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Women of Tabonibara lead fisheries management into the future

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A variety of fish from the Chindwin river and its wetlands on sale at Kalewa market in Kalewa township. Stockholm Environment Institute, Myanmar. © Wichai Juntavaro/SEI

Editor
Sangeeta Mangubhai, Director
Wildlife Conservation Society – Fiji Country Program
Suva, Fiji
smangubhai@wcs.org

Production
Pacific Community
BP D5, 98848 Noumea Cedex
New Caledonia
Email: cfpinfo@spc.int
www.spc.int/coastfish

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Editor's note

It continues to be one of the most challenging times for our planet as we live through multiple overlapping global crises – the COVID-19 pandemic, biodiversity loss and climate change. While vaccines are rolled out in the Pacific, the surge in cases in Fiji and Papua New Guinea remind us how fragile our bubbles are. It will be a while before we fully understand how multiple crises might affect and reshape fisheries and aquaculture.

This 34th edition of the Pacific Community's (SPC) *Women in Fisheries Information Bulletin* has 17 original articles on inshore and offshore fisheries, and aquaculture, with pieces from Fiji, Kiribati, Palau, Timor Leste and Canada. SPC colleagues provide a summary of the most relevant calls for actions from the 14th Triennial Conference of Pacific Women to further progress women's economic empowerment along the fisheries and agricultural value chains. Don't forget to check out *Toksave Pacific Gender Resource*, an online platform that aims to address gender inequality in the Pacific by making quality research accessible and discoverable.

I am delighted to see a surge in research on gender and fisheries by master's or PhD students. Roslyn Nand is looking at the contribution of women in small-scale fisheries to improve food security and resilience in Fiji. Sarah Lawless explores how the concept of gender and the principle of gender equality are represented in policy instruments that govern small-scale fisheries. Ruby Grantham presents a strong case for recognising the diversity of viewpoints and motivations for gleaning that look beyond their value for food and income. Let others know about what you are doing because who knows, it may lead to potential collaborations.

We welcome several new lead authors to the bulletin from the Pacific and beyond – Kirsten Bradford, Ana Ciriyawa, Ruby Grantham, Robyn James, Lindy Kanan, Roslyn Nand, Beia Nikiari, Kiley Price, Ann Singeo, Victoria Syddall, Seremaia Tuqiri and Esther Wozniak. Lastly, a thank you to Tiffany Straza, a strong advocate for Pacific women in the ocean spaces, for assisting in the editing of articles.

Sangeeta Mangubhai

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Pacific Community, Fisheries Information Section, BP D5, 98848 Noumea Cedex, New Caledonia
Telephone: +687 262000; Fax: +687 263818; cfpinfo@spc.int; http://www.spc.int/fame

Women and the business of aquaculture: A case for women tilapia farmers in Fiji

Salote Waqairatu-Waqainabete[1] and Lavinia Kaumaitotoya[2]

Introduction

Aquaculture in Fiji (and for parts of the Pacific region) has in the past been described as novel, fledgling, infant, small, underdeveloped or limited. However, in comparison to where it was two decades ago, the aquaculture sector in the Pacific has made progress in that at least five commodities (i.e. pearl oysters, marine shrimp, Nile tilapia, Kappaphycus *seaweed and freshwater prawn) are a proven basis for viable aquaculture businesses (Amos et al. 2014).*

Fiji's national average of fish consumption is estimated to be 21 kg per person per year (Bell et al. 2009), well below the recommended quantity of fish of 35 kg per person per year for good nutrition for Pacific Island people (SPC 2008). The country will require an additional 34,200 tonnes by the year 2035 to meet its food security requirement due to its predicted growth in population (Bell et al. 2011). Pond aquaculture has been identified as a strategy to help (in part) meet the shortfall. Freshwater aquaculture has existed in Fiji for over 50 years, whereby tilapia aquaculture in particular has been developed largely for remote areas and community-based food security and livelihood purposes (Amos et al. 2014). In 2013 the estimated tonnage was just over 200 tons, with prices ranging from USD 3.50-USD 5.00 per kg (*Ibid*). Today, prices have slowly reached USD 6.15/kg.

Tilapia species were first introduced into Fiji in 1949, when the culture of *Oreochromis mossambica* was initiated at the Sigatoka Agricultural Station. In 1968 Nile tilapia *(O. niloticus)* was introduced, replacing *O. mossambica* and became a well-accepted fish in local markets. Although tilapia is an introduced species, it has proved to be a relatively easy fish to grow with fast rates of growth, making it a favourable for culture by smallholder farmers, including community-based farms. Over the years with increase in consumer acceptance to the taste of freshwater fish, there has been a notable increase in the production of tilapia. Tilapia farming in Fiji has become a source of livelihoods for many families in Fiji and consumers rely on tilapia as another source of protein. With government seasonal bans on consumption of certain fish, such as groupers (known locally as *Kawakawa* and *Donu*), this is an opportune time to provide further exposure to this market.

Currently there are approximately 500 tilapia farms in Fiji, with 303 in the Central Division, 129 in Western Division, 54 in the Northern Division and 18 in the Eastern Division. Over 80% are subsistence farmers with the rest operating

[1] Australian Centre for Pacific Islands Research, Uni Sunshine Coast, Sippy Downs Queensland 4556. Email: salote@pacificfarmers.com
[2] Pacific Island Farmers Organisation Network, Nadi, Fiji

Figure 1. Katarina Baleisuva at KayBee farm. © Salote Waqairatu

at semi-commercial level (i.e. producing tilapia for both subsistence and commercial purposes) (SPC 2018). Of the three known local, active semi-commercial tilapia farmer clusters, there are four women farmers, three individual owners and one as a co-owner with her spouse, making up 15–20% of the total number of semi-commercial farmers. More data needs to be collected to confirm these numbers for women involved in community-based farms. Women tilapia farmers operate within a number of farm modalities including committee-run farms led by either males or females, male- and female-headed household farms, single male-headed household farms and family run or husband/wife team farms. Even so, at times men are more likely to be deemed the "face of the business" as they have more contact with extension officers and other technical support. Key findings from a recent gender analysis of women by SPC (2018) involved in tilapia farming in Fiji revealed that:

1. women play a major role in aquaculture farming regardless of farm modalities, but are not often included in training opportunities;

2. aquaculture activities seem to have an impact on the empowerment of women with respect to more decision-making opportunities (outside the household), leading to their greater recognition in formal structures within communities; and

3. the association or groups of women farmers (such as managed by a larger women's group or large family) appear to give women a sense of power, notably as a result of associations of women and the opportunity for a collective voice.

Here, we briefly discuss some key areas for the development of women in tilapia aquaculture in Fiji, gained from efforts by the Pacific Agribusiness Research in Development Initiative (PARDI2) and the Pacific Island Farmers Organisation Network (PIFON) in the establishment and capacity building of Tilapia Fiji (a local and recently formed Tilapia Farmers Association).

The need for sex-aggregated data surrounding the activities of women in freshwater aquaculture in Fiji

It is clear that women within freshwater aquaculture value chains are involved at various levels and that there are many others involved in additional supporting sectors, including academia, research, technical, and policy support. However, contributions by women and girls are invisible as there are almost no data supporting these observations. Studies that have looked at women's involvement in specific areas of aquaculture in Fiji include maricultured pearls (Southgate et al. 2019), *Kappaphycus* seaweed farming (Lal et al. 2010) and tilapia (Jimmy et al. 2019). There is a strong need to collect and share accurate, regular sex-disaggregated statistics for aquaculture, to shed light on how many women are employed, the types of work they do, and how this is changing over time (Brugere and Williams 2017).

Examples of data that should be considered for collection include: enrolment numbers of female students in specific aquaculture courses over time; the positions in which women are formally employed within the aquaculture sector; women's roles in value chains in the informal sector; and the value of their contributions to both formal and informal economies. The lack of comprehensive and timely data on women in aquaculture is a major reason why women are invisible in aquaculture policy. In comparison, women in small-scale fisheries are slightly better recognised in policy because fisheries and NGO research has provided more evidence of women's contributions in the informal sector and their large economic and food security contributions, as well as providing insights into their decision-making powers and their ownership and control of assets or resources (Thomas et al. 2021).

More women need technical training and should carry out training

One key area to further women in the aquaculture sector is ensuring they have access to proper technical training. Although there are training sessions and workshops carried out by various stakeholders such as the Ministry of Fisheries, the Pacific Community (SPC), the University of the South Pacific (USP) and others, most of the time, the majority of attendees have been men (SPC, 2018). Unless farms are owned and run by individual women or women groups (in the case of community-based farms), most of the time men are seen as the "face" of these tilapia enterprises because they are the ones who take on the responsibility of technical roles, reaching out to fisheries extension officers, liaising with additional technical support such as other farmers, and who consequently attend the workshops (SPC, 2018). In reality, on small-scale farms, women and men frequently work together, carrying out complementary activities. In medium and industrial scale aquaculture, women are at the lower end of the pay scale or unpaid. As production intensifies, women's engagement drops and they rarely become managers (Brugere and Williams, 2017).

Where women own, run and manage their own aquaculture enterprises as individuals, these are typically small in scale and turnover, and often combined with other income generating activities, or are part of a household farm enterprise carried out with others (Brugere and Williams 2017). This is clearly seen with some of the current leading women in tilapia aquaculture in Fiji such as Katarina Baleisuva, Arun Lata, Cathy Joyce and Laisiana Nayasi, who gain income from tilapia farming, agriculture and side ventures; for some this makes them the sole breadwinners of their family. Apart from Cathy, who co-owns one of Fiji's largest commercial freshwater aquaculture enterprises (Pacific Ocean Culture), Katarina, Arun and Laisiana make up a small number of women who attend local technical training sessions including hatchery, grow-out techniques and feed production. Furthermore, a case study of KayBee Farm (owned by Katarina, Fig. 1) has shown an attractive return on investment with her operating one of the very few privately owned tilapia hatcheries culturing all-male fingerlings in Fiji. The production of fingerlings by farmers such as Katarina eases the burden on existing government hatcheries to provide enough fingerlings for new and existing semi-commercial farmers (Vuki, 2018; Fiji Times 2019).

In community-based tilapia farms, women who received technical training were not only valuable to their own enterprises but also to other communities that were interested in pursuing tilapia farming, but lacked the technical knowledge. Women were empowered when called upon for technical assistance or advice in aquaculture requested by other communities, giving them opportunities to attend the regular monthly village meetings rather than only going when invited (SPC, 2018).

Although we do see fewer women receiving technical training to run their farms, we are seeing an increasing number of female students enrolling in formal undergraduate and postgraduate aquaculture courses, at least at USP. This clearly shows the need to collate more data on this to gain insight into the contributions and value of our female graduates.

Entrepreneurial support for women

Although women seem to trail behind men in receiving technical training in aquaculture for direct use in their own tilapia enterprises, they are more visible in general business management. Despite debate over whether women make better managers, the reality for many women is that they have little choice because of the time commitments and expectations associated with their traditional roles of managing the home (including its finances) and the general welfare of the family. This is not new for women to want to be more visible in the area of business management, record-keeping, marketing, negotiations and sales. As seen in one of the case studies, Laisiana Nayasi, a single mother and tilapia farmer from Ra Province, shared that record-keeping using the SPC Tilapia farming logbook enabled her to secure loans/financial support from development banks, and government grants (Jimmy et al. 2019). In 2020, the Pacific became the only region in the world with 41 qualified awardees to hold a Micro-Qualification in Establishing and Operating a Small Seafood Business. This was made possible through scholarships awarded by the USP Pacific-European Union Marine Partnership (PEUMP) Programme. Recognising the need to build capacity for small-scale seafood businesses, a second regional cohort of the micro-qualification will be held in August 2021, with 26 scholarships awarded and delivered through USP-Pacific Technical and Further Education (TAFE) in Suva, Fiji. Out of these, 15 recipients are women including one from Kiribati, three from Tuvalu, one from Vanuatu and the rest from Fiji. The first regional cohort, which was held in June 2020, had 15 graduates, nine of which were women. Training women and men in both the farm and business management skills is vital to ensure businesses are profitable.

Armed with the proper training and knowledge, women can further strengthen their communities and the industry by training others. A gender analysis on selected tilapia farms of various modalities in Fiji showed that women were empowered when armed with the technical know-how of raising tilapia and were invited by their own community and others nearby to share and train other men and women in tilapia farming (SPC 2018). It is interesting to note, though, that in some cases women are forced into this situation and not many voluntarily do this, indicative of the need for marketing training and even involvement within larger networks of entrepreneurs and industrial action groups for increased confidence in their knowledge, skills, contribution, products and businesses.

Tilapia aquaculture has been developed largely for remote-area food security purposes and has not yet provided the same basis for private sector–led economic growth and employment, as seen in Africa or the Caribbean (Amos et al. 2014). Although there is a small and slow-growing emergence of semi-commercial tilapia enterprises, there is much scope for up-scaling of tilapia production (Amos et al. 2014) led by market pull/push mechanisms, and from the present layer of small-scale and subsistence fish farmers, the next challenge is to add a layer of viable small- to medium-scale commercially oriented aquaculture for peri-urban markets, thereby enforcing the need for more access to business management, particularly marketing training.

Over the last five years, there has been increasing interest in supporting women in business (particularly at micro-small-medium (SME) level), resulting in a number of organisations and programs, especially focused on assisting women to establish their start-ups (incubators) or to accelerate them (accelerators) to reach their business aspirations.

Some examples of support include the following.

Figure 2. Community-based tilapia farm. © Tim Pickering/SPC

Fiji Enterprise Engine accelerator program: jointly developed and run by the Market Development Facility and the Fiji Commerce and Employers Federation (FCEF), this is a face-to-face mentor-style program focused on strengthening local SMEs, in the area of human resources, strategic planning, marketing and finance.

Academy for Women Entrepreneurs (AWE): supported by the US Embassy, AWE is designed to further enhance women entrepreneurs' skill sets in business and marketing. Recently, seven groups of 20–25 women throughout Viti Levu and Vanua Levu have started their virtual workshops (June 2021) consisting of online training paired with mentor facilitation. The US Embassy also partners with both the Women Entrepreneurs Business Council and

Makoi Women's Vocational Centre to manage the AWE program. US State Department funding of USD 23,000 will provide opportunities for 170 women to learn skill sets that can be directly and immediately applied to creating or enhancing their business (US Embassy website, 2021).

Pacific Agribusiness and Research Development Initiative (PARDI): funded by the Australian Centre for International Agricultural Research, this agribusiness project has worked with a number of SMEs over the years to provide mentorship in marketing and product development particularly in Agritourism. A number of women-led/owned enterprises have received support from PARDI, enabling further support from additional developmental agencies.

Business Link Pacific (BLP): is a private sector development programme funded by the New Zealand Ministry of Foreign Affairs and Trade, based in Auckland, New Zealand, and supported by in-country partners in Vanuatu, Fiji, Samoa, Papua New Guinea, Solomon Islands and Cook Islands. BLP connects small- and medium-sized businesses in the Pacific to local advisory services. The BLP quality approved network of advisors offers accessible services for business growth and quite recently has offered 50–100% subsidy cost of these services to businesses led or owned by women, particularly during COVID-19.

Women Entrepreneurs in Business Council (WEBC): was established (through a partnership between FCEF and International Labour Organization Bureau for Employers Activities-Norway Partnership) in September 2013. It is a subset of the Fiji Commerce & Employers Federation and is part of its seven Councils. WEBC's primary objective is to ensure that the voice of businesswomen in the formal and informal sectors is heard at the policy level. WEBC also runs many training programs.

The role of associations, collective action and capacity building

As a whole, there are more local women engaged in tilapia aquaculture at a community-based level (Fig. 2) than as individuals or as part of a husband–wife team. Collectively, *iTaukei* (Fijian) women who live in villages mobilise around issues, for example, learning and awareness of income generating skills, health checks in the village by medical personnel or civic education from various NGOs. Mobilisation is usually through church groups or community networks such as the *soqosoqo vakamarama* (village women's group), and as a collective, women have had access to training and information-sharing opportunities on health issues. Furthermore, interpersonal power gained through associations or groups, creates solidarity and support for one another, enabling them to use their collective voice to negotiate services, spaces and market access (SPC 2018). In the Pacific there are some good examples of women's groups around farming, including Samoa Women's Association of Growers, Fiji Floriculture Association, Tonga's Pearl Farmers Association, Papua New Guinea Women in Agriculture Development Foundation and the Australian Women in Agriculture that play key roles in advocating on behalf of their members to strengthen their individual agricultural enterprises and industries.

One of the key recommendations that came out of a previous case study was the need for the development of the Tilapia Farmers Association, to strengthen the sector and to facilitate training, exchange of information, technology transfer and delivery of assistance during major disasters (Vuki 2018). Gender issues in aquaculture lack strong advocates (with strong succession plans), despite some efforts by development agencies to promote women in (usually) small-scale aquaculture.

Figure 3. Some members of Tilapia Fiji during their workshop, 2019 © PARDI2/PIFON

In 2019, representatives of tilapia farmer clusters around Fiji attended a one-day workshop that was organised by the Pacific Island Farmers Organization Network (PIFON) with financial assistance from the European Union and the International Fund for Agricultural Development and facilitation support through the Pacific Agribusiness and Research Development Initiative (PARDI2). The objective of the workshop was to gauge farmer perceptions on the current local tilapia industry, identify key challenges faced by farmers and discuss practical steps to develop the industry through a participatory approach. One of the major outcomes of this workshop was the establishment of Tilapia Fiji (Fig. 3), a local tilapia farmers' association. In 2020, Tilapia Fiji was formally registered under the Department of Industrial Associations, Ministry of Employment, Productivity and Industrial Relations, with the understanding that it would be further developed by members themselves and with assistance from relevant stakeholders. A key role of the association is to be a well-structured, well-networked and nationally recognised association that would support its farmer members, keep all stakeholders informed and well connected and essentially form the foundation for a successfully developing industry. The formation of an association also opens further donor opportunities to finance capacity building and further training, in addition to providing a collective link between farmers, and public and private stakeholders. The newly established Tilapia Fiji conducted its first Annual General Meeting and was tasked with actionable items that paved the way forward for the association. This included the development of a commodity plan, the need for proper production data from producers, the need to conduct feasible studies on established farms to ensure sustainability, individual farm business plans, best farm practices, feed costs analysis and thorough value chain analysis for improved decision-making. Key stakeholders such as PARDI2 and PIFON will continue to partner in building organisational capacity for Tilapia Fiji to support its role in industry and for the wider local aquaculture community.

Conclusion: Where to from here?

Capture fisheries are limited and we are seeing decreasing catches and fish sizes; there is therefore a need to invest in sustainable freshwater aquaculture and mariculture (Amos et al. 2014) to meet future seafood demand. This investment should include the development of women in aquaculture, who are already playing critical roles along the value chain. A good example of this is the recent gender analysis done for local women tilapia farmers as individuals, husband–wife teams and farms that are community owned and run. Investments such as technical and entrepreneurial training and the establishment and capacity building of farmer collectives such as Tilapia Fiji (to improve networking and collaboration, technology, skills and research transfer, and technical advice) will also be pivotal to strengthening the contribution of women aquaculture farmers. It is clear that compared to women in capture fisheries, there is much more catching up to do to recognise the contribution of our women in aquaculture. Not only will such data improve decision-making for their development but also strengthen sustainable aquaculture for future food security and livelihoods.

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Commitments to gender equality have surged, but how deep do they run? A look at Pacific small-scale fisheries

Sarah Lawless,[1,2] Philippa J. Cohen,[1,2,3] Sangeeta Mangubhai,[4] Danika Kleiber,[1,2] Tiffany H. Morrison[1]

Within the 22 Pacific Island countries and territories, coastal ecosystems support remarkably high levels of biodiversity (CTI 2009) and hold immense social and cultural value for the largely coastal populations (Veitayaki and Novaczek 2005; Kronen 2007; Andrew et al. 2019). Pacific Island small-scale fisheries, a largely coastal and community-based productive sector, are critical for food and nutrition security, economic opportunity, and the well-being of communities (Kronen and Vunisea 2009; Sulu et al. 2015). Consequently, efforts to mediate the interplay between ecological and social dynamics and values of small-scale fisheries have been the focus of many development, management and conservation initiatives throughout the region.

While women and men play crucial roles in small-scale fisheries activities (Vunisea 1997; Bliege Bird 2007), women's contributions to the economy (Harper et al. 2013) and food security (Kronen and Vunisea 2009) associated with small-scale fisheries tends to be overlooked (Vunisea 2008). These contributions are particularly deficient within formal fisheries statistics and policy. Fortunately, researchers have begun to collect sex-disaggregated fisheries data, and more deeply interrogate fisheries roles (e.g. Thomas et al. 2021). Community level research has documented the role that gender norms (Vunisea 2008; Lawless et al. 2019), power relations (Locke et al. 2017) and social structures (Foale and Macintyre, 2000) play in perpetuating women's invisibility and associated low levels of agency in the sector. These insights and formal guidance (e.g. Barclay et al. 2021) have coincided with a surge in commitments to address gender equality in the sector, including within policies, strategies, reporting and monitoring requirements (SPC 2015, 2016, 2018). Accompanying these commitments, fisheries organisations (i.e. donors, regional agencies, governmental agencies, international development organisations, and the private sector) have begun to prioritise and invest in gender equality outcomes within the sector (e.g. DFAT 2019; PEUMP 2015).

The increased attention and visibility given to gender in the sector signals progress towards gender equality. However, recent institutional research finds the capacities of fisheries managers and practitioners to adequately consider and respond to these gender commitments are limited (SPC 2016; Song et al. 2019; Mangubhai and Lawless 2021). Adding to this challenge, gender equality as a concept has been found to be open to interpretation and difficult to translate into practice (Song et al. 2019; Lawless et al. 2020). Consequently, how and why gender equality is pursued, and what gender strategies entail is not well understood. To overcome these challenges our recently published study in *World Development* (see Lawless et al. 2021) asked three questions.

1. How are the concept of gender and the principle of gender equality represented in policy instruments that govern small-scale fisheries?
2. What implicit and explicit rationales are used to pursue the principle of gender equality?
3. What strategies are proposed to address gender inequalities?

[1] ARC Centre of Excellence for Coral Reef Studies, James Cook University, Australia, sarah.lawless@my.jcu.edu.au
[2] WorldFish, Malaysia
[3] Centre for Marine Socioecology, University of Tasmania, Australia
[4] Wildlife Conservation Society, Fiji

We reviewed 76 small-scale fisheries policy instruments (i.e. global guidelines, regional policies, national policies and legislation, organisational programme guides, annual reports, research reports, organisational policies or strategies, gender audits, codes of conduct and promotional material). These policy instruments were identified by Pacific fisheries and/or gender experts (n = 26) as those being used and having influence throughout the Pacific Islands region. We detail our key findings in the following section, then discuss their implications, and conclude by providing four opportunities for fisheries organisations to rise to current best practice and make progress towards gender equality in the small-scale fisheries sector.

How are the concept of gender and the principle of gender equality represented in policy instruments that govern small-scale fisheries?

To understand how gender was represented, we first examined definitions of gender. We identified 3929 statements where the term "gender" was used and analysed its use. We found gender was mainly represented as a focus on women (79%). Rarely was language used to demonstrate gender was understood as a social construct (i.e. that roles, norms and relations are socially prescribed). Masculinity and the influence of gender norms on men was only referenced in one of the 76 policy instruments.

We then identified the types of gender issues (or entry points for change) prioritised in the policy instruments. Our results indicated high attention to gender issues at organisational (38%) and individual levels (37%), compared to household (4%), communal (8%) and societal (13%) levels. At the individual level, the issues identified predominately focused on women's invisibility in the sector. Gender differences in divisions of labour were acknowledged at the household level, but issues surrounding family or intra-household relations were not recognised. At the organisational level the focus was on enabling gender sensitive organisational environments (i.e. inclusive recruitment processes); standardising gender practice and research priorities; gender capacity building of staff; and facilitating inter-organisational partnerships to work on gender. At the societal level, gender issues related to food and nutrition security and to marine tenure were identified.

What implicit and explicit rationales are used to pursue the principle of gender equality?

We examined the gender objectives expressed in policy instruments and found gender was predominately presented as important for *instrumental* gains (75%), that is, to drive environmental outcomes rather than for *intrinsic* reasons (25%), that is, to achieve fair and just outcomes (Fig. 1).

We then examined these gender objectives according to the authors of the policy instruments (Fig. 2). We found a clear relationship between objectives that sought "improved conservation or environmental outcomes", "sustainable small-scale fisheries management" and "economic development". We also found substantial variation in the objectives of the same organisations. An extreme example was an international organisation that referred to 13 of the 16 differing gender objectives, which spanned both *instrumental* and *intrinsic* reasons.

Our analysis revealed six distinct rationales specifying why gender was pursued in small-scale fisheries policy instruments (Table 1).

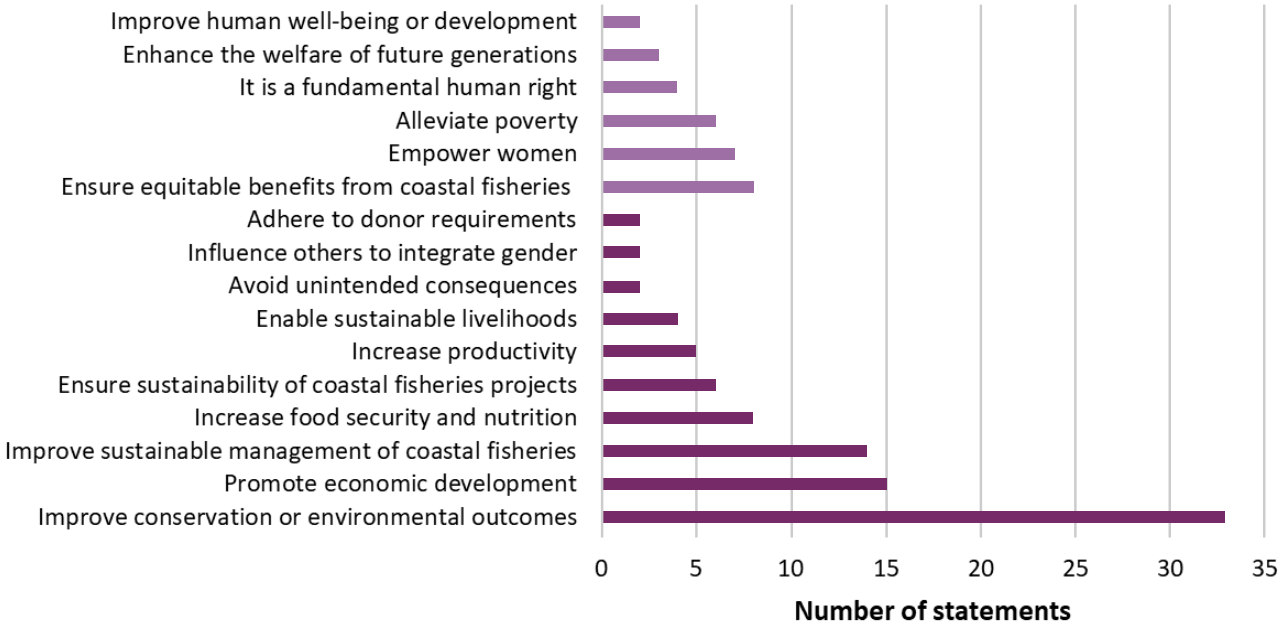

Figure 1. Statements (n = 121) indicating the dominant objectives for why gender equality is pursued in small-scale fisheries; organisation is based on whether they are intrinsic (light purple bars, n = 30) or instrumental (dark purple bars, n = 91).

Table 1. Six gender rationales found within small-scale fisheries policy instruments.

		Rationale	Objective(s)	Narrative	Approach	Policy Instrument	Organisation type						
							Governments	LNGOs	Regional agencies	INGOs	Donors	Experts	Private organisations
Gender blind	**Blind**	①Gender considerations are not relevant, or inherently addressed	Nil	Objectives and outcomes are not connected to gender, or assume that gender considerations are automatically incorporated.	None to minimal social analysis. Follows a "business as usual" approach.	- National fisheries policies, strategies and plans - Organisational codes of conduct, research reports	✓	✓	✓			✓	
Gender aware	**Instrumental**	②Gender considerations enhance small-scale fisheries projects	1–4	Project outcomes are prioritised and gender considerations are a means to reach targets or achieve project success.	Minimal gender and social analysis. Follows a "do no harm" approach	- Organisational gender audits, policies, programme guides			✓	✓	✓		
		③ Gender considerations facilitate conservation and environmental outcomes	5, 6	Gender is considered instrumental to achieving conservation and environmental outcomes. Conservation and environmental goals are the principle priority.	Accounts for gender norms and relations, particularly emphasises gendered access and control over natural resources and the goods and services they provide. In some cases, this can take the form of essentialising women's connection with nature.	- Organisational policies, programme guides - Regional policies - Global gender and fisheries guidelines			✓	✓	✓		✓
		④ Gender considerations increase productivity	7, 8	Equitable access and support in harvest and post-harvest activities is prioritised to increase efficiency and benefits.	Avoids considerable changes to environmental function but promotes productive livelihood models. This often involves providing direct support and services to women.	- Organisational policies, programme guides - Global gender and fisheries guidelines				✓	✓		
		⑤ Gender considerations maximise economic opportunity and growth	10	Ambivalence about the relationship between gender and the environment. Financial benefits prioritised over environmental outcomes.	Environmental management geared towards maximising economic benefits, including market oriented and value-added approaches to generate income. Economic objectives can lead to gender exploitative methods.	- Organisational gender audit, policies, programme guides - Global gender and fisheries guidelines			✓	✓	✓		✓
	Intrinsic	⑥ Gender considerations are integral to human opportunity	11–16	Gender equality is viewed as a fundamental human right or of its own intrinsic value.	The environment is viewed as an entry point or means to promote gender equitable outcomes. Gender relations, power and intersectionality are prioritised.	- Organisational gender audit, policies, programme guides - Regional policies - Global gender and fisheries guidelines			✓	✓	✓		

Note: The rationales (underlying narrative and approach) are organised according to whether they are gender blind or aware, instrumental or intrinsic, and the policy instrument and organisation type promoting each. The gender objectives associated with each rationale are in the Objective(s) column, and range from 1 to 16: (1) Adhere to donor requirements, (2) Influence others to integrate gender, (3) Avoid unintended consequences, (4) Ensure sustainability of coastal fisheries projects, (5) Improve conservation or environmental outcomes, (6) Improve sustainable management of coastal fisheries, (7) Increase productivity, (8) Enable sustainable livelihoods, (9) Increase food security and nutrition, (10) Promote economic development, (11) Ensure equitable benefits from coastal fisheries , (12) Empower women, (13) Alleviate poverty, (14) It is a fundamental human right, (15) Enhance the welfare of future generations, (16) Improve human well-being or development.

What are the strategies proposed to address gender inequalities? We found 261 statements detailing different gender strategies (i.e. proposed actions to address a specified gender issue) in the small-scale fisheries policy instruments. Two thirds of these strategies (67%) were process-oriented (i.e. focused on evidence generation and internal organisational processes). In contrast, only one third of strategies (33%) sought to address gender inequality at the community level, and/or within broader social systems. Of the process strategies, 96% were directed at organisational level change (i.e. improving organisational monitoring, research or evidence generation). The remaining 4% of strategies were directed at the societal level, for instance, looking at gender-inclusive national and regional fisheries policies. Of the project strategies, more than three quarters (79%) were targeted at individual level change. Only 28% of these strategies were directed at or sought to engage both women and men. The remaining 72% focused exclusively on women (i.e. enhancing their agency or delivering projects directly to women). There was no evidence of strategies that sought household level change, and only 7% were targeted at the communal level.

What this means for small scale fisheries in the Pacific

Our analysis of policy instruments that govern Pacific Island small-scale fisheries found that the sector is preoccupied with a narrow focus on women and women's issues. Attention to men, masculinity, gender identities or the power laden dynamics of gender relations rarely feature as part of fisheries analysis and project design. These finding are aligned with a trend known as "gender shrinking", where the concept of gender is diluted (i.e. meanings and problems are narrowed) (Lombardo et al. 2010). Questioning and challenging unequal power relations between women and men, and explicitly acknowledging men as critical actors in gender problems and solutions, can be uncomfortable for many and may disengage people from dealing with gender issues within policies, projects and workplaces (Nazneen and Hickey, 2019). In these cases, conflating gender with women may be deliberate, for instance, to make the concept of "gender work" easier to engage with and build slow acceptance (Nazneen and Hickey 2019). The tendency to focus only on women has also been found to be linked to the limited gender capacity and capability of individuals who are under the directive of their organisations or donors to "do gender" (Mangubhai and Lawless, 2021).

We found fisheries organisations were mostly inward looking – meaning they prioritised internal strategies for reform, and minimal attention was given to gender issues at the household, communal and societal levels. Gender norms and power relations within households, communities and societies profoundly shape the experiences of individuals, specifically their ability to make decisions, access benefits and experience costs (Rao 2017; Lawless et al. 2019). Overlooking such dynamics may compound women's experiences of poverty (Cole et al. 2015), reduce capacities to innovate (Cohen et al. 2016; Locke et al. 2017) and hinder the ability of women to access, control and benefit from fisheries resources and interventions (Lawless et al. 2019). Conversely, when gender is understood as a social construct that shapes different barriers and opportunities (i.e. related to tenure rights, education, and access to material resources) it is possible to work in ways that may challenge (or at a minimum not reinforce or exacerbate) gender inequalities (Rao 2017); for example, to destabilise inequitable divisions in labour

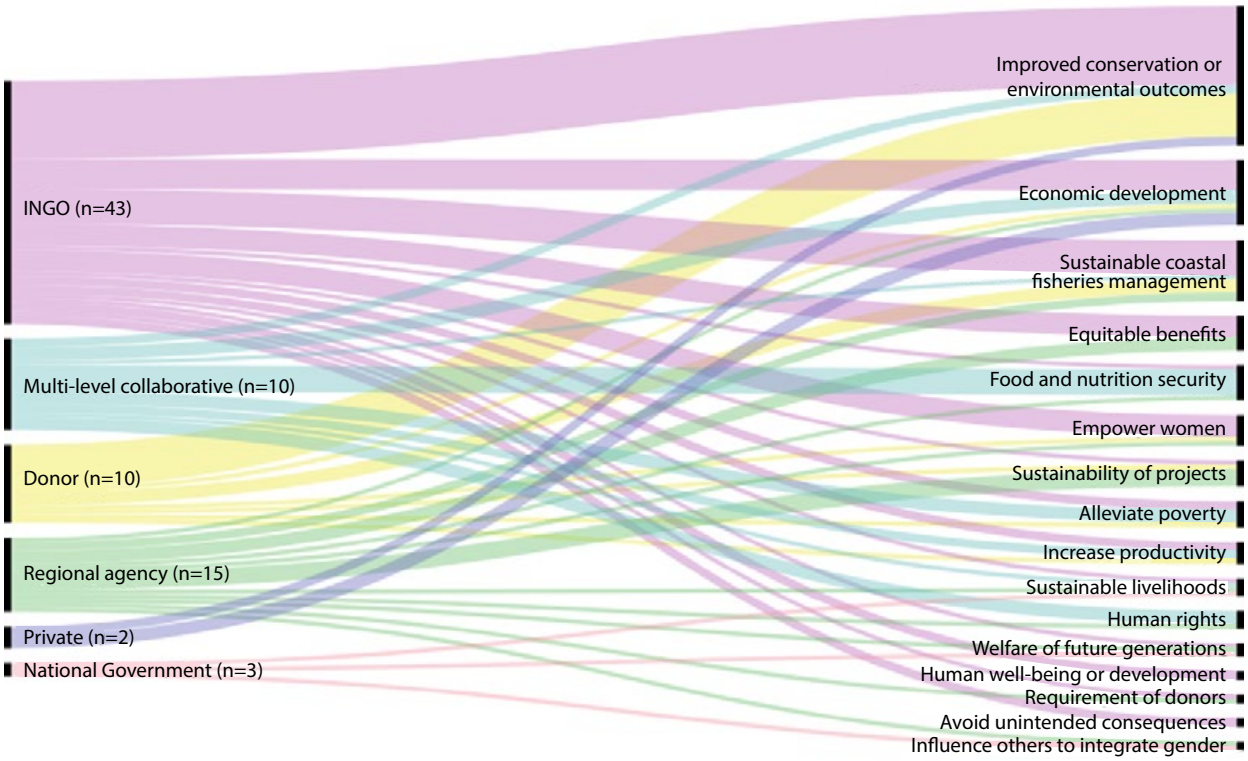

Figure 2. Relationship between the type of organisation (left) and the gender objectives (right) presented in small-scale fisheries policy instruments. The n refers to the number of times an organisation type stated an objective.

(Locke et al. 2017; Lawless et al. 2019), enable equitable access to productive assets (Cole et al. 2015) and examine and renegotiate power relations (Morrison et al. 2019).

We found gender was prioritised as an accelerant for *instrumental* goals (i.e. to drive environmental or conservation outcomes), more so than for *intrinsic* goals (i.e. to lead to fair and just outcomes). The rationalisation of gender equality for *instrumental* gains can, for example, enable the concept to be more easily integrated into policy agendas. This process is referred to as "norm bending", where individuals or organisations mould a global principle to achieve other goals (i.e. economic growth) (Lombardo et al. 2010). However, norm bending can inhibit progress towards gender equality, particularly in cases where equality is not ultimately the end goal. For instance, gender equality may only be prioritised for the achievement of non-gender goals, such as enhanced conservation outcomes or increased productivity of marine resources (Rao 2017; Nazneen and Hickey 2019). In these cases, the social justice goal becomes diluted or lost, and the complex and inherent moral nature of gender equality can be overlooked.

Although gender equality was predominately pursued instrumentally, six rationales were applied by fisheries organisations to justify the importance of gender equality, signalling that gender is recognised as integral to many different goals; however, this diversity also signifies the wickedness of governability problems (Jentoft and Chuenpagdee 2009; Song et al. 2017), where the values and priorities for gender equality among fisheries organisations are potentially incongruent with each other. Such diversity raises concerns about how fisheries organisations can advocate for gender equality effectively when there is limited consensus on the motives for pursuing the principle.

The gender strategies proposed in policy instruments suggested most emphasis was on improving internal organisational processes (e.g. equal opportunity recruitment), more so than those applied within fisheries projects (e.g. strategies to facilitate women's greater agency). While organisational level strategies are important in instituting standards for equitable and gender-sensitive workplaces, the heavy focus on internal processes may distract and limit the resources and attention given to projects (i.e. individual small-scale fishers, households and communities). Of the project strategies, women tended to feature as the primary project beneficiaries (e.g. through enhancing women's connections with fisheries value-chains, markets, business networks and training opportunities). Strategies solely focused on targeting and addressing "women's issues" are common across different sectors and contexts (e.g. Stacey et al. 2019; Lau et al. 2021; Mangubhai and Lawless 2021). These women-only approaches can be alluring as they tend to be more quantifiable and lead to tangible results, for example, counting and reporting on the number of women participating in projects and attending meetings, or the delivery of projects, innovations or physical assets to women. However, these approaches often lack practical strategies to address the gender dimensions of access, use, and adoption, and consequently often fail to accomplish their anticipated goals (see Vunisea 2008; Cohen et al. 2016; Rao 2017).

Recommendations

First, to overcome the tendency to conflate "gender" with "women", organisational narratives and strategies need to view gender as socially constructed, and acknowledge how gender norms and relations determine the rights, freedoms, and opportunities of different women and different men. As part of this effort, men need to be recognised as influential actors in the identification of gender problems and solutions.

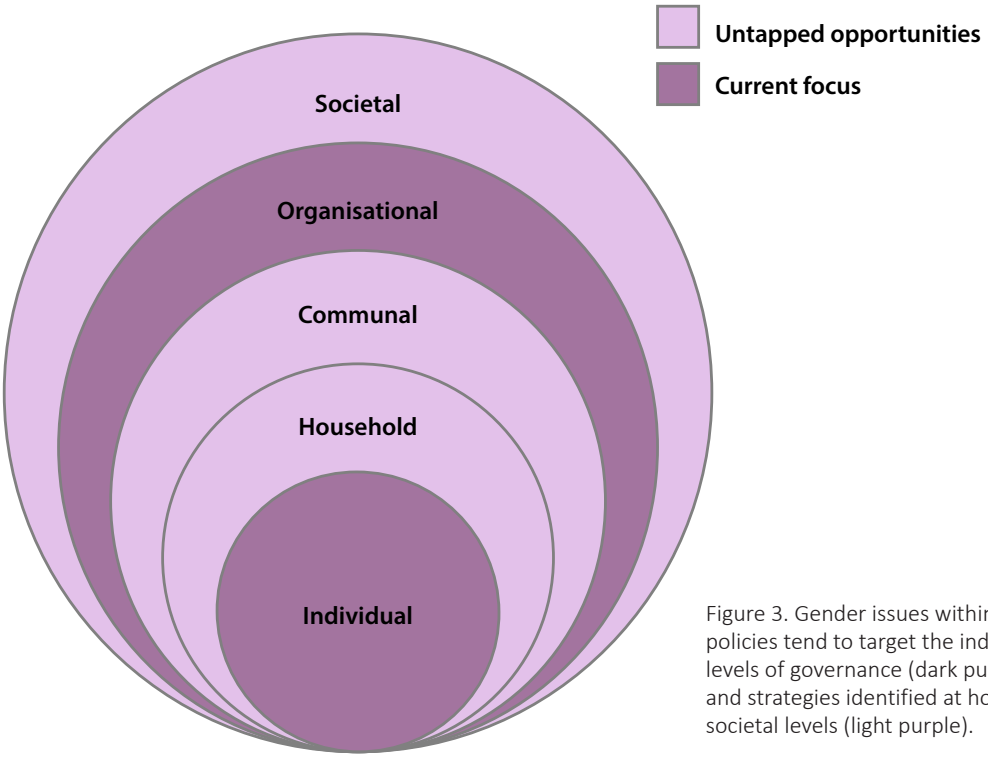

Figure 3. Gender issues within small-scale fisheries policies tend to target the individual and organisational levels of governance (dark purple), with few issues and strategies identified at household, communal and societal levels (light purple).

At a minimum, efforts should involve standards for the collection and reporting of sex-disaggregated data (e.g. Doss and Kieran 2014), facilitation techniques that are gender-inclusive (e.g. Kleiber et al. 2019), and the application and integration of gender analyses during project formation (e.g. Van Eerdewijk and Brouwers 2014).

Second, there needs to be a greater balance between *instrumental* and *intrinsic* prioritisation of gender equality. This may be articulated through commitments to both Sustainable Development Goal 14 (Life Below Water) and Goal 5 (Gender Equality). This shift requires organisations to question dominant objectives and rationales about why gender equality is prioritised (Lawless et al. 2020). The methodology we apply in this study may be useful in elucidating both the explicit and implicit governance objectives as a first step in promoting more equitable pathways for change.

Third, more attention needs to be given to addressing relational and structural inequalities across all spheres of governance. Our analysis has illuminated the areas of (in)attention to gender within the small-scale fisheries sector. Specifically, we have identified the societal, communal and household spheres as entry points and areas to improve gender integration in the future (Fig. 3).

Finally, in building strategies that are gender-nuanced, fisheries organisations need to develop novel partnerships that better engage with gender and development experts, for example, *feminist fisheries think-tanks* proposed by Williams (2019). Such a process may be useful in the gradual transfer of gender expertise and capacity to the fisheries sector.

Acknowledgements

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Gender inclusion and mainstreaming in Fiji's offshore fisheries sector

Seremaia Tuqiri[1] and Vilisoni Tarabe[1]

The project 'Developing Sustainable and Responsible Tuna Longline Fisheries in Fiji' is funded by the New Zealand Ministry of Foreign Affairs and Trade, coordinated through WWF New Zealand, administered by WWF Pacific, and is being implemented as a collaborative partnership between the Ministry of Fisheries, Fiji Fishing Industry Association, Fiji Maritime Academy and WWF-Pacific. The project seeks to contribute to the improvement of offshore fisheries management and encourage processes that will lead towards a sustainable seafood sourcing environment in Fiji.

Background

Gender inclusion and mainstreaming in the tuna longline industry in Fiji is still a relatively new area. The National Gender Policy for Fiji (2014) states the need for gender inclusion in all sectors of employment in Fiji; however, there has been minimal progress on gender mainstreaming work in the tuna longline industry. Cultural beliefs, social and religious norms and gender stereotypes continue to influence gender relations and can be barriers to women's participation in this sector (Vunisea 2021).

The offshore fisheries component of WWF Pacific's Sustainable Fisheries and Seafood Program is an advocacy, awareness, research and policy input initiative that involves working with the global WWF network and national, regional and international partner organisations and government to improve the health and management of tuna fisheries in the Pacific Islands region.

As part of improving understanding of the longline fishing sector from a socio-economic and cultural perspective with a focus on gender inclusion and mainstreaming in the offshore fisheries sector, gender and fisheries expert Aliti Vunisea was commissioned to undertake a desktop research and analysis and carry out consultations with stakeholders.

[1] World Wide Fund for Nature, Suva, Fiji. Email: infor@wwfpacific.org

FMA Offshore Fishing Skipper Programme students offloading a by-product fish species at Fiji Fish Jetty in Lami. © Ravai Vafo'ou/WWF Pacific

Solander Pacific Pte Ltd fishing crew offloading yelowfin tuna at Mua-i-Walu port, Suva. © Ravai Vafo'ou/WWF Pacific

Desktop gender analysis

In the industrial fisheries sector, despite policies aiming to create employment, women's participation in the sector continues to be marginalised. In recent years some women in the Pacific have become observers on tuna fishing vessels and some are engaged in shore-based activities, but these have happened at a slow pace. In Fiji, there have been very few women employed on fishing vessels. Employment within the Fiji Fishing Industry Association membership in 2020 involving 63 fishing vessels from 18 companies, which included employment in fishing activities (seagoing), fish processing (onshore), cold storage, engineering workshop and management, finance and administration, had a total of 1429 men and 126 women. Of these, seagoing fishing activities involved 1032 men and five women (Vunisea 2021).

The perception that the fisheries sector is a male-dominated sector has led to a degree of "gender blindness" in the tuna longline fisheries sector. This gender blindness means that the post-harvesting and trading activities of women and other areas of work that women could be employed in are often overlooked or neglected in fisheries development, management and planning. As a result, training and assistance programmes are often targeted at men only.

There is also a lack of sex-disaggregated data overall, including on the gendered retail and consumption patterns and the differing constraints on men and women to enable more effective participation of women in the industry. This lack of data on women's roles in offshore fisheries perpetuates the existing assumption that women's interests are taken care of by men and that women are better off employed in other sectors, and not in the offshore fishing sector (Vunisea 2021).

International awareness of inequitable and often inhumane working conditions in the offshore fishing industry has increased in recent years. This has reached a point where offshore fishing is an industry that has become synonymous with poor working conditions and human rights abuses when compared with other ocean industries like shipping. This is because the activity of fishing itself takes place outside the legal jurisdiction of any nation state, on the "high seas" and within exclusive economic zones (EEZs) where states that have sovereignty have little capability to enforce laws. There are indications that the fishing licensing and control system is vulnerable to corruption, as is the practice of awarding foreign fleets access rights to fishing grounds in developing states and possibly also the system of allowing foreign corporate entities the right to operate a commercial ship register of flag states that are unable or unwilling to enforce their criminal jurisdiction (Vunisea 2021).

The Pacific Islands Forum Fisheries Agency (FFA) has increased its focus on gender equality and social inclusion in offshore fisheries in the last few years. Gender-related policies have been in place in FFA since 2016; however, in recent gender discussion, issues raised included the need to understand the specific barriers faced by women and other marginalised demographic groups in the fisheries supply chain, the need for policies and practices to be more inclusive and for tuna fisheries work to include social inclusion and gender analysis (Vunisea 2021).

In the Pacific Island countries and territories, laws still exist that treat women and girls differently from men and restrict their opportunities and rights in areas such as employment, social protection, sexual harassment in the workplace, decision-making, land ownership, social, health and family status, education, and in constitutional protection (Vunisea 2021).

Findings from desktop research and consultation

- Gender participation in the tuna longline industry in Fiji has specifically been set back by the lack of basic facilities onboard vessels to ensure women' safety and well-being. Sleeping quarters and other amenities are not built to accommodate women. In addition, there are no specific processes and mechanisms to ensure reporting and the proper recording and following up by police of sexual harassment and human rights abuses.
- The industry has been viewed as a male domain, and women joining the industry are expected to live and work within very restrictive situations.
- Cultural perceptions and stereotypes continue to undermine progress that women are making in the industry.
- In the Fiji tuna longline industry, human rights abuse, issues related to contractual agreements and sexual harassment are issues that need to be discussed and addressed. The recent launch of the National Anti-Human Trafficking Strategies and Action Plan (Fiji Times 2021) has shed light on some emerging issues mainly related to forced labour or sexual exploitation that are linked to the fishing industry. Maritime regulations that could address these issues are also in place; however, implementation and enforcement of existing regulations have not been effective.
- In consultations with industry representatives, Fiji Fishing Industry Association highlighted the need for more work on data collection, setting baselines for gender work and the need for cost benefit analysis on the participation of both men and women in the offshore fisheries sector (seagoing).
- Sexual harassment policies for the workplace exist and cover infringement of these regulations within Fiji's EEZ; however, the enforcement and addressing of reported cases has been weak.
- Participation in the industry has positive impacts for both men and women, but the negative impacts are often directly felt by women. Negative aspects that affect the health and wellbeing of women include the increase in a woman's workload and domestic responsibilities when husbands are on long fishing trips, poor working conditions in processing factories, the sex trade, and the related transmission of sexually transmitted diseases including HIV/AIDS, and alcohol and drug abuse .
- Current gender participation at PAFCO, the largest processing plant in Fiji, is 33.5% males and 66.5% females; 88% of females employed at PAFCO work in the processing sector and they make up 46% of support workers. Participation of women in five fishing companies visited in Suva revealed that women predominantly worked in onshore facilities.

Yellowfin tuna ready for processing at Solander Pacific Pte Ltd's processing facility at Mua-i-Walu port, Suva. © Ravai Vafo'ou/WWF-Pacific

- Working conditions at PAFCO have generally improved with the upgrade of the factory since the new partnership agreement with Bumble Bee, although some issues remain in the working conditions of men and women.
- Awareness of the positive and negative impacts of the tuna industry will help in addressing those impacts with a negative effect on women. By highlighting the constraints that restrict the participation of women in the industry, it is envisaged that support will be given to help in the development of opportunities.
- Forced labour and human trafficking of fishers in the fisheries sector is not a new phenomenon; however, increased globalisation, competition, and the mobility of migrant workers have exacerbated the problem. Research into deceptive and coercive labour practices in the fisheries sector is not comprehensive or coordinated.

Recommendations

Several recommendations have emerged from the desktop study and consultations:

1) There is need to look at the tuna longline industry holistically, particularly at vessel employment and shore-based employment including maritime surveillance, aerial surveillance, skippers, prosecutors (inshore and offshore), post-harvest activities, processing, value-added activities and local businesses supported by the industry and identify areas where women can participate. All fishing companies should create more jobs within the industry where females can be employed.

2) Female crew could be allowed on short fishing trips only (less than two weeks) as a start before moving to longer sea trips. This will allow for safety issues and other services on board to be trialled for women's participation on longer fishing trips.

3) In addition, there is a need to look at how women can access public or private funding for spin-off business opportunities from the tuna industries. A suggestion for state-funded social protection schemes that women can access for funding small business included financial literacy education and loans on small and medium enterprises.

4) There is a need for vigorous and systematic collection of gender sex-disaggregated data in the offshore fisheries sector to enable the continuing monitoring of men's and women's engagement in the industry and to have a better grasp of the participation of men and women in the different components of the industry.

5) A cost–benefit analysis of women's and men's employment on board should be undertaken to identify other impacts of men being away for long periods of time from families, with the benefits and impacts to be determined and evaluated.

6) Opportunities for tuna (value-added) should be explored and the need for a market analysis conducted.

The outcomes of this desktop research and stakeholder consultation tie in with the work that SPC is currently doing and will feed into the development of a regional handbook on gender equity, social inclusion (GSI) and human rights (HR) issues in the Pacific Islands offshore fisheries sector.

The information in this article was sourced from the report 'Gender mainstreaming in Fiji's offshore tuna industry' (Vunisea 2021).

A group discussion on findings of a WWF-led Gender Mainstreaming in the Offshore Fisheries workshop in Lami, Suva. © Ravai Vafo'ou/WWF Pacific

A group discussion on findings of a WWF-led Gender Mainstreaming in the Offshore Fisheries workshop in Lami, Suva. © Ravai Vafo'ou/WWF-Pacific

Gender consultant Aliti Vunisea leading a discussion at the WWF-led Gender Mainstreaming in Offshore Fisheries workshop in Lami. © Jonacani Lalakobau/Fiji Times

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Key findings from Palau's gender and marine resources assessment: Women and men both important for use, management and youth empowerment

Ann Singeo,[1] Caroline E. Ferguson,[2] Iseko Willyander,[3] Reid Endress,[4] Surech Bells,[5] and Bryan A. Endress[4]*

Uncovering women's and men's roles in fisheries in Palau

Both women and men regularly harvest marine resources in Palau for food, custom, recreation, and income. Yet narrow definitions of "fishing" that exclude gleaning have masked women's important contributions in the sector (Kleiber et al. 2014). The "invisible, ignored, and unrecognized" nature of women's fishing activities (Thomas et al. 2021), particularly to outside researchers and funders, can lead to their exclusion from decision-making and support programmes intended to uplift all fishers (Reklai 2020), resulting in women's loss of benefits from fisheries (Ferguson 2021).

We conducted a nationwide survey to better understand how women and men use marine resources, how women's and men's roles in fisheries management are perceived, and how women and men share knowledge intergenerationally in Palau (ref. Singeo et al. 2020 for the full report). We found that women and men tend to use marine resources differently, producing gendered knowledge of the marine environment. Thus, both women and men are essential for comprehensively informed fisheries management. We found broad support among women and men in Palau for including both women and men in fisheries management and stewardship. Finally, we share a Palauan youth perspective on the future of marine resource use and management in Palau.

Methodology

To uncover how women and men use and manage marine resources in Palau, we conducted a nationwide survey of 365 women and 382 men in 12 of Palau's 16 states (not including outer islands), randomly sampled and stratified by gender and state. We achieved a confidence interval of 95% with a 10% margin of error, meaning our results are generalisable; however, we caution that relations to the marine environment vary by state and may be significantly different in the outer islands where we did not survey. We asked a series of general questions to every respondent, then asked each individual to select up to two natural resources activities that were significant to them. Individuals then answered a series of more detailed questions about

Keywords
gender, gleaning, fisheries, inclusion, management

[1] Ebiil Society, Ollei, Republic of Palau
[2] Stanford University, Stanford, California, USA
[3] Mindszenty High School, Koror, Republic of Palau
[4] Oregon State University, Corvallis, Oregon, USA
[5] Republic of Palau
[*] corresponding author (cefergus@stanford.edu)

Figure 1. Gleaning is dominated by women in Palau. Both women and men are highly engaged in harvesting marine resources. © George Stoyle

those two sectors. "Fishing for finfish" was selected by 444 participants (59%) and "gleaning for invertebrates" was selected by 67 participants (9%). Here, we report a subset of our findings most relevant to fisheries management in Palau and with implications for the broader Pacific region.

Palau's gender division of marine resources

Among those who self-identified as fishers or gleaners, 67% of fishers (n = 444) were men and 85% of gleaners (n = 67) were women. This reflects a gendered division of marine resource use with a long history in Palau (Figs 1 and 8). Yet the vast majority of the fisheries literature in Palau has focused on finfish (Matthews, 1991 is a notable exception), meaning women's roles in fisheries have been widely underreported. Gleaning is significant to Palauan women not only for food and income, but also for cultural and social practices (Box 1).

Prevalence of fishing and gleaning

Fishing is an important and popular activity in Palau, with the majority of people regularly engaging in fishing for subsistence, income, recreation, and/or cultural practices. Across the entire sample (n = 766), we found that 70% of people in Palau had done some kind of fishing in the past year, including gleaning. Men were more likely to have participated in fishing activities, though both women and men were highly engaged, with 84% of men and 56% of women reporting some kind of fishing in the past year.

Among finfish fishers (Fig. 2), the most popular fishing method for both women and men was bottom line fishing

Box 1.

Gleaning is an intergenerational practice that brings women and girls to the sea together, creating a social learning space. Women fish in groups as a way to reconnect and to share food and stories. Keeping track of the lunar cycle, women determine the best days for gleaning particular species: for brown curryfish, the harvest is during low tides in the morning; for sandfish and blackfish, when the tide is incoming; for mliml (sea cucumber eggs), when high tide is late in the afternoon; and so on. The girls collect the targeted species and the women process them for immediate consumption. When women travel to sea, one always carries lemon, salt, taro, and kilkuld (a fern), laid out in their basket to keep the cheled (sea cucumber) from falling out of the basket and as a meat tenderiser for the species whose flesh is eaten. The phrase used by women to call on one another for a fishing trip is "Let's go eat out at sea." This is how the biodiversity and ecological knowledge of the habitat and species are passed on and maintained. Included in the teaching are sustainable practices, such as taking only enough to consume at the time, bringing a little home to the elder women who no longer can go to sea, being mindful of smaller species, and avoiding collecting the breeding size. However, this important cultural practice has experienced drastic changes in recent decades with marketisation of the Palauan economy, threatening the future of gleaning and of gleaned resources.

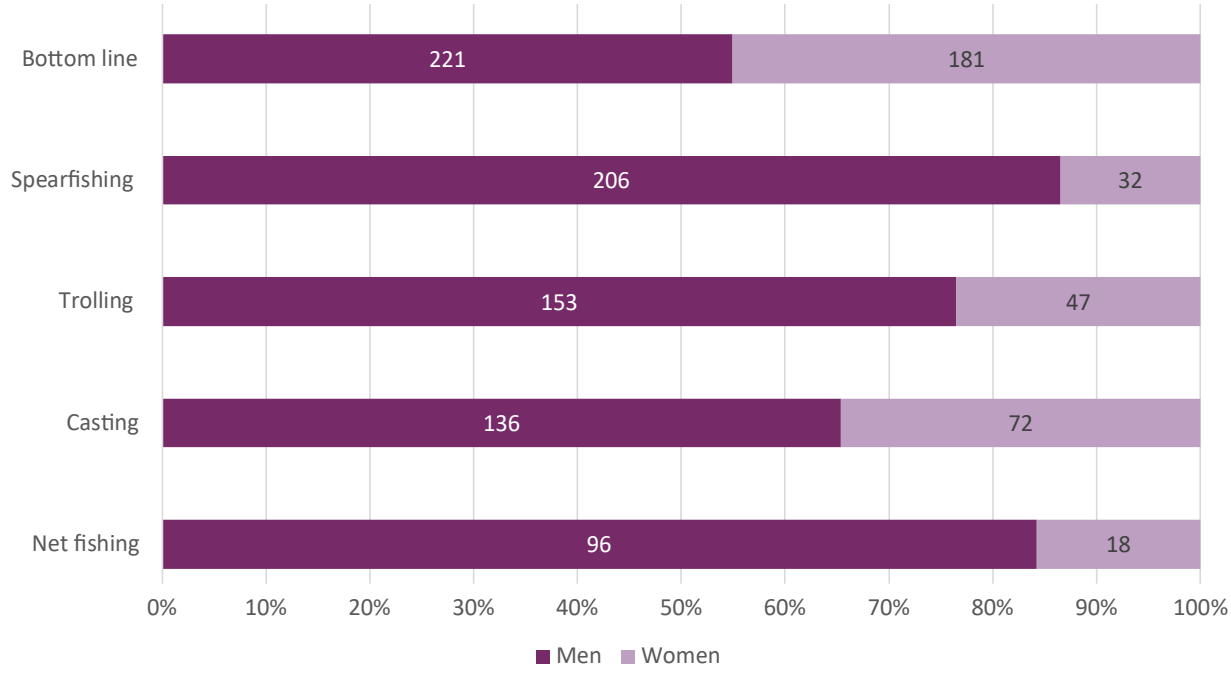

Figure 2. Both women and men fish in Palau, using many different methods. Men dominate finfish fishing, especially spearfishing and net fishing.

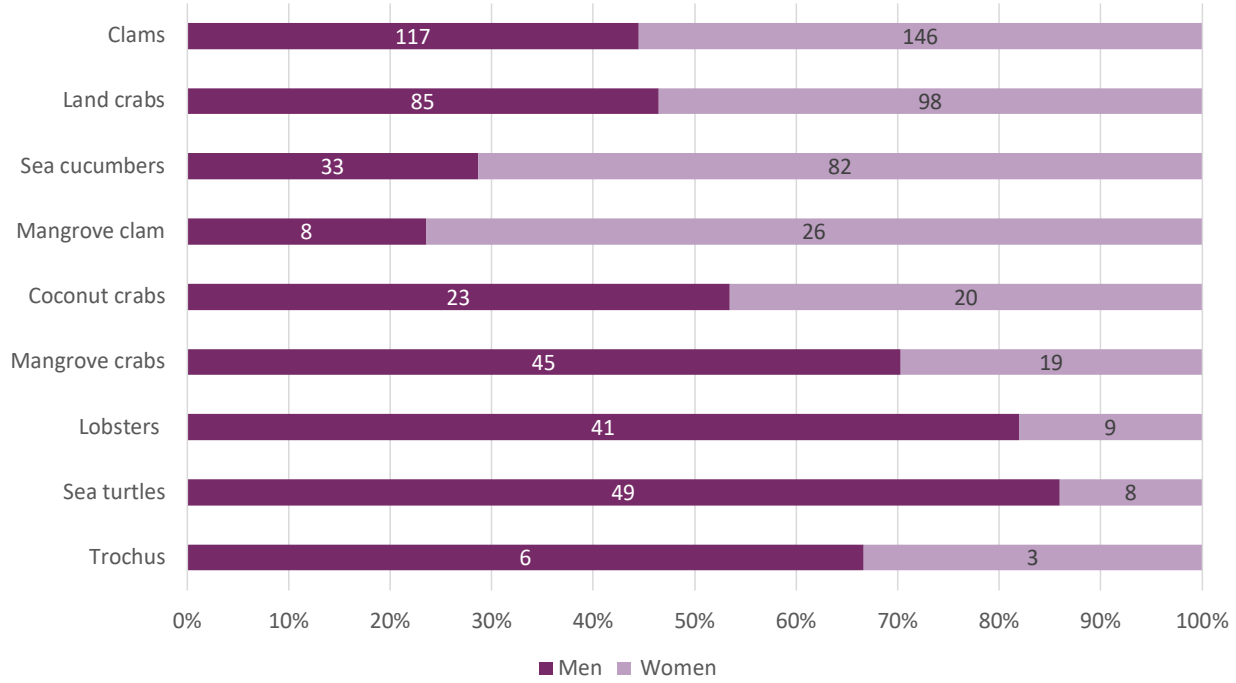

Figure 3. Both women and men target non-fish marine species in Palau, and they tend to target different species.

Figure 4. A gleaner processes sea cucumbers at the fishing ground. © George Stoyle

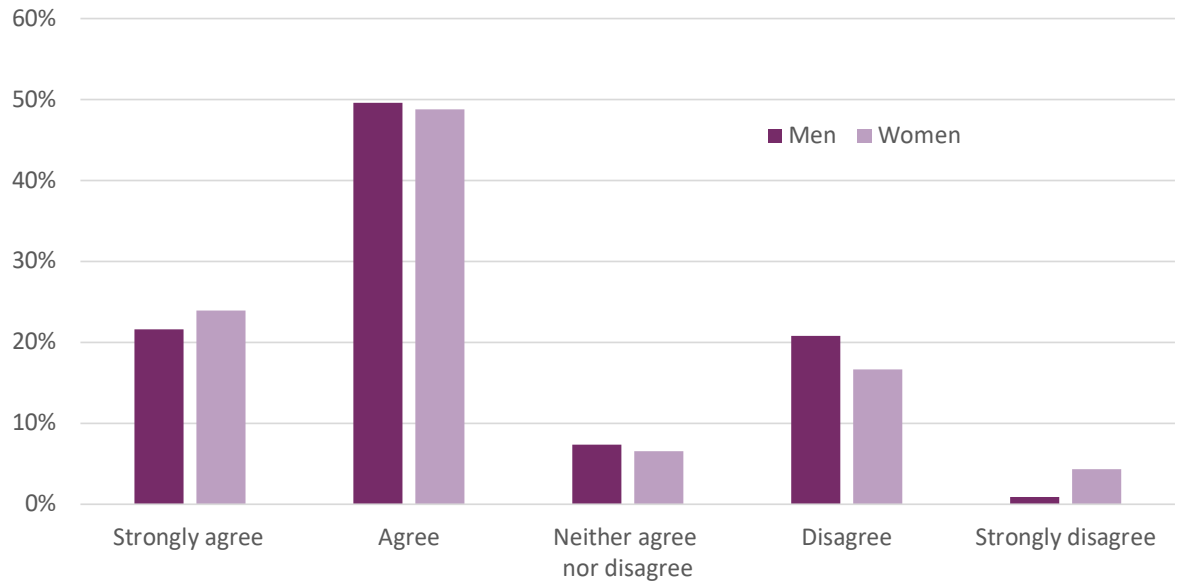

Figure 5. 72% of respondents agreed (49%) or strongly agreed (23%) that women and men use marine resources differently (n = 748).

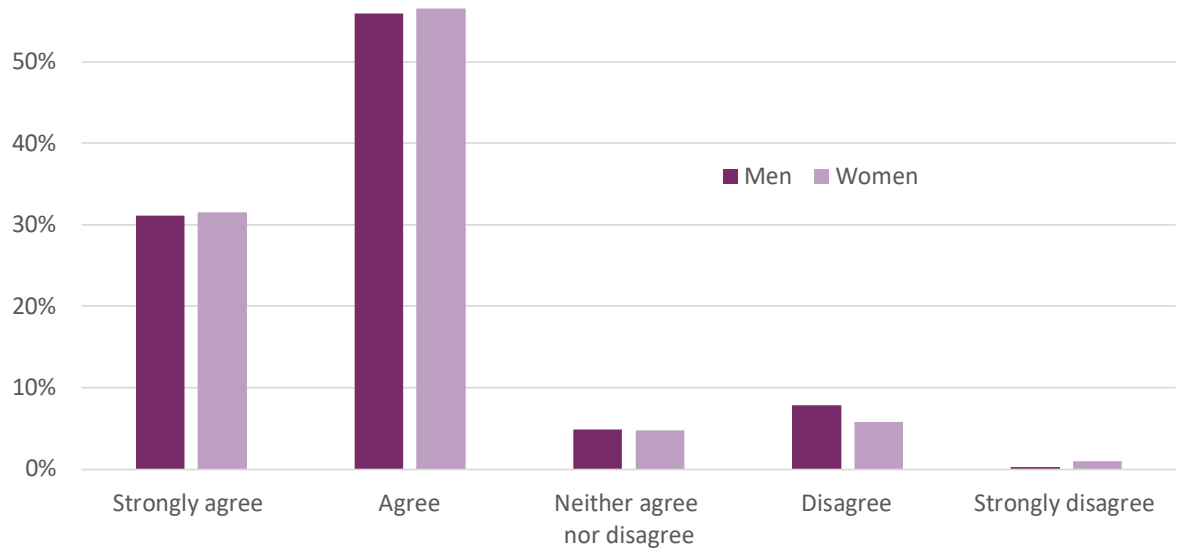

Figure 6. 88% of respondents agreed (46%) or strongly agreed (31%) that women and men have different knowledge of marine resources (n = 748).

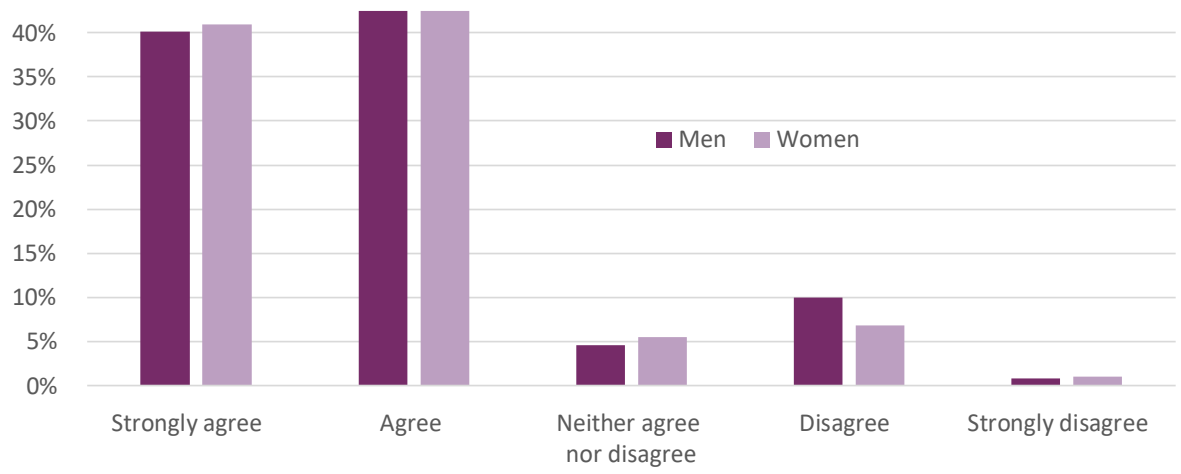

Figure 7. 85% of respondents agreed (45%) or strongly agreed (41%) that women and men should both be included in marine resource decision-making (n = 748).

(60% of men and 46% of women). For other fishing methods, the gender gap is much wider, with men significantly more likely to have participated in trolling (41% of men and 12% of women) and casting (37% of men and 18% of women). Spearfishing (56% of men and 8% of women) and net fishing (26% of men and 5% of women) are done almost exclusively by men, with only 32 and 18 women respectively reporting that they had been spearfishing or net fishing in the past year.

Harvesting of non-fish marine species is also widely done in Palau (Fig. 3). Across the entire sample, 48% of individuals reported harvesting some non-fish marine species within the past year. Women and men were equally likely to harvest non-fish marine species, with men dominating some fisheries and women dominating others. The most commonly harvested non-fish marine species were clams: smooth giant clam (*Tridacna derasa*), crocus clam (*Tridacna crocea*), bear paw giant clam (*Hippopus hippopus*), China giant clam (*Hippopus porcellanus*) and elongate giant clam (*Tridacna maxima*) (32% of men and 37% of women). Land crabs (multiple species; 23% of men and 25% of women) and sea cucumbers (multiple species; 9% of men and 21% of women) were also commonly harvested (Fig. 4).

While women dominate the most popular non-fish fisheries, men dominate the most lucrative, including sea turtles (13% of men and 2% of women), mangrove crabs (12% of men and 5% of women), lobsters (11% of men and 2% of women), and coconut crabs (6% of men and 5% of women). A small number of respondents also reported fishing for mangrove clam (*Enigmonia aenigmatica*; 8 men and 26 women) and trochus (*Trochus niloticus*; 6 men and 3 women); trochus is an illegal fishery at present in Palau.

The roles of women and men in marine resource management

In order to understand attitudes towards the roles of women and men in marine resource management, we asked all survey participants (n = 748) to respond to a series of agree–disagree statements. When posed with the statement "Women and men use marine resources differently," 72% of respondents agreed (49%) or strongly agreed (23%) that women and men use marine resources differently, with little difference between women's and men's responses (Fig. 5). The large majority of respondents (88%) also agreed (46%) or strongly agreed (31%) with the statement "Women and men have different knowledge of marine resources". Again, responses of women and men were closely aligned (Fig. 6). Finally, the statement "Both women and men should be included in marine resource decision-making" elicited the largest "strongly agree" response (41%), with an additional 45% agreeing, giving a total of 85% of respondents agreeing that women and men should both be included in management. Again, there was little difference between women's and men's responses (Fig. 7). Together, these responses indicate not only an opportunity, but also a need for marine resource management to be inclusive of women and men, in order to capture women's and men's unique ecological knowledges, values, and perspectives.

Women and men both central to intergenerational ecological knowledge sharing

Both gleaners and fishers reported that they take children with them when they harvest. Gleaners are more likely to bring children along, with 53% of gleaners and only 36% of fishers taking children with them when they harvest, which reflects the historical practice of children gleaning with their families. Gleaners are equally likely to teach boys and girls. Among finfish fishers, women (n = 147) are significantly more likely than men (n = 295) to take children with them when they go fishing ($\chi^2 = 13.34$, $p < .001$). Among men who do take children with them, 39% take only boys; however, women are equally likely to take boys and girls.

Together, these findings indicate that (a) women and men are both central to the intergenerational transfer of ecological and stewardship knowledge regarding marine resources in Palau, and (b) girls are not receiving as much education and mentoring in fishing as boys, while both boys and girls are being educated about gleaning. This implication was discussed with youth researchers during a review of these findings, many of whom agreed that they were not confident they would be able to use marine resources sustainably because they had not been taught how. Boys in this group felt somewhat more confident than girls (Box 2).

Box 2.

As a girl who loves her culture and traditional conservation practices, I believe that the transfer of marine ecological knowledge should be passed on to the youth, especially to girls like me. As a girl, I do not hold the responsibility of gathering most marine resources because that is the traditional responsibility of men. However, I am responsible for gleaning sea cucumbers. It is important that I learn how to protect the population of sea cucumbers and know its threats. In order for me to do so, I have to understand the rest of marine life since they are all interdependent on each other. However, this is just the traditional perspective on things. In the modern world, women participate in many fishery activities. We are not limited to sea cucumber gleaning only. We also practise spearfishing, bottom line fishing, trolling, etc. If marine ecological knowledge is passed on to girls equally as it is to boys, we will understand the value of marine life and use it sustainably. (Iseko Willyander)

Figure 8. Finfish fishing is dominated by men in Palau. Both women and men are highly engaged in harvesting marine resources. © Richard Brooks

Conclusions

- Both women and men in Palau rely heavily on marine resources for food, income, recreation, and cultural practices.
- While women tend to dominate nearshore invertebrate fisheries such as clams and sea cucumbers, men tend to dominate higher-value fisheries for reef fish, sea turtles, lobsters, and mangrove crabs.
- Palauans agree that women and men have different knowledges of marine environments, and that both women and men should be involved in managing marine resources.
- Women and men are both central to intergenerational ecological knowledge-sharing, and there is a need to expand the transfer of marine ecological knowledge to youth, especially girls.

Acknowledgements

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Women of Tabonibara lead fisheries management into the future

Beia Nikiari,[1] Tarateiti Uriam,[1] Leslie James,[1] Iutita Karekenatu,[1] Aurélie Delisle[2] and Owen Li[2]*

Background

Country leaders, government staff and community members throughout the Pacific Region support the application of community-based fisheries management (CBFM) to achieve sustainable coastal fisheries (Pacific Community 2015, 2020). Communities are the backbone of this approach. However, to ensure that CBFM provides equitable benefits to all, practitioners should apply a people-centred approach aiming for inclusivity and equity. Using gender sensitive and socially inclusive community engagement during the implementation of CBFM is one such approach.

In Kiribati, CBFM project officers use various gender and socially inclusive processes during community engagement including teams with a mix of genders; working with community leaders prior to activities in communities; and hosting separate meetings followed by joint reflection (see Delisle et al. 2021 for further examples). However, following engagement in communities with the presence of CBFM officers, it became unclear whether active involvement from different community groups was ongoing when the officers were not present. In this article, the Kiribati CBFM team reports on a recent women-led initiative held in Tabonibara, North Tarawa, where CBFM engagement through the Ministry of Fisheries' CBFM project started six years ago.

For the very first time in North Tarawa and possibly in Kiribati, women in Tabonibara village came together to establish a female-led community institution supporting the conservation and management of marine resources. Such an institution is considered unique and uncommon, as men traditionally lead community institutions involved in marine management. The important roles and responsibilities of women in local fisheries management are widely known, but often women themselves are unaware of their crucial contributions in enhancing and supporting ongoing fisheries management initiatives at the community level. The occasion initiated and hosted by the women of Tabonibara is a great example of how women foster and enhance the sustainability of their coastal marine resources.

The event

On 15 May 2021, the women of Tabonibara organised a celebration to showcase their willingness to be active supporters of the implementation of Tabonibara's revised CBFM plan. The celebration launched the new association of women in Tabonibara that would support the conservation and management of coastal resources. The women chose the date of the launch and event to coincide with the introduction of local spawning closures for silver biddy (*Gerres* sp.) and land crabs (*Cardisoma carnifex*), and minimum size limits for fishes (as per the new national coastal fisheries regulations (MFMRD 2019). To raise awareness about the new association and its links to fisheries management among village members and neighbouring villages, women decided to organise a celebration that was entertaining and fun, thus increasing the likelihood of reach.

[1] Coastal Fisheries Division, Ministry of Fisheries and Marine Resources Development, Kiribati
[2] Australian National Centre for Ocean Resources and Security, University of Wollongong, Australia
* Author for correspondence: betoka.nikte@gmail.com

Figure 1. Sport games between men from the North and South groups of Tabonibara village. © Iutita Karekenatu

Figure 2. Tabonibara women during the marching competition at the opening ceremony. © Iutita Karekenatu

The celebration included different activities including games (sports and fisheries quiz), marching competitions and official proceedings. Each component of the celebration had its respective purpose, tidily linked to the theme of the event – the new women's association role in supporting Tabonibara's efforts in managing their coastal fisheries.

First, a series of competitive outdoor games was organised (Fig. 1). Such competitions are very popular and attract most people from and around the village; ensuring that awareness messages are delivered during such an event ensures a large proportion of the community can be reached.

Second, two women's groups joined a marching competition (Fig. 2). During their marches, the two women groups showcased the theme of the event, which was the spawning closures for silver biddy (*Gerres* sp.) and land crabs (*Cardisoma carnifex*), and minimum size limits for fish, using singing, dancing and eye movements.

The marching competition led to the *mwaneaba* (traditional meeting house) where the elders and men, gathered as the women's guests of honour, were watching. The ceremony was officially opened (Fig. 3) and included the official launch of the women's association.

CBFM officers supported the last part of the event through a catch monitoring "return of results" information session, and a quiz testing the knowledge of villagers on fisheries management and their community activities. During the catch monitoring "return of results", most villagers were happy that most of their fishing activity was in line with the rules (community and national). Villagers were very happy about the result highlighting that the size of silver

biddy they catch is much greater than the minimum size limit imposed under the new national coastal fisheries regulations (MFMRD 2019). It is a great achievement for the community of Tabonibara where silver biddy is a species of significance. The return of such results is a great motivator to the community to continue with their initiative and their efforts in preserving and sustainably managing their coastal fisheries.

To assist with increasing awareness of the new national regulations, the CBFM team donated a regulations poster[3] to the village (Fig. 4). Elders instructed that the poster would be put up in one of the corners of the *mwaneaba* to act as an easy reminder to everyone.

After the "return of results" session, the team ran a fisheries quiz as part of the entertainment. Elders, men, women and youths participated and competed with each other. People had to answer 15 questions on the CBFM project's background, the catch monitoring assessment, and women's roles in fisheries. The CBFM team gave fishing lines and hooks as awards (Fig. 5). People in the community gave very detailed and knowledgeable answers. This is a positive sign showing strong engagement in CBFM activities from the people of Tabonibara and an indication that information and messaging are diffusing well throughout the community.

Launch of the women's association

Entertainment activities provided a sense of fun to the event and attracted many members of Tabonibara and surrounding communities, who might otherwise not attend official fisheries management meetings. By doing this, women ensured that the attendance during the formal gathering and speeches was large. Importantly, the celebration launched the new association of women in Tabonibara that would support the conservation and management of coastal resources.

[3] The poster was funded by New Zealand Ministry of Foreign Affairs and Trade's Tobwan Waara project, and the Pacific-European Union Marine Partnership (PEUMP) programme.

Figure 3. The CBFM team and the MP's wife marked the opening by cutting the celebration cake. From left to right, Leslie James (CBFM), Tarateiti Uriam (CBFM), Meaua Harry (MP's wife), Beia Nikiari (CBFM), Iutita Karekenatu (CBFM).
© MFMRD, Kiribati

Figure 5. Prizes being given away during the fisheries quiz.
© MFMRD, Kiribati

Figure 4. Tabonibara village councillor receives the regulations poster.
© MFMRD, Kiribati

As described by Tiataake, secretary of the women's association, "the actions of the women of Tabonibara are very important for protecting and maintaining the marine resources that will feed and benefit the children of the future". The association will play important roles, such as:

- supporting and enforcing the law in Tabonibara to ban the harvest of under-sized fishes, and silver biddy (*Gerres* sp.) and land crabs (*Cardisoma carnifex*) during their spawning seasons, so that these resources would continue to benefit their children and everyone in Tabonibara in the future;
- taking responsibility for safeguarding the marine resources in their village from over-exploitation;
- making sure that no one is allowed to defecate along the coastline, and especially adjacent to the mangroves;
- accompanying each other to report to the association people caught fishing during spawning closures, including when the offender is a man;
- bringing the enforcement home.

Women's involvement strengthens the awareness of the management plan and of fisheries regulations. For example, illegal fishing activities can easily be reported either from fishing markets or from households where a woman is present.

Tabouea, a village councillor, mentioned that women are the village's great supporters:

> Women are the backbone of the village decision and capable in doing anything as men can do but in a more organised and effective way. We all have witnessed their hard work from our different homes and we have no doubt that involving them in fisheries management will make a success story for our generation and in the future.

The initiative of Tabonibara's women is the first of its kind in Kiribati in the sense that women have become more active in the implementation but also in the monitoring and enforcement of the community's fisheries management plan. The women's association will provide an important backbone support to the community's initiatives around the conservation and management of their marine resources. Through this association, women can indirectly influence decision-making. In recognition of women's efforts, Bakaua, an *unimwane* (elder man), mentioned that women are most important people, they are breadwinners in their families and beyond that, they promote food security while raising their family.

> A word of deep gratitude to women, the celebration was very remarkable and this is evident from the great preparation seen – we're going to work with women organisations as part of our system in the enforcement of management plan.

The celebration was a successful one. Respected people in the village including Buakaua (Unimwane), Tabouea (village councillor) and Tiroko (village chairman) remarked upon the recognition of women's input, ideas, opinions and the need to work together as a team to accomplish the village's vision through its management plan.

Ways forward

The women's association of Tabonibara is a grassroots initiative led by the women of the community without any external input. Its focus on the conservation and management of marine resources is unique, as one of the roles of the association deals with monitoring and enforcement activities. Other villages have no such initiatives. During the initial stages of CBFM, through awareness raising, consultations and development of a management plan, women are involved. Beyond that, their roles become unclear.

As Tarateiti Uriam (CBFM project coordinator) suggests:

> What is uncommon in this association is that in our experience with communities, women have passive roles in the implementation of the plan, unlike men who are mostly involved with the enforcement and monitoring of the plan. This is a very new initiative in the sense that it is coming from women, and they plan how they would drive their institution keeping in mind the existing cultural norms and barriers such as that of men dominating the decision-making.

In this case, women no longer see the success of the community management plan as resting solely with men. In Tabonibara, within their traditional roles, women now see that within their traditional roles, they can still push and strengthen the enforcement through their collective efforts of working with their husbands and children as well.

Women want to be involved; they want to work amongst themselves as a group to ensure that the rules decided by the community are followed. They want to go beyond just enforcing rules that apply to women and work with others on rules that apply to other groups within the community. For instance, women see that they can work within their families, and can reach out to their husbands, sons and daughters to discuss rules or any breach of rules.

As a way forward, Tabiria Kararaua, head teacher of Amonge Primary School, mentioned the importance of working with women, and also indicated the school's support in enhancing awareness of Tabonibara's fisheries management initiatives to its children. Such initiatives would help children understand the reasons behind the decisions of their elders, and help them understand the roles they might have to play in supporting sustainable fisheries management in the future:

> We are grateful to witness the celebration and to join the village with its activity to sustain the marine resources through sharing with our students as they will be decision makers in the near future.

Flow-on effects for Kiribati CBFM practice

The new women's association is a very helpful institution not just for the community, but also for the Kiribati female CBFM officers. In Kiribati, the cultural limitations faced by female CBFM officers when constantly working with male leaders in communities are seldom spoken about. Working with the opposite sex is culturally sensitive especially for female officers, as it may sometimes lead to different interpretations by women in the villages. This is something that female staff have to be mindful of at all times in order to avoid potential conflicts that may arise from misinterpretations from women of the village. These limitations prevent these officers from using their full potential to really engage with community members in a more informal manner and build stronger relationships.

Female CBFM officers mentioned how this women's association supporting fisheries management would help them to work more deeply, touch the core issues surrounding fisheries management and feel more connected to the villages. The institution will help female officers reach more fishermen indirectly through their wives, and have greater in-depth discussions.

The institution is a new channel of communication for the team when it comes to the implementation, monitoring and enforcement of Tabonibara's management plan.

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Engaging women in pearl meat farming in Fiji

Vutaieli B. Vitukawalu,[1] Fareea Ma, Sirilo Dulunaqio and Rosi K. Batibasaga

Pearl oyster farming is a potential source of livelihood in Pacific Island countries and territories. Deemed the region's most valuable and significant aquaculture activity, the culturing of pearl oysters has benefitted many coastal communities (SPC 2007). While the industry continues to develop in Fiji, opportunities in pearl oyster farming have provided women and youth groups with income-generating activities such as spat collection, mabe pearl production and pearl shell handicraft production (Southgate et al. 2019). Engaging women in aquaculture activities contributes to women's empowerment in terms of decision-making opportunities within households (SPC 2018) and is crucial in supporting livelihoods within communities.

J. Hunter Pearls Fiji, with support from the Wildlife Conservation Society (WCS) and the Pacific Community (SPC) are assisting Va'ulele and Urata villages in the Cakaudrove Province to establish community pearl meat farms. The project is especially supporting livelihoods for women and youth. The pearl meat farm initiative focuses on the culturing of black-lip pearl oysters, *Pinctada margaritifera*, for the production of pearl meat. This will be supplied either fresh or frozen in the shell to high-end hotels and restaurants in Fiji and to targeted export markets, for example, East Asia, in anticipation of post COVID-19 economic recovery (Whitford & Pickering, 2020). Pearl meat is a new product that will diversify the pearl aquaculture industry, simplifying farming processes and eliminating the need for highly specialised pearl seeding technicians, thus increasing the accessibility for entry into this industry for community groups (Vitukawalu et al. 2019).

The women of Va'ulele village have been actively involved in every stage of this aquaculture venture including consultations, financial literacy trainings, business planning, oyster theory trainings and pearl farm cleaning operations. Although the pearl meat farming operation is labour intensive and has predominantly involved mostly men, the women (>35 years) and female youths (18–35 years) in Va'ulele have risen to the challenge, despite gender norms, and have shown keen interest in dedicating four to six hours over two days per week towards this aquaculture initiative. Results from a Gender Risk Assessment undertaken in Va'ulele village showed that women in the community had existing knowledge and skills in land-based pearl farming activities such as knot tying, oyster cleaning and oyster shell drilling. Moreover, women in both communities have taken up roles on their pearl farming committee and been appointed as directors

The scrumptious meat of black-lip pearl oysters. © Vutaieli Vitukawalu/WCS

WCS Fiji staff facilitate discussion with the women's focal group during a consultation workshop in Va'ulele. © Vutaieli Vitukawalu/WCS

Representatives of the Va'ulele Yaubula Committee. © Fareea Ma/WCS

[1] Wildlife Conservation Society Fiji Country Program.
Email: bvitukawalu@wcs.org

Dr Timothy Pickering, Inland Aquaculture Advisor of SPC FAME, presents at an oyster theory training in Urata where women made up almost half of its participants. © Vutaieli Vitukawalu/WCS

Young women of Va'ulele village assist in the cleaning of oyster spats, floats and stabilisation of the pearl farm line in the Va'ulele community pearl meat farm. © Sirilo Dulunaqio/WCS

of their business entity, which would traditionally comprise mainly men making decisions on all levels.

The inclusion of women into each and every planning stage in discussion with the men in the village has resulted in the sharing of roles and responsibilities within households – in other words, men have agreed to take on some of the responsibilities of women such as cooking, carrying out household chores and looking after the children, while they are engaged in pearl meat farming activities. Both women and men agree that the active participation of women will strengthen relationships and allow women to take up leadership roles and acquire decision-making skills to ensure the smooth operations of the community pearl meat farm venture. This strengthens inclusion and diversity and brings about women's empowerment. "Being appointed as one of the committee members has given me the confidence to voice my opinion on issues concerning the community pearl farm and to ensure the team take full ownership in working together to achieve their goals" says Unaisi Seruwaia, Secretary of the Va'ulele Yaubula (Natural Resources) Committee.

Between November 2020 and June 2021, a total of 3000 m of spat ropes bearing oyster spats (juvenile oysters) were deployed in three batches onto the Va'ulele community pearl farm from J. Hunter Pearls' hatchery and nursery in Savusavu, making it the first established community-owned pearl meat farm in Fiji. The spats are expected to reach harvestable size in 18–20 months before they can be marketed to high-end restaurants as a new seafood specialty. In early 2021, a pearl farm assessment was carried out at the Va'ulele community pearl farm where the farm team were trained in tagging, measuring and counting oysters on spat lines for growth and survival monitoring throughout the production cycle until harvest.

At the last deployment, young women were part of the deployment team, learning how to stabilise the pearl farm lines, clean floats, tie knots and clean oyster spats. The cooperation between men and women and mutual understanding of differing roles could be the key to the success of Fiji's first community-owned pearl meat farm venture. The pearl meat farming initiative is a great opportunity to engage women to help support livelihoods through supplementary income within their community and promote the sustainable use of marine resources within their village *iqoliqoli* (traditional fishing rights area).

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From coast to coast to coast: An introduction to gender and small-scale fisheries co-management in Canada

Kirsten Bradford[1]

Abstract

Women across Canada possess distinct gender knowledge and skills in their contribution to small-scale fisheries (SSF). However, present management efforts disregard the knowledge, needs and contributions of female participants, thereby weakening the effectiveness of SSF management. Here, examples of the contributions of both Indigenous and non-Indigenous women to SSF within Canada, the value of women's involvement in Canadian fisheries co-management and the barriers to such involvement are assessed based on the existing literature. As illustrated by this review, women in Canada improve fisheries co-management arrangements but face multiple barriers to participating in co-management. This work points towards a need for intersectional feminist considerations within Canadian co-management arrangements.

Keywords
Co-management, gender, small-scale fisheries, Canada, intersectionality

Introduction

Management of common-pool resources, such as fisheries, has often struggled to balance environmental conservation, economic demands and the social needs of the resource harvesters and users. Co-management is one management system that seeks to improve all three of these challenges through localised management that is grounded in community action. Co-management attempts to link resource users, government agencies and other stakeholders through both top-down and bottom-up processes (Quimby and Levine 2018). Fisheries co-management is meant to be adaptable and culturally appropriate and promote both social and ecological benefits by empowering resource users with decision-making and enforcement abilities (Quimby and Levine 2018).

Co-management is one way to address management dilemmas in small-scale fisheries (SSF), which are characterised as diverse and complex social–ecological systems. Previous

[1] The School of Resource and Environmental Management, Simon Fraser University, 8888 University Dr, Burnaby British Columbia, Canada - bradford@sfu.ca

Figure 1. Cowichan Estuary on Vancouver Island, British Columbia, is an important rearing habitat for juvenile salmon and home to Cowichan Tribes for millennia.

research regarding co-management in SSF has focused heavily on the range of institutional arrangements and governance systems (Quimby and Levine 2018). Underpinning those institutions are complex themes of participation, power and equity which, while they make up the backbone of co-management, are often poorly defined and measured (Quimby and Levine, 2018). It is critical to understand where power originates, how it emerges, manifests and persists in order to gain insight on the positive and negative influence it has on collaboration and learning (Armitage et al. 2009). Co-management arrangements must be established with a strong understanding of the social and economic power dynamics present that affect both management institutions and the society more broadly (Armitage et al. 2009). Specifically, class, ethnicity, age, and gender need to be understood in order to challenge the existing governing authority's sharing and flexibility (Armitage et al. 2009).

Although fisheries have long been considered a male domain, women play significant roles that vary regionally based on ecology, economics and culture (Klieber et al., 2015). Globally, women contribute significantly to SSF in terms of biomass, economics and livelihoods (Harper et al., 2020). Recent research has brought attention to the gender division of labour in SSF, while there is still a growing understanding of gender and resource management activities, social networks, ecological impacts, and household power dynamics (Weeratunge et al. 2010; Santos 2015). Despite women's substantial contribution to the fisheries sector, their participation in community-based fisheries management is believed to be limited, although formal evidence is still lacking (Leisher et al. 2016; Alonso-Población and Siar 2018).

Equity, specifically gender equity, is of high importance in the context of SSF. Equitable outcomes in SSF are preferable, as they can improve livelihoods, decrease poverty and reduce vulnerability among fishers (Kittinger 2013; Barnett and Wakin 2015). Equitable outcomes are not only key to long-term sustainability but also aid in improving the legitimacy and compliance of co-management agreements (Jentoft 2013; Turner et al. 2016). A lack of recognition of women's involvement and contribution is of major concern, as fisheries policies and management decisions continue to exclude gender considerations, thereby focusing only on male experiences and knowledge (Zhao 2013; Harper et al. 2017; Frangoudes et al. 2019).

If co-management is to be built on principles of community action and collective needs, then it is crucial for all voices to be equally valued and incorporated. The rationale behind including gender in SSF co-management is simple: how can we consider management fair, effective, realistic and sustainable if half the population is excluded? (de la Torre-Castro 2019). When management perspectives and actions are based on only half of the population, the entire scope of resource threats, conflicts and opportunities are not understood (Di Ciommo and Schiavetti 2012).

Small-scale fisheries in Canada

Small-scale fisheries in Canada contribute a small percentage to global SSF, yet they hold large social, cultural and economic benefits to the communities they are located in (Fig. 1). Indigenous peoples across Canada stewarded fisheries ecosystems for millennia prior to European contact (Jones 2000; Augustine and Dearden 2014). For example,

Figure 2. Kokanee salmon (*Oncorhynchus nerka*) caught by recreational fisher in Stump Lake, British Columbia © Colin Bailey

salmon stewardship practices on the Pacific Coast were built on social and cultural processes that sustained productive salmon runs and limited over-harvesting (Atlas et al. 2021). In the mid-nineteenth century, Indigenous management was disrupted and replaced by the colonial government, altering Indigenous practices, rights and access to fisheries (Atlas et al. 2021). The current commercial fishery in Canada is dominated by an individual fishing quota system, whereby each fisher is assigned a permit that grants rights to a share of a total allowable catch (TBTI 2018). This neoliberal system has increased influence from outside investors, reduced the number of fishing vessels and focused on profit maximisation (TBTI 2018).

When discussed in a global context, fisheries in Canada are often regarded as being industrialised and large scale, despite the diverse range of fisheries found throughout the country. Small scale fisheries in Canada are not clearly defined at a national level; thus, research and documentation has previously been limited but is beginning to gain more attention (TBTI 2018). Generally, fisheries in Canada can be grouped into three categories: commercial fisheries, recreational fisheries and First Nation Food, Social and Ceremonial (FSC) fisheries (Fig. 2). Within each of these fisheries, there is a range of vessels and methods used such that SSF can be found within all three fisheries categories (TBTI 2018). In this way, SSF in Canada are diverse and exist on a continuum rather than within defined categories. Recent work has been undertaken to classify the degree of "small-scaleness" within British Columbia fisheries, Canada's most western province bordering the Pacific Ocean (Gibson and Sumaila 2017). Based on various features of the fisheries, Gibson and Sumaila (2017) identified that the FSC fishery exhibited the greatest number of SSF features.

Gender and SSF in Canada

Mirroring trends seen globally, women in Canadian SSF play diverse and dynamic roles that have shifted through time (TBTI 2018; Harper et al. 2018) (Fig. 3). The majority of gendered fisheries research in Canada to date has been situated around non-Indigenous East Coast fisheries. Historically, there was a strong division of labour, with women in Newfoundland and Labrador concentrated in seafood processing, particularly in plants associated with the small-scale in-shore sector, while men were concentrated in the harvest sector (Neis et al. 2013). Previous research has identified the barriers to women's inclusion and access within the fishery and to their ability to secure equal workplace benefits to those of men (Cahill and Maryland 1993; Power 2000; Neis et al. 2013). Recently, the Atlantic fishery has undergone a transformation where more women work on boats as harvesters, although they remain marginalised with limited work stability and security (TBTI 2018).

There is limited research on gender and Indigenous fisheries in Canada, although there are some accounts of women's critical work on the Pacific Coast processing salmon and harvesting shellfish (Moss 1993; Jones 2000). More recent work in the last three years has brought to light how Indigenous women of Pacific Coast First Nations are reaffirming their roles as leaders and stewards of the land and sea (Coastal First Nations Great Bear Initiative 2020). Specifically, Harper et al. (2018) identified the critical role that Heiltsuk women played in catalysing change during a fisheries management conflict.

When reviewing gender and Indigenous fisheries, it is important to consider how First Nations' world views shape gender relations and gender in fisheries. In many Indigenous societies, traditional gender roles and responsibilities are defined by the needs that shape the survival of the collective (Kermoal and Altamirano-Jimnez 2016). In Kafarowski's (2004) inquiry about women in Arctic fisheries management, an Iqualuit women stated "As Inuit, there's no gender thing. If it was left up to traditional ways, women would be equals" (Kafarowski 2004, p. 31). Western understanding of gender imposes a strong binary between men and women, but in the Iñupiat whale hunt the interdependence of men and women is emphasised instead. Men and women contribute different skills and knowledge that, while complementary, are inseparable from the whole (Todd 2016).

Most of the research on gender and fisheries in Canada focuses on non-Indigenous fisheries on the East Coast, while there is limited work in the Arctic and limited but recent work on the Pacific Coast. Through this review, it is clear that women's roles are diverse, ranging from harvesting and processing to management. More research is necessary to understand gender dynamics within Canadian SSF and how these dynamics have and will continue to shift through changing ecological, government and management periods. Understanding how gender and co-management in Canada interact is necessary to create gender responsive co-management spaces. Recognising this need, the following discussion draws on Canadian examples to illustrate the importance of including gender in SSF co-management and the current barriers women face to participate in co-management. Understanding and addressing gender in Canadian co-management is necessary for management to be considered fair, effective, realistic and sustainable (de la Torre-Castro 2019).

Why consider gender in Canadian SSF co-management?

Past Canadian fisheries management has been gender-blind, masking or ignoring the contribution of women and the consequences of policies on gender relations and household dynamics, affecting the equity and resilience of SSF (Neis et al. 2013). For co-management to be effective, full involvement and active participation of all stakeholders is necessary, including the involvement of women. Drawing from limited but important available literature, this section discusses the importance of considering gender within the context of Canadian SSF co-management specifically regarding women's roles, knowledge and management priorities as well as women's impact on leadership.

Women's roles, knowledge and management priorities

Women have different types of knowledge, observations, experiences and interpretations which lead to different natural resource management perspectives, needs and priorities (Kleiber et al. 2015). Women interact with fisheries in distinct ways to men, resulting in women having different resource priorities from their male counterparts (Staples and Natcher 2015).

In Northern Canada, a staff member on a wildlife co-management board spoke about the different ecological roles of men and women through saying "women, you know, a lot of them are harvesters of a different nature, the berry patches and the roots and the medicinal plants, so the nature of what brings them onto the land brings them to different places than men" (personal interview, 15 August 2013, Staples and Natcher 2015, p. 362). The quote from this board member identifies how men and women have specific relationships to ecosystems through their distinct harvesting roles.

Focusing solely on the harvesting of resources, primarily a male-dominated sector, can exclude other potentially valuable sources of information necessary for management. In a study of gender and co-management in the Yukon, one female board member commented,

> When you look at like a traditional fish camp perspective, the majority of the work, anyways in my culture, is done by the women. And so you know we're the one cutting the fish, seeing the fish, doing all the work with them, hanging them, drying them, preparing them. Normally the men are catching the fish but it's that type of involvement ... me bringing that perspective of what it's like to have run a fish camp ... I think I bring a very different, and I think I bring more of an emotional perspective to the table (board member, interview 4 July 2013, Staples and Natcher 2015, p. 362).

Men and women's different roles in the Yukon fishery result in different knowledge and understanding of the system.

In the Atlantic fishery, Power (2000) argues that incorporating women processor's experience and knowledge of changes in species composition of catches, location of catches, and size of the fish is valuable for informing sustainable management. Specifically, "these women processing workers connected reduced volume, size, and softer texture of cod arriving in their plants to an emerging problem of stock decline, specifically to the impacts of overfishing and the effects of certain technologies" (Power, 2000, p. 196). Where women work and their responsibilities within fisheries results in distinct ecological knowledge and subsequent management priorities. Failure to consider gender can lead to limited perspectives, knowledge, skills and experience that may narrow the scope of decision-making within management (Staples and Natcher 2015).

Impact of women's participation on leadership

Women's participation in management can lead to different forms of leadership. Women's leadership takes on several forms that can aid in the navigation of various policy issues (UNEP 2015). Women's contributions enrich management and lead to novel ideas when analysing problems and tailoring solutions (Klugman et al. 2014). Women have been shown to improve management through the promotion of positive collective action, collaboration and conflict resolution (Westermann 2005), providing a more ethical and holistic

Figure 3. Small-scale fisher Dafne Romero harvesting giant kelp off the coast of Haida Gwaii, British Columbia. © Skipper Otto

outlook (Lauber 2001) and cooperating in different settings with environmental importance (Revollo-Fernández 2016).

Staples and Natcher (2015) identified that when women were present on co-management boards, decision-making generally took a longer time, but boards were more likely to establish a longer-term view of management issues. Women generally brought a more holistic approach, and discussions were more complex and respectful with improved communication and mediation. The presence of women contributed to a more positive institutional work setting for decision-making. In general, co-management boards were more cohesive when women were present because women were more likely to maintain personal relationships (Staples and Natcher 2015).

A study in Nunavut regarding women's decision-making in Arctic fisheries resource management identified similar sentiments about women's impact on leadership. A Pangnirtung community resident said,

> It would be good to see women and men working in the fisheries area because it is our livelihood, it is our culture, it is within us. And in order for a good community, good working together, you have to have that balance. I think it could be a lot stronger just because women are able to hear, listen and process in a holistic way, not just in money terms, but they are thinking of their children and their grand-children-to-be. They are thinking long-range and not just financial. (Pangnirtung community resident, Kafarowski 2004, p. 34).

In a parallel study regarding Hunter and Trapper Organizations in the Arctic, participants mentioned that when engaging in discussion about economic and environmental aspects of managing wildlife, female board members also brought forth questions about fostering traditional skills in youth, food security and initiating socio-cultural activities that focused on family (Kafarowksi 2005).

While the impacts of women's participation on leadership is extremely positive and beneficial, it is worth noting that resource management institutions are linked and influenced by social and cultural gender norms. For example, women's representation leading to improved collaboration is tied to women's role as mothers and mediators within the household (Staples and Natcher 2015). Attention must be given to the fact that governance spaces are not neutral and are influenced by social and power norms. The power that men and women can exercise within management is just as much influenced by what happens outside these institutions as what happens inside, as discussed further in the following section.

Barriers to women's participation in Canadian SSF co-management

Women face specific constraints to effective representation and participation in co-management that are distinct to their gender experience. The barriers faced by women in Canadian SSF co-management are discussed here in three categories: access to education and training opportunities, domestic roles, and power-sharing dynamics.

Education, training and knowledge

A lack of education and technical training affects women's ability and confidence to participate in co-management positions. Without the requisite education and skills, women are often confined to lower ranked positions with no participation in policy and management decisions. In Nunavut, an absence of high school diplomas and limited training in natural resource management were shown to be two barriers preventing young women from applying for fisheries-related work (Kafarowski 2004). Additionally, a fish processing plant representative in Nunavut identified that a lack of technical training reduced women's ability to progress to higher managerial positions (Kafarowski 2004). In co-management boards in the Yukon, women were shown to face gender specific barriers in terms of skills and knowledge (Staples and Natcher 2015). There was a perception that women lack certain types of land-based knowledge, especially on boards that only targeted male-dominated land-based activities. The study results identified that 32% of participants believed women's lack of experience in wildlife harvesting was a limiting factor in female board membership (Staples and Natcher 2015).

Domestic roles and childcare

Childcare and household duties tie women to their homes and reduce their available time, thus decreasing their representation and participation in co-management. In Nunavut, a requirement for support services, particularly childcare, to promote women's involvement in decision-making processes was identified (Kafarowski 2004). Most Indigenous families are traditionally supported by extended family networks, but as more families participate in the wage economy, the demand for support services has increased. Lack of childcare particularly affected fish plant workers looking to move to managerial positions, and women aspiring to return to school (Kafarowski 2004). Logistical challenges were faced by women in the Yukon as they had to juggle full-time jobs and childcare. Thus, women were only able to participate in co-management boards if they had the full support of their family or access to alternative childcare support services (Staples and Natcher 2015).

Power-sharing dynamics

Women face barriers to effective participation in co-management due to the power dynamics between genders that exist in society and continue to exist within governance spaces. In Nunavut and the Inuvialuit Settlement region, it is common for men to hunt and trap whereas the majority of women fish. Men who hunt hold a higher social status than women who fish (Kafarowski 2005). Although Hunter and Trapper Organizations are mandated to cover all wildlife, including fish, this higher status is part of the reason why the Hunter and Trapper Organization Boards are mostly male (Kafarowski 2005). On the Atlantic Coast, because women were historically concentrated in processing plants and men in the harvest sector, women were effectively excluded from the decision-making process. Within processing management, women were clustered in clerical work and rarely attained managerial or supervisory positions (Cahill and Martland 1993). Women were generally not represented on administrative bodies that address resource allocations

or harvesting recommendations, despite these processes affecting their work. Women were poorly represented in unions and often worked in non-unionised plants (Cahill and Martland 1993)

There are several Canadian cases where women had to prove their knowledge and capabilities to their male colleagues, revealing that men continue to control power in management spaces. Power (2000) identified barriers that exist for Newfoundland women fish processors to express and legitimise their knowledge and ideas to management. Women were noted to be questioning and uncertain about their knowledge due to the constraints of managerial strategies, surveillance within processing plants, and a lack of ownership (Power 2000). In the Yukon, female co-management board members noted that their contributions were not taken seriously by the male chair (Staples and Natcher, 2015). Women identified that they had to prove their standing and capabilities to their predominantly male colleagues. Most of the women who described having to prove themselves were First Nations, attesting to the need for an intersectional approach to be taken due to the multiple, interrelated inequalities operating against Indigenous and female identity (Staples and Natcher 2015).

The three categories of barriers women face for effective participation and representation in co-management, especially power-sharing struggles, make it clear that ensuring effective and equitable decision-making processes in co-management arrangements requires looking beyond just opportunities to participate. To address gender equality in co-management, we must address the pre-existing power dynamics, gender roles and norms. The interaction between gender and other social dimensions has been shown to affect the knowledge, perspectives and concerns brought forward in management institutions (Reed and Davidson 2011; Staples 2015). Clearly, gender parity does not necessarily equal gender equality, especially when women's participation is constrained in the existing gender norms and relations (Nunan and Cepić 2020). Instead, weight must be given to understanding how different voices are valued in decision-making and what conditions contribute to these voices holding value (Staples and Natcher 2015).

Conclusion

SSF are complex systems made up of natural, social and political spheres that require interdisciplinary attention. Co-management is a transformative form of management that values vertical collaboration and empowerment of local resource users and communities. Within the fields of both SSF and co-management research, gender responsive action is coming to the forefront as a critical component to developing long-term, environmentally sustainable and socially just management systems. In Canada, and across the globe, women play diverse roles in SSF, yet they face considerable barriers to equitable representation and ability to participate in fisheries management and decision-making.

Considering gender within Canadian SSF co-management is critical to creating legitimate and equitable outcomes for all. Including women in co-management broadens the scope of the arrangement and the potential outcomes because women have roles, knowledge and management priorities that are distinct from those of men. Additionally, including women in co-management settings can improve collaboration and create long-lasting outcomes due to a more holistic approach and women's impact on leadership. Although the importance of including gender in SSF co-management is clear, barriers exist to women's effective participation. Women struggle to progress to managerial positions due to lack of education and technical skills. Domestic and childcare duties often impede women's ability to participate in management due to lack of time. Women also face power dynamics within management settings that inhibit their ability to effectively participate.

Based on the examples provided here, it is clear that actively including gender considerations in Canadian SSF co-management is both necessary and beneficial to communities and the ecosystems to which they are connected. For effective participation and representation of all women in co-management spaces, an intersectional approach must be taken. Intersectional approaches can reveal how various forms of social difference, such as gender, race, ability and age, interact to create power dynamics within resource use and management (Ferguson 2021). Intersectionality moves away from the idea that all women fishers have the same experience and deepens our understanding of the complexities of individual experiences within management spaces (Ferguson 2021). This is especially critical in Canada when considering the experience of Indigenous women in management spaces built on patriarchal and colonial frameworks.

This discussion is part of a larger project being undertaken that will contribute to an e-book focused on SSF in Canada. Future work will examine how current policies and management structures in Canadian SSF consider gender. Ultimately, this work will aim to provide suggestions for achieving gender-responsive management spaces and outcomes. With a changing climate, nationally declining fisheries stocks, calls for reconciliation and the resurgence of Indigenous fisheries, now is a critical time to co-develop management systems that represent entire communities, including all women.

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Women of the land and sea at the 14th Triennial Conference of Pacific Women: Investing in inclusive and sustainable value chains identified as a regional priority

Natalie Makhoul,[1] Margaret Fox,[2] Flavia Ciribello[3] and Josephine Kalsuak[4]

The contributions, needs and opportunities of women fishers and farmers were identified as regional priorities in the 14th Triennial Conference of Pacific Women, at an international side event with contributors from Vanuatu, Fiji and the Solomon Islands. The side event was attended by 121 participants from development agencies, gender experts from the Pacific region, private sector representatives and staff from relevant national agencies.

Here, we provide a summary of the key points raised at the event as well as the recommendations for a regional outcome document generated during the event's interactive discussion session. We summarise the most relevant calls for actions that are likely to further progress women's economic empowerment along fisheries and agricultural value chains within the conference statement, endorsed by leaders from 20 Pacific Island countries and territories.

Event background

In April 2021, the 14th Triennial Conference of Pacific Women (hereafter, "the Conference") was convened by the Pacific Community (SPC) with French Polynesia as the host country and chair. Due to COVID-19 pandemic restrictions, the Conference took place virtually. Over 1000 participants attended the Conference to urge regional and national key players to continue the Pacific journey of progressing gender equality since the Pacific adopted the Beijing Platform in 1995. The theme of the Conference, "Our Ocean, Our Heritage, Our Future – Empowering All Women in the Blue Pacific Continent", was chosen to reflect the significance of the marine space for Pacific people, as it deeply intertwines with their culture, traditions and way of life while also being a key source of livelihood for many and a stable source of nutritious food for decades. Pacific women are yet to be fully recognised as key players in all aspects of ocean management, governance and the Pacific blue economy; thus, the theme stressed the empowerment potential for women in the present blue Pacific narrative.

A side event focused on women's economic empowerment at land and sea. Inspired by the theme and in respect of the interconnection of the blue Pacific with its land, SPC's Land Resource Division reached out to its partners working in this space to convene the side-event: the Pacific Organic and Ethical Trade Community programme and SPC's Fisheries, Aquaculture, Marine and Ecosystem Division through its Pacific-European Union Marine Partnership (PEUMP) programme, supported by SPC's Human Rights and Social Development division.

The main purpose of the side event was to draw attention to the needs of and opportunities for Pacific women fishers and farmers. The critical need to focus on the often unseen, unrecognised and undervalued contributions of women farmers and fisheries in the pre- and post-harvest process stood out for many partners who shared these similar observations in their stories. Exploring gendered value chains was highlighted as an area that needs more attention, more investment and more development support. As identified by partners, women's diverse skill-sets in the areas of processing, product development, retailing, marketing, packaging and consumer communication are often self-driven with limited access to training or funding opportunities to further explore new ventures. Value-adding processes for land and marine resources are seen as particularly promising ventures for women and potential drivers of economic empowerment through unfolding and upskilling women's pre-existing knowledge and experience. Moreover, the side event provided an insight into women's leading role in organic value chains, such as virgin coconut oil or handicraft products. Gender-discriminatory practices and a stereotypically structured division of labour were described as obstacles for certain value chains, such as honey production.

Side event format and themes

The side event was titled "Women of the land and sea – women's economic empowerment (WEE) along value chains". SPC partnered with seven different organisations from the private sector and development agencies, including non-governmental organisations and networks: Loving Islands, Pacific Island Farmers Organisation Network, Rabi Organics, UNDP, UN Women, Wildlife Conservation Society (WCS) and WorldFish. Key messages focused on WEE in the agriculture and fisheries sector in the region, highlighting stories of change that showcased women's journeys in venturing into value-added produce. Their challenges and their success stories were presented.

A storytelling format was used to shift the focus towards the key protagonists of the side event, namely Pacific women who

[1] Pacific Community, Pacific European Union Marine Partnership programme. Email: Nataliemak@spc.int
[2] Pacific Community, Human Rights and Social Development Programme. Email: Margaretf@spc.int
[3] Pacific Community, Pacific Organic and Ethical Trade Community (POETCom). Email: Flaviac@spc.int
[4] Pacific Community, Human Rights and Social Development Programme. Email: Josephinek@spc.int

are fishers and farmers, entrepreneurs, food inventors, policy makers and game changers. The side event acknowledged the need to apply a holistic approach to value chain development considering the environmental, economic and social factors and the integration of land-based and marine activities within Pacific island and atoll ecosystems. A question and answer panel discussion allowed participants to engage with the speakers, clarify and comment on the presented stories.

Key discussion points

The side event speakers emphasised the importance of women's traditional knowledge in the context of the land and the sea, their deep connection to these natural spaces and the many cultural and traditional practices that are associated with the land and sea.

Leveraging the principles of organic agriculture highlighting the connection to tradition and culture to operate women-led business, Ms Terikano Beriki from Rabi Organics spoke of the successful Banaban women-led value chain production of organic virgin coconut oil from a remote island in Fiji. She stressed the importance of organic values in line and combined with traditional and indigenous knowledge through a dialogical approach. This combination of organic values and traditional indigenous knowledge was presented as a successful WEE enabler alongside climate-smart agriculture, safe handling of produce and basic organic farming principles. Five key principles used by Rabi Organics were discussed in this context (Fig. 1).

The founder and director of Loving Islands, Litia Taukäve (née Kirwin) stressed the need to invest in value-adding training and support for women alongside support in accessing equipment and markets for their products. She called upon potential partners to prioritise customisation within interventions, to avoid applying a "cookie cutter approach" that generalises "Pacific women" as a homogenous group and to understand the broader set of gender-discriminatory factors that women farmers and fishers face, such as violence against women, gender-stereotyped working structures as well as the many expectations of women and their multiple roles. These factors create additional burdens that need to be factored in and somehow addressed within any WEE initiative.

Sangeeta Mangubhai, Director of the WCS Fiji Country Programme, and Margaret Fox, Gender and Social Inclusion Adviser at SPC, focused on the importance of breaking down barriers for women in the fisheries space and the importance of making visible the roles and contributions of women along post-harvest and value chain processes. Doing so can validate the vast contributions of women fish workers rather than leaving them invisible in the "gender trap" of the informal economy. Using the example of the Fiji sea cucumber fishery, Fox said that "as the product moved along the value chain, the higher the price got, and the stronger men's involvement became compared to women's involvement". This pattern was also described by other speakers as an area of concern.

The UNDP and UN Women Market for Change (M4C) team shared the video story of Laitap David, a market vendor from Vanuatu. Providing her with the skills and techniques to add value to her produce showed the long-term pay-back impacts of investing in a one-woman-business: the training enabled a huge upgrade for David and her entire family to meet more than just their basic needs. David was the first in her village to build a house with bricks. She also used her

Figure 1. The five key principles used by Rabi Organics.

income to support her four children's education, in line with a typical financial spending pattern of women to ensure their children's basic needs first.

From the Pacific Island Farmers Organisation Network, a female tilapia farmer shared her entrepreneurial journey in a male-dominated sector and her personal growth process of learning how to balance a physically demanding and time-consuming job with her family life. She mentioned two key success factors that have helped her in finding the right balance between farm work and family life while she was able to expand her business and become the president of the Tilapia Fiji network:

1) networking initiatives, seeking help and talking to others for advice and exchange; and

2) outsourcing work by investing in the "right technical people who are honest and willing to help [me] grow".

Delvene Boso from WorldFish addressed the importance of gender-focused research to provide key information on women's roles in fish value chains. She described their partnership project with the Solomon Islands Ministry of Fisheries and Marine Resource and provincial governments to understand more about gender roles and responsibilities in different local communities as well as at the provincial, national and regional level. Women's roles in fisheries value chains are often not captured in the first place; thus, WorldFish named this partnership "follow the fish ... follow the female" to highlight women's leading roles along value chain nodes.

Other common themes raised by speakers were natural disasters and threats related to COVID-19; these were identified as being particularly burdensome to women and exacerbating the stress they face daily in providing for their families. Speakers emphasised that rural women need to be given more attention and more solution-oriented ways of overcoming remoteness-related challenges for transport, resource mobilisation or accessing markets.

Recommendations for the triennial outcome document

The side event concluded with a questions and answers panel session that discussed key recommendations for WEE along fisheries and agriculture value chains. The following recommendations were captured by the organising team:

- While there is no single solution or single recommendation, there is need for a concerted commitment and efforts by all key value chain (VC) stakeholders, at different levels, to create transformative change towards WEE and gender equality while addressing existing and persisting inequalities and development concerns.
- These efforts call for a more holistic and comprehensive approach that can be achieved through partnerships, networking opportunities and knowledge sharing.
- An increased availability of gender-disaggregated data in the agriculture and fisheries sectors is needed to inform effective, relevant and customised interventions and policies rather than a generic, single-type "Pacific Women" lens, acknowledging that women are not a homogeneous group.
- Understanding the nuances of specific women's situations (e.g. women involved in different value chains; urban versus rural contexts) is critical in designing effective VC interventions and broader policies supporting women's roles in VCs.
- This knowledge is needed to create a transformative change in recognising and valuing women's work and their contribution to the agricultural and fishery sectors.
- There is a need to apply a holistic approach to VC interventions that goes beyond economic benefits and considers the ecological and human dimensions as well. Profit is important to all farmers, but women often closely interlink profit and sustainability. Health, food security, social and environmental justice, and community development and responsibilities are key considerations that drive women's choices, attitudes and decisions as producers, entrepreneurs and consumers.
- Mentorship and coaching programmes and training targeting women are critical to build women's confidence. Building their confidence is a first step towards their personal, family and community development. Such programmes contribute to create social networks, guiding women through the VC processes and connecting them with the right stakeholders and opportunities.
- There is a need to recognise and support WEE as a good strategy to achieve all the other Sustainable Development Goals. Investing in WEE has the potential to boost economic and social development for women themselves and the wider community, to support climate change responses and to achieve poverty alleviation.
- For those involved in VC interventions and programmes, it is important to keep a "learning and flexible attitude" to provide relevant trainings for women to meet their specific needs.
- Collaboration with relevant government ministries that work in the agriculture and fisheries space is necessary for such ministries to recognise, have and implement gender-inclusive approaches within their ministries and also roll these out nationally in their work programmes. Without this coordinated effort, gender mainstreaming across sectors including fisheries and agriculture will never be fully realised.

[5] https://www.spc.int/sites/default/files/documents/14th%20Triennial%20Conference%20of%20Pacific%20Women%20Eng.pdf

Results from the outcome document

The side event recommendations were used to inform the outcome statement[5] of Pacific Ministers for Women ("the Ministerial"), which was endorsed during the Conference on 4 May 2021 by honourable ministers responsible for women's affairs and/or gender affairs from Australia, Cook Islands, Federated States of Micronesia, Fiji, France, French Polynesia, Guam, Kiribati, Nauru, New Caledonia, New Zealand, Palau, Republic of the Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, United States of America, Vanuatu, and Wallis and Futuna. The Conference reaffirmed WEE as fundamental for development and called upon governments, the non-profit sector, faith-based organisations, the private sector and development partners to implement specific actions to progress gender equality outcomes in WEE initiatives.

Within the outcome statement, the most relevant calls for actions that are likely to further progress WEE along fisheries and agricultural value chains are as follows (summary):

a) Proactively expand opportunities for women to participate in critical sectors and value and remunerate women's work in all fields.

b) Implement equitable, inclusive, accessible, resilient and gender-responsive social protection policies and programmes for all women, including those in informal work … and improve regulatory frameworks and enforcement of labour laws to ensure that these workers have decent paid work and safe workplaces.

c) Reduce barriers to women's access to credit and financial services and increase opportunities for education and financial literacy training that can help transition women to formal employment.

d) Strengthen business leadership by women through targeted business support services, incubation initiatives for women entrepreneurs, business clustering, and opportunities for women to access leadership training and mentoring, including development of career pathways via training and mentoring with particular emphasis on agriculture, fisheries, etc.

e) Connect development efforts to sustainable livelihood opportunities by ensuring available national and regional markets for product-based development projects and ensuring that vocational training is linked to job market realities.

Other recommendations provide additional enablers to support a striving workforce of women of the land and sea to take on opportunities along value chains. These recommendations include strengthening women's workers' rights and tackling gender-based violence. Recommendations on cross-cutting themes, such as gender-responsive climate justice and decision-making or sex-, age- and disability-disaggregated data, are further relevant in creating an enabling environment.

Conclusion and way forward

Shifting the gender equality debate into key economic sectors in the Pacific, such as agriculture and fisheries, with a more specialised outlook for WEE along new ventures of value-added production is a critical step in shaping the commitments of our regional leaders to gender equality and gaining political will and buy-in. Leveraging women's traditional skills and knowledge combined with their innovation and sustainability-oriented thinking is important to change the WEE narrative. This change can emphasise a broader perspective on livelihoods and welfare that moves beyond the cash-based narrative of traditional economic principles. Furthermore, by appropriately recognising the pivotal role that the fisheries and agriculture sectors have played to sustain generations of Pacific Islanders over centuries, it is only fitting that women are empowered to sustainably earn a decent living and to source nutritious food from the sectors that have sustained them and their communities for generations.

Toksave Pacific Gender Resource: a new home for quality research relating to gender in the Pacific

Lindy Kanan[1]

The Toksave Pacific Gender Resource aims to address gender inequality in the Pacific by making quality research accessible and discoverable.

The idea for the Toksave Pacific Gender Resource was first sparked in 2014 when a group of Pacific gender specialists gathered at the University of the South Pacific. They were concerned that gender research, especially that undertaken by Pacific researchers, was not discoverable. Fast forward seven years, and on 23 April 2021, Toksave was launched at a side event of the 14th Triennial Conference of Pacific Women.

Toksave is a website portal that aims to provide access to Pacific gender research, stimulate new research and discussion, and encourage mutual learning and research among diverse Pacific researchers. University students, researchers and anyone with an interest in the field of gender research will be able to access information from this mobile- and user-friendly website that currently has over 642 research items.

Toksave is unique in that it is owned by the community. Once registered, members can submit research to be published on Toksave, whether it be their own research or other research that is in the public domain or that they have permission to publish. Members can also submit events that might be of interest to the community, and participate in the discussion forum.

Toksave takes a broad approach to research, and publishes a range of resources that may include:

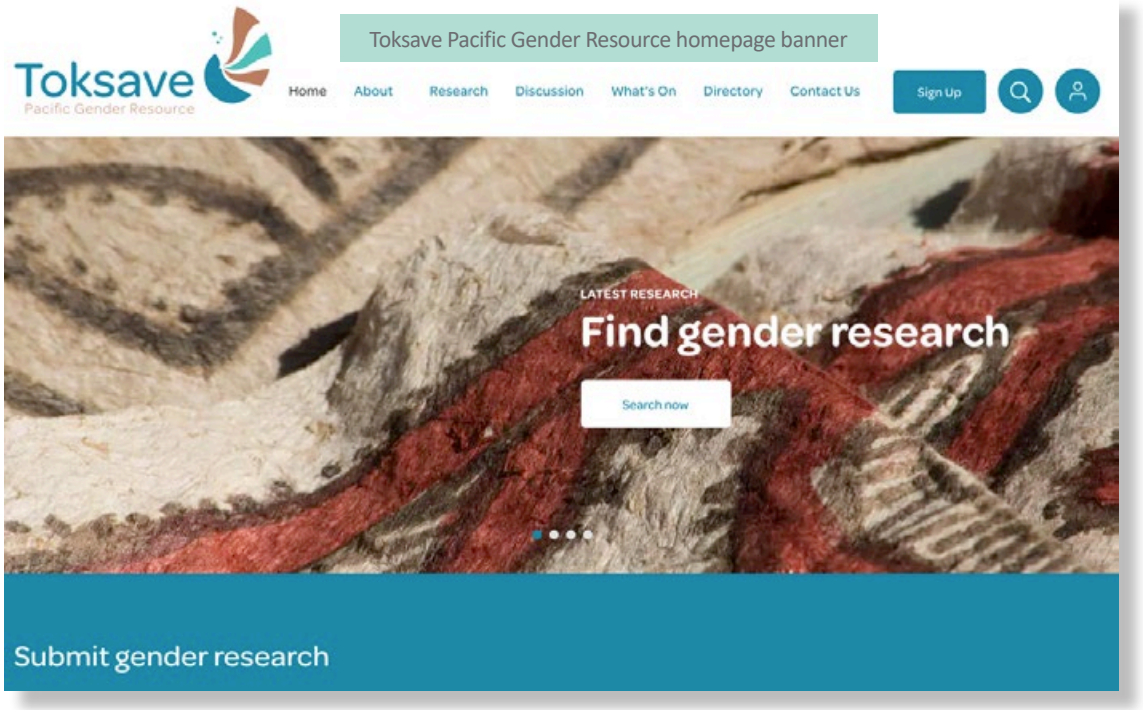
- original research based on the analysis of primary or secondary data,
- policy and evaluation-oriented research,
- research based on creative and performing arts, and
- completed high level degree theses.

Research that is based on Pacific research methodologies and methods, involves Pacific-centred subject matter and affects Pacific communities is actively encouraged.

The name *Toksave* was suggested by Professor Betty Lovai, Pro Vice Chancellor of the University of Papua New Guinea (UPNG). Linguistics lecturers at UPNG provided some information about the word. Toksave as a verb means to announce, to explain, to clarify, to call to attention, to inform, to report or to declare. As a noun, it means an announcement, declaring or reporting. The team creating the portal, who represented five different Oceanic countries, agreed that this was the perfect word to encapsulate what the portal was hoping to achieve.

Senior Lecturer and Deputy Head of the School of Law and Social Science at the University of the South Pacific Margaret Mishra says

> Toksave brings together research that studies the production, reproduction and resistance to norms that produce inequality across all genders.
>
> By having access to resources about men, women, lesbian, gay, bisexual, transgender, queer and intersex communities, we can better understand how gender is performed and woven into our everyday lives.



[1] Senior Project Officer for the Toksave Pacific Gender Resource. Email: info@toksavepacificgender.net

> We are in a better position to critique the structures and the practices that contribute to our oppression.

Mishra added that "Toksave will offer a safe space for us to critically evaluate inequalities, highlighted through our research. Through these dialogues, we can bring about change in our homes, our communities, our countries, the region and the world."

Associate Professor of Pacific Studies at the University of Auckland Yvonne Underhill-Sem said

> Toksave will highlight the pre-existing research and grow a community of researchers.
>
> We wanted to be sure that Toksave highlighted the research that was happening in our region, the ways it was done, and the connections to other older researchers and research entities.
>
> We also need to build new generations of researchers who have the courage and confidence to be innovative and creative, so that we can bring those insights and make the kind of difference we really want.
>
> Toksave belongs to the people, and it is your one-stop platform for gender research in the Pacific.

The idea for Toksave has been voiced and pondered for a number of years, with numerous consultations and scoping studies undertaken. One of the participants in the early consultations said, "I'm nearly 50 now, I really want this portal to be completed in my lifetime".

Professor Nicole Haley of the Department of Pacific Affairs at the Australian National University was instrumental in securing funding for the portal to be developed. She said,

> I'm so pleased that the ANU was able to help bring the vision to life.
>
> We really encourage anyone with an interest in Pacific gender research to sign up and become a member of the Toksave community.
>
> The site is a place where you can ask questions and go out to the community of practice (the other Toksave members) if you want information, or you want to start a discussion.
>
> This is a resource for all of us who are working in this space, who are committed to Pacific gender research and addressing systemic inequalities.

Toksave has been well received by the community. As one of the attendees said at the launch event in April 2021, "Congratulations. So happy to see the Toksave portal finally happen – in my lifetime as well!"

Creation of the Toksave Pacific Gender Resource has been a collaborative effort. A Reference Group has overseen the development of the site, with members from institutions including National University of Samoa, University of Papua New Guinea, University of the South Pacific, University of Auckland, Australian National University and the Pacific Community (SPC).

You can find the Toksave Pacific Gender Resource at www.toksavepacificgender.net

Acknowledgements

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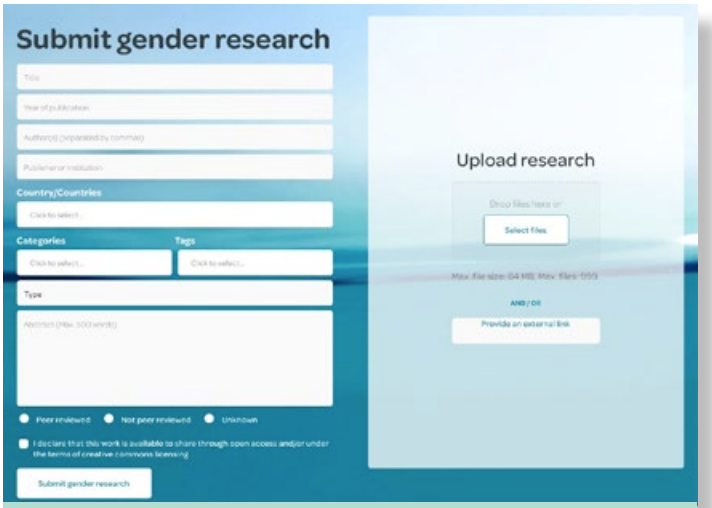
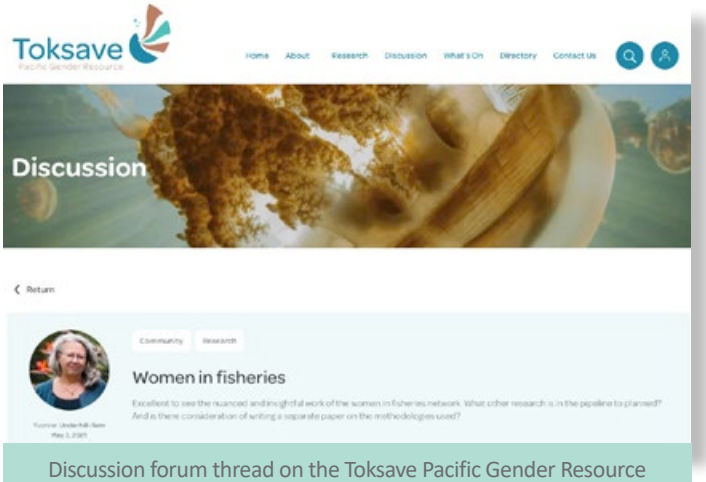


Online form to submit research on the Toksave Pacific Gender Resource



Discussion forum thread on the Toksave Pacific Gender Resource

Example of research on the Toksave Pacific Gender Resource

New projects
New research

Recognising the contribution of women in small-scale fisheries to improve food security and resilience in Fiji

Roslyn Nand[1]

Small-scale fisheries (SSF) are irrefutably vital for food security and livelihoods of coastal communities around the world. However, there are challenges and stressors that these communities face such as climate change impacts, demographic shifts, and the increase in demand for fish and fish products that threaten their food security and livelihoods. Climatic conditions such as the increase in sea surface temperatures, ocean acidification, changes in precipitation, increased intensity and frequency of cyclones, and nutrient cycling have significantly affected fish production and distribution (Garcia and Rosenberg 2010; Ram-Bidesi 2015). Fisheries in tropical countries are seeing changes in fish distribution, and authors have projected fish stocks movement out of the tropics into higher latitudes and this will likely affect food security and livelihoods (Cheung et al. 2013). Studies also show that there will be an increase of 3°C or more in the Pacific by 2100, which will result in decreased pH, deoxygenation, and a decline in marine production (Hanich et al. 2018). These impacts will cause the disappearance of almost 80% of aquatic species in certain areas, with a predictable decline of more than 50% in the catch potential of nine out of 17 Pacific Island countries and territories (PICTs) (Hanich et al. 2018). The Pacific Community has devised plans to ensure that at least 35 kg of fish per person is accessible per year; however, it is almost certain that 75% of PICTs will fail to meet this food security requirement by 2030 (Hanich et al. 2018).

Roslyn Nand

Even though the SSF is evolving and focusing on sustainable practices in reducing hunger and poverty, little consideration is devoted to gender role, particularly in PICTs where women are the backbone of the fisheries communities (Kronen and Vunisea 2009). The contribution of women is immense in SSF; however, the fisheries data are more centred on direct, formal, and paid fishing activities, which are usually carried out by men, whereas those activities that are indirect, informal or unpaid are mostly carried out by women (Harper et al. 2013; Béné et al. 2013). Poor recognition and inadequate representation of women paint an incomplete picture of their role in SSF and in promoting food security and building resilience. Women are an essential part of SSF globally, yet they remain in the shadows (Harper et al. 2013). Their contributions to the fisheries' food security are constantly ignored, frequently undervalued, and poorly documented (Thomas et al. 2021). The discounted contributions of women challenge their importance in fishing and fisheries-related activities to food security and resilience worldwide. While there has been an evolution in women's empowerment and gender equality in recent times, studies reveal that gender inequalities persist in the fisheries sector (Harper et al. 2013; Kleiber et al. 2014). The overriding issue is that SSF's food security and livelihood cannot be effectively managed,

[1] University of the South Pacific, Suva, Fiji. Email: s11002788@student.usp.ac.fj

improved, and transformed if women are not precisely represented in statistics, research, and decision-making (Alonso-Población and Siar 2018). Addressing barriers and constraints to gender equity by recognising the contribution of women in SSF will therefore build food security and resilience in PICTs.

My research aims to give recognition to the undervalued contribution of women in improving food security and resilience in SSF in Fiji. My study will be carried out in the coastal provinces of Tailevu and Serua on the island of Viti Levu. The objective of my research is to examine the impacts of climate change on the SSF, especially on food insecurity. Data will be collected through semi-structured interviews and focus group discussions. During analysis, data will be sex-disaggregated to investigate the gendered response and resilient adaptation strategies in relation to the impacts of climate change on food security and livelihoods. Analysis will specifically focus on:

- gender, age categories, and the productive and reproductive work of men and women;
- the difference in men's and women's access and control of resources, benefits, and opportunities; and
- influencing factors that will describe social, economic, and political forces that have an impact on gender roles and relations.

I will be providing recommendations on the processes and pathways to enhance the contribution of women in SSF. This will guide researchers and enable policymakers to further understand gender equity in SSF in Fiji, and how it can be incorporated into sustainable management and policy planning to increase food security and resilience in Fiji.

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New projects
New research

"The ocean is my land": Understanding unintended outcomes of tuna fisheries development in Suva, Fiji

Victoria Margaret Syddall[1]

The gendered roles and impacts of offshore fisheries, their development and management policy are under-studied, including with reference to impacts on men and masculinity. Here, we describe new research underway with communities in Fiji involved in the tuna fishery sector.

Tuna fisheries in the Pacific are complex and form parts of much larger systems. However, their governance and thus their management is simplified and addressed in silos. Research into understanding tuna fisheries focuses on biology, stock assessment, environment and climate research, with little on economics and scant attention to social research (Evans et al., 2015; Keen et al., 2018b; Moore et al., 2020). Social issues such as gender are rarely included. Therefore, the state of knowledge to enable clear framing of gender issues in tuna fisheries is nascent. Moreover, donor-funded research on gender work is project-based and not in the core work of institutions, in contrast to fields such as stock assessments.

Josaia Cama walking back from the fields to interview in Waiqanake Village. © Patricia Kailola

The health of a fishery can be thought of in terms of the health of the biological resource and the health of the socio-economic system of its use. Majuro plots present the stock status of the four main commercially harvested tuna stocks of the Pacific Islands region (albacore, bigeye, skipjack, yellowfin) as "healthy" (FFA and Pacific Community 2020). But these Majuro plots do not represent the health of the social–ecological system, which is showing signs of failure in social and economic systems.

There is a dearth of social–ecological research that focuses on offshore fisheries (for example, Nikolic et al. (2017) reviews albacore tuna biology, fisheries, and management with no reference to social and/or ecological studies). There is even less recent research and literature on gender research in tuna fisheries, although this field is evolving (O'Neill et al. 2018; Prieto-Carolino et al. 2021). The majority of studies frame gender as women and men binaries, focusing on women's role rather than wider gender patterns (Manez and Pauwelussen 2016). The relatively few gender studies that have focused on men have missed masculinity perspectives (Seeley and Allison 2005). However, there is evidence of "opening up" the gender lens to include masculinities and intersectionality (Ferguson 2021).

In terms of tuna fisheries, social research has focused more on human rights issues onboard vessels at sea, and most of these studies are considered gender blind (Finkbeiner et al. 2017). This limitation excludes women's participation onshore in pre- and post-harvest activities, which as Keen et al. (2018a, p. 339) argue, "leaves women potentially vulnerable to economic, physical, and social disadvantage." Also excluded are the reproductive and unpaid support roles that women provide while men are away for long periods of time at sea.

The importance of applying a gender lens is well recognised (Williams 2008). Its application, through evidence-based studies for adaptive and gender-equitable strategies, has deepened understandings of fishers and fishing communities

[1] University of Auckland, Institute of Marine Sciences (supervised by Professor Simon Thrush and Dr Karen Fisher). Email: vjollands@gmail.com

(Ferguson 2021) by revealing how social differences and power relations can be constructed and/or maintained (Kawarazuka et al. 2017). Using gender as a lens "provides a better view of the whole industry and social context" (Williams 2008, p. 180). In addition, gender analysis is useful for integrating social research with research on social–ecological systems.

In our forthcoming place-based study, gender will be used as a lens to capture and reveal the role of women and gendered interrelationships in tuna fisheries in Fiji. In using the gender lens, we hope to reveal unintended consequences of fisheries development and governance processes on social–ecological systems and, in particular, on women and men in the tuna fishery.

To investigate gender roles and gender relations in tuna fisheries and to understand the gendered impact of fisheries development and policy, a mixed-methods, place-specific study approach was applied during 2018 to 2020. This study included a two-week visit in May 2019 to the city of Suva and two villages, Waiqanake and Kalekana, within Fiji. The research questions, places of interest, and methods (including the gender lens) were developed after a year of preliminary research (based on online interviews and desktop research) on characterising the Pacific tuna social–ecological system. Research questions include: "what role do women play in tuna fisheries in Fiji" and "how has the development of the fishery affected them."

To gather data from people with a broad spectrum of interests, positions and knowledge regarding tuna fishing, 19 semi-structured interviews were undertaken with key representatives including tuna fishing industry representatives, independent consultants involved in fisheries management, regional fisheries managers, staff of non-governmental organisations, academics, recreational fishers, and fishers in Waiqanake village. In addition, a semi-structured focus discussion group was held in Kalekana village with six women who had lost family members on tuna fishing vessels. Participants were asked to explore the role that women play in tuna fisheries in Fiji and to comment on their perceptions of how the current local and regional policies and practices affect women and gender generally. Managing gender issues was a particular topic of discussion.

Victoria Syddall undertaking social ecological research. © Patricia Kailola

Using the information from this place-specific study, we hope to examine gender roles and gender relations in terms of their state, process and key interlinkages, and to illuminate any changes, with particular attention paid to the unintended outcomes of local fisheries policies.

We are interested in understanding how power is allocated between communities and fishers, industry, and the wider social–ecological system. We draw on insights from political ecology and feminist political ecology in the context of social–ecological systems. We also draw on a characterisation of the social–ecological system of Western and Central Pacific tuna fisheries to connect gender issues within their wider tuna-related social and ecological networks. This research contributes to gender and fisheries studies and identifies how gender intersects with other dimensions to result in unintended outcomes of fisheries development and policy.

The new research described here is part of my PhD research *Understanding and governing the ocean using the rationale of social–ecological systems: A transdisciplinary analysis of Pacific tuna fisheries.* My research applies a Social–ecological Ocean's Framework (developed in the research) to understand complex ocean social–ecological networks and how that knowledge can be applied in ecosystem-based management approaches. Gender and climate change will be used as lenses for conceptually modelling social–ecological system networks and discovering unintended consequences of policy and development initiatives. Its publication is planned by 2022 and the findings will be shared with the research participants, policy makers (such as those in the Western and Central Pacific Fisheries Commission and FFA), and villages that I visited.

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Women worker at Fiji Fish. © Patricia Kailola

My story

Esther Wozniak

Pew Charitable Trusts

Esther recounts growing up in Suva and progressing from the University of the South Pacific to her present position in the International Fisheries Team of the Pew Charitable Trusts in Washington DC. She provides some career advice for young fishery professionals from Pacific Island countries and territories.

My background

I was born in Suva in 1991 and went to Dudley High School. My dad had a houseboat in Lami (just outside Suva) and fished commercially for albacore. My mom lived by a river in Wailekutu so, if I wasn't in school, I was handline fishing. As a ten-year old, this meant catching small prawns near mangrove swamps to use as bait. Sometimes we would take a rowboat out to the reef and try to catch *sabutu* (yellow-tailed emperor), *kabatia* (thumbprint emperor) and the prized *kawakawa* (grouper). Whatever fish we caught, we had to scale, gut and fully clean; in fact, my cousins and I would see who could clean their fish the quickest and bring it to my mum for inspection. This experience taught me to respect and fully appreciate the fish on our table.

Growing up in a family in which most of the men were traditional fishers turned commercial fishers, and most of the women hand-line fished every day, I always knew I would do something later in life related to fisheries. Much to my Bu's (grandmother) dismay, I chose to study marine science over medicine – but it was one of the best decisions I've ever made.

University and my first jobs

I studied marine science and management at the University of the South Pacific (USP) and interned at the IUCN Oceania Regional Office. While studying, I was elected USP's student representative for science, technology and environment. I worked with students, faculty and local NGOs to help bridge student volunteer and internship opportunities. I also led one of the first groups of Fijian youths to Japan for the Kizuna Project to aid in the 2011 tsunami recovery and there I learned about disaster preparedness.

My favourite lecturer at USP was Mr Johnson Seeto; he is still the best teacher I have ever had. He was funny, engaging and had a wealth of knowledge – he knew how to identify *any* marine species. My favourite tutor was Alifereti Koroilavesau, who helped my class get through our labs and really tried to meet each student at their own level. He was like that big brother you could go to with all your course questions and trust that he would give you the right advice.

After my time at USP and the brief internship at IUCN, I found that many of the jobs in the region were already occupied by expatriates with more experience than I had. Very few folks from my graduating class were able to find jobs in the field and those that did had very low paying ones. So, I moved to the US with my now husband, who was a Peace Corp volunteer in Ra Province, Fiji, and had landed his dream job as an Environmental Engineer at the Environmental Protection Agency in Washington, D.C. We told each other we were going to do this for 5 to 7 years and then find our way back to Fiji.

The move to the US was hard. Fiji was all I knew and all I was. Fijian is my first language and I still think in Fijian before all the mental gymnastics to translate it to "American English." I come from a family of over a hundred people – so Washington, D.C. felt like a very cold place in more ways than one. I luckily joined a local community of Pacific Islanders and have since built my own little village with friends from all over the place.

Within a few months of moving to the US, I obtained my employment authorisation card and began working at an aquatic lab at the Howard Hughes Medical Institute. After a brief stint at a renewable energy company, I was encouraged by my husband to apply for a job at Pew. It was then that I finally found my way back to the marine conservation and fisheries world.

I joined Pew's global shark conservation team in 2017 and led efforts in the Pacific region to manage and conserve sharks and rays. During this time, I got to work with the Secretariat of the Pacific Regional Environment Programme (SPREP), Fiji's Ministry of Fisheries and other folks in the Pacific region. I felt like I was making my way back

home. One of the best parts of the job was travelling to Samoa and Fiji a couple of times a year. As part of the shark team, I helped coordinate regional workshops and support Pacific Island countries and territories at the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). In 2019, this contributed to a huge win – the regulation of the trade in 18 species of sharks and rays with depleted populations under CITES.

Working on sharks in the Pacific was a dream job, but I yearned for the day I would be able to do this job from home, my actual home. I grew up listening to stories about "Dakuwaqa", the shark god who protects fishermen out at sea. My grandmother was an expert storyteller and used to share all the legends about Dakuwaqa and Robatidua, the octopus god. This instilled within me a lot of respect for sharks and other marine creatures. I was really upset to learn about how vast the shark fin trade was, especially in the Pacific, from longlining. This really motivated my work on shark conservation.

After the CITES win, I joined Pew's international fisheries team. As a principal associate on the team, I now work to reform high seas longline fishing by improving trans-shipment regulation and monitoring (including through electronic monitoring) of longline fisheries. I focus on advocacy efforts within countries, with regional fisheries management organisations, and with United Nations agencies to ensure the sustainability of global fisheries.

Mentors and struggles

In addition to Mr Johnson Seeto and Mr Alifereti Koroilavesau, I have had other mentors such as Angelo Villagomez, the only other Pacific Islander who works at Pew. He is from Saipan and has worked at Pew for over 13 years, and constantly encourages me to bring my authentic self to work every day. In a way, Bob Gillett and Francisco Blaha have also been mentors, as I try to learn what I can in all our interactions.

Coming from Fiji and then working at a US NGO, I get what I call "imposter syndrome" every single day. Surrounded by experts, I constantly struggle to articulate my ideas and improve my writing skills. In the past couple of years, I have taken it upon myself to really push for increased engagement in the Pacific. I have recommended folks who I studied with at USP for jobs and they have all the right qualifications and Indigenous background knowledge but they might not have the visa privileges of someone fresh out of university in the US or London and that really bothers me. So many NGOs and donors are based in developed countries like the US and Europe, yet they have campaigns or projects focused in areas like the Pacific – so I often wonder why their staffing does not reflect the areas where they work. I understand the immigration regulations can make this difficult but there has to be a way to work with the system, especially now in the remote-working world.

Advice to aspiring Pacific Island fishery professionals

The most important advice I could give is to find mentors: the opportunities for Pacific Island fishery professionals are expanding, but it is a complex field and a helping hand could be very useful. Never stop learning – I try to carve out time from my daily 9–5 job for learning opportunities. I recently completed a Harvard online business course on management and am trying to always equip myself for the next step in my career trajectory.

I urge aspiring Pacific Island fishery professionals to find volunteer opportunities, internships and networking engagements while you are still at USP. These can help you build connections to get to your first job.

If I had to re-do my education and career advancement, what would I change? I wish I had applied to join Pew sooner. I did not think a bachelor's degree was enough to get me a job like this. I limited myself to what I thought I was qualified for, but once I joined Pew, I worked (and still work) really hard.

A last bit of advice concerns writing. Besides courses that a young fisheries professional could take at USP, it is so important to acquire one specific skill: writing. Work on your writing ALL THE TIME. Take extra writing courses at USP and afterwards, and always ask for constructive criticism.

Boosting women's knowledge in post-harvest handling of fish and fattening of mud crabs before sale

Ana Ciriyawa,[1] Vutaieli B. Vitukawalu, Rosi K. Batibasaga

Background

Women are increasingly being recognised for the important roles they play throughout fisheries value chains. In the past, women were largely involved at subsistence fisheries level (Vunisea 2015). While household food security is still a primary motivation for women to fish, many women are increasingly involved in the commercial side of fisheries to provide supplementary income for their families (Thomas et al. 2021). In some households, women are considered primary income earners, and they are investing in a wide diversity of activities such as gleaning, fishing, post-harvest processing, selling and marketing of value-added products (Thomas et al. 2020). Women are the dominant sellers of crustaceans, molluscs, seaweed and mud crabs, one of the most sought-after species sold at local markets (Vitukawalu et al. 2020a). For example, mud crabs are mostly sold live to middlemen and to consumers at local markets (Mangubhai et al. 2017) and fish are often smoked, refrigerated and dried before sale (Waqairatu-Waqainabete et al. 2019). While there has been a slight increase in sales price for fish products over the years, women seafood vendors still identified gaps in these local markets, one of them being the lack of access to training on the proper post-harvest handling of fish (Vitukawalu et al. 2020a) and invertebrates that would help boost their daily income.

To address this need, the Wildlife Conservation Society Fiji Country Program (WCS Fiji) organised training specifically targeting women seafood vendors (including those that were also fishers) in the Northern and Central Divisions of Fiji (with funding from Blue Action Fund and Kerrest Johnson Family Charitable Fund). Sixty-four women seafood vendors participated in two separate trainings organised by WCS Fiji in Labasa (Vitukawalu et al. 2020b) and in Suva on the proper post-harvest handling of fish. The trainings were led by Dr Jimaima Lako, a food and nutrition scientist from the Fiji National University. WCS Fiji also worked in collaboration with The Crab Company Fiji, based in Raviravi in Ba town, to train women mud crab fishers from Tavulomo in Dama District, Bua Lomanikoro and Tiliva in Bua District and Tavea in Lekutu District of Bua Province on mud crab fattening and post-harvest handling best practices.

Production of the manuals

These trainings were carried out to help women better market their catch and ensure high quality fresh products that meet the required health and safety standards. The positive feedback received during and after-training, followed by requests from the women participants, prompted the production of two manuals in English and iTaukei languages.[2] As women continue to play important roles in the fisheries sector, having access to training and resources will help them improve the quality of their products and services. As catalysts of change, the women will have confidence in their decision-making processes boosted across all levels of the fisheries sector by the right exposure and availability of resources.

Guide for proper post-harvest handling of fish

This guide was developed for fishers and market vendors to ensure fish is handled in a proper manner from the time of harvest until it is sold to customers. The guide includes information on parts of a fish, good hygiene practices and determining the freshness of fish. It also includes step-by-step instructions on brining, icing, gutting and filleting of fish in sanitary ways that will reduce the deterioration of fish, eliminating the chances of contracting diseases through poor fish handling.

Mud crab fattening and post-harvest handling manual

The mud crab fattening manual was produced to help mud crab fishers sustainably catch and fatten their crabs, thus enabling them to receive a better selling price while ensuring the long-term future of the fishery. With the increasing

[1] Email: aciriyawa@wcs.org

[2] https://fiji.wcs.org/Resources/Management-Tools-and-Guides.aspx

Post-harvest handling of mud crabs included a lesson on the proper way of tying mud crabs. © Ana Ciriyawa/WCS

Constructing mud crab cages using locally sourced bamboo in Bua Lomanikoro. © Ana Ciriyawa/WCS

demand for properly fattened live crabs, this manual provides an opportunity for mud crab fishers to consistently supply this market in a responsible manner in terms of human health and a sustainable fishery. The manual includes step-by-step instructions on how to select fattening sites, the materials required and the construction and installation of mud crab fattening pens. It also includes guidance on checking fat content, feeding, handling and the proper way of tying mud crabs before sale. Setting up mud crab fattening farms will encourage the development of mud crab management plans (e.g. Giffin et al. 2019) and apply sustainable harvesting practices to guarantee the continuous supply of wild mud crabs for many years to come.

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Dr Jimaima Lako explaining the brining process to fishers and market vendors in Labasa. © Vutaieli Vitukawalu/WCS

Women seafood vendors assessing the freshness of fish at the post-harvest handling training in Suva. © Vutaieli Vitukawalu/WCS

In the fishing industry, women face hidden hardships: a study

Kiley Price

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The fishing industry is facing a reckoning.

Journalists and researchers in recent years have uncovered slavery, child labour and human trafficking on fishing vessels, spurring a global push to address human rights abuses on the high seas.

However, what happens after the fish are caught has remained largely hidden.

According to researchers, millions of onshore fish workers – predominantly women – spend long hours cleaning and packaging fish in factories, maintaining community fish farms and often filling low-paying positions throughout seafood supply chains around the world. And in these roles, they face a different – but equally egregious – suite of human rights abuses, the researchers write in a recent paper (Finkbeiner et al. 2021).

In an interview, Conservation News spoke to the paper's lead author, Conservation International scientist Elena Finkbeiner, about the hardships that women endure in the fishing industry – and the steps needed to address them.

Question: Fishing is widely considered a male-dominated industry. What jobs do women fill?

Answer: The best way to describe the fishing industry is "male-dominated but female-intensive."

Men are typically seen on industrial fishing vessels, but that type of work accounts for just a fraction of jobs in the industry. Women fill 90 per cent of land-based jobs – including managing local fish farms, working in seafood processing plants, marketing products and even collecting snails or crabs, which feed communities while fishers are at sea.

Women are the unseen backbone of seafood supply chains, supporting local food security and ensuring that fish are processed and packaged for sale at regional and national markets. Unfortunately, women are rarely chosen for leadership or managerial roles in seafood supply chains, meaning that they often do not have a voice in decisions, including working conditions and fair compensation. Our recent paper highlights how systemic discrimination and a lack of representation and recognition in the seafood industry worldwide makes women more vulnerable to abuse.

Question: What types of human rights abuses are women in the fisheries sector currently up against?

Answer: Sexual harassment and gender-based violence are hugely pervasive across many fishing communities – there are even accounts of women being forced to exchange sex for access to fish markets.

Lesser known yet extensive inequalities also persist in the essential roles that women play in fish processing factories. If a woman is able to find a job in this part of the industry, it's likely that the position will be temporary and unsalaried, meaning that her job is not as secure and she will not qualify for benefits such as health insurance, childcare or a severance package if she is let go. Additionally, post-harvest female

Women homeworkers and their families, Asahan, North Sumatra, Indonesia. The lives of Indonesian women homeworkers and their families, engaging in informal employment practices and not receiving regular or minimum wages. © Ferry Latief/ILO 2012.

Women in fish processing activities, Cambodia. © Sophak Sett/Conservation International

fish workers are often exposed to dangerous conditions in factories with poor ventilation, limited breaks and crowded facilities – which has been especially harmful during the COVID-19 pandemic because working in close quarters can increase the risk of transmission.

These abuses and inequities inhibit the ability of women to access more secure and better-paying positions in the fishing industry, further marginalizing their roles, and exacerbating vulnerabilities to external shocks such as public health crises and natural disasters.

Question: What needs to change for the fishing industry to address gender inequality?

Answer: The seafood sustainability movement has made significant strides toward tackling human rights abuses on the high seas, but these efforts must also include a greater focus on the rights of women and communities who participate in seafood supply chains onshore. Governments must invest more resources towards creating and applying policies to protect gender equity and developing social safeguards that reach women and small-scale fishing communities. For example, Costa Rica is an early adopter among countries striving to embed guidelines for sustainable, equitable and socially responsible small-scale fisheries into national law, with Ecuador and Peru closely following suit.

Seafood businesses – from producers and processors to suppliers and retailers – also have a responsibility to ensure that their policies and practices protect women from gender-based violence, promote gender equality and support fair wages throughout their supply chains. One way they can do this is by committing to follow the Monterey Framework for Social Responsibility, which is aimed at protecting human rights and improving food and livelihood security in the fishing industry.

A few of the recommendations outlined in the framework include providing equitable opportunities for all fish workers, improving environmental sustainability across production lines, and protecting human rights to ensure that seafood is sourced without harm to the people involved in producing, processing and distributing it.

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Finkbeiner E.M., Fitzpatrick J. and Yadao-Evans W. A call for protection of women's rights and economic, social, cultural (ESC) rights in seafood value chains. Marine Policy 128(2021):104482. https://www.sciencedirect.com/science/article/abs/pii/S0308597X21000932

Searching for fish in Nino Konis Santana National Park, Timor-Leste, where the government is working to protect the reef that supports the livelihoods of thousands of people living on the coast.
© Matthew Abbott/World Wildlife Fund, Inc.

The value of gleaning: beyond food and income

Ruby Grantham,[1] Jacqueline Lau and Danika Kleiber

Women in Timor-Leste collect coastal seafood for a range of reasons, reaching far beyond the dinner plate. Those reasons take on different importance in different parts of the year. Here, we explore the purposes for women's coastal gleaning based on our research publication "Gleaning: beyond the subsistence narrative" (Grantham et al. 2020). Recognising the diversity within fishing communities and the multiple reasons driving the action of gleaners can support more specific and effective fisheries management planning.

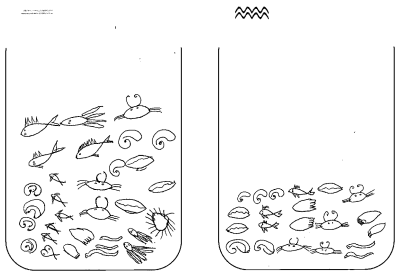
To examine the plural (Box 1) and seasonal values of coastal gleaning, we undertook an exploratory case study with a community in Timor-Leste. We asked: (1) What are the seasonal characteristics of gleaning in the community? (2) Why do women glean and what values do they derive from gleaning? (3) How do values associated with gleaning change between seasons?

Gleaning, the manual collection of marine organisms from the intertidal zone, is a widespread small-scale fishery in the Global South. Gleaning is typically carried out by women, is often a social activity (Whittingham et al. 2003), and can contribute substantially to landings, income and food security (Chapman 1987; Kleiber et al. 2014). Despite its importance, gleaning is underrepresented in coastal research and management (Harper et al. 2013; Fröcklin et al. 2014; Kleiber et al. 2015). When gleaning is included in research and management, the focus tends to be on women's gleaning as a source of seafood for household subsistence. Although this focus is crucial for highlighting the importance of gleaning for food security, it does not capture the wider contributions of gleaning for women's well-being. More equitable and sustainable coastal decision-making relies on a more holistic perspective of gleaning and its socio-ecological relevance.

We set out to understand the well-being values of gleaning for women and how those values differ seasonally. Understanding how seasons affect the ways people interact with and benefit from coastal ecosystems is particularly important in the context of a changing climate and shifting seasonal conditions (Oppenheimer et al. 2019). Although the contribution of gleaning to livelihoods in the context of seasonal availability and accessibility of other coastal fisheries has been recognised (Tilley et al. 2021), previous empirical work has not examined seasonal changes in the social well-being values of gleaning.

A participant in one of the focus group activities

We used focus groups, surveys, and interviews to learn from the community. The focus groups were our main resource, and we designed these groups to be inclusive and targeted at women who gleaned. To ensure women who could not read or write were able to participate, we used non-written data collection methods, including drawing and picture-based



Drawing 1. An example of the drawings of seasonal gleaning catches in Timor-Leste (left: calm season; right: rough season).

Box.1 Measuring multiple values

The research was underpinned by the knowledge framework of ecosystem services and well-being. As these fields develop, practitioners are moving beyond money or food as measures of value.

The study of ecosystem services is developing to account for the multiple and different ways that coastal ecosystems matter to people: attempts to recognise this variation are called plural value approaches (Lau et al. 2019; Blythe et al. 2020). These plural value approaches recognise factors such as differences in the ways that people of different genders interact with and benefit from coastal ecosystems (de la Torre-Castro 2019; Fortnam et al. 2019).

Progress in the well-being literature emphasises that well-being emerges from the interplay between three domains of a good life (White 2009): the material (assets and physical "stuff" that people have), relational (social interactions and governance that determine what people can do) and subjective (cultural values and perceptions that influence how people feel). This extended definition of well-being is fundamental for understanding and supporting meaningful relationships between people and nature as part of equitable and sustainable environmental management (Chan et al. 2011). In fisheries, using well-being approaches to represent societal values is central to building a more respectful definition of quality of life that extends beyond just the ability to meet basic needs (Camfield 2006; Weeratunge et al. 2014; Johnson 2018).

[1] Correspondence: ruby.grantham@my.jcu.edu.au

activities (Fig. 1). The focus groups were kept small, with a total of 13 women participating in two separate focus groups.

Our results show that in Timor-Leste, gleaning activities and catches were seasonally variable; gleaning was more widespread and catches more abundant and lucrative at times of the year when the sea was calm compared to when the sea was rough.

The women explained to us that they gleaned for ten distinct but not mutually exclusive reasons. Five of the reasons related to the outcomes of gleaning (that is, as a means of sourcing seafood). The other five reasons related to doing the activity of gleaning (Fig. 2). The stated reasons for gleaning represent a spectrum of instrumental and relational well-being values. For example, catches can provide important material well-being benefits and when shared may also support social connections.

The women ranked the perceived relative importance of reasons for gleaning differently between individuals and seasons. Seasonal differences in reasons for gleaning reflect differences in the risks, challenges, and catches of gleaning and indicate that women's value priorities change at different times of the year. For example, the importance of gleaning for income was lower in the rough season than the calm season because women rarely collect high-value groups, such as octopus, in rough weather.

In other words, ecosystem values change through time. The differences we found suggest that non-seasonal assessments may show only part of the story about why coastal ecosystems matter to people.

Our findings emphasise the need for a more complex understanding of how women's interactions with coastal environments, such as through gleaning, are shaped by the pursuit of multidimensional well-being (Coulthard 2012). As well as providing an important source of seafood and material well-being, gleaning supports meaningful interactions with other people and nature. Notably, household food and income security – a core part of the subsistence narrative – were not a priority for all gleaners.

Our research demonstrates the need for socially and temporally disaggregated assessments of coastal ecosystem values. Recognising the diversity within fishing communities and specifically including gleaners, distinct from other small-scale fishers, in consultation and research can support more specific and effective management planning. Specifically, this research indicates the need to move beyond essentialised narratives of women's contribution to their own and their family's well-being. Failure to account for the diverse multidimensional well-being benefits derived from marine resources by different stakeholders, including women and gleaners, risks exacerbating inequalities and hardship (Coulthard et al. 2020). Research that links women's choices and actions to multiple dimensions of well-being (beyond material) is needed to support a more nuanced representation of women's needs, values, and preferences in coastal management.

This research has been published in an article titled "Gleaning: beyond the subsistence narrative" (Grantham et al. 2020). A more detailed description of the research methods and analysis and in-depth discussion is presented in the full article, which is available open access at https://link.springer.com/article/10.1007/s40152-020-00200-3.

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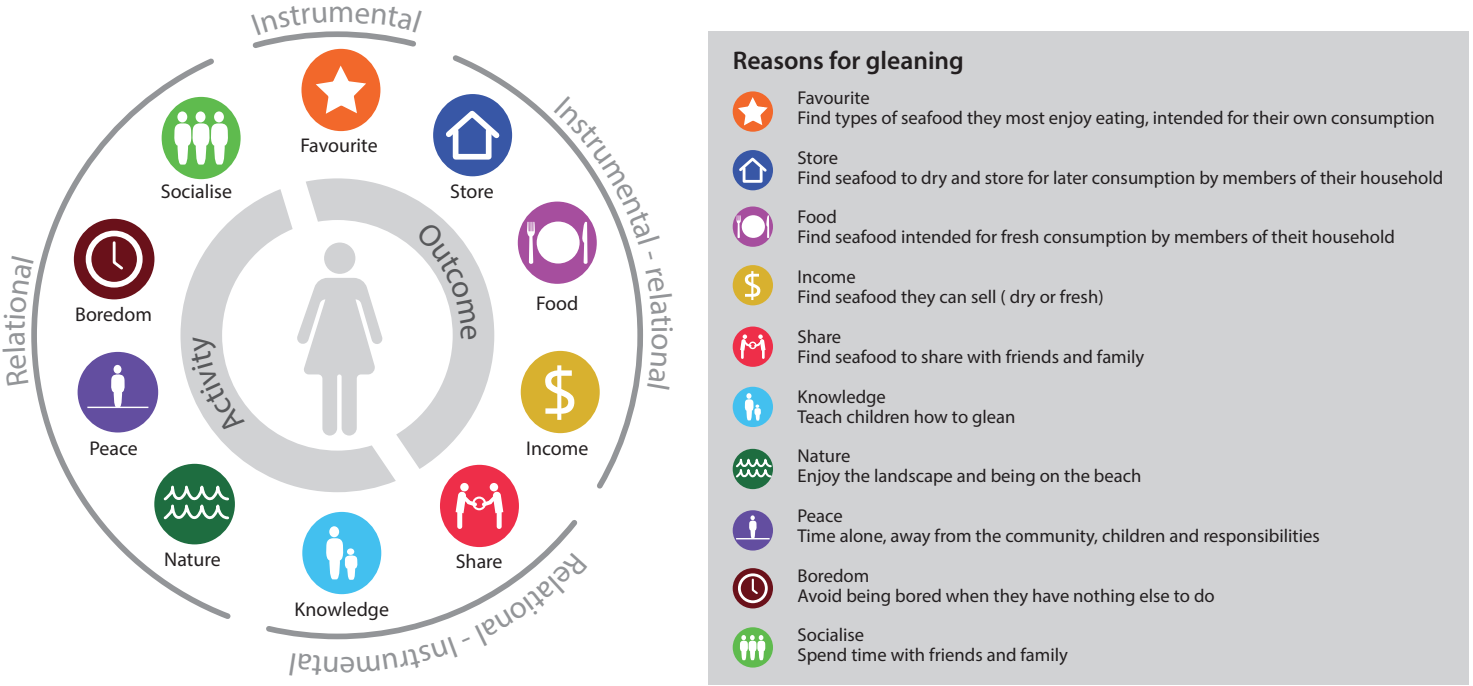

Figure 2. Women in Timor-Leste reported ten distinct, although not mutually exclusive, reasons for gleaning coastal foods (reproduced from Grantham et al. 2020, CC BY 4.0)

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Women gleaning on Atauro Island, Timor-Leste.

Shining a light on Fijian women fishers' role in providing food and income for their households

Alyssa S. Thomas, Sangeeta Mangubhai,[1] Margaret Fox, Semisi Meo, Katy Miller, Waisea Naisilisili, Joeli Veitayaki and Salote Waqairatu

Abstract

Women play crucial roles in small-scale fisheries (SSF), providing food and income for their households. However, their contributions are often overlooked and/or under-valued. We carried out focus group discussions and household surveys to explore the role of indigenous Fijian (iTaukei) women in SSF. Our results showed that although some traditional roles of women fishers still apply, such as using simple fishing gear, many women are also using boats to fish habitats farther from the village. Women fishers' primary motivation for fishing was to provide food for their households, demonstrating their key role in food security. Many women also sold some of their catch, although other livelihoods such as agriculture and handicrafts provided an additional source of income. This article highlights key results from our open access scientific paper published in the journal Ocean and Coastal Management.[2]

Key findings

The women fishers harvested a large diversity of species for both food and income. Overall, they harvested a minimum of 104 species of invertebrates and seaweed (99 for food and income, 47 for food only and 5 for only income), and caught a minimum of 160 species of fish (91 only for subsistence, 67 for food and income and one species only for income). The majority of women fished for multiple reasons, including subsistence, cultural events, income and as a social activity.

Fisherwoman on Koro Island in Fiji. © VCreative

Compared with men, more of their catch was used for subsistence and less for income. Women fished a range of habitats from inland rivers to the open ocean, but the soft bottom and coral reef habitats were fished by the highest numbers of women. Fishing was usually done less than an hour from their village, and fishing time was most often two to three hours. Finally, a range of transportation modes were used by the women fishers to access their fishing sites; on foot and boats without motors were the most common.

Forty-three per cent of women sold at least some of their catch for income, but only 18% sold at a municipal market. Although the women fishers reported a range of barriers in selling their catch, the most common ones, such as access to a market, no available market, and transportation difficulties were related to selling at municipal markets. Additionally, only 7% of the women carried out any value-adding (mainly seafood packs with fish), suggesting a training opportunity.

The women fishers made an important contribution to household food security, catching the majority of both fresh fish and invertebrates consumed. Almost all of their households had eaten fresh fish during the past week, up to seven times or once a day on average. In terms of other livelihoods besides fishing for food, farming was the next most common and provided a backup food source for many of the women's households. However, in terms of importance, women viewed fishing and handicrafts as their most important livelihoods; and handicrafts and selling their fisheries catch were the "most stable" and "brought in the most money".

For a full copy of the paper:

Thomas A., Mangubhai S., Fox M., Meo S., Miller K., Naisilisili W., Veitayaki J. and Waqairatu S. 2021. Why they must be counted: Significant contributions of Fijian women fishers to food security and livelihoods. Ocean & Coastal Management, 205:105571. https://www.sciencedirect.com/science/article/pii/S0964569121000569

[1] Sangeeta Mangubhai, Wildlife Conservation Society, Fiji Country Program, 11 Ma'afu Street, Suva, Fiji smangubhai@wcs.org Phone: +679 331 5174, Fax: +679 331 0178

[2] https://www.sciencedirect.com/science/article/pii/S0964569121000569

Engaging women for enduring conservation

Robyn James[1]

I was recently invited to a meeting hosted by United States State Department Climate Envoy to discuss ways to improve women's participation and innovation in the emerging green and blue economies. It was a small group, including programme leaders from around the world and delegates from the highest levels of US government. Some of us had worked in conservation at community level for most of our careers, while others had expertise in financial markets, sanitation and clean energy. We all had diverse experiences and ideas, but one theme was persistent across every single speech and presentation: women are still not represented or considered at all levels. From household decision-making to local and national policy development to international forums, women are still under-represented, and their unique ideas and innovative solutions are not always considered.

Globally, experts who work on gender emphasise the importance of "women's empowerment" regarding economics, health, and the management of natural resources. This is particularly true in the fisheries sector, which has long been dominated by men, whether the work is taking place in coastal communities, research organisations and projects or international decision-making. But the more time I spend working directly with women – whether it is the mangrove forests of Papua New Guinea or on Zoom calls with global delegates and policy makers – the more I realise that empowering women is not the biggest challenge or even the biggest opportunity. Women need to be systematically included, whether through quotas or policy. We need women to have a meaningful place in deciding the future of our resources.

Despite this focus on women's empowerment, environmental NGOs, intergovernmental bodies, grant makers and policy drivers continue to take a "check-list" approach to gender inclusion and gender mainstreaming instead of investing in meaningful engagement of women at every stage of the process and every level of a system. This dissonance is also reflected in the literature.

[1] The Nature Conservancy, Brisbane, Australia. Email: rjames@tnc.org

Women attend a mangrove assessment training in Papua New Guinea. © Ruth Konia/TNC

In a literature review of 230 articles (James et al. 2021) relating to women and conservation or natural resource management we observed several key themes underscoring these inclusion gaps:

a) Existing societal and cultural norms on gender expectations and roles affect and generally limit how women can engage in conservation and natural resource management.

b) Women interact differently than men with the environment and natural resources. If they are excluded, women's unique knowledge and perspectives on particular resources may not be considered in conservation actions.

c) There is often a lack of resources or dedicated effort by conservation or natural resource management programmes to understand and address the barriers that prevent women's engagement.

These themes have significant impact on environmental efforts around sustainable fisheries, marine protected areas and coastal community-based conservation.

In more than 50% of articles reviewed, it was noted that women often interact with, use, understand and value the environment differently than men and this labour is often undervalued or not even considered when designing policy, programmes and projects. In marine areas, for example, women commonly undertake inshore fishing, whereas men often manage coastal and offshore fishing enterprises. Therefore, when women are not represented in fisheries decisions and deliberate efforts are not made to acknowledge and incorporate their knowledge, the resources they value are not considered in management planning. This has a devastating effect on women's livelihoods, safety and overall family well-being. In Tanzania, for example, one of the challenges facing women in the fisheries sector is the societal norms that expect women to carry out most household duties and childcare, leaving limited time for fishing. In addition, social taboos allow men to limit women's access to fisheries, for example prohibiting activities when women are menstruating, reducing women's overall opportunity to generate income (Bradford and Katikiro 2019).

These traditional gender roles are commonly reflected within conservation organisations themselves (Mahour 2016). For example, women often occupy interpretive, communicative and administrative roles (with a focus on so-called soft skills), while men are over-represented in positions that are more leadership-oriented and risk-taking or involve fieldwork (Westberg and Powell 2015; Jones and Solomon 2019). Furthermore, white men currently hold over 75% of CEO positions for international conservation organisations. This often leaves women performing lower status tasks, rather than playing the roles of scientific experts and decision-makers, which are more highly valued and more visible in these organisations (Westberg and Powell 2015; CohenMiller et al. 2020).

Women in Manus, Papua New Guinea, gathering firewood from the mangroves. © Justine E. Hausheer/TNC

People in leadership and research positions have the power to influence which research questions are asked, which work is prioritised and how we include women. This is particularly relevant in fisheries, a sector dominated by men in terms of research and decision-making. In our literature review, we found that overwhelmingly women are driving research with a gender focus: 70 percent of articles relating to gender and conservation were led by women lead authors. In comparison, these statistics are flipped when we look at non-gender related fisheries research with men dominating all other fisheries publications. If women are not hired into research positions, gender intersections in conservation are less likely to be investigated, understood and ultimately addressed. For example, if we simply employ women in sustainable fisheries projects without understanding how money is distributed in the household, women may in fact work for money they have to give to others and then still have to find ways to feed their families.

Effective, long-lasting marine conservation and fisheries management requires us to involve women at every level of the system in research, policy, and project design. Meaningful engagement of women should be deliberate – and it needs to happen both within conservation organisations and in the programmes they execute on the ground. The challenges facing our planet, and particularly our marine ecosystems are urgent, important, and complex. We cannot afford to leave women behind.

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