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NEW EDITOR

Fijian women's involvement in coastal fisheries:

A socioeconomic study of
fisherwomen from Matuku,
Moala and Totoya islands

Gender and coastal livelihoods:

The case of shell money production and
trade in Langalanga, Solomon Islands



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Integrating gender in Pacific
coastal fisheries research:
The Pathways project



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Editorial

The inclusion of gender in fisheries and aquaculture is considered central to sustainable development, and the *Women in Fisheries Information Bulletin* provides a sharing and learning platform for practitioners and scientists working in this space in the Pacific, and other parts of the world. This edition has 14 unique articles from Fiji, Solomon Islands, Vanuatu, the broader Pacific and the Philippines.

Danika Kleiber and co-authors provide an overview of the 'Pathways Project' being implemented in Kiribati, Solomon Islands and Vanuatu. The project focuses on strengthening and scaling community-based approaches to Pacific coastal fisheries in management support of the 'New Song'. Key concepts for considering and including gender in research and development are outlined in a visually aesthetic way that is useful for other projects that want to increase research quality, empower women and facilitate equitable outcomes in coastal fisheries.

Kate Barclay and co-authors provide an overview of 'Lagoon livelihoods: Gender and shell money in Langalanga, Solomon Islands', published recently in the journal *Maritime Studies*. The researchers found that gender roles in the shell money value chain have shifted, with women more actively involved in the trade in recent years. Changes in gender roles have created friction with gender and cultural norms; specifically, in terms of the kinds of activities that are considered suitable for women, who in families should control cash incomes. Sheridan Rabbitt and co-authors present community attitudes toward the export of fishery products from rural villages in Solomon Islands to the capital, Honiara, using 'eskies' for storage and transport. While the majority of community members interviewed were supportive of the 'esky trade', they wanted to see further restrictions implemented such as harvest restrictions, closure of some areas during the harvesting of seafood for the esky trade, and gear restrictions.

Two articles from Fiji and the Philippines reinforce the role that women play in gleaning and fishing, and their contribution to household food security. Women on three islands in the Lau Group in Fiji fished primarily for food, largely using handlines in soft bottom, mangrove and coral reef habitats, with most of the catch consumed by their households. However, these fisherwomen were either not represented, under-represented, passive or uninvolved in decision-making relating to marine resource use and management. De Guzman found that seafood from reef gleaning provided an additional source of energy and high-quality protein for the household, although contributing little family income. Women who make up the majority of the gleaning population are mainly accredited for ensuring that the family does not go hungry despite earning marginal incomes from artisanal fisheries in the Philippines.

The Australian Centre for International Agricultural Research-funded pearl farming projects in Fiji are providing training in basic business skills, enterprise development and marketing to communities engaged in the industry, to support them as they transition from spat collection to mabé pearl production. This includes setting up a second pearl handicraft training centre on Taveuni to give women access to a well-equipped workshop to support shell processing and handicraft production.

Four academic studies have just begun or are well on their way. Sarah Lawless, a PhD student at James Cook University, is investigating the extent to which global and regional written gender commitments translate into action at various scales of governance in Melanesia. Sheridan Rabbitt, a PhD student at University of Queensland, is looking at food security concerns in small-scale fisheries in the Solomon Islands, with a strong focus on how women are involved in, and contribute to, fisheries management and conservation decision-making processes within their villages. I have just commenced a Pew Marine Conservation Fellowship that aims to develop practical, context-specific guidelines, tools and policy recommendations to assist Melanesian countries to mainstream gender and human rights-based approaches into coastal fisheries management and development. Part of this work involves assessing the degree to which traditional and current gender and human rights-based approaches can be fully optimised to enhance coastal fisheries management and development in Melanesia to improve its effectiveness. Scientists at the Wildlife Conservation Society have partnered with UN Women, Fiji's Ministry for Local Government, and three municipal councils to undertake a study to better understand the barriers, constraints and needs of women seafood market vendors. This work supports the UN Women's 'Market for Change' programme and helps improve gender equality and the social inclusion of women seafood vendors in municipal markets in Fiji.

If you are looking for inspiration for 2019, you will enjoy getting to know Tarusila Veibi, the first female representative for the Fiji Locally-Managed Marine Area network, and Alice Kaloran, the President of the Tongoa-Shepherd Islands Women's Association in Vanuatu. Tarusila is trying to increase the engagement of and support to rural women, and to help them become more vocal and share their concerns about natural resource management issues, while Alice is working to empower women and men alike to develop their entrepreneurial skills in business development, and in sustaining fish supplies to local domestic markets in Port Vila. Both women work tirelessly at the grassroots levels in their respective countries.

I welcome feedback on the *Women in Fisheries Information Bulletin* or any of the articles. Get in touch if you have any ideas to engage or broaden the readership. Are there specific types of articles you would like to see less of, or more of? Would you like to see special issues dedicated to just one topic? Would you like to co-lead an issue with me? I encourage you to dig into your inner muse, share your knowledge and experiences on gender in fisheries and aquaculture from your country or region for the next issue of this bulletin.

Just a reminder that we welcome a range of articles for *Women in Fisheries Information Bulletin* including:

- a) **Full articles** such as science articles, reviews or provocative think pieces;
- b) **Short articles** summarising a relevant workshop, conference, or training, that has relevance for other managers, practitioners or scientists;
- c) **New study or project** – a short 1–2-page overview of any new research, studies or project;
- d) **New publications** – a short 1–2-page announcement of a new publication about to be, or has just been released;
- e) **Profile** a champion for gender in fisheries or aquaculture. This could be a professional who has a long history working in the gender and fisheries/aquaculture space, or someone more at the grassroot level doing innovative or inspiring work on the ground.

Lastly, I want to, with great humility, recognise my predecessor, Dr Veikila Vuki for her tireless efforts to keep the *Women in Fisheries Information Bulletin* rich with articles, and setting a high bar for all. Veikila invested hours of her personal time helping Pacific Island writers publish their work in the bulletin, and I hope we can continue her legacy and example, and share our stories with each other in true Pacific style. Meanwhile, enjoy issue #29 and please share it with friends and colleagues.

Sangeeta Mangubhai



Fijian women's involvement in coastal fisheries: A socioeconomic study of fisherwomen from Matuku, Moala and Totoya islands (Lau Seascape)

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Abstract

Fisherwomen contribute over 50% towards small-scale fisheries, yet are one of the least understood and documented groups participating in these fisheries. We investigated and quantified the fishing activities of rural fisherwomen from southern Lau in Fiji. A total of 224 women were interviewed from 18 villages across three islands to determine which fisheries will be targeted, challenges faced by fishers, opportunities for promoting sustainable techniques, and to advocate for better food security and fisheries management. Women primarily fished for food, largely using handlines in soft bottom, mangrove and coral reef habitats, and least often in open ocean and freshwater. Lethrinids and serranids together made up 81% of the total regular catch, across all islands and habitats. Challenges included physical injury during fishing, bad weather conditions, lack of fishing resources and further training in effective and efficient fishing techniques. Women are either not represented, under-represented, passive or uninvolved in decision-making relating to marine resource use and management. Investigating seafood consumption rates and investing in youth and children programmes that nurture ecoconscious minds and behaviour are interesting opportunities to promote sustainability. Advocacy must form within the community's deep sense of ownership of marine resources, leaders must be fully prepared for change, and stakeholders should explore ways to integrate traditional ideas with modern conservation for better food security and to revive ecologically important cultural norms.

Introduction

Women are major contributors to coastal fisheries, yet even today their roles are poorly understood, underappreciated and sparsely documented. An assessment by the WorldFish Centre estimated that women represent between 5% and 73% of the total capture fisheries workforce (including full-time and part-time participation in both fishing and post-harvest activities) from nine major fish producing countries (Weeratunge et al. 2010). This calculates to an average participation rate of almost 50% for all fisheries-related activities (World Bank et al. 2010). However, there is still a paucity of information here regarding women's roles in supporting fishing operations, fisher-families and communities (Frangoudes and O'Doherty 2006). Across many regions of the world, the greatest participation of women has been in the inshore and small-scale fisheries sector (Ogden 2017) for which efforts have been made to document this. In the Pacific, an estimated 70–80% of the catch from inshore fisheries (reefs, estuaries and freshwater) is used for subsistence purposes (Gillett and Lightfoot 2001) and largely caught by women for the provision of food security for their families and communities. Harper et al. (2013) states that when estimates of catch are combined from the available data in the Pacific, women contribute 56% to total estimated small-scale fishery catches. Compared with men, women dominate the subsistence fishing sector by fishing more regularly within a week, catching a wider variety of fish and invertebrates, fishing in various habitats

(e.g. marine, brackish water and freshwater), and spend more time in post-harvest activities such as salting, drying, cooking and preserving (Chapman 1987; Matthews 1993; Lambeth et al. 1998; Vunisea 1995, 2016).

There are many examples in the Pacific of the significant involvement of women in subsistence fisheries. In Samoa, 18% of all village fishers are women who harvest 23% of the total weight of seafood (Passfield et al. 2001), which provides close to 20% of the per capita seafood consumption of 71 kg/year in Samoa. In South Tarawa (Kiribati), women are the largest harvesters of the bivalve *Anadara* sp., with an annual harvest of 1,400 tonnes, one of the largest fisheries on the island (Lambeth et al. 2002). In Papua New Guinea, Chapman (1987) and Avalos (1995) reported that more than 25% of the annual catch in weight of marine resources is caught by women. Rawlinson (1995) interviewed various fishers from 123 rural settlements and villages on Viti Levu, Fiji, and found that women contributed to more than half the fishing effort observed during the creel survey (818 of 1,522 hours). As a proportion of their total numbers, Fijian women (45.3%) were the most active fishing group followed Fijian men (38.1%) and Indian men (23.6%). However, women are less directly involved in off-shore fisheries, with most women contributing in post-harvest, processing, marketing, sales and administrative roles.

As women are major contributors to these fisheries they should be included in the decision- and policy-making

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process to establish appropriate alleviation to poverty, and promote sustainable food security. However, much of the available data regarding women in fisheries is descriptive, lacking both an analytical framework and documented methodology, thus making it difficult to translate into meaningful quantitative data (Harper et al. 2013). Many studies have identified the great lack of quantification of the contribution of women to fisheries, to be one of the most common and critical causes hindering the further development of fisherwomen and an obstacle to gender mainstreaming (Alonso-Poblacion and Siar 2018).

In Fiji, studies on fisherwomen have included:

- their participation in inshore fisheries, post-harvest, marketing and distribution (Lal and Slatter 1982; Matthews 1993; Tuara 1995; Vunisea 1995; Lambeth et al. 1998);
- their dominance in the inshore fisheries (Kronen and Vunisea 2007; Tawake et al. 2007);
- traditional environmental knowledge, Fijian lifestyles and livelihoods in relation to marine resource management (Veitayaki 2002; Nainoca 2010);
- customary ownership of rights to fishing grounds (Fong 1994; Waqairatu 1994; Veitayaki 1995);
- women's struggles in marketing (Vunisea 1995);
- the employment of women in fisheries sectors and their economic status (Narsey 2011);
- the involvement of the Fiji Department of Fisheries with women engaged in fisheries (Vunisea 2016);

- poor working conditions and low salaries of women working in PAFCO (the Pacific Fishing Company) (Emberson-Bain 1994; Bidesi 2008);
- women's fishing activities continuing to be support subsistence and economic livelihoods (Veitayaki 2005; Demmke 2006; Fay-Sauni et al. 2008; Verebalavu 2009); and
- fish consumption (Vuki 1991).

However, there has yet to be further studies from the outer islands that provide a deeper understanding of the activities of fisherwomen, particularly those residing in rural coastal Fiji. One particular province of interest is the Lau Islands. Lau is Fiji's largest maritime province (30% of Fiji's exclusive economic zone), comprising 60 islands and islets. Recent marine biodiversity surveys conducted by Conservation International among the various islands in the Lau Group revealed exceptional corridors of biodiversity, including fish, corals and marine mammals. Despite this, a literature search (using Google Scholar) for studies focused on Lau revealed the top three areas to be geology (57%), anthropological-related disciplines (18%) and marine biology (16%). Additional studies from this region have included fish yields and composition from reef fishing sites (Jennings and Polunin 1995) including Moala, Totoya and Vanuavatu, marine resource inventory surveys in Moala (Department of Fisheries 2012), and various comprehensive surveys pertaining to archaeology, reptiles, entomology, marine vertebrates and invertebrates, botany and mammal surveys (Tuiwawa and Aalbersberg 2013) from southern Lau, including the Moala Islands. To understand and quantify the fishing contributions of women from Lau, fisherwomen from the Moala Islands, particularly the islands of Matuku, Moala and Totoya, were interviewed individually and in focus groups to determine: 1) how these women utilised their fisheries resources, 2) the challenges they faced, 3) opportunities to promote sustainable fishing techniques, and 4) appropriate approaches to ensure food security and better fisheries management.

Methodology

Sample size and collection

A team of Conservation International staff interviewed 224 women from eight villages on Moala, three villages on Totoya and seven villages on Matuku (Fig. 1) between February and April 2018. The

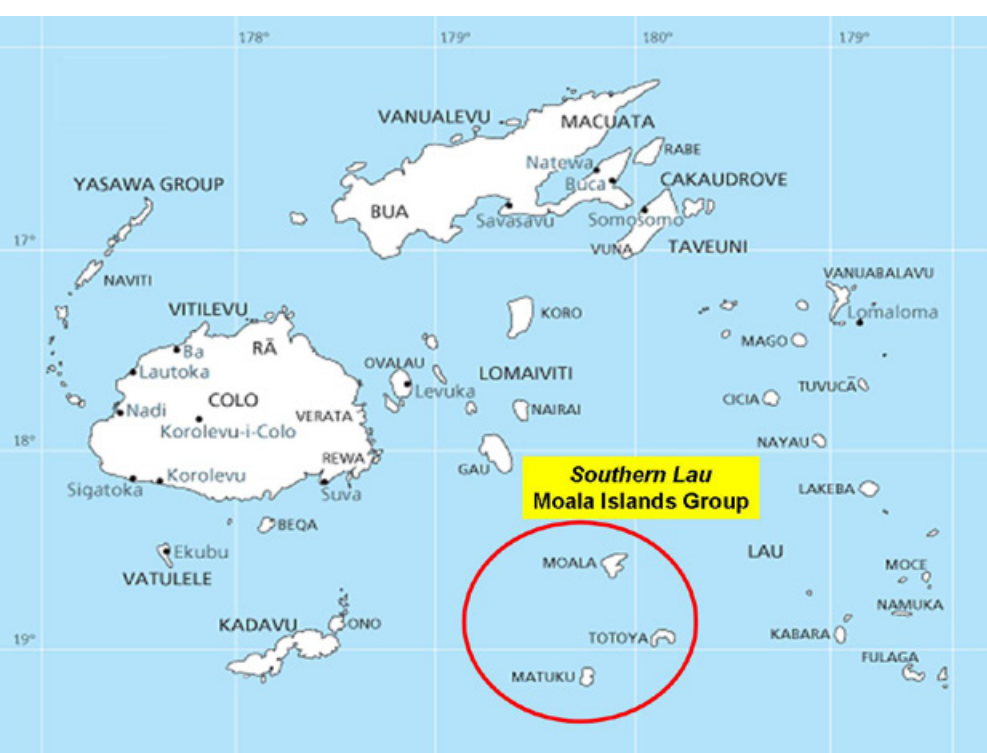


Figure 1. The survey site of the Moala Islands or Yasayasa Moala, consisting of Moala, Totoya and Matuku. Source: <http://guides.leeward.hawaii.edu/pacs108/fiji>

survey was designed by the Wildlife Conservation Society (WCS) and other supporting agencies.

The methodology for collecting the data for the fisheries survey was divided into two parts. The first was a focus group survey, which involved a group interview with fisherwomen in the village (Fig. 2) to determine the collective views of women on various issues relating to their fishing activities. One focus group survey was carried out per village. Questions included village demographics, resource management and decision-making, rules and restrictions, resource and activity mapping, challenges, opportunities and fisheries sales (for a total of 46 questions). The focus group surveys took approximately 40 minutes per session. In total, 18 focus group interviews were carried out.

This was then followed by individual interviews with fisherwomen (for a total of 89 questions, not including subsections) after determining the approximate number of women fishers in the village. The individual survey was completed to determine in-depth information from each fisherwoman. We aimed for a minimum coverage of 50% of fisherwoman per village, although where there were restrictions in time, we focused on a fair representation of randomly selected fisherwomen present. Each individual

Table 1. The number of women surveyed per island or village.

Island/Village	Number of women surveyed (fisherwomen population coverage)
Moala	
Keteira	21 (85%)
Nasoki	17 (94%)
Vunuku	9 (100%)
Cakova	17 (85%)
Vadra	12 (32%)*
Nuku	9 (75%)
Maloku	18 (45%)*
Naroi	15 (50%)
Totoya	
Udu	10 (100%)
Ketei	14 (100%)
Tovu	9 (100%)
Matuku	
Yaroi	10 (83%)
Qalikarua	16 (90%)
Makadru	11 (100%)
Raviravi	3 (100%)
Lomaji	9 (100%)
Natokalau	12 (100%)
Levukaidaku	12 (60%)
TOTAL	224 (78% average coverage)

* The total number of fisherwomen in these villages was large owing to women who also only occasionally fished, gleaned or captured crustaceans. In general, we focused largely on women who were regular fishers and chose representatives of remaining occasional fishers.



Figure 2. Focus group survey with fisherwomen from Maloku Village, Moala Island. (image: Conservation International, Fiji)



Figure 3. Individual interview with a fisherwoman from Levukaidaku Village, Matuku Island. (image: Conservation International, Fiji)

interview took about 40 minutes (Fig. 3). The fisherwomen population coverage from each village ranged from 32% to 100%, with an average of 78% (Table 1).

Analysis

All data collected were recorded into a spreadsheet. Common and scientific names of fish and invertebrates were rechecked against the World Marine Species (WORMS) database for correct and updated classification. Additional fish and invertebrate classification guides were also used (Matsuoka 2010; Pakoa 2013; SPC 2014; Moore and Colas 2016; Lee et al. 2018). To avoid confusion, units of abundance given by women, as either pieces or kilograms, were not changed to a standardised unit and remained the same to ensure a more accurate depiction of yield. However, where women indicated how many pieces of seafood made up a kilogram, this was used. Seaweed (*Caulerpa racemosa*), however, was actually weighed and equated to 500 g per

handful. This was used to standardise seaweed weights. Data analysis and graphical representation were completed using Microsoft Excel.

Results and discussion

In terms of utilisation, women primarily fished for food security, and soft bottom, mangrove and coral reef areas were the most frequented habitats for fishing activities. Open ocean and freshwater sites were the least frequented. During fishing trips, up to 50% of the time was spent collecting the right type of bait in the necessary amounts before the actual fishing began. Interestingly, this meant that women visited more than one habitat in a normal day of collecting bait and fishing. The most common fishing device used was a hand line, followed by hand collection and fishing with gill nets. Despite the limited and simple devices used, women use varying techniques, depending on water depth, species and the type of fishing site. The most common time to fish is early morning to mid-morning, and is particularly dependent on the tide. The greatest number of hours per fishing trip is spent in open ocean sites, with the least being in freshwater sites. Across all islands, the greatest yield in fish comes from coral reef habitats, followed by soft bottom sites and mangroves, and the least quantity comes from freshwater sites. In terms of invertebrates, the greatest yield comes from soft bottom habitats, followed by coral reefs and mangroves.

In regards to the composition of fish caught for food, two groups of fish dominated: lethrinids (emperor fish) at 56% and serranids (groupers) at 25%, together making up 81% of the total catch across all islands and habitats (Table 2).

This finding is in agreement with previous studies of various coastal fisheries in Fiji. Lethrinids continue to be

the most common group of fish caught in Fijian waters. According to a survey by the University of the South Pacific, fish landings from 46 villages across 10 provinces in Fiji showed lethrinids as the most abundant fish group (USP 2009). Rawlinson (1995) also found lethrinids to be the most abundant catch amongst rural fishers in Viti Levu, particularly among handliners. A study on the size and composition of yield from six traditional fishing grounds (*qoliqoli*) in Fiji (including Moala Island) also found lethrinids and serranids as the most dominant in yields across all six reef fisheries (Jennings and Polunin 1995). The Department of Fisheries (2012) also found lethrinids and serranids to be the two most often-caught species in Moala Island.

Estimated yields and fishing efforts reported here, coupled with information from previous marine resource surveys (at least from Moala) may indicate that lethrinid fisheries are nearing overexploitation and serranids may already be currently overexploited. Steps must be taken to avoid a collapse in these fisheries. Fish yields from Matuku Island alone (where actual weights were provided) totalled 1,580 kg harvested by 73 women, and averaging 3.3–4.3 kg of fish per fishing trip per fishing habitat. This calculates to an average catch per unit effort of 0.8–1 kg per hour per fishing trip. If women fish an average of two times per week for an estimated 48 weeks per year, a conservative estimate of fishing yield from women in Matuku Island alone would be 23 tonnes annually. Using a current population figure of 525, the fish consumption rate on Matuku Island is conservatively estimated to be 43.8 kg per capita annually, this however is not including fish catches from men. Past annual consumption rates of local fish have been estimated at about 15 kg per capita in urban areas (Zann 1984), to 50 kg per capita in agricultural areas on the fertile main islands (Zann 1984; Anon. 1990; Vuki 1991). These figures

Table 2. Combined fish and non-fish composition of catch across Moala, Totoya and Matuku islands, and from five habitat types (freshwater, mangroves and mudflats, soft bottom, coral reef and open ocean). Note, non-fish families included gastropods, bivalves, crabs, sea cucumbers, octopuses and seaweeds.

Finfish families caught for consumption	%	Non-fish families collected for consumption	%
Lethrinidae	55.7	Tegulidae	23.4
Serranidae	25.0	Strombidae	20.7
Gerreidae	4.2	Cardiidae	16.5
Scaridae	3.7	Gecarcinidae	8.8
Lutjanidae	3.3	Caulerpaceae	5.4
Terapontidae	2.8	Portunidae	5.2
Scombridae	2.3	Sesarmidae	4.8
Mullidae	1.4	Arcidae	4.4
Siganidae	1.0	Holothuridae	3.4
Hemiramphidae	0.6	Turbinidae	2.8
		Toxopneustidae	1.8
		Neritidae	1.4
		Caulerpaceae	1.0
		Tremoctopodidae	0.3



are also important for estimating rates of harvest to ensure that the rates of fishing and seafood harvesting are sustainable. More data from men's fishing yields would be needed to determine the contribution of women to their overall village fisheries yields. Recently published figures of catch data from various Pacific Island countries show the contribution of women to small-scale fisheries modestly calculated to be over 40,000 tonnes per year. When combining estimates for all countries, women were seen to contribute 56% of the total estimated small-scale fisheries catch. Therefore, women contribute more small-scale catches than men, once again illustrating the crucial role women in the Pacific play towards food security (Harper et al. 2013).

Across the three islands of Motuku, Moala and Totoya, the most common seafood storage technique was cooking, followed by smoking, refrigeration and drying (Fig. 4). In very few cases, women consistently stored food in refrigerators but this requires a constant and reliable supply of electricity.

Up to 66% of seafood for selling (invertebrates and vertebrates) are sourced from coral reefs and soft-bottom habitats. Recommendations to promote and maintain sustainable fishing practices include:

- 1) closely monitoring gleaning activities;
- 2) protecting the mangroves, soft-bottom and coral reef fishing habitats;
- 3) managing lethrinids and serranids;

4) exploring options to better estimate stock, catch rates, fishing effort and yield;

5) monitoring and addressing poaching within traditional fishing grounds (*qoliqoli*) with the help of relevant authorities;

6) monitoring seafood sales, particularly after the establishment of the ice plant at Moala; and

7) cautiously regarding any development that involves the removal of natural resources for money.

The direct challenges faced by women during their fishing activities include physical injury, bad weather conditions, lack of fishing resources, and lack of further training in effective and efficient fishing techniques. Unless women also saw fishing as recreational, much of the quality of traditional and current fishing knowledge obtained was generally poor in detail. The continued rural-urban drift also means there is a continual loss of traditional fishing knowledge over time. Environmental threats to fishing habitats observed included coastal erosion, deforestation, nutrient runoff, catching undersized fish, improper waste management, and the continuation of catching banned species (despite an awareness of fishing or harvesting bans in place).

In terms of decision-making relating to marine resource use and management, women are not represented, are under-represented or choose to remain passive or ultimately uninvolved at all. Men dominate in decisions that are of economic or monetary value within the home and



Figure 4. Women scaling, gutting and cleaning fish caught immediately after their fishing trip near Vunuku, Moala Island. (image: Conservation International, Fiji)

community. Women, however, dominate in decisions relating to food security and family or community well-being. This perception of the value of women's contribution to fisheries is seen on a small-scale within the home, but is also present in a much wider context, across regions, nationally and globally. Where women have been known to contribute to small-scale fisheries through subsistence catches, the documented yields are under-reported, incomplete and inconsistent. However, where there is greater monetary and economic value in a fishing activity, statistics are clear and consistent, formal organisations are established, and legal and regulatory frameworks are set up (Harper et al. 2013; Alonso-Poblacion and Siar 2018). Steele (2014) notes that because women do not receive pay for their work in the home, their roles have often been perceived as unimportant and/or non-productive, and consequently it has not been given a monetary value. This trend seems beyond traditional culture and is rather indicative of a stronger capitalist influence.

There are three main recommendations to address such challenges and threats. One is for men (including spouses) to understand, recognise and acknowledge the significant contribution made by fisherwomen in their communities, thereby creating more opportunities for women's involvement in the decision-making process on the use and management of natural resources. As observed by Steele (2014), the development of programmes for women cannot remain isolated from men, and men must not be excluded from the process of efforts to boost women's involvement in decision-making and women must not work in isolation. It is critical for both parties to acknowledge each other's contribution and value towards reaching their common goal. A second recommendation is to explore the existence and integration of *yaubula* (natural resource) committees within a greater church structure to utilise the efficient organisational and accountability utilities through them. The third recommendation is to ensure that the government and non-governmental organisations provide the relevant support, training and resources to invoke any change that is needed.

The contrast of great dependence on fisheries for food security yet less dependence for a source of living and income creates interesting opportunities to promote sustainable fishing practices and improved fisheries management. The consumption of meals across all islands comprised over 80% seafood of which women provided 50–60% exclusively themselves through subsistence fishing. The major sources of income here are agricultural based predominantly on *yagona* (kava) farming on Moala, and copra and virgin oil production on Totoya and Matuku islands. Fisherwomen, however, perceived handicrafts as the most important source of income personally because it provided quicker money compared to cash crops. If weekly personal income is consistent, most women make FJD¹ 1–50 per week and spend FJD 1–10 a year on purchasing fishing gear. Opportunities that exist to further

promote sustainable practices include investigating seafood consumption rates and drivers or enablers of increased seafood sales; and investing strongly in youth and children via various programmes and activities that nurture eco-conscious minds and behaviour.

Advocacy must first come from within the community. Therefore, a crucial ingredient here is the community's deep sense of ownership over their marine resources, which leads to greater responsibility from community members, and ultimately sustainable practices. Community leaders need to be fully prepared and trained to deal with increasing influence from outside their villages that may threaten their communal spirit, togetherness and unity. Leadership integrity and a clear plan of succession is vital for sustained conservation efforts and participation from the community. Lastly, the Fijian culture is already rich with traditional ideas that promote sustainable practices and eco-conscious behaviour towards the environment. This is an opportune time for the Government of Fiji and non-governmental organisations to explore ways in which ancient and traditional ideas can be integrated with modern practices of conservation to truly achieve better food security, improved fisheries management, and revive ecologically important cultural norms.

References

- Alonso-Poblacion E. and Siar S. 2018. Women's participation and leadership in fisherfolk organisations and collective action in fisheries: A review of evidence on enablers, drivers and barriers. Food and Agriculture Organization Fisheries and Aquaculture Circular 1159. Rome: FAO. 58 p.
- Anon. 1990. Fiji Fisheries Division Annual Report. Ministry of Primary Industries, Suva. 18 p.
- Avalos B. 1995. Women and development. Pacific Economic Bulletin 10(1):73–83.
- Bidesi V. 2008. Recognizing women in fisheries: Policy and considerations for developing countries. Yemaya, the International Collective in Support of Fishworkers Newsletter on Gender and Fisheries 28:12–13.
- Chapman M.D. 1987. Women fishing in Oceania. Human Ecology 15:267–288.
- Demmke P. 2006. Development of tuna fisheries in the Pacific ACP countries (DEVFISH) Project. Gender issues in the Pacific Islands tuna industry. Honiara: Forum Fisheries Agency, and Noumea: Secretariat of the Pacific Community. 49 p.
- Department of Fisheries. 2012. Marine resource inventory survey report: Moala Island. (Draft). Suva: Department of Fisheries. 39 p.
- Emberson-Bain 'A. (ed). 1994. Sustainable development or malignant growth? Perspectives of Pacific Island Women. Suva: Marama Publications. 290 p.
- Fay-Sauni L., Vuki V., Paul S. and Rokowasa M. 2008. Women's subsistence fishing supports rural households in Fiji: A case study of Nadoria, Viti Levu, Fiji. SPC Women in Fisheries Information Bulletin 18:26–29.
- Fong G. 1994. Case study of traditional marine management system: Sasa village, Macuata Province, Fiji. Field Report 94/1 Forum Fisheries Agency. Rome: Food and Agriculture Organization of the United Nations. MSc thesis, University of the South Pacific. 205 p.

¹ FJD 1.00 = USD 0.47 (January 2019)



- Frangoudes K. and O'Doherty J. 2006. Legal recognition of women's contribution in the fisheries and aquaculture in the European Union. Paper presented to the World Fish Centre global symposium on gender and fisheries at the seventh Asian fisheries forum, 30 November to 4 December 2004. Penang, Malaysia.
- Gillett B. and Lightfoot G. 2001. The economic importance of fisheries in the Pacific Islands: Notes on the contribution of fisheries to GDP, employment, exports, and nutrition. A report prepared for the Asian Development Bank, the Forum Fisheries Agency and the World Bank. Philippines: Asian Development Bank.
- Harper S., Zeller D., Hauser M., Pauly D. and Sumaila U. 2013. Women and fisheries: Contribution to food security and local economies. *Marine Policy* 39:56–63.
- Jennings S. and Polunin N.V.C. 1995. Comparative size and composition of yield from six Fijian reef fisheries. *Journal of Fish Biology* 46:28–46.
- Kronen M. and Vunisea A. 2007. Women never hunt – but fish: Highlighting equality for women in policy formulation and strategic planning in the coastal fisheries sector in Pacific Island countries. *SPC Women in Fisheries Information Bulletin* 17:3–15.
- Lal P. and Slatter C. 1982. The integration of women in fisheries development in Fiji. In: Report of an ESCAP/FAO initiated project on improving the socio-economic condition of women in fisherfolk communities. Suva: Fisheries Division, Ministry of Agriculture, Forestry and Fisheries.
- Lambeth L., Hanchard B., Aslin H., Fay-Sauni L., Tuara P., Des Rochers K. and Vunisea A. 2002. An overview of the involvement of women in fisheries activities in Oceania. Reprinted in: *SPC Women in Fisheries Information Bulletin* 25:21–32.
- Lambeth L., Hanchard B., Aslin H., Fay-Sauni L., Tuara P., Des Rochers K. and Vunisea A. 1998. An overview of the involvement of women in fisheries activities in Oceania. p. 127–142. In: Williams M.J. et al. (eds). *Global Symposium on Women in Fisheries*, Sixth Asian Fisheries Forum, 29 November 2001. Penang, Malaysia: ICLARM, the World Fish Center. 216 p.
- Lee S., Lewis A., Gillett R., Fox M., Tuqiri N., Sadovy Y., Batibasaga A., Lalavanua W. and Lovell E. 2018. Fiji fishery resource profiles. Information for management on 44 of the most important species groups. Gillett, Preston and Associates and the Wildlife Conservation Society: Suva. 240 p.
- Matsuoka J. 2010. Common fish of western Fiji. Japan International Cooperation Agency (JICA) final report to the Department of Fisheries, Suva, Fiji. JICA. 72 p.
- Matthews E. 1993. Women and fishing in traditional Pacific Island cultures. p. 29–33. In: Workshop: People, society, and Pacific Islands fisheries development and management. Technical Document No. 5. Noumea, New Caledonia: South Pacific Commission, Noumea, New Caledonia.
- Moore B. and Colas B. 2016. Identification guide to the common coastal food fishes of the Pacific Islands region. Noumea, New Caledonia: Pacific Community. 15 p.
- Nainoca W.U. 2010. The influence of the Fijian way of life (*bula vakavanua*) on community-based marine conservation (CBMC) in Fiji, with a focus on social capital and traditional ecological knowledge (TEK) (PhD thesis), Massey University, Palmerston North, New Zealand.
- Narsey W. 2011. Report on the 2008–2009 household income and expenditure survey. Suva: Fiji Bureau of Statistics. 101 p.
- Ogden L.E. 2017. Fisherwomen – The uncounted dimension in fisheries management: Shedding light on the invisible gender. *BioScience* 67: 111–117.
- Pakoa K. 2013. Identification cards for marine invertebrate surveys in the Pacific Islands. Noumea, New Caledonia: Pacific Community.
- Passfield K., Mulipola A., Ropeti E., King M. et al. 2001. Profile of village fisheries in Samoa. Project milestone 17 April 2001. Apia, Samoa: Government of Samoa, Fisheries Division, Samoa Fisheries Project. 34 p.
- Rawlinson N.J.F., Milton D.A., Blaber S.J.M., Sesewa A. and Sharma S.P. 1995. A survey of the subsistence and artisanal fisheries in rural areas of Viti Levu, Fiji. Canberra, Australia: Australian Centre for International Agricultural Research. 136 p.
- SPC (Secretariat of the Pacific Community). 2014. Na veitukutuku eso ka baleti ira na dauqoli ena veikorokoro. New Caledonia. 24 p.
- Steele S. 2014. Women in fisheries development. *SPC Women in Fisheries Information Bulletin* 25:12–16.
- Tawake, A., Vuki V. and Aalbersberg B. 2007. Fishing for *Anadara*: A case study of Ucuivanua Village in Verata, Fiji Islands. *Women in Fisheries Information Bulletin* 17:27–31.
- Tuara P.N. 1995. The participation of women in fisheries in the South Pacific. Paper presented at the Regional Workshop on the Role of Women in Fisheries Development. Iloilo City, Philippines, 17–21 July 1995. 4 p.
- Tuiwawa M and Aalbersberg B. 2013. Rapid biological assessment survey of southern Lau, Fiji. Conservation International Pacific Islands Program, Biodiversity Conservation Lessons Learned Technical Series 22. 43 p.
- USP (University of the South Pacific). 2009. A nation-wide survey of village-based fishing pressure in Fiji. In: Jenkins A.P., Prasad S.R., Bacchiochi J., Skelton P. and Yakub N. (eds). *Proceedings of the Inaugural Fiji Islands Conservation Science Forum*, Wetlands International-Oceania, Suva, Fiji.
- Veitayaki J. 1995. Fisheries development in Fiji: The quest for sustainability. Suva, Fiji: Institute of Pacific Studies, University of the South Pacific. 233 p.
- Veitayaki J. 2002. Taking advantage of indigenous knowledge: The Fiji case. *International Social Science Journal* 54:395–402.
- Veitayaki J. 2005. Addressing human factors in fisheries development and regulatory processes in Fiji: The Mositi Vanuaso experience. *Ocean Yearbook* 21:289–306.
- Verebalavu J. 2009 Women in artisanal and marine resources at the market. *SPC Women in Fisheries Information Bulletin* 20:17–22.
- Vuki V. 1991. A fish consumption survey of Dravuni, Great Astrolabe Reef, Fiji. Marine Studies Programme Technical Report No. 1. University of the South Pacific, Fiji.
- Vunisea A. 1995. Subsistence fishing, women and modernization in Fiji. p. 101–109. In: Matthews E. (ed). *Fishing for answers: Women and fisheries in the Pacific Islands*. Suva, Fiji: Women and Fisheries Network.
- Vunisea A. 2016. The participation of women in fishing activities in Fiji. *SPC Women in Fisheries Information Bulletin* 27:19–28.
- Waqairatu S. 1994. The delimitation of traditional fishing grounds – the Fiji experience. p. 79–84. In: South R., Goulet D., Tuqiri S. and Church M. (eds). *Traditional marine tenure and sustainable development in Asia and the Pacific*. Suva, Fiji: International Ocean Institute – South Pacific.
- Weeratunge N., Snyder K.A. and Choo P.S. 2010. Gleaner, fisher, trader, processor: Underestimated gendered employment in fisheries and aquaculture. *Fish and Fisheries* 11:405–420.
- World Bank, Food and Agriculture Organization of the United Nations and WorldFish. 2010. The hidden harvests: the global contribution of capture fisheries. Conference edition, Agriculture and rural development, sustainable development network. The World Bank, Washington. 111 p.
- Zann L.P. 1984. The subsistence fisheries of Fiji. Unpublished manuscript.

Integrating gender in Pacific coastal fisheries research: The Pathways project

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Introduction

Coastal fisheries³ provide food for Pacific Island communities and support their livelihoods and cultures. In the Pacific Islands region, women and men engage in all aspects of coastal fisheries – often in distinct ways, with distinct opportunities, benefits and challenges (Chapman 1987; Weeratunge *et al.* 2010). Substantial evidence from research and development demonstrates that understanding coastal fisheries accurately (Weeratunge *et al.* 2010; Kleiber *et al.* 2014, 2015), managing coastal fisheries effectively (Seniloli *et al.* 2002; Hilly *et al.* 2012; Amos 2014; Schwarz *et al.* 2014), and improving livelihoods and development outcomes through, and within, coastal fisheries requires that research and development activities recognise, accommodate and engage with gender-related expectations, barriers and dynamics (Lawless *et al.* 2017).

A range of global and Pacific Island national and regional policies make commitments to equity, gender equality, and women's empowerment (see Box 1), and include the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (FAO 2015; henceforth the SSF Guidelines), the Convention on the Elimination of Discrimination Against Women (CEDAW, United Nations 1979), and the Sustainability Development Goals (SDGs). Specific to Pacific coastal fisheries is 'A new song for coastal fisheries – pathways to change: The Noumea strategy' (Secretariat of the Pacific Community 2015a), which seeks to support 'more equitable access to benefits and decision-making within communities, including women, youth and marginalised groups', and recognises that:

...gender relations have a significant effect on the course of development and so the voice of women and youth must be heard and acted upon effectively in all future [community-based resource management] strategies. In addition to playing a greater role in decision-making, women and youth must have more equitable access to the benefits flowing from coastal fisheries. (Secretariat of the Pacific Community 2015a:6)

Increasingly, funders and implementers of fisheries research and development seek transparent, decisive and measurable commitment to these gender commitments. The process of integrating gender into coastal fisheries research, management and development requires a strong mandate, and buy-in and capabilities from managers and communities, and a clear plan and dedicated resources. The objective of this paper is to illustrate the applied and diverse ways in which gender has been integrated in one project that is focused on coastal fisheries in the Pacific, and stimulate discussion and make refinements to strategies in order to integrate gender among those committed to improving coastal fisheries, food security and Pacific community wellbeing.

The Pathways project

This paper outlines the gender integration approach used in the project 'Strengthening and scaling community-based approaches to Pacific coastal fisheries in management support of the New Song' – or the 'Pathways project'⁴. The Pathways project aims at improving the wellbeing of Pacific coastal communities through more productive and resilient fisheries, and better food and nutrition security, and is working with partners in Solomon Islands, Kiribati and Vanuatu, as well as with teams working at the Pacific regional scale. While the three focal countries share similarities in terms of gender in coastal fisheries, they also hold distinct opportunities and challenges when it comes to integrating gender into research and development.

Gender considerations are integrated through all five of the Pathways project's objectives and are outlined most fully under Objective 4 of the Pathways project: Increase social and gender equity in coastal fisheries governance, utilisation and benefit distribution.

The Pathways project integrated gender early on in proposal development by building on strategies, research findings and lessons from a previous project 'Improving Community-based Fisheries Management in Pacific countries'. The approach to gender integration we describe in this paper has also been guided by the Consortium of International Agricultural Research Centers (CGIAR) programme on Fish Agri-Food Systems (FISH): Gender Strategy (WorldFish 2018).

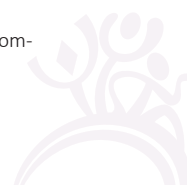
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³ In this document "coastal fisheries" refers to all activities in the fisheries value chain including pre-harvest, harvest, and post-harvest activities such as gear prep, fishing and gleaning, marketing, processing, and cooking.

⁴ Project partners: WorldFish; ARC Centre of Excellence for Coral Reef Studies at James Cook University (Queensland, Australia); the Pacific Community (SPC); and the University of Wollongong Australian National Centre for Ocean Resources and Security (ANCORS)

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The Pathways project is funded by the Australian Government through the Australian Center for International Agricultural Research (ACIAR) and the Department of Foreign Affairs and Trade (DFAT); as such it will be implemented in accordance with DFAT principles and policies to ‘promote opportunities for all’ (AusAID 2011; Commonwealth of Australia DFAT 2015). In addition, the Pathways project has been designed to be responsive to global and regional commitments within the SDGs, the New Song, the Convention on the Elimination of all forms of Discrimination against Women (CEDAW), and the Small-scale Fisheries Guidelines of the Food and Agriculture Organization.⁵

To integrate gender in the Pathways project three main goals were identified: 1) increase research quality, 2) empower women, and 3) facilitate equitable outcomes. To achieve these goals four objectives, specifically related to gender integration, are pursued:

1. increase the recognition of women’s contribution to coastal fisheries;
2. enable women’s engagement across scales of governance;
3. fairly support livelihood opportunities and benefits for women and men; and
4. enable women and men to improve nutrition within the first 1,000 days of the project.⁶

Gender in the Pacific

Gender equality and women’s empowerment are goals built upon the intrinsic values of human rights such as equity and equality, but are also ‘critical levers for achieving agriculture [and fisheries] and rural development outcomes’, where improvement to equality have been linked to increased food production, improved nutrition, greater household

health and wellbeing, reduced loss and waste of fish, and enhanced environmental outcomes (WorldFish 2018:5).

There are many barriers to reaching gender equality, and these barriers persist, are reflected and reinforced in societies and systems, including coastal fisheries systems. These barriers perpetuate poor representation of women in the formal economy, and result in a lack of women’s voices at multiple scales of governance (Pacific Community 2016). At the community scale, women are less likely to be present or vocal at meetings, meaning that, in general, women’s views and concerns are less likely to be shared and heard unless the meeting style, time and facilitation are directed towards them (Vunisea 2008; Schwarz et al. 2014; Dyer 2018). However, community-based management consultations and decisions that do not include women’s input, can still have an impact on them. For example, in Vanuatu, male chiefs created a no-take marine reserve in a gleaning area, which meant that women were no longer able to fish there (Tarisesei and Novaczek 2006). It is these findings that have brought a strong focus within the Pathways project on facilitation strategies that engage women and men in decision-making.

There have been recent commitments and attention to gender in regional and national policies, although these have not yet translated into widespread change in research and development practices and outcomes. The challenge is to overcome capacity, knowledge or commitment shortfalls in order to integrate gender into all aspects of Pacific Islands research, governance and development (Piau-Lynch 2007; Secretariat of the Pacific Community 2015b; Government of Solomon Islands 2016; Leduc 2016). This has begun to be addressed by partners such as the Pacific Community through stocktakes of gender in fisheries of each Pacific Island country (e.g. Pacific Community 2018), and will benefit further from ongoing support and a focus on gender throughout the coastal fisheries sector.

Box 1. Empowerment, equality and equity

Development and gender goals often include concepts of empowerment, equality and equity. These concepts are closely related, but achieving each will require different approaches.

Women’s empowerment means women are able to make meaningful choices about their own life (e.g. marriage, livelihood, children, living conditions) A meaningful choice means having things to choose between, as well as having the power to make that choice (Kabeer 2000).

Equality means *equal* opportunities or outcomes that can be achieved when formal barriers are removed (Reeves and Baden 2000). In other words, everyone gets the same thing and there are no legal or social barriers that prevent women and men from having the same opportunities. Equality is achieved when women and men are free and able to pursue the same livelihoods and experience the same conditions and benefits.

Gender equity means women and men are treated fairly and with consideration to their sometimes-different needs (Pavlic et al. 2000). This is an important step towards achieving equality, and can include capacity development, or gender transformation.

⁵ Our gender approach lies within a larger framework of social inclusion. Social exclusion – which relates to norms, beliefs and practices that value certain people more than others, and exclude certain people from decision-making as well as fair access to resources – is not limited to gender. However, gender is a key social category in all human societies and often can be an important place to start when examining social exclusion. Gender can also be left out if it is not made central to the social analysis. The Pathways project focuses on gender but also recognises the multiple and interacting categories of social exclusion should be considered.

⁶ The first 1,000 days refers to the period of time between conception and a child’s second birthday. This represents a critical period of time where nutrition has profound and lasting impacts on a child’s development.

Concepts for gender in research and development

Gender aware approaches

Research and development approaches that are 'gender aware' consider women and men's often differing needs and capabilities to participate. These differing power dynamics, needs and capabilities are determined not by biological differences between women and men, but rather through social expectations, roles and other norms. Gender-blind approaches are, of course, not 'best practice', and refer to initiatives or research projects that do not pay attention to gender norms or power dynamics. In alignment with the FISH gender strategy, the Pathways project aims at ensuring that any project activities that involve humans will be gender aware, and at least accommodative, while aiming for transformative (Fig. 1). An accommodative approach works around barriers to women's (or men's) participation. For example, an accommodative approach will make meeting times, meeting structures and locations that work for women as well as men. A transformative approach is more likely to be supported when women's empowerment and gender equality are a stated goal of a project. A transformative approach encourages people to

question whether there are gender norms and beliefs that impede their life goals, but also mean inequality will persist (Cole et al. 2014).

Gender strategies – measures and methods

Within a gender aware approach, it is important to specify the changes that are desired, and the methods that will be used to enact those changes. Strategies in gender and development have been grouped into three main categories: 1) reaching women and men with information; 2) benefiting women and men through the delivery of, or access to, resources; and 3) empowering women and men to make strategic life decisions (Theis and Meinzen-Dick 2016). To achieve this, WorldFish has added another category: 4) transforming constraining gender norms and dynamics (Fig. 2). Gender-integrated research commonly monitors and examines reach and benefit, while gender-focused research is better suited to examine outcomes of empowerment and transformation. The Pathways project will use these categories to guide monitoring and evaluation activities, as well as other targeted research, to ensure that the method, monitoring and measurement match the desired change. This continuum also illustrates how we test assumptions; for example, asking and answering 'If

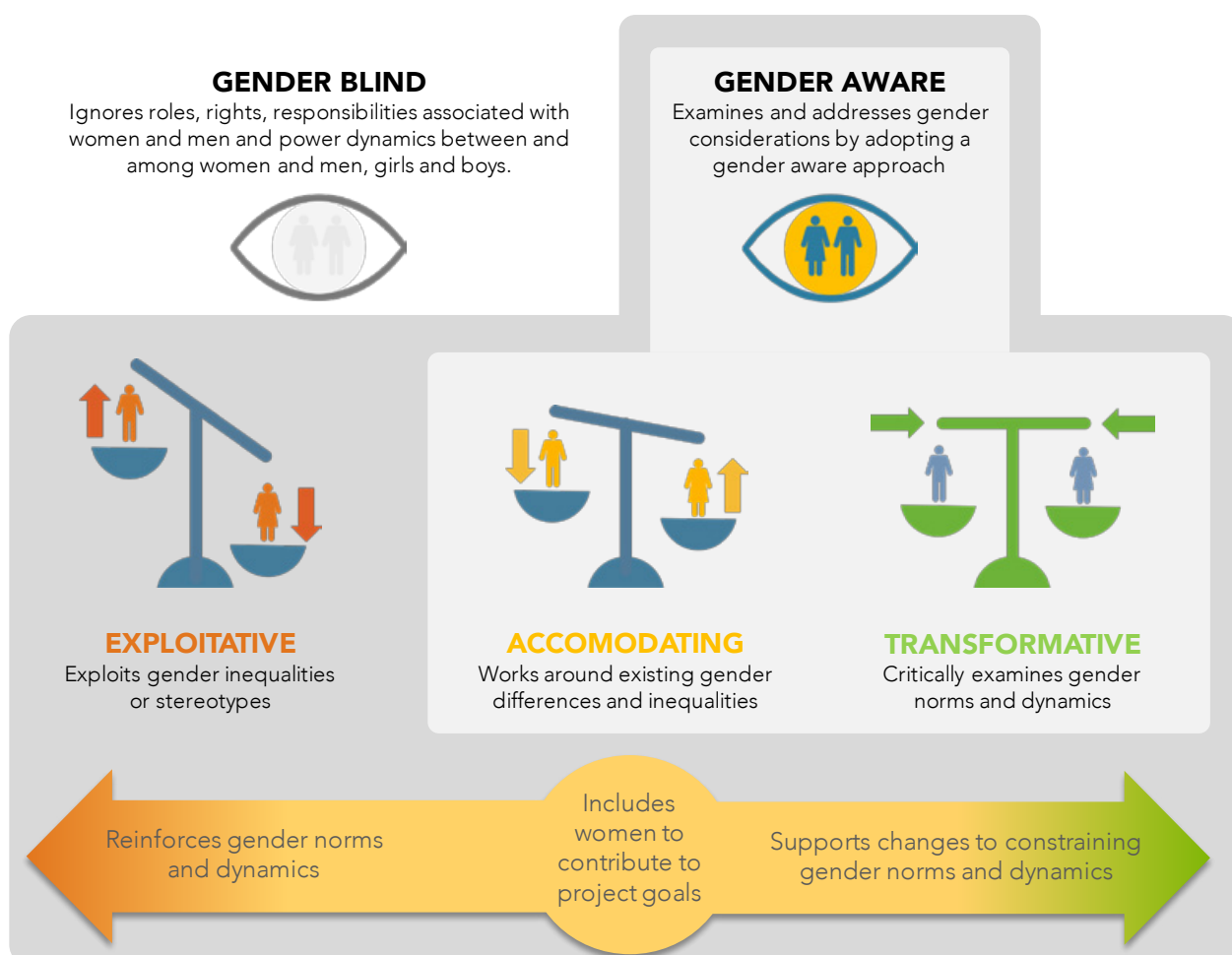


Figure 1. Research and development with a mandate to 'do no harm' must be gender aware, but also avoid gender exploitative approaches. An exploitative approach uses gender inequality to achieve project goals and reinforces gender stereotypes. By contrast, accommodating or transformative approaches work around or critically examine gender norms and dynamics to achieve project goals and equity goals. Figure adapted from WorldFish (2018).

men and women have participated in, do men and women benefit from (in terms of income, improved nutrition, voice in decision-making)?

Gender integration in fisheries systems research and development

Successful gender integration in all coastal fisheries research and development activities that include people means that gender is always taken into consideration. There are two interacting reasons for integrating gender into research and development. The first is that it improves science and our understanding of when differences within communities of people are considered. The second reason is that it can improve social and ecological outcomes when issues of power and inequality are considered, and more people are actively included (Fig. 3).

Gender integration aligns with the FISH Gender Strategy and employs gender-aware approaches that are either gender accommodating or gender transformative (Fig. 1). As one aspect of this, the Pathways project will collect, analyse and report sex-disaggregated data on all aspects of the project. The project will also include women and men in decision-making and activities by designing processes and creating opportunities that are responsive to their needs and viewpoints. Gender integration will be tracked and improved by continuous monitoring, linked to ongoing reflection and adjustment of practice. The outcomes of gender integration will be better understood with evaluation. Monitoring and evaluations will not assume that 'reach' equates to 'benefit' (Fig. 2); this will be monitored through suitable indicators and evaluations (indicators described below).

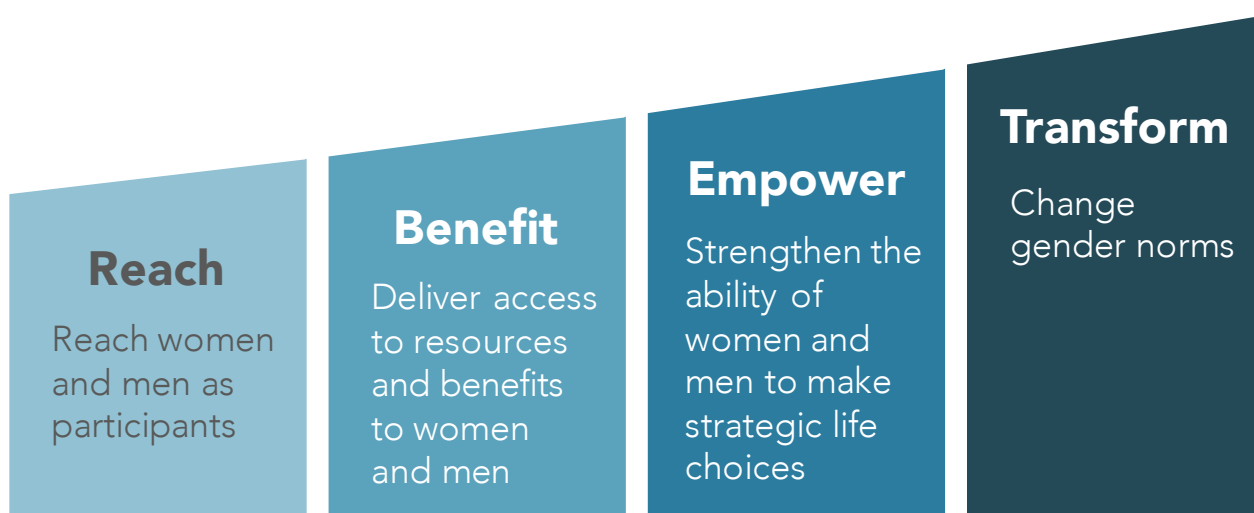


Figure 2. Gender-integrated initiatives, and associated monitoring and evaluation and research, fall along a spectrum from 'reach' to 'transform'. Figure adapted from Theis and Meinzen-Dick (2016).

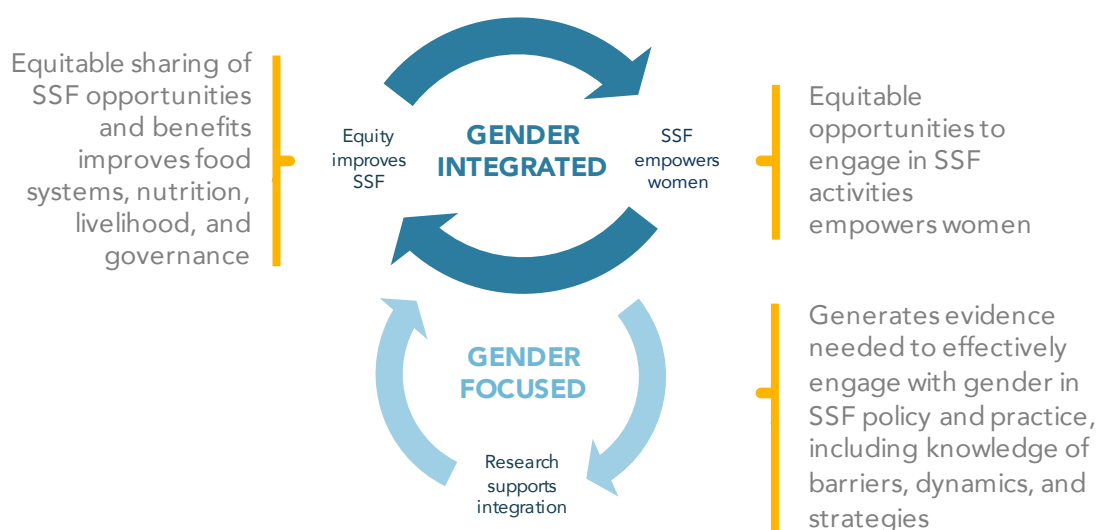




Figure 3. 'Gender-integrated' and 'gender-focused' research work together for continual improvements towards gender integration and coastal fisheries research quality. Figure adapted from WorldFish (2018).

Gender-focused research in fisheries systems

The Pathways project will also conduct gender-focused⁷ research in various coastal fisheries contexts (Table 1; Fig. 3). This will involve, in a small subset of community engagements, identifying and addressing gender barriers deeply embedded in societies, economies, cultures and governance structures, and then testing strategies – such as gender transformative approaches (Cole et al. 2014)

– to produce a shift in gender barriers and optimise opportunities towards gender equality, equity and women's empowerment (Box 1). This will be undertaken in order to inform and refine the quality of gender integration in the Pathways project (Fig. 3). Gender-focused research questions will address issues of women's empowerment and gender transformation (Fig. 2).

Table 1. A brief description of gender-integrated and gender-focused approaches to research.

		
	Gender integration	Gender focus
What is it?	Fisheries research that integrates gender	Gender research done in a fisheries context
Who does it?	Everyone	Gender researchers*
Why do it?	Improves outcomes	Improves gender integration

* Includes in-country and collaborating gender researchers

Gender research in the Pathways project

Integrating gender into the Pathways project serves the project's goals and objectives. This section details why gender integration is necessary, identifies the specific challenges, and how the Pathways project plans to address these. The monitoring and evaluation, as well as the gender-focused questions developed to address each objective are summarised in Figure 4.

1. Increase recognition of women's contribution to coastal fisheries

In the Pacific, women's contribution to coastal fisheries are often not included in official statistics and governing processes (Kronen et al. 2007; Kronen and Vunisea 2009). This creates a barrier to gaining a full understanding and effective governance and management of coastal fisheries in Pacific coastal communities. There are two interacting barriers to the recognition of women's contribution to coastal fisheries.

Challenge – Biased sampling in coastal fisheries data collection. Coastal fisheries research is often gender blind, and tends to focus on men's fishing activities such as those using a boat and offshore

fishing (Weeratunge et al. 2010), while overlooking other critical fishing and value-chain activities such as gleaning and processing that tend to be carried out by women. Findings from this overly narrow perspective perpetuate the idea that fishing is about what men do and reinforces the assumption that there is no need to include women in fisheries decisions. This ultimately leads to ineffective management decisions that are detrimental to women, fishing communities, and the efficacy of fisheries management.

Challenge – Lack of public recognition of women's contribution to coastal fisheries. In Pacific coastal fisheries, women's labour is often valued less than men's labour, leading women's contributions to be given less social value than men's (Chapman 1987). A biased perception of women's contributions can lead to women's voices, concerns and solutions being left out of fisheries management and decision-making. This feeds directly back to justifications for biased sampling.

To address these challenges, the Pathways project will work at two scales. First, the project will collect sex-disaggregated data to assess community-based management performance. Second, the project will work with national and regional fisheries agencies and partners to examine

⁷ In this case 'gender-focused' is synonymous with 'gender-strategic' research identified in the WorldFish gender strategy.



Objective	Increase recognition of women's contribution to coastal fisheries	Enable women's engagement across scales of governance	Fairly support livelihood opportunities and benefits to women and men	Enable women and men to improve dietary diversity in the first 1000 days
Gender-focused research	<p>Examine how sex - disaggregated fisheries data are collected, analysed, and reported</p> <p>Examine changes to public and media discourse of women in fisheries</p>	<p>Examine gender integration into coastal fisheries policies</p> <p>Examine how governing processes, structures and norms at multiple scales can enable fair involvement in decision-making</p> <p>Identify strategies that can effectively address barriers to gender integration in governing institutions</p>	<p>Examine how livelihood-related activities affect women and men, and their relationships</p>	<p>Examine the gender roles and norms around coastal fisheries collection, preparation and consumption</p> <p>Test if gender-transformative approaches improve and sustain nutrition outcomes</p>
Gender-integrated monitoring and evaluation	<p>100% of coastal fisheries assessments use a gender-integrated research design</p> <p>Count the number gender-related media outputs by the project</p>	<p>40 % attendees or partner agency staff at project events are women</p> <p>Women speak 50% of the time in meetings</p> <p>60% of project events use gender-sensitive facilitation techniques</p> <p>75% of CBFM committees have women representatives</p>	<p>Coastal livelihood-improvement activities are targeted at both women and men</p> <p>Change in income among women and men participating in livelihood-interventions facilitation techniques</p>	<p>Women and men receive nutrition information</p>

Figure 4. The four gender objectives of the Pathways project with their corresponding gender-focused questions, and gender-integrated monitoring and evaluation questions.

and improve these agencies' data collection programmes. Project partners will be involved in stocktakes on gender and fisheries, and designing strategies that respond to their findings. This stocktake will be used to refine integration of gender into all Pathway project countries' coastal fisheries assessments. For example, one priority of this project (and of other partners) is to improve the quality, availability, interpretation and reporting of sex-disaggregated fisheries data. This will be a foundation for understanding coastal fishing at a community, national and regional scale, and will be used to raise the profile of women's contribution to fisheries through strategic communication targeted at the general public, donor agencies and national fisheries agencies.

2. Enable women's engagement across scales of governance

Women's voices, opinions, and priorities are at risk of being left out of coastal fisheries governance because of prevailing gender dynamics in the Pacific, and persistent assumptions that fisheries is a topic for and about men (Lambeth 1999).

There are three challenges at the community, provincial and national scale that will be examined and addressed to minimise this risk and to empower women as prominent coastal fisheries governors.

Challenge – Lack of gender equality, equity and women's empowerment in community-based fisheries management. Existing local governance structures may inadvertently reinforce, sustain, or take advantage of inequitable gender norms and power imbalances unless explicit and reflexive strategies both for engagement and for distributional equity are used.

Challenge – Missing gender commitments in national fisheries policy. When gender is not an explicit consideration in policy it is less likely to be addressed by those in formal governing position. Many fisheries policies remain gender blind and without clear strategies or goals to address gender.

Challenge – Lack of capacity for national and provincial fisheries agencies to meaningfully consider gender (including meeting existing or

emerging policy commitments). In cases where gender is included in the national fisheries policy, there is often a lack of institutional, fiscal and technical capacity to meaningfully implement it, assess progress and adjust actions for greater impact.

To address these barriers, the Pathways project will test, refine and share strategies towards gender-inclusive community-based management. The Pathways project will also examine national policy for gender commitments and work alongside government partners to strengthen gender considerations where there are existing policy change processes. In gender stocktakes, conducted with project partners SPC and national governments, the Pathways project will examine the capacity of all fisheries institutions to implement gender and design and refine capacity building activities and outputs that respond to these needs.

3. Fairly support livelihood opportunities and benefits for women and men

Improving coastal fisheries management alone may not be sufficient to meet the livelihood aspirations and needs of women and men in coastal communities. The Pathways project aims at improving fish-based livelihoods through activities and initiatives that complement community-based management. Gender is a key consideration to ensure the equitable distribution of opportunities, benefits and risks related to shifts in livelihoods.

Challenge – Livelihood initiatives tend to focus only on men's work or only on women's work. Without additional attention to equity, gender relations, or unintended consequences this can lead to an unfair distribution of benefits or increased labour burdens, and in some cases have led to resistance backlash in household or community contexts.

To address this challenge the Pathways project has been working with partners to integrate gender into an existing 'livelihood diagnosis' tool.⁸ This will ensure that livelihood assessments and activities include the needs and priorities of women and men. The Pathways project has a particular focus on working with and further supporting established women's groups, and being mindful, deliberate and continually reflective in the way in which men are engaged in and view these initiatives. After the initial livelihood diagnosis, gender-transformative approaches may be used, if appropriate. The Pathways project will also assess the outcomes for women and for men, and be sensitive to unintended consequences, as well as adjust activities and share lessons, as needed.

4. Enable women and men to improve dietary diversity within the first 1,000 days

Poor diet has been identified as a key concern in the Pacific and is a contributing factor to malnutrition and the societal and individual costs that this contributes to. Improving coastal fisheries or livelihood outcomes alone will not

address the nutritional needs of women and children in the first 1,000 days (from conception to the second birthday). There are three areas for gender integration with regard to improved nutrition.

Challenge – Women and children's diets are often insufficient in micronutrients. This can have consequences on the health and development of women and children, as well as public health and societal wellbeing.

Challenge – Nutrition initiatives often focus only on women, and women's role in caring for children.

Embedded gender norms and roles can mean that daily household food and nutrition security tasks fall mainly to women. Women and men are both influential in the selection, provision and preparation of food for household consumption. Initiatives that don't acknowledge this may reinforce or increase the burden of women with additional responsibilities that could otherwise be shared.

To address these issues, a nutrition diagnosis and activities will include providing behavioural change and awareness materials to women and men. After the initial diagnosis, interventions may also engage in transformative approaches as appropriate; in this setting, this may examine and actively question the equitable distribution of productive roles (e.g. choice of food, preparation of food, feeding infants and children) within the household.

Conclusions

A growing number of development and research initiatives recognise gender equality, equity and women's empowerment as critical levers towards social and ecological goals. Global, regional and national initiatives to improve small-scale fisheries increasingly bring gender into sharp focus, and integrate gender throughout all areas of governance, value chains, management and research. This paper provides an example of what gender integration can look like in a project that is focused on coastal fisheries, and aims to deliver on outcomes such as increased productivity, enhanced fisheries sustainability, improved nutrition and greater livelihood opportunities and incomes.

The Pathways project has committed to gender integration in research and development, and has outlined an ambitious plan to do so. One aspect of this commitment is training and ongoing support for all members of the project team. For example, in November 2018, 30 members of the project team participated in a three-day workshop that was co-delivered by research partners the Royal Tropical Institute. The workshop was designed to build foundational knowledge of key concepts and rationale; share culturally fit, gender-sensitive approaches of facilitation across Solomon Islands, Kiribati and Vanuatu; and develop operational plans and ongoing coaching for key pieces of gender-integrated action research.

⁸ https://www.sprep.org/att/IRC/eCOPIES/Pacific_Region/225.pdf



Building and enabling capacity to integrate gender within coastal fisheries is not only an objective of the Pathways project partners, but represents substantial and sustained efforts of many actors in the Pacific region and beyond. The aim of sharing this paper and articulating this approach to gender integration is to stimulate discussion, critical reflection, and collaborative refinements as to how goals around gender are addressed and realised in practice, particularly within and through the coastal fisheries that provide a foundation of social and ecological wellbeing of Pacific Islanders.

Acknowledgements

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References

- Amos, M. 2014. Growing and empowering women in fisheries: Work in the Pacific region. SPC Women in Fisheries Information Bulletin 25:3–5.
- AusAID. 2011. Promoting opportunities for all – Gender equality and women's empowerment. Canberra: Australian Agency for International Development. 21 p.
- Chapman M.D. 1987. Women's fishing in Oceania. *Human Ecology* 15:267–288.
- Cole S.M., Kantor P., Sarapura S. and Rajaratnam S. 2014. Gender-transformative approaches to address inequalities in food, nutrition and economic outcomes in aquatic agricultural systems. Penang, Malaysia: Consortium of International Agricultural Research Centers (CGIAR) Research Program on Aquatic Agricultural Systems. Working Paper: AAS-2014-42. 24 p.
- Commonwealth of Australia DFAT (Department of Foreign Affairs and Trade). 2015. Development for All, 2015–2020 Strategy for strengthening disability-inclusive development in Australia's aid program. Barton, Australia: DFAT. 28 p.
- Dyer M. 2018. Transforming communicative spaces: The rhythm of gender in meetings in rural Solomon Islands. *Ecology and Society* 23:17.
- FAO (Food and Agriculture Organization). 2015. Voluntary guidelines for securing sustainable small-scale fisheries in the context of food security and poverty eradication. Rome: FAO. 34 p.
- Government of Solomon Islands. 2016. Gender equality. Where do we stand? Solomon Islands. Noumea, New Caledonia: Pacific Community. 18 p.
- Hilly Z., Schwarz A.-M. and Boso D. 2012. Strengthening the role of women in community-based marine resource management: Lessons learned from community workshops. SPC Women in Fisheries Information Bulletin 22:29–35.
- Kabeer N. 2000. Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change* 30(3):435–464.
- Kleiber D., Harris L.M. and Vincent A.C.J. 2014. Improving fisheries estimates by including women's catch in the central Philippines. *Canadian Journal of Fisheries and Aquatic Sciences* 71:1–9.
- Kleiber D., Harris L.M. and Vincent A.C.J. 2015. Gender and small-scale fisheries: A case for counting women and beyond. *Fish and Fisheries* 16:547–562.
- Kronen M. and Vunisea A. 2009. Fishing impact and food security – Gender differences in finfisheries across Pacific Island countries and cultural groups. SPC Women in Fisheries Information Bulletin 19:3–10.
- Kronen M., Stacey N., Holland P., Magron F. and Power M. 2007. Socioeconomic fisheries surveys in Pacific Islands: A manual for the collection of a minimum dataset. Noumea, New Caledonia: Secretariat of the Pacific Community. 129 p.
- Lambeth L. 1999. What's a "fisher"? *Yemaya* 2:9.
- Lawless S., Doyle K., Cohen P., Eriksson H., Schwarz A.M., Teioli H., Vavekaramui A., Wickham E., Masu R. and McDougall C. 2017. Considering gender: Practical guidance for rural development initiatives in Solomon Islands. Penang, Malaysia: WorldFish. Program Brief: 2017-22. 24 p.
- Leduc B. 2016. Social development programme stocktake of the capacity of the governments to mainstream gender across policies, programmes and services. Key findings from 15 Pacific Island countries and territories. Noumea, New Caledonia: Pacific Community. 4 p.
- Pacific Community. 2016. Progressing gender equality in the Pacific (2013–2018). Noumea, New Caledonia: Pacific Community. 29 p.
- Pacific Community. 2018. Gender analysis of the fisheries sector – Solomon Islands. Noumea, New Caledonia: Pacific Community. 65 p.
- Pavlic B., Ruprecht L. and Sam-Vargas S. 2000. Gender equality and equity: A summary review of UNESCO's accomplishments since the Fourth World Conference on Women (Beijing 1995). 62 p.
- Piau-Lynch A., 2007. Vanuatu: Country Gender Profile. Report prepared for the Japan International Cooperation Agency. 45 p.

- Reeves H. and Baden S. 2000. Gender and development: Concepts and definitions. Prepared for the Department for International Development (DFID) for its gender mainstreaming intranet resource. Report 55. Brighton, UK: Institute of Development Studies, University of Sussex. 40 p.
- Schwarz A., James R., Teioli, H., Cohen P. and Morgan M. 2014. Engaging women and men in community-based resource management processes in Solomon Islands. Penang, Malaysia: WorldFish. 12p.
- Secretariat of the Pacific Community. 2015a. A new song for coastal fisheries – pathways to change: The Noumea strategy. Noumea, New Caledonia: the Pacific Community. 14 p.
- Secretariat of the Pacific Community. 2015b. Stocktake of the gender mainstreaming capacity of Pacific Island governments – Kiribati. Noumea, New Caledonia: the Pacific Community. 54 p.
- Seniloli M., Taylor L. and Fulivai S. 2002. Gender issues in environmental sustainability and poverty reduction in the community: Social and community issues. Development Bulletin 58:96–98.
- Tarisei J. and Novaczek I. 2006. Gender and generation: Crucial aspects of local fisheries management on Lelepa Island, Vanuatu. In: Global Symposium on Gender and Fisheries: Seventh Asian Fisheries Forum, 1–2 December 2004, Penang, Malaysia. Choo P.-S., Hall S.J. and Williams M.J. (eds). Penang, Malaysia: WorldFish Center. p. 43–49.
- Theis S. and Meinzen-Dick R. 2016. Reach, benefit, or empower: Clarifying gender strategies of development projects. Available at: <http://www.ifpri.org/blog/reach-benefit-or-empower-clarifying-gender-strategies-development-projects> [Accessed 19 December 2018].
- United Nations. 1979. Convention on the Elimination of All Forms of Discrimination Against Women. Available at: <http://www.refworld.org/docid/3ae6b3970.html> [Accessed 1 May 2018].
- Vunisea A. 2008. The “culture of silence” and fisheries management. Women in Fisheries Information Bulletin 18:43–43.
- Weeratunge N., Snyder, K.A. and Choo P.S. 2010. Gleaner, fisher, trader, processor: Understanding gendered employment in fisheries and aquaculture. Fish and Fisheries 11:405–420.
- WorldFish. 2018. CGIAR Research Program on Fish Agri-Food Systems (FISH): Gender Strategy. Penang, Malaysia: Consortium of International Agricultural Research Centers. 35 p.



Gender and coastal livelihoods: The case of shell money production and trade in Langalanga, Solomon Islands

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Background

Rural livelihoods in many parts of the Pacific Islands region are tied to coastal marine resources. In this context, growing threats to the sustainability of these resources and limited economic opportunities have led to an increasing number of development interventions seeking to deliver locally appropriate solutions for sustainable livelihoods. Often, the primary goal of such interventions is to improve ecological outcomes, but given the tight connection with people's livelihoods, such goals must also be coupled with local people's own development aspirations, and gender is an integral component of these considerations. Gender shapes people's access to and control over resources (i.e. physical and social), and how benefits from productive activities are distributed (Cohen et al. 2016; Hillenbrand et al. 2015; Kawarazuka et al. 2016). Effectively working with local people requires resource management and community development initiatives to be sensitive to the influence of gender on livelihoods.

Research objectives

In a recently published article by us (Barclay et al. 2018), we considered gender in the context of broader social trends around livelihoods using a case study of shell money production and trade in Solomon Islands. We pooled data from several research projects conducted by the authors between 2010 and 2017 to explore the shell money value chain in Langalanga Lagoon in Malaita Province. Our methods included qualitative interviews (n = 12, eight women, two men, two family groups), focus group discussions with women (n = 5) and men (n = 9) and quantitative questionnaires with 316 households. We complemented this research material with a literature review of published papers providing historical and anthropological accounts of gender norms and roles associated with livelihoods.

Results

Shell money as a livelihood source

Historically, shell money has been central to Langalangan economies and identity, trading activities and part of what has distinguished the Langalanga as a people. Shell money pieces were an important part of the Melanesian 'big man' culture of feasting, trading and warfare. Shell money continues to be used to pay a bride price, offered as compensation in disputes, and traded in exchange for cash, goods or services (Cooper 1971; Faradatolo 2008; Fidali-Hickie and Whippy-Morris 2005; Goto 1996; Robbins

and Akin 1999). In recent decades, a market has emerged for shell jewellery (Fig. 1), including necklaces, bracelets, anklets and earrings made of shell money beads, other shell types, and glass beads. Shell money remains one of the most important sources of income in Langalanga (Sulu et al. 2015).

Gender and changes in the distribution of labour

We find that gender roles – in terms of the type of work done by women and men – have influenced the shell money value chain over time, and in turn are influenced by shifts in the shell money value chain (Fig. 2).

Women have become more actively involved in trading shell money in recent years. In the pre-colonial period, blood feuding by men was a central feature of cultures around the Langalanga area, so in trading situations where groups from different communities came together violence could easily have erupted. In order to avoid this, trading was usually conducted by women who were escorted by male relatives for security reasons (Guo 2001; Ross 2017). After colonisation, the risk of blood feuding violence was less prevalent and shell money trading came to be considered men's work. This was particularly the case where trading involved travel of more than one day, in part due to ideas that it was inappropriate for women to travel away from their families (Keesing 1985; Maranda 2001). However, over the past few decades, women have become active in trading again. According to interviewees, this shift has been prompted, in part, by men spending proceeds from the

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Figure 1. Shell money sold at a Langalanga market.
(images: Nick McClean, Kate Barclay)

sale of shell money on alcohol, gambling and extra-marital affairs (see also Fidali-Hickey and Whippy-Morris 2005). The notion that women, more than men, tend to use income for family investment is consistent with gender in development literature (Chaaban and Cunningham 2011).

In the past, free diving to collect shells was considered to be the role of men, as was fishing in general (Guo 2001). By the 1990s, however, there was evidence that some women were also diving (Guo 2001). Our 2010 focus group data show that women in some villages fished (e.g. with a hand line from a canoe) and dived. Fieldwork observations indicated that most of the shell money manufacturing was done by women. Discussions from a men's focus group, however, suggested that while men considered shell money to be 'women's work', the income from shell money has become more lucrative than fishing in recent times, with the result that some men stay at home to help with production instead of fishing.

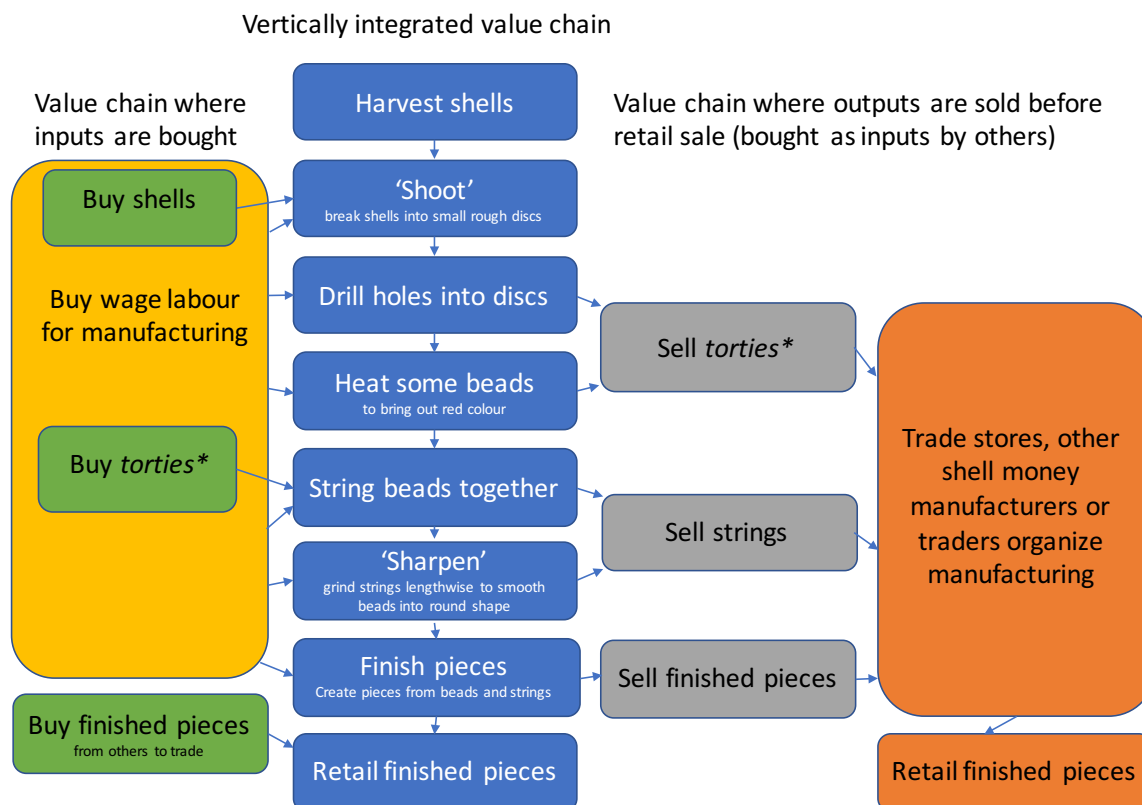
These changes in gender roles, particularly in the shell money trade, have created friction in terms of: 1) the kinds of activities that are considered suitable for women, 2) who in the family should control cash income, and 3) whether women should keep their income for themselves and their children in the context of a demand-sharing culture.⁵ Social disapproval of women travelling and leaving their domestic duties has meant that it is difficult for women to spend

extended periods of time on trading trips (Keesing 1985; Maranda 2001). Some interviewees reported that women who travel for the shell money trade have been accused of having sexual liaisons, which leads to conflict, including violence within a household. Women also face practical problems regarding childcare while they are away from home. One interviewee said she had experienced social disapproval for her choice to keep her income rather than acquiesce to requests from relatives to share her income with them. As a single mother she felt she needed to keep her money for herself and her children, and go against the cultural norm of demand sharing.

Household differences in pursuing shell money as a livelihood

While the manufacture and sale of shell money remains one of the most important livelihoods in Langalanga Lagoon, our findings also illustrate that the shell money value chain and the income earned varies considerably from family to family, with some making a better living from the trade than others. Two of the families we interviewed ran their shell money business embedded within the local culture, in that they used *wantok* kin reciprocity for people to work together and then to share the income, rather than paying people cash to work for them. By contrast, two other families used a more capitalist approach to their shell money business, paying people cash to work for them in producing shell money. Our data do not show conclusively

⁵ Demand sharing is a practice common in many cultures around the Pacific, where goods and services may be required by a relative or other person with an important social relationship to the giver. This is different to sharing where things are freely offered by the giver, or the sharing negotiated, with the giver having an option to refuse. For example, a young person with a cash job may be required by their Auntie or village elder to give them some cash for medical expenses.



* Torties are empty tuna cans (185 g) filled with unfinished beads that have a cash value. They can be traded for goods at trade stores, or sold to other shell money makers. Our interviewees quoted prices of between SBD 1 and SBD 8 (USD 0.13–1.0) for one *tortie* of undrilled beads.

Figure 2. Shell money value chain.

why this difference arose, but we note that the two families that paid cash for wage labour in their shell money business were single mothers with children and who were dependent on their income. It would be useful in future research to explore whether economic options are different for single mothers and women embedded through marriage into wider family networks. Are single mothers able to access the safety net benefits of *wantok* sharing in the same way as married women? Do single women have more freedom to choose an economic path than married women?

Two of the families we interviewed had used microloans or grants through aid programmes to help build their shell money businesses. A third family had pressing livelihood problems in terms of poor access to cooking fuel, drinking water, land to grow vegetables, and transport to market for selling goods or to school for the children. A fourth family lived in a similarly poor location, but through developing a shell money business had been able to afford rainwater tanks, gas bottles for cooking and a boat with an outboard motor and fuel for transport. Families vary greatly in their capacity to develop business opportunities due to their natural capital (access to water, land, fuel), education levels, and personal interests and capacities. The usefulness of development assistance in the form of loans or grants for businesses, therefore, will also vary.

Another difference visible in our interviews was that the families that were doing well with shell money were focused

on selling finished products, having either made the pieces themselves or bought inputs, including labour. The one family we interviewed that was not selling finished pieces, but was making and selling tins of beads or unfinished strings, was struggling economically. Our dataset is too small to conclude that marketing finished pieces is definitely a better livelihood activity than selling inputs, but this would be an important question to pursue in future research. The implications are that developing shell money as a livelihood activity could exacerbate economic inequalities in communities, or even lead to the impoverishment of some families.

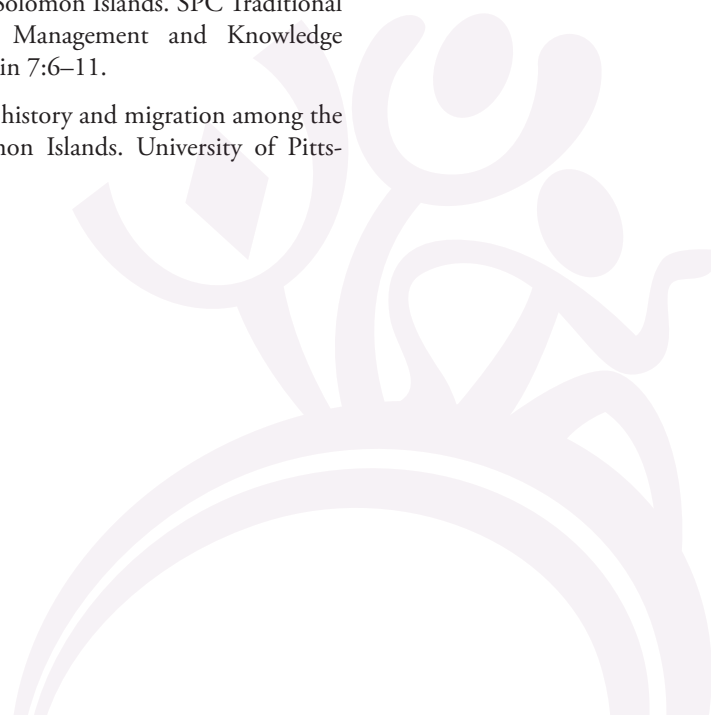
Conclusion

Our paper points to some key considerations for practitioners working on coastal livelihood development. First, a gender-nuanced understanding of livelihoods is important for informing the design and implementation of locally appropriate development interventions. Second, gender norms shaping the distribution of labour are not static. Our results highlight that gender roles change over time in response to economic, social and political drivers. Third, interventions seeking to improve livelihoods in coastal communities should understand differentiation within communities. For example, practitioners should consider whether interventions may contribute toward community development, or inadvertently increase inequality between families. Development assistance in the form of micro

capital for businesses can be useful, but not for everyone. There is, thus, also a role for development interventions directly targeting basic needs, such as drinking water, cooking fuel, land for gardening, and transport systems.

References

- Barclay K., McClean N., Foale S., Sulu R. and Lawless S. 2018. Lagoon livelihoods: Gender and shell money in Langalanga, Solomon Islands. *Maritime Studies* 17(2):199–211. doi: 10.1007/s40152-018-0111-y.
- Chaaban J. and Cunningham W. 2011. Measuring the economic gain of investing in girls: The girl effect dividend. The World Bank Policy Research Working Paper. Washington DC: The World Bank. <https://doi.org/10.1596/1813-9450-5753>
- Cohen P., Lawless S., Dyer M., Morgan M., Saeni E., Teioli H. and Kantor P. 2016. Understanding adaptive capacity and capacity to innovate in social-ecological systems; applying a gender lens. *Ambio* 45(3):309–321.
- Cooper M. 1971. Economic context of shell money production in Malaita. *Oceania* 41(2):266–276.
- Faradatolo D. 2008. Livelihood strategies in the Solomon Islands: The case of shell money and the Wala Lagoon communities of Malaita. MA Thesis. The University of the South Pacific, Suva, Fiji. 157 p.
- Fidali-Hickie K. and Whippy-Morris C. 2005. No shells, no Langalanga: Hard times in Malaita. Solomon Islands. p. 27–45. In: Novacek I., Mitchell J. and Veitayaki J. (eds). *Pacific voices: Equity and sustainability in Pacific Islands fisheries*. Suva, Fiji: Institute of Pacific Studies, University of the South Pacific.
- Goto A. 1996. Shell money production in Langalanga, Malaita Province, Solomon Islands. *SPC Traditional Marine Resource Management and Knowledge Information Bulletin* 7:6–11.
- Guo P. 2001. Landscape, history and migration among the Langalanga, Solomon Islands. University of Pittsburgh. 190 p.
- Hillenbrand E., Karim N., Mohanraj P. and Wu D. 2015. Measuring gender transformative change: A review of literature and promising practices. CARE USA. Working Paper. 58 p.
- Kawarazuka N., Locke C., McDougall C., Kantor P. and Morgan M. 2016. Bringing gender analysis and resilience analysis together in small scale fisheries research: Challenges and opportunities. Working Paper 53. Norwich, UK: The School of International Development, University of East Anglia. 51 p.
- Keesing R.M. 1985. Kwaio women speak: The micropolitics of autobiography in a Solomon Island society. *American Anthropologist* 87:27–39.
- Maranda, P. 2001. Mapping cultural transformation through the canonical formula: The pagan versus Christian ontological status of women among the Lau people of Malaita, Solomon Islands. p. 97–120. In Maranda P. (ed). *The double twist, from ethnography to morphodynamics*. Toronto: University of Toronto Press.
- Robbins J. and Akin D. 1999. An introduction to Melanesian currencies: Agency, identity and social reproduction. p. 1–40. In: Akin D. and Robbins J. (eds). *Money and modernity: State and local currencies in Melanesia*. Pittsburgh: University of Pittsburgh Press.
- Ross H.M. 2017. Baegu markets, a real integration, and economic efficiency in Malaita, Solomon Islands. *Ethnology* 17(2):119–138.
- Sulu R. J., Eriksson H., Schwarz A.M., Andrew N.L., Orirana G., Sukulu M. and Beare D. 2015. Livelihoods and fisheries governance in a contemporary Pacific Island setting. *PLoS ONE*, 10(11):1–23. <https://doi.org/10.1371/journal.pone.0143516>



Empowering women through pearl industry-based livelihoods in Fiji

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Introduction

Pearl farming is the Pacific region's most valuable and highest priority aquaculture activity (SPC 2007; Ponia 2010). Pearl culture is compatible with traditional lifestyles and offers livelihood opportunities to coastal communities at a number of levels, including oyster collection and sales, and the production of mother-of-pearl (MoP), mabé pearls and MoP handicraft items. These potential livelihood opportunities are recognised in French Polynesia through the active introduction of pearl farming to remote atolls and islands where they support local populations (Arnaud-Haond et al. 2003; Southgate et al. 2008; Andréfouët et al. 2012). Although the cultured pearl industry in Fiji is much smaller than that in French Polynesia, and still developing, it is large enough to support associated livelihood activities and collaborative research between the University of the Sunshine Coast in Australia and the Ministry of Fisheries in Fiji is now beginning to generate significant benefits in partner communities. This research is funded by the Australian Centre for International Agricultural Research (ACIAR) and the Ministry of Fisheries, and is directed primarily to benefit women's groups and youth groups. Research activities focus primarily on three potential income-generating activities such as the: 1) collection of juvenile black-lip pearl oysters (*Pinctada margaritifera*, locally called *civa*) that are sold to round pearl farms for pearl production; 2) production of mabé pearls (also called half-pearls) using the winged pearl oyster, *Pteria penguin* (locally called *melamela*); and 3) production of pearl shell and mabé pearl handicrafts for domestic sale.

Oyster collection

Methods for collecting juvenile pearls oysters are simple and well established (Southgate 2008; Kishore et al., 2018), and involve the deployment of appropriate materials (such as rope, frayed rope and shade cloth) to a depth of 2–8 metres at a suitable oceanic site. These materials, known as 'spat collectors', provide a substrate for pearl oyster recruitment, and after a period of 12–15 months, juvenile oysters can be harvested from the spat collectors (Fig. 1). This activity provides the basis for the ~ USD 100 million per annum round pearl industry in French Polynesia (Arnaud-Haond et al. 2003) and can be achieved by local people with minimal training and using cheap and readily available materials (Fig. 2).

A national pearl oyster spat collection programme began in Fiji in 2015 in response to increasing demand for *P. margaritifera* by Fijian round pearl farmers, the need to diversify spat collection efforts in Fiji to mitigate potential impacts of destructive weather events, such as Tropical Cyclone Tomas, and a desire to broaden the socioeconomic benefits of spat collection to Fijian communities. The national spat collection programme assessed pearl oyster recruitment at 29 sites across Fiji (Kishore et al. 2018). It generated an improved supply of oysters to round pearl farmers, thus supporting industry expansion, and allowing the identification of sites with high recruitment

where spat collection efforts could be increased in a targeted fashion. Resulting from this research, more than 12 Fijian communities now generate income from the sale of *P. margaritifera* to round pearl farms, with incomes ranging from FJD 520 to FJD 2,640 (USD 245–1,245) per crop. Sales of *Pinctada margaritifera* spat to round pearl farmers are facilitated by the Ministry of Fisheries, which determines farmer interest, negotiates a sales price on behalf of the spat collecting community, and organises transport of the oysters from the collection community to pearl farms.



Figure 1. Collection of black-lip pearl oyster (*Pinctada margaritifera*) juveniles or 'spat' using spat collectors at Namarai, Fiji. (image: Paul Southgate)

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Figure 2. President of the Raviravi Women's Group, Kinisimere, with spat collectors before deployment in seawater. Spat collectors are composed of a long length of rope from which individual frayed-rope spat collectors of 1 metre length are suspended at a depth of 5 metres. (image: Pranesh Kishore)

Women's groups represent half of all communities involved in the spat collection program with the remainder comprised of youth groups. The ACIAR and Ministry of Fisheries (MoF) project provides direct support to all communities through the initial deployment of spat collection infrastructure, initial and ongoing training, regular extension and assessment visits, and active research at many sites, which helps improve the efficiency of spat collection efforts and builds local capacity. Incomes generated from pearl oyster sales by partner community groups have been used in various ways including

construction of a village hall, purchase of a village truck, building a new shop, assisting school children, reinvesting in pearl farming materials and infrastructure, and distribution as Christmas bonuses among group members.

Mabé pearl production

At a number of community spat collection sites, where oyster spat recruitment was successful, a second species of pearl oyster, *Pteria penguin*, made up a significant proportion of recruits. While of no value to round pearl farms, this species is traditionally used to produce mabé pearls (Gordon et al., 2019) that are also known as half-pearls or blister pearls (Taylor and Strack 2008). Mabé pearls are produced by adhesion of hemispherical nuclei to the inside surface of *Pteria penguin* shells, a process called 'seeding', using simple methodology that can be taught to community members with appropriate training (Fig. 3). Once nuclei are applied, oysters are returned to the ocean (Fig. 4), where they are grown for 10–15 months before resulting mabé pearls can be harvested (Fig. 5). Seven Fijian community groups have been trained for mabé pearl production using *Pteria penguin*; four have successfully produced mabé pearls and generated incomes from their sales ranging from FJD 735 to FJD 2,200 (USD 346–1,038) per crop, while another two communities will harvest their first mabé pearls in early 2019. Women's groups make up 57% of the communities currently engaged in mabé pearl farming in Fiji, comprising more than 130 women.

The women's community at Raviravi Village (Vanua Levu) generates considerable recruitment of both *Pteria penguin*



Figure 3 (top left). A member of the Natuvu Women's Group implants a hemi-spherical nucleus onto the inner surface of a *Pteria penguin* shell for mabé pearl production during training in Natuvu Village. (image: Pranesh Kishore)



Figure 4 (top right). Dimo from the Ravita Women's Group shows pearl oysters she has tied to a rope before they are returned to the ocean for mabé pearl production. (image: Pranesh Kishore)



Figure 5 (bottom right). Members of the Raviravi Women's Group with some mabé pearls from their first pearl harvest. (image: Pranesh Kishore)

and *Pinctada margaritifera* to their spat collectors and have used both species for mabé pearl production. The single crop of *Pinctada* mabé pearls so far grown at Raviravi generated an income of FJD 1,600 (USD 755). *Pinctada margaritifera* is also used for mabé pearl production by the women's group at Qamea Island (Taveuni) where 150 oysters that had previously been used for round pearl production were donated to the women's group by the local pearl farm (Civa Fiji Pearls Ltd). The mabé pearls produced by these oysters were harvested in late 2018. Indications are that some of the income generated will be reinvested in pearl farming materials and equipment, and that remaining funds will be used for community benefit through the Vanua Trust of Laucala.

While mabé pearls are generally less valuable than round pearls, they have a number of comparative advantages: 1) they can be farmed by local people with minimal training and, unlike round pearls, production does not require the input of skilled overseas technicians; 2) they require a shorter (around half) culture period of 10-12 months; 3) multiple pearls (up to five) can be produced from a single oyster that may collectively approach or exceed the value of the single round pearl produced from each *Pinctada margaritifera*; and 4) mabé pearl production requires minimal husbandry input and is compatible with coastal community lifestyles (Fig. 6). Harvesting mabé pearls involves cutting them from oyster shells and this generates MoP shell pieces as a by-product. Oyster shells, MoP shell pieces and mabé pearls, can all be used to produce pearl jewellery items and handicrafts, and this offers further income-generating opportunities for Fijian women.



Figure 6. Members of the Ravita Women's Group initially used bamboo rafts to clean their oysters. But recognising their success and potential, the Fiji government has recently provided boating equipment specifically for pearl farming. (image: Pranesh Kishore)

Pearl shell and mabé pearl handicraft production

There is strong international and domestic demand for mabé pearls, and strong domestic demand for MoP items in Fiji, particularly those with a local or traditional design (Chand et al. 2014; Naidu et al. 2014). An initial value-chain analysis identified that around FJD 8.5 million (≈ USD 4 million) worth of pearl and pearl shell handicraft

items are imported into Fiji each year, targeting international tourists. This represents considerable potential for import replacement through local production, which can now be supported by an improved local oyster (shell) supply from community spat collecting initiatives. Pearl handicraft skills training in Fiji began in 2014 to investigate the potential of locally made handicraft items (using *Pinctada margaritifera* shells) to compete with pearl shell imports. This was achieved by working with the Ba Women's Forum (BWF) and Ba Town Council (BTC) to form a micro-enterprise – essentially a women's training collective to create economic empowerment and sustainability by introducing new technology, training and workshop facilities for creative development. The ACIAR/MoF project provided modern machinery to assist with water-based grinding, sanding, polishing and cutting of pearl shells, and smaller tools for shaping, drilling and engraving. A workshop was established in the women's bure at Ba in partnership with the BTC to: 1) support regular training of the women's shellcraft group by visiting handicraft skills trainers (Fig. 7); and 2) produce high-quality, retail-ready pearl shell jewellery and handicraft items (Fig. 8).



Figure 7. Members of Marama Shellcraft Fiji of the Ba Women's Forum in their workshop in Ba practicing pearl shell polishing, design and engraving with trainer Neke Moa from New Zealand. (image: Paul Southgate)



Figure 8. Members of Marama Shellcraft Fiji checking out the Marama Shellcraft Fiji product display in a Tappoo retail outlet. (image: Theo Simos)

Now operating as an autonomous unit with the BWF, Marama Shellcraft Fiji (MSF⁴) has begun trading with Fijian and international customers, and has gained 'Fiji Made' accreditation. Until 2017, the production efforts of MSF focused on shellcraft items made from pearl shells obtained as a by-product from Fijian round pearl farms. However, increasing availability of cultured mabé pearls in Fiji since 2017 has allowed expansion into the production of mabé pearl jewellery items (Fig. 9), which is a significant new development in Fiji.



Figure 9. Unique pearl shell and mabé pearl jewellery items produced by Marama Shellcraft Fiji, Ba. (image: Paul Southgate)

Based on the success of handicraft training at Ba, the ACIAR/MoF project recently established a second pearl handicraft training centre in partnership with the village of Somosomo at Taveuni. The Nasomo Ra Marama Handicraft group from Somosomo now has access to a well-equipped workshop supporting shell processing and handicraft production (Fig. 10). They have so far completed two training workshops and are already producing high-quality shellcraft items.

The two handicraft training workshops so far established at Ba and Somosomo require a source of power for the machinery used in shell processing. But because power is not readily or cheaply available in many coastal communities in Fiji, a new programme of pearl shell handicraft training using hand tools was recently begun with the training of 18 women from three communities hosted by the Navatuda Women's Club in Raviravi (Vanua Levu). Training included nine workshops delivered over eight days, and focused on basic handicraft skills (cutting, grinding, filing, sanding, macramé, design and jewellery components) as well as



Figure 10. Members of the Nasomo Ra Marama Handicraft group from Somosomo Village, Taveuni, polishing pearl oyster shells in their workshop. (image: Paul Southgate)

basic business skills and marketing. Eight sets of hand tools were provided to the Navatuda Women's Club to allow participants to continue to apply their newly acquired skills. MoF has supported this initiative by funding a small facility for the display and sales of pearl handicrafts within Raviravi Village (Fig. 11). Hand tool-based pearl shell handicraft training will be extended to other communities in the coming months and will target remote communities that have access to pearl shells (through the spat collection programme), or who produce their own mabé pearls.



Figure 11. Members of the Navatuda Women's Club and officers from the Ministry of Fisheries (MoF) inspect pearl handicrafts at the small display and retail facility funded MoF at Raviravi Village. (image: Moape Kania)

Developing enterprise links

Development of numerous community groups involved with different, but related, pearl industry-based activities, such as spat collection, mabé pearl production and pearl shell handicraft production, supports establishment of

⁴ <https://maramashellsfiji.wixsite.com/website>; <https://www.facebook.com/maramashellcraftfiji/>



enterprise links between themselves and with retail outlets. Perhaps the best example of this is MSF, which does not have direct access to a spat or pearl farm and relies on other communities to supply pearl shell and mabé pearls for its shell-craft production. Another example is the Natuvu women's group which has plans to purchase adult *Pteria penguin* from Galoa and Raviravi communities to increase their mabé pearl production. MSF have also developed enterprise links with other women's groups and communities that are not associated with pearls, but with the supply of traditional materials used in their shellcraft products such as 'voivoi' (leaf of *Pandanus* spp.), 'vau' string (native *Hibiscus* spp.), 'masi' (bark cloth from the mulberry tree) and fired, handmade clay beads. Interactions between neighbouring women's groups on Taveuni who are concerned with spat collection (Qamea Village), mabé pearl production (Dreketi Women's Group) and mabé pearl and pearl shell handicraft production (the Nasomo Ra Marama Handicraft group from Somosomo), brings mutual benefits and support. With potential for technical guidance and marketing support from the nearby round pearl farm (Civa Fiji Pearls Ltd), this developing 'pearl hub' at Taveuni may provide a valuable model for similar developments in other parts of Fiji.

Broad support for the development and governance of community pearl-based enterprises is provided by the Fijian government where, for example, the Ministry of Itaukei Affairs assists in formulating community development plans and provides governance training. These activities provide a good basis for developing small businesses and assist in setting enterprise goals. Other government agencies that assist and support women's pearl-based enterprises in Fiji include the Prime Minister's Office; the Ministry of Trade Industry, Tourism, Land and Mineral Resources; and the Ministry of Women and Poverty Alleviation. The ACIAR/MoF project provides complementary training in basic business skills, enterprise development and marketing to all partner communities (Fig. 12) and, over the coming months, will begin regular workshops for key members of each partner community in order to foster further collaboration between communities, share ideas and experiences, and improve enterprise and governance capacity. These aspects will become increasingly important as more communities become engaged in pearl industry-based livelihoods, particularly as communities involved in spat collection shift towards mabé pearl production (Fig. 13).

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Figure 12. Nazmin Ali, Workshop Supervisor of Marama Shellcraft Fiji (MSF) instructing Armila Prasad in preparing invoices and delivery documents for the first MSF order to the Jacks Group of Companies, November 2018. (image: Theo Simos)



Figure 13. Future Fijian pearl farmer from Raviravi, Vanua Levu. (image: Pranesh Kishore)

References

- Andréfouët S., Charpy L., Lo-yat A. and Lo C. 2012. Recent research for pearl oyster aquaculture management in French Polynesia. *Marine Pollution Bulletin* 65:407–414.
- Arnaud-Haond S., Vonau V., Bonhomme E., Boudry P., Prou J., Seaman T., Veyret M. and Goyard E. 2003. Spat collection of the pearl oyster (*Pinctada margaritifera cumingi*) in French Polynesia: An evaluation of the potential impact on genetic variability of wild and farmed populations after 20 years of commercial exploitation. *Aquaculture* 219:181–192.
- Chand A., Naidu S., Southgate P.C. and Simos T. 2014. The relationship between tourism and the pearl and mother of pearl shell jewellery industries in Fiji. p. 148–164. In: Harrison D. and Pratt S. (eds). *Tourism in Pacific Islands: Current Issues and Future Challenges*. London: Routledge. 298 p.

- Gordon S.E., Malimali S., Wingfield M., Kurtböke D.I. and Southgate P.C. 2019. Effects of nucleus position, profile and arrangement on the quality of mabé pearls produced by the winged pearl oyster, *Pteria penguin*. *Aquaculture* 498:109–115.
- Kishore P., Bingnald Vuibeqa G. and Southgate P.C. 2018. Developing a national spat collection program for pearl oysters in the Fiji Islands supporting pearl industry development and livelihoods. *Aquaculture Reports* 9:46–52.
- Naidu S., Chand A. and Southgate P.C. 2014. Determinants of innovation in handicraft industry of Fiji and Tonga: An empirical analysis from tourism perspective. *Journal of Enterprising Communities: People and Places in the Global Economy* 8(4):318–330.
- Ponia B. 2010. A review of aquaculture in the Pacific Islands 1998–2007: Tracking a decade of progress through official and provisional statistics. Noumea, New Caledonia: Secretariat of the Pacific Community. 32 p.
- Southgate P.C. 2008. Pearl oyster culture. p. 231–272. In: Southgate P.C. and Lucas J.S. (eds). *The Pearl Oyster*. Oxford, UK: Elsevier.
- Southgate P.C., Strack E., Hart A., Wada K.T., Monteforte M., Carino M., Langy S., Lo C., Acosta-Salmon H. and Wang A. 2008. Exploitation and culture of major commercial species. p. 303–355. In: Southgate P.C. and Lucas J.S. (eds). *The Pearl Oyster*. Oxford, UK: Elsevier. 544 p.
- SPC. 2007. SPC Aquaculture Action Plan: 2007. Noumea, New Caledonia: Secretariat of the Pacific Community. 31 p.
- Taylor J. and Strack E. 2008. Pearl production. p. 273–302. In: Southgate P.C. and Lucas J.S. (eds). *The Pearl Oyster*. Oxford, UK: Elsevier. 544 p.



Fishing for cash – village attitudes towards fish exports in Marovo Lagoon, Solomon Islands

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Introduction

Globally, fishing activities contribute to the livelihoods of over half a billion people (Allison 2011). Concern about overfishing and fisheries collapse has intensified in recent years; nearly one-third of all fisheries are overfished, and over half are currently fished at their limits for sustainable yield (FAO 2016). While most marine fisheries have been in decline since the mid-1990s, the trade of fish and fishery products has increased in the past few decades, partly due to rapid expansion and increased fishing effort, buoyed by the increasingly global fisheries market and growing demand as new, wealthy economies emerge (FAO 2016). A number of political, economic and technological factors have facilitated a shift from local consumption toward export to international markets, with just over one-third of all fish production globally now exported (FAO 2016). This rapid globalisation and emergence of new, powerful international players opens the potential for exploitation of smaller, developing nations, where small-scale subsistence fishing still dominates.

Small-scale fisheries (SSFs) are predominantly artisanal and subsistence fisheries, and support the livelihoods of ~200 million people across the globe (Cinner et al. 2012). In the Pacific, it is estimated that approximately 70–80% of total catch for inshore SSFs is for subsistence purposes, while only about 20% reaches the commercial market (Lambeth et al. 2002). For many SSFs globally, a number of fishery resources are dually important for both household food security and household income (Béné et al. 2009). This dual role of local resources is an important consideration when evaluating the sustainability of patterns of resource use. Managing SSFs for food security requires an understanding not only of local (village level) consumption, but also of the transport from villages to urban centres. In Solomon Islands, transport of fishery products from the Western Province to Honiara via large ships has been identified anecdotally as being of concern

in regards to rapid resource depletion; however, the trade is likely central to supporting livelihoods in the region (Fabinyi et al. 2016).

This research aimed at investigating community attitudes toward the export of fishery products from local villages to the country's capital, Honiara, via what is known as the 'esky trade', so named for the large insulated containers first imported from Australia where they are known colloquially as 'eskies'.

Large eskies (~100 x 50 x 50 cm, Ian Tibbetts, pers. obs.) are transported from Honiara to the Western Province on an irregular basis, filled with fish and shellfish purchased by traders for cash from local fishers, then transported back to Honiara for sale in the country's main fish markets. Typically, villagers are notified of the arrival of a ship full of empty eskies, and divert their work patterns to fill the esky(ies) by the following afternoon. The research was conducted in Marovo Lagoon, Western Province, in a village on Marovo Island, with a population of 700–1,000 people. The village is located within close proximity to a diversity of habitats, and fishers have access to a variety of marine resources. Through household surveys, we aimed

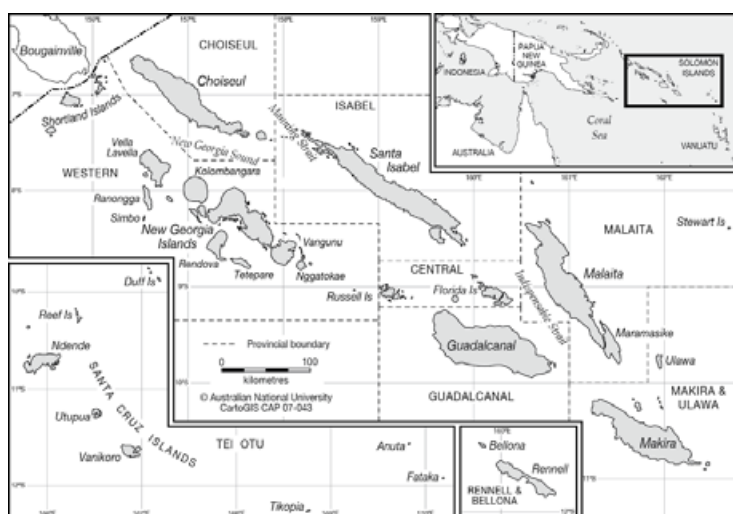


Figure 1. Solomon Islands. Source: CartoGIS Services, College of Asia and the Pacific, The Australian National University

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Figure 2. Location of study site within Marovo Lagoon. (image: Google Maps)

at understanding village attitudes toward the trade in fish and invertebrates, focusing on the effect this may have for managing village-level food security.

Methods

In October 2017, household surveys were conducted in the study village with adult men and women (see Figs 1 and 2). In total, 17 people were interviewed, 7 of whom were women. The purpose of these interviews was to investigate attitudes toward the export of fish and invertebrates from Marovo Lagoon to Honiara through the esky trade. Interviews were voluntary and conducted in Solomon Islands Pijin, with a local research assistant present. Local research assistants were able to further translate interview questions to the local language (Marovo) where necessary. For the purposes of this research, a household was defined as a set dwelling, where one or more families usually ate and slept.

Results

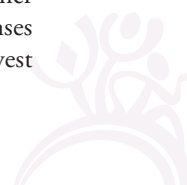
Attitudes toward trade

Village attitudes toward the esky trade were mostly positive, with only 3 of the 17 people interviewed expressing negative attitudes towards the trade. One interviewee stated that the trade was ‘...a little bit good and a little bit bad. It brings in money for the village, but it spoils fish from

overharvest’. Another indicated that the trade was ‘...not very good, because too many fish are sold’. The remaining 13 people felt positively towards the esky trade, with village income the main driver. Participants stated that, ‘It is good, because when the esky comes people don’t overharvest [the resources] and they come very infrequently, and people stop [this harvest] when the esky leaves again so it’s good’ Another person stated that ‘... [it is] important for income. It is not bad for the fish [resources]’. Two other participants stated that income from the esky trade is really only important at times when no other income comes into the village, with one participant noting that, ‘If there is no other income coming into the village [at that time] then it is important, but otherwise it is not important for income, and just spoils the fish’. One participant noted that the trade is ‘... not big money. [It is] good for soap [small purchases, but not school fees]’, with income from the esky trade (comparatively) less than that from sale at local village markets.

Management recommendations

Interviewees were asked whether they felt any management or conservation measures should be implemented to regulate the harvest of marine resources for sale for the esky trade, or if current regulations were sufficient. All participants indicated that they would like to see further restrictions implemented, and the most common responses are summarized as follows: 1) implementation of harvest



restrictions, for a total allowable catch and minimum fish size; 2) closure of some areas during the harvest of seafood for the trade; 3) gear restrictions; 4) people should not take more than they need (bag limits). In addition, participants requested funding for conservation work, including rangers' salaries.

Several respondents mentioned the current *tabu* (protected) area, and indicated that other areas should be closed to fishing for the esky trade in addition to the *tabu* site (citing fish conservation as a reason). The *tabu* area is a locally managed marine area that is currently permanently closed (since its official opening in January 2018). Gear restrictions were mentioned twice. One participant mentioned that gear restrictions should be implemented when the eskies come, although they did not specify what those restrictions should be. Another participant indicated that gill nets should be banned due to their indiscriminate catch. Night spear diving, in which men use spear guns, underwater flashlights and snorkelling gear to take sleeping reef fish, was also mentioned, with one participant indicating that this practice should also be banned, and fishers should use hand lines only.

Discussion

Sustainable small-scale fisheries (SSFs) are critical to achieving food security goals, but are faced with a suite of threats ranging from unsustainable land management practices, to overfishing and climate change. Resilient fisheries that can contribute to improved food security require biodiverse ecosystems that buffer against a range of threats, but these cannot occur without mitigation of the impacts of top-down fishing (Duffy et al. 2016). For Solomon Islands, proximity to markets has a marked impact on fishery condition, with a negative correlation between increased access to markets and fishery health (Brewer et al. 2009). However, income gained from the sale of fish products to markets is also a critical component of household food security, allowing families to purchase household staples such as rice (Fabinyi et al. 2016).

Responses from this survey highlight that an awareness of sustainable harvest levels is lacking, and that communities would benefit from additional awareness workshops. Several participants mentioned that people should 'only take what they need', which may indicate some negative sentiment towards those who fish excessively during the time of the eskies. Survey responses did indicate that there is significant concern over the ongoing harvest of juvenile fish; some catch monitoring or end user (i.e. esky trader) restrictions may be useful for enforcing minimum fish sizes, though we note that market-imposed fines do already exist at major markets in Honiara (Rhodes and Tua 2016), with undersized fish often sold at smaller markets to avoid fines. One participant noted that in order to improve fisheries management, we must 'pay for conservation work', a sentiment echoed by many other people in informal conversations the lead researcher has had within the community. It is difficult for rangers and others to undertake time-consuming and

often expensive management efforts without pay. This is a considerable problem that hampers resource management efforts in Marovo Lagoon and beyond, especially given the allure of access royalties paid by the environmentally damaging logging industry (Dyer 2017), and must be addressed in order for management efforts to continue and have a realistic expectation of success.

A number of non-governmental organisations have attempted to manage SSFs in the Pacific through the implementation of marine protected areas and no-take zones; however, the failure of these management attempts, both in the Pacific and elsewhere, is well documented (Barclay et al. 2016; Coffey and O'Toole 2012; Voyer et al. 2012; Walter and Hamilton 2014). It is imperative that any management action is supported by the people, or groups, that it affects. In order to achieve this support, it is crucial that management decisions are not only based on biological factors, but should also take into account cultural, economic, and political factors, to ensure policy decisions are not only scientifically and economically sound, but are also broadly supported by the users they affect (Barclay et al. 2016).

Results from this survey highlight the need for collaborative, community-based management in conjunction with relevant scientific and government authorities to address overfishing within the esky trade. It would be beneficial to quantify volumes of harvested fish and invertebrates sold to the esky trade in Marovo Lagoon, and determine catch rates of known slower-growing species and juvenile fish, to assess potential impacts of the trade on these more vulnerable fish populations (though see Rhodes and Tua 2016). Expansion of this work to include more villages would facilitate greater understanding of community attitudes within the region. Appropriate management measures should be developed in collaboration with communities to reduce the harvest of juvenile fish, and minimise impacts on local fish populations. Biological data on the life cycles of targeted species must be integrated within an approach that also considers the social and economic drivers of the esky trade if resources are to be secured into the future.

References

- Allison E.H. 2011. Aquaculture, fisheries, poverty and food security. Working Paper 2011-65. Penang, Malaysia: The WorldFish Center. 60 p.
- Barclay K., Voyer N., Mazure N., Payne A.-M., Mauli S., Kinch J., Fabinyi N. and Smith G. 2016. The importance of qualitative social research for effective fisheries management. *Fisheries Research* 186(2):426–438.
- Béné C., Steele E., Kambala Luadia B. and Gordon A. 2009. Fish as the 'bank in the water'—Evidence from chronic-poor communities in Congo. *Food policy* 34(1):108–118.

- Brewer T.D., Cinner J.E., Green A. and Pandolfi J.M. 2009. Thresholds and multiple scale interaction of environment, resource use, and market proximity on reef fishery resources in the Solomon Islands. *Biological Conservation* 142(8):1797–1807.
- Cinner, J.E., McClanahan T.R., Graham N.A.J., Daw T.M., Feary D.A., Rabearisoa A.L., Wamukota A., Campbell S.J., Baird A.H., Januchowski-Hartley F.A., Hamed S., Lahari R., Morove T. and Kuange J. 2012. Comanagement of coral reef social-ecological systems. *Proceedings of the National Academy of Sciences USA* 109(14):5219–22.
- Coffey B. and O'Toole K. 2012. Towards an improved understanding of knowledge dynamics in integrated coastal zone management: A knowledge systems framework. *Conservation and Society* 10(4):318–329.
- Duffy, E.J., Lefcheck J.S., Stuart-Smith R.D., Navarrete S.A. and Edgar G.J. 2016. Biodiversity enhances reef fish biomass and resistance to climate change. *Proceedings of the National Academy of Sciences USA* 113(22):6230–6235.
- Dyer M. 2017. Eating money: Narratives of equality on customary land in the context of natural resource extraction in the Solomon Islands. *The Australian Journal of Anthropology* 28(1):88–103.
- Fabinyi M., Dressler W.H. and Pido M.D. 2016. Fish, trade and food security: Moving beyond 'availability' discourse in marine conservation. *Human Ecology* 2016:1–12.
- FAO (Food and Agriculture Organization). 2016. *The State of World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all.* Rome: FAO. 200 p.
- Lambeth L., Hanchard B., Aslin H., Fay-Sauni L., Tuara P., Des Rochers K. and Vunisea A. 2002. An overview of the involvement of women in fisheries activities in Oceania. p. 127–142. In: Williams M.J., Chao N.H., Choo P.S., Matics K., Nandeesh M.C., Shariff M., Siason I., Tech E. and Wong J.M.C. (eds). *Global Symposium on Women in Fisheries.* Penang, Malaysia: ICLARM, The World Fish Center. 209 p.
- Rhodes K.L. and Tua P.J. 2016. Preliminary report on inshore fisheries resources marketed in Honiara, Solomon Islands. A report to the Solomon Islands Ministry of Fisheries and Marine Resources. 70 p.
- Voyer M., Gladstone W. and Goodall H. 2012. Methods of social assessment in Marine Protected Area planning: Is public participation enough? *Marine Policy* 36(2):432–439.
- Walter R.K. and Hamilton R.J. 2014. A cultural landscape approach to community-based conservation in Solomon Islands. *Ecology and Society* 19(4).



Betsy Kivo, Research Assistant, touring protected mangrove areas. (image: Sheridan Rabbitt)

Women in subsistence fisheries in the Philippines: The undervalued contribution of reef gleaning to food and nutrition security of coastal households

Asuncion B. De Guzman¹

Introduction

Most of the Philippines' population lives in coastal areas where livelihoods are invariably linked to the sea, which is the lifeblood of many of the poorest communities in this maritime nation. This is not surprising as the Philippine archipelago, comprising over 7,600 islands, has one of the largest coral reef areas in the world (Spalding et al. 2001), providing a vast and productive resource that supports a multi-gear, multispecies artisanal fisheries (De Guzman et al. 2016). Wide seagrass meadows and reef flats in many parts of the Philippines support a high diversity of edible invertebrates and seaweeds exploited for food and livelihood (Savina and White 1986; Kleiber et al. 2014; Palomares et al. 2014). Gleaning on shallow reef flats during low tide (called *panginbas* in the local dialect in the Visayas and Mindanao, and *pamumulot* in much of Luzon) is a common and traditional activity among fishing communities across the country. It is mainly done to provide daily household protein needs (i.e. 'subsistence fisheries') and is a source of supplemental income for marginal fishing households (De Guzman et al. 2016) that are considered to be among the poorest sectors of Philippine society (Cervantes 2012). Through hand collecting and using minor implements (e.g. knives, rakes, spoons), gleaners collect mostly invertebrates such as shellfish, crustaceans, sea cucumbers and sea urchins, and a wide variety of other edible seafood (De Guzman 1990; McManus et al. 1992).

Edible invertebrates and seaweeds from reef gleaning activities provide one of the cheapest but best sources of high-quality protein for both poor and rich consumers of seafood, although these benefits have not been properly documented in most coastal areas in the Philippines. A subsistence type of fishery, reef gleaning is considered an 'informal sector' (LeBlanc 1997) and, thus, no data are available in national fisheries statistics produced by the government.² While gleaning is a commonplace fishing activity along many Philippine shores, its impact on biodiversity, coastal ecology, and society is not very well documented nor is there a programme of monitoring and management in place among local governments to conserve and sustain these valuable resources. Available data in selected areas indicate that reef gleaning catches are

fast declining due to overharvesting and the absence of a management policy (Palomares et al. 2014; De Guzman et al. 2016). More importantly, the role of women and children in subsistence fisheries, and their contribution to food and nutrition security of the household, have been largely neglected, undocumented and unvalued (Siason 2001; Weeratunge et al. 2010; De Guzman et al. 2016).

Invisible women in fisheries

Gender equity in fisheries has long been a prevailing issue in Southeast Asia and small Pacific Island countries (Johannes 1981; Chapman 1987; Takeda 2001), where the role of women in artisanal fisheries is often undervalued (Dye 1983, cited in Kronen 2002) or overlooked (Matthews 1993). Women are known to participate in many small-scale fisheries throughout the Philippines and in the Asia-Pacific region, but quantification of this participation is rare (Siar 2003). Documentation of women's active involvement in fishing challenges the traditional paradigm that small-scale fishing is the exclusive domain of men (Weeratunge et al. 2010). On the other hand, Kleiber et al. (2014) believe that the lack of quantification of women's fishing effort and output underestimates their contribution to fisheries (Mills et al. 2011), making them 'invisible' in the management of small-scale fisheries and marine resources. The invisibility of women in small-scale fisheries is largely a consequence of lack of gender-focused research to capture their vital role in fisheries production in many parts of Asia and the Pacific where vast nearshore areas are highly accessible to women and children lacking the brawn of adult men for gear-based fishing activities. Ignoring the role of women in small-scale fisheries largely underestimates fishing effort and production (Kleiber et al. 2014) and can lead to poor governance of nearshore resources that are vital to food and nutrient security of marginalised coastal communities.

Although several works describe women's participation in subsistence fisheries in the Philippines (Savina and White 1986; McManus 1989; Cabanban et al. 2014), quantification of their contribution to fishing effort, production, and supplemental family income is rarely carried out (Kleiber et al. 2014; De Guzman et al. 2016). Assessment of gender participation in various artisanal fishing activities at

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² For example, Countrystat database of the Philippine Statistics Authority, and annual fisheries reports of the Bureau of Fisheries and Aquatic Resources.

Danajon Bank, Bohol Province undertaken by Kleiber and colleagues (2014) in collaboration with Project Seahorse revealed that almost all of the women surveyed ($n = 752$) engaged in reef gleaning on a regular basis while only half of the men ($n = 755$) gleaned for food or income. More than just a source of supplemental income, the vital contribution of reef gleaning to food security, nutrition and health of poor coastal communities in the Philippines has received scant attention in the existing literature.

Evaluating women's vital role in subsistence fisheries

Women have long been active participants in the tradition of subsistence fisheries in the Philippines and in the Asia-Pacific region, but until recently their contribution to coastal fisheries production and the family economy has been undervalued or ignored (Harper et al. 2013; Kleiber et al. 2014; De Guzman et al. 2016). The vital role of women in providing food and nutrition for marginalised coastal communities in the Philippines is clearly demonstrated through their chronic gleaning on shallow reef flats, which of late is also carried out by men, largely as a consequence of declining catches from gear-based artisanal fisheries.

Case studies on reef gleaning were carried out in important gleaning sites in the Visayas and Mindanao (Fig. 1) to obtain a profile of gender participation in subsistence fisheries in terms of gleaning effort, catch composition, catch per unit effort (CPUE) and revenues, and the contribution of gleaning to the food security and nutrition of coastal communities. De Guzman and colleagues (2016) surveyed gleaners in five sites in Mindanao and the Visayas ($n = 504$), and four sites ($n = 257$) in Sarangani Bay in southern

Mindanao (DENR-PENRO Sarangani 2017). Data on gleaning activities from other sites in the Philippines (Samonte-Tan et al. 2007; Kleiber et al. 2014; Cabanban et al. 2014; Palomares et al. 2014) also provide relevant information on gender proportion and age structure.

Comparative gleaning effort and catch rates

In marginalised coastal communities of Mindanao and the Visayas, women are considered resilient participants in shallow reef artisanal fisheries, withstanding the test of time and weather condition (Fig. 2). Female gleaners, both children and adults (60%), generally exceed the number of males in many sites of the Philippines. A comparison of the age structure of gleaners (Fig. 3) shows that majority (63%) of women actively glean between the ages of 31 and 60, while the majority of men (55%) typically glean between the ages of 21 and 50. More elderly women than men continue to glean even into their 80s. The oldest gleaner encountered in the surveys was a 90-year-old woman in Laguindingan, Misamis Oriental who gathers shellfish year-round and sells all of her good catch in order to give her grandchildren a school allowance. At least 11 elderly women (aged 60 and older) declared they have been gleaning for more than 50 years.

On average, women spend more days each week but fewer hours on gleaning than men, but this varies from one area to another (Fig. 4). Across the survey sites, women obtain consistently higher CPUE ($4.4 \text{ kg gleaner}^{-1} \text{ day}^{-1}$) than men ($3.0 \text{ kg gleaner}^{-1} \text{ day}^{-1}$), and contribute 60% to the daily catch from gleaning across all sites (Fig. 4). Kleiber et al. (2014) also found a similar pattern of subsistence production from Bohol Island at Danajon Bank, reinforcing

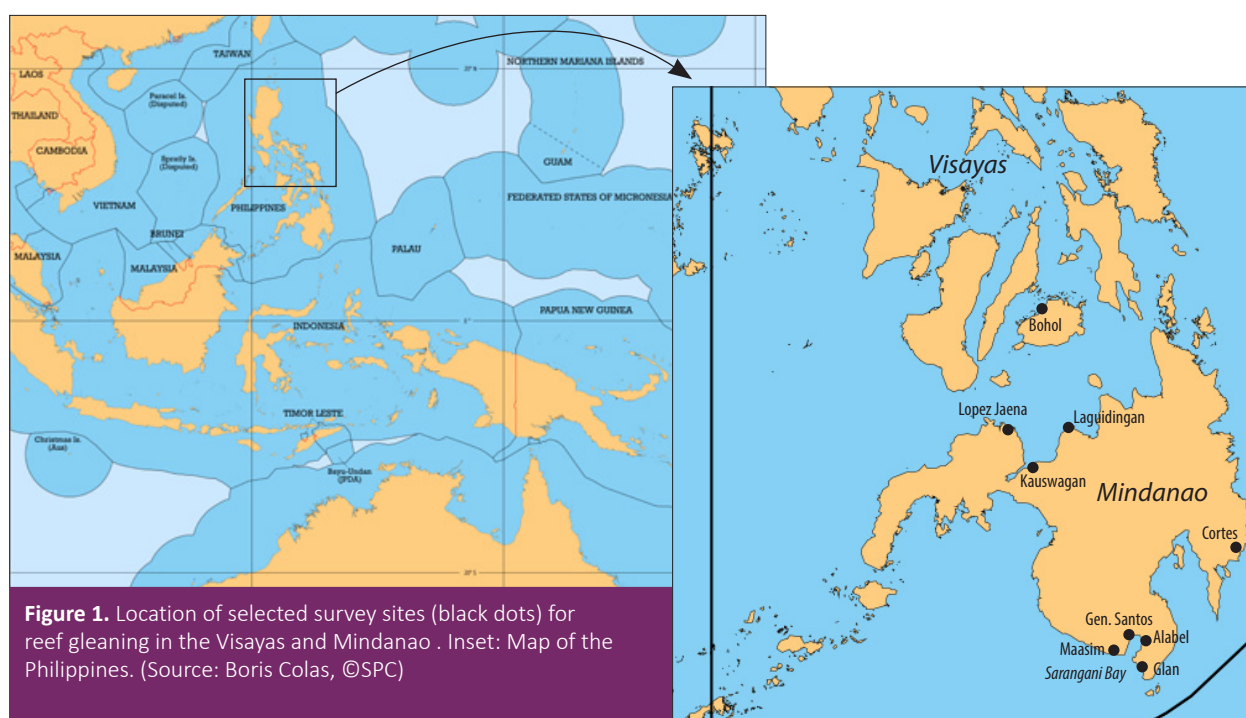




Figure 2. Women, men and children actively engage in subsistence gleaning on reef flats in many coastal areas of the Philippines. (images: A.B. De Guzman and E. Hataas)

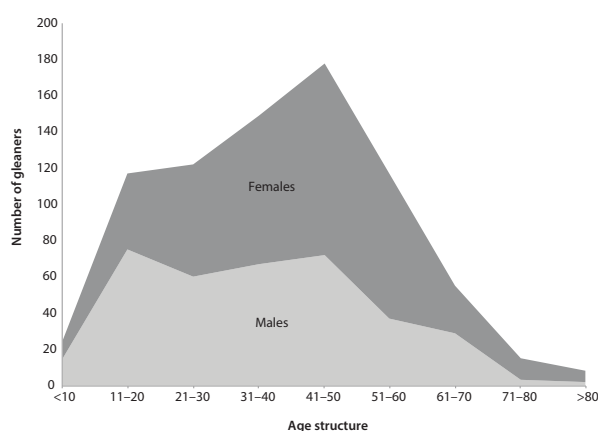


Figure 3. Age structure of female and male gleaners in different reef sites across the Philippine archipelago (data sources: De Guzman et al. 2016, DENR 12-PENRO Sarangani Province, 2017, and Palomares et al. 2014).

the suggestions of Chapman (1987) and Matthews (1993) that women contribute significantly to marine food yields in the Pacific Islands region. At Danajon Bank, women are responsible for catching 26% of the total estimated weekly catch mass (kg), mostly from gleaning, and 23% of the weekly fishing effort (in hours). Although women's mean weekly effort and mean weekly catch volume were less than half that of men's, their average CPUE was slightly higher.

Contribution to household economy

Small-scale fishers earn marginal incomes from fishing, which has earned them a consistent place in Philippine poverty statistics as having the highest poverty incidence

among Filipinos. Average monthly incomes from fishing and other forms of livelihood indicate that poverty incidence among the artisanal fishing population in the surveyed sites is much higher (39–83%) than the national poverty incidence (39.2%) among fisherfolk. Consequently, a large portion (38–76%) of the coastal population in the survey sites lives in extreme poverty or below subsistence level, far exceeding the national average of 13.4% (De Guzman et al. 2016).

Gleaning is not only done for sustenance, but can also be a supplemental livelihood and a means of alleviating poverty in the poorest of coastal communities (Béné 2007), especially in portions of the Visayas (Cabanban et al. 2014; Del Norte-Campos et al. 2005) and many areas in northern Mindanao (De Guzman et al. 2016), and Sarangani Bay, southwestern Mindanao (DENR 12-PENRO Sarangani 2017) where a large proportion of the gleaning catch is sold rather than kept for family consumption. The harvest is often sold to neighbours, to the local market, or to people from adjacent urban areas. Incomes earned from gleaned seafood from nine sites, however, are generally small. Higher estimates of CPUE by female gleaners earn them higher average daily revenues than men, although these seldom exceed USD 2.00 per day as most of the catch (>50%) is retained for family consumption. Women who glean for at least 14 days per month earn monthly revenues of less than USD 20 or annual revenues of less than USD 250. Similar low values were obtained from the Bohol Marine Triangle (Samonte-Tan et al. 2007) and in Bais Bay and Banate Bay (Cabanban et al. 2014). The results indicate that across Mindanao and the Visayas, reef gleaning for invertebrates and other seafood contributes very little to the household economy.

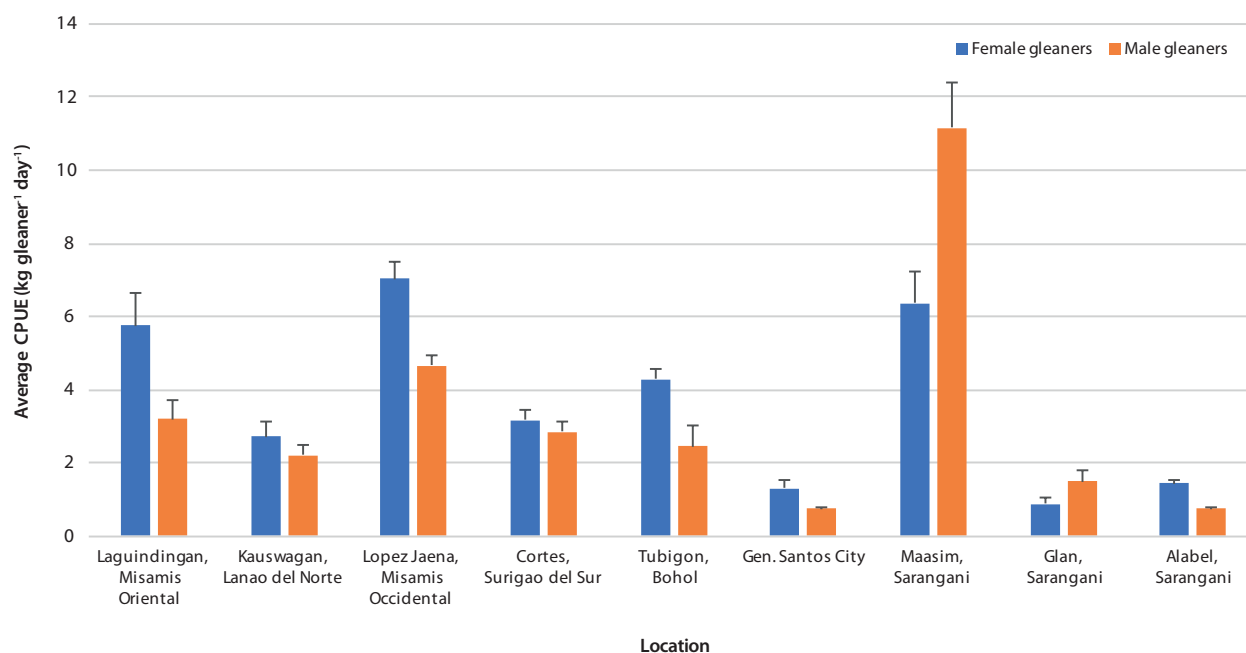


Figure 4. Comparative CPUE (kg gleaner⁻¹ day⁻¹) values across nine survey sites in the Visayas and Mindanao. (Data sources: De Guzman et al. 2016 and DENR 12-PENRO Sarangani Province 2017.)

Contribution to food security and nutrition

Gleaning in the Philippines is carried out mainly for a family's consumption (LeBlanc 1997; Schoppe et al. 1998; Palomares et al. 2014) and nutritional requirements. As catches from artisanal fishing activities decline as a consequence of overfishing and unsustainable fishing practices, coastal communities become increasingly dependent on reef gleaning for household food and nutrition. Gleaning is an essential source of high-quality seafood that provides energy, protein and other vital nutrients for the family.

A case study by De Guzman and colleagues (2016) estimated the amounts of food consumption and nutrient sufficiency of coastal households in five study sites, and evaluated the contribution of gleaning to households' nutrient intake. Across all sites, 52% of the gleaned harvest, on average, is retained for family consumption, and consists of a large assortment of bivalves, gastropods, sea urchins and sea cucumbers (Figs. 5 and 6). Per capita energy (87%) and nutrient sufficiency (e.g. protein, 86%) among coastal households are generally high, although they fall below the recommended daily energy and protein requirement. Unfortunately, it was not possible to compare energy and nutrient intake among men, women and children because the household survey did not delineate amounts of food intake across age and gender. Owing to their more active lifestyle, however, men require higher amounts of energy (2,378 kcal) and protein (71 g) per day than women (1,820 kcal; 62 g) (FNRI 2015). Results of per capita nutrient analysis show that many coastal residents do not eat enough, most probably due to meagre incomes from fishing and other marginal livelihoods, although household surveys have shown that most coastal families are relatively healthy and exhibit low incidences of major illnesses associated with poor nutrition. While fish make up the main source of

seafood protein among coastal families, on average, shellfish and other invertebrates obtained from gleaning make up a significant portion of per capita energy and protein from all seafood at 30.6% and 24.7%, respectively.

The case study demonstrated the importance of seafood from reef gleaning in providing an additional source of energy and high-quality protein for the household although contributing little to augmenting the family income. Women who make up the majority of the gleaning population are mainly accredited for ensuring that the family does not go hungry, despite earning marginal incomes from artisanal fisheries.

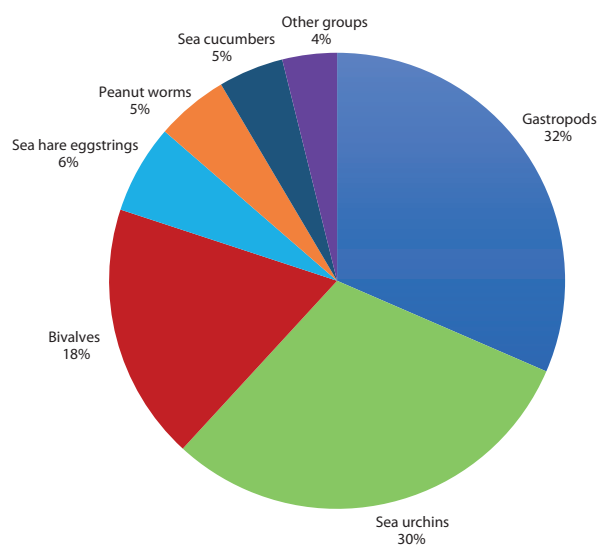


Figure 5. Relative proportion of edible seafood from gleaning at nine survey sites across the Visayas and Mindanao. (Data sources: De Guzman et al. 2016 and DENR 12-PENRO Sarangani Province 2017).



Figure 6. Typical gleaners' daily catch of edible seafood from shallow reef flats can be extremely diverse. (images: A.B. De Guzman except photo in middle of bottom panel by G. Cavinta)

Shifting the paradigm: Mainstreaming women's contribution to fisheries

Gender is a key consideration for identifying fishing strategies because women and men often have distinct but interacting roles in small-scale fisheries (Chapman 1987; Siar 2003), with women and men often targeting different marine life and habitats (Bliege Bird 2007; Hauzer et al. 2013). Writing about women fishing in the reefs of Oceania, Chapman (1987) and Matthews (1993) observed that women contribute significantly to food production largely from fishing in nearshore habitats. Moreover, the highly regular nature of women's fishing makes women more reliable and effective suppliers of protein for subsistence. In the Danajon Bank case study, women, part-time fishers, and gleaners represented 35%–55% of fishers, and accounted for between 25% and 35% of the total weekly catch volume.

Kleiber et al. (2014) concluded that the non-inclusion of women's effort and contribution results in inadequate representations of fishing and creates an incomplete understanding of the diversity and totality of social and ecological interactions in small-scale fisheries, which would hinder ecosystem-based fisheries management approaches. Excluding the contribution of gleaners to fishing effort in artisanal or sustenance fisheries in the Philippines obscures the participation of women in food security of Filipino households.

Case studies in Mindanao and the Visayas (De Guzman et al. 2016; DENR 12-PENRO Sarangani 2017) revealed that incomes from gleaning by both men and women are small

and barely make a dent in alleviating the poverty in coastal areas. Perhaps the greatest contribution of gleaning and, by association, women in small-scale fisheries, is in securing food and high-quality protein and nutrients for coastal households. This paper, among others, demonstrates that sustaining gleaning as a component of subsistence fisheries, not only in Mindanao and the Visayas but in the entire Philippines, through concerted effort among national and local governments, non-governmental organisations, and the private sector is crucial to the economic and nutritional well-being of poverty-stricken coastal communities. Further work on evaluating gender roles in sustenance fisheries and quantifying women's contribution to household economies and food security will turn the paradigm of the 'invisible women in fisheries' into one of resilient producers and empowered resource managers in coastal communities across the Philippine archipelago.

Acknowledgements

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References

- Béné C., Macfayden G. and Allison E.H. 2007. Increasing the contribution of small-scale fisheries to poverty alleviation and food security. FAO Fisheries Technical Paper 481. Rome, FAO. 125 p.
- Bliege Bird R.L. 2007. Fishing and the sexual division of labor among the Meriam. *American Anthropologist* 109:442–451.
- Cabanban A.S., Tajonera I.J. and Palomares M.L.D. 2014. A short history of gleaning in Negros and Panay Islands, Visayas, Philippines. p. 105–117. In: Palomares M.L.D. and Pauly D. (eds). *Philippine Marine Fisheries Catches: A Bottom-up Reconstruction, 1950 to 2010*. Fisheries Centre Research Report 22(1). Vancouver, Canada: Fisheries Centre, University of British Columbia.
- Cervantes D. 2012. Filipino fisherfolk among the 'poorest of the poor'. *The Philippine Star*, 19 February 2012. (Retrieved from <http://www.philstar.com/agriculture/778532/filipino-fisherfolk-among-poorest-poor>).
- Chapman M.D. 1987. Women's fishing in Oceania. *Human Ecology* 15(3):267–288.
- De Guzman A.B. 1990. Community structure of macrobenthic invertebrates on exploited reef flats of Santiago Island, Bolinao, Pangasinan. Master's Thesis, University of the Philippines, Diliman, Quezon City. 145 p.
- De Guzman A.B., Sumalde Z.M., Colance M.D.B., Ponce M.F.V. and Rance G.M.S. 2016. Economics of reef gleaning in the Philippines: Impact on the coastal environment, household economy and nutrition. EEPSEA 2016-RRG1. WorldFish (ICLARM) – Economy and Environment Program for Southeast Asia (EEPSEA). 40 p.
- Del Norte-Campos A.G.C., Campos W.L. and Villarta K.A. 2005. A survey of macro-invertebrate gleaning in the Banate Bay intertidal area, Eastern Panay Island. *Science Diliman* 17(2):11–20.
- DENR 12-PENRO Sarangani. 2017. Subsistence fisheries profile of Sarangani Bay Protected Seascape. Final Report. Provincial Environment and Natural Resource Office. Alabel, Sarangani Province. 23 p.
- FNRI. 2015. Philippine dietary reference intakes. Food and Nutrition Research Institute, Department of Science and Technology. PDRI Tables. 7 p.
- Johannes, R.E. 1981. *Words of the Lagoon: Fishing and Marine Lore in the Palau District of Micronesia*. University of California Press. 225+p.
- Harper S., Zeller D., Hauser M., Pauly D. and Sumaila U.R. 2013. Women and fisheries: Contribution to food security and local economies. *Marine Policy* 39:56–63.
- Hauzer M., Dearden P. and Murray G. 2013. The fisherwomen of Ngazidja island, Comoros: Fisheries livelihoods, impacts, and implications for management. *Fisheries Research* 140: 28–35.
- Kleiber D., Harris L.M. and Vincent A.C.J. 2014. Improving fisheries estimates by including women's catch in the Central Philippines. *Canadian Journal of Fisheries and Aquatic Sciences* 71:1–9.
- Kronen M. 2002. Women's fishing in Tonga: Case studies from Ha'apai and Vava'u islands. Socioeconomic status of fisherwomen. SPC Women in Fisheries Information Bulletin 11:17–22.
- LeBlanc S. 1997. Gleaning in Bais Bay: A case study on an informal sector coastal activity in the Philippines. Master of Arts in International Development Studies, St. Mary's University, Halifax, Nova Scotia, Canada. 132 p.
- Matthews, E. 1993. Women and fishing in traditional Pacific island cultures. p. 29–34. In: Workshop on People, Society and Pacific Islands Fisheries Development and Management, Selected Papers. Inshore Fisheries Resources Project Technical Document No. 5. South Pacific Commission. Noumea, New Caledonia.
- McManus L.T. 1989. The gleaners of northwest Lingayen Gulf, Philippines. *Naga, The ICLARM Quarterly* 12:13.
- McManus J.W., Nanola, C.L.Jr., Reyes R.B. and Kesner K.N. 1992. Resource ecology of the Bolinao coral reef system. *ICLARM Studies and Reviews* 22. 117 p.
- Mills D.J., Westlund L.L., de Graaf G., Kura Y., Willmann R. and Kelleher K. 2011. Under-reported and under-valued: Small-scale fisheries in the developing world. p. 1–15. In: Pomeroy R.S. and Andrew N.L. (eds). *Small-scale fisheries management: Frameworks and approaches for the developing world*. Oxfordshire, UK: CABI Publishing.
- Palomares M.L.D., Espedido J.C., Parducho V.A., Saniano M.P., Urriquia L.P. and Yap P.M.S. 2014. A short history of gleaning in Mabini, Batangas (Region IV, Subzone B, Philippines). p. 118–128. In: Palomares M.L.D. and Pauly D. (eds). *Philippine Marine Fisheries Catches: A Bottom-up Reconstruction, 1950 to 2010*. Fisheries Centre Research Report 22(1). Vancouver, Canada: Fisheries Centre, University of British Columbia.



- Samonte-Tan G.P., White A.T., Tercero M.A., Diviva J., Tabara E. and Caballes C. 2007. Economic valuation of coastal and marine resources: Bohol Marine Triangle, Philippines. *Coastal Management* 35(2-3):319-338.
- Savina, G.C. and White A.T. 1986. Reef fish yields and *non-reef catch* of Pamilacan Island, Bohol, Philippines. p. 497-500. In: MacLean J.L., Dizon L.B. and Hosillos L.V. (eds). *The First Asian Fisheries Forum*. Manila: Asian Fisheries Society.
- Schoppe S., Gatus J., Milan P.P. and Seronay R.A. 1998. Gleaning activities on the island of Apid, Digyo and Mahaba, Inopacan, Leyte, Philippines. *The Philippines Scientist* 35:130-140.
- Siar, S.V. 2003. Knowledge, gender, and resources in small-scale fishing: The case of Honda Bay, Palawan, Philippines. *Envi. Management* 31(5):569-580.
- Siason I.M. 2001. Women in fisheries in the Philippines. p. 69-78. In: *International Symposium on Women in Asian Fisheries*. Penang, Malaysia: ICLARM World Fish Center.
- Spalding, M.D., Ravilious C. and Green E.P. 2001. *World Atlas of Coral Reefs*. University California Press, Berkeley. 424 p.
- Takeda, J. 1001. Fishing-gleaning activities on reef flats and/or reef margins in the coral ecosystem in Yap, Federated States of Micronesia (FSM). Kagoshima university research center for the Pacific islands, Occasional papers No.34, 117-127. Part 1, Section 3, Report 6.
- Weeratunge N., Snyder K.A. and Sze C.P. 2010. Gleaner, fisher, trader, processor: Understanding gendered employment in fisheries and aquaculture. *Fish and Fisheries* 11:405-420.



Tarusila Veibi: Inspiring and supporting the improved engagement of rural women in community-based management in Fiji

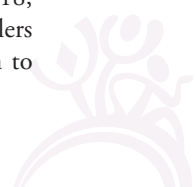


Tarusila (“Taru”) Veibi is a bold and dynamic woman who is passionate about the environment she lives in, and her people. Originally from Bua Village in Bua District, in Fiji’s Bua Province, Taru is 56 years old, and has two sons and three grandchildren. She worked for Fiji Pine for 18 years as a clerk on Vanua Levu. In 2007, she volunteered with the Fiji Locally-Managed Marine Area (FLMMA) network, acting as their representative for Bua District. In 2010, she started working closely with local communities and the Wildlife Conservation Society to set up traditional closures (*tabu* areas) in her district in order to improve fish and invertebrate stocks within customary fishing grounds. That same year, in recognition of her knowledge and leadership, Taru was invited to be part of the Traditional Council (*Bose Vanua*) for Bua District. The *Bose Vanua* is usually only for chiefs and heads of clans, and women are not usually part of this traditional decision-making body on all issues relating to Bua District. Taru’s presence on the *Bose Vanua* is helping to voice the needs of rural girls and women in the fisheries sector, and broader resource management.

In 2015, Taru signed a contract with FLMMA to increase the engagement and support to rural women, to help them become more vocal and share their concerns about natural

resource management issues. Over the last three years she has been working with women mud crab fishers to help them set up ‘crab fattening pens’ made of local materials in mangrove forests on Viti Levu (Ba and Tavua districts) and Vanua Levu (Bua district). Crabs are held in the pen and fed fish and chicken scraps for at least 4–6 days to help fatten them – the greater the weight, the higher the price these women can fetch at local markets. Taru is also helping the women implement a catch per unit effort (CPUE) logbook so they can record the number, size and sex of the crabs being caught within mangrove areas adjacent to their village. Mud crabs are both an important food source and livelihood for women, and require a high level of knowledge and skill to catch them by hand.

In August 2016, Taru was selected to represent her community as a women’s representative in parliament for a week. In recognition of her work and her tireless efforts to support and encourage women to articulate their needs and to be more engaged in fisheries and broader national resource management issues, Taru travelled to the United Nations Ocean Conference in New York in June 2018, and presented a statement at a side event titled, ‘Healers of our ocean: Asia-Pacific women leading ocean action to



achieve Sustainable Development Goal 14'. In late 2018, she was selected by the Bua Provincial Office and endorsed by the Ministry of *i-Taukei Affairs* to be the 'Mata ni Talai' (nominated community representative to government) to contribute to discussions at the provincial level.

The Editor of the *Women in Fisheries Information Bulletin* interviewed Taru to learn more about what it is like to be a woman working in fisheries in rural areas in Fiji.

What motivates you to work on fisheries issues in the communities of Bua Province?

I was brought up in a community where women and young girls always go out fishing. I used to sit and watch my grandmother, my mother and other women from the village pick up their fishing nets and baskets and off they went to the sea. I really wanted to be like one of them one day. I grew up fishing, and so love fishing. Watching my friends going out to the sea really motivates me to work within Bua Province.

What changes have you seen in your lifetime with regard to fisheries resources?

I've noticed big changes since when I was young. These days, lots of rubbish is thrown into the rivers and oceans, which destroys and kills living things in the sea. Excessive logging has been carried out on the mainland, which causes landslides that impact both the people and our natural environment. Mangroves are cut down for firewood and for *bures*. Both fisherwomen and fishermen use modern fishing gear that damages delicate coral reefs. These losses are happening so fast that people don't even bother replanting native trees to logged areas, replanting or protecting mangroves, or placing *tabus* on certain areas to replenish fish populations. Looking back 30–40 years, fisherwomen and fishermen used only spears, simple nets or fishing line. In the early 2000s, people started to use other tools such as crowbars, cane knives, iron rods, scuba, compressors, and many of the more destructive gear types. It is quite sad for me to see these changes happening so quickly.

What challenges have you faced as a woman working with FLMMA, and how did you overcome them?

Because Fiji is a male-dominant society, women's voices are not always heard in key meetings, or are not included as part of decision-making. When I joined FLMMA as their 'Women in Fisheries' representative I found it challenging to engage with the women in the villages I visited. This is because when FLMMA visited the village, the women often were the ones doing the catering. During workshops, which still tend to be male-dominated, I try to highlight the important role women play in communities all over Fiji in a way that still respects our culture. I have helped to change their mindset and encourage more women to join workshops, encourage them to speak up, and find different ways for their voices to be heard in any meeting. I try and lead by example and I feel proud of those women who feel confident to stand up and speak about their concerns about their fisheries and their environment.

What advice would you give to young rural women and girls about fisheries and natural resource management?

Plan first before doing anything regarding our natural resources. I would like to encourage young girls to listen properly to the elderly with their advice on the sustainable use of our natural resources because they have a lot of traditional knowledge. If women go out to the sea, I would like to advise them to just collect what they require for the family. Avoid overfishing, avoid unsustainable logging, and use resources wisely so that our generation can also feel secure.

Community issues, concerns and suggestions for improving coastal fisheries in Vanuatu: A community perspective

Alice Kaloran¹

Loss of traditional knowledge on resource management

Overfishing or overharvesting is one of the major issues faced by coastal fisheries managers in Vanuatu. This is largely a result of an increasing population (some relating to internal migration), and increasing competition for a limited amount of resources. Although community management approaches and *tabu* areas (periodically closed areas) are used to address the growing pressure on fisheries resources, the younger generation and other members of communities, are unaware of these traditional management methods. Respect for traditions and *tabu* areas is decreasing. The youth of today do not know the traditional ways of fishing and have forgotten the art and skills of building canoes. The National Council of Chiefs can be used to reinforce the concept of traditional *tabus* in all provinces, and awareness needs to be raised on the importance of respecting traditional and community management approaches. This will help promote understanding among the country's youth and those that are unaware of the importance of managing coastal resources.

Aquaculture as a source of livelihood for women and youth

Aquaculture, such as establishing fish farms in rural communities, can be a good option for declining coastal resources, especially if these can be managed by women and youth. Farmed fish can be consumed in the villages, will likely be cheaper than wild-caught fish, and will relieve pressure on coastal resources. Fish farms can be an opportunity for youth to become successfully involved. With funding support, freshwater collection tanks could be installed in rural communities for aquaculture purposes.

Access to fishing technology

There is currently only one boat-building company in Vanuatu, which makes purchasing a boat very expensive for rural communities. This is in addition to the high costs of purchasing fishing gear and fuel. The Vanuatu Government should look into the option of subsidising the costs of boats, fishing gear and boat fuel for those who cannot afford it. Traditional canoes are easy to handle and do not require an outboard engine. However, it would help if a boat-builder could build these canoes in fibreglass, which last longer than traditionally made canoes, and can withstand rough weather and cyclones.

Access to markets and seafood storage options

The remoteness of many local communities, inadequate transportation systems and the irregularity of shipping services makes access to seafood markets an issue for fishers all over Vanuatu. Sometimes it is hard to sell fish that comes from the outer islands because hotels and restaurants prefer fresh fish, not frozen. Teaching value-adding techniques to rural communities can really assist in the marketing of fish and marine resources. A good example is teaching community members how to fillet and package fish to sell to markets, hotels and restaurants. Filleted fish can be more attractive to hotels and restaurants. Another example of value-adding is to teach women how to smoke or dry fish to be able to keep marine products for a longer period of time.

The availability of ice is a major issue for rural fishers as well as those operating around in Port Vila. Ice machines or solar freezers in communities could solve this problem. While freezers provide some benefit, they can be problematic if they break down because island communities generally do not have the capacity to repair them. Providing training to community members on how to maintain and repair solar freezers and ice machines is important for preventing catches from spoiling and resulting in a loss of income. Another idea is to have an official vessel travel to remote communities equipped with a cooler or freezer to act as a buying point for rural community fishers. In this way, coastal community members could continue to engage in fishing and be able to sell their marine products without worrying about transport and direct access to distant markets.

Market places

The newly built fish market in Port Vila, which is managed under the Department of Cooperatives, is now open and functioning. Women are struggling to find places to sell their marine products, especially because market fees are expensive. In addition, fisheries centres are not being utilised and are lying dormant. The government should explore the option of the Port Vila Fishing Association to manage the new fish market in Port Vila, and make spaces in markets and fisheries centres more affordable, especially for women, so that they can make a sufficient profit from selling fish at these centres.

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Fishing associations

Fishing associations are not registered or recognised in any official capacity in Vanuatu. Fishing associations should be registered with the Government Financial Services, and should be recognised and registered under VANGO (Vanuatu Association of Non-Governmental Organisations). Fishing associations should have a special control committee that collects data on catches, and informs association members about legislation, which will help in national reporting and contribute to regional reporting.

Lack of information and awareness

There is a lack of awareness of government policies within communities, and a lack of access to information. Government officials need to increase their visits to rural communities to inform and educate communities on what is happening at higher levels of government. It would be valuable for government officials to receive training on how to translate government policies and 'speak' a language that communities can understand. Different approaches should be used and can assist with getting messages across to community members in a way they can easily understand (e.g. pictures, videos).



Originally from the Shepherd Islands in Shefa Province, Alice Kaloran is the President of the Tongoa-Shepherd Islands Women's Association. Tongan and Shepherd islanders are heavily reliant on artisanal and commercial fishing for food and local livelihoods. The association is working to empower women and men alike to develop their entrepreneurship skills in business development, and in sustaining fish supplies to local domestic markets in Port Vila. Alice was one of three community representatives that was selected by the Pacific Community to participate in the second Regional Technical Meeting on Coastal Fisheries and the third Coastal Fisheries Working Group meeting in New Caledonia from 12–16 November 2018. Alice shared her unique perspective on community issues, concerns and suggestions for improving coastal fisheries in Vanuatu.

Translating gender equality from paper into practice: A new research agenda for coastal fisheries

Sarah Lawless

Sarah Lawless is a PhD candidate at the ARC Centre of Excellence for Coral Reef Studies at James Cook University in Queensland, Australia. Sarah has spent several years working in Melanesia for research agencies (WorldFish and James Cook University) and non-governmental organisations (Wildlife Conservation Society, World Wide Fund for Nature, and the Natural Resources Development Foundation) while working alongside national government ministries. Her past research explored the intersection of gender, natural resource management and livelihood development. Her current research investigates how global, regional and national governance actors translate gender equality as a governance principle into coastal fisheries policy and practice in the Pacific Islands region.

Project background

Commitments toward addressing gender inequality within and through coastal fisheries governance are unprecedented. The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries¹ reflect these commitments, where gender equality features as a fundamental guiding principle (Kleiber et al. 2017; Song et al. 2019). In the Pacific Islands region, gender has become a more visible theme in coastal fisheries policies, strategies, and reporting and monitoring requirements. For example, 'A new song for coastal fisheries - pathways to change, A Regional Roadmap for Sustainable Pacific Fisheries' (Pacific Community 2015), and the coastal fisheries report card 2017 (Pacific Community 2017). In practice, virtually all major international conservation organisations (including those active in coastal fisheries) have revised their mission statements and programme objectives to highlight a greater commitment to both environmental *and* social outcomes (Mace 2014; Sikor et al. 2014). These social commitments emphasise gender equality as a central principle. As one example, the International Union for Conservation of Nature (IUCN) recognises that 'gender equality and equity are matters of fundamental human rights and social justice, as well as the precondition for sustainable development and the achievements of IUCN's mission' (IUCN 2018).

Yet, despite the increasing commitments to address gender, more progress is needed to translate these commitments into action (Pacific Community 2016). The 2015 Millennium Development Goal tracking report indicates that over the past 15 years, the Pacific Islands region has not demonstrated any substantial improvement towards reducing issues of gender inequality (Pacific Islands Forum Secretariat 2015). The region has the highest rates of violence against women globally, and the lowest representation of women in national parliaments. While preliminary attempts have sought to

understand the structural barriers² to gender integration within Pacific Islands governments (including directly within ministries responsible for fisheries in some countries) (Pacific Community 2016, 2018), more work is required to illuminate and overcome the conditions hindering the implementation of gender equality commitments.

Research objectives

I seek to understand the extent to which global and regional written gender commitments translate into action at various scales of Pacific Island governance. I reflect critically upon the current coastal fisheries development paradigm in the Pacific and ask several questions: How has gender equality, as a principle, been manifested in regional and national written commitments? How has gender been constructed (i.e. defined and expressed)? What actions do coastal fisheries governance actors take to address gender inequality, and to what extent do they align with 'gender in development' best practice? How do governance actors respond to increasing demands to integrate gender into their coastal fisheries work? What are future strategies the coastal fisheries sector could employ to encourage more meaningful integration of gender into policy and practice?

To answer these questions, I am conducting empirical research in Fiji, Solomon Islands and Vanuatu. I selected these countries because coastal fisheries in these countries are significant for local economies, nutrition, food security, and have cultural importance (Gillett 2016; Hoegh-Guldberg and Ridgeway 2016). These countries also have a strong presence of coastal fisheries actors (i.e. donors, United Nations agencies, international and local non-governmental organisations, regional governance agencies, national government ministries, independent experts and academic institutions), and receive varying levels of development investment toward the management

¹ <https://www.google.com/search?client=firefox-b-1-d&q=Voluntary+Guidelines+for+Securing+Sustainable+Small-Scale+Fisheries+>

² Structural barriers in this case include legal and policy frameworks, compliance mechanisms, organisational practices or cultures, and technical capacities.



of coastal fisheries. I use document review and participant observation methods to explore how global, regional and national policy-makers define and express gender in policies and strategies, organisational project documents, as well as coastal fisheries meetings, workshops and conferences. I combine these data with qualitative key informant interviews with more than 70 coastal fisheries and/or gender experts across over 30 organisations working at both regional and national scales. I conduct a large proportion of this data collection in partnership with Dr Sangeeta Mangubhai from the Wildlife Conservation Society in Fiji.

Preliminary findings

Approaches to gender

Preliminary findings suggest that many interventions (both governmental and non-governmental) seek to explicitly target women when using approaches to integrate gender in coastal fisheries. These approaches include community engagement and facilitation, development of policies and strategies, and organisational practice. These interventions tend to reflect a 'women in development' approach where solutions focus on working with women and treating inequalities as 'women's issues'. In terms of best practice, this approach was critiqued during the 1980s due to the preoccupation with women's economic progress (resulting in domestic and reproductive labour burdens), and neglected to consider men and power relations between men and women (Rathgeber 1990). In contrast, a 'gender and development' approach is concerned with how gender is socially constructed, including the specific roles, responsibilities and expectations assigned to women and men. This approach questions the social, economic and political structures underpinning gender inequalities (Rathgeber 1990).

Responses to gender

In examining data from key informant interviews I find that gender equality as a principle is resisted, rhetorically adopted, or contested by the majority of coastal fisheries actors. At the regional scale, fisheries actors often pursue gender equality as a means of increasing their organisational legitimacy. In contrast, at the national scale, the willingness to consider gender is high, but the capability and capacity of fisheries actors to do so is limited. Gender as a construct is also debated by coastal fisheries actors due to its ambiguity, intangibility and lack of context-specific framing. I argue that contestation of this principle presents an opportunity for governance actors to negotiate context specific meanings around gender within their organisations and interventions leading to more tangible actions and outcomes.

Research contribution

The outcomes of this research will inform relevant and localised strategies to meaningfully integrate gender considerations in coastal fisheries in the Pacific. Specifically, to:

- determine the extent to which external ideals toward addressing gender inequality, including donor-driven requirements and investments, align with Pacific priorities and/or interests in coastal fisheries; and
- work alongside regional governance actors and interested staff from the ministries responsible for fisheries to inform localised and culturally sensitive regional, national gender best practice. This will involve taking into account the experiences and perceptions of governance actors working on gender, and understanding the constraints of current approaches.

This research is being conducted in partnership with several scholars and development practitioners, including Sangeeta Mangubhai (Wildlife Conservation Society-Fiji), Chelcia Gomez (WorldFish, Solomon Islands), Aliti Vunisea (independent consultant, Fiji) and Danika Kleiber (WorldFish and James Cook University). This PhD research is under the supervision of Associate Professor Tiffany Morrison (James Cook University), Dr Philippa Cohen (WorldFish), Dr Andrew Song (WorldFish and James Cook University) and Dr Anne Stephens (James Cook University).

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References

- Gillett R.D. 2016. Fisheries in the economies of Pacific Island countries and territories. Noumea, New Caledonia: Pacific Community. 684 p. [<http://purl.org/spc/digilib/doc/pyvuo>]
- Hoegh-Guldberg O. and Ridgway T. 2016. Reviving Melanesia's ocean economy: The case for action – 2016. Gland, Switzerland: World Wildlife Fund International. 63 p.
- ICUN (International Union for Conservation of Nature). 2018. Gender. Retrieved from <https://www.iucn.org/theme/gender>. Accessed 19 November 2018.
- Kleiber D., Frangoudes K., Snyder H.T., Choudhury A., Cole S.M., Soejima K., Pita C., Santos A., McDougall C., Petrics H. and Porter M. 2017. Promoting gender equity and equality through the Small-Scale Fisheries Guidelines: Experiences from multiple case studies. p. 737–759. In: Jentoft S. et al. (eds), The small-scale fisheries guidelines: Global implementation. Cham, Switzerland: Springer. 858 p.

- Mace G. 2014. Whose conservation? Changes in the perception and goals of nature conservation require a solid scientific basis. *Science* 345(6204):1558–1560.
- Pacific Community. 2015. A new song for coastal fisheries pathways to change: the Noumea strategy. Noumea, New Caledonia: Secretariat of the Pacific Community. 16 p. [<http://purl.org/spc/digilib/doc/b8hvs>]
- Pacific Community. 2016. Social Development Programme stocktake of the capacity of the governments to mainstream gender across policies, programmes and services: Key findings from 15 Pacific Island countries and territories. Noumea, New Caledonia: Pacific Community. 6 p.
- Pacific Community. 2017. Future of fisheries: Coastal fishery report card 2017 [Leaflet]. Noumea, New Caledonia: Pacific Community. 4 p. [<http://purl.org/spc/digilib/doc/i58vk>]
- Pacific Community. 2018. Gender analysis of the fisheries sector in Solomon Islands. Noumea, New Caledonia: Pacific Community. 72 p. [<http://purl.org/spc/digilib/doc/mf7rz>]
- Pacific Islands Forum Secretariat. 2015. 2015 Pacific Regional MDG Tracking Report. Suva.
- Rathgeber E. 1990. WID, WAD, GAD: Trends in research and practice. *The Journal of Developing Areas* 24:489–502.
- Sikor T., Martin A., Fisher J. and He J. 2014. Toward an empirical analysis of justice in ecosystem governance. *Conservation Letters* 7(6):524–532.
- Song A.M., Cohen P.J., Hanich Q., Morrison T.H. and Andrew N. 2019. Multi-scale policy diffusion and translation in Pacific Island coastal fisheries. *Ocean and Coastal Management* 168:139–149.



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Mainstreaming gender and human rights-based approaches into coastal fisheries

Dr Sangeeta Mangubhai is currently the Director for the Wildlife Conservation Society's Fiji Country Program. In March 2018, she became the fourth Pacific Islander to receive the prestigious and globally competitive Pew Fellowship in Marine Conservation from the Pew Charitable Trusts. Her three-year project aims at developing practical, context-specific guidelines, tools and policy recommendations to assist Melanesian countries with mainstreaming gender and human rights-based approaches into coastal fisheries management and development, for improved food security and livelihoods of local communities.

Project background

The United Nations' Food and Agriculture Organization (FAO) estimated that there are 50 million small-scale fishers in developing countries (FAO 2015). This estimate includes Pacific Island countries, which have communities that are largely coastal and highly reliant on inshore fisheries for their subsistence and livelihoods. Although fish is the largest protein source for Pacific Islanders and subsistence and commercial fisheries contribute millions to many countries' GDP (Bell et al. 2009; Gillett 2016), most coastal fisheries are heavily exploited and stocks are in urgent need of rebuilding.

The FAO 'Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication' (SSF Guidelines) provide principles and guidance to countries on addressing small-scale fisheries (FAO 2015). The SSF Guidelines reflect a growing acceptance and movement away from narrowly focusing on fisheries governance or a 'rights-based approach' (which largely deals with access rights to fishing grounds), towards a broader more inclusive 'human rights-based' (HRB) approach that recognises that human rights are integral to development outcomes. An HRB approach is inclusive of rights-based approaches, but also addresses broader human rights issues that are less documented (e.g. displacement, marginalisation, forced evictions, inadequate work standards, unlawful detention, discrimination, exploitation, abuse) in the fisheries sector, and their links to broader development goals such as rights to food, health, gender equality, adequate standards of living, and poverty alleviation.

The SSF Guidelines draw on numerous human rights conventions, including the Universal Declaration of Human Rights, and the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW), to promote social development and improve governance in developing country fisheries, particularly of vulnerable and marginalised fishing groups. The guidelines also highlight the need for more equitable representation and inclusion of women in decision-making and management in the

fisheries sector. Unfortunately, the guidelines lack sufficient details or a way forward for member states to implement them within their own unique social, cultural and political contexts.

Despite FAO hosting workshops to bring together experts from around the world, there is limited experience and examples on the ground of the practical application of the SSF Guidelines by state and non-state actors, including in the Pacific. The inclusion of gender and an HRB approach in fisheries management in the Pacific is also hindered by the fact that these issues are often addressed by separate ministries and are poorly integrated or mainstreamed into sectors such as fisheries. Without the knowledge, tools or enabling conditions for integration, fisheries managers and practitioners will continue to struggle to ensure that fisheries management and development approaches are holistic, inclusive of gender and other HRB approaches that are tailored to the Pacific.

Research objectives

The project aims at developing practical, context-specific guidelines, tools and policy recommendations to assist Melanesian countries to mainstream gender and HRB approaches into coastal fisheries management and development, for improved food security and livelihoods of local communities.

The project has three main components. The first is to develop an *understanding* of the degree to which traditional and current gender equity and an HRB approach can be fully optimised to enhance coastal fisheries management and development in Melanesia to improve its effectiveness. This will involve: 1) in partnership with PhD candidate Sarah Lawless at James Cook University, synthesising information from in-country gender assessments of regional organisations, ministries of fisheries (in Fiji, Solomon Islands, Vanuatu), international and national non-governmental organisations, academics and gender experts; 2) undertake a desktop study to look at what HRB approaches have been used in coastal fisheries projects across Fiji, Solomon Islands and Vanuatu; 3) working with the Pacific Community (SPC) to collect, analyse and

assess legislation in the three countries against gender and human rights requirements that are applicable to the coastal fisheries sector.

In the second component of the project I will facilitate the development of a locally relevant, context-specific framework for evaluating how well gender and HRB approaches have been applied to coastal fisheries management and development projects in Melanesia. This will be done in close partnership with SPC and multi-sectoral partners. The framework will be tested in Fiji, Solomon Islands and Vanuatu, and lessons learned and case studies of successes and failures will be compiled and shared with fisheries managers and practitioners.

The third component involves working with government and national practitioners in each of the countries. I hope to collaborate and develop practical tools and policy recommendations to mainstream gender and HRB approaches into the fisheries sector to overcome barriers and obstacles in each of the three countries. The types of tools developed will depend on stakeholders needs in the three countries, but may include guidelines, checklists, toolkits or policy briefs.

If successful, this project will contribute to national and regional efforts to improve coastal fisheries management and development by ensuring more equitable representation of women in decision-making, and the inclusion of broader human-rights and development goals.

References

- Bell J.D., Kronen M., Vunisea A., Nash W.J., Keeble G., Demmke A., Pontifex S. and Andrefouet S. 2009. Planning the use of fish for food security in the Pacific. *Marine Policy* 33:64–76.
- FAO (Food and Agriculture Organization of the United Nations). 2015. Voluntary guidelines for securing sustainable small-scale fisheries in the context of food security and poverty eradication. Rome: FAO. 18 p.
- Gillett R.D. 2016. Fisheries in the economies of Pacific Island countries and territories. Pacific Community, Noumea, New Caledonia. 684 p. [<http://purl.org/spc/digilib/doc/pvyuo>]



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Understanding the links between gender, sustainability and food security in small-scale fisheries

Sheridan Rabbitt

Sheridan Rabbitt is a PhD student at the University of Queensland exploring the links between gender, sustainability and food security in Solomon Islands. Her research concerns community-based management strategies to improve fisheries sustainability, focussing on the inclusion of women in management structures and processes. Her research interests span several fields, including aquaculture, wild capture fisheries management, and gender equity in fisheries.

Project background

Food security is one of the greatest challenges facing humanity. With rapid globalisation, and the world's population forecast to reach 9.7 billion by 2050, this challenge will only intensify over the coming decades. Developing nations disproportionately bear the brunt of food insecurity, a fact particularly evident in the Pacific Islands region. Globally, fish provides one-third of the population with over 15% of total animal protein intake, and is a vital source of micronutrients (Allison 2011; Golden et al. 2016). In food-insecure nations, fish can provide up to 50% of the total animal protein intake (Fisher et al. 2017; FAO 2016), and in Pacific Island nations where agricultural land is limited, this can be greater than 90% (Bell et al. 2009). The decline and collapse of fisheries is becoming increasingly common around the world, so given both the long list of threats to fisheries, and their importance in diets in the Pacific, it is critical that fisheries resources are well managed to achieve food security for future generations.

Small-scale fisheries (SSFs), which predominantly consist of artisanal and subsistence fisheries, contribute substantially to Pacific Islanders' livelihoods. SSFs are difficult to manage for a host of reasons. They are generally multi-species fisheries, which makes it hard to ascertain what levels of harvest are sustainable for different species. Disputes over tenure are common, and the number of different stakeholders in the fishery can also prove challenging. Arguably the biggest hurdle in managing SSFs though is that they are data-poor, and one of the more obvious gaps is the lack of gender-disaggregated data (FAO 2016; Harper et al. 2013).

Despite recent significant improvements, detailed information on how women are involved in, and contribute to, fisheries is still lacking. Current estimates indicate that women make up over half of total employment in the fisheries sector globally (FAO 2016; Weeratunge et al. 2010; World Bank 2012), and although they may be less involved in catching large finfish (typically reef fish), they are disproportionately represented in invertebrate gleaning,

and the fish processing and marketing sectors (Harper et al. 2013; Bennett 2005). Yet, they are poorly represented in decision-making and policy roles, particularly at the senior level (Lambeth et al. 2002). Women play a pivotal role in a number of areas intrinsically linked to food security, including health and nutrition, population dynamics, and poverty alleviation, and have unique knowledge about local ecosystems and natural resources owing to their role as primary caregivers and food growers (Harper et al. 2013). Sustainable resource management cannot be achieved without the inclusion of women in management and decision-making processes. This is particularly true for fisheries management, owing to the strong gender dichotomy in small-scale subsistence fisheries. It is thought that in the Pacific, women's fishing activities are more regular than men's and, thus, provide more stability to the diet; it is also likely that women's contributions are significantly underestimated (Harper et al. 2013; Matthews 1991). It is critical that the role women play in fisheries and their contribution to household diets are well understood, to be able to develop and implement successful resource management strategies that will ensure food security for generations to come.

Research objectives

This project aims at investigating food security concerns in the Pacific Islands region, specifically looking at the sustainability of marine small-scale fisheries (SSFs) in Solomon Islands. Working in coastal communities in Marovo Lagoon, in Solomon Islands' Western Province, we plan to develop broad recommendations that could be adopted by fisheries managers throughout the Pacific to assist in the management of SSFs for improved food security outcomes. The project has four main components. The first is to understand how women are involved in and contribute to fisheries. We have defined fisheries as the harvest of any marine product, including algae, invertebrates, finfish, and we include the fish processing and marketing sectors. We are investigating women's fishing behaviours by interviewing local women, and will evaluate the flow-on effects for food security.

The second component of the project involves a series of focus groups, where we seek to understand women's attitudes toward fisheries management and conservation decision-making processes within their villages. The focus groups address women's current levels of involvement in local decision-making bodies (conservation committees and ranger groups), how we can facilitate greater involvement of women, and the adequacy of current management actions.

In the third component, we will examine village attitudes toward the export of fishery products from Marovo Lagoon into fish markets in Honiara. Through household surveys, we will assess attitudes toward income generation through the trade, local resource depletion, and opinions on directions for future management actions.

Lastly, we have been studying women's diets over two years to assess the diversity and seasonal variation of protein sources as a measure of local communities' reliance on reef fish for protein. These data will also be used as a measure of dietary diversity within the communities, and consumption of different seafood types.

Ultimately, we will develop a series of policy guidelines to facilitate the inclusion of women's knowledge into fisheries management. This will assist in delivering greater gender equity in management policies and procedures, and should help improve food security in Solomon Islands and across the Pacific.

References

- Allison E.H. 2011. Aquaculture, fisheries, poverty and food security. Working Paper 2011-65. Penang, Malaysia: The WorldFish Center. 60 p. [http://pubs.iclarm.net/resource_centre/WF_2971.pdf]
- Bell J.D., Kronen M., Vunisea A., Nash W.J., Keeble G., Demmke A., Pontifex S. and Andréfouët S. 2009. Planning the use of fish for food security in the Pacific. *Marine Policy* 33(1):64–76.
- Bennett E. 2005. Gender, fisheries and development. *Marine Policy* 29(5):451–459.
- FAO (Food and Agriculture Organization). 2016. The State of World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all. Rome: FAO. 200 p.
- Fisher B., Naidoo R., Guernier J., Johnson K., Mullins D., Robinson D. and Allison E.H. 2017. Integrating fisheries and agricultural programs for food security. *Agriculture and Food Security* 6(1):1.
- Golden C.D., Allison E.H., Cheung W.W.L., Dey M.M., Halpern B.S., McCauley D., Smith M., Vaitia B., Zeller D. and Myers S.S. 2016. Nutrition: Fall in fish catch threatens human health. *Nature* 534(7607):317–20.
- Harper S., Zeller D., Hauzer M., Sumaila U.R. and Pauly D. 2013. *Women and fisheries: Contribution to food security and local economies*. *Marine Policy* 39:56–63.
- Lambeth L., Hanchard B., Aslin H., Fay-Sauni L., Tuara P., Des Rochers K. and Vunisea A. 2002. An overview of the involvement of women in fisheries activities in Oceania. In: Williams M.J., Chao N.H., Choo P.S., Matics K., Nandeeshia M.C., Shariff M., Siason I., Tech E. and Wong J.M.C. (eds). *Global Symposium on Women in Fisheries*. Penang, Malaysia: ICLARM, The World Fish Center. 209 p.
- Matthews E. 1991. Women and fishing in traditional Pacific Island cultures. Information Paper 14. Noumea, New Caledonia: South Pacific Commission. 23rd Regional Technical Meeting on Fisheries, Noumea, New Caledonia, 5–9 August 1991. 7 p. [<http://purl.org/spc/digilib/doc/77et2>]
- Weeratunge N., Snyder K.A. and Sze C.P. 2010. Gleaner, fisher, trader, processor: Understanding gendered employment in fisheries and aquaculture. *Fish and Fisheries* 11(4):405–420.
- World Bank. 2012. Hidden harvest: The global contribution of capture fisheries. World Bank Washington, DC. [<http://documents.worldbank.org/curated/en/515701468152718292/Hidden-harvest-the-global-contribution-of-capture-fisheries>]



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Barriers and constraints to gender equality and social inclusion of women sellers in municipal markets in Fiji

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Introduction

Historically, institutional and systematic discrimination against women and girls has long been existent in every sphere of society thus severely impacting their lived realities. The Pacific Islands region has had its fair share of challenges with addressing gender disparities in key areas, including women's participation in decision-making and leadership, access to education, and in particular, regards to this article, the issue of women's access to economic opportunities and employment.

In Pacific Island markets, 75–90% of vendors are women, and their earnings often make up a significant portion of household incomes in the informal sector. Despite this, women are often excluded from market governance and decision-making. The 'Markets for Change' project run by United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) addresses barriers and constraints to women's economic empowerment.³ The project 'aims to ensure that marketplaces in rural and urban areas of Fiji, Solomon Islands and Vanuatu are safe, inclusive and non-discriminatory, promoting gender equality and women's economic empowerment'. These efforts include extending and expanding existing market buildings, in some cases rebuilding entire new municipal markets and accommodation centres for rural market vendors, water and sanitation provisions, which have resulted in greater women's representation in market forums, and communicating issues to relevant authorities. As a result of the Markets for Change project, women have both increased sales and their representation on market committees. They have also been vocal to ensure their needs are heard and met when it comes to allocating market fees to improve economic opportunity, and the safety, health and wellbeing of market vendors.

In Fiji this project has, to date, only engaged with women selling fresh produce, mainly fresh fruits and vegetables, while those selling seafood have not been covered under the project. This is despite the substantial contribution of coastal fisheries to household nutritional security and income. However, these contributions are often overlooked, underestimated and/or undervalued (Chapman 1987; Weeratunge et al. 2010; FAO 2017). As a result, technical and funding support tends to be focused on male fishers. Preliminary results from a national baseline socioeconomic study of indigenous Fijian (*iTaukei*) women in the inshore fisheries sector shows that 44% of women fish for income,

a significant increase from previous work on Fijian women in the fisheries sector (Thomas et al. in prep.).

In early 2018, the Wildlife Conservation Society (WCS) partnered with UN Women, the Ministry for Local Government, and three municipal councils (Suva, Labasa and Savusavu) to undertake a study aimed at improving gender equality and social inclusion of women seafood vendors in municipal markets in Fiji.

Specific objectives of the study were to:

- better understand the barriers and constraints faced by (and the needs of) women seafood market vendors;
- provide information that will assist policy-makers in creating policy that is aligned with the needs of women seafood vendors;
- assess women's level of dependency on selling seafood at markets; and
- understand women's decision-making power regarding their seafood sales at markets.

Methodology

Socioeconomic questionnaires were designed by fisheries and gender specialists from WCS and UN Women to gain information on the selling habits of women, their needs in terms of being able to safely sell at the market, their level of decision-making power, the barriers they face and their needs. The survey was tested on women seafood vendors in a local village prior to implementation in three markets across Fiji. There were two versions of the one-on-one survey: one for fishers (those women who caught the seafood themselves) and one for middlewomen (women who purchased the seafood from someone else to

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³ <https://unwomen.org.au/our-work/projects/safer-markets/>

sell). The interviews were conducted in the respondent's preferred language (*iTaukei*, Hindi or English), and attempts were made to interview around one-half (at the larger markets) to three-fourths (at the smaller markets) of the women seafood vendors at each of the study markets. The questions were carefully translated through a collective discussion among interviewers who both understood and spoke the varying distinct dialects of *iTaukei* women. Although Bauan is the common dialect among *iTaukei*, it is critical to understand that some *iTaukei* women are more comfortable speaking other *iTaukei* dialects. This was an important methodological component to ensure that the questions were clear and that the interviewee was comfortable in understanding what was being asked of her and could, therefore, respond with the full extent of her knowledge.

Preliminary discussions were held with each of the councils to get background information on the market such as how many women sold seafood (both cooked varieties

and live catches) there, on which days of the week, and their availability to meet with WCS staff for an interview. One-on-one surveys and focal group discussions were held with women sellers at the Savusavu and Labasa municipal markets from 6 to 10 November 2018. Questions presented to the women seafood vendors related to when and how long they have utilised the market space, how much they pay in market levies, what has been their experience with earning an income from their sales, and the challenges they encountered at various stages of their business. A short summary of the women interviewed is shown in Table 1.

Surveys will be held at the Suva Municipal Market in January 2019. Once completed, a report will be prepared for sharing with municipal councils to help guide efforts to improve facilities and market spaces for seafood vendors in partnership with UN Women.

Table 1. Summary of the women sellers interviewed.

Locations	# Women	Ethnic composition	Age (yr)	Education levels	Marital status
Savusavu	7	<i>iTaukei</i> (71%) Indo-Fijian (29%)	31–38	Both primary and secondary schools	Married (57%) Widowed (29%) Single (14%)
Labasa	26	<i>iTaukei</i> (100%)	23–69	Both primary and secondary schools	Married (88%) Widowed (4%) Single (8%)

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References

- Chapman M.D. 1987. Women's fishing in Oceania. *Human Ecology* 15(3):267–288.
- FAO (Food and Agriculture Organization). 2017. Towards gender-equitable small-scale fisheries governance and development. Rome: FAO. 154 p.
- Weeratunge N., Snyder K.A. and Sze C.P. 2010. Gleaner, fisher, trader, processor: Understanding gendered employment in fisheries and aquaculture. *Fish and Fisheries* 11:405–420.



Handbook for Pacific gender and social inclusion in small-scale fisheries and aquaculture

In 2019, the Pacific Community (SPC) will publish a handbook designed to give practical guidance for staff working on fisheries and aquaculture in Pacific Island governments on how to improve gender and social inclusion in their work. The Handbook on Pacific Gender and Social Inclusion in Small-scale Fisheries and Aquaculture (hereafter referred to as 'the Handbook') will focus on the responsibilities of Pacific Island governments to help promote sustainable development outcomes for all people relying on coastal fisheries and aquaculture for their livelihoods. The contents of the handbook will, therefore, be structured around the tasks involved in government work on coastal fisheries and aquaculture – around the planning and implementation of projects and programmes – including social analysis, monitoring and evaluation, policy development, community engagement, fisheries management, and livelihoods projects.

The idea for the Handbook came about in 2017 as part of discussions around the activities in the final year of an Australian Government-funded 'Pacfish' project on community-based fisheries management in Solomon Islands, Vanuatu and Kiribati. One of the questions raised was how to better understand the connections between community-based work and the work of governments, regional organisations and donors. As part of the process, staff from the University of Technology Sydney (UTS) travelled to Solomon Islands, Vanuatu and Kiribati and asked people working in government agencies for fisheries management and aquaculture development, environmental protection, and women's affairs about how they approach gender equality and social inclusion in their work on coastal resource management and development. Findings from these interviews were discussed during a workshop

in June 2017 at UTS. Workshop participants decided that some kind of a toolkit or handbook for fisheries agency staff would be useful. Staff working in fisheries and aquaculture are usually trained in biology rather than the social sciences, and while many are aware that social inclusion is an important part of sustainable fisheries and aquaculture development, they don't have the right training or experience to address social issues in their work.

A first draft of the Handbook was worked on during a writing workshop in November 2017 (Fig. 1). Feedback and new material were then incorporated into the draft during the following months. A second draft was worked on during another writing workshop in November 2018 (Fig. 2), bringing the first edition of the Handbook through to publication in early 2019.



Figure 1. Participants of the first Handbook writing workshop, November 2017, Nadi, Fiji.

Content of the Handbook and plans for 2019

The Handbook will be specifically tailored to Pacific Island government staff working on coastal fisheries and aquaculture, and will include many examples and case studies from the region. The first edition of the Handbook will consist of five modules: 1) Introduction (an overview of why gender and social inclusion are important in coastal fisheries and aquaculture in the Pacific); 2) Gender and social inclusion analysis; 3) Monitoring, evaluation and learning; 4) Government processes; and 5) Policy cycle. During 2019, we intend to draft three more modules to include in a second edition of the Handbook on: 6) Community engagement; 7) Livelihood projects; and 8) Small-scale fisheries management.

Once the Handbook is launched, the next activity will be to trial its use in training for government staff from around the region, and revise it based on lessons learned from this testing. The aim is to have the Handbook be as useful for fisheries and aquaculture staff as it can be, and that means that testing and revision will be needed. It will also be important to develop high-quality teaching materials for using the handbook in training activities.

If you would like to be involved in helping develop the second edition of the Handbook, or in the training as a trainer or as a trainee, please contact the following organisers:

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Organisations that have supported the Handbook's development

The Handbook on Pacific Gender and Social Inclusion in Small-scale Fisheries and Aquaculture will be published by the Pacific Community (SPC). It was developed through writing workshops funded by the Australian Centre for International Agricultural Research (FIS/2010/056 and FIS/2012/076) and the United Nations Food and Agriculture Organization Subregional Office in Apia, Samoa.

Other participating partner and author affiliate organisations include (in alphabetical order): Australian National Centre for Ocean Resources and Security, Centre of Excellence on Coral Reef Studies at James Cook University, Charles Darwin University, Fiji Ministry of Fisheries, Kiribati Ministry of Environment Lands and Agricultural Development, Kiribati Islands Conservation Society, the Pacific Islands Forum Fisheries Agency, Samoa Ministry of Agriculture and Fisheries, Solomon Islands Community Conservation Partnership, Solomon Islands Ministry of Fisheries and Marine Resources, University of the Sunshine Coast, University of Technology Sydney, Vanuatu Department of Environmental Protection and Conservation, Wildlife Conservation Society, Women in Fisheries Network – Fiji, and WorldFish.



Figure 2. Participants of the second Handbook writing workshop, November 2018, Suva, Fiji.



GAF7 participants discuss issues not addressed in other fisheries and aquaculture conferences

By Meryl Williams¹ and Nikita Gopal²

At gender in aquaculture and fisheries conferences, such as the 7th Global Conference on Gender in Aquaculture and Fisheries (GAF7), topics commonly overlooked in mainstream conferences come to the surface. This article shares some of those topics that are relevant to the Pacific, such as the consequences of gender blindness in coastal community projects, disaster relief, fisheries governance and fish value chains, and how seaweed farming can better benefit communities.

GAF7 was held in Bangkok from 18 to 21 October 2018 on the campus of the Asian Institute of Technology. It was organized by the Gender in Aquaculture and Fisheries Section of the Asian Fisheries Society, the Asian Institute of Technology (AIT), and the Network of Aquaculture Centres in Asia-Pacific (NACA). It was sponsored by the Australian Centre for International Agricultural Research, WorldFish, the Crawford Fund, United States Agency for International Development Oceans and Fisheries, Plan International, Thailand Convention and Exhibition Bureau, and the Commission on Gender and Geography, and has 17 partners and supporters from Asia, Australia and beyond.³ To read more about GAF7, see the boxed text.

Gender and fisheries/aquaculture in the Pacific, and insights from other regions

Three presentations, specifically on the Pacific, were presented at GAF7 but many others addressed topics that could also be relevant to Pacific Island countries. These topics included seaweed farming, tuna value chains, and reviews of performance on gender in coastal community projects.

On the Pacific

In her presentation 'From resistance to internalization: The spread of 'gender equality' in small-scale fisheries governance', Sarah Lawless and colleagues probed how Fiji and Solomon Islands were incorporating gender equality into small-scale fisheries governance. A typology of stages, based on norm diffusion theory, was proposed: resistance, rhetorical adoption, contestation, implementation and internalisation. From interviewing 64 people working in 26 governmental and non-governmental institutes, the study found evidence for the first three stages – resistance to contestation – but few signs that fisheries institutions had arrived at the implementation and internalisation stages. Lawless proposed that potential areas for influencing

progress included embracing contestation of gender equality as a governance principle, and re-framing gender to better highlight its importance to small-scale fisheries.

Sangeeta Mangubhai's presentation 'Gender-disaggregated impacts of a Category 5 cyclone on rural fisher communities in Fiji', concerned Cyclone Winston's impacts (February 2016). In quantifying the impact, Mangubhai and colleagues paid attention to women's as well as men's fishing and assets before and after the cyclone, estimating gear loss and livelihood and subsistence reliance on fishing. The study found large differences in the financial losses and damages to boats and engines across districts and provinces, based on their locations in relation to the cyclone. Compared to men, women were more involved in subsistence fishing, owned more of the simple gear types such as hooks and lines, and suffered greater total gear losses. Yet, despite these insights, government and development agencies made little effort to ensure that both women and men had equitable access to the fishing gear that was provided after the cyclone. Local food security was affected due to the loss or reduction of subsistence fishing, and fish consumption by coastal communities went down from an average of 6 to 2.5 fish meals a week, before and after Cyclone Winston, respectively. Reports of gender-based violence surfaced. Sangeeta noted that despite the data now available, business-as-usual prevails. Most replacement gear was delivered through the village headmen or community groups in which women were not well represented. Much still needs to be done in policy-making but since Fiji is still drafting its climate change adaptation plan, the study results will be a very useful input for decision-makers. A full copy of the report can be downloaded from: <https://fiji.wcs.org/Resources/Reports.aspx>

Experiences in Fiji mirror those presented in papers from the Philippines, Thailand and Cambodia. These showed how the impacts of disasters were 'gendered', thus a gender lens is needed in assessment models, prevention strategies,

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³ <http://www.genderaquafish.org/gaf7-organisation-sponsors-partners/>

and mitigation and rehabilitation initiatives. Coping and adaptation strategies are also gendered and interventions must be tailored to fit the needs of women and men. Lastly, presenters demonstrated the importance of using surveys and technology in generating information to enhance knowledge about gender issues.

The third Pacific paper, 'Harnessing Palauan fisherwomen's ecological knowledge for sustainable management', was presented by Caroline Ferguson who has just begun her studies on Palauan women's fisheries. She asked the question, which she will approach through a case study of the sea cucumber fishery, 'Why have so few management rules emerged in the women's fisheries?'

Coastal community projects perform weakly on gender

Two presentations reviewed the performance of coastal fisheries projects in Indonesia with respect to gender, and both reported disappointing results.

The first, presented by Angela Cruz, 'Addressing gender gaps from a programmatic perspective', examined Sustainable Ecosystems Advance (SEA) projects in Maluku, North Maluku, and West Papua provinces in Indonesia. The projects aimed at improved resource management and conservation, using marine protected areas, marine spatial planning, law enforcement and sustainable fisheries. Gender inclusion was included as a project requirement. The SEA project did undertake some of gender analyses and surveys of perceptions, but most of the data were not analysed. Although a gender specialist was available in the development agency's Jakarta office, few in the field were aware of this, nor were they familiar with agency and government gender mainstreaming plans. No gender training was conducted; no gender targets were set or monitored; and gender sections were the first cut out of streamlined project reports. Thus, implementation bottlenecks, coupled with the prevailing rhetoric, used even by the women who referred to themselves as 'just housewives' and not serious participants, meant that gender performance was weak. Moreover, agency experience is that many projects suffer from similar problems.

Natasha Stacey presented 'An evaluation of recent initiatives on women, gender and livelihoods in small-scale fisheries in Indonesia', which covered 20 past and current coastal livelihood projects, variously supported by bilateral funding agencies, the Indonesian government, multilateral agencies and non-governmental organisations. She and her colleagues categorised the apparent gender approaches as 'none' – 8 projects, 'gender accommodating' – 10 projects, or 'gender transformative' – 2 projects. Gender was usually conflated with women and little attention was given to institutional or socio-cultural factors contributing to inequalities, and women's existing activities and roles were taken as given. Disappointingly, no clear association was found between the gender approach in the project and the gender policy or strategy of the implementing agency. Gender outcomes were not evaluated.

Seaweed farming

On many oceanic islands, communities have become dependent on small-scale, labour-intensive seaweed cultivation. In the Pacific, Solomon Islands, Papua New Guinea and Kiribati are the main producers of seaweed. Seaweed farming has been mainly beneficial for the communities, and usually well accepted by the farmers, although, as this section indicates, women's status and prospects for communities need improving. How can domestic markets and products be more profitable? How can local farmers gain better transparency and negotiating power in the export markets?

At GAF7, gendered case studies from Zanzibar (Tanzania), Indonesia, and central and southern Philippines, revealed the household, community and environmental opportunities and impacts, positive and negative, of seaweed farming. The studies were concerned with how to improve the lives of women in seaweed farming and processing, such as how to move up the value chain with new value-added products and access new stable and transparent markets. What chances do these aspirations have against the power of distant markets and environmental stressors?



Zanzibar seaweed farmers preparing seaweed in tubular nets. (images: Cecile Brugere)

In Zanzibar, Tanzania, Cecile Brugere and colleagues in their paper, 'Women's empowerment through improved seaweed farming technology: The story of Sea PoWer in Zanzibar' report major problems with traditional intertidal culture methods, including terrible working conditions for the women farmers and rising sea temperatures. The organisation Sea PoWer, therefore, started helping women to venture into subtidal farming, using boats and an innovative technology based on tubular nets. These practices greatly alleviate women's hardships because they stay fewer hours in the seawater, are not stung by sea creatures, and suffer fewer physical injuries than when they have to carry heavy loads of equipment and product across intertidal areas. Although innovations are not a panacea, this one became an entry point to greater self-esteem, social capital, and income.

Indonesia and Philippines are the world's second and third largest seaweed producers. Women play major roles in what Silva Larson described in her paper 'Profit or social capital? A case study of the motivations behind seaweed women's groups in Indonesian villages' as a large industry, dominated by smallholders and family farms dependent on exporting raw dried material. Two GAF7 presentations from Indonesia and three from the Philippines examined the issues.

In Takalar Regency, South Sulawesi, Larson and colleagues used a wellbeing impact evaluation of community-scale processing of seaweed, working with female group members. Respondents reported that the positive impacts of seaweed processing and group membership were: 1) creation of social networks; 2) improved awareness of and access to drinking water; 3) sharing and learning new skills; 4) cleaner natural environment; 5) having their own business in the village; 6) having more money for basic and secondary needs; 7) having a job that they enjoy; and 8) the ability to purchase a motorbike. The Government of Indonesia has initiated diversification programmes such as domestic industrial processing to produce higher quality gel products, and encouraging small-scale processing for food.

In the same Regency, Mardiana Fachri and colleagues focused on the opportunities through seaweed-based food products ('Stories from village-based seaweed groups in

Indonesia – chips, sticks and bakso: A case study of the stories of seaweed women's groups in Indonesian villages'). They surveyed women in 17 groups, from 186 such groups in South Sulawesi, and found that most groups had fewer than the government requisite of 10 members, suggesting that the groups were not meeting their needs. Moreover, their only support was from the government. Thus, the groups tended to be reactive, producing the foods only when they had an order. The groups lacked good access to markets and permanent buyers. The government was unable to help them with market linkages and many of their products were not competitive. Fachri concluded that the group processes should be redesigned to overcome current problems. Men could also be included in the groups.

Caridad Jimenez and colleagues, as reported in their paper 'Seaweed farming in Western Visayas: Strengthening the roles of the women of Sabang, Guimaras', worked in the central Philippines with the Sabang Seaweed Growers Association whose members produced seaweed, dried it and made and marketed seaweed-based products from individual family farms. The association managed a Philippine Rural Development Project on seaweed culture, enterprise production and marketing. Division of labour studies found that women performed the majority of the farming and post-harvest processing work while their husbands performed tasks such as staking bamboo poles in the water. Farming created family social bonding and better community interactions and governance, as well as boosting family income for living, emergency and equipment costs, although income can be destabilised by local pollution, seaweed diseases and world prices. Women are now included in the economy and in production but despite their large labour contributions, they failed to appreciate how they had increased family incomes. They saw their labour simply as part of their domestic responsibilities.

Also in the central Philippines, Elena Mengo and colleagues in their paper 'Aquaculture through the lens of gender: An investigation into the socioeconomic impact of seaweed farming on coastal communities in Bantayan, Philippines' reported that they had surveyed the empowerment and wellbeing of women working on seaweed farms. The majority of respondents were in the lowest income class, although seaweed farming provided them with access to



Seaweed sticks, chips and bakso (balls) from south Sulawesi. (images: Mardiana Fachri)



(top left) Sabang seaweed farmer, Philippines; (top right) Sabang Seaweed Growers Association members manufacturing seaweed products; (bottom) Seaweed crackers, noodles and sticks produced by the Sabang Seaweed Growers Association. (images: Caridad Jimenez)

the workforce. Women were active in more of the farming tasks than men, but men had more decision-making power on the farm. Decision-making power was affected by ownership of the asset and years of experience, although a woman's farm ownership was not enough to grant her equal participation in decision-making. Women were empowered in the domestic sphere but efforts were needed to help them become empowered beyond this. Thus, Mengo and colleagues' presentation echoed similar results on women's empowerment as those by Jimenez and her colleagues.

Farther south in the Philippines, in Zamboanga Peninsular, Mindanao, Paul Ramirez and colleagues studied the value chain. Although men were very visible in the different nodes of the chain, women had significant involvement in production, post-harvest and marketing. But the gains of the poor men and women farmers were small in comparison to the profits of the other players. For example, the local nursery operators and farmers each received less than 10% of the whole value-added profit, compared to about 20% for the traders and over 60% for the processors and exporters. Traders could negotiate down the local price by referring it to the price of imported Indonesian products and local farmers lacked the negotiating power of information on local and international market prices. Although they contributed a considerable share of the family labour, women were not directly paid for their seaweed farming work, which was considered a family venture.

Tuna fisheries

General Santos City in Mindanao, Philippines, is a unique tuna port and critical to the Philippines' tuna fisheries. Two related gender studies were carried out at the port and in adjacent municipalities. One study was conducted by Marieta Bañez Sumagaysay and colleagues in WINFISH (National Network for Women in Fisheries in the Philippine) and reported on in their paper 'Tuna fisheries gender analysis: Case of General Santos, Philippines'. Alita Roxas and colleagues were commissioned by the United States Agency for International Development Oceans project to study gender in the tuna value chain, which they report on in their paper 'Engagements of women and men in the municipal and commercial tuna fisheries in Sarangani Province, Philippines'.

The studies identified three types of tuna value chains: municipal small-scale, commercial purse-seine or ring net, and commercial handline. In all three, women's roles were much more limited than men's. Stereotypes were unfavourable to women's and men's work in this traditionally male domain, and gender-responsive programmes and policies were lacking. According to Bañez Sumagaysay, however, not only women but men had little involvement in policy-making and community activities. Power and reward is concentrated at the upper end of the value chain.



A man weighs a tuna while a woman records the weight at General Santos City tuna port.
(image: Alita Roxas)

The tuna trade is a vital global industry and tuna stocks need to be sustained; therefore, as Roxas points out, parties in the value chain are expected to be knowledgeable about catch documentation and traceability (CTD) schemes, and sustainability such as through measures countering illegal fishing and promoting ecosystem approaches. At General Santos City port, women work in numerous low-key but nevertheless important jobs.

Running through value chain stages from pre-financing to onward trading, CTD work provides a good example of current and possible women's roles. At all scales, pre-fishing preparations and pre-financing are important, even for municipal fishers who cannot pre-finance their own trips and who use family labour for trip preparations. Pre-financing often links fishers and their households and/or companies to product consolidators (grouping fish from more than one harvester) and traders. Women can be involved in pre-financing, often as part of family businesses. Women financiers and consolidators or their women staff play a vital initial role as they record and track sales and profits. For the household, women are often responsible for documents registering boats and fishers. In the landing port, women often record and code operations while men do heavier physical work. Technology to facilitate handling large fish would allow women more opportunities, and benefit from the physical wellbeing of men. Women

were more open than men to mechanisms for sustainable fisheries for livelihood security. Gender-sensitive policies and approaches could benefit the aims of more sustainable and beneficial tuna fisheries for the formal and informal workers and households.

These studies in one male and capital-dominated value chain indicate that, in the Pacific, where tuna is critical to many economies, gender studies on tuna operations would help countries better address human welfare and sustainability goals.

Conclusion

The GAF conference provided an opportunity for a wide diversity of scientists and practitioners to share their knowledge and experiences on gender in aquaculture and fisheries. As the amount of gender work increases in the Pacific, we look forward to an even greater range of presentations from the region in future GAF events, especially as many of the issues, opportunities and challenges in the Pacific are similar to those in other regions.

Note: Discussions on women and seaweed presentations benefits from discussions with Silva Larson and Nicholas Paul but the ideas expressed are our responsibility.

BOX: About GAF7



GAF7 attracted 149 participants from 28 countries. Participants came from around the globe: Africa (4%); Asia (72%), Europe (5%), North America (7%), Oceania and Australia (7%), and South America and the Caribbean (5%); 81% of participants were women and 19% were men.

GAF7 was a vibrant meeting, from the opening session in which Dr Eden Woon, President of AIT, welcomed us, and the key note address given by Dr Darian McBain, Thai Union Global Director for Sustainable Development, to the final prize-giving and closing session, and the field trip organised by Thailand's Department of Fisheries.

Participants could select from among 95 research presentations, including 78 oral and 17 posters, grouped into 8 thematic sessions and 9 workshops, run in 4 parallel sessions, including participatory learning techniques.⁴ Most importantly, in the session and workshop discussions and over meals and snacks, participants discussed GAF issues, shared experiences and learned from each other.

While discussing gender issues in aquaculture and fisheries, GAF7 did not forget gender issues in conference participation. Free childcare services were offered to all participants, which allowed researchers and writers with young children to join in the immense sharing and learning experiences the conference offered. This facility was much appreciated by all delegates.

SESSION THEMES

- I. Gender assessments in fisheries and aquaculture
- II. Gender-disaggregated statistics
- III. Gender and the seafood industry
- IV. Gender and fisheries and aquaculture governance
- V. Gender and climate change with reference to fisheries and aquaculture
- VI. Focus on Sustainable Development Goal 5, and other Sustainable Development Goals, in fisheries and aquaculture
- VII. Gender research methods in fisheries and aquaculture
- VIII. Learning exchanges – experiences and lessons

SPECIAL WORKSHOPS

- I. Photovoice: Researching gender in aquaculture and fisheries through the camera lens (Janine Pierce, AwF Australia)
- II. GAF101: Using 'intersectionality' in research on gender and fisheries and aquaculture. A GAF 101 Training Session (Marilyn Porter and Holly Hapke)
- III. Plan International Seas for Change (Sadia Tahseen and Iris Caluag)
- IV. Furthering/deepening feminist perspectives in fisheries (Nalini Nayak and Cornelia Quist)
- V. Exploring gender equity and equality in the SSF Guidelines (Danika Kleiber, Whitney Yadao-Evans, and Cynthia McDougall)
- VI. Role of women fishworker organizations towards implementation and monitoring of small scale fisheries guidelines; case of African Women Network of Fish Processors and Traders (AWFISHNET) (Editrudith Lukanga and Kafayat Adetoun Fakoya)
- VII. Gender transformative approaches in fisheries and aquaculture: An exploration of strategies and emerging outcomes (Cynthia McDougall, Steven Cole and Afrina Choudhury)
- VIII. Gender analysis through Micro and Small Aquaculture Operation (MiSAO) Best Aquaculture Practises (M-BAP) (Zumilah Binti Zainalaludin)
- IX. Mainstreaming gender in fisheries education (Mary Barby Badayos-Jover, Arpita Sharma, Kyoko Kusakabe, Salin Krishna and Kumi Soejima)

⁴ <http://www.genderaquafish.org/gaf7-programme-ppts-abstracts/>



The outstanding student presenters were:

- **Angela L. Cruz** (presenter), Patrick J. Christie and Alan T. White: *Addressing gender gaps from a programmatic perspective.*
- **Veena N** (presenter) and Kyoko Kusakabe: *Migrant women's strategies to cope with employment practices in Thai food sector: A case study from Rayong and Trat.*
- **Sarah Lawless** (presenter), Tiffany Morrison, Anne Stephens, Philippa Cohen, Andrew Song, Sangeeta Mangubhai: *From resistance to internalization: The spread of 'gender equality' in small-scale fisheries governance.*
- **Benedict M.M. Carmelita** (presenter), Alice J.G. Ferrer, Jinky C. Hopanda, Herminia A. Francisco, and Canesio D. Predo: *Gender differences in possession of unused livelihood skills and desire to be involved in livelihood opportunities in coastal households in the Philippines.*



Prize winners (left to right): Angela Cruz, Veena N, Sarah Lawless and Benedict Carmelita

Products and events

In addition to the GAF conference website and E-book of abstracts,⁵ the GAF Section launched its new website and policy brief *Fishing for Equality: Why gender matters in aquaculture and fisheries*.⁶ The policy brief highlights the key actions that are needed to make real progress toward gender equality. All the products from GAF7 can be found on our website.⁷

⁵ <http://www.genderaquafish.org/gaf7-programme-ppts-abstracts/>

⁶ <https://www.genderequality.genderaquafish.org/>

⁷ <http://www.genderaquafish.org/gaf7-publications-2/>

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