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Role of women and coastal livelihood in the small-scale fisheries (SSF) of Lupon and Governor Generoso, Davao Oriental

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ABSTRACT. In the small-scale fisheries, women have played a significant role, upending their traditional role of domestic activities. In this study, we shed light on various roles of women in their coastal communities in Lupon and Governor Generoso, Davao Oriental, and how their different activities revolve around the fisheries sector. A total of 88 women were randomly interviewed using semi-structured questionnaires in their homes and fish landing sites. Women participated in the fisheries between the ages of 35 and 55 years; in terms of educational attainment, they were primarily high school level and mostly were Cebuano. About 50% of them have access to credit, which they use for small businesses, purchasing fishing equipment, and the needs of their families. Women were involved in activities such as pre-fishing, fishing offshore, post-fishing, and fishing-related activities. Women were also engaged in collecting shells such as latticed top shells (*Tectus fenestratus*), little bear conch (*Canarium urceus*), singed cones (*Conus consors*), and blood clams (*Anadara antiquata*) at low tide. Their husbands were mainly engaged in fishing, where their common fish catch are flyingfish (*Cheilopogon furcatus*), roundscad (*Decapterus macrosoma*), dolphin fish (*Coryphaena hippurus*), skipjack tuna (*Katsuwonus pelamis*), yellowfin tuna (*Thunnus albacares*), bigeye scad (*Selar crumenophthalmus*), needlefish (*Tylosurus crocodilus*), and common squid (*Sepioteuthis lessoniana*). Overall, the women in the coastal communities played a significant role in the fisheries. Further, there is a need to empower them by providing loans and credit facilities, developing their capabilities, improving their livelihood, and enhancing their socioeconomic status.

Keywords: pre-fishing, post-fishing, role, small-scale fisheries, women,

INTRODUCTION

In the small-scale fisheries (SSF) all around the world, women have a significant impact. Their labor along the fish value chain increases the industry's productivity and household income. They comprise 28% of the primary sector's labor in aquaculture, 18% in fisheries, and an estimated 50% of the value chain's pre-harvest and post-harvest workers. Since it is traditionally known that men are engaged in actual fishing, most women handle pre-harvest and post-harvest tasks (Ekundayo and Kolo, 2005; Lwenya et al., 2005). Women produce more than 50% of the world's food and account for around 43% of the world's agricultural labor force in developing countries (FAO, 2011; Doss et al., 2014).

Moreover, there are distinct roles for men, women, old, young, affluent, and poor in coastal fishing villages (Harper et al., 2017; Graziano et al., 2018). Social institutions and social interactions influence how people relate to one another on a gender basis (Choo and Williams, 2014). Women in coastal communities in developing countries, mainly in the Davao Gulf, contribute to the small-scale fishery (SSF) by gleaning, near shore fishing (which uses scoop nets, traps, and fish baskets for reef fishing and includes spear fishing in rivers), trading, raising fish, and processing fish (Weeratunga et al., 2010; Arenas and Lentisco, 2011; Yap et al., 2016; Kleiber et al., 2018). Their fishing activities are significant for the security of their households because seafood harvested by women is more likely to be used for their subsistence (Kleiber et al., 2015). Women are also involved in the entire fisheries value chain; they repair nets, sort fish, and sell fish (Siason, 2001; Yap et al., 2016; USAID Oceans, 2018). They sell fish to nearby communities and marketplace for small-scale retailers (Prieto-Carolino et al., 2016).

However, the contributions of women to the fishing industry still need to be addressed, underestimated, and undervalued. Traditionally, fishing is seen as a man's job, and women are believed to play a small role in the fisheries sector and are still not included in decision-making in fisheries management and policy development (Siason, 2001; Kusakabe, 2003; Weeratunge et al., 2010; De Guzman, 2019). Their contribution to fish catch is thus restricted to primarily near-shore activities and assistance rendered to their men. The supporting role mainly focused on processing, handling, and grading fish, which was more of a subsistence activity than an industry (De Silva, 2011). Despite playing crucial roles and making up half of the workforce across the fisheries and aquaculture value chains, women are disproportionately over represented in the labor force's unorganized, low-skilled, unstable, and low-paid segments. Women frequently experience gender-based limitations that limit their agency (i.e., their capacity to make decisions and take action on those decisions) and prevent them from fully maximizing the benefits of their roles in the sector. The roles of women are heavily influenced by the society, culture, and economy they live in.

The study by Siason (2001) on women in the fisheries in the Philippines has shown that fishing is an occupation dominated by men because of the stereo type that only men can go to the sea with their fishing boats and women are not allowed to go fishing alone in a boat in various fishing communities. Thus, the role of women in fisheries is often viewed as small-scale and domestic (FAO, 2013). Women in fishing communities in the Philippines are prohibited from going on fishing trips because they must stay at home, where traditionally, their job focuses on domestic tasks like meal preparation, child care, elderly care, and raising children (Siason et al., 2002). In addition, women are known to participate in numerous small-scale fisheries across the Philippines and the Asia-Pacific region, yet statistics on their participation are uncommon (Siar, 2003). The roles of men and women are closely entwined but

uneven, particularly concerning workload, leadership, and decision-making, according to a gender study carried out to uncover gender norms, resource usage patterns, and power relationships among fishing villages in the Philippines (Torell et al., 2021).

This study aimed to evaluate the role of women and their coastal livelihood in small-scale fisheries in Lupon and Governor Generoso, Davao Oriental, and their different activities involved in the fisheries sector. Data were taken from respondents in Lupon and Governor Generoso through snowball sampling, and the data was gathered through a semi-structured interview questionnaire. The data can be used as a basis for other gender role studies being conducted in the area and, maybe, the country as well. Women will benefit from this study; their contributions become recognized, and their roles in the fisheries are further given importance for their significant economic contributions.

METHODOLOGY

Description of study sites

The study was carried out in selected coastal communities of Davao Oriental, particularly in Lupon and Governor Generoso (see Figure 1), which host a sizable fishing population. The fishing communities are in Barangay Tibanban and Nangan in Governor Generoso and Barangay Poblacion, Aroma, and Sto—Rosario in Lupon. Governor Generoso is a coastal municipality in the province of Davao Oriental with a land area of 365.75 km^2 and a population of 59,891 as of the 2020 census.

It constitutes 6.44% of Davao Oriental's total land area (Phil Atlas, 2023). In contrast, Lupon is another coastal municipality in Davao Oriental with a land area of 886.39 km^2 square miles that makes up 15.61% of the total area of Davao Oriental and has a total population

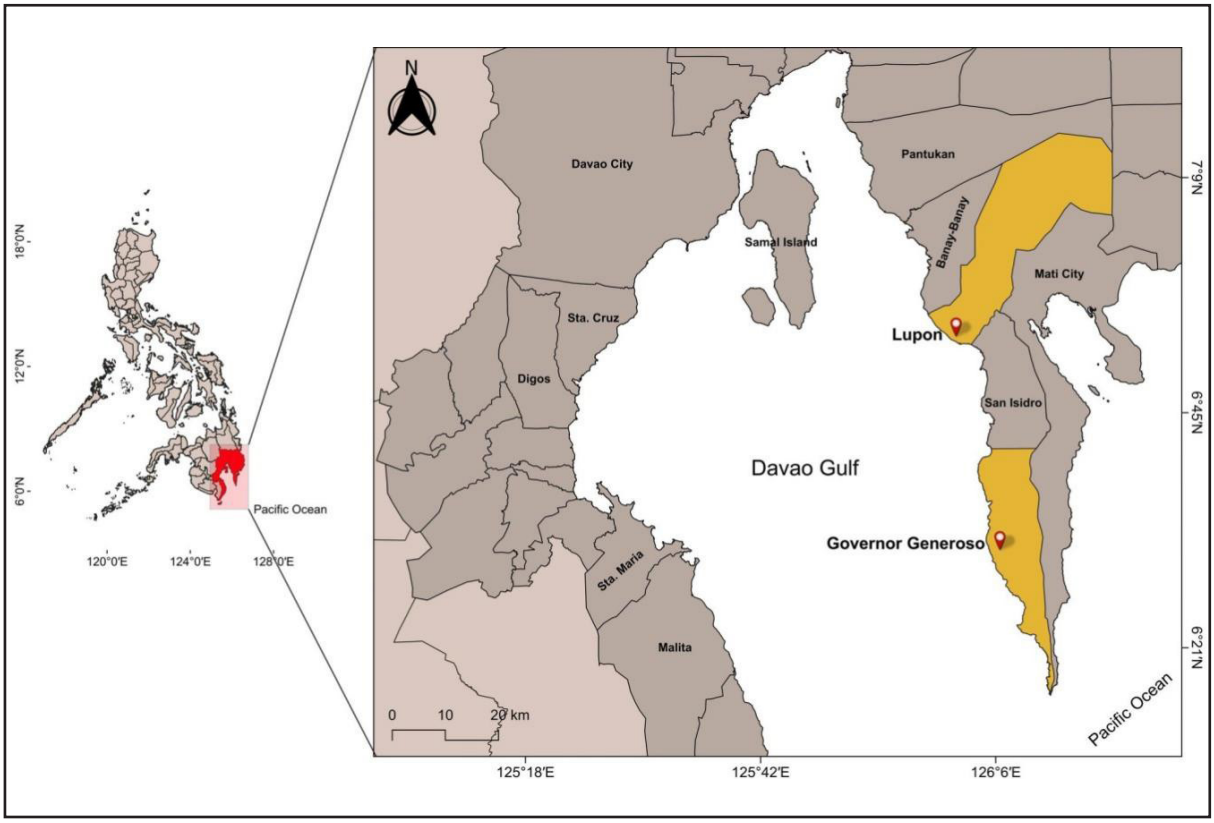

Figure 1. Location map of the study sites in Lupon and Governor Generoso, Davao Oriental

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of 66, 979 according to the 2020 census (Macusi et al., 2022; PhilAtlas, 2023). The two selected municipality is located in the Davao Gulf in the Davao Region, which is well known for its commercial and small-scale fishing village (Macusi et al., 2021). Many women primarily work as gleaners, fishers, traders, fish growers, and fish processors in the small-scale fisheries in coastal communities around the Davao Gulf (Macusi et al., 2022). The study will focus on the role of women in the fisheries. Women fishers were interviewed using questionnaires and a focus group discussion.

Respondents

The respondents were women in the coastal fishing communities of Lupon and Governor Generoso, who were involved in the small-scale fisheries (SSF). There were 88 respondents, 51 in Lupon and 37 in Governor Generoso. This study used a purposive sampling design through a snowball sampling technique. The respondents were chosen based on their reliability as knowledge sources and key informants who could answer and give important information concerning the role of women in fisheries.

Data collection

A letter was first sent to the office of the barangay captain in Lupon and Governor Generoso before the survey was conducted, and permission was also sought from the chairman of purok residents when conducting sampling. The data was gathered through a semi-structured interview questionnaire using a snowball sampling technique in 2021. The interview occurred in their houses and fish landing sites in the barangays of Lupon and Governor Generoso. The questionnaire was used to obtain data such as names of the respondents, date of interview, place of interview, age, civil status, highest educational attainment, whether fishing was their primary source of income, what is their other sources of livelihood, what are the fish/fish products that they are selling, fish price, knowledge, their catch characteristics and their views with regards to the open and closed fishing season and what is the impact of fishing bans. Detailed interviews with the women involved in fisheries focused on their role in fisheries.

Data analysis

The data were summarized in frequencies and percentages. In contrast, all qualitative data, for example, the different roles of women and calendars of activities, were analyzed systematically by categorizing and defining them.

RESULTS

A total of eighty-eight (88) women were interviewed, (37) from the municipality of Governor Generoso and fifty-one (51) from the municipality of Lupon. The more significant part (50) was higher in the range of 35- 55 years of age. Second was (28) under the classification of 18-34 years of age. Furthermore, there were (10) under 55 and above. Most respondents were married.

Regarding their educational attainment, a large proportion of the women finished secondary schooling, 26 respondents from Lupon and 11 respondents from Governor Generoso. While 23 respondents only finished elementary level from Governor Generoso and 19 respondents from Lupon. In addition, some women finished college (4), and others finished vocational school. Their ethnic origins for majority of them were Cebuanos (50) Kalagan (22), and the rest were from Mandaya, Mansaka, Dabawenyo, and Manobo tribes. According to religious connections, majority of the women were Roman Catholics. About 50% of them have access to credit from lending institutions, which they used to buy their husband's fishing equipment, provide for their children's needs, and used as capital for small businesses (sari-sari store) that

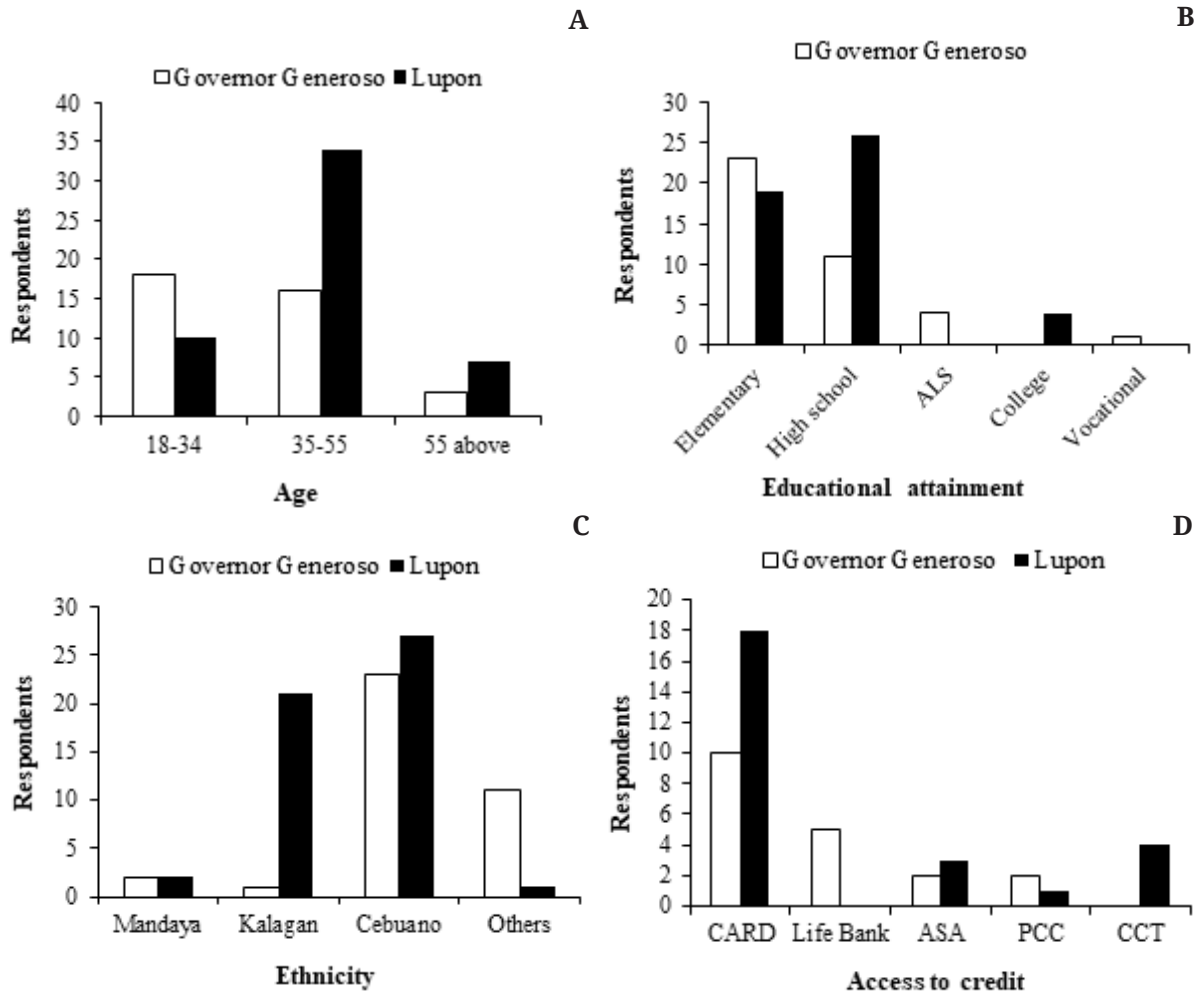

Figure 2. Socio-demographic profile of respondents from Lupon and Governor Generoso (N=88). Age (A), educational attainment of the respondents (B), ethnicity of the respondents (C), access to credit (D).

could meet their daily needs (see Figure 2) Macusi et al., 2022). Most of the women belonged to the family of fishers and owned a fishing boat, and for the most part, their spouse did fishing-related activities. Ordinarily, they are not fishing offshore, not farther than 12 km from the shore, and with their partner, generally from their neighbors and at some point, with their family.

Figures 3 and 4 present the gender disaggregated activities in the two study sites. In these figures, Women played multiple roles beyond child-bearing, elderly care and community-maintenance ones with which they were mainly associated with compared to men. Women in the two study sites were engaged in pre-fishing, post-fishing, fishing offshore and other fishery-related activities. In Lupon, the pre-fishing activities of women were mainly weaving or mending of nets (40%) to help their husband do their job, 95% of them were mainly involved in preparing food and other fishing materials. Their husbands assisted in doing heavy workloads such as boat repair (100%) and maintenance of equipment (100%). In terms of fishing offshore, 5% of the women confessed to fishing with their husbands, whereas men mainly fished offshore (95%). Most of the time, women were not permitted to fish alone or in the fishing vessels. Yet, this preclusion is generally tied to the requirement for them to stay inside the family's premises so that they can take care of their duties at home.

Table 1 showed the different activities of women and their mean,

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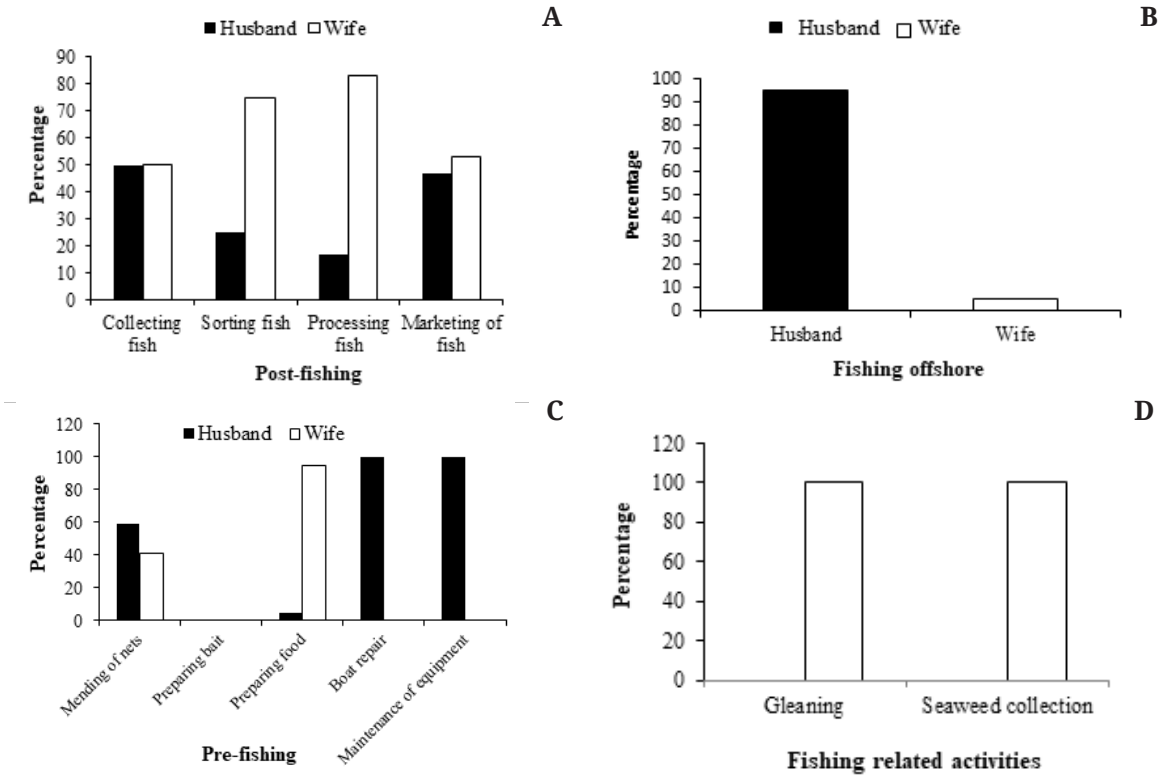

Figure 3. Gender disaggregated activities in Lupon; pre-fishing activities (A), participation of spouse in offshore fishing activities (B), post-fishing activities (C), and additional subsistence activities (D).

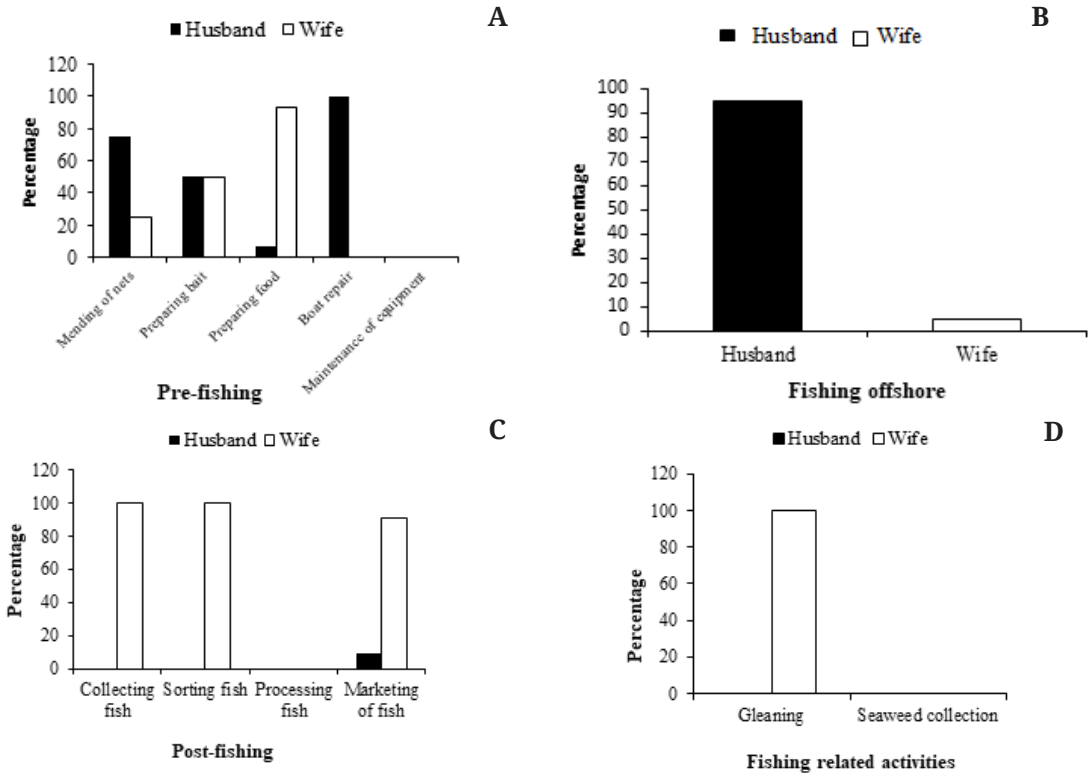

Figure 4. Gender disaggregated activities in Governor Generoso; pre-fishing activities (A), participation of spouse in offshore fishing activities (B), post-fishing activities (C), and additional subsistence activities (D).

minimum, and maximum days spent in a week. Some women spent a maximum of four days in Lupon and seven days in Governor Generoso helping their husbands fix nets, boat repairs, and maintenance of fishing equipment. They mostly prepared food and fishing materials in pre-fishing activities that spent seven days maximum in a week in two study sites. In terms of fishing, their husband mostly goes to sea fishing for a maximum of seven days a week, but some wives go fishing with their husbands. In addition, women are actively engaged in post-fishing activities, collecting fish, where in Lupon, this takes 4.2 days, and in Governor Generoso, this takes 5.5 days. They also sort fish throughout the week.

Further, marketing fish and other seafood products is mainly women's activities, with an average of 4.2 days in Lupon and 4.4 days in Governor Generoso; they sell their husbands' fish catch in the local community or the market. Most of them have mentioned that they are engaged in this activity because of a better income and the excess fish caught. They also gleaned shells, e.g., women from Governor Generoso (3.4 days) and in Lupon (2 days), whereas they spent three to seven days a week on seaweed collection.

Table 1. Major activities of women in pre-fishing, fishing and post-fishing and their time spent in each activity.

Activities	**Lupon**			**Governor Generoso**		
	mean	min	max	mean	min	max
A. Pre-fishing						
Weaving/mending nets	2.3	1	4	3.4	1	7
Collecting/preparing bait	0	0	0	0	0	0
Preparing food/fishing materials	4.2	2	7	4.67	3	7
Boat repair and maintenance	2.5	1	4	1	1	1
Maintenance of equipment	0	0	0	7	7	7
B. Fishing off shore	4.5	2	7	5.3	3	7
C. Post-fishing						
Collecting fish	4.2	2	7	5.5	4	7
Sorting fish	4.2	2	7	7	7	7
Processing fish	0	0	0	2	1	3
Marketing of fish	4.2	2	7	4.4	2	7
D. Fishing related activities						
Gleaning	2	1	3	3.4	1	7
Seaweed collection	0	0	0	1	1	1

Table 2 below showed common fish and shell species caught in two study sites. In Lupon, their common catch was flying fish (11%), roundscad (7.3%), barracuda (6%), skipjack (8.7%), bigeye scad (20.2%), dolphinfish (15.6%), and common squid (6.4%); they also collected latticed top shell (50%), horn shell (25%), and blood clam shells (25%) from gleaning. Further, flyingfish (24.2%), needlefish (18.2%), halfbeak (9.7%), and barracuda (6.7%) were common catch species in Governor Generoso. Moreover, compared to the two study sites, women in Governor Generoso were more active in gleaning than in Lupon. Little bear conch (22.4%), latticed top shell (20.7%), singed cone and horn shell (13.8%), dog conch (12.1%) and also spider conch, dog-rose cowry, and blood clam got (5.2%) are common sea shells they collect from gleaning during low tide.

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Table 2. Catch composition of fishers in Lupon and Governor Generoso.

Catch composition		Lupon		Governor Generoso	
English name	**Scientific name**	**N**	**%**	**N**	**%**
Rabbitfish	*Siganus fuscescens*	1	0.9	1	1.2
Moontail bullseye	*Priacanthus hamrur*	1	0.9	1	1.2
Queen parrotfish	*Scarus vetula*	2	1.8	3	3.6
Grouper	*Epinephelus spp.*	1	0.9	1	1.2
Ambon emperor	*Lethrinus amboinensis*	0	0.0	1	1.2
Dussumier's halfbeak	*Hyporhamphus dussumieri*	1	0.9	8	9.7
Spotfin flyingfish	*Cheilopogon furcatus*	12	11.0	20	24.2
Needlefish	*Tylosurus crocodilus*	5	4.6	15	18.2
Roundscad	*Decapterus macrosoma*	8	7.3	3	3.6
Barracuda	*Sphyraena barracuda*	6.5	6.0	5.5	6.7
Skipjack	*Katsuwonus pelamis*	9.5	8.7	2	2.4
Bigeye scad	*Selar crumenophthalmus*	22	20.2	2	2.4
Three-by-two garfish	*Hemiramphus robustus*	1	0.9	1	1.2
Indo-Pacific sailfish	*Istiophorus platypterus*	1	0.9	1	1.2
Dolphin fish	*Coryphaena hippurus*	17	15.6	5	6.1
Goatfish	*Upeneus vittatus*	3	2.8	1	1.2
Mackerel scad	*Decapterus macarellus*	1	0.9	1	1.2
Blue marlin	*Makaira mazara*	1	0.9	1	1.2
Cutlassfish	*Lepturacanthus savala*	1	0.9	1	1.2
Squid	*Sepioteuthis lessoniana*	7	6.4	4	4.8
Yellowfin tuna	*Thunnnus albacares*	2	1.8	1	1.2
Giant trevally	*Caranx ignobilis*	5	4.6	2	2.4
Carps	*Barbodes lindog*	1	0.9	2	2.4
Total		**109**	**100**	**82.5**	**100**
	Seashell species				
Dog conch	*Laevistrombus canarium*	0	0	7	12.1
Spider conch	*Lambis millepeda*	0	0	3	5.2
Nerite shell	*Nerita tessellata*	0	0	1	1.7
Latticed top shell	*Tectus fenestratus*	2	50	12	20.7
Dog-rose cowry	*Mauritia eglantina*	0	0	3	5.2
Horn shell	*Cerithidea obtusa*	1	25	8	13.8
Singed cone	*Conus consors*	0	0	8	13.8
Blood clam	*Anadara antiquata*	1	25	3	5.2
Little bear conch	*Canarium urceus*	0	0	13	22.4
Total		**4**	**100**	**58**	**100**

DISCUSSION

Women's tasks in the fisheries sector

Women play a significant role in fishery-related activities worldwide, particularly in coastal environments, where these tasks are primarily categorized in three ways: fishing, processing, and marketing (Olufayo, 2012; Frangoudes and Gerrard, 2019). They are essential in the subsistence of small-scale families and often the impetus behind innovation, diversification, and the creation of new markets (Freeman and Svels, 2022). In this study, most women in Lupon and Governor Generoso contribute important fisheries contributions. They are primarily involved in post-fishing activities, particularly in fish marketing, collecting, sorting, and processing (drying and salting), which remains their primary livelihood

to generate income. In addition, men are typically the providers of household necessities and in charge of generating income.

In contrast, women are in charge of domestic and taking care of others, such as cooking, taking care of their children, and doing house chores (Geheb et al., 2008; Timmers, 2013). Despite numerous tasks, they also helped their husbands mend nets prepare food for their families and fishing materials, and some women went fishing with their husbands. In addition, during low tide, women are more likely to go to the sea for gleaning to put food on the table. Cliffe and Akinrotimi (2013) stated that women are primarily engaged in selling fishery products than doing processing or fishing. During low tide, women are more likely to harvest shellfish like oysters and periwinkle than fish in rivers and streams- to contribute to their families' food security (Nwabeze et al., 2013).

In the South Pacific small-scale fishing villages, women are significant in generating money and ensuring food security (Rohe et al., 2018). Fisheries have been viewed as predominantly a male-dominated area, and this is partially the result of the fact that there is a gendered division of labor in the fishing industry, with women typically working more in the pre-and post-harvest sector and with less involvement in the actual fishing activities in various regions (Bennett, 2005; Sze Choo et al., 2008). While much of the early research on gender and fisheries concentrated on detailed qualitative accounts of women's roles in fishing communities, frequently in the social sciences literature, more recent research has expanded on this also to quantify the contributions made by women in terms of the total catch, value to the economy, household food, income, and nutritional security, and employment (Kronen & Vunisea, 2009; Hauzer et al., 2013; Harper et al., 2013; Zhao et al., 2013; Kleiberet al., 2014; Frocklin et al., 2014; Thorpe et al., 2014).

Economic well-being of women in the fisheries sector

The global employment in fisheries is estimated to be 47% female (World Bank, 2012) and contributes 25 to 50% of small-scale fisheries catch in some regions (Harper et al., 2013; Kleiber et al., 2014). According to data from 2008, the FAO (2012) projected that 5.4 million women were employed in the harvest sector alone as fishermen or fish growers and estimated that at least 30% of those working in the fishing industry (post-harvest and harvest) were done by women. Women have taken an active role in the fish business in various parts of the world. For instance, in European nations, women dominate the seafood sector (39%), earning enormous sums of money for themselves and their families (Aquila, 2002). Worldw ide, there are many different roles for women in the fishing business, and they significantly improve livelihoods and the sector (Zhao et al., 2013). Fish and other aquatic resources are produced, processed, marketed, and managed primarily by women (Williams, 2002; Bennett, 2005; Weeratunge et al., 2010; Harper et al., 2013).

CONCLUSIONS AND RECOMMENDATIONS

Women in the two study sites are doing multi-tasking roles. Beyond what they are typically associated with, such as childrearing and care, women play various roles in fishing activities that they actively engage in pre-fishing, post-fishing, and other related fishing activities that they spend seven days maximum a week. They are engaged mainly in post-fishing activities such as marketing, collecting, sorting, and processing fish (drying and salting). Despite fishing activities, women are also helping their husbands mend nets, assisting in boat repair, preparing baits, and usually preparing food for their families and fishing materials. In addition, women in the two study sites also engage in gleaning during low tide and seaweed collection to

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generate income to support their families and ensure food security. However, women's contributions to the fishing business are still disregarded, minimized, and undervalued.

It had become clear that women must address the challenges faced in fishing, and fisheries must be addressed at various levels. Nevertheless, some aspects are needed to be considered and to be recommended. There is a need to challenge unequal gender relations within and outside the household and within organizations. There is also a need to seek recognition for women's paid and unpaid labor to sustain fisheries and fishing communities and ensure that women's roles in the fisheries sector do not remain 'invisible.' Women also need an increased right to participate in fisheries planning and management decision-making processes. Establishing cooperative societies, offering soft loans, and upgrading their abilities through more interactive extension programs should encourage women to engage fully in fishery operations. Furthermore, women should be the target beneficiaries of the Local Governments for training programs in the fisheries such as processing, storage, and selling. That is why understanding the role of women in the fisheries sector will help provide basic information on how women are treated and how women are helping the fisheries sector to thrive.

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