

Valuing the critical roles and contributions of women fishers to food security and livelihoods in Fiji

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Introduction

Men and women in fishing communities are often viewed as conforming to strict traditional roles (FAO 2017). A woman's job can entail staying in or close to the village and carrying out household tasks, while men work beyond the village area with the responsibility of providing food and income for their households (Harper et al. 2013). This limited framing of gender roles has resulted in an underestimation of fisheries catches in inshore areas, in addition to an undervaluing of the important contributions women fishers make to not only their village but also the economy overall (Kleiber et al. 2014).

Worldwide, men and women also have different and often complementary roles in regard to their fishing. For example, women are more likely to fish freshwater habitats, soft bottom, and mangrove and mudflat habitats close to the village, and largely for subsistence (Kronen and Vunisea 2009; Lambeth et al. 2014). In comparison, coral reefs and offshore environments are more often fished by men (Lentisco and Lee 2015; Ram-Bidesi 2015). In terms of species targeted, women generally focus on harvesting non-fish (e.g. invertebrates and seaweeds), whereas the men concentrate on catching finfish and select species with a high dollar value (Vunisea 2014). In Fiji, most women fishers are generalists, collecting and selling a wide range of species. The more valuable species are taken to markets to sell (if possible), or sold to middlemen or other buyers in the village. Historically, women's involvement in fisheries was mainly at the household subsistence level, although an increasing number are involved in commercial fisheries (Fay-Sauni et al. 2008; Vunisea 1997). However, women wanting to fish for income face the challenge of needing to find the time to complete their traditionally assigned chores as well as selling their seafood catch (Vunisea 2014).

Despite research efforts to date, there still lacks an accurate perception of women in the fisheries sector (Lambeth et al. 2014); their unique needs and/or perspectives are not routinely incorporated into fisheries management and policy decisions (FAO 2017). An improved understanding of gender roles can therefore allow interventions to be tailored to specific groups of fishers and thus be more effective (Vunisea 2014). In response to these information needs, a national study of fisheries-dependent communities was conducted to better understand and highlight the role of women fishers in the Fijian inshore fisheries sector. Fisheries-dependent communities were surveyed to gain a “better

understanding and quantification of the role of indigenous (*iTaukei*) women fishers in fisheries in Fiji”. This article highlights some of the key findings from a report (Thomas et al. 2020) that will be launched on International Women's Day in 2020.

Methods

Socio-economic, fisheries and gender surveys previously used by other organisations were used to inform this study's questionnaire. The study was designed to collect information on women's fishing strategies and species caught and sold in the range of habitats fished:

- freshwater
- mangroves and mudflats
- soft bottom
- coral reefs
- open ocean.

Between November 2017 and April 2018, 113 villages across 46 districts and 11 provinces in Fiji were surveyed (Fig. 1). A total of 1239 household surveys and 97 focus group discussions were completed. Within each village, an attempt was made to survey as many women fishers as possible; all women fishers who were available and willing to participate within a 5–6-hour time window were interviewed. Both one-on-one and focus group surveys were conducted, and done in the *iTaukei* language by trained local interviewers (male and female). The trained interviewers included staff and volunteers from Wildlife Conservation Society, Conservation International, the Fiji Locally Managed Marine Area Network, Ministry of Fisheries, University of the South Pacific, Vatuvara Foundation, Women in Fisheries Network–Fiji and the World Wide Fund for Nature.

To provide an estimate of seafood catches and sales, women were asked to name the top three species of fish and invertebrates (i.e. sea cucumbers, crustaceans and shellfish) they usually caught and/or sold, with the understanding that there were often variations, including seasonal fishing patterns. To obtain more details on seafood sales, women were subsequently asked for the top three species they sold (fish, invertebrates, seaweeds). For these three species, the women were then asked to provide information on their buyers, the average sale price and the quantity they normally sold.

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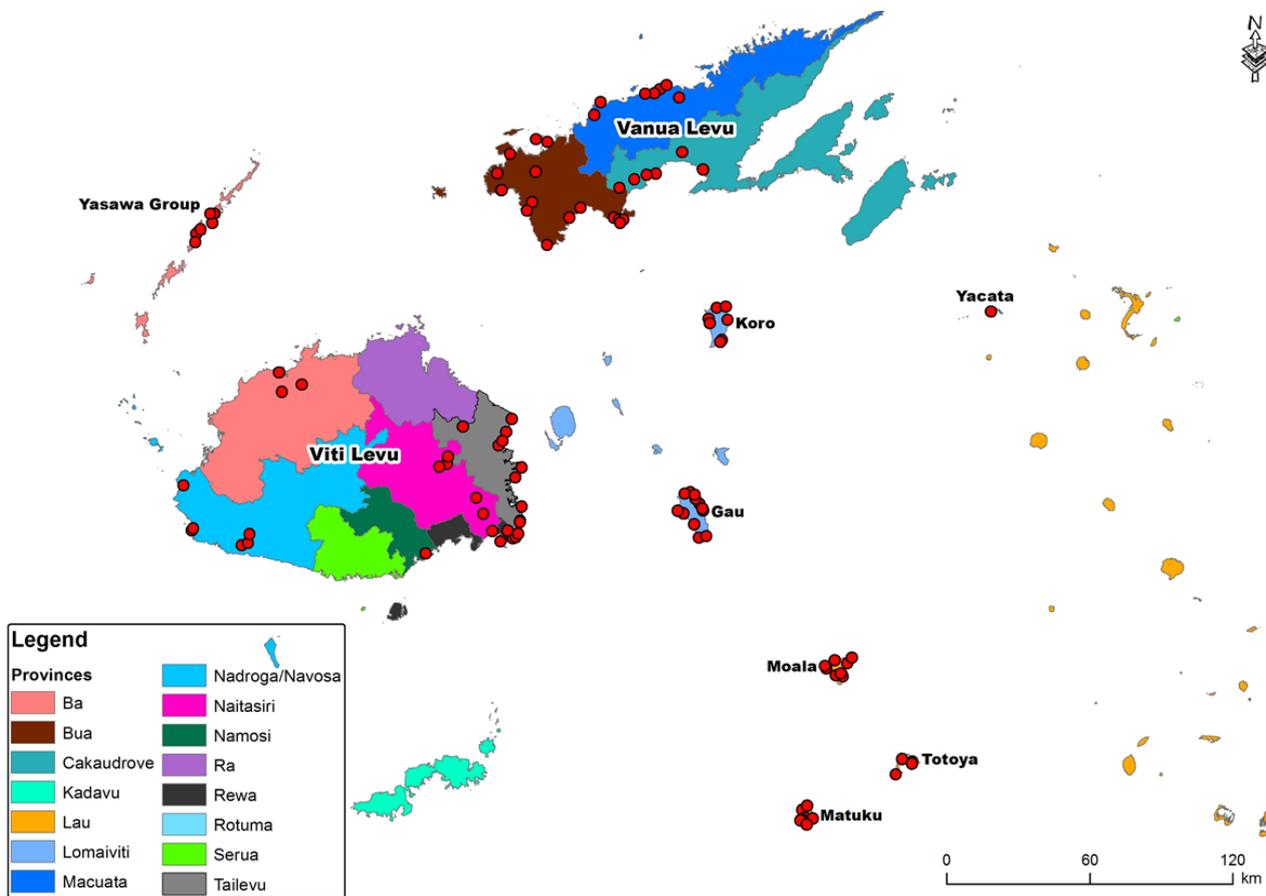


Figure 1. Map of study sites. (Source: Wildlife Conservation Society)

Data analysis

For each habitat, the women fishers provided the local names of their seafood catch, which local staff later matched to a scientific name. However, for multiple reasons, the number of local names was not the same as the number of scientific names. In some instances, the local name was not known to anyone and the scientific name was left blank. For many species, there were also multiple local names as the name

differed between the provinces (and even villages, in some cases). Several species of fish and invertebrates also had different local names for the different life stages of that species (e.g. juvenile mud crabs). Finally, some local names also referred to multiple species (e.g. snappers), and were therefore identified at the genus or family level. In calculating the minimum number of species, each type of seafood identified at the species level was counted as one. A local name that was identified as a single genus, family or two different genera (e.g. *Scarus/Chlorurus* spp.) was also counted as one. The true number of species caught is therefore higher; however, the minimum numbers presented still provide a sense of the diversity of the species caught by women fishers.

Results and discussion

Fishing motivations

The women were asked about their main reason for fishing. More than three quarters (83%) selected “obtaining food for their families” as the main reason they went fishing. Income generation was the reason referred to by 14% of respondents, while very few mentioned social (1%), cultural (1%) or church (0.5%) events as the main reason.

Across almost all provinces, fresh fish provided the main source of protein for the women fishers’ households. The women were also more likely to use their catch for subsistence than the men in their households. Compared with invertebrates, a higher percentage of fresh fish was caught by the household, purchased, or exchanged and/or given, and a higher percentage of invertebrates was caught by the women themselves (Fig. 2). Although more women are now catching fish in addition to gleaning, the male fishers in



Fisher selling crabs at the market. ©Alyssa Thomas, WCS

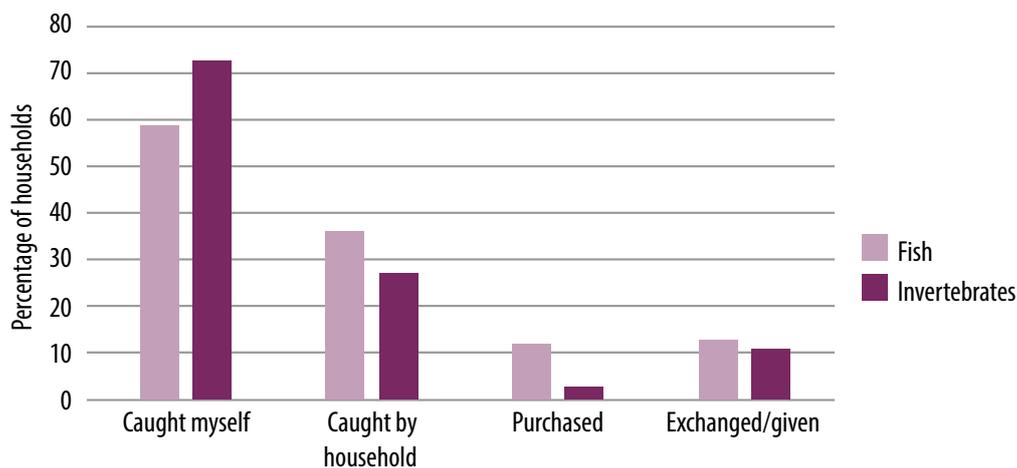


Figure 2. Sources of fresh seafood consumed by households.

the household are still almost exclusively catching fish, which explains the higher proportion of fish versus invertebrates caught by other household members. The results also showed that seafood consumption in the surveyed villages is still largely subsistence based with the seafood caught or exchanged, especially invertebrates. These results are similar to earlier studies that suggested women fishers in Fiji play a critical role in household food security and nutrition, as well contributing to household income through the sale of fish, invertebrates and seaweed species (Kronen et al. 2007; Ram-Bidesi 2015; Vunisea 2014).

The highest percentage of women selling at least some of their catch were those fishers accessing the mangroves and mudflat habitats, especially for mud crabs, a women-dominated fishery in Fiji. Conversely, the coral reef and open-ocean habitats had the lowest percentages of women selling seafood, likely reflecting the high numbers of men that fish in these habitats for income. Fish and invertebrates harvested by women were sold to a wide range of buyers, the most common being municipal markets, middlemen/middlewomen and people from within the village. Women fishers on Viti Levu and Vanua Levu had more options for selling their seafood than those from the outer islands (i.e. Lomaiviti and Lau provinces). The highest prices received for seafood sales were from municipal markets and middlemen. Conversely, the lowest prices were from buyers within their village or from nearby villages.

Although the study documented that only 18% of the women sold at municipal markets, about a quarter of women currently fishing only for subsistence expressed a desire to sell some of their catch for income at a municipal market. However, across the provinces, there were a range of barriers to selling at a municipal market. For Lau and Lomaiviti provinces, there was no market or it was too far away. For other provinces (e.g. Nadroga/Navosa and Macuata), transportation to the market was too difficult and/or expensive. Finally, in provinces such as Rewa and Tailevu, with relatively easy access to municipal markets, the barrier was high levels of competition resulting in lower prices.

Fishing strategies

More than three quarters (78%) of the women fishers interviewed gleaned for invertebrates and seaweeds, which generally does not require any specialised fishing gear. However, gleaning does require specialised knowledge of species and harvesting skills that are often undervalued or underappreciated. For example, many women fishers are skilled at catching mud crabs by hand (Mangubhai et al. 2017), which they learned from their mother, grandmother or aunt from a young age. Aside from gleaning, the women fishers mainly owned and used inexpensive, low-technology gear, such as handlines and hand nets. For women fishers, handlines were the most commonly used fishing gear, across all habitats (86%; Fig. 3), followed by hand nets (49%). Both these types of fishing gear are inexpensive and simple in terms of level of technology, confirming previous research findings (e.g. Fay-Sauni et al. 2008; Harper et al. 2017). Although the handline was the most commonly used gear in all provinces, there was variation between provinces; for example, Ba and Rewa provinces had considerably lower numbers of women using handlines (60% and 65%, respectively). The hand spear was more commonly used in Bua and Cakaudrove provinces, reflecting the targeting of species such as octopus using this gear type.

Gear ownership also sheds light on the range of fisheries the women are engaged in and some of the barriers they face. The two most common gear types, handlines and hand nets, were mostly owned by women fishers themselves (92% and 82%, respectively). In contrast, the majority (57%) of spear guns were owned by men in the household. More complex and/or more expensive gear, such as mesh gill nets, were also more likely to be owned by someone else, suggesting there were some barriers to women accessing more modern or expensive gear types. The women must rely on the fishing gear being available to use when they go fishing and must share the gear with the owners (sometimes including their catch).



Mud crab fishers from Bua Province. ©Alyssa Thomas

Habitats and fishing strategies

Soft-bottom habitats, which include sandflats and seagrass, were fished by most women (64%) followed closely by coral reefs (62%; Fig. 4). The widespread use of the soft-bottom habitat is aligned with prior research (e.g. Fay-Sauni et al. 2008) and matches well with the “traditional” view that women fishers are largely gleaners. Gleaning of soft-bottom habitats at low tide is often for seaweeds (i.e. marine algae) and other invertebrates (e.g. sea cucumbers, shellfish, sea

hares). Gleaning requires no specialised fishing gear (as previously discussed), and the soft-bottom habitat is also available across most of Fiji, as are coral reefs. Conversely, freshwater and mangrove habitats are not as widespread (Mangubhai et al. 2019), and the open ocean is accessible only by boat.

However, the high numbers of women fishing the coral reef habitat contradicts the traditional gender roles in fisheries, where the coral reef habitat was mostly accessed by men. As

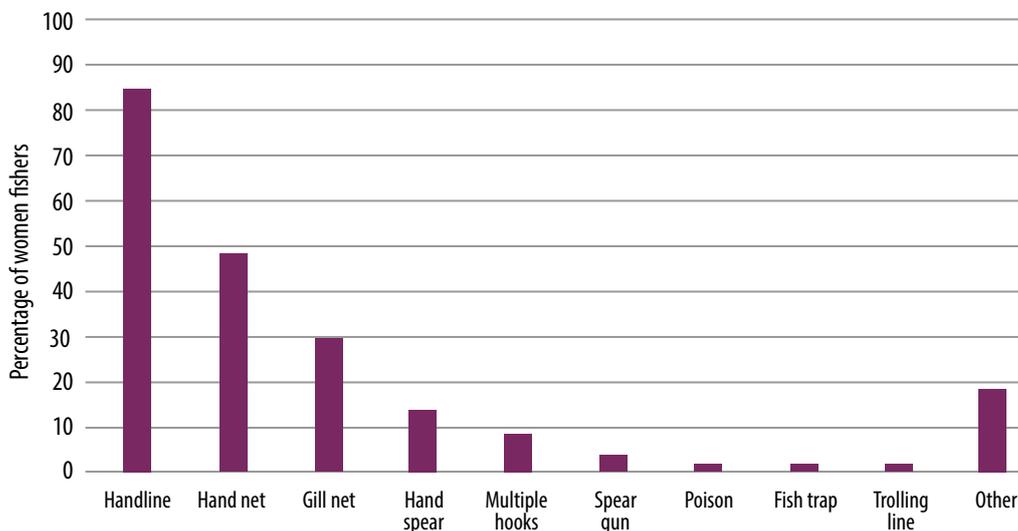


Figure 3. Fishing gear preferences of women fishers across 11 provinces in Fiji.

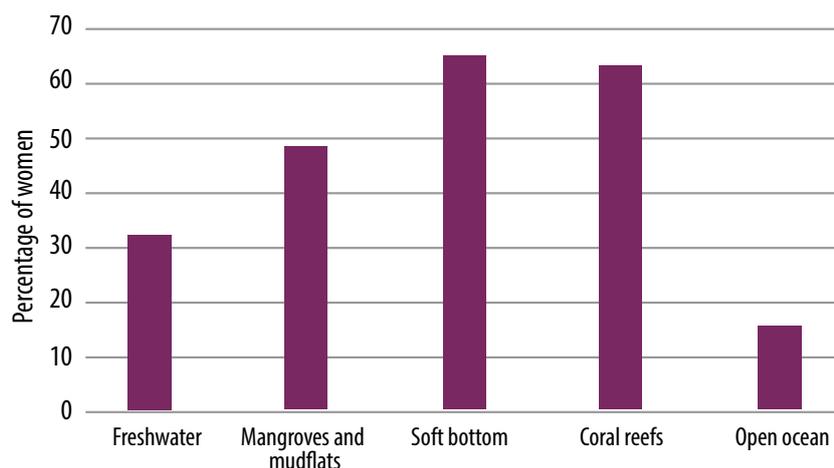


Figure 4. Percentage of women fishing in each habitat by province. In this study, open ocean for women refers to the outer edge of the coral reefs and out to deeper state waters.

the coral reef habitat has also been widespread in the past, the high percentage of women now fishing this habitat suggests that their role in fisheries is changing. The focus group discussions also revealed that the women were not excluded from any fishing areas because of cultural reasons, and there were very few areas where only men or only women fished.

The women fishers travelled mainly by foot, where possible (freshwater, mangroves and mudflats, soft bottom, coral reefs), or boat (barrier coral reefs and open ocean). Almost half the women used a boat to reach one or more of their fishing sites; of these, 83% used a boat without a motor and 18% used a boat with a motor. However, the use of boats was not consistent across habitats, with women using boats to primarily access more distant coral reefs and open-ocean fishing sites. In contrast to the ownership of fishing gear, boats were rarely owned at the individual level (5%) and largely belonged to the village (39%), household (20%) or clan (13%).

Across all habitats, most women took less than one hour to get to their fishing grounds and usually spent two to three hours fishing once they get there, which may or may not include the time taken to look for bait prior to starting to fish. The women fishers also expressed clear preferences for

the time of day they went fishing: in the morning and/or at low tide. These time preferences correspond with other responsibilities (e.g. childcare and cooking) and easy access to the fishing sites, respectively. Overall, the women generally fished a habitat one to three days a week, one to two weeks per month and every month during the year.

Fisheries

Women fished across a range of habitats from freshwater rivers to the open ocean, harvesting a wide assortment of fish, invertebrates and seaweeds (Table 1).

The top fish species caught for both sale and consumption were similar for four of the five habitats (mangroves and mudflats, soft bottom, coral reefs and open ocean). Groupers (*Epinephelus* spp.) and emperors (*Lethrinus* spp.), especially the thumbprint emperor (*Lethrinus harak*) and Pacific yellowtail emperor (*Lethrinus atkinsoni*), were among the top three fish caught for both consumption and sale. The mangrove red snapper (*Lutjanus argentimaculatus*) was also a top species for consumption and sale in multiple habitats. The freshwater habitat had different top fisheries: freshwater eels (Anguillidae) and tilapia (*Oreochromis* spp.) were two of the top three for both consumption and sale. Overall, most of

Table 1. Number of local names and minimum number of species of fish and invertebrates caught by women fishers in the five habitats.

	Fish		Invertebrates and seaweed	
	Local names	Species	Local names	Species
Freshwater	64	40	27	14
Mangroves and mud flats	131	79	59	40
Soft bottom	145	83	125	82
Coral reefs	143	91	88	59
Open ocean	94	59	n/a	n/a



Kai fishers selling at local markets. ©Alyssa Thomas



River in Bua Province where women commonly fish. ©Alyssa Thomas

the key fish species caught by the women spent at least some of their life in the mangroves, reflecting the need for better conservation and management of this habitat.

In terms of invertebrates and seaweed, there was a greater diversity in the top species caught, for both subsistence and income. However, the study did reinforce mud crabs and freshwater prawns as key fisheries for the women. Sea cucumber (Holothuridae) was also a key income fishery in several habitats and one of the top species of invertebrates sold at the time of the study.² Other top invertebrate and seaweed fisheries included the brown land crab (*Cardisoma carnifex*), antique ark clam (*Anadara antiquata*), giant clams (Cardiidae), trochus (*Tectus/Trochus* spp.), seaweed (*Hypnea* spp.) and several other types of shellfish.

Almost all (92%) women had at least one other source of livelihood besides fishing. Farming (particularly assisting with family-owned farms of high-value crops), handicrafts and small businesses (e.g. baking and sewing) were the most common non-fishing personal livelihood sources for the women. Overall, women ranked fishing and handicrafts as their most important personal livelihoods. They also reported that handicrafts were both their biggest and most stable source of income, followed by the selling of seafood. Only 15% of women reported that their household would be affected if they could not fish, mainly because they had a farm or someone else in their household who fished. Similarly, just over half the women felt that it was easy to earn money outside fisheries, although this differed across provinces.

The women fishers used their income from seafood sales largely for household expenses, food, church, and village functions. Almost three quarters of the women were satisfied with the money earned from seafood sales, but the women in Lau Province had a higher than average level of dissatisfaction. Across all provinces, an average of 33% of the woman's income came from fisheries; however, around 25% of the women received all their income from fisheries. Overall, these results show that fisheries are mainly a secondary source of income for the women.

Barriers

Focus groups were also used to explore the challenges faced by the women, both in fishing and in the selling of seafood. The women reported three main challenges: no available boat, bad/cold/unpredictable weather, and a lack of certain fishing gear (with some women expressing a desire for gill nets). In some villages, boats are necessary for accessing some habitats (e.g. coral reefs, open ocean). However, most boats used by the women were owned at the household or village level, and so could only be used when available. A further barrier was that less than a quarter of women fishers knew how to operate a boat. In terms of challenges in selling, access to municipal markets (i.e. distance, transportation, cost) was the most commonly cited issue. Some women felt that the men had better access to municipal markets, while women were limited to selling seafood within their village. Finally, women were interested in receiving financial support or training on business, alternative sources of livelihoods and value-adding activities.



Prawn fisher from Rewa Province. ©Alyssa Thomas

Conclusions

The study aimed to understand and document the role women fishers played in inshore fisheries in Fiji. Household and focal group discussions across 11 provinces helped quantify women's involvement in the inshore fisheries sector and provided important information to fisheries practitioners and policymakers. Today, many women fishers still carry out the traditional household tasks while fishing close to the village, using low technology techniques, to provide the main source of protein for the household. At the same time, more women are selling at least part of their catch and fishing in the full range of habitats, from freshwater river systems to the open ocean. Many of them are also expressing a desire to further modernise their fishing techniques.

The study reinforced the importance of the mud crab and freshwater prawn fisheries to women, while also showing that emperors, groupers and snappers were the most commonly caught fish, for both consumption and sale. Women in most of the provinces fished each habitat available to them one to three days a week, suggesting that they did not rely solely on one habitat or fishery for their income. However, it was not possible to estimate volumes of fish and invertebrates eaten or traded, as there were no records kept and many units were not quantifiable (e.g. bags, piles, buckets). Future research could seek to quantify these "non-metric" units, as it would

² A national ban on the sale and export of all sea cucumbers was announced in November 2017.

be valuable to provide better estimates of the volumes of fisheries women are involved in.

Our findings also show that women play a key role in household food security. The fresh fish they caught provided the main source of protein for most of their households. At the same time, more women were also selling at least part of their catch to earn income for household expenses, school and church. However, male fishers were still more likely to sell their catch than women fishers, highlighting the complementary roles of both genders in households. The data also show that despite the importance of freshly caught fish, the households of most of the women fishers would not be affected if the women could not go fishing. The household farm and male fishers in the household would provide food, and items from the farm could be sold for money. Importantly, most of the women ranked fisheries and handicrafts as their most important livelihoods, as well as the main and most stable source of income.

The study also provided an opportunity to elucidate some of the barriers faced by the women, both in their fishing and fisheries sales, and identify areas where management agencies can assist the women fishers (e.g. training on value-adding, alternative livelihoods). Given the investments women are making in fisheries for their families and the national economy, there needs to be better efforts made to incorporate their needs and unique perspectives into fisheries management. Key fisheries used by the women should be better researched and/or managed in order to ensure their sustainability. This report also makes the case for increasing the inclusion of, and discussion around, the role of the women fishers, and their catches, in reporting and documents on Fiji's inshore fisheries as a whole.

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