

Issues on gender in oceanic and coastal fisheries science and management in the Pacific Islands: case studies from Solomon Islands, Marshall Islands and Tonga¹

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Summary

The purpose of this study is to benchmark the current situation with regard to women's participation in the science and management of oceanic and coastal fisheries in the Pacific region, and to make recommendations on how it might be made more equitable. The study was commissioned for the SciCOFish Project (Scientific support for management of coastal and oceanic fisheries in the Pacific Islands) funded by the tenth European Development Fund.

To gain an overview of the participation of women in fisheries science and management in the Pacific Islands, case studies were undertaken in three countries: Solomon Islands (Melanesia), Marshall Islands (Micronesia), and Tonga (Polynesia). In each country a gender analysis was completed for the fisheries science and management sector. The quantitative and qualitative information on the current situation, including identification of barriers to participation, is the basis for the recommendations for Secretariat of the Pacific Community (SPC) support.

As expected, the study showed that there are more men than women employed in the fisheries science and management sector. The case studies in Solomon Islands, Tonga and Marshall Islands show that women comprise 18% of the total number of staff working in this sector in government fisheries, environmental institutions and environmental non-governmental organisations (NGOs).

If fishing vessel observers (work that is always likely to be heavily dominated by men) are removed from the calculation, women's participation increases to 25% of the total. In contrast, the percentage of women employed in administrative and clerical roles in government fisheries departments exceeds 60%.

While each of the three countries studied is unique and has its own specific barriers affecting the participation of women in fisheries science and management, there were a number of commonalities, mostly based around societal perceptions that:

- the traditional role of women is that of homemaker and caregiver, with the resultant extra obligations placed on women who are also pursuing a career; and
- fisheries in general and science and management in particular are technological fields best suited to men, whereas women who may pursue a career in science are more suited to employment in teaching, health or other fields generally dominated by women.

In order to overcome barriers, we need to change these perceptions. There are three ways to increase women's participation in fisheries. The first is by raising the profile of fisheries as a potential career as well as the profile of women already working in the sector; the second is by providing a support network; and the third is by strengthening the institutional level (work environment and conditions). A list of recommended interventions that could be undertaken to make a career in fisheries science and management more accessible to women and thereby improve the gender balance in the sector is given in Section 4.

SPC's SciCOFish Project can play a role in assisting countries to implement many of these interventions. Some would require collaboration between SPC divisions and other national and regional institutions. Women who have an aptitude and desire for a career in fisheries science and management need to know that this is in fact a perfectly reasonable option for them, and equal opportunities need to be made available for them to choose it.

¹ Extracted from the 68-page report of the same title available from: http://www.spc.int/DigitalLibrary/Doc/FAME/Reports/Tuara_11_GenderOceania.pdf

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1. Introduction

The overall objective of the SciCOFish Project, which commenced in July 2010, is the conservation and sustainable use of coastal and oceanic fisheries resources in the Pacific members of ACP (African, Caribbean and Pacific Group of States).

The project purpose is to provide a reliable and improved scientific basis for management and decision-making in oceanic and coastal fisheries. The gender objective of the project is to increase the benefits from the fishery sector for women by creating an environment of equal opportunity for the participation of men and women in different components of oceanic and coastal fisheries science and management.

The Gender in Oceanic and Coastal Fisheries Science and Management study reported on here was commissioned by the SciCOFish Project. The scope of the study includes: conducting a literature review of gender roles in the fisheries sector in the Pacific region; collecting information from sector stakeholders currently working in fisheries science and management (public sector, private sector, NGOs, academic institutions); identifying and assessing factors that form barriers for women's participation in these sectors; identifying specific approaches to address barriers, and identifying specific interventions in each country; reporting back to stakeholders in each country; and producing a report and a gender mainstreaming toolkit.

It is generally accepted that balanced, equitable and sustainable development of the fisheries sector must take all social groups into account. However, studies have shown that the role of women in the sector has, for a long time, gone unrecognised and their voice is rarely heard by managers, policy-makers and legislators (Maetala 2009; Novaczek, Fitzpatrick and Roach-Lewis 2009). The lack of recognition and representation is not only unfair but also leads to an incomplete understanding of how the sector as a whole operates and functions (MRC 2006).

Recent studies show that women are an integral and important part of the fisheries workforce, and their dominance (in numbers) in the processing sector is well known. Formulating the measures necessary to redress gender imbalance requires knowledge about why issues relating to gender are neglected, and why the role and position of women in fisheries is an important issue.

1.1 Why are gender issues neglected?

Gender issues have been neglected for several reasons, including the following:

- a belief that fishing and fisheries are primarily the domain of men;

- the concept of fisheries as largely limited to direct fishing activities;
- the gender stereotype of women as being physically weak and therefore unsuited to the physical demands of fishing;
- the gender stereotype that women are not technically minded; and
- the fact that there are disproportionately few women in fisheries departments and in academia.

1.2 Why are gender issues in fisheries important?

In addition to the obvious concerns about fairness, equal opportunity and discrimination, there are other reasons why effective and efficient development of Pacific Island oceanic and coastal fisheries must take the role of women in the sector into account.

Women make significant contributions to fishery-related activities other than fishing. They play a major role in processing fish and fishery products, as well as in marketing.

While these roles may be different from those of men, they are integral parts of the industry, and ignoring these activities means ignoring a large portion of the sector. The different work done by women generates different kinds of knowledge. Only with knowledge of both women's and men's opinions and expertise can we understand the fishery sector in its entirety, and manage its development appropriately.

The under-representation of women in decision-making takes away a large portion of the available pool of expertise — from both the government and the community. Studies have shown that having more women in an organisation leads to better cooperation among team members and facilitates the decision-making process (Woolley, Chabris and Pent 2010). This might be because mixed teams of men and women are better than single-sex groups at solving problems and spotting external threats. Women may be better than men at building teams and communicating.

In the context of this study, fisheries science refers to the academic discipline of understanding fisheries, and it draws on (but is not exclusive to) the disciplines of oceanography, marine biology, marine conservation, ecology and population dynamics. Fisheries management draws on fisheries science and other disciplines in order to find ways to protect fishery resources so that sustainable exploitation is possible. The line dividing fisheries science and fisheries management is blurred, especially in the Pacific, where the few qualified staff available are usually called on to work in both areas.

Therefore, it was necessary to incorporate numbers of participants in fisheries science and management into a single category for some aspects of the analysis, rather than trying to report on them as separate categories. These staffing positions include: fisheries research officers involved in surveys of inshore and offshore fishery resources, aquaculture research officers, fisheries economists, policy and legal officers, post-harvest specialists, and marine conservationists.

2. Methodology

A literature and Internet search of gender mainstreaming methodologies, gender in fisheries and gender in fisheries science and management was carried out in preparation for the research. Fieldwork in Solomon Islands, Marshall Islands and Tonga was carried out in November 2010. The research methodology includes interviews (formal and informal) with representatives from government, NGOs, the private sector, academia, development agencies, and regional organisations. To examine a possible bias caused by education opportunities, information on scholarships was collected from the relevant government departments, as well as information on school enrolment and curriculum from the education departments, and population data from the statistics departments.

Focus group sessions were held with a selection of male and female staff at the fisheries divisions, as well as a selection of final year male and female high school science students. Prior to departure from each country, a feedback session was conducted at the fisheries department, in which people who had been interviewed and other interested parties were invited to participate. This provided some feedback in the form of initial results of the in-country studies to the stakeholders, and also facilitated a final review and revision of in-country findings by the consultants. Following the in-country fieldwork, data were analysed for the preparation of this report.

3. Results

The gender balance of personnel working in fisheries science and management in the Pacific region is heavily weighted towards men. The average percentage of female staff working in the sector in the three countries, including observers on fishing vessels, is 18%.

3.1 Gender balance in fisheries science and management

The findings are based on the information collected in each of the three countries, which is summarised in this section.



Cynthia Wickham, Tuna Tagger, Solomon Islands
(Image: SPC Oceanic Fisheries Programme)

3.1.1 Solomon Islands

There are fewer girls than boys enrolled in schools. The percentage of girls starts at 47% in year 1 (age six), and decreases to 32% by the end of high school. There is also a relatively low number of girls in form 6 science classes. According to data from 2001 to 2011, young women received only 30% of the scholarships awarded for tertiary education.

In the government fisheries agency, women comprise 14% of all staff, and make up 11% and 12% of the staff working in fisheries science and fisheries management respectively. Fisheries science in particular has only two women staff members, both with a Bachelor of Arts in Marine Affairs (a marine management degree). There are no women in the Ministry of Fisheries and Marine Resources who hold a science degree at the present time. There are also no women in senior management positions.

Representation of women is more favourable in the government's environment agency. Of the five staff members working at the professional level on the marine conservation aspects of the Coral Triangle initiative, three, or 60%, are women with science degrees. In four NGOs based in Solomon Islands, the percentage of women employees working in fisheries science and management averages 44%. Solomon Islands women are starting to enter non-traditional areas of work, such as being observers and tuna taggers onboard fishing vessels.

Private sector tuna processing in Solomon Islands mostly employs women as unskilled labour. There is one local woman with a degree working as a trainee, currently in trans-shipment, for a local private sector fishing company. There are seven Solomon Islanders with degrees working for the tuna cannery, one woman and six men.

3.1.2 Marshall Islands

Although dropout rates for girls are higher than for boys at primary and secondary levels, girls do better at the tertiary level. From 2000 to 2005, women outnumbered men in the awarding of scholarships. More women than men pursue postgraduate studies.

Women comprise 13% of the staff working for the Marshall Islands Marine Resources Authority (MIMRA). This figure includes two women out of the six members of the Board of Directors. Of the staff carrying out scientific work, 20% are women, and of the staff carrying out management work, 35% are women.

In MIMRA there are two women in positions of responsibility at the senior middle management level — one is the Chief of Oceanic and Industrial Affairs, and the other is the Chief of Inshore Coastal

and Community Services. With the support of the Executive and Deputy Directors, the two chiefs are in charge of a mostly male staff for all coastal and oceanic work.

Gender numbers are more favourable in semi-governmental organisations, where the Republic of the Marshall Islands Environmental Protection Authority is headed by a woman, and two of the five board members are women. However, only 20% of the staff working in fisheries science and management are women. The environmental NGO, the Marshall Islands Conservation Society, has one woman among the seven technical staff (16%), but has three women sitting on the five-member Board of Directors.

A majority of private sector workers are women, but they are mainly unskilled labourers. In one tuna processing plant, women comprise 65% of total staff. The majority of the women are low paid workers who process the fish. There are some Marshallese men and women in management positions and conducting scientific work (laboratory analysis) and quality control, but most of the staff in these positions are recruited from overseas, as few Marshallese have skills in these areas.

In terms of academic qualifications — in MIMRA, of the women graduates four have a Bachelor of Marine Science and one has a Bachelor of Marine Biology. Two of the five women are currently pursuing a Master of Science (one in cell research and one in marine biology) and two others are studying statistics at the University of the South Pacific (USP) Marshall Islands campus. In the environmental field, the Manager of the RMI Environmental Protection Authority, a woman, has a Bachelor of Management Studies in environment and management.

3.1.3 Tonga

In high schools, girls and boys are approximately equal in terms of overall student numbers. However, in senior science subjects such as biology, physics and chemistry, there are significantly more girls.

Despite the dominance of young women in science, scholarship data since 2003 show that 41% of science scholarships have gone to young women, although they have received 55% of all scholarships. The largest proportion (39%) of young women pursuing science chose scholarships for medicine, dentistry and computing. Women comprise 30% of the staff working for the Tonga Fisheries Division.

In areas of work, women comprise 8% of staff in science and 35% of staff in fisheries management. There are no women in senior management positions, although there are women (with no tertiary qualifications) in charge of outer islands fish bases in Vava'u and Ha'apai. These positions are

responsible for only one or two staff, and are relatively low in the public service grading system.

In the government environment agency, there are ten permanent staff (five women, five men) who work in marine and coastal conservation. One woman has an MSc, and the other four have a BSc. Three of the five men have diplomas, while the other two have no tertiary qualification. None of the Tongan NGOs are currently involved directly in marine conservation, and none have staff with a marine-related qualification. The private sector in Tonga is not particularly active at present. The most proactive local company is headed by a woman, who also plays a major role in the Tongan Chamber of Commerce.

3.2 Country comparisons

Solomon Islands, with 21%, has the lowest percentage of females working in fishery science and management, followed by Marshall Islands with 27% and Tonga with 30%. It should be noted that, as this study specifically looked at people with formal tertiary qualifications in science and management, observers were not accounted for as in nearly all cases, while they have completed the regionally recognised observer training course, observers do not have tertiary qualifications. Note that although the figures for Tonga show a higher overall percentage of women, this is mainly due to the number of women working for the environment department (50% of staff working in the marine conservation sector).

Analysis of the hierarchical levels of staff by gender in each of the three countries shows greater imbalance, on average, at the senior management levels. The cumulative total column shows that there are no women and 18 men in the top two levels of management (permanent secretaries, chief executive officers and divisional managers). The situation improves at the third level of management, where numbers are around the overall average figure of 16% females.

3.3 Common barriers to women's participation

This section identifies the barriers that prevent or restrict young girls and women from entering and progressing in the fields of fisheries science and management. General constraints are included as they are contributing factors that perpetuate gaps in participation. The information in this section was collected as part of the in-country research. Barriers or constraints can be grouped under four headings: social context, access to opportunities, access to resources and institutional support.

3.3.1 Social context: Culture and traditional roles

Culture, traditional roles, perceptions and gender stereotypes determine behaviour, set boundaries

and perpetuate beliefs that impact on women's participation in fisheries. In some societies there are cultural taboos that prescribe a woman's participation — they may determine whether she can fish, where she can fish, and the type of fishing method and equipment she uses (Tuara 1998; Lambeth et al. 2001).

In some societies, it is taboo for women to engage in diving, netting, trapping and fishing from a boat. In others, there is a belief that women bring bad luck and a poor catch when they are on a boat or anywhere near the fishing activity of men (Emberson-Bain 1998; White 2000). Taboos restrict women's participation in the fisheries sector and reinforce the belief that fisheries activities are the domain of men, not women.

A girl typically learns from her mother or other female elders the traditional roles of being a daughter, wife and mother. She is raised to perform numerous roles of household manager, family caretaker, income earner and active church and community member. A boy, on the other hand, learns from his father or other men how to fish, hunt, build houses and canoes and protect his family. Men are taught to be the main income earner, the head of the house, the leader, the speaker and the decision-maker (Graham and Paul n.d; Fidali-Hickie 2010; Maddison 2011).

Traditional roles of women set boundaries on what women can or cannot do. They are restrained by multiple obligations, limited time and mobility. This can have a negative impact on women's participation in education and the work force. According to a fisheries officer in Solomon Islands, young girls sacrifice their education and are kept at home to look after the family, while boys, seen as future primary income earners, are encouraged to continue their education and seek good jobs.

Perceptions and gender stereotypes can have a negative impact on the fisheries sector in general, and on the work of women fisheries officers in particular. Such perceptions need to be changed in order to increase and sustain the number of women participating in fisheries in general, and science and management in particular. One of the initial barriers to overcome is the negative perception of the role of women in a field of science and technology that is portrayed by the mass media as being the domain of men and boys (UNESCO 2010).

3.3.2 Gender stereotypes, and their role in access to education and employment opportunities

Universal access to good quality education should be the right of all. Without education, the career choices for young girls are limited. In Solomon Islands and, to a lesser extent, Marshall Islands,

the study shows that there are fewer girls than boys receiving an education. In Tonga, an approximately equal number of girls and boys attend all levels of school.

Employment data show that there are fewer women than men working in the fisheries sector in general. Although some women are now working in non-traditional areas, employment data show that there are more men than women holding positions in government, NGOs, and subregional and regional organisations. This is still less than the critical mass needed to show society that women are capable of working in the male dominated areas of science and management (see Etkowitz, Kemelgor and Neuschatz 1994, for a general discussion of critical mass in regard to participation of women in science).

The only area where women outnumber men is in private sector tuna processing, where the majority of women work as unskilled labourers on the processing line (Tuara and Nelson 2000; Wichman 2001; Vunisea 2006; Sullivan and Bidesi 2008). In one Marshall Islands fish factory, 65% of the staff are women who are mainly responsible for loining tuna fish.

There are also some Marshallese men and women working in the laboratory, conducting water quality and histamine tests and carrying out hazard analysis and critical control points (HACCP) quality control work, but these positions are mostly filled by recruits from overseas, as few Marshallese have the required skills. In Solomon Islands and Tonga, there is currently a freeze on public sector employment, even though vacancies exist. This means that a number of Solomon Islands marine graduates do not have a job in the fisheries sector.

In Tonga, when a staff member leaves, he or she is not replaced. The freeze on employment is a barrier, but it is important to note that, prior to this, the number of women recruits was low. According to one fisheries scientist, in Solomon Islands there have been virtually no new posts within the sector, and existing posts rarely become vacant due to low attrition rates.

In Samoa, a similar situation to that in Solomon Islands is currently occurring. Three women graduates with an MSc in Marine Science have returned to find that, due to budget constraints, there are no jobs available in the fisheries department. They have found employment elsewhere, one in the environment sector, and two in the private sector (M. Sapatu, Senior Fisheries Officer, Samoa Ministry of Agriculture and Fisheries, pers. comm). These examples reaffirm the need to carry out a thorough training needs analysis in the sector, with a long-term view of future requirements, before embarking on an ambitious recruitment campaign.

In Marshall Islands the dropout rate for girls is higher in secondary schools due to teen pregnancy and family obligations. However, girls do better at the tertiary level (EPPSO 2003; EPPSO and SPC 2008). More women than men obtain marine scholarships and pursue graduate studies (Director of National Training Council, pers. comm).

In Solomon Islands fewer girls make it through to form 6 (senior) science and so fewer girls than boys obtain scholarships to do first degrees, and very few young women go on to do postgraduate degrees (Fidali-Hickie 2010). In Tonga, girls tend to do better academically in high school, and more girls than boys pursue science subjects. Despite this, more boys than girls are awarded science scholarships, and most Tongan science students pursue a career in medicine or teaching.

3.3.3 Access to resources – Information and networking

There is a lack of gender sensitive fishery science and management career information. There is also limited or no outreach to young people who could consider a career in fisheries. There are very few female role models or champions who can put an end to gender stereotypes and misconceptions that perpetuate the myth that fisheries careers are for men. Although there are women in the sector, they are not being used as role models at the national level.

There are no women's fishery networks in any of the three countries studied. There are also no organised groups for women scientists, and no active alumni associations. Without a network, women working in a male-dominated fisheries sector are marginalised, with no support system. They have no voice (outlet) to raise issues, share experiences, support each other or lobby for change. There is, therefore, limited opportunity to inspire and attract young women to the sector. Networks of women working in the fisheries sector could help get recognition and validation for the role of women. They could share concerns about the sustainability of fisheries resources, and link researchers and activists interested in fisheries development issues with women and women's groups working in fisheries in the region.

Active networks have an impact on the ground. Networks at national and regional level, with links to mainstream women's and gender programmes, can have a lasting impact. Fisheries specialists, especially researchers, have raised awareness of the importance of women in fisheries and this has led to a few such networks being formed in other parts of the world, such as in the lower Mekong Basin, the Philippines and Latin America (Williams and Choo 2001).

3.3.4 Lack of institutional support – Working conditions for women

With the help of fisheries departments, NGOs, the private sector, development organisations and donor agencies, women are being provided with opportunities that facilitate choice, but more is needed at the institutional level to build the capacity of key stakeholders in the fisheries sector to promote gender mainstreaming in organisational change and management.

With more women joining the sector, their needs may be overlooked if their contribution is not recognised or valued. Employing more women will not address gender imbalance unless a supportive institutional framework is in place to keep women in the sector and attract others. The lack of relevant policies can restrict recruitment and retention of staff. There is no gender policy for fisheries in Solomon Islands, Marshall Islands and Tonga, although there are national policies. Solomon Islands has the National Policy on Gender Equality and Women's Development (2010–2015) and Tonga has the 2001 National Policy on Gender and Development.

An inability to move upwards can lead to frustration and non-performance. Most senior and middle management positions in fisheries departments are held by men. Although women are now in technical positions, data show that in some countries they appear to be less likely to be promoted to decision-making levels. One Solomon Islands informant said that most women in the department do not have a formal qualification but some attained mid-level seniority through many years of experience. There are no specific programmes in place to encourage the movement of women into senior level positions.

3.3.5 Career path mobility

Marshall Islands had the National Women's Policy 1996–2001, which has not been replaced (SPC 2010 a, b, c). Unfortunately there seems to be very little knowledge of these policies (current or expired) outside of the agencies responsible for women. Limited knowledge about gender and gender policies leads to misunderstandings and the belief that 'gender' means 'women' and is the concern of departments responsible for women's affairs. Fisheries departments have very little, if any, contact with the women's departments, and vice versa.

Working in an unsafe environment that does not promote fair workplace practices can deter women from applying for jobs in any sector. Workplace policies should ensure that the working environment is one that promotes good work practices for both men and women.

Policies need to ensure that fisheries staff members have the support and facilities they need. For

example, working alone with men may restrict the ability of women to carry out their work. Unless facilities are available to support the work of both men and women, it can be difficult for men and women to undertake fieldwork together.

Separate secure accommodation and amenities for both men and women fisheries officers is one requirement. In order to attract and support staff of both sexes equally, equitable maternity and paternity leave are also needed, as well as childcare considerations within the community. For example, the Health and Safety policy commits the Cook Islands Ministry of Marine Resources to provide a safe and healthy work environment for all staff, while the Conduct and Behaviour policy states that all employees must treat each other with courtesy and respect.

3.4 How to overcome the barriers

This section provides examples of approaches used to break down the barriers that restrict women's effective participation in science and management.

3.4.1 Social context – Dispelling cultural taboos, perceptions and gender stereotypes

Cultural taboos restricting women from participating in the sector are beginning to disappear, largely due to women taking up jobs in fisheries departments, the private sector and NGOs. Solomon Islands women working successfully as observers and tuna taggers onboard fishing vessels dispel the belief that women on or anywhere near a boat bring bad luck.

Marshallese women conducting stock assessment field surveys dispel the perception that women cannot do physically demanding work. Marshallese women working as private sector quality control analysts dispel the gender stereotype that women are not technically minded. Tongan women managing outer islands fisheries bases dispel the belief that women cannot make decisions about fisheries and should be in support positions. Though these are signs of progress, there is still a long way to go, and more work is needed by regional organisations to accelerate this progress. (Feedback from Australian High Commission in Solomon Islands to local consultant K. Fidali-Hickie.)

3.4.2 Access to education and employment opportunities

Development agencies provide both scholarships and training courses to national students. In most cases they try to ensure a gender balance. In Solomon Islands, the Australian government provided 44 marine and environmental scholarships – 33 to men and 11 to women. Scholarships to study agriculture, forestry and fisheries totalled 69 (59 went to men and 10 to women).

From 2006 to 2009 the Japanese government implemented eight training courses in community-based fisheries diversification, community fisheries planning, and sustainable coastal fishing techniques. These courses were attended by seven men and one woman from the Ministry of Fisheries and Marine Resources (A. Yoko, JICA Solomon Islands office, pers. comm.). In Tonga, the New Zealand Government provided 281 scholarships for tertiary education between 1997 and 2009. Of these, 140 went to women and 141 to men. Information on courses of study was not available for a more thorough analysis.

In Marshall Islands the use of student interns by both government and NGOs has proven successful in providing students with on-the-job training opportunities. MIMRA also has a career day for tertiary students. Cook Islands Ministry of Marine Resources is trialling a student intern programme with one young female high school graduate and one male final year high school student as a means of encouraging young people to enter the sector (P. Maru, pers. comm.).

Internships and training are other ways to facilitate an increase in interest in the marine science and management fields. Regional organisations such as FFA and SPC help develop the skills of fisheries officers through workshops, attendance at meetings and attachments.

From 2001 to 2010, the Japanese government provided 15 training courses in Marshall Islands in environmental management, environmental protection, deep-sea mineral resources, integrated resource management, fishing techniques, refrigeration systems, quality assurance for marine food, handling and primary processing of fishery products, maritime search and rescue, and community-based fisheries diversification. Eleven trainees from MIMRA, three from RMI Environmental Protection Authority, and one from the Ministry of Justice attended the courses. Four courses were attended by women from MIMRA— one course on deep-sea mineral resources, one integrated resource management course and two courses on community-based fisheries diversification (T. Jack, JICA Marshall Islands office, pers. comm.).

At the regional level, SPC provided two postgraduate scholarships to science students as part of the ProcFish (Pacific Regional Oceanic and Coastal Fisheries Development) Project. Both the Oceanic Fisheries Programme and the Coastal Fisheries Programme mentor graduate and postgraduate students. In 2010 the Coastal Fisheries Programme provided supervision to four masters students and one postgraduate student from the University of the South Pacific who were studying aquaculture. In 2011, two postgraduate students will be mentored

by the Aquaculture Section. Fisheries departments, environment departments, environmental NGOs, the private sector and academic institutions are the main providers of jobs in the fisheries sector. A freeze on government employment has meant that marine studies graduates in Solomon Islands have found employment in the private sector or in environmental NGOs.

In 2002, MIMRA employed the first woman scientist as a community-based officer. Earlier, a woman held a management post in policy. Today, the number of women in technical positions has increased to nine, with another two currently on overseas study. Of significance is the fact that women scientists hold two positions of authority, the Chief of Offshore Oceanic and Industrial Affairs, and the Chief of Inshore and Coastal and Community Services (B. Muller, Chief of Offshore and Industrial Affairs, MIMRA pers. comm.).

Regional organisations such as FFA and SPC help develop the skills of fisheries officers through workshops, attendance at meetings and attachments. Information from SPC annual reports for 2010 indicates that women comprise 19% of the trainees (SPC 2010d). This probably approximates the gender balance in the sector. Of particular interest is the fact that a higher percentage of the women trainees attended courses in oceanic fisheries, rather than in the traditionally accepted women's area of coastal fisheries. This is probably a reflection of the increasing number of women being employed in oceanic fisheries jobs.

Young Pacific Island women are increasingly turning to careers in oceanic fisheries (Deirdre Brogan, SPC Monitoring Specialist, pers. comm.). They may be motivated and encouraged by the training and employment opportunities that are opening up with the new Tuna Commission (Western and Central Pacific Fisheries Commission, WCPFC).

Although the final selection of observer trainees rests is the responsibility of national governments, the Oceanic Fisheries Programme can encourage fishery departments in Pacific Islands countries and territories to include women (D. Brogan pers. comm.). The region's observer programme has provided 100 per cent observer coverage on purse-seine vessels with the support of SPC and FFA. A total of 150 observers have been trained. Most training has been done by SPC training officers, but Papua New Guinea delivers its own training courses to nationals, and other countries are developing this capacity (FAME 2010).

In 2010, the Oceanic Fisheries Programme provided training in data processing, tuna stock assessment and tuna tagging. National tuna data workshops for staff who collect, manage and disseminate data were held in Solomon Islands, Federated States of



Mele Makasini-Tauati, Fisheries Officer,
Tonga Fisheries Division (Image: M. Makasini-Tauati).

Micronesia, Nauru and Kiribati. The Coastal Fisheries Programme trained men and women in reef fisheries survey methodologies, collection and analysis of data, and the production of resource management policies and plans.

SPC's Coastal and Oceanic Fisheries Programmes continue to provide training attachments to national fisheries officers. In 2010, as part of the Coastal Fisheries Science and Management section, attachment training in desktop publishing was provided to one fisheries officer from Cook Islands and one from Fiji for the development and dissemination of fisheries information. Currently, an officer from Samoa is on a one-year attachment to learn more about stock assessment, analysis and the production of management plans. She will be leaving shortly for Marshall Islands to do one month of fieldwork on invertebrates and aquarium fish stocks (M. Sapatu, Trainee Attachment, pers. comm.).

FFA has provided training and attachments for Pacific Island fisheries personnel in areas such as observer training; monitoring, control and surveillance (MCS); licensing; dockside boarding; prosecution; and other legal areas. An analysis of data from 2007 to 2010 shows that only 17 out of 204 participants, or 8%, were female.

3.4.3 Producing gender-sensitive career information

In addition to the production of curriculum materials, gender sensitive career information is needed

to support outreach by fisheries departments. The information needs to show that fisheries careers are equally suited to men and women.

SPC and FFA have produced reports on women in fisheries and gender in the tuna industry, as well as profiles of women in non-traditional roles. By using positive role models, this information elevates fisheries as a career choice for women. Observers and women scientists are featured in the publications as examples to other women, and to men. The SPC *Women in Fisheries Bulletin*, first produced in 1997, continues to provide stories for and about women in the sector.

As more women enter the traditionally male-dominated fields of fisheries research and management, their skills and leadership are dispelling other beliefs that may have kept interested women from entering these fields (White 2000). The Japan International Cooperation Agency (JICA) has produced national gender profiles, including one each for Solomon Islands, Marshall Islands and Tonga. The profiles are useful sources of information that include policy, legislation, socio-economic data and information on gender in fisheries (JICA 2010 a, b, and c).

3.4.4 Use of role models

Positive female role models should be enlisted. This can begin in the classroom; young girls and women need women teachers and scientists as mentors

and role models. Mentoring programmes are known to benefit both mentor and student.

Other role models include Solomon Islands women observers, port samplers and tuna taggers, female Pacific Island nationals working in regional fisheries and environmental organisations, and female fisheries scientists and managers working in national fisheries and environmental agencies. The expertise and knowledge of such role models need to be tapped to encourage women to go into the fisheries sector, as well as to support those currently in the sector. In Marshall Islands, fisheries staff from MIMRA visit schools on Careers Day to talk to secondary school students about the work they do.

3.4.5 Networks

Women in fisheries networks have been set up around the world, including in Fiji (1992), Africa (2010), United States of America (1983), the Netherlands (2000), the lower Mekong Basin, the Philippines and Latin America (Williams, Williams and Choo 2001). Networks recognise and validate the role of women in the sector. They allow members to share concerns about the sustainability of fisheries resources, and link researchers and activists interested in fisheries development issues with women and women's groups that are engaged in fisheries in the region. Active networks have an impact on the ground. Networks at national and regional level, with links to mainstream women's and gender programmes, offer the opportunity to make a lasting impact.

3.4.6 Using the media

In Marshall Islands the government fisheries department (MIMRA), the environmental semi-government authority (RMI Environmental Protection Agency), an environmental NGO (the Marshall Islands Conservation Society, MICS), and an academic institution (RMI-USP) work with the media to provide public awareness programmes about their work.

Through the media, the fisheries sector's profile is raised and the importance of marine resources is elevated, as is reflected in the cooperative projects among stakeholders. Young people are more likely

Sharmaine Siaguru, Fisheries Technician,
National Fisheries Authority, Papua New Guinea
(Image: Malo Hosken).



to be attracted to a career that is exciting and is an integral part of their life, as it is in the Pacific Islands.

3.4.7 Institutional support

As equal opportunity employers, fisheries departments aim to hire qualified men and women. An equal opportunity policy (combined with educational qualifications) enables women not only to enter fisheries, but also to take on jobs in research, management and other areas not traditionally entered by women.

In 2002, MIMRA employed its first woman scientist as a community-based officer. Today, the number of women in technical positions has increased to nine, with another two on overseas study.

The tertiary institution, College of the Marshall Islands (CMI), affirms its commitment to the goal of equal opportunity for its faculty, students, staff and administrators. The College does not discriminate

in matters of employment or of admission to educational programmes and activities on grounds of race, colour, gender, religion, age, sexual orientation, national or ethnic origin, ancestry, disability, marital status or veteran status.

3.4.8 Being an equal opportunity employer

Fisheries departments can implement work projects and programmes that recognise and address the needs of women in the sector. In Solomon Islands, the fisheries department set up a Women in Fisheries Unit. Unfortunately, this ended in the 1980s and has not been replaced. At the regional level, SPC implemented the Women's Fisheries Development Project in 1994 to provide support mainly to women in the sector.

The *Women in Fisheries Bulletin* and women in fisheries reports were produced to raise the profile of women and acknowledge their contribution to the sector. Assistance was provided in terms of workshops and attachments. The project was renamed the Community Fisheries Development Project in 1999 and the focus changed from assisting women to assisting communities.

From 2010 the Coastal Fisheries Science and Management Section continued the work of supporting women as part of its support to both men and women. According to the Section Adviser, the current community-based management programme provides assistance to women in communities so they can be involved in resource management, and also provides skills training to female fisheries officers in such areas as finfish/invertebrate resources assessment and analysis (I. Bertram, pers. comm.).

4. Proposed interventions

The study has shown that the main barrier to having more women in fisheries science and management is people's perceptions and the attitudes of society. These are often rooted in the culture and customs of a country. There is a need to change the way people perceive a career in fisheries. Fisheries science and management needs to move up the ladder of preferred careers; at present it appears to sit close to the bottom rung of that ladder in many Pacific Island countries.

Our intention in choosing one country from each subregion was to get reasonable basis for making general recommendations for the Pacific on appropriate actions to increase the participation of women in fisheries. However, there is no such thing as a typical Pacific Island country, and therefore the recommendations are not necessarily appropriate for all countries. Some countries are already ahead of others in terms of women's involvement in the fisheries sector. Nonetheless, even these more progressive countries still have a long way to go, and

may benefit from applying gender analysis and gender mainstreaming tools.

Several interventions could be undertaken to make a career in fisheries science and management more accessible to women and thereby improve the gender balance in the sector. However, it is important to note that there is a freeze on public service employment in some countries, and opportunities in the sector vary by country, depending on how dynamic the sector is. Some forward planning and discussions with human resources departments, senior management in fisheries, environment divisions, environmental NGOs, and the private sector is needed before embarking on ambitious recruitment programmes that may lead to having qualified graduates who cannot find employment.

SPC's SciCOFish Project can play a role in assisting countries to implement many of these recommendations. Others would require collaboration between SPC divisions and other national and regional institutions. Potential interventions are listed as A) those that the SciCOFish Project might reasonably be expected to undertake, B) those activities that would require significant collaboration with other partners, and C) those where SciCOFish could tap into existing projects.

- *Produce a booklet summarising the findings of this report, highlighting barriers, approaches and interventions.* The information would be of use to fisheries sector stakeholders. Support should also be provided for the development of promotional material using special interest stories of successful women in the sector, with the aim of encouraging more young women to embark on a fisheries career. This material can help to open the public's eyes (changing society's perception) to the varied aspects of working in fisheries. As an initial step, a gender balanced promotional pamphlet should be produced to attract more young people into fisheries science and management. This could be followed by a short promotional DVD that could be distributed to schools, human resource departments, television stations, etc. around the region.
- *Undertake a training needs analysis in the fishery sector to determine short- and long-term expertise requirements, so that future training and scholarships are targeted appropriately. Facilitate dissemination of information to schools, universities and human resource departments on opportunities for training and graduate studies in fisheries and marine science and management.*
- *Provide funding for scholarships in fisheries science and management at the postgraduate level as a means to promote capacity building. Funding should be allocated to fisheries staff training*

and attachments in the areas of oceanic and coastal fisheries data analysis and management, stock assessment methods and the development of management policies, plans and strategies. With a view to improving the gender balance in these areas, the training could include facilitating short-term attachments in the fisheries sector (with regional and national organisations and the private sector).

- *Provide funding to support short-term attachments for youth in the fisheries sector.* In collaboration with government, NGOs and the private sector, selected final year science student interns would be mentored by experienced fisheries staff and given a variety of interesting tasks to introduce them to fisheries science and management. The aim would be to attract potential staff with an emphasis on increasing the ratio of women currently employed in the sector.
- *Support national (upon request), subregional, and regional women in fisheries networks.* In this male-dominated sector it is particularly important for working women to have a platform to share their experiences and learn from each other in order to overcome specific problems they are facing. Acknowledge appropriately skilled individuals in the region by developing a gender-balanced database of qualified nationals with experience in fishery science and management for use as consultants and resource persons in relevant national, subregional and regional workshops and meetings.
- *In collaboration with ministries of education, and regional and international secondary and tertiary educational institutions such as USP and UNESCO, urge curriculum development units to put more emphasis on marine resource education in both primary and secondary schools as a major factor in the life of Pacific Islanders.* Material developed would need to be gender balanced, avoiding stereotyping and making clear the potential of fisheries careers for young people of both sexes.
- *In collaboration with USP, develop course material of a practical nature that provides marine science and marine affairs graduates with the practical, analytical and writing skills needed to conduct, for example, a fishery stock assessment, produce a policy paper or write a management plan.*
- *Where necessary (as in Solomon Islands) investigate ways in which girls can be assisted to continue their education through to the end of secondary school and achieve high academic grades, thus enhancing their potential to gain an equitable share of scholarships.* Assistance should be provided to help fisheries departments create a supportive work environment that attracts potential women employees

and recognises and supports existing women staff. For example, assistance could be provided in developing equal opportunity policies as part of a work environment that promotes good work place practices such as maternity and paternity leave, safe working conditions, and a policy that deals with sexual harassment.

- *Under the SciCOFish or DevFish Project, provide women and men in the private sector with training in water quality testing, and quality control methods such as hazard analysis and critical control points (HACCP) so that they can perform skilled jobs in fish processing plants.*

5. Career paths

If we are to encourage wider participation by women in fisheries science and management, it is useful to elaborate on the variety of career paths that can be followed. A number of them are also applicable for careers with environment departments and environmental NGOs in the Pacific.

An individual would probably progress along the career path based on performance and completion of higher degrees, such as a masters degrees. Note that fisheries divisions within the Pacific are usually small and operate on limited budgets. Thus it is likely that individuals will be called on to undertake multiple roles. For example, fisheries management and research may sometimes be combined in a single position. These positions are equally suited to both male and female candidates. The career paths in all cases have the potential to lead to the head of the fisheries department, depending on the individual merits of the employee.

6. A final word

This study is about gender and equality, not about women. There is a need to emphasise that a fisheries career can be equally acceptable for women as well as men. The approach should not be so much to increase women's participation, but rather to raise the status of fisheries as a career for young people who have an interest in or who are studying science. At the same time, the fact that women are just as able to participate in the sector as men needs to be reinforced.

While this study has shown that there is a gender imbalance in the sector, women should not be pushed into fisheries science and management if a country does not need more fisheries scientists and managers and if women are not interested in pursuing such careers. However, where there is a need and an interest, women should have the options made clear, the opportunities should be made available, and the choice left to the individual concerned (for a fuller discussion on this topic see Bouville 2007). Women who have an aptitude and desire for

a career in fisheries science and management need to know that this is in fact a perfectly reasonable option for them, and equal opportunities need to be made available for them to choose it.

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