



Secretariat of the Pacific Community

**FIELD REPORT No. 2**  
**AN ASSESSMENT OF**  
**THE ROLE OF WOMEN**  
**WITHIN FISHING**  
**COMMUNITIES**  
**IN TUVALU**

Lyn Lambeth  
Community Fisheries Officer

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

New Zealand Official Development Assistance  
Australian Agency for International Development

© The Secretariat of the Pacific Community, 2000

All rights for commercial / for profit reproduction or translation, in any form, reserved. The SPC authorises the partial reproduction or translation of this material for scientific, educational or research purposes, provided that SPC and the source document are properly acknowledged. Permission to reproduce the document and/or translate in whole, in any form, whether for commercial / for profit or non-profit purposes, must be requested in writing. Original SPC artwork may not be altered or separately published without permission

Original text: English

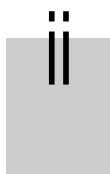
This field report forms part of a series compiled by the Community Fisheries Section of the Secretariat of the Pacific Community's Coastal Fisheries Programme. These reports have been produced as a record of individual project activities and country assignments, from materials held within the Section, with the aim of making this information readily available. Each report in this series has been compiled within the Community Fisheries Section to a technical standard acceptable for release into the public arena. However, they have not been through the full Secretariat of the Pacific Community editorial process.

Secretariat of the Pacific Community  
BP D5  
98848 Noumea Cedex  
New Caledonia

Telephone: +687 26 20 00  
Facsimile: +687 26 38 18  
E-mail: [spc@spc.int](mailto:spc@spc.int)  
<http://www.spc.int>

Published with financial assistance from  
the Governments of Australia and New Zealand

Prepared at the  
Secretariat of the Pacific Community  
Noumea, New Caledonia, 2000



# CONTENTS

ABBREVIATIONS AND ACRONYMS	V
ACKNOWLEDGMENTS	VI
1. EXECUTIVE SUMMARY	1
Objectives	1
Major findings	1
2. RECOMMENDATIONS	2
3. INTRODUCTION	3
4. METHODS	3
5. BACKGROUND SOCIAL AND ECONOMIC INFORMATION	4
Geography	4
Population	5
Economy	7
Health	7
Education	8
Religion	8
The traditional role of men and women	8
6. THE FISHERIES SECTOR	9
General overview	9
Fishing roles: traditional and modern	10
Traditional and modern aspects of fisheries management	11
Harvesting	12
Processing	14
Marketing	15
Aquaculture	16
7. SERVICES FOR SUPPORT AND ASSISTANCE WITH MARINE RESOURCE USE AND MANAGEMENT	17
Fisheries department	17
Environment department	18
Conservation area	18
Education and training	19
Information and media	20
Community development	20
Women's interests	21
Financial institutions	22
Business	23
8. CONSTRAINTS AND SUGGESTED AREAS OF ASSISTANCE	24
Social and cultural roles	24
Commercial versus subsistence fisheries	24
Population pressure on Funafuti and outer islands	25
Storage and marketing constraints	26
The conflict between development and management	27
9. REFERENCES	28
APPENDIX: PERSONS CONSULTED	29





# ABBREVIATIONS AND ACRONYMS

AUD	Australian Dollar
CA	Conservation Area
CFO	Community Fisheries Officer
EEZ	Exclusive Economic Zone
EKT	Ekalesia Kilisiano Tuvalu (Church of Tuvalu)
FAD	Fish Aggregating Device
FAO	Food and Agricultural Organization of the United Nations
GBP	Great Britain Pound
GDP	Gross Domestic Product
GRP	Glass Reinforced Plastic
Naficot	National Fishing Corporation of Tuvalu
NEMS	National Environmental Management Strategy
SOE	State of the Environment Report
SPC	Secretariat of the Pacific Community
SPREP	South Pacific Regional Environment Programme
TANGO	Tuvalu All Non-Government Organisations
TNCW	The National Council of Women
UNDP	United Nations Development Programme
USP	University of the South Pacific
WIB	Women in Business



# ACKNOWLEDGMENTS

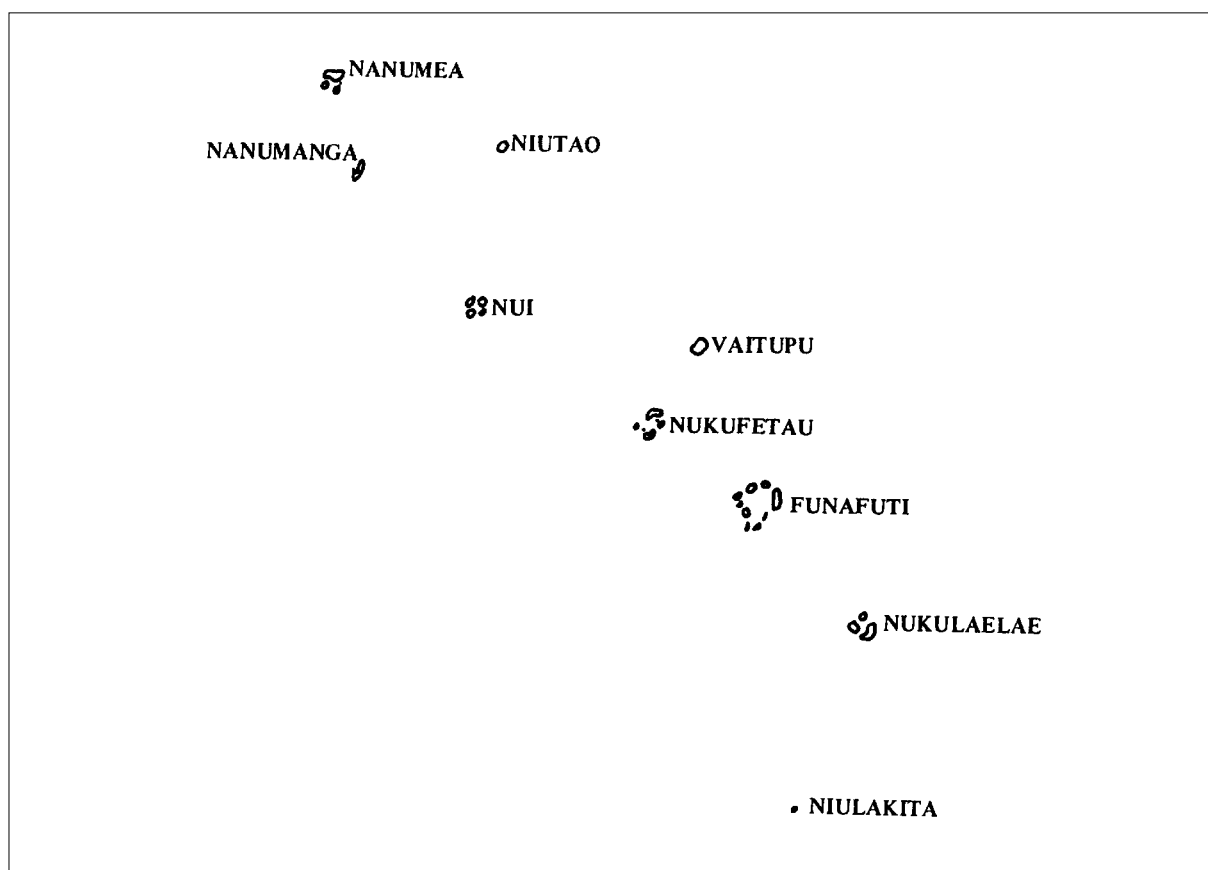
The Tuvalu community fisheries assessment was a joint undertaking of the Government of Tuvalu and the Secretariat of the Pacific Community.

The authors thank all the people who contributed their time and knowledge and answered countless questions. Apologies are due to the people of those islands not included in this assessment; time did not permit a trip to every island.

We also thank the numerous people from government departments, non-governmental organisations, churches, the business community and individuals who gave their time, valuable information and support to the survey.

We specially thank the Tuvalu National Council of Women and the Fisheries Department for allowing staff to give their time and support for the fieldwork. Both agencies provided valuable support for this assessment, organising transport to the outer islands and around Funafuti, setting up meetings and providing information.

Funding for the field survey and production of this report was provided by the Governments of Australia and New Zealand.



Map of Tuvalu





# 1 . EXECUTIVE SUMMARY

## Objectives

The Tuvalu baseline survey on the role of women within fishing communities was carried out from the 24 January to 12 February 1999. The survey was conducted by Ms Lyn Lambeth (SPC Community Fisheries Officer), with the assistance of Ms Suia Pesenga (National Council of Women) and Mr Sikela Ulumutu (Fisheries Department). The assessment was requested by the Government of Tuvalu in response to an identified need for more information on the participation of women in the fisheries sector.

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 harvesting, processing and marketing of marine resources;
- ♦ provide details on both government and non-government services that could potentially support the interests of fishing communities, and identify support services specifically aimed at women in the fisheries sector;
- ♦ outline the problems faced by fishing communities and the constraints that inhibit women from effectively participating in the fisheries sector; and
- ♦ provide guidelines for government and non-government agencies to assist the effective participation of women within the fisheries sector.

## Major findings

- ♦ Fishing and its related activities, processing and marketing, are extremely important activities for men and women in Tuvalu, both for the production of food for the family and community, and for some small-scale income generation. In the past, it was vital to find alternative sources of protein when rough seas prevented men from fishing beyond the reef. This important role was fulfilled by women who fished the nearshore areas. Now, however, a cash economy and the use of outboard motors has decreased this need and women fish more for pleasure than food production. Women, however, are involved in much of the processing and marketing of the fish the men catch. Men spearfish, net, handline and troll using small motor boats or outrigger canoes. Most of the marketing is done on Funafuti and fresh fish is sold to the National Fishing Corporation of Tuvalu (Naficot). Some women directly market the men's catch from handcarts in town. On the outer islands, fish is sold from the homes of fishermen or to Naficot on those islands with operational Community Fishing Centres. Dried fish is produced on a few of the outer islands and sold in Funafuti, through Naficot.
- ♦ One of the main restrictions on fisheries activities for women is the traditional division of labour between the sexes. "Fishing" is perceived as the capture of fin fish and solely the domain of men. Although the fish and shellfish from reef gleaning activities once provided an important source of protein for Tuvaluans, reef gleaning itself is not considered "fishing". Even women's involvement in processing and marketing, while recognised, has to date, not been considered by regional and national agencies when planning the development and management of the fisheries of Tuvalu.
- ♦ Fisheries development has focussed on projects that support the activities of fishermen rather than women. This is due to the focus on developing income-generating, commercial fisheries, which mainly involves men.
- ♦ Population pressure on Funafuti has led to overfishing in the lagoon and problems caused by rubbish disposal. Inshore fisheries resources in some of the outer islands also appear to have declined.
- ♦ A major constraint to fisheries activities on the outer islands is the storage and transport of fish, both for sale and for local use.

## 2 . RECOMMENDATIONS

To ensure that all sectors of the fishing community are considered in fisheries development and management programmes this report recommends that:

- ♦ **The Fisheries Department increase the involvement of women in their work and consider their needs when planning and implementing development and management programmes for marine resources.**

This could be achieved by including women in its regular extension work and in the Department initiating or participating in a training programme to ensure that women can help develop and run the Community Fisheries Centres. The National Council of Women and the community workers on the outer islands should also be encouraged to draw upon Fisheries Department expertise in developing programmes for village women.

The Fisheries Department should bring this consideration to the attention of funding agencies when discussing the needs of the Tuvalu fisheries sector.

- ♦ **The Fisheries Department improve training services for women in the fisheries sector.**

Regional assistance to support women in fishing communities should be provided. This could happen through the SPC Community Fisheries Section, which can assist in organising and running an initial train-the-trainer workshop for community workers from Funafuti and the outer islands. Workshop topics should include alternative methods of seafood preservation; seafood quality and handling; marketing and small business skills; new recipes for seafood; and the conservation of marine resources.

- ♦ **Both government and non-government organisations improve information services and increase public awareness of fisheries and conservation issues for both men and women in the fisheries sector.**

Existing information and support services to women in the fisheries sector, should be improved, especially within the Fisheries Department, TANGO, the National Council of Women and the newly established Department of Women's Affairs when it becomes operative. Both men and women should be encouraged to view harvesting, processing and marketing as equally valuable activities of the fisheries sector and as such, women's involvement in those activities should be recognised and promoted. Joint workshops and education programmes involving the Fisheries Department, the Environment Office and Conservation Area staff could aim to further promote the role of fisheries regulations and conservation areas in ensuring that the people of Tuvalu and their children will have fish for food and sale in the future.

The Environmental Adviser to the Tuvalu Government has suggested the production of a poster with a simple message about the importance of allowing a fish to breed at least once before catching it. This could be combined with information on the length at sexual maturity for all popular species.

- ♦ **The focus should remain on small-scale projects for village communities, especially those involving women.**

The SPC Community Fisheries Section should continue to work with the Tuvalu Fisheries Department and the National Council of Women to examine the feasibility of sustainable fisheries projects and income-generating projects for people involved in subsistence and artisanal fisheries, particularly women. This could range from small-scale, income-generating projects to community-based fisheries management activities.

## 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 activities of women were often overlooked in development projects undertaken in many Pacific Island countries and territories. Pacific Island men and women have traditionally been dependent on their marine resources, to provide seafood for family consumption and, more recently, for income generation. In many countries, fishing offshore with boats has been the domain of men 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 states have been keen to encourage the development of offshore fishing activities, to generate income and to reduce the pressure on inshore marine resources. The offshore fishery, however, targets primarily men. Little has been done to document the activities of women, to identify women's potential for development, or to assess problems such as overharvesting or the impact of development on their fishing areas. If marine resources are to be developed and managed in a sustainable manner, everyone who depends on those resources must be involved.

Fisheries activities include not just going out in boats and catching fish, but also collecting shellfish and other marine life from the reef; cleaning, gutting, cooking and preserving seafood, selling seafood; and a host of other activities dealing with marine resources that involve men, women and children. All these activities should be considered when planning fisheries development, and the conservation and management of marine resources.

In January/February 1999 a visit to Tuvalu was made to examine fishing communities and the role of women in fisheries activities in Tuvalu (formerly the Ellice Islands in the British Gilbert and Ellice Colony). This assessment is the result of that visit. The purpose of this report is to examine women's roles within the fishing community and to recommend areas for assistance and support in the future.

## 4 . METHODS

Interest in the SPC Women's Fisheries Development Project was first expressed by the Tuvalu delegate to the Seventh Triennial Conference of Pacific Women held in Noumea in 1997. Following the official request for the project from the Government of Tuvalu to SPC, the Community Fisheries Officer travelled to Tuvalu in January/February 1999 to undertake the fieldwork.

The initial survey entailed interviews with men and women involved in fisheries activities; government agencies (dealing with fisheries, women's development, education, health, media, island development, and commerce); non-government agencies (including representatives from community development organisations and conservation groups); business; churches; media; and the banking sector.

The first week of the visit was spent on the fisheries vessel, *F/V Manau*, visiting Vaitupu, Nui, Nanumanga, Nanumea and Niutao to talk with fishermen and women and to observe fishing techniques and fishing areas used by the villages. The final two weeks were spent in Funafuti.

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

# 5 . BACKGROUND SOCIAL AND ECONOMIC INFORMATION

## Geography

Tuvalu is one of the smallest and most isolated island nations in the world, with a combined land area of about 25 square kilometres split between nine island groups, covering an ocean area of 900,000 square kilometres. The islands are generally less than three metres above sea level and most have infertile sandy or gravel coralline soils. Of the nine island groups that make up Tuvalu, five are atolls (Nanumea, Nui, Nukufetau, Funafuti and Nukulaelae), three are single table reef islands with small land-locked interior lakes (Nanumaga, Niutao and Niulakita) while Vaitupu has characteristics of both an atoll and a table reef island. Poor soils, limited land area for agriculture, limited water supplies, virtually non-existent mineral deposits and the environmental expense of obtaining earth materials for development all limit the ability of Tuvalu to rely on its land resources (SPREP 1997).



*The main island of Funafuti is a low-lying coral atoll with an area of only 2.8 km<sup>2</sup>.*

## Population

Tuvalu population estimates for 1998 indicate 11,000 inhabitants (SPC 1998). Tuvalu's sex ratio (number of men per 100 women) is 94, reflecting a greater number of males than females overseas. If the men working temporarily overseas are included then the ratio becomes 100 men for every 100 women.

The population is unevenly distributed, with over 40 per cent concentrated on Funafuti and the rest spread over the remaining eight islands. The island of Vaitupu has the next largest settlement after Funafuti. In a country with such a small land mass (26 km<sup>2</sup>) it is not surprising that the population density in Tuvalu is very high—an estimated 419 people per square kilometre for the entire country, and 1282 / km<sup>2</sup> for Funafuti alone. Population growth, especially when combined with the continuation of the trend of uneven distribution between Funafuti and the outer islands, is thought to be the most significant and immediate environmental problem facing Tuvalu (Lane 1993).

Records from the Tuvalu labour and education offices show that at the time of the last census in 1991 around 2000 Tuvaluans were overseas – 771 living permanently in Fiji (Kioa Island) and Kiribati, and 1230 temporarily overseas as seamen, contract workers or students.



*40 per cent of Tuvalu's population of 11,000 live on the crowded main island.*

## Kioa: An Ellice Community in Fiji

During World War II, a number of men from Vaitupu worked in the labour corps of the Allied bases on Funafuti and elsewhere in the Pacific. At the suggestion of one Vaitupu man working on Funafuti, the Vaitupians working on the various islands decided to donate money to a fund to be used later for some worthy project on Vaitupu, such as a maternity hospital. This money was collected on each island and dispatched aboard American aircraft on their regular flights to Funafuti, where it was banked by the leader of the fund-raising drive. When the labourers returned to Vaitupu at the conclusion of the war, the money was presented to Vaitupu to finance some worthwhile undertaking. The fund was roughly GBP 3000.

The first thought of purchasing Kioa, a small island off the east coast of Vanua Levu in Fiji, came shortly after the return of these men. A European who had spent some years on Vaitupu wondered if they might be interested that the island of Kioa in Fiji would soon be up for sale at a public auction. A fertile "high" island capable of growing cocoa and a great variety of other crops in addition to coconuts might make a valuable possession for Vaitupu.

The people of Vaitupu set to work with great zeal to raise more money to add to the generous donations of the returned labourers. Their enthusiasm appears not to have been based only upon thoughts of overpopulation problems and matters of agricultural potential, but also upon a certain pride of Vaitupians and a desire to make Vaitupu the most progressive island in the Ellice Group. Handicrafts were sold to American servicemen, money was donated by the Women's Committee, the Church Choir and the men's Volunteer and Sporting Clubs. In addition, shares of land on Kioa were sold to each mataniu (individuals, usually always heads of families, who are called upon to furnish food for special feasts).

At the auction in Fiji, Vaitupu's bid of GBP3015 was not exceeded and it's people were in freehold possession of another island. With their agreement, Kioa was placed in the trusteeship of the Governor of Fiji in the name of the "people of Vaitupu."

*Adapted from: Kioa: An Ellice Community in Fiji (White 1965).*

Kioa has since had a varied and fascinating history, with numerous groups of settlers arriving and leaving, economic problems, settler discontent, leadership troubles and a lot of hard communal work. To this day the island supports a small population of Polynesians originating from the island of Vaitupu.

Tuvaluans are mostly Polynesian, with the southern islands being colonised by Samoans and the northern islands by Tongans some 2000 years ago. People also arrived from Kiribati, and Nui retains some Micronesian influences as well as the Gilbertese language.

## Economy

The outer islands of Tuvalu rely on subsistence farming and fishing to maintain their lifestyle but on Funafuti the cash economy has become increasingly important. Tuvalu has no known mineral resources and few exports. Government revenues come primarily from the sale of stamps and coins and remittances from Tuvaluans working overseas. Exports for 1994 were valued at a total of AUD 63,000, with AUD 50,000 of that being fish and seafood and AUD 13,000 for copra. Imports for the same year were valued at AUD 10.9 million (SPC 1998).

A number of Tuvaluan men work in Nauru in the phosphate mining industry but these workers are being repatriated as the phosphate resources decline. Sailors trained at the Tuvalu Maritime School work on foreign merchant ships and a large part of their incomes returns to Tuvalu to their families. Substantial income is received annually from an international trust fund established in 1987 with the assistance of Australia, New Zealand and the UK and supported by Japan and South Korea.

## Health

Tuvalu has one hospital, on Funafuti, with a number of recently graduated doctors. Each outer island has a dispensary with one senior nurse, one staff nurse, one sanitation aide and one maternal health aide. The nurses consult with Funafuti by radio or telephone and send serious cases to the hospital by ferry, fisheries boat or patrol boat.

Health has improved since independence although the usual problems of a small Pacific island are encountered—non-communicable diseases caused by a change in traditional lifestyle and diet and the increasing consumption of imported foods. Overcrowding on Funafuti causes problems with sanitation, rubbish disposal, clean water availability and a lack of fresh vegetables and fruit.

Fertility has declined in Tuvalu during the last 20 years. The total number of children being born to women has dropped from 6.09 in 1973 to 3.66 in 1991. Women in Tuvalu give birth at relatively older ages compared with most other Pacific Island countries and territories (Rakasetta et al. 1998).

The infant mortality rate remains one of the highest in the Pacific. The high infant mortality rate appears most likely to be related to environmental health conditions associated with people living in overcrowded conditions. In some cases the lack of necessary health, water and sanitation services has led to an increase in air or water-borne communicable diseases (Rakasetta et al. 1998). The incidence of skin disease amongst children was reported as being high in 1990 with more than half of the cases being septic sores (Booth 1990).

## Education

Primary education in Tuvalu is free and compulsory from the age of 6 to 15. There are 10 primary schools, a government school on each island, plus the Seventh Day Adventist primary school on Funafuti. There is one high school, Motufoua, on Vaitupu, where students from other islands can board. Educational attainment has improved in Tuvalu since the late 1970s with a much higher proportion of the school population in 1991 achieving higher levels of education than just primary. In 1979, only one per cent of males and zero per cent of females attending school reached the senior secondary or post-secondary level; in 1991 19 per cent of males and 12 per cent of females attending school reached senior secondary or post-secondary levels. Current school enrolment rates at primary level show no gender inequalities and at the secondary level there is a higher proportion of teenage girls enrolled than boys (Rakasetu et al. 1998).

An educational training college with facilities funded by Australia and Canada is being established on the premises of an old high school on Funafuti. This is planned to be a teachers college within the next two to three years.

Higher education studies are usually undertaken outside Tuvalu and financed by scholarships. The top five students go to New Zealand or Australia while the majority go to Fiji and some to the Solomon Islands, Tonga or Samoa. There are currently around 200 students enrolled in Certificate and Diploma courses with the USP Extension Centre on Funafuti. The most popular subjects are language (English), accounting and management.

The Tuvalu Maritime School on Amatuku Island offers vocational, technical and commerce-related courses for men. Graduates from the school take up positions as seamen on container ships and tankers all over the world. The school has a world-standard, cargo-hold training simulator provided under an Australian aid programme.

## Religion

Most Tuvaluans are adherents to the Church of Tuvalu (Ekalesia Kilisiano Tuvalu), autonomous since 1968 and derived from the Congregationalist foundation of the London Missionary Society. Catholic, Baha'i and Seventh-Day Adventist churches have a small following, mainly on Funafuti. A number of other churches such as Mormon, Jehovah's Witness, Assembly of God, Muslim and New Testament also have a small number of followers.

## The traditional role of men and women

In traditional Tuvaluan society the roles of men and women were clearly defined. Traditional male activities included fishing, toddy cutting (collecting coconut sap to make a fresh, boiled or fermented drink), crop production and pig-keeping. Women were involved in vegetable growing, reef gleaning, occasional fishing and, on some islands, chicken and pig-raising (Booth 1989). Today the roles remain still clearly defined though somewhat changed with regards to fishing (see Section 6). The biggest changes can be seen on Funafuti, where both men and women are increasingly becoming involved in the formal employment sector, as opposed to informal and subsistence employment. On the outer islands the informal sector continues to play a very important role in Tuvalu's economy and social structure and the traditional separation of men's and women's roles remains more evident.



# 6 . THE FISHERIES SECTOR

## General overview

Like most coral islands, Tuvalu has a severe lack of arable land and is very limited in the crops it can cultivate. The islanders are therefore heavily reliant on the sea to provide for their subsistence needs. Marine resources have traditionally been harvested by subsistence fishermen, although recently, there has been an increase in the number of commercial fishermen. The 1991 census estimated that 35 per cent of men over the age of 15 were engaged in subsistence fishing with 9 per cent being engaged in commercial fishing (Belhadjali 1995). Estimates of the contribution of the fisheries sector to Tuvalu's GDP vary from 4.9 to 6.5 per cent (FAO 1998).

A wide variety of fishing techniques are used throughout Tuvalu to collect fish, crabs and shellfish which are consumed, shared, informally bartered or sold. Community fishing centres have been established on Vaitupu (Japanese-funded), Nukufetau and Nanumea (Australian-funded). Another four centres are in the process of being established by the Tuvaluan Fisheries Department. The operation of the existing centres is currently managed by government, through the Fisheries Department, though it is intended that they will eventually be operated by the local communities. Fish products are sold to the Naficot fish market and direct to the public on each respective island.

The operational centres are involved in salting and drying fish and selling fresh fish for the domestic market. Only the centre on Vaitupu has an ice machine and freezer at present—the other two centres concentrate on saltfish. The Fisheries Department is hoping to establish a vessel collection system whereby fresh and dried fish and handicrafts can be collected from the islands and transported to Funafuti for the local or export market. Tuvalu has a bilateral trade agreement with Fiji for handicrafts and there is scope to extend this to fish and fish products. The establishment of the fisheries centres and the installation of more ice machines and freezers on each island will facilitate this.



*Fish drying at the community fisheries centre on Vaitupu.*

Tuvalu previously had access agreements with foreign fishing interests, such as Japan, Korea, Taiwan and the US under the Multilateral Fisheries Treaty. In 1994 they concluded fishing agreements with Japan (10 vessels) and Taiwan (15 vessels). Since the signing of these agreement a fisheries patrol boat has been provided by Australia under a defence co-operation agreement. In 1995 foreign fishing vessels took 3753 tonnes of tuna and allied species in Tuvalu's EEZ. Of this 87 per cent was taken by US purse seiners. Between 1992 and 1997 revenue from the licensing of foreign fishing vessels to fish in Tuvalu's EEZ was estimated at 10 to 29 per cent of the government's total recurrent budget (FAO 1998). Foreign fishing vessels offload in Fiji, Japan and American Samoa.

## Fishing roles: traditional and modern

Fishing has always played an important role in Tuvaluan society. Traditionally in Tuvalu the main food producing activity of women was vegetable-growing and raising chickens whereas fishing, crop production, toddy cutting and pig raising was the major activity of men. Reef gleaning, or the collection of seafood at low tide by women and children, once provided an important amount of protein for the community, especially when weather and sea conditions were too rough for the men to go fishing. Neither reef gleaning or reef fishing by women, however, was considered to be a fishing activity. Collecting shellfish and crustaceans, as well as the preparation and sale of fish and shellfish still tends to be overlooked as "fisheries activities," even by the women themselves.

The introduction of the outboard motor in Tuvalu has tended to reduce women's seafood harvesting activities. The men now find it easier and quicker to provide fish for the family and for sale. Women see less need to supplement the family diet with seafood from their inshore fishing activities and feel that fishing with motor boats is a distinctly male occupation although a few women accompany their husbands out fishing on the boats. Women are still the main processors and marketers of fish and fish products.



*Men returning from a morning of trolling, Vaitupu.*

## Traditional and modern aspects of fisheries management

Traditional life, culture and economic development in Tuvalu are all tied intimately to the sea and, therefore, the protection of the marine environment is of great importance. In pre-colonial times there was a well-established system of traditional resource management but this has more or less broken down in recent times. Reasons for this include the introduction of a cash economy; changes in fishing gear and techniques; the influence of western culture; and the increasing mobility of the population, especially the younger generation (moving to Funafuti or overseas for work). Traditional sea tenure in the past was important in limiting access and protecting species from overfishing. Certain species were protected and fishing activities were regulated by a strong mix of taboos, social restrictions and beliefs. Weather, distances and the limitations of traditional fishing gear also helped protect the marine resources from overexploitation (Belhadjali 1995).

The basic fisheries law today is the Fisheries Ordinance 1978 (Cap. 45) which emphasises the Minister's role in developing the fisheries of Tuvalu and omits any reference to conservation of the resource. There are presently no regulations in effect, with the exception of the Fisheries (Trochus) Regulation 1990 that prohibits fishing for *Trochus niloticus* in the territorial waters of Tuvalu and, under the Fisheries Ordinance, a complete ban on the use of explosives and poisons to catch fish. According to Pulea & Farrier (1994) research on traditional conservation strategies is desperately needed.

"The nurturing of such practices, the use of regulations which build on them and the co-option of traditional enforcement machinery is likely to prove the most effective method of influencing behaviour, given the enforcement difficulties in this area. .... There is an argument that if formal regulation is employed, it should take the form of local bye-laws made with community participation rather than regulations imposed from outside under the Fisheries Ordinance. Communities will then feel a greater sense of ownership of the rules."

Local government councils have been established for eight of the islands of Tuvalu (the Niutao council also governs the ninth island, Niulakita). Local fishing activities are regulated by the authority of the island councils in the form of local by-laws. The island council authority encompasses the land, the lagoon and up to three miles from the coast (subject to ownership or rights over land, foreshore, marine life and mineral deposits contained in other legislation). By-laws are subject to the approval of the Minister for Home Affairs, who is responsible for the local governments (Belhadjali 1995).

Several of the councils have made local government by-laws to regulate fishing in their waters. These include restrictions on gear, fishing methods, access to fishing areas, and species. On Vaitupu nets are forbidden inside the lagoon except when the chief gives permission for special occasions, and then the people must pay for the fish they catch. In addition, the island of Nanumanga operates an informal conservation/breeding programme by occasionally stocking one of their smaller enclosed lagoons (Harpai) with small trevally (Carangidae). Fishing is banned in this lagoon.

## Harvesting

The mean annual commercial fisheries production in Tuvalu between 1989 and 1994 was estimated at around 120 tonne with a value of USD 97,811, while the mean annual subsistence production for the same period was estimated at 807 tonne with a value of USD 657,781 (Dalzell et al. 1996). The bulk of the commercial catch is made up of reef and deep slope fish, followed by pelagic species.

Shellfish and crabs are now collected only occasionally by some women. This is done more for pleasure than as a supplement to the diet, although during extended periods of bad weather when the men are unable to fish, women can still be seen fishing and collecting seafood on the reef tops. Species collected include:

- crustaceans (Panulirus sp., Birgus latro, Cardisoma sp.)
- bivalves (Tridacna sp., Spondylidae, Pinnidae.)
- gastropods (Nerita sp., Strombus luhuanus, Turbo sp., Lambis lambis, Cypraea tigris).

Sea cucumbers are not eaten by Tuvaluans, but have been overharvested in most areas for the export trade to Fiji. Except for Nukufetau, the collection of sea cucumbers has now been banned by the elders on the outer islands. Seaweed is also not used in Tuvalu but some interest has been shown in learning which species can be eaten and how edible seaweed is prepared. Small shells are collected at low tide for shell handicrafts.

### The use of shells in traditional Tuvaluan handicrafts

Shell handicrafts have a strong traditional significance for the people of the islands of Tuvalu. Excavations of ancient graves on Vaitupu and Nukufetau have yielded necklaces and pendants made from mother-of-pearl and cowrie shells, among other things. Today, shell handicrafts are given to relatives or friends departing Tuvalu. They are also given to guests at special functions, visiting high-ranking officials, and are worn by men and women when performing the fatele (a local dance).

Five main species of shell are used in handicraft production. They are the gold-ringing cowrie, *Cypraea annulus*; the money cowrie, *C. moneta* (both called pule kena); the black or snake cowrie, *C. caputserpentis* (pule uli); and two species of land gastropod, *Malampus luteus* and *M. fasciatus* (both locally referred to as misa). Other species of shells are seldom used because they are too fragile.

Misa are found in shady moist areas under coral rubble and debris on land. They are collected when it is rainy or on nights with a new or first-quarter moon. At these times misa move to the surface of their shelter, making collection easier. The best times to collect pule kena is at low tide when it is rainy or at night. At these times the animals make their way to the surface of the rocks. Pule uli are normally collected on an outgoing tide on the outer reef. They are best sought when it is sunny, because the dark colouring of the shell reflects the light, making it easier to see them.

Few tourists visit Tuvalu. The major buyers of shell handicrafts are therefore Tuvaluans, with shell necklaces being the most popular items. The National Government has no regulations covering the collection of shells. However in 1994 the Nukufetau Maneapa (Council of Elders) placed a verbal ban on the export of unworked pule kena and pule uli from Nukufetau. The ban did not include the export to Funafuti of handicrafts using these shells.

Source: Tiraá-Passfield 1996

Women and children fish in the coral pools along the reef edges using small rods, light lines, light sinkers and small baited hooks or lures. Hooked rods or hands are also used to capture small fish and eels in pools or holes in the rocks at low tide. Men also fish with light lines in the lagoons and shallower areas outside the reefs using crab, mollusc and fish as bait. Inshore fish species caught by both men and women include snappers (Lutjanidae), emperors (Lethrinidae), groupers (Serranidae), parrotfish (Scaridae), squirrelfish (Holocentridae), wrasses (Labridae), rabbitfish (Siganidae), surgeonfish (Acanthuridae), trevallies (Carangidae) and herrings (Clupeidae).



Women fishing and collecting on the reef flats of Nui.

On some of the outer islands three-, four-, or five-man canoes are still used with traditional or modern trolling gear although trolling is now most commonly done using motor boats (4–5 m dinghies powered by 15–40 hp outboards). The catch includes tuna species such as bonito or skipjack tuna (*Katsuwonus pelamis*), yellowfin (*Thunnus albacares*), mackerel tuna (*Euthynnus affinis*) as well as dolphinfish (*Coryphaena hippurus*), trevallies, wahoo (*Acanthocybium solandri*), spanish mackerel (*Scomberomorus commerson*) and barracuda (*Sphyraena* sp.). Billfish are occasionally caught when the fishermen are targeting yellowfin tuna using modern, traditional or baited lures. Traditional paa lures are still made and used on some outer islands, using mother-of-pearl shell (*Pinctada* sp.), sometimes with the traditional turtle shell hook but more commonly hand-fashioned metal or hard plastic hooks are used. Pole-lining for bonito is not practised now, but the gear used by the old fishermen can still be found.

## Pole-lining for bonito

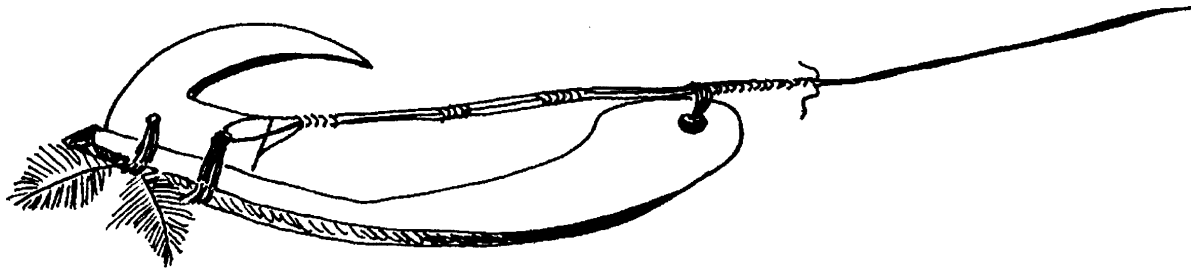
One of the most important and exciting fishing techniques is bonito or skipjack tuna fishing with pole-and-line, vaalo or alo. A lure of pearlshell, paa, fitted with a V-shaped hook of turtle shell, as traditionally used in Polynesia, is trolled behind a canoe. Long (6–7 m) bamboo poles, kofe, are imported to islands where bamboo does not grow, as are the mother-of-pearl shell (*Pinctada* sp.) and turtle shell for the lures. Pearl shell is surprisingly uncommon in Tuvalu: a shell may cost AUD 6.00.

A single rod, under the command of the canoe master, is placed in a sennet cord and timber cradle at the stern of each three or four-man canoe, and the lure is trolled through the feeding school. Several spare lures are kept attached to the rod for the fish bite quickly and lines are easily broken and tangled. Lures vary in shape and colour (obtained by selectively grinding the shell's nacre) and several types may be tried before the fish bite. When a fish is hooked, the canoe master feels the strain in the rod, and deftly poles the fish into the canoe and catches it.

Great care is taken not to drop the landed fish in the water, or to let the rod tip touch the water, or accidentally drop any other object, for all fishermen claim that the feeding school, and other schools in the vicinity, will dive. Several penalties still exist for offenders under local council by-laws; repeated offences may result in the fisherman's exclusion from bonito fishing.

Fish averaging 5–10 kg and catches of 10–30 per canoe are not uncommon. A masterfisherman achieves his status by catching 100 fish per day of fishing.

Source: Zann 1980



Traditional paa lure.

Motor boats or one-man outrigger canoes are used for deepwater fishing for trevallies, deepwater snappers (*Pristipomoides* sp.), castor-oil fish (*Ruvettus pretiosus*). Heavy line and large, heavy steel hooks are used. In the past an L-shaped timber hook, lou palu, was used to catch castor-oil fish, palu (Zann 1980).

Flying fish (Exocoetidae) are caught using scoop nets and torches at night, either with motor boats or three and four man canoes. These continue to be a very important staple fish in Tuvalu. Underwater spear fishing using a sling-type spear gun (usually homemade using inner tubes) is practised by men and boys. Torches and spears are occasionally used by women for fishing at night. Nets (gill nets, drive-in nets or surround nets) are used to catch rabbitfish (*Siganus* sp.), mullet (Mugilidae), goatfish (*Parupeneus* sp.), rudderfish (*Kyphosus* sp.), surgeonfish (Acanthuridae) and parrotfish (Scaridae). Community fish drives use coconut frond sweeps that herd fish into nets or to an area where they can be easily speared. Scad (*Decapterus* sp.) is caught seasonally by building rock ponds on the reef which trap the fish at low tide. The fish are then scooped out with nets.

## Processing

Women undertake most of the primary and secondary processing of fish and seafood products for home use and sale. Fish sold to the Naficot Community Fisheries Centres is usually gilled and gutted at the boat ramp by the fishermen on their return from fishing. Primary processing in the form of gutting, scaling, cleaning of fish and shellfish is done by the women for family consumption.

Secondary processing for family consumption includes frying, baking, steaming and boiling. Raw fish is very popular. Salting and drying of fish is the most popular preservation method. Another method, ika fakapaku, involves wrapping a whole tuna in leaves, baking overnight in the umu, or underground oven, splitting the fish into quarter fillets and then drying in the sun until very hard. Fish processed this way keeps for months, especially if the initial baking is done correctly.

Most of the outer islands are without electricity or refrigeration and these methods provide an important way of preserving excess fish for the family and for sale.

## Marketing

On Funafuti fresh, chilled, frozen and dried fish is sold at the National Fishing Corporation of Tuvalu (Naficot) shop at the wharf and from their two outlets in town. Naficot buys fish from both artisanal and commercial fishermen. They hire women on an ad hoc basis to process the fish - for smoking, steaks, fillets etc. Eighty per cent of the fish is sold fresh and unprocessed, processing is only done on demand for restaurants, hotels and special orders. Naficot also supplies the Maritime Training School and the hospital.

Naficot presently has about 80 boats on contract. Most fishermen use 5–9 m boats with 20–30 hp outboard motors. Ten to fifteen boats supply fish to Naficot everyday, including three GRP 9m boats owned by Naficot. Fish is bought in fresh, on ice, and Naficot freezes only when there is an excess. Due to their scarcity, very few crabs and lobsters are caught or sold. Giant clams are only collected for home use.

Some women, using handcarts and large ice chests, sell their husbands catch outside the main shop on Funafuti, the Fusi Cooperative. On the outer islands fish is often shared according to custom, but is also sold by the women from home, or sold to Naficot on those islands with operating fisheries centres.

The fisheries centre on Vaitupu buys gilled and gutted fresh fish (mostly pelagics and deepwater fish) for AUD 1.20/kg and sells to the local people for 1.50/kg. Fish is also sold to the Motufoua High School, for 1.80/kg. The established fisheries centres also produce their own dried fish, often hiring extra workers when there is an excess of fish to process. Dried fish is occasionally sent to Funafuti where it can be sold for AUD 6.00/kg. Fresh fish can be sold in Funafuti for between AUD 2.00 to 3.00/kg, depending on the species, but at present outer island sale of seafood in Funafuti is restricted to dried fish.



*Searching for small fish on Nui.*

## Aquaculture

Tilapia were introduced into "borrow pits" (marine lakes formed from pits where the Americans extracted coral for the airstrip during WWII) but these tilapia are not an acceptable food fish to most Tuvaluans. With rapid population growth and little land, people are having to build over borrow pits. The pits receive rubbish and animal waste and are therefore not particularly suitable places to raise fish for human consumption. On Nanumanga the people fish for tilapia in one of their inner lagoons (Vaitoa) when the weather is too rough for fishing outside the reef.

An aquaculture pond for milkfish (*Chanos chanos*) was built on Vaitupu in 1996 but further subsistence aquaculture has not been developed elsewhere and the Vaitupu pond is presently not productive.

Trochus were introduced to Tuvalu from Fiji and the Cook Islands between 1985 and 1989 in an attempt to increase marine resources and support a small-scale trochus fishery. Progress of the introductions is still being monitored but a survey of the introductions on two islands in 1994 recorded few adult trochus. Aquaculture research projects involving giant clams (for re-stocking wild populations) and introduced *Eucheuma* sp. seaweed (for commercial development) have been initiated but nothing further has happened with either of these (FAO, 1998).



# 7 . SERVICES FOR SUPPORT AND ASSISTANCE WITH MARINE RESOURCE USE AND MANAGEMENT

## **Fisheries department**

There are 34 positions at the Tuvalu Fisheries Department although nine of these are currently vacant. This is a recurrent problem in Tuvalu, with many positions remaining vacant due to a lack of suitable applicants, or temporarily vacant due to staff attending short and long term training overseas. Four of the filled positions are held by women and three of those are administrative; a clerk, storekeeper and executive officer. The fourth, Lilian Sauni, a Fisheries Information and Surveillance Officer is currently studying at USP.

The Fisheries Department is responsible to the Ministry of Natural Resources and Environment and has mainly been concerned with the development of offshore fisheries, foreign fishing and the development of the Community Fisheries Centres on the outer islands. The Department has been involved with training in gear technology, small business management, processing, quality control and mechanics. All their work has so far concerned men, although it has been recognised that post harvest seafood training would benefit women who are likely to be employed in the fisheries centres. One woman worker at Naficot has been selected to attend the SPC funded course for Pacific women fisheries workers, to be held at the Nelson School of Fisheries in New Zealand in April/May 1999. The Fisheries Department is keen to include both men and women in their training programme in the future and sees a role for women in the processing work of the Community Fisheries Centres.

The Fisheries Department has produced a number of detailed and informative Annual Reports but the last of these was produced in 1994. The reports illustrate the difficulties faced by a small island state fisheries agency: lack of staff, lack of trained staff, high staff turnover, numerous vacancies due to overseas training (leading to a lack of consistency in following through projects), broken down equipment (unable to be easily repaired or replaced), transport difficulties and a lack of facilities. These numerous limitations to the regular work of the Department are combined with the competing demands from the number of overseas funded projects running at one time, all demanding the time, staff and resources of the Department for the duration of the project.

Concern has been expressed (Lane 1993) that not enough effort is being applied to environmental research, impact assessment, or resource conservation by Tuvalu's resource development agencies, particularly in the area of lagoon and reef fish resources. This may be the case, but the difficulties faced by those agencies in meeting even the most basic needs of their sector should not be underestimated.

## **Environment department**

This department was only established in 1992 and since then has been concentrating on the production of the SPREP State of the Environment (SOE), National Environment Management Strategy (NEMS) and Environmental Legislation Review reports. The Department now wishes to concentrate on other issues but considerable administrative details need to be worked out. A proposal for the restructuring of the Environment Department has been submitted to government, asking for an increase in staff amongst other things. Presently there is only one staff member, the Environment Officer. An assistant should be starting soon after a delay caused by a lack of candidates applying for the position. The new proposal asks for funding for an Environmental Impact Assessment Officer, a Monitoring Officer, a Waste Management Officer, an Information Officer as well as clerical and library staff.

The Department would like to be in the position of holding Environment Awareness Workshops to increase public education on environmental issues; producing brochures and posters; and educating the public on the need for waste recycling, but they are presently limited by a lack of staff and funds.

The government also has an Environmental Adviser currently working on a number of waste management and habitat improvement projects to present to government as alternatives to the current unsustainable practices.

## **Conservation area**

Tuvalu has recently established its first marine park, the Funafuti Conservation Area (CA), covering 33 square kilometres and stretching along 15 km of the western rim of Funafuti Atoll. The park was established and is being managed with the assistance of United Nations Development Programme (UNDP) and the South Pacific Regional Environment Programme (SPREP). Coconut crabs, seabirds, green and hawksbill turtles, and reef fish are among the species protected in the area, which includes six islets, lagoon, back reef, ocean side reef and channel habitats. Conservation Area projects and activities are endorsed by a coordinating committee consisting of representatives from the Fisheries and Environment Departments, Funafuti Town Council, the Falekaupule (Community Elders) and the local fisherman's association.

Project staff, who operate out of the Town Council offices, include a support officer, a project manager, two conservation managers and an Australian volunteer biodiversity officer. The park is difficult to police and there have been some problems with poachers fishing and hunting in the area. Enforcement is also difficult as there is presently no legal basis to enforce "no-take" bans. The CA legislation is currently waiting to go through parliament,

Resource surveys are presently being conducted to measure changes since the first survey, done in 1997. The CA team currently assists public education on conservation issues in the form of workshops, posters and support for income-generating projects such as eco-tourism. They hope to establish an information centre for community education and tourist information.

The six islets within the area involve 21 landowners and, after an initial enthusiasm for the project, there have been some problems with a lack of interest in CA meetings and complaints regarding restrictions to resource access within the area. Funafuti, like many main population centres, faces difficulties with regards to conservation areas because of the large number of people from different islands living there. Traditional feelings of ownership or responsibility for resources are weak, making acceptance and enforcement of conservation areas difficult. However, the overcrowding and overexploitation of marine resources on Funafuti Atoll make it the island most in need of environmental protection. There is interest in setting up conservation areas on the outer islands and it is likely that there would be more chance of success because of the stronger traditional community structures.

## Education and training

Social pressure in the past affected the numbers of females attending school as families often focussed on obtaining a good education for their sons—the likely future income earners and supporters of the family. Nowadays, females generally stay in school as long as males and there is no social or cultural restriction to them attending school. However, few females pursue marine science or fisheries related studies with their further education. Subject choice at the tertiary level is still fairly traditional with females choosing, for example, nursing and primary school teaching, while males tend to study subjects such as electrical engineering, auto mechanics and the sciences.

Students in Tuvalu study basic chemistry, biology, maths and physics but there is no marine science taught at the primary or secondary level. The new educational college aims to address the science, fisheries and environmental study needs. There is no curriculum development body in Tuvalu but there are plans to establish one and to set up a management body for all levels of education. The college will be for men and women but aims to cater more for women as men in Tuvalu have more employment opportunities due to the Maritime Training School.

Currently, science and fisheries related courses offered at the USP Extension Centre are unable to be completed entirely through extension studies due to the Centre having no facilities to run the biology units. There are plans to establish a science laboratory at the centre, but at present students must travel to Fiji to complete their biology units.

Various scholarships are offered to high school students (pre-service scholarships) and to civil servants (in-service scholarships). Each government ministry submits its needs for human resources and the scholarships are geared towards filling those needs. There is no requirement for students to return to work in Tuvalu after completion of scholarship study and a lot of students studying overseas do not return. The Education and Training Department does not see this as a problem as they would be unable to absorb all returning graduates. Tuvalu still benefits as money returns to the country in the form of remittances to family remaining in Tuvalu.

Before being selected for in-service training the candidate must complete four units of the course through extension. The first year of study is done with full salary while for subsequent years a salary of 50 per cent is paid. Ninety six in-service scholarships have been approved by the Tuvalu Government for 1999. Of these, two are for the Bachelor of Marine Affairs (both for Fisheries Department staff) and one for a Master of Fisheries Development Policy (undertaken by the manager of Naficot). These are all being taken by men while the one female fisheries staff member currently undertaking further study is being assisted with a scholarship from Kiribati.

The Tuvalu Maritime Training School is on Amatuku Island, at the north end of Funafuti's coral atoll ring. The school opened in 1979 and graduates are now working on ships all over the world. Almost 50 Tuvaluan sailors were recruited for work on overseas vessels in the month of November 1998, with another 43 leaving in December. Three seamen's recruiting agencies operate in Tuvalu. The school has no training for women.

Some Tuvaluan women have attended the SPC Community Education Training Centre (CETC) in Fiji for an annual seven-month, live-in course on community development studies. Until now, the CETC has focussed on the following major subject areas: community development, health and development, introduction to management, economics of development, home economics, agriculture, and small business development. The SPC Community Fisheries Adviser has been working with the Principal of CETC and the USP's Post Harvest Fisheries Project to develop a fisheries module to include in the training programme. The topic of fisheries has now been included in the curriculum as an elective.

## **Information and media**

Tuvalu has one newspaper, a monthly government publication published by the Broadcasting and Information Office. Each draft edition goes to the Secretary of the Office of the Prime Minister before being approved for publication. The newspaper contains a variety of local news including information on overseas visitors; names and course details of scholarship recipients; names of local sailors leaving Tuvalu that month to work on overseas vessels; information from the National Council of Women and various government departments; details of workshops currently being run; updates from the Conservation Area office; and articles on regional and national aid projects currently operating in Tuvalu.

The most effective way of transmitting information to the public is via the local government radio station, also run from the Broadcasting and Information Office. The radio broadcasts three times a day: an hour and a half in the morning and at midday, and three hours in the evening. Both radio and newspaper feature news on national and regional fisheries activities and both are used by the Fisheries Department to pass on information concerning fisheries to the public. There is only one television station, with no local content.

The public library has a collection of books on the Pacific region as well as a number of regional reports from such organisations as SPREP and SPC. However, the cataloguing system makes it difficult to find anything according to subject as both fiction and non-fiction are classified alphabetically according to the author's name. The USP Extension Centre library has a collection of textbooks and general reference books related to the wide range of courses USP offers. The Fisheries Department has a small library containing annual reports, reference books, journals and bulletins from around the region. The Environment Department is hoping to build up a reference library which would be managed by the Information Officer requested in the restructuring proposal submitted to government.

## **Community development**

### **Rural Development Department**

In the past, the Rural Development Department was concerned with the implementation and co-ordination of development projects but its main concern at the present is the decentralisation policy of the government. The local communities want more control in deciding their own affairs and the government will now be less involved in grass roots development on the islands, playing more of an advisory and monitoring role with technical assistance given as needed. The Government will continue to fund rural development programmes, especially at the national level for projects concerning the entire country, while island communities will concentrate on the specific needs for their particular island. Certain projects, such as mining, will still have to obtain national government approval when they concern national laws, such as the Mining Act.

### **Tuvalu All Non-Government Organisations (TANGO)**

TANGO has been operative for at least two years. Previously, an overseas volunteer was in the position of president but now the job is held by a Tuvaluan. The organisation holds workshops and assists with projects within Tuvalu. TANGO receives core funding from the Foundation for the Peoples of the South Pacific (FSP), which has its headquarters in Vanuatu. There are now 18 members of TANGO in Tuvalu, including church groups, the National Council of Women and the Youth Council. They act as a contact point for overseas NGOs as well as a distribution body for information. Although TANGO have not so far been involved in fisheries related activities they are extremely interested in moving into this area.

## **Ministry of Tourism, Trade and Commerce: Tuvalu Business Centre**

Tourism is still very undeveloped in Tuvalu due to transport constraints and isolation. It can be quite difficult to get to the outer islands and even flights to Funafuti can be unreliable. Tuvalu has a tourism plan for the new millennium but numbers of potential visitors are constrained by the lack of accommodation. In 1998 a total of 1010 'tourists' visited, mostly from Japan and China. The tourism figure include business, aid and government travellers and it is likely that these make up the majority of the total. The CA team conducts tours to the marine park for a reasonable price but tourist numbers are too low for this to bring in much income to the project.

The Trade Department of the Ministry has a UNDP-funded adviser running the Tuvalu Business Centre. This centre is involved in the promotion and training of people involved in small enterprises. Training workshops have been offered on Start Your Business and Improve Your Business. The workshops are attended by both men and women and last for one week.

## **Women's interests**

### **Community Affairs Division**

The Community Affairs Division is the government focal point for women and looks after the overall organisation of women's programmes. The Women's Development Officer co-ordinates women's agricultural income-generating projects such as pig and poultry farming, as well as disseminating information regarding women's interests. The Division works side by side with the Tuvalu National Council of Women, the non-government focal point for women. A Department of Women's Affairs has only recently been established. The budget for this department is being tabled during Parliament session in March 1999 after which new posts will be advertised. Activities for 1999 included improving existing women's projects; drawing the Corporate Plan for the Department of Women's Affairs with the assistance of a consultant funded by the New Zealand Government and UNDP; and upgrading communication and linkages of the department with the Tuvalu National Council of Women and individual women.

### **National Council of Women**

The Tuvalu National Council of Women (TNCW) is the non-government, and probably more well-known, focal point for women in Tuvalu. The TNCW is an umbrella organisation for all women's groups and associations in Tuvalu. Membership includes all women's island communities from the eight islands.

The TNCW works to preserve Tuvalu's cultural heritage and customs, to improve women's groups and to act as the link between the women of Tuvalu and other women's organisations regionally and internationally. Activities include the renovation and running of the Women's Snack-bar; running of the Women's Handicraft Centre in Funafuti and small centres on each of the eight islands; co-ordination of the building of the National Women's Centre; and coordination of a New Zealand funded credit scheme for women.

The Women's Handicraft Centre operates out of the airport building and sells items such as shell necklaces, traditional lures, model outrigger canoes and woven mats. The centre sends orders to the outer islands for crafts and collects the product two months later. Demand usually exceeds supply and many women say they are now too busy to sit and make the labour-intensive traditional crafts. The women of Funafuti concentrate mainly on shell handicrafts as there is not enough land to provide them with materials for other crafts.

The TNCW screens projects and women's activities for the government and officially all projects must go through an island council. This has created some conflict where individuals or small groups not affiliated with an island council have trouble accessing the assistance of the TNCW.

## **Women in Business**

Women in Business (WIB) is a non-government organisation established in 1997. Funding is obtained from government, the Chamber of Commerce and overseas aid agencies. The organisation reflects the growing number of women moving away from subsistence level activities and into small businesses in Funafuti. The WIB is starting their first training session, a Canadian-funded workshop to train young women to be employed as domestic help. This is a new position in Tuvalu, created by the number of women now in full-time formal employment. Women working in Funafuti are often without the usual family support that would take care of cleaning and caring for children while they worked. Others have the support, but are trying to move more fully into the cash economy and would prefer to employ a domestic helper rather than enter into the customary obligations that could arise from having family assistance. The training is seen as being necessary as most young women are accustomed to cleaning or caring for children in an informal way, as part of a family, not as paid employment where specific duties must be accomplished in a set time.

## **Financial institutions**

### **The National Bank of Tuvalu**

The National Bank of Tuvalu offers small loans, mainly housing loans, of AUD10,000 to 20,000, at 8 per cent interest. Personal loans, sometimes used for purchasing outboard motors and boats, attract an interest rate of 11 per cent. A short-term loan in the form of an overdraft (one to three months) is offered at 13 per cent interest. The overdraft is the type of loan that would most likely involve small business, for example, to cover start up costs. The majority of loans are given to men; however, as women are often the financial managers of the family it is common for women to initiate the idea of borrowing the money and for them to manage the repayments.

### **The Development Bank of Tuvalu**

The Development Bank of Tuvalu concentrates on business loans and estimates that 20–30 per cent of its lending portfolio is made up of fisheries projects. The bank provides loans for capital equipment such as boats and motors, on Funafuti as well as the outer islands. Loans above AUD 3000 attract an interest rate of 8 per cent (with a reducing balance rate). The boat and motor is usually used as part collateral. The bank prefers the borrower to be unemployed (to stimulate new business), with an employed guarantor. Loan repayments are most successful when the guarantor is a seaman working overseas—suggesting that many loans are paid off by the guarantor rather than by the borrower's new business.

Most businesses are started as a family venture and the bank has had a few women borrowing money to buy a boat and motor, on behalf of the family. The bank also offers micro-loans (at a 10 per cent flat interest rate) from AUD 500 to 3000. These are often taken out by women to purchase sewing machines and other equipment for a new business, or for working capital for an existing business.

The Development Bank has had some problems with loan repayments and new loans have been frozen since November 1998. The bank expects to start lending again in March 1999. According to the bank manager, people are often not well-informed about their loans, despite having the details carefully explained at the beginning. Once people obtain the loan and buy the equipment they tend to think of the equipment as their own and have difficulty understanding their further obligations to the bank.

The Development Bank and the National Bank (both government owned) are due to merge in March 1999 but the services offered to the public are expected to remain the same.

## Business

According to the 1994 Household Income and Expenditure Survey conducted in Tuvalu (Government of Tuvalu 1994) 296 males and 70 females received a weekly income from fishing. The average weekly income for the females was actually higher than that of the males (AUD 16.57 as compared to 10.21 per week). The survey does not specify the type of fishing engaged in by the women, but it is likely the figure involves women who sell their husbands' catch as well as women employed by Naficot for processing.

In 1991 the number of businesses owned by women was the same as those owned by men, although jointly-owned businesses were more common (Booth 1990). Most male-owned businesses deal in fishing, construction, wholesale commerce and transport services while female-owned businesses are in clothing, retail commerce, food and entertainment.

The main retail business on Funafuti and the outer islands is the main store, Fusi, which is run by the Tuvalu Co-operative Society Ltd. The Co-op has around 5000 members with membership costing 25 shares at AUD 1.00 a share. The business has an annual turnover of AUD 7–8 million, and 140 employees and nine outlets (a branch on each island). The main branch on Funafuti has an annual turnover of AUD 3–4 million and an annual profit of around AUD 300,000. The profit goes back to the community in the form of dividends to the shareholders. Goods are offered at a reasonable price and transport costs are absorbed by the Co-op to ensure that the price of goods on the outer islands is the same as in Funafuti. The stores sell a wide range of goods including some fishing gear. The Co-op controls 95 per cent of the trade in Tuvalu but now faces competition from Asian businesses setting up in the country.

# 8 . CONSTRAINTS AND SUGGESTED AREAS OF ASSISTANCE

## Social and cultural roles

Within traditional society in Tuvalu, 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. Reef gleaning, or the collection of seafood at low tide by women and children once provided important protein for the community, especially when weather and sea conditions were too rough for men to go fishing outside the reef. The division of labour still exists to a large extent in Tuvalu, although in Funafuti women are moving into the formal employment sector more and more. The preparation and sale of fish and shellfish still tends to be overlooked as "fisheries activities", by the women themselves as well as by many of the government and non-government agencies that assist fishing activities in Tuvalu. Most Tuvaluan women do not seek a greater involvement in the capture side of fisheries although they are very keen to involve themselves more in processing and marketing.

**Area of assistance: Greater involvement of women in the work of the Fisheries Department with support from the National Council of Women**

**The role of women in the fisheries sector needs to be more actively supported by the Fisheries Department and women's groups and organisations. Until recently the Fisheries Department and funding agencies have directed training programmes towards fishermen despite the fact that women are involved in the processing and marketing of the catch. At the same time, the government and non-government women's organisations have not had the expertise to deliver assistance to those involved in fisheries activities. Support can be given by acknowledging and promoting the fisheries activities of women and in initiating fisheries training programmes for women. Greater interaction between the National Council of Women and the Fisheries Department would also encourage the involvement and support of women in fisheries activities.**

## Commercial versus subsistence fisheries

The involvement of women in the fisheries sector tends to be at the small-scale commercial level (artisanal), processing for the family as well as for the market. A look at past and present government fisheries development programmes shows they have targeted the promotion of commercial fisheries and

**Area of assistance: Provision of more training programmes for subsistence and artisanal fishers, particularly women**

**During the survey, training needs identified included new methods of seafood preservation; seafood quality and handling; new recipes for seafood; marketing and small business skills; the role of fisheries regulations; and the conservation of marine resources.**

supported the small-scale development of artisanal fisheries in the outer islands, with men as the main target group. There has been little direct assistance or training given to women involved in fisheries activities. Women are the main processors of fish and seafood, but have received little training or support in this area.



## Population pressure on Funafuti and outer islands

Reef fish stocks in several of the islands, and especially in Funafuti, are threatened by heavy fishing pressure from both subsistence and commercial fishermen. Population density is high on all the islands but especially so on Funafuti, where almost half of Tuvalu's population live. The high population density in Funafuti places its fish stocks in a particularly vulnerable position. Areas of the lagoon close to the population centre on Funafuti are overfished and the disposal of rubbish along the coast and in the borrow pits is a major problem.

Most of the women on the outer islands indicated that it is more difficult to catch fish on the reef now than it was 10 years ago, but it is difficult to assess the accuracy of this as the women also say that they now fish less than in the past. The major reason the women give for the decline in fisheries resources on the reef is the use of the outboard motor. Again it is difficult to state whether this is actually the case as the outboard motor has also given fishermen access to less exploited fishing areas further outside the reef than were previously fished with outrigger canoes. The motor boats on most islands seem to be used mainly for trolling and deepwater fishing. Population pressure is probably one of the more direct causes of the decline in reef fish stocks.

### **Area of assistance: Promotion of public awareness programmes on fisheries and the introduction of fisheries regulations**

**Public awareness of fisheries conservation and management needs to be increased. Existing village fisheries regulations should be further promoted. There is a need for increased Fisheries Department involvement in national fisheries management activities. An inshore management plan was being developed by Sautia Maluofenua, the Director of Fisheries, but this was interrupted by his absence while pursuing further study. A management plan and the introduction of national fisheries regulations is especially necessary on Funafuti where the reef fish stocks are threatened by heavy fishing pressure. Presently national fisheries regulations only cover the harvesting of trochus (it is prohibited to harvest *Trochus niloticus* in the territorial waters of Tuvalu) and the use of explosives or poisons to harvest fish.**

**Any regulations should be combined with education and introduced with community consultation and support. Community fisheries management and marine resource conservation should be a part of any training directed at those involved in subsistence and artisanal fisheries.**

## Storage and marketing constraints

A major constraint on the outer islands is the storage and transport of fish, both for sale and for local use. Fishing on the outer islands remains at a subsistence level in most cases, due to the lack of access to a wider market. Large catches of fish must be consumed or sold quickly or salted and dried for later use. At present, the one outer islands Community Fisheries Centre with cold storage facilities occasionally runs out of storage space and is unable to take all the fish offered for sale by the fishermen. The local demand for fish on the island is not large enough to keep up with the supply, whereas on Funafuti the opposite is sometimes the problem. The establishment of new centres, the upgrading of existing centres, and the implementation of reliable transportation of fish to Funafuti will help broaden the market for fresh fish and fish products and increase opportunities for both fishermen and women.

However, Naficot is struggling financially, and operates mostly at a loss, or at best breaks even. Further development of the Community Fisheries Centres and improved transport in the outer islands will require outside funding or government assistance for some time yet. Because of the distances involved, a round trip from Funafuti to the other Tuvalu islands takes about a week on the 58m interisland ship, the *Nivaga II*. At present the Fisheries Department and Naficot use the 10-year-old, 19m fibreglass fisheries vessel, the *FV Manai*, a Japanese-built vessel, donated by the Government of Japan under its Grant Aid to Tuvalu. It can take a week just to stop at the six northern islands, using the *Manai*. Due to the infrequent and often unreliable schedule of the *Nivaga II*, the *Manai* is often pressured to take passengers on their trips, a circumstance for which the boat is not equipped, either with comfort or safety gear. The Fisheries Department has applied to the Government of Japan for funding for a larger vessel which will be able to make the trip faster and safer.



*The FV Manai.*

The development of an export snapper fishery has been constrained by difficulty in raising capital, and the poor handling and distribution and export infrastructure in Tuvalu (FAO 1998). In the past, Naficot has made export shipments of deep bottom snapper, but at present, they have no access to the export market.

**Area of assistance: Increase the involvement of women in the establishment and operation of the Community Fisheries Centres and other development initiatives**

**The problems of storage and transport of fish and seafood products will not be solved quickly or easily. Women's access to development opportunities could be improved by providing them with training in seafood quality, handling and preservation.**

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

The problems outlined previously 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 marine 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.

The development of economic activities based on inshore marine resources is very limited due to the ease with which these species can be overharvested. In many cases, popular resources are already 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 for sustainable fisheries activities. Follow-up training with support for the establishment of small-scale, income-generating activities**

Presently, income-generating activities include the sale of fresh and processed seafoods to local markets. Interest has been expressed in the potential for seaweed harvesting. Further work would have to be done to assess the species and quantities available. In the past, *Eucheuma* sp. seaweed was introduced but this has not led to any commercial development.

Milkfish aquaculture is a potential income-generating activity for the local market but no further development in this area has occurred after the initial pond was built on Vaitupu. It may be possible to revive interest in this pond as a community project with the involvement of the women of the village.

Training in seafood quality, handling and preservation; new seafood recipes; and small business skills could improve the use of offshore fish catches.

## 9 . REFERENCES

- Belhadjali, K. 1995. Tuvalu Country Statement. SPC/FFA Workshop on the management of South Pacific inshore fisheries. Noumea, New Caledonia 26 June - 7 July 1995.
- Booth, H. 1990 Tuvalu: a statistical profile on men and women. UNDP/UNIFEM Pacific Mainstreaming Project. Synergy in Development PMI/89/WO1. 17 p.
- Dalzell, P., T.J.H. Adams and N.V.C. Polunin. 1996. Coastal fisheries in the Pacific Islands. *Oceanography and Marine Biology: an Annual Review*. 34 395–531.
- FAO. 1998. Fishery country profile. FID/CP/TUL. Food and Agricultural Organisation of the United Nations. 7 p.
- Government of Tuvalu. 1991. Population and housing census. Volume 1: basic information. Central Statistics Division. 115 p.
- Government of Tuvalu. 1994. Household income and expenditure survey 1994. Ministry of Finance and Economic Planning. Tuvalu Assets Management and Statistics Project. 24 p.
- Lane, J. 1993. Tuvalu state of the environment report. Report for the South Pacific Regional Environment Programme (SPREP) as documentation in support of the Tuvalu National Environmental Strategy (NEMS). SPREP, Apia, Samoa. 64 p.
- Patiale, H. and P. Dalzell. 1990. Preliminary account and analysis of the government small scale fishing fleet of Funafuti Atoll, Tuvalu. SPC, Noumea, New Caledonia. 8 p.
- Pulea, M. and D. Farrier. 1994. Environmental legislation review - Tuvalu. Report for the South Pacific Regional Environment Programme and the Government of Tuvalu. 81 p.
- Rakaseta, V.L., G. Haberkorn, A. Demmke, and C. Lepers. 1998. Tuvalu population profile: a guide for planners and policy makers. Population/Demography Programme, Secretariat of the Pacific Community. 50 p.
- SPC. 1998. SPESS. Selected Pacific economies - a statistical summary Number 14. Secretariat of the Pacific Community, Noumea, New Caledonia. 57 p.
- SPREP. 1997. Tuvalu: National Environmental Management Strategy (NEMS). South Pacific Regional Environment Programme. Apia, Samoa. 80 p.
- Tiraa-Passfield, A. 1996. The uses of shells in traditional Tuvaluan handicrafts. In: SPC traditional marine resource management and knowledge information, SPC Info Bulletin #7, September 1996. p 2-6.
- White, G.M. 1965. Kioa: an Ellice community in Fiji. Project for the comparative study of cultural change and stability in displaced communities in the Pacific. Published by the Department of Anthropology, University of Oregon. 177 p.
- Zann, L.P. 1980. Tuvalu's subsistence fisheries. Effects of energy crisis on small craft and fisheries in the Pacific. Report 4. Institute of Marine Resources, University of the South Pacific, Suva, Fiji. 21 p.

## APPENDIX: PERSONS CONSULTED

Suia Pesenga and Lita Pita, National Council of Women  
Malaki Tihala and Sikela Ulumutu, Fisheries Department  
Amasone Kilei, Foreign Affairs  
Ursula Kaly, Environmental Adviser to Government of Tuvalu  
Satalaka Petaia, Manager, Naficot  
Sakalia, Manager, Vaitupu Community Fisheries Centre  
Lagatili, Vaitupu Community Worker  
Vaitupu Island Council  
Fishermen and women of Vaitupu  
Ruta Boreham, Nui Community Worker  
Vaieli Fuiono, Pastor's wife  
Women of Nui  
Fishing with Ausita, Tamo, Epenesa, Ruta and Vaieli  
Leitonga, Island Development Officer  
President of Nui Women's Council  
Taulanga Konelio, Nanumanga Community Worker  
Women of Nanumanga  
Vaimoana Faalo and Paufi Tapa, Radio Operator, Nanumea  
Ipu, Nanumea Community Worker  
Naamia Sakalia, Nanumea Weather Station  
Meleane Ateoni, Niutao Community Worker  
Fakavae Taomia, Secretary, Education and Training Department  
Sefanaia Turava, Seventh Day Adventist Church  
Reverend Eti Kine, EKT (Tuvalu Christian Church)  
Luisiane, New Testament Church  
Emma Tetoa and members, Bahai Church  
Melali Tape, News Editor, Broadcasting and Information Office  
Tepalu Lemeke, Manageress, Handicraft Centre  
Tiliga Pulusi, Director, Department of Health  
Siose Penitala, Acting General Manager, National Bank of Tuvalu  
Monise Lafai, General Manager, Tuvalu Cooperative Society  
Annie Homasi, President, Tuvalu All Non-Government Organisations (TANGO)  
Tataua Moeava, Conservation Area Support Officer, Claudia Ludesher, AVA  
Mafa Omeli, Funafuti Island Community Worker  
Seve Lausave, Acting Secretary, Rural Development  
Roger Moresi, Vice President, Tuvalu Family Health Association (TUFHA)  
Taai Katarake, Government Statistician, Statistics Department  
Malie Lototele, Research Officer, Economic Planning Department  
Mataio Tekinene, Environment Officer, Environment Department  
Siulla Toloa, President, Women in Business  
Penieli Metia, Women's Development Officer, Community Affairs  
Penehuro Hauma Director, USP Centre  
Simeona Iosia, General Manager, Development Bank of Tuvalu  
Leneuoti Maatusi, Secretary, Ministry of Tourism, Trade and Commerce  
Michael Fong and Uatimani Maaloo, Tuvalu Business Centre  
Camille Desrosiers, Catholic Church  
Vavae Katalake, Muslim Church  
Iosia Laomia and Members of the Tuvalu Language Board  
Petueli Noa, Youth Officer, Department of Youth and Sport  
Helani Tumua, AusAID Coordinator  
Fasegi Tuitele, Assembly of God