporation
SPC	Secretariat of the Pacific Community
SPREP	South Pacific Regional Environment Programme
TNC	The Nature Conservancy
USD	U.S. dollar



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*Pohnpei's main island is skirted by mangrove forest.*



# 1 . EXECUTIVE SUMMARY

## Objectives

The assessment of the role of women within fishing communities in Pohnpei, Federated States of Micronesia (FSM) was carried out from the 22 July – 7 August 1999. The survey was conducted by Ms Lyn Lambeth (SPC Community Fisheries Officer), with the assistance of Mr Francis Itimai, Head of Fisheries Section, Ms Anne Luior, National Women's Interest Officer and Mr Estephan Santiago, Conservation and Management Officer. The assessment was requested by the Government of the Federated States of Micronesia in response to an identified need for more information on the participation of women in the fisheries sector in FSM.

The main objectives of the field survey were to:

- ♦ review the social and economic role of women in the fisheries sector, including activities such as the harvesting, processing and marketing of marine resources;
- ♦ provide details on both government and non-government services available to support the interests of fishing communities and identify support services specifically aimed at women in the fisheries sector;
- ♦ outline the problems faced by the small-scale fisheries sector, with particular attention to those problems faced by women; and
- ♦ provide guidelines to assist government and interest groups in finding solutions to these problems.

## Major findings

- ♦ Fishing is an important activity for men and women in Pohnpei. Many people in the villages are involved in some form of subsistence and artisanal fishing or collecting. The neighbouring islanders from the atolls are still very dependent on fishing and reef gleaning to provide food for the family. Artisanal fishermen and women sell their catch from a number of outlets in the main centre, Kolonia. The large-scale commercial fisheries activities involve foreign fishing vessels, joint ventures and a few locally-owned companies. The majority of the purse seine and longline boat crews are foreign. A small number of Pohnpeian men and women are employed in processing tuna steaks and loins for export.
- ♦ Catches of many inshore resources on which subsistence and artisanal fishermen and women depend are declining.
- ♦ A number of government and non-government agencies support fisheries development, training, and the conservation and management of marine resources. Regional training opportunities for those involved in the commercial fisheries sector are also available.
- ♦ Government and non-government fisheries efforts have been focussed on the development and support of the large-scale tuna fishing industry. Some support has been given to men involved in artisanal fisheries but there has been little or no direct assistance or training given to women or to those involved in subsistence fisheries. A lack of recognition of the importance of subsistence fisheries has meant few resources have been directed to their support or management.
- ♦ The term "fishing" is interpreted by men and women alike as only applying to the fishing activities of men. As a consequence, many fisheries activities performed by women (such as collecting invertebrates and the preparation and sale of fish, shellfish and other seafood products) have been overlooked in development and management support given to the fishing industry.

## 2 . RECOMMENDATIONS

To ensure that all sectors of fishing communities are considered in fisheries development and management programmes in the State of Pohnpei it is recommended that:

- ♦ **Pohnpei State Marine and Coastal Resource Management (MCRM), with support from State women's agencies, involve women more in their work and consider their needs and activities when planning and implementing development and management programmes for marine resources.**

Including women in the regular extension work of the fisheries agency is important to ensure the concerns of all the community are addressed and that all marine resources are managed in a sustainable manner.

The State Women's Programme and the Pohnpei Women's Council need to support sustainable marine resource use in the community and work with the MCRM in meeting the needs of women involved in fisheries activities. Women's organisations should be encouraged to draw upon government fisheries expertise in developing programmes for village women.

The National Fisheries Section should emphasise the importance of women's fishing activities when discussing the needs of the Pohnpei fisheries sector with government or with funding agencies. The National Fisheries Section should encourage and assist the inclusion of women in all marine resource planning and activities.

- ♦ **Pohnpei State MCRM provide more training programmes for subsistence and artisanal fishers, particularly women.**

MCRM should work with women's groups in planning and implementing training programmes for women. The SPC Community Fisheries Section can provide initial assistance to support programmes for women in fishing communities. People from rural and neighbouring island atolls should be included in these programmes.

The Community Fisheries Section can assist in organising and running a workshop on some or all of the following topics: seafood quality and handling; preservation of seafood; marketing; small business ideas and skills; conservation of marine resources; the role of fisheries regulations; and practical management measures for commonly harvested marine resources. A number of resource people, government and non-government, are already working in some of these areas and it would be desirable to include them in the planning and delivery of training.

MCRM should follow up this work with a training programme aimed at artisanal and subsistence fishermen and women. The expertise of local resource people from government and non-governmental organisations should be utilised in this programme.

- ♦ **The National Fisheries Section and National Women's Interest Officer encourage and foster greater co-operation and dissemination of information between national, state, municipal and grassroots organisations (government and NGO).**

The National Government has an important role in directing policy and advising the four state bodies in their work but it also needs to ensure that the information is actually being passed on. There needs to be more co-operation and information-sharing at every level. The dissemination of information to grassroots women and organisations needs to be especially encouraged.



*High rainfall in the interior of the main island feeds numerous rivers and waterfalls.*

The State Government focal point for women's interests, the Pohnpei Women's Council, needs to clarify its role and perhaps become more of a co-ordinating body for all grassroots women's organisations in order to minimise duplication and strengthen the overall impact of the women's groups.

The SPC Community Fisheries Section should maintain contact with the National Fisheries Section and the National Women's Interest Officer in order to provide information and opportunities.

The establishment of a regular source of information on opportunities, events and news concerning the subsistence and artisanal fisheries sectors would be a useful way of linking various government and non-government groups and keeping rural people informed. A radio programme would be the least expensive and most effective means of reaching a large number of people. Including rural and neighbouring island atolls in any information programme should be a priority.

- ♦ **National and State Government initiate and support public awareness programmes on fisheries and community fisheries management measures.**

Public awareness should be promoted through all of the areas outlined above. Co-operation between various government and non-government groups working towards similar goals (sustainable fisheries development, conservation and community development) is the best way to use human resources and expertise.

State and National Government agencies should utilise and support the various marine resource public awareness programmes presently being run or planned by non-governmental organisations such as the Conservation Society of Pohnpei, Micronesian Island Conservation, Micronesian Seminar and others.

Moves towards increasing community management of marine resources need to be supported by the work of State and National Government.

- ♦ **More research and support be given to developing alternatives to current unsustainable inshore fisheries activities.**

Several areas could be explored including small aquaculture projects and value-added tuna products. Aquaculture is already supported by work at the Pohnpei Agriculture and Trade School and should be encouraged and promoted by the Pohnpei State MCRM. Value-added tuna products is an area MCRM could consider promoting. The SPC Community Fisheries Section is able to give technical support and training assistance where necessary.

To ensure that all sectors of fishing communities are considered in fisheries development and management programmes in the Federated States of Micronesia, it is recommended that:

- ♦ **The SPC Community Fisheries Section should support the FSM National Fisheries Section in future work in all states.**

In addition to the proposed SPC workshop for Pohnpei, further work should be done in Kosrae, Chuuk and Yap. The SPC should continue to assist the National Fisheries Section in addressing concerns regarding inshore marine resource use. The National Fisheries Section and the National Women's Interest Officer need to work with the relevant state bodies to gain their understanding, support and participation in this programme. Community management of marine resources is an area that should be explored and the SPC Community Fisheries Section can offer advice and technical assistance in this area.

# 3 . INTRODUCTION

The SPC Women's Fisheries Development Section, now the Community Fisheries Section, was established in 1991 at the request of SPC member governments, to provide assistance and support to women in the fisheries sector. It was recognised that the needs of women had often been overlooked in development projects undertaken in many Pacific Island countries. Pacific Island women have traditionally been involved in fisheries activities, with the collection and processing of seafood for family consumption and small-scale income generation, but little has been done to document their activities and identify potential areas for development, or to assess problems such as overharvesting or the impact of development on their fishing areas.

This lack is not necessarily one of 'men's development' as opposed to 'women's development'. It is more a result of the nature of the fishing areas and the type of development involved. Traditionally, men have fished with boats offshore while women have concentrated their activities on the inshore areas, collecting or gleaning a number of species from the reef and inshore areas. Pacific Island countries are interested in encouraging the development of offshore fishing activities, to generate income and to reduce the pressure on inshore marine resources, and this has targeted the people most involved in this type of fishing—men.

When most people think of 'fisheries' they think of men going fishing in boats and, therefore, to speak of women's involvement in fisheries can be confusing. If marine resources are to be successfully developed and managed in a sustainable manner, then it is necessary to broaden our understanding of what the terms 'fisheries' and 'fishing' really encompass. Fisheries activities include not just going out in boats and catching fish, but also collecting shellfish and other marine life from the reef and mangroves; cleaning, cutting, cooking and preserving seafood; marketing seafood; and a host of other activities having to do with marine resources that may involve men, women and children. All of these activities should be considered when planning fisheries development as well as the conservation and management of marine resources.

# 4 . METHODS

Interest in the SPC Women's Fisheries Development Project first arose at the Seventh Triennial Conference of Pacific Women held in Noumea in 1997. However, it wasn't until after the 1998 SPC Regional Technical Meeting on Fisheries that FSM officially requested the project.

The SPC Community Fisheries Section was then asked to provide guidance and assistance to the women of FSM in the area of fisheries development and management. Because of the diversity between the four states it was decided that separate surveys would be undertaken for each state, with the initial survey covering Pohnpei State.

Following a request by the FSM Head of Fisheries and an invitation by the National Women's Interest Officer, the timing of the visit to Pohnpei was designed to coincide with the 1999 Fifth FSM Women's Conference. This gave the SPC Community Fisheries Officer an opportunity to meet with women from all four states of FSM to discuss the special circumstances of each state and provide direction for future work in Kosrae, Yap and Chuuk. The theme of the Women's Conference was 'sustainable human development: people taking charge of their own and their country's development.'

Two weeks were spent gathering information and meeting people in Pohnpei, and one week was spent attending the Women's Conference. The survey entailed interviews with men and women involved in fisheries activities; government agencies (dealing with fisheries, women's development, education, health, the media, island development, and commerce); non-government agencies (including representatives from community development organisations and conservation groups); business; the media; and the banking sector. Field trips were undertaken to speak to fishermen and women from villages in Madolenihmw municipality and to observe fishing techniques and fishing areas used by the villagers.

A list of the people interviewed can be found in the appendix.



# 5 . BACKGROUND SOCIAL AND ECONOMIC INFORMATION

## Geography

The Federated States of Micronesia (FSM) consists of four states, Pohnpei, Kosrae, Chuuk and Yap, with more than 600 islands scattered over approximately one million square miles (386,190 km<sup>2</sup>) in the western Pacific Ocean. The total land mass is 270 square miles (700 km<sup>2</sup>). The huge island group constituting FSM includes almost every type of ocean topography: Pohnpei and Chuuk have high volcanic islands with neighbouring island atolls, Yap is a large island of sedimentary rock with neighbouring atolls, while Kosrae still has remnants of its volcanic core raised above the lagoon and no neighbouring atolls. The high islands have extensive mangrove forests, coconut groves, upland rainforest, and ferns or grasslands near the summit (SPREP 1993).

Pohnpei State is composed of a large volcanic island with 25 smaller islands within a barrier reef, and 137 widely scattered islands grouped in eight atolls. Pohnpei main island, is almost completely skirted by mangrove forest, a large lagoon and a barrier reef. In the south of the island the mangrove forest is up to a mile wide and canoes must wind through channels to reach the lagoon. The high rainfall of the interior feeds numerous streams, rivers and waterfalls.

## Population

The 1998 population estimate for FSM was 114,100 with an average population density of 422 people per square mile (163 people per square km). More than half the population live in the State of Chuuk, about one third live in Pohnpei State, and the remainder in the smaller States of Yap and Kosrae. Chuuk has the highest population density of the four states—one of the highest in the world—while Kosrae has the lowest (SPC 1998).

FSM has a very young population with a high ratio of dependants (people under 15 and over 64) to those in the economically productive ages (15–64). This ratio has, however, declined from 102 dependants per 100 people of working age in 1973 to around 90 dependants per 100 in 1994. The higher the dependency ratio, the higher the number of people who need to be cared for by the working-age population. The decline reflects a decrease in fertility, fewer numbers of births lead to a proportional decrease of the population younger than 15 compared to the working-age population. The decline in fertility could be explained by a combination of factors: educational improvements, especially for women; higher participation of women in the workforce; changing attitudes in favour of smaller families; and possibly an increase in the mean age at marriage (Demmke et al. 1997).

## Economy

FSM became self-governing in 1986 under the Compact of Free Association between the FSM and the United States. The Compact of Free Association gives the US continued responsibility for defence and security, while FSM receives financial assistance with a step-down in funding every five years until the expiration of the Compact in 2001 (SPC 1995). FSM has a federal government, based in Palikir, Pohnpei, as well as four state governments, each with its own administrative organisations and a high degree of autonomy. In Pohnpei and Yap traditional leadership continues to have a considerable influence on the political process.

The economy of FSM is dominated by the public sector with government expenditure accounting for over 82 per cent of gross domestic product (GDP) in 1994. Much of this expenditure is in the form of wages and salary payments to public sector employees based in the main urban centres of the main islands of each state (OFCF 1997). The step-down in Compact funding has resulted in some government job cut-backs in recent years. Although the number of private sector jobs has exceeded those in government, public sector wages are significantly higher than private sector wages.

FSM has both a monetised modern sector concentrated in urban areas and a traditional sector prevalent in the rural areas and neighbouring island atolls. The traditional sector relies on agriculture and fisheries subsistence activities. Accurate figures for the subsistence sector are difficult to obtain. Government reports indicate that the subsistence economy generates as much as 25 per cent of GDP but this is unverified by independent data (Bank of Hawaii 1995). Variable definitions of subsistence adds to the confusion and the figure of 25 per cent seems to be calculated by considering only those who farm or fish without selling. In reality it is more likely that most household income is produced by a combination of subsistence and wage activities. Hezel et al. (1997) estimate that such a mixed, semi-subsistence economy could account for about 55 per cent of the population and that "there has been a lack of attention to the positive importance of subsistence sector development."

### Economic activity

**Significant differences exist in FSM between male and female economic activity, or participation in the labour force. In Pohnpei the overall labour force participation rate in 1994 was about 46 per cent—this means that 46 per cent of the people over the age of 15 were either employed at the time of the census, or actively seeking employment. Economic activity in this case does not include household work, which is mainly done by women, but it does include subsistence activities. The remaining 54 per cent includes people involved in housework, students, the sick and disabled and those able to work but not actively seeking employment. The male participation rate in the labour force was 61 per cent—nearly twice that of females at 31 per cent. Similar figures are found when looking at the national FSM labour force statistics. Women not only have a much lower labour force participation rate, but of the relatively few that do participate, more than a quarter are unable to find a job.**

**Source: FSM (1996b); Demmke et al. (1997).**

## Culture

The people of FSM are Micronesian, with the exception of the Polynesian people of Kapingamarangi and Nukuoro Atolls (Pohnpei State). The four states have distinct cultures and identities, with eight major indigenous languages being spoken. Traditional extended family and clan systems are still common, though the influence of western culture since World War II has changed significant aspects of traditional culture. Nowadays it is common for smaller family groups to live separately from the traditional extended family.

Outside the capital of Kolonia, influential lines of chiefs and nobility control the five municipalities: Sokehs, Nett, U, Madolenihmw, and Kitti. Each has a nahnmwarki, or "high chief", and a nahnken, or "talking chief"; these titles are inherited matrilineally through a political or cultural succession. Below the hereditary nobility are other social classes of landowners and commoners. Land in the traditional society was owned by the nahnmwarki. This traditional ruler leased the land to landlords who in turn oversaw its use by commoners.

Traditionally, much of the work carried out by an individual was done so at the request, and on behalf of, the extended family group. The senior man in the lineage supervised lineage affairs and co-ordinated work assignments while his female counterpart directed women's activities on behalf of the lineage (Barnabas & Hezel 1993). Today there have been many changes and people spend more time on work for their own household, though lineage labour is still used on occasion for community or lineage feasts.

Pohnpei Island is the site of the stone city of Nan Madol that is believed to be at least 1500 years old, possibly much older. The city was the centre of the Sau Daleur empire from about 500–1300 AD and is built on the intertidal flat on 92 artificial islands connected by walled canals and some subterranean tunnels. Nan Madol is Pohnpei's most important cultural and historical site.

## The Legend of the Origin of Pohnpei

**Long ago, there lived a man named Sapkini on the island of Eir. Under his guidance, a great canoe was built to sail into the unknown in search of a new land. Sapkini believed this new land existed where the sky touched the sea. Sapkini wisely selected his crew, each of whom was endowed with the skills or magical power needed for sailing or working the land. After many days at sea they met an octopus named Lidakika, who directed them to a distant shallow reef on which a small coral head was exposed. They named it Tierensapw ("bit of land"), because it was no larger than the distance between the canoe and its outrigger. From this bit of coral, the island of Pohnpei was built.**

**By magic, they called stones and boulders to Tierensapw from other places, but the earth and soil was continuously washed away by the waves of the sea. The people called on Katengenior ("stabilizer of the shore") for help. Katengenior surrounded the land and created a barrier reef for protection. Still the land was not stable, so they called on Katenanik, who caused the mangrove trees to take root to hold the shore in place. After the shore was secure, the people dug earth and piled it into a platform, which they named pei (stone altar). Pohnpei was built on top of (pohn) the altar, thus the island was named Pohnpei, or "upon a stone altar."**

**Source: Pohnpei Watershed Project Team (1996) and Santiago, pers. comm., 2000.**



*The majority of the people of FSM are Micronesian.*

## The role of men and women in traditional and modern society

Agriculture on Pohnpei Island was largely a male activity with breadfruit being a particularly important crop. Breadfruit can be preserved in pits and the preparation and cooking for this is also traditionally men's work. In Pohnpei, growing ceremonial yams and sakau (kava) was entirely men's domain, with many yams being grown in remote locations. Women's work centred on weaving and plaiting, and caring for the children and household. Agriculture in the neighbouring island atolls, however, was almost entirely women's work (Connell 1991). Fishing was usually, but not always, a male activity.

The traditional family was divided clearly upon sex and age lines with the status of each person being clearly defined and reinforced by respect behaviour. Son to father or daughter to mother, submission to the parents authority was not questioned. Within the code of behaviour of each family member there was also a stringent code of respect behaviour between the sexes. Girls were expected to assume a lower position and be humble when their brothers were around. Brothers had to avoid allusions to any sexual matters or bodily functions in the presence of their sisters. The changes in respect behaviour have been dramatic, both between parents and children, and between the sexes.

One thing that has remained relatively unchanged in cultural roles and practices is the role of women in the household. Women still perform the domestic duties as they always have. They keep house, cook and take care of children. Older girls continue to have responsibility for the care of younger siblings.

Although women never held strong public roles in traditional Pohnpeian life they did have a certain amount of authority in certain areas, such as how lineage land was apportioned and who would use what parcel of the land. Women were often the initiators of projects in the community and also played an important role as peacemakers in conflicts. With all tasks, there were very clear, complementary roles for men and women. If men constructed the house, women would weave the thatch. Each did a separate, though equally important, task.

Women's roles have changed significantly in recent years. Many of the roles of women were rooted in the extended family and, as this has broken down, women have lost much of their traditional informal authority. Men's traditional roles have been eroded as well, though they generally have been given access to new roles in modern society—entering the modern workforce while continuing their role in the home. To some extent the principle of complementary roles is still strong, i.e. if men are doing a particular task or activity, then women shouldn't be. This, combined with the traditional "separation of powers" that prevents women from taking public office and acting as spokespersons in the community, have left women today with a much narrower, less powerful, and often less respected role in modern society (Barnabas & Hezel 1993).



*The preparation of sakau (kava) is still an important part of traditional meetings in Kitti municipality.*

## Health

With a rapidly growing population, overcrowding in some urban areas is resulting in an increase in gastrointestinal and infectious diseases. Communicable diseases associated with poor water and sanitation are among the leading causes of childhood illness and mortality. Nutritional disorders are also evident both among the poor in the overcrowded, underemployed urban sectors and the more affluent who are showing a growing preference for imported "convenience" foods (SPREP 1993).

Mortality levels seem not to have improved during the last decade and there is a need to improve infant, child and maternal health by improving primary health care programmes, nutrition and providing safe water, adequate sewage and waste-disposal systems etc. (Demmke et al., 1997).

## Education

Schooling in FSM is compulsory with a curriculum and school system based on the American education system. The level of education reached by people in FSM has clearly improved over the past 20 years although the percentage of males with post-elementary education is still significantly greater than that of females. Nineteen per cent of males and 27 per cent of females over 25 years of age have had no formal education. At primary and secondary level, enrolment rates for females are generally equal to or higher than those for males, yet at tertiary level, females lag behind males.

The College of Micronesia is based in Pohnpei, with a campus in each state. The college offers a variety of courses and presently has around 700 students. All programmes go through an accreditation commission enabling courses and subjects to be transferable to other institutions. Many students go on for further study overseas, mostly to the United States.

The National Division of Education is currently developing a comprehensive education programme to cover the government priorities identified in the First FSM Economic Summit – agriculture, fisheries and tourism. A Career Education Summit will seek ways of promoting careers in these areas. Staff development will also need to be addressed.

Six hundred state-wide scholarships and five to ten national (graduate) scholarships are offered. State and national scholarships are presently open for study in any area but in the future, the Education Division would like to emphasise study leading to careers in the productive sector.

## Religion

The church has a respected and influential place in Pacific societies and FSM is no exception. Protestantism and Catholicism are the two major religions in Pohnpei (and FSM). The Catholic religion dominates Pohnpei Island (55 per cent of the population of Pohnpei Island) while the Protestant religion is dominant on the neighbouring island atolls (81 per cent of the population of those islands). Other religions constitute about 7 per cent of the population of the State.

## 6 . THE FISHERIES SECTOR

### **Fishing: traditional and modern**

The role of men and women in providing seafood for the family was very important in the past, before the introduction of the cash economy. Increasing numbers of people are now involved in paid work and much of their food, local and imported, is now purchased from shops. However, subsistence fishing and the collection of seafood from the reefs and mangroves still plays an important part in providing food for the family, especially outside the main urban centre of Kolonia, and even more so on the neighbouring island atolls. There is a strong demand for fish and fish products in FSM and per capita consumption has been estimated at over 70 kg per year (FAO 1998); much of this is supplied by the subsistence sector. Artisanal harvesting of marine resources is also becoming more important as more people, men and women, fish and collect to sell locally.

Land ownership and tenure is complicated within FSM and varies from state to state. Traditionally, the use of terrestrial resources and all accessible marine resources was distributed among the people under the control of chiefs. Rights could be given, earned and inherited. Shallow reefs and the intertidal flats and their resources were traditionally owned by the nearby landowners, but this traditional ownership is no longer recognised in Kosrae and Pohnpei (SPREP 1993). The increasing mobility of people, both on the land and at sea, has also given them access to wider fishing grounds than in the past. The traditional ownership of marine resources persists to a large extent in Yap and Chuuk and has been used in modern marine resource management.



*Subsistence fishing still provides an important source of food for many families.*

Conservation is not a new issue in FSM. The belief in the origin of Pohnpei (see The Legend of the Origin of Pohnpei, section 5) gave people an understanding of the importance of mangroves in creating and protecting the land. There were traditional practices governing the taking of fish that effectively worked as sustainable harvesting techniques.

In the past, there was one head fisherman per village and it was his responsibility to organise community fish drives and to regulate the amount of fish that was caught. When herding the fish the head fisherman would throw a stick into the middle of the school of fish to separate them – half were to be caught and the other half left to escape. Fishermen also knew about the migratory paths of some fish species as well as the spawning areas and seasons, which followed the breadfruit season. This meant they would not have to spend all day, everyday searching for fish but would go straight to the fish at the right time and catch what they needed. Fishing was timed to catch fish on their return from the spawning grounds rather than on their way there (Santiago pers. comm., 1999).

## Harvesting

### Subsistence and artisanal harvesting

The mean annual commercial production from coastal fisheries in all of FSM between 1989 and 1994 was estimated at 637 tonnes\* with a value of USD 1.5 million, while the mean annual subsistence coastal fisheries production for the same period was estimated at 6,243 tonne with a value of USD 11.2 million (Dalzell et al., 1996). A 1995 Overseas Fisheries Cooperation Foundation (OFCF) survey found that around 1,600 tonne per year are caught by artisanal and subsistence fishermen and women in Pohnpei alone (Fisheries Engineering 1995). These figures only show the reef and pelagic fish catch. According to this survey a higher proportion of these fisher folk were artisanal, catching for sale as well as home consumption, rather than purely subsistence, catching for daily consumption alone.

Subsistence and artisanal fishing are important for their role in nutrition, informal employment and their contribution to the cultural identity of coastal communities. The contribution of subsistence activities and informal employment to the economic and social well-being of Pacific Island communities is sometimes overlooked in the drive towards development and the management of commercially important resources.

### Invertebrates

The collection of shellfish, crabs and other invertebrates is still an important subsistence activity for many women. Mangrove crabs, *Scylla serrata*, **elimoang**, are collected for family use and for some commercial sale for the local market. Women collect mangrove crabs during the day at low tide, using a hooked stick to extract them from their holes. A small number are collected by hand at night during very low tides, on the sandy reef flats, and by using spears or traps.

Land crabs, *Cardisoma* sp., **pworu**, live in burrows in the forest and come out at night to feed. These crabs migrate to the sea to release larvae from their eggs at spring tide. They emerge at dusk, a few days before the full moon. Pworu are collected by women, by hand at night, especially during their spawning migrations. These are mainly for subsistence use although it is reported that substantial amounts were being exported from Yap to Guam, Saipan and Palau in the early 1990s (Smith 1992). Another crab species, *masaht*, is collected during the day when they climb on mangrove trees at high tide. They are collected mainly by women who use gloves or shake them from the tree into a bucket.

Coconut crabs, *Birgus latro*, **emp**, are similarly collected for subsistence use on the neighbouring island atolls of Pohnpei State with an unknown quantity being transported to Pohnpei Island or exported throughout the region. Coconut crabs were collected in the past from the reef islands surrounding Pohnpei Island, but their slow growth, susceptibility to environmental factors, and popularity has led to their scarcity in these areas.

Giant clams, *Tridacna* sp., **pahsu**, are still an important traditional food although *Tridacna gigas* has become locally extinct due to overharvesting. Other species (*T. maxima*, *T. squamosa*) are becoming harder to find and the State Marine Resources agencies throughout FSM are now involved in various hatchery and restocking projects (using *T. derasa* and *Hippopus hippopus*). *Tridacna crocea*, **sile**, are also collected for subsistence use. Giant clams are collected while swimming or wading over the reef.

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\* 1 metric tonne = 1.1023 ton (short ton)

The mangrove clam, *Anodonta edulenta*, **lipwei**, is harvested by women at low tide by searching in the mangrove mud with their feet. The clams are mostly used for family consumption. Other small clams, *kemei*, are collected in the sand with the feet and used for subsistence food or sold in bottles with lime. Both clams are believed to be helpful for nursing mothers.

*Trochus niloticus* (an introduced exotic species) are collected by both men and women during the limited open season. During a recent open day, over 1000 men and women collected around 130 tons of trochus in six hours. Pohnpei State Marine and Coastal Resource Management operates a giant clam and trochus hatchery on an island close to Kolonia. This project is aimed mainly at reseeding wild stocks.

Octopus, Cephalopoda, **kihs**, are caught by men and women, using a metal hook to remove them from their holes, by spearing them at low tide, or by men spearing them while diving in deeper water. Spiny lobsters are speared by men while diving in deeper water during the day, or may be speared by both men and women at night during the low tide, just after the new moon sets.

Sea cucumbers, Holothuroidea, are harvested by women for subsistence use and some local marketing. A Chinese company harvested sea cucumbers for the export market for one year before being stopped due to concerns of overharvesting and the collection methods used (raking the seabed).

The internal organs of the curryfish, *Stichopus variegatus*, **werer**, are collected by women in much the same manner as in Palau—being cut in half, or cutting a small slit with a knife, or using the finger to make a hole in the underside to remove the intestines. The sea cucumber is then returned to the water where it regenerates its internal organs after an unknown amount of time. Some people cut the animal with a knife to remove the intestines (as in Palau) but others believe this kills the animal and it is better to use the finger to make a hole in the underside. When using the finger the body wall dissolves around the pressure from the finger and the intestines are then ejected rather than having to be squeezed out.



*Curryfish, or werer, intestines are collected to eat or to use as bait.*

Little or no studies have been done on the regenerative properties of *Stichopus variegatus* after this form of harvesting.

As in many parts of the Pacific, women believe that the sea cucumber regenerates its intestines overnight, or at least within a few days, and if the animal is broken in half, then both halves will grow into two complete animals (this has been studied in *Holothuria atra*). The taste of the smaller animals, or those that have been harvested before, is preferred to the larger ones. Recently harvested animals appear normal from the outside but contain underdeveloped or no internal organs. Both men and women eat the intestines but they are believed to be particularly good for pregnant women and new mothers. The intestines are collected in the early morning before the animal has started feeding and when there is no sand in the gut, but they can be collected for use as bait at any time. When used for bait, the intestines are tied to the hook with a hair from the head and are said to be good for catching snapper. While collecting werer intestines for bait in heavily harvested areas, it is observed that most of the animals have sand in the intestines, after feeding all morning, but that there are often a few that contain no sand. The women speculate that these are the most recently harvested animals, unable to feed, because their intestines are not yet fully regenerated.

A number of other sea cucumber species including loangon, (sandfish, *Holothuria scabra*) are harvested for the outer part of the animal. The tough outer wall of loangon is scraped off, the animal gutted, and the remaining inner wall cut up and put in lime juice.



Curryfish intestines are squeezed into bottles.

In the past, one species of sea anemone was a popular delicacy harvested by women, but this has now disappeared due to overfishing. A hibiscus leaf would be placed over the anemone for an hour at low tide—according to the women this "made the anemone itchy" and was then pulled off and the stalk of the animal was cut. Only the stalk was eaten cooked in coconut oil. The women believe that the anemone is a plant and that the cutting of the "root" of the plant (so that it is unable to grow again) is what has led to its disappearance.

Shells are collected by people walking over the sand or coral at low tide or, for the larger shells, diving in deeper water. Ornamental shells such as cones and cowries, various shells used in handicrafts (money cowries and helmet shells), and specimen and rare shells such as the golden cowry are collected for the tourist market (Smith 1992).

The Pacific wool sponge, *Spongia officinalis*, has traditionally been harvested from wild stocks for bathing. A small trade based on farmed sponges is slowly developing (see Aquaculture section).

## 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 the fish to them. Women who know the 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 believe that 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 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 breastfeeding as this can give the baby a fever – turtle being especially dangerous and able to kill the baby.

*Source: Mudong, Tihpen & Santiago, pers. comm., 1999*



*Handlining at low tide is a popular activity for women.*

## Fish

Fishing is often, but not always, a male activity. Handlining at low tide for inshore fish species is a popular activity for women. In the past, women made their own nets and fishing was a community activity. Now people fish more individually. Community fish herding was also a common activity practised by men, women and children. Monofilament nets are now used, by men and women, to surround a school of fish. Alternatively, fish are driven into the net by splashing, beating the water with sticks, and throwing rocks. The fish are either entangled in the net or driven into an area where they can be easily speared.



*Monofilament nets are used now instead of nets made from traditional materials.*

Inshore fish species harvested by both men and women include snappers (Lutjanidae), emperors (Lethrinidae), groupers (Serranidae), parrotfish (Scaridae), rabbitfish (Siganidae), surgeonfish (Acanthuridae), trevallies (Carangidae), mullet (Mugilidae), squirrelfish (Holocentridae), and goatfish (Mullidae).

In the past, women would catch clownfish (*Amphiprion* sp.) and unicorn fish (*Naso* sp.) by breaking coral into a **naik**, a basket woven from leaves. The fish would then be scared into taking refuge in the coral in the basket. The fish were eaten and the bones put into oil for use as a 'perfume' for use in the drinking of **sakau** (kava). The **naik** would also be used to scoop fish when they were plentiful but this method is no longer used.

Traditionally, tuna and other pelagics were caught by trolling and handlining from sailing canoes, using lures of wood, shell and feathers. Flying fish were also caught at night from sailing canoes, using scoop nets and torches (Connell 1991). Outrigger canoes are still used, although Japanese designed fibreglass boats with outboard motors are now common and are used almost exclusively by men for trolling, handlining, spearfishing and netting. A few women fish from boats, most of them going with male family members to fish for the local market. A fibreglass boat without an outboard motor, costs around USD 4,000.

Tuna species harvested in FSM include yellowfin (*Thunnus albacares*), albacore (*T. alalunga*), bigeye (*T. obesus*), skipjack (*Katsuwonus pelamis*), mackerel tuna (*Euthynnus affinis*), frigate tuna (*Auxis thazard*), bullet tuna (*Auxis rochei*) and dogtooth tuna (*Gymnosarda unicolor*).

Other pelagics harvested by subsistence and artisanal trolling include blue marlin (*Makaira nigricans*), black marlin (*Makaira indica*), striped marlin (*Tetrapturus audax*), broadbill swordfish (*Xiphias gladius*), sailfish (*Istiophorus platypterus*), wahoo (*Acanthocybium solandri*), mahimahi or dolphinfish (*Coryphaena hippurus*), rainbow runner (*Elegatis bipinnulatus*) and barracudas (*Sphyraena* sp.).

Small pelagics harvested by scoop nets, beach seines and handlines include scads (*Decapterus* sp., *Selar* sp.), mackerels (*Rastrelliger* sp.), sardines (*Amblygaster* sp.) and flying fish (*Exocoetidae*).

Sharks and rays are not eaten in Pohnpei State, although it was reported that on Kapingamarangi, shark is eaten. Sharks were traditionally caught on this island by enticing them alongside the canoe, slipping a noose over the head, pulling it partly out of the water and then killing it with a blow to the head (Fischer 1957). Sharks are also a bycatch of the tuna longline and purse seine fisheries and fins and skins are visible drying on the foreign vessels tied up in Kolonia.

## **Mangroves**

On Pohnpei Island, mangroves are intensively harvested for timber (for construction, furniture, fuel, posts, crafts) and their habitat is used to harvest marine resources such as clams and crabs. Areas of mangroves have been disturbed by road building, dredging, waste-dumping and the construction of houses, marinas and other structures. The maintenance of healthy mangrove areas is essential to FSM's marine resources, both as a place for harvesting resources and as a nursery area for many fish species. They also provide important protection against shoreline erosion and prevent excessive amounts of sediment from land runoff reaching the reef.

## **Large-scale commercial fisheries**

FSM's Exclusive Economic Zone (EEZ) contains substantial tuna stocks that are fished by foreign fishing vessels under access agreements. Fees collected from other nations fishing within FSM's EEZ are the largest single revenue source for FSM apart from Compact funds. Access fee revenues have risen from USD 2 million for 926 licences in 1979 to over USD 21 million for 634 licences in 1994. This includes transshipment fees and goods and services (OFCF 1997). The Micronesian Maritime Authority covers licensing and management of foreign fishing vessels, observer placements, catch report and revenue collection, conclusion of agreements with foreign fishing interests, and conservation and management of living marine resources in the EEZ.

Foreign fishing vessels from Japan, Taiwan, Korea, People's Republic of China and Philippines have access agreements for offshore tuna fishing and are encouraged to use the available ports and transshipment facilities. Between 1979 and 1990 payments by Japan accounted for almost 77 per cent of total revenue obtained from access fees. Tuna exports are mainly for fresh sashimi grade to Japan and, to a lesser extent, fresh tuna and other fishes to Guam and Hawaii. The purse seine fishery is the most important in terms of both volume and value, taking over 80 per cent of the total tuna (mainly skipjack) catch by foreign vessels in FSM. Longliners targeting yellowfin and bigeye tuna for sashimi, and pole and line vessels targeting skipjack account for the remainder. The fresh tuna longline fishery has expanded rapidly in recent years with an increase in the number of Chinese vessels entering the area under charter arrangements (FAO 1998).



*Foreign fishing vessels in Kolonia, Pohnpei.*

Many of the foreign longline vessels licensed to fish in FSM waters choose to unload their catch from ports in Guam or other neighbouring countries. Reasons for this include, among others, a lack of skilled services and facilities for the repair and maintenance of vessels, and limited runway space that restricts the size of aircraft that can be accommodated – the aircraft that are able to use the runways do not have sufficient fuel range to reach Japan with a full load of fish and must transfer their cargo at Guam or other airports in the Marianas (FSM 1997).

A number of joint venture operations also exist between the National and State Government, and between Government and foreign fishing companies. The National Fisheries Corporation (NFC) is a national government company currently operating eight longline fishing vessels and is involved in the transshipment of chilled tuna to Japan for the sashimi market. NFC is also involved in a number of joint ventures with the states, aimed at developing the domestic tuna longline industry and associated shore facilities. Each boat has a crew of seven, mainly Indonesian. NFC has one local skipper (a graduate from the Micronesian Maritime Fisheries Academy) and 11 local crew. The company employs several women – as clerical and administrative staff and one female licensing manager.

The Micronesian Longline Fishing Corporation (MLFC) is a semi-government company set up as part of a five-year Asian Development Bank/FSM Fisheries Development Project. The aim at the present is to sell enough of the company's shares to the private sector to fully privatise the company. The company operates 12 longline vessels, each with a crew of around eight. The boat crews consist of approximately 70 per cent Indonesian, 20 per cent Filipino, five per cent Micronesian and five per cent Japanese (the skippers). The company presently employs several women in administrative and clerical positions.

Pacific Foods and Services Incorporated (four boats) and Pacific Longlining and Supplies (three boats) are longlining operations exporting chilled tunas to overseas sashimi markets. Both companies have 20–25 per cent local crew. Pacific Foods and Services Incorporated is a family owned and run company with a female vice president. The Caroline Fishing Company (CFC) is a joint venture between the National Fisheries Corporation, Pohnpei State and an Australian company. CFC operates three purse seiners and supplies frozen tuna to canneries in the Philippines and Thailand. Boats operate with 16 crew each, half of them local deckhands and the rest from the Philippines and Croatia. Trimarine FSM Incorporated is a recently-started joint venture between a US company and a local firm, operating several purse seiners.

The number of local crew employed on Pohnpei-based domestic fishing vessels has dropped substantially in recent years. Reasons given by company managers for the lack of employment of locals in the commercial fishing industry include the extra expense of hiring Micronesians compared to Asians, the tendency of Asian crew to work harder and be more reliable, market competition with Hawaii (the best Micronesian deckhands tend to leave FSM to work in Hawaii where wages and conditions are better), and the lack of adequate training for local crew.

There are no women presently involved in the capture side of the commercial tuna fishing industry, although it has been observed that some women are becoming involved in the illegal sex industry resulting from the foreign fishing fleet presence. The social and health issues to do with this trade, although recognised by many relevant authorities, have so far not been thoroughly examined or addressed at either the planning or the implementation stage of fisheries development projects.

## Regulations

The main management measures for subsistence fisheries are through traditional arrangements such as customary fishing rights. In Pohnpei these traditional arrangements have generally broken down. There is no management of local small-scale fishing boats less than 27 feet (8 metres) in length, and management of artisanal fisheries is mainly through regulations on those species considered to be in danger of over-exploitation. Pohnpei State has placed a ban on the export of mangrove crabs, and trochus and black-lip pearl oyster are protected by size limits as well as a closed season. Turtles are protected by size limits, closed seasons and a ban on taking them while they are on shore. Harvesting sponges requires a permit and destructive fishing methods such as the use of poisons and dynamite are banned. Enforcement of these regulations is the major problem facing Pohnpei State fisheries agency.

The industrial tuna fishery is managed through licensing with domestic, domestic-based and foreign fishing vessels, each requiring a different type of permit. The Micronesian Maritime Authority determines the level of fishing with respect to any stock of fish and these allocations are first made to domestic fishing vessels, then to domestic-based vessels, with the remainder being distributed to those foreign fishing vessels covered by a foreign fishing agreement (FAO 1998).

## Processing

Women do much of the primary and secondary processing of fish and seafood products for home use and sale in the markets. Primary processing in the form of gutting, scaling, cleaning of fish and shellfish is done for family consumption. Fish for frying is usually gilled and gutted but fish to be roasted on the fire is preferred with the gills and guts intact. Cooking for family consumption includes fried, baked, steamed and boiled fish. Raw fish is very popular and certain species such as snapper or parrotfish are preferred raw. Salting and drying of fish is practised in the neighbouring island atolls as a means of preserving fish for later use.

Reef fish and small skipjack for local sale is left whole while the larger yellowfin tuna is cut into steaks or loins. Some fishermen use ice, others don't and quality is variable.

The Pohnpei Fisheries Corporation (PFC) is a State-owned company involved in processing and exporting frozen tuna steaks and loins, mainly to the US. PFC obtains non-export grade fish (the export grade goes to the Japanese sashimi market) from the foreign longline vessels and some from the local boats. PFC also produces tuna and swordfish jerky for export to the US and Korean markets. A small amount is sold locally. PFC employs around 40 staff, 10 of these are women – two in middle-management and the rest on the production line of the processing plant. At present, PFC only process once a week due to a lack of supply. A substantial amount of fish is rejected due to poor quality (a result of poor onboard handling practices). Production is too small to turn this into fish meal and rejects mainly go to farmers for fertiliser. Men work in the heavy processing area, filleting, quartering and skinning the fish, while the women are employed in the finer work of trimming, inspecting, bagging and sealing.



*Women processing tuna at PFC.*

## Marketing

The increasing participation of men and women in the cash economy has meant that people working for a wage are less involved in subsistence fishing. They do, however, provide a market for those involved in small-scale fishing for the local market. A variety of shops and markets for fresh and processed seafood exist in Kolonia, including fish shops with cold storage and display facilities, small shops with ice chests, and people on the side of the road selling from small ice chests. A 1995 survey (Fisheries Engineering 1995) counted a total of 51 fish markets in Pohnpei with an average daily sales volume of 162 lb (73 kg). On days when the PFC plant is processing tuna, off-cuts from the production line are bagged and sold to the public for USD 1.00 per 20 lb bag.

The public market in Kolonia has a number of stalls selling fresh reef fish, tuna and mud crabs. Smaller fish, preferred by many Pacific Islanders, often get a higher price. Reef fish sell for around USD 1.00–1.25 per pound, skipjack USD 0.65 and yellowfin USD 0.75–0.85 a pound. Rent for a stall at the market is USD 37 a month. The market has power and running water but repairs are needed to improve hygiene and solve a problem of bad drainage.

Sea cucumbers, both the chopped body wall of loangon and the intestines of werer, are sold in bottles in the market. A small bottle of chopped loangon sells for around USD 1.50. Chopped sand clams are sold for USD 3.00 a bottle. Cultured sponges are attractively packaged and sold from the shop at the airport, along with vacuum-packed tuna jerky from PFC.



Bottle of curryfish, or **werer**, intestines.

## Aquaculture

A clam and trochus hatchery is run by the State Marine and Coastal Resource Management Division, with support from the Overseas Fisheries Cooperation Foundation, to provide stock for a reseeding programme. They also provide information for those interested in growing clams for the aquarium trade. One person has started in this business and a number of others are interested. The Japanese International Cooperation Agency (JICA) provides two volunteers on Pohnpei to assist in aquaculture development. Pohnpei State began a black pearl oyster (*Pinctada margaritifera*) farm on Nukuoro Atoll around 10 years ago and this is presently being run by the local community and the municipal government of Nukuoro. Most mother-of-pearl shell is exported for the manufacture of buttons and jewellery.

Culture of the Pacific wool sponge, *Spongia officinalis*, has been attempted in the past and there are presently four commercial sponge farms being run by Mr Richard Croft, a long-term Pohnpei resident and Sea Grant Extension Agent. By 1998 15,000 sponges were being planted annually, yielding a profit of around USD 6,000 for an input of 16 man hours per week (Rice pers. comm., 1999). Natural sponges are used for hospital use (unlike synthetic sponges they are able to withstand high sterilisation temperatures), in industry as lubricant applicators and for general household use. A small market exists in Pohnpei for these sponges from tourists visiting Pohnpei.

# 7 . SERVICES FOR SUPPORT AND ASSISTANCE WITH MARINE RESOURCES

## Government agencies

### National Fisheries Section

The Fisheries Section of the Department of Economic Affairs coordinates planning for marine resource development and conservation between municipal, state and national governments. They are responsible for providing technical, advisory and support services to the States and the National Government in their fisheries development and management activities. The Section is also the focal point to the Convention on Biological Diversity and is charged with looking after all biodiversity issues, including the implementation of a National Biodiversity Strategy Action Plan project under the funding scheme of the Global Environment Facility through the United Nations Development Programme. It is also the focal point to other regional organisations such as SPC, the South Pacific Applied Geo-Science Commission and others. With government restructuring there are now only two staff in the National Fisheries Section. Their ability to be involved in activities at the state level is therefore limited and their role is more that of an advisory and coordinating body for and between the states.

### State Marine and Coastal Resource Management

The Marine and Coastal Resource Management (MCRM) of the Department of Resource Management and Development is the Pohnpei State agency responsible for the management and development of marine resources. Major issues in marine resource development and management include overharvesting, especially of inshore resources, and pollution from littering, dredging and sand mining. One project MCRM is presently involved in is the deployment of mooring buoys to prevent reef damage from anchoring boats. This involves National, State and municipal governments as well as local community groups. SPC will also be assisting in the deployment of seven FADs, with the equipment being funded by Japan. MCRM teams up with staff from the College of Micronesia to undertake Environmental Impact Assessments and report on vessel groundings (mainly Taiwanese fishing vessels). MCRM is also a part of the permit approval process for sandmining and dredging.

MCRM operates a giant clam and trochus hatchery on Lenger Island, close to Kolonia. The project is mainly aimed at reseedling using *Tridacna derasa* and *Hippopus hippopus*. MCRM also provides information for those interested in farming giant clams for the aquarium trade and to date one person has set up in this business.

The Artisanal Fisheries Support Station, managed by MCRM, was set up with the assistance of the Overseas Fisheries Cooperation Foundation in 1994. The station sells ice at low cost to local, artisanal fishermen and leases ice chests for USD 10 per month. The station also intends to eventually provide training to fishermen in areas such as outboard engine maintenance and fishing gear technology.

The Japanese International Co-operation Agency (JICA) and the Peace Corps provide volunteer assistance to the State Marine Resource agencies, with JICA volunteers providing expertise in aquaculture and Peace Corps in resource management, coral reef monitoring and environmental education.

## Economic Development Agency

The Economic Development Agency (EDA) is a Pohnpei State Government agency that promotes economic development in agriculture, aquaculture, fisheries, banking, the industrial sector, transportation and tourism. There are now, however, a number of different agencies providing support in many of those areas and EDA now concentrates mainly on fisheries. EDA is the only agency that can enter into a business for the State Government, representing the Government in joint ventures and transshipment for long line fishing vessels as well as acting as an agent for foreign fishing vessels. Overlap with other agencies and the recent trend in downsizing make it likely that EDA will eventually be dismantled.

## National and State Women's Agencies



*Fifth FSM Women's conference participants gather for a cultural day at Kitti municipality.*

The National Women's Interest Officer, working within the Department of Health, Education and Social Affairs, aims to provide coordination among and between the various women's organisations at national and state levels. A state-level Women's Interest Officer position has also been established. A number of non-government women's organisations also exist in Pohnpei, many established as religious groups in the 1950s (SPC 1995). Neither the government or non-government women's organisations have been active in marine resource development or management up until now, mostly due to unfamiliarity with opportunities in this area. The U Council of Women applied

successfully to Japan for funding to buy boats and fishing gear for the men of U. Permission to use the gear must be sought from the council and is mainly done for subsistence fishing.

## Environmental Management and Sustainable Development Unit

The Environmental Management and Sustainable Development Unit is a National Government agency consisting of two staff. They provide advice and assistance to other government sectors (state and national) on environmental issues and Environmental Impact Assessments. In addition, the unit works with the South Pacific Regional Environment Programme on climate change and environmental issues. Environmental management is controlled and implemented at the state level but regional organisations and donor countries tend to make contact at the national level.

## Environmental Protection Authority

The Pohnpei State Environmental Protection Agency (EPA) is mandated to protect the environment, human health, welfare and safety, and to abate control and prohibit pollution or contamination of air, sea, land and water. It is also empowered to promulgate dredging and pollution prevention laws and regulations.

Formerly the Division of Sanitation, the EPA was created as a separate agency in the mid-1980s. Overseen by a board made up of prominent local government and private sector leaders, the EPA approves all development activities that have environmental impacts, e.g., earth moving, landfills, sand-mining and dredging. The EPA also analyses and monitors water quality (mainly faecal coliform levels) in community water systems, streams and the lagoon, and reports their findings to the general public. In partnership with the municipal government and NGOs, EPA sponsors island clean-ups several times a year. The EPA also works with other government and private agencies in environmental education and awareness building.

## **Education and training**

### **Formal Marine Studies**

Presently there is little marine science taught at the primary and high school level. High schools teach some marine science but with little practical content or direct application towards a job or career in a marine science area. Following on from the priorities identified at the First FSM Economic Summit, where fisheries development was heavily stressed, the National Education Division is developing a comprehensive education programme to cover aquaculture, fisheries, tourism and marine science at all school levels. A major workshop in August 1999 will review draft standards for schooling in all these areas. State and National scholarships are presently offered for study in any area but in the future the Education Division plans to emphasise study leading to careers in the productive sector.

The Pohnpei Agriculture and Trade School is a four-year vocational high school with students from FSM, Palau, Marshall Islands, Kiribati, Nauru and Tuvalu. This Catholic secondary school recently became co-educational with the admittance of three young women as boarding students in August 1998. The agriculture department of the school includes work on marine projects such as sponge and soft coral farms, and the raising of giant clams for the aquarium trade. Pohnpei Agriculture and Trade School also includes the Marine and Environmental Research Institute of Pohnpei (MERIP) which aims to increase public awareness on marine conservation and resource management issues; foster student awareness in marine science; provide assistance to educational institutions and government agencies; and attract outside expertise and researchers to the region. Working with local communities is an important part of the work of MERIP and this includes assistance in setting up sustainable aquaculture projects such as sponge farms.

The College of Micronesia (COM) offers an Associate of Science degree in Marine Conservation. Thirty students (from all states) were enrolled in the degree programme in 1999, including ten women. The programmes of the college go through an accreditation commission and are therefore made transferable to other institutions. Many graduates go on for further study, mainly to Fiji or the US, others are employed in FSM National and State Government positions.

### **Fisheries and Maritime Training**

The Micronesian Maritime Fisheries Academy on Yap was started in 1990 by Pacific Missionary Aviation, a non-denominational, evangelical organisation. Training was provided in skipper, deckhand and marine engineer courses, aimed at serving the existing needs of the fishing sector. The facility has now been taken over by the College of Micronesia (COM), under full funding by government and renamed the Fisheries and Maritime Institute. The Institute is being prepared for fisheries and maritime courses in 2000, as part of the fisheries and maritime training programme being implemented by COM.

The Asian Development Bank began advising the FSM Government on a fisheries development project in 1994 (resulting in the formation of the Micronesian Longline Fishing Corporation, MLFC). The training component of this project has not yet been fully implemented and responsibility for this has now been taken over by COM. Fisheries and maritime training courses are being designed with the advice and assistance of the Overseas Fisheries Cooperation Foundation, the SPC Training Section and the Suva-based SPC Maritime Programme. Fishing industry training will start with the introduction of two week, pre-sea safety courses. These courses will commence in December 1999 and will be conducted at COM, Pohnpei. Longer courses such as the four-week deckhands course will later be introduced, to be run at the Institute on Yap. COM hopes to train all existing fishermen up to the level of deckhand before looking at the introduction of Master and Engineer training up to Class IV. Training to meet onshore needs will also be examined. Maritime training will start by concentrating on training existing crews of inter-island vessels.



*Foreign fishing vessels drying skins and fins from shark by-catch.*

## **Information**

The media in Pohnpei includes one government newspaper (a weekly publication), radio (one State Government AM station, one private FM and one religious FM station) and one local television station. The most effective and broad-reaching medium for transmitting information throughout Pohnpei is the AM radio station. Both the newspaper and radio feature news on fisheries activities. The National Fisheries Section receives a number of journals and bulletins from around the region, including material from SPC, and this enables them to pass on information and opportunities to the State fisheries agencies.

The public library in Kolonia has a small collection of books on nature and science, a regional Pacific collection, and books on women's studies (mainly US-focussed). However, what appears in the card catalogue and what is actually on the shelves are vastly different and, according to one librarian, theft of books has been a big problem.

Micronesian Seminar is a research-pastoral institute founded by the Catholic Church in 1972. It is now run by the Jesuits of Micronesia and is aimed at community education as well as some social research and history. Their library has a comprehensive collection of books, reports, and journals on Micronesia and is open to local students, local researchers, and overseas researchers visiting the region. The institute also produces videos to raise public awareness on such issues as health, history and small business skills. The Micronesian Counselor is a bulletin publishing reports on social issues such as suicide, alcoholism and child abuse. A monthly discussion is attended by a variety of invited guests and interested participants to discuss a variety of topical issues, including fisheries. Most of this information is also made available on the internet.

## **Financial assistance**

### **FSM Development Bank**

The FSM Development Bank provides loans at nine per cent interest per annum. Sixty per cent of their loans portfolio consists of fisheries related businesses, with small to large loans up to USD 300,000. Most of the loans are for medium to large-scale fisheries businesses – in harvesting, processing and retail. Forty per cent of the fisheries loans face problems with repayments, mainly from the larger projects. The bank identifies the lack of infrastructure in place for the business, as well as a lack of business management skills on the part of those starting the business as the major factors contributing to repayment problems. The bank is seeking assistance from New Zealand to train people in business management.

The bank supports women's development but has no specific scheme in place. In Kosrae, the Development Bank has the Agricultural, Land and Fisheries Scheme to encourage small farming and fisheries development with loans at nine per cent interest rate and an equity contribution being provided by the Kosrae State Government on behalf of the borrower. The Pohnpei State branch is interested in setting up a similar scheme.

### **Small Business Guarantee and Finance Corporation**

The Small Business Guarantee and Finance Corporation (SBGFC) is a recently started Pohnpei State programme set up to assist those wanting to enter the small business sector. The programme will provide guarantees on loans for small businesses wanting to borrow USD 2,000–250,000 from the bank. The programme will also have the capability to make some direct loans. Training will also be provided in small business skills, business proposals and basic accounting. An active role will be played by SBGFC in ensuring the repayments are made, by keeping track of how the business is going and providing further assistance where necessary. Businesses using local resources, especially in the aquaculture and fisheries field, will be encouraged. The majority of proposals so far have been in the retail sector and SBGFC is planning a programme to promote fisheries and farming production and to provide marketing assistance.

## **Conservation organisations**

### **Micronesian Island Conservation**

Micronesian Island Conservation (MIC) was founded in 1986 following a grant from the MacArthur Foundation. There are presently over 100 registered members, 20 of them forming the core, active group. Many members are instructors from the College of Micronesia. Activities of MIC include the printing and sale of fish identification posters, the production of a resource map for FSM, and sponsorship of Earth Day in Pohnpei – during which participating schools set up displays on conservation issues. MIC also prints a newsletter with local and regional conservation news.

### **Conservation Society of Pohnpei**

The Conservation Society of Pohnpei (CSP) is a non-governmental organisation started in 1998 by a group of concerned and committed locals. Critical threats identified for immediate action included clearing the uplands for sakau; unsustainable fishing practices and dredging; pollution caused by pigpens, out-houses and littering; and a lack of community awareness and information regarding these threats. CSP aims to identify threats and bring about solutions by setting achievable goals within a realistic timeframe. CSP is seeking advice and drawing on the experience of local experts as well as other NGOs in the region such as the Palau Conservation Society. Following the commitment shown by CSP after its first year of operation, the Nature Conservancy, a US conservation organisation with an office in Pohnpei, decided to assist with funding and training, sending two CSP consultants to Palau to learn from the experiences of conservation groups there.

The annual work plan involving marine resources for August 1999 to July 2000 includes setting up a marine reserve at either Lenger Island or Ant Atoll; providing a demonstration mariculture project to showcase economic alternatives to unsustainable practices; utilising Culture Day (March 31) to increase public awareness and holding a Conservation Conference. Work on creating the marine reserve will involve holding community meetings to engage the interest and support of villagers, seeking support from traditional leaders and conducting marine surveys after gaining support from local leaders and communities.

### **The Nature Conservancy**

The Nature Conservancy (TNC) is a US organisation with programmes in Latin America, the Caribbean, Asia and the Pacific. In Pohnpei, TNC received a grant from the Asian Development Bank to address problems of deforestation caused by the commercial cultivation of sakau. TNC has done much work with communities putting together management plans and setting up Community Officer groups to work on conservation issues in their area. Women have played an important role in this work. So far most of the effort has been directed at terrestrial resources, although many of the problems created on land directly affect marine resources – erosion, pollution etc. Both CSP and the Nature Conservancy are working to encourage people to grow sakau in the lowlands rather than clearing further up the mountains.

Aerial mapping has perhaps been one of the most successful tools used to get communities to take control of problems resulting in land resource use. Aerial photographs taken in 1975 and again in 1995 graphically show the rapid loss of forest in that time – mostly through clearing to plant sakau. The photos showed that 60 per cent of the land had been cleared in just 20 years, compared to 30 per cent in the previous 3000 or 4000 years. The photos and the information they provided were very effective in getting the traditional leaders to recognise and start addressing land-use problems – many of which ultimately affect the marine environment. Problems caused by extensive clearing of the native forest include threats to the water supply; loss of soil fertility; increased erosion impacting coral reefs; loss of plants used for food, medicine and building materials; and the loss of revenue from tourists wanting to see pristine environments.

Unfortunately, the marine environment and its resources can't be mapped and resource problems quantified as graphically as the land, but the experience does illustrate the importance of government and communities working together on problems.



*Madolenihmw municipality.*

## 8 . PROBLEMS AND SUGGESTED AREAS OF ASSISTANCE

### **Social and cultural roles and the meaning of "fishing"**

Within traditional Micronesian society, there was a strict division of labour for men and women. Fishing was seen as the capture of fish and solely the domain of men. The collection of seafood from the reefs and mangroves by women and children, along with the use of hand lines and nets by women, were not considered "fishing". Collecting shellfish and crustaceans, as well as the preparation and sale of fish and shellfish still tend to be overlooked as fisheries activities and this affects the way the fisheries sector is supported, both socially and economically, and the manner in which the management and conservation of marine resources is approached.

The idea that fishing predominantly involves men going out in boats is common throughout the world, despite the fact that this sentiment overlooks a huge range of inshore marine resource use. The idea is particularly reinforced in the Pacific where many different words exist for different types of fishing. There may be words for the different types of fishing usually performed by men, such as trolling or bottom fishing and separate words for women's harvesting activities such as collecting clams or sea cucumbers. For example a description of fishing on Losap Atoll, Chuuk (Severance 1976) is reasonably typical of other parts of FSM: "The islanders recognise at least ten culturally labelled line fishing techniques, three pole techniques, five spearfishing techniques and six collecting techniques. In addition, certain of these named techniques have subcategory names when they are modified and applied to a particular species."

The English term "fishing" is often translated and understood as a term covering the various types of men's fishing activities. Collecting invertebrates, as well as the preparation and sale of fish and shellfish still tends to be overlooked as fisheries activities, by the women themselves as well as many of the government and non-government agencies that assist fishing activities in Pohnpei.

The fact that the small-scale seafood harvesting, processing and marketing activities by women have, in general, been overlooked by government and non-government agencies involved in assisting the fisheries sector has been a constraint to their sustainable development and their management.

**Area of Assistance: Greater involvement of women in the work of Pohnpei State MCRM with support from the Pohnpei State Women's Programme and Pohnpei Women's Council.**

**The role of women in the fisheries sector needs to be more actively supported at the state level, with guidance at the national level. This could be achieved by MCRM including women in its regular extension work and in initiating and participating in training programmes for women. The Pohnpei Women's Council and the NGO women's organisations could also draw upon government fisheries expertise in developing programmes for village women.**

## Support for commercial versus subsistence fisheries

The involvement of women in the fisheries sector is at the subsistence and artisanal level with the harvesting and preparation of seafood for the family, and some small-scale commercial fishing, collecting and selling for the local market. A number of women are employed in the large-scale commercial sector as fish processors or packers. Men are involved in the subsistence, artisanal and larger-scale commercial sectors, although foreign labour tends to dominate the latter.

A look at past and present government fisheries development programmes shows that they promote the development of commercial fisheries, with men as the primary target group. This has led to a lack of opportunities for training and information for those involved in subsistence and artisanal fisheries activities, especially women. Projects focus on supporting the development of offshore fisheries by providing onshore facilities, training, modern fishing techniques and gear for fishermen.

Women are the main processors of fish and seafood for family consumption and this is reflected today in the number of women employed in commercial processing (Pohnpei Fisheries Corporation). Regional training activities have only recently started to provide opportunities for women involved in commercial fisheries activities and this has yet to be mirrored at the local level. The Secretariat of the Pacific Community (SPC) Training Section selects men and women to attend courses aimed at assisting commercial fisheries development in the region. Two women from a commercial fisheries enterprise on Yap recently attended a regional course for managers in New Zealand. One woman from the Micronesian Longline Fishing Corporation (MLFC), Pohnpei, attended a course on seafood business operations for Pacific Island women.

In December 1997 the US Food and Drug Administration implemented the Hazard Analysis Critical Control Point (HACCP) system for food safety of seafood, the Seafood HACCP Rule. The rule equally affected processors in the US and in countries that export to the US. During 1997 and 1998, SPC supported several initiatives to assist Pacific Island exporters in meeting the US requirements. Several women, including one from MLFC and one from a local commercial seafood retailer and exporter, Paradise Seafoods, have received in-country training in HACCP principles.

The SPC Community Education Training Centre (CETC) has recently included a fisheries module in its seven-month course for Pacific women community workers. The module and an accompanying manual were produced by the SPC Community Fisheries Section in collaboration with the University of the South Pacific Post-harvest Programme. The module aims to teach participants skills that will enable them to assist and train others in sustainable fisheries for income generation and to teach participants how to work with fisheries departments, women's departments and other government and non-government groups to provide support to those in the fishing community. It is hoped that this training of community workers will eventually translate into assistance given to women involved in fisheries at the grassroots level. To date, one CETC course has been run with the new two-week fisheries module and this was attended by one FSM participant from Kosrae. Apart from this there has been little direct assistance or training given to women involved in subsistence or artisanal-level harvesting, processing or marketing of seafood.

**Area of Assistance: Provision of more training programmes for subsistence and artisanal fishers, particularly women. Follow-up training activities with support for the establishment of small-scale income-generating activities.**

**During the survey, the following training needs were identified: seafood quality and handling; preservation, marketing, small business ideas and skills; conservation of marine resources; the role of fisheries regulations; and practical management measures for commonly harvested inshore resources. Follow-up to the training should include support for small income-generating projects based on opportunities identified as sustainable. People from rural areas and neighbouring island atolls should also be included in training programmes.**

## Lack of information

Although there are a number of government, non-government and private agencies providing technical information, training, equipment or credit, many women are unaware of the possible opportunities. In addition, some women don't know how or don't feel able to seek help, or are not convinced of the effectiveness of the help available. The dissemination of information is perhaps one of the greatest areas where village people feel especially left out – information tends to bottleneck at an office without reaching the grassroots level. One complaint has been that past training has often been directed at office workers and has not reached the people who need it the most.

In the past, the overlapping responsibilities between state and national agencies and the lack of co-ordination within or between states has been a problem and to some extent these problems are still evident. There is little exchange of information, coordination of activities or pooling of resources between the various

government and non-government agencies working in environment, fisheries and women's interests. Many of these groups have similar concerns and common goals but are presently not working together to pool scarce resources and strengthen the impact of their activities.

**Area of Assistance: Improvement of co-operation and the dissemination of information between national, state, municipal and grassroots organisations (government and NGO).**

**A regular source of information such as a newsletter or a programme utilising existing media such as the radio, newspaper or television could be an effective means of providing information, contacts and advising groups of opportunities. Links between women's groups, environment groups and fisheries agencies could also be promoted. Including rural people and neighbouring islanders from the atolls in any information programme should be a priority.**

The different levels of government and recent restructuring, combined with the numerous different NGO groups has made it difficult to maintain continuity between projects and to maintain links and channels of information. To some extent, it is up to the groups themselves to keep informed by maintaining contact with the government focal points. At the same time it is up to the national and state government focal points to keep the various interest groups informed. Instead of co-operation there is a large amount of disagreement between the various groups and agencies. Presently there is no overall body channelling information from, to and between the numerous NGO women's groups of Pohnpei. At the national level the present staff and resources are insufficient to provide the necessary support and coordination

between the states. The problems occur not just with the women's groups, but in many areas of information transfer between state and national agencies.

## Diminishing resources and the erosion of traditional controls

Population pressure and the increasing involvement of people in the cash economy have meant an increasing pressure on both land and marine resources. Rising populations and unsustainable development has led to the degradation of the marine and terrestrial environment, especially around Kolonia. Several impacts of development and increasing population pressure have been identified as adversely affecting marine habitats and contributing to the loss of marine resources. These include: dredging; erosion and runoff caused by forest clearing; direct and indirect destruction of mangroves; and pollution from pigpens, outhouses and littering.

Increasingly efficient fishing methods such as the use of monofilament nets and underwater torches for night fishing have also meant that marine resources are threatened by overfishing. Most of the people involved in inshore fishing and reef gleaning indicated that it is more difficult to catch fish and collect seafood now than it was in the past. The loss of marine resources, especially from the easily accessible fishing and collecting areas and around the main urban centre of Kolonia, has meant that people now must travel farther afield or spend more time fishing to maintain catches.



*Development and increasing population pressure are contributing to the loss of marine resources.*

The rising population and their increasing mobility has given more people access to wider fishing grounds than in the past. The breakdown of traditional fishing controls has also contributed to the increase in competition for resources that were in the past protected by customary rules and low fishing pressure. Local community control of their marine resources is now limited or non-existent and there is a perception that this is partly to blame for the decrease in marine resources. When people fish outside their own locality, (especially for the purpose of selling their catch) there is less incentive to protect and conserve the resources – a lack of 'ownership' leads to a lack of concern and responsibility for sustainable harvesting. At the same time, when communities see "outsiders" (including tourists and immigrant workers) having free access to their marine resources they feel powerless and in turn begin to lose their own concern for what was previously traditionally controlled resource use. Even when fishing inside what were once traditionally controlled waters of their own municipality, the belief that these waters belong to the government leads to a lack of responsibility for their care and management.

Both Chuuk and Yap States have retained traditional control over the inshore waters and any activities relating to its use, such as the setting up of sponge farms, need to be endorsed by the traditional leaders. In Pohnpei and Kosrae on the other hand, a government land use permit would need to be obtained to set up the sponge farm. Government legal ownership of the sea from the high water level has created a feeling within coastal communities that, since the sea "belongs" to the government the people themselves have no control or responsibility for its care. The responsibility for fishing controls and the regulation of damaging practices then rests with the National and State Governments, who pass laws to protect marine resources and the marine environment. However, government fisheries regulations are difficult and expensive to enforce, especially without widespread public awareness and acceptance of the need for such regulations.

In the recent past the government was very clear about the distinction between the ownership of land and sea – land being privately owned with traditional leaders retaining a large amount of control. Both forms of ownership, private on land and government at sea, has made it very difficult to carry out conservation activities for both areas. Government and non-governmental organisations have the information and technical expertise to identify problems concerning land and marine use but, without the support of the traditional leaders and the community, it is very difficult to address these problems. Attempts to map the Pohnpei forests in 1990 met with no success as traditional leaders and villagers were resistant to any government interference on their land. At the same time, regulation of the government-controlled marine environment was not meeting with success without some commitment from the traditional leaders and the community.

The government is now attempting to raise public awareness regarding the marine environment, and especially the fact that the people who rely on its resources should be responsible for their sustainable use. Fortunately, the traditional leaders and coastal communities are eager to regain some control over their inshore waters and are starting to work with the government on management and development activities.

## **The conflict between development and management**

The problems outlined in this section show, on the one hand, a lack of recognition, support and opportunities available to subsistence and artisanal fishers, particularly women, while on the other hand diminishing resources and lack of management controls indicate the undesirability of encouraging further exploitation of many of these resources. This is the dilemma facing inshore fisheries around the Pacific.

**Area of Assistance: Promotion of public awareness programmes on fisheries and support of community fisheries management measures.**

**Public awareness on village fisheries activities and existing fisheries regulations (and the reasons behind the regulations) needs to be further promoted. Support by government for greater community control over, and responsibility for, their marine resources should be encouraged. Enlisting the support of existing women's and environmental groups would increase the effectiveness of this work.**

The economic activities, involving men or women, which could be developed based on inshore marine resources are very limited due to the ease with which these species can be overharvested – and in many cases popular resources already are overharvested, or declining due to habitat degradation. However, these species still play an important part in the subsistence or informal economy and, if development is not a desirable option, then the minimum aim should be management of the resources and habitat for the maintenance of traditional subsistence use. At the same time, alternatives to unsustainable resource use should be explored, with development and training being directed to those alternatives.

Ignoring the role of women, and continuing to exclude them from fisheries development and management activities will not prevent the problems of overharvesting and habitat degradation. It may in fact add to the problems by leaving a large area of resource use with no data, unmanaged and no alternatives for those dependent on its use.

**Area of Assistance: Research and support of alternatives to unsustainable fisheries activities.**

**Women have requested information and support for potential income-generating activities that may be successful in Pohnpei. For example sponge culture and other aquaculture projects in Pohnpei are culturally appropriate for women and don't conflict with traditional roles. Value-adding to tuna products is another area which could be explored by women's groups and supported by fisheries agencies.**

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## APPENDIX: PERSONS CONSULTED

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Francis Itimai, Head of Fisheries Section, Department of Economic Affairs

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Loretta Retin, Department of Economic Affairs

John Mooteb, Environmental Management and Sustainable Development Unit

Jones George, Acting Secretary, Health, Education and Social Affairs

William Eperiam, Youth Coordinator, Department of Health, Education and Social Affairs

Oliver Joseph, Administrator, Division of Education, Department of Health, Education and Social Affairs

Aier Willyander, Post-Secondary Programme, Division of Education

Jimmy Hicks, Programmes Coordinator, Division of Education

Herolyn Movick, Small Business Guarantee and Finance Corporation

Janet David, Government Weekly Digest

Maria Donre, Cadelina Donre, U Council of Women

Rosina Edwin, Division of Statistics, Department of Economic Affairs; Terry Harlow, AESOP

William Dison, Economic Development Authority

Hiroshi Saito, Resident Representative of JICA/JOVC

Jason Aubuchon, Micronesia Seminar

Pius Roby, Acting Chief Executive Manager, Pohnpei Fisheries Corporation

Ernest Weirlangt, Operations Manager, Pohnpei Fisheries Corporation

Augustine Garae, President/Chief Executive Officer, FSM Development Bank

Reed G. Nena, Vice President, FSM Development Bank

Antonia Amor, Peace Corp

Lorin Robert, Assistant Secretary, Department of Foreign Affairs

Spensin James, Vice President, Instructional Affairs, College of Micronesia

Gary Robertson, Director of Vocational Education, College of Micronesia  
Gerald Russo, Micronesian Longline Fishing Corporation (MLFC)  
Herson Anson, Head, Pohnpei State Department of Resource Management  
Valentin Martin, Chief of Pohnpei State Marine and Coastal Resource Management  
James Movick, Pohnpei State External Donor Coordinator and Special Assistant to Governor  
Bill Raynor, Director, The Nature Conservancy  
Willy Kostka, Conservation Society of Pohnpei  
Laura Rice, Marine and Environmental Research Institute of Pohnpei  
Benson Moses, Secretary, Micronesian Island Conservation  
Noel Boylan, President, Pohnpei Fishing Club  
Maria Spegal, member, Pohnpei Fishing Club  
Perdus I. Ehsa, Ellens Market, Pacific Foods and Services Corporation  
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David O. Cliffe, ICTV  
Tesiwo M. Liwy, Chief, Bureau of Youth & Social Affairs  
Rosastela Donre, Women's Interest Coordinator, Bureau of Youth & Social Affairs  
Jennifer Lewis, Technical Assistant, Bureau of Youth & Social Affairs  
Person Joeseeph, Youth Coordinator, Bureau of Youth & Social Affairs  
Nob Kalau, Pacific Missionary Aviation  
Timothy Cole, Ambassador, FSM, Palau, RMI, Australian Embassy, Pohnpei  
Mary Mudong, Martha Tihpen, Maryartha Santiago, fisherwomen, Madolenihmw municipality  
The Honorable Sebastian Anefal, Secretary and Mr. Bellarmine Ioannis, Assistant Secretary, Economic Affairs, to present preliminary findings