

Women never hunt – but fish: Highlighting equality for women in policy formulation and strategic planning in the coastal fisheries sector in Pacific Island countries

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Introduction

Despite Whiting's statement that "women never hunt" (1941, quoted in O'Brien 1984), it is generally acknowledged that Pacific Island women have traditionally participated in, and are becoming increasingly involved with, coastal fisheries. The fact that fishing is one of the cornerstones of people's livelihood in Pacific Island countries and territories (PICTs) may serve as an explanation. Traditionally, the sea has provided food and items for bartering and exchange. Today, marine resources are still crucial to people in PICTs, a region that is believed to have the highest average per capita consumption of seafood in the world. Marine resources also provide the basis for income generation and make a vital contribution to national revenues.

Socioeconomic development is demonstrated not only by changes in lifestyle, nutrition and economic systems, but also by changes in gender roles. While traditionally both men and women participated in the provision of food and shelter for the family, their roles were much more defined than they are today. Education, availability of improved fishing techniques, migration of household members (to generate cash income elsewhere), weakening of traditional social networks, shortages of resources, and lack of cash to compensate for decreased subsistence production have all prompted changes in gender roles, notably those of women. According to Bennett (2005), "any major change in the economic environment of the fishing-dependent community can have a dramatic effect on the ability of the women to be active agents of change". This is because the income received by women from their activities must be spent on household upkeep. This is in contrast to men, whose income is considered in many fishing societies as theirs to spend as they wish. Bennett argues that this difference provides

"a real economic and financial incentive for women to innovate" in order to ensure that all their needs (housing, health, education and nutrition) are met (Sen 1999). While the role of women may have substantially changed — this is not only visible in the urban context of PICTs but also increasingly in the rural context — the real question is how far these changes have been acknowledged and are being considered in national policies and, in the framework of this paper, fisheries management.

Patricia Ngamata Tuara asked in 1995, "Why should the contribution made by women to fisheries management and development be taken into consideration?" In reply she pointed out that "unless the role of all marine resource users is taken into consideration, the aim of promoting sustainable development cannot be realized".

There are many examples that indicate the early recognition of the need to include women in fisheries policy or development strategies in the Pacific. For example, Papua New Guinea has been developing a policy for women since the early 1970s, although it took until 1989 to establish a national women's policy for fisheries (Commonwealth Secretariat 1990) and subsequently a Department of Fisheries and Marine Resources (DFMR) programme for developing the role of women in fisheries. This is but one example; comparative case studies could be made not only across the Pacific Islands region, but also elsewhere in the world. Scientific and technical international conferences are held on women in fisheries, and all international and major regional institutions have accommodated women or gender in fisheries. But apparently a policy that satisfies all institutional requirements, takes into account the range of activities from national to community level, and is not only effective but also acceptable to all, is yet to be found.

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For instance, Omoto (2004) gives five examples of various sets of indicators or checklists that have been devised to measure the core role of women in developing countries, including:

- World Bank indicators (2003);
- the UNDP Human Development Report (2003), which provides a gender-related development index (GDI) and gender empowerment measure (GEM);
- GenderStats (World Bank Group 2003), an on-line database of gender statistics and indicators;
- Special Target Group of Development Projects, Women in Fishing Communities, Guidelines, a checklist prepared by FAO (FAO 1988); and
- “Meeting information needs on gender issues in inland and small water body fisheries”, a paper that presents a guideline for a cross-disciplinary examination of gender in inland fisheries (Seki and Sen 1994).

As Omoto notes, most of these checklists provide national level data and statistics, and are too broad in scale and too generalised to provide information on women’s activities at the community level. And, in the case of the checklist by Seki and Sen (1994), although the guidelines are cross-disciplinary and address household and community levels, they are limited to a single case study and do not allow for regional or international comparison.

Following this broad line of argument, we use some experiences and data collected in the framework of the European Union-funded PROCFish/C (Pacific Regional Oceanic and Coastal Fisheries Development Project, Coastal Component) project that is being implemented by the Secretariat of the Pacific Community (SPC) to:

- highlight some differences between men’s and women’s participation in coastal fisheries;
- provide some reasons for such differences; and
- point out some implications for fisheries management, and perhaps some linkages to national policy.

This paper does not provide an exhaustive analysis of gender roles in coastal fisheries across the 17 participating PICTs², but instead, highlights some of the major roles that women play in coastal fisheries, and the implications of these roles for fisheries management planners, policy advisers and strategic planners.

Methodology

The experiences and data used in this paper were sourced from the PROCFish/C socioeconomic field surveys and database. Data collection was mainly done using fully structured and closed questionnaire surveys that targeted households and adult (≥15 years of age) fishermen and fisherwomen who target finfish and invertebrates. The same set of questionnaires and methodological approach were used in each of the communities surveyed. Although the socioeconomic field surveys did not specifically investigate gender roles, but instead assessed the current user level of reef and lagoon resources, most of the information gained from the surveys can be broken down by gender participation.

Four rural coastal communities are usually selected in each of the 17 participating PROCFISH/C countries. Each community represents a population that is high dependent on reef and lagoon resources, as well as major fisheries environments and habitats within the country concerned. To date, field surveys have been successfully conducted in 15 of the 17 participating PICTs. Due to the progress of data entry and verification, data from 12 countries are readily available and were used for this paper: Cook Islands (2 sites), Federated States of Micronesia (Yap, 2 sites), French Polynesia (5 sites), Kiribati (4 sites), Nauru (1 site), New Caledonia (5 sites), Niue (1 site), Papua New Guinea (4 sites), Samoa (4 sites), Tuvalu (4 sites), Vanuatu (4 sites), and Wallis and Futuna (3 sites).

Below, we show fishing trends that are applicable to most countries. Consequently we have selected a few indicators and used average figures for each indicator and community. We do not use the name of each community but have simply numbered all sites in each country considered in this paper.

The indicators selected include:

- The number of women and men per household who are finfish and invertebrate fishers
- Average annual catch per fisher and gender and per selected habitat targeted
- Average catch per unit of effort (CPUE) per gender and per selected habitat targeted
- Women’s and men’s participation in gleaning and diving invertebrate fisheries
- Objectives for gleaning and diving invertebrate activities by gender
- Average annual catch per fisher and gender and per selected invertebrate fishery.

2. The Secretariat of the Pacific Community (SPC) has 22 Pacific Island members. Of these, 17 participate in the EU-funded Pacific Regional Oceanic and Coastal Fisheries Development Project, which is implemented by SPC. The 17 Pacific Island countries and territories include: Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

Results

Who fishes for what?

The results depicted in Figures 1, 2 and 3 show that women rarely go fishing exclusively for finfish. However, compared with men, women play a major role in the exclusive collection of invertebrates (Fig. 2). A

comparison of fishermen and fisherwomen who both fish for finfish and collect invertebrates, suggests that the percentage of men participating in both activities at some stage in time, is generally higher than that of women. In about 15% of the communities we surveyed, 30–50% of fisherwomen fall into this category, but the participation of fishermen accounts for 35–55% in more than 50% of all survey sites (Fig. 3).

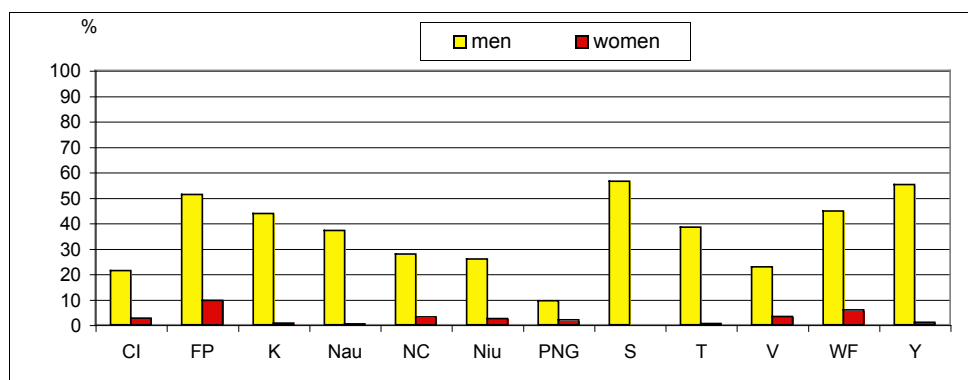


Figure 1. Percentage of fisherfolk who engage exclusively in finfish fishing by gender and household (data: PROCFish/C socioeconomic surveys)
(CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, NC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

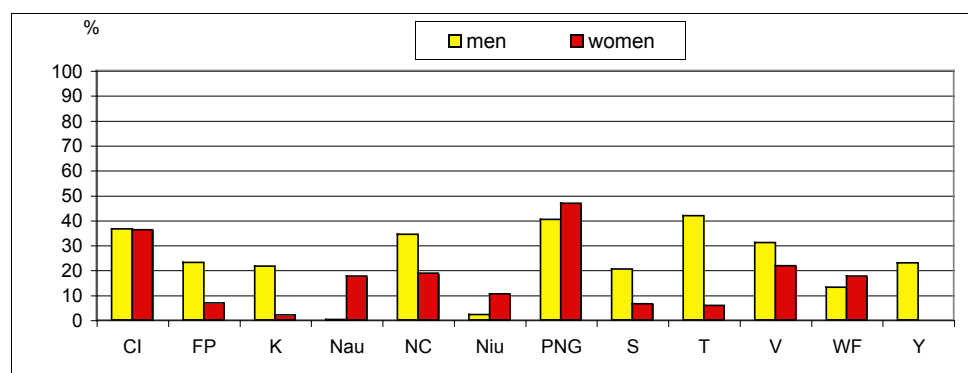


Figure 2. Percentage of fisherfolk who engage exclusively in invertebrate collection by gender and household (data: PROCFish/C socioeconomic surveys)
(CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, NC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

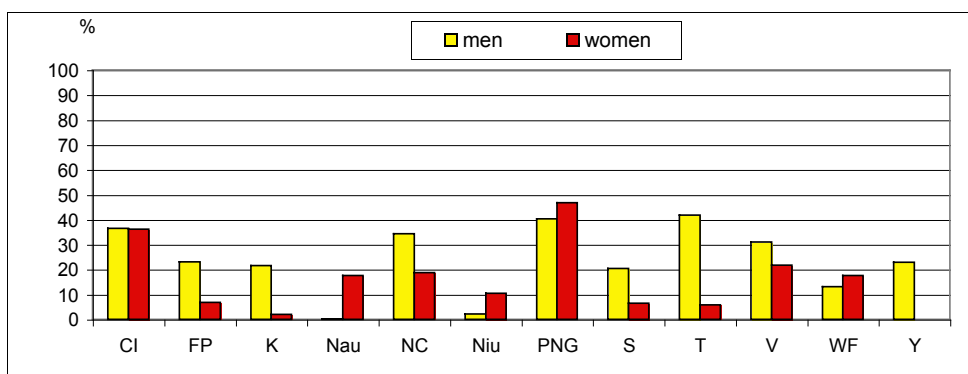


Figure 3. Percentage of fishers by gender and household who catch finfish and harvest invertebrates (data: PROCFish/C socioeconomic surveys)
(CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, NC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

Average annual finfish catch

The average annual catch per fisher and gender by habitat can be used as an indicator of the differences in:

- resource status,
- fishing objectives (subsistence versus commercial),
- gender roles, and/or
- a combination of any of these three parameters.

For consistency, we compare here only the three major habitats that exist in most, if not all, of the sites surveyed: sheltered coastal reef, lagoon and outer reef. Sites where any of the three habitats are missing were not included in the analysis.

A comparison of Figures 4, 5 and 6 suggests that the highest annual catches are reported from the outer reef habitat, followed by the sheltered coastal reef. The lowest catches come from lagoonal environments. Possible explanations for this could be that

resources at the outer reef are in better condition compared with resources in the other two habitats, and/or fishers target the outer reef for commercial rather than subsistence purposes, and hence aim at higher annual productivity.

The surveys also show that women's participation in outer reef fishing is almost non-existent. This is due to time restrictions: women must tend to household and family chores, and there are very often restrictions in the (necessary) use of motorised boats to reach the outer reef. Women tend to fish more in the sheltered coastal reef and lagoonal habitats. Concerning the generally higher annual productivity of fishers targeting the sheltered coastal reef, the average annual catches by women are generally much lower than those by men. In the catches from lagoonal habitats — by comparison the supposedly least commercially oriented fishing and/or the least favourable in terms of habitat quality — women's annual catches are often comparable to those reported by men.

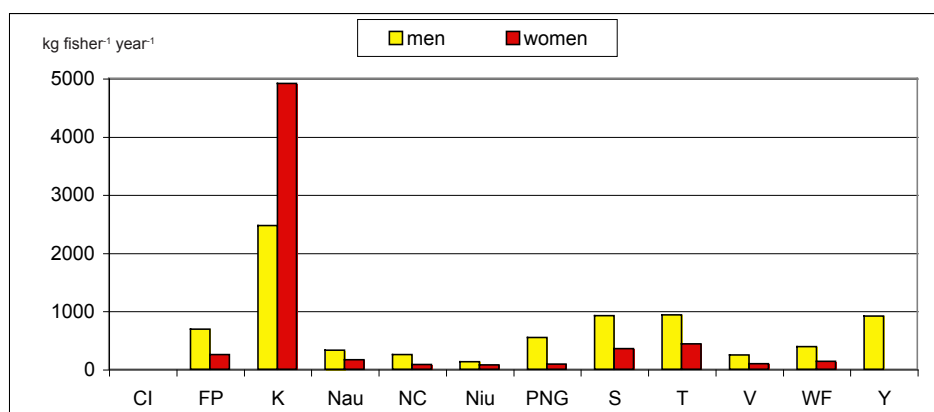


Figure 4. Average annual finfish catch (kg fisher⁻¹ year⁻¹) as reported by fishermen and fisherwomen targeting the sheltered coastal reef habitat (data: PROCFish/C socioeconomic surveys) (CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, NC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

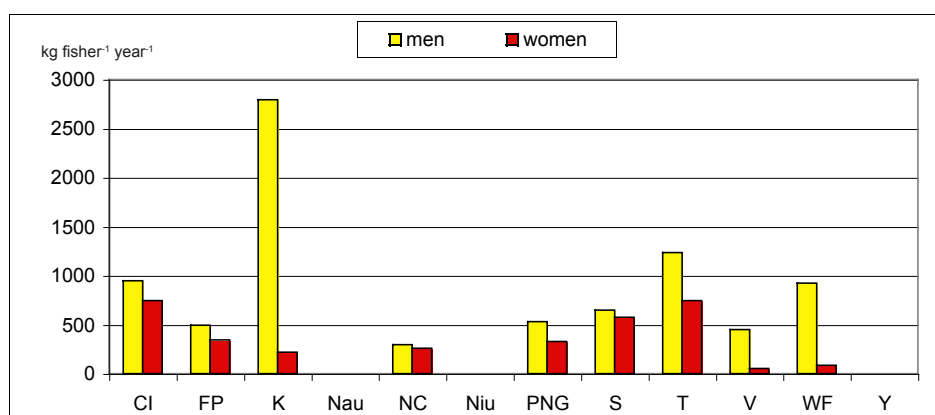


Figure 5. Average annual finfish catch (kg fisher⁻¹ year⁻¹) as reported by fishermen and fisherwomen targeting the lagoon habitat (data: PROCFish/C socioeconomic surveys) (CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, NC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

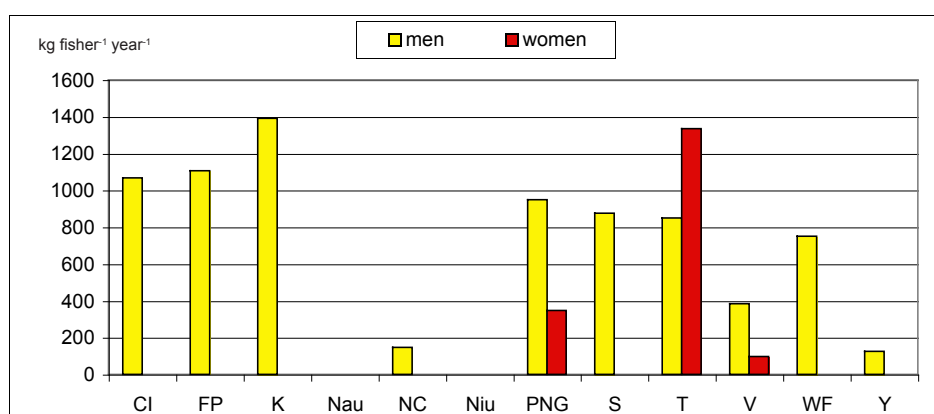


Figure 6. Average annual finfish catch (kg fisher⁻¹ year⁻¹) as reported by fishermen and fisherwomen targeting the outer reef habitat (data: PROCFish/C socioeconomic surveys) (CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, NC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

Average finfish CPUE

The finfish CPUE is calculated as the average catch in kg caught per fisher and per each hour spent fishing (i.e. the time spent from start of the fishing trip until landing of catch). We use CPUE as an indicator of fishing efficiency. CPUE figures are presented for the same three major habitats: sheltered coastal reef, lagoon and outer reef (Figs. 7, 8 and 9) to complement the above-presented average annual catches. The highest CPUE figures are reported by outer reef fishers, with most sites reaching ≥ 3 kg hour⁻¹ fished. Taking

~ 3 kg hour⁻¹ fished as a threshold for comparing fishing efficiency between the targeted habitats, this is only reached in about 50% of all sites surveyed for sheltered coastal reef fishing. The CPUE figures reported for lagoon catches are even lower. The data also show that fisherwomen reach comparative CPUE figures in the rare cases when they fish in the outer reef habitat. The same observation is true for lagoon fishing. However, in the case of sheltered coastal reef fishing, most CPUE figures reported by women are much lower, particularly at sites that have the highest CPUE figures for fishermen.

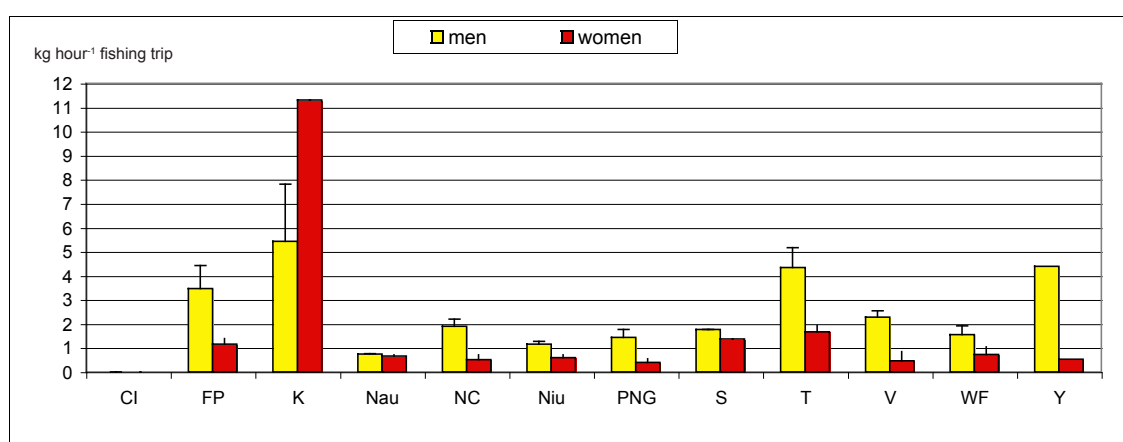


Figure 7. Average reported CPUE (kg hour⁻¹ fished; SE) for the sheltered coastal reef habitat by gender (data: PROCFish/C socioeconomic surveys) (CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, NC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

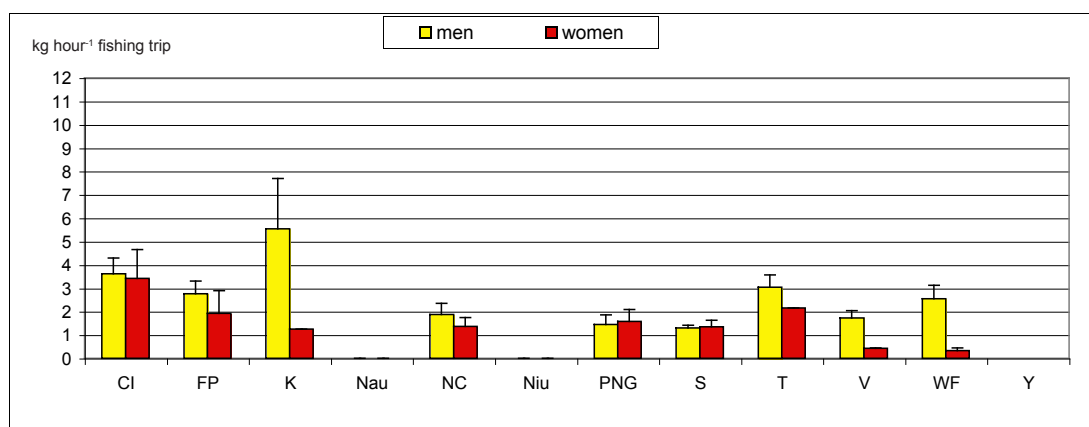


Figure 8. Average reported CPUE (kg hour⁻¹ fished; SE) for lagoon habitats by gender (data: PROCFish/C socioeconomic surveys) (CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, NC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

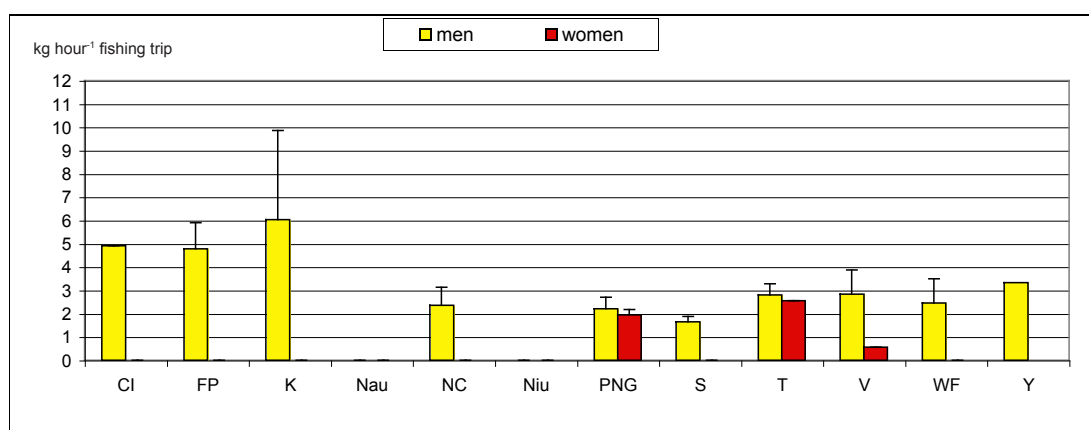


Figure 9. Average reported CPUE (kg hour⁻¹ fished; SE) for the outer reef habitat by gender (data: PROCFish/C socioeconomic surveys) (CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, NC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

Gender participation in invertebrate fisheries

The harvesting of invertebrates can be divided into gleaning (collecting) and diving activities. Generally speaking, gleaning activities serve subsistence and local market demands, while diving activities are often linked to commercial fisheries and address both national and export markets (e.g. beche-de-mer, lobsters, trochus). While gleaning activities can often be pursued with a minimum of equipment, such as knives, spoons or other tools (baskets and buckets) found in the average household, dive invertebrate fisheries may require non-motorised or, often, motorised boat transport (to reach fishing grounds that are farther away from shore), dive gear (mask, snorkel, fins) and fishing tools (spears, knives, etc.).

The above data suggest strong participation and dominance of women in invertebrate fisheries. When the participation of women and men in gleaning and diving activities is separately projected (Figs. 10 and 11), it becomes clear that women dominate gleaning activities but hardly ever engage in diving for invertebrates. In order to figure out which invertebrate dive activities attract the most women, we have counted the number of women who participate in each dive fishery across all survey sites considered (total number of sites: 34). The frequency of participation of women in each of the dive invertebrate fisheries is shown in Figure 12. The highest participation by women occurs in beche-de-mer fisheries and in the group of "other" dive activities, which includes the collection of giant clams, octopus and lobsters. Here, it must be noted that beche-de-

mer fisheries may also include collecting specimens by walking along seagrass beds or reef tops during low tide, or participating in transporting the catch from the sea to the beach, or drying and processing the catch. The same observation applies for “other”

invertebrate fisheries, as lobsters, giant clams and octopus may be harvested in knee-deep water at low tide. Thus, the percentage of women accounted for under “dive invertebrate fisheries” may represent collectors, but for commercial purposes.

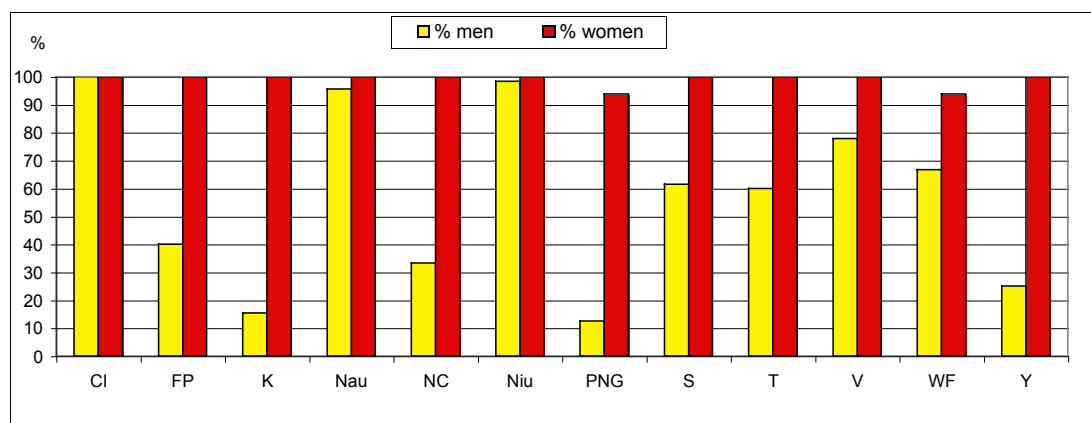


Figure 10. Percentage of fishermen and fisherwomen participating in invertebrate gleaning (data: PROCFish/C socioeconomic surveys) (CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, NC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

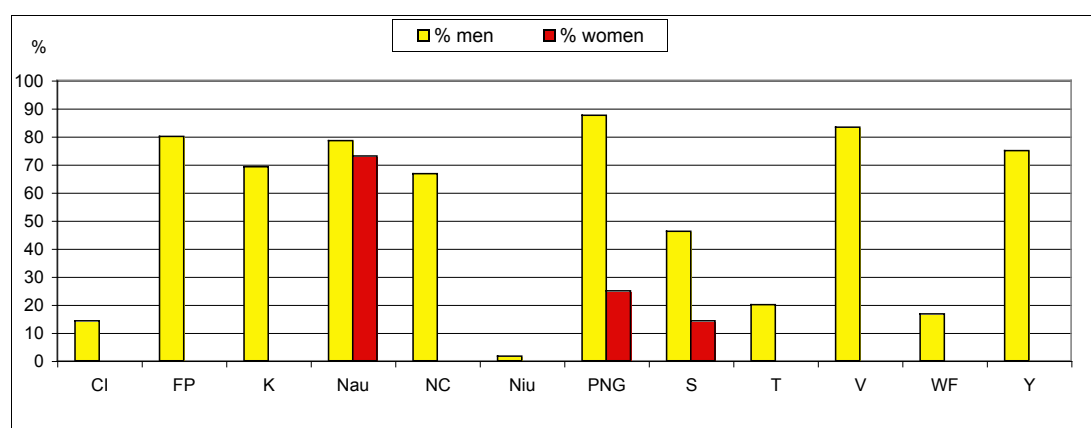


Figure 11. Percentage of fishermen and fisherwomen participating in diving for invertebrates (data: PROCFish/C socioeconomic surveys) (CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, NC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

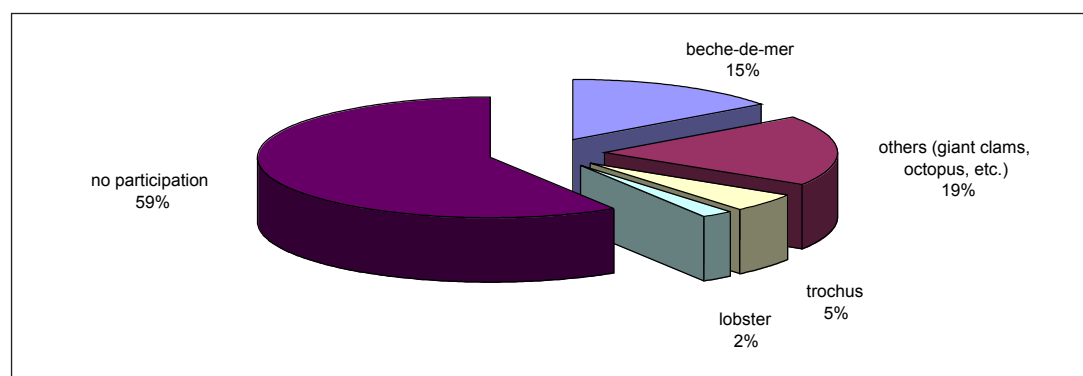


Figure 12. Number of occasions where fisherwomen reported participating in any of the various invertebrate dive activities, expressed in % of all sites (n = 34 sites) (data: PROCFish/C socioeconomic surveys).

Objectives of invertebrate fisheries

The above arguments for broadly characterising gleaning and diving activities are confirmed by the proportion of either activity done with the objective of subsistence, commerce or both purposes. Figure 13 shows that most invertebrate gleaning is done to provide food for the family, and that very little gleaning is done exclusively for commercial interests. For invertebrate dive fisheries, subsistence and income purposes seem to be equally important. Here it should also be borne in mind that while some species, for instance trochus, are mainly collected in order to sell the shells for export, the meat is used locally as food.

Average annual invertebrate catch

In order to compare women's productivity in invertebrate fisheries with that of men, we have selected the gleaning fisheries that are most favoured by both genders: reef-top gleaning; beche-de-mer fishing, which has the highest women's participation among all dive/commercial invertebrate fisheries; and trochus harvesting, which is exclusively done by men.

In general, there is little difference in the annual performance of each gender. A comparison of all three fisheries, as depicted in Figures 14 (reef-top gleaning), 15 (beche-de-mer collection) and 16 (the exclusively male trochus dive fishery), shows that variability between the sites is higher than the variability of annual productivity between men and women. Figure 14 shows that there is a tendency towards slightly higher productivity by fisherwomen reef-top gleaners.

Discussion

Our figures show that women participate in both finfish and invertebrate fisheries, but that there are particular roles that women play in finfish fisheries and invertebrate harvesting. These results are in line with the principal commonalities of local knowledge systems pertaining to coastal marine environments and resources identified by Ruddle (1993, 1994), including the conclusion that skills and tasks are age and gender specific and are taught by members of the appropriate sex (Omoto 2004; Kronen 2004). In general, the role of women in the reef and lagoon fisheries of PICTs is very much focused on invertebrate collection (gleaning) and sheltered coastal reef and lagoon finfish fisheries. Women's performance in finfish fisheries is generally lower than men's by annual productivity and by effectiveness (CPUE), but in the case of invertebrate fisheries, the picture is different: women's and men's performances do not vary significantly; indeed, there are indications that women may perform better than men in some cases (or, as observed for certain fisheries, women do not participate at all).

From these observations and data on fishing strategies, major trends emerge. In general, and given the isolated rural and often still very traditional communities, women have fished mainly to serve subsistence needs, although women's gleaning and fishing seem to be increasingly developing into small-scale income-generation activities in response to increasing demands for cash to meet basic household and family needs. However, changes in socioeconomic situations throughout PICTs have prompted more pronounced shifts in gender roles: for instance, women are participating in income-earning fisher-

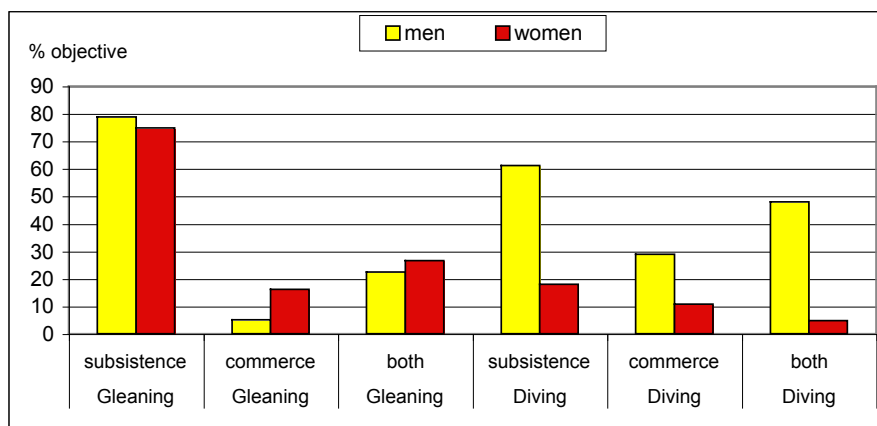


Figure 13. Purposes for gleaning and diving for invertebrates in % of fishermen's and fisherwomen's responses (data: PROCFish/C socioeconomic surveys).

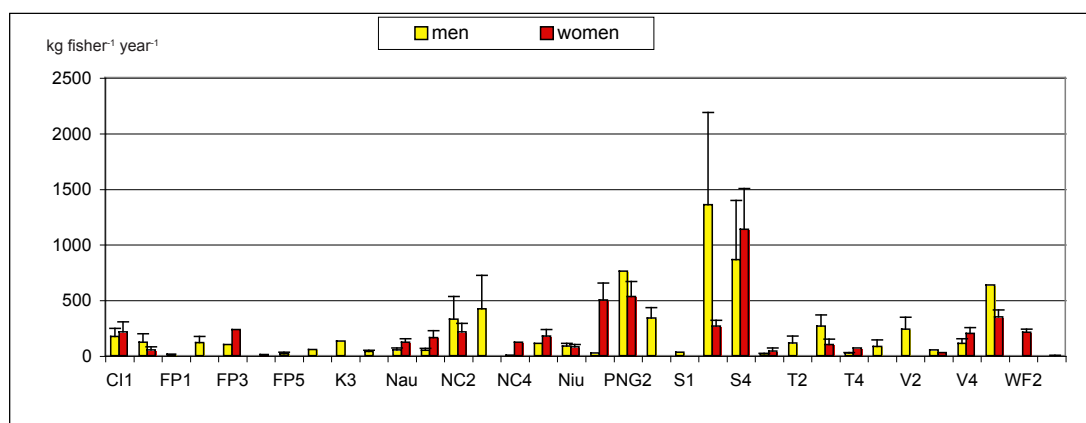


Figure 14. Average annual reef-top harvest (kg year⁻¹ fisher⁻¹; SE) reported by fishermen and fisherwomen (data: PROCFish/C socioeconomic surveys)
(CI-Cook Islands, FP-French Polynesia, K-Kiribati, Nau-Nauru, BC-New Caledonia, Niu-Niue, PNG-Papua New Guinea, S-Samoa, T-Tuvalu, V-Vanuatu, WF-Wallis and Futuna, Y-Yap).

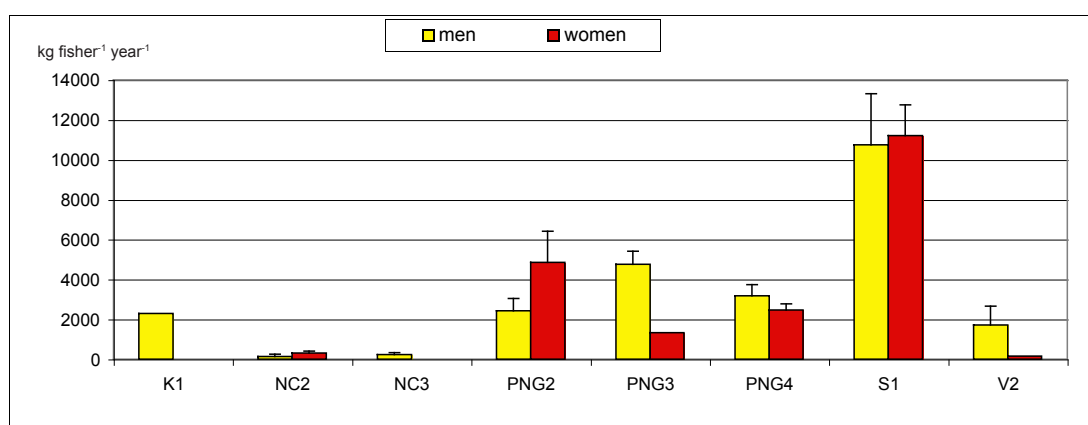


Figure 15. Average annual beche-de-mer harvest (kg year⁻¹ fisher⁻¹; SE) reported by fishermen and fisherwomen (data: PROCFish/C socioeconomic surveys)
(K-Kiribari, NC-New Caledonia, PNG-Papua New Guinea, S-Samoa, V-Vanuatu).

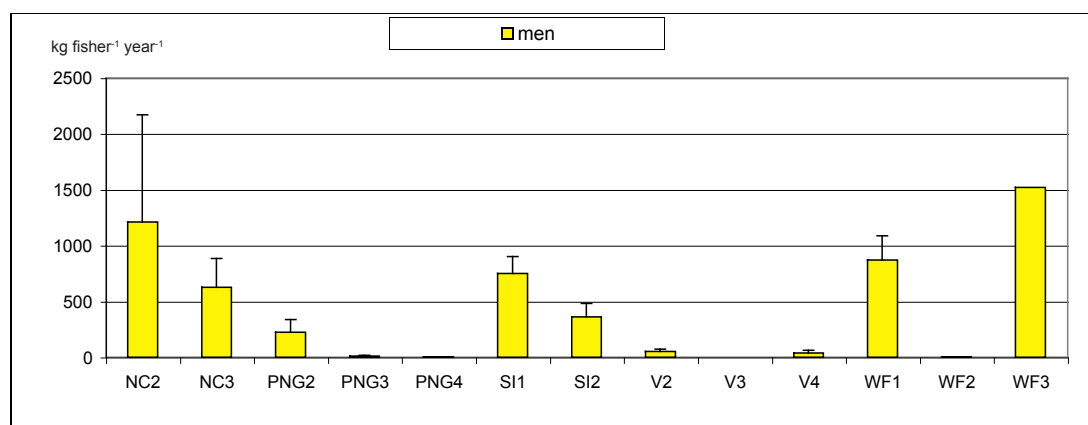


Figure 16. Average annual trochus harvest (kg year⁻¹ fisher⁻¹) reported by fishermen (data: PROCFish/C socioeconomic surveys)
(NC-New Caledonia, PNG-Papua New Guinea, S-Samoa, V-Vanuatu, WF-Wallis and Futuna).

ies that extend beyond responding to temporary or infrequent cash demands. Despite this, women who participate in income-maximising fishing activities seem to still assume traditionally defined roles, rather than adopting new strategies. For example, gleaning activities may be done to collect shells for commercial handicraft production, or to sell catches on the local market to earn cash income to help satisfy basic family needs. Gleaning may also be done to collect beche-de-mer, which would necessitate women engaging in diving activities. The same applies for octopus and lobster collection, both of which may be sold locally; the latter may even be an export product.

Our cross-regional data suggest that men, on the other hand, are responsible for the majority of finfish catches by volume and weight; men, therefore, supply most of the family's needs in terms of seafood and money. Differences also exist in the degree of gender participation depending on customary practices. In some cases women take on more responsibility for family nutrition than men, while in other cultures women rarely participate in fishing. For example, our detailed data show cases where women are the main providers of households' seafood supply. Matthews (1991) stated that 11% of the households in Kiribati rely completely on shellfish collected by women and children for their protein supply.

There are other examples. For instance, Chapman (1987) showed that the total yield supplied by fisherwomen was 32% in American Samoa and between 25% and 50% in the Gulf of Papua New Guinea. The total catch on Fiji's main island, Viti Levu, in 1993 was surveyed at 3515 tonnes (mt) for subsistence and 6206 mt for artisanal fisheries (Rawlinson et al. 1995). By comparison, invertebrate sales averaged ~700 mt yr⁻¹, worth FJD1.5 million. Saltwater and freshwater clams, which are exclusively harvested and marketed by women, comprised about 48% of this volume.

Traditionally, fishing was considered a dangerous activity (Schoeffel 1995) and the time spent at sea, which was often at night, did not allow women to tend to their children's and family's needs. Omeri and Wararu (in Commonwealth Secretariat 1990) stated that for Papua New Guinea, "the participation of women in fisheries activities has been minimal and, at best, secondary to that of man, who has been regarded as the provider and protector of the family". This description still applies in some modern situations. Women have a preference for daytime fishing, which allows them to be at home to prepare the family's supper and to tend to their children's safety and needs at night. In cases where collection is for income generation, and where fishing pressure has increased (often coupled with a

decline in the resource status), women are engaged in night fishing. This applies to beche-de-mer collection and gleaning on reefs that yield higher catches, and allows women to target night-active species or species that provide higher yields and thus better returns if collected at night. Women also seem to continue to target easy-to-access habitats, usually shallow-water fishing grounds that are close to shore (Matthews 1991). Time restrictions, lack of access to motorised boats, or limited access to fishing techniques appropriate to other habitats (nets, rods, etc.) may be possible reasons for this. Where women use motorised boats, they mostly hire them from men or accompany men on fishing trips.

Women still rely more than men on simple fishing techniques that require less investment costs. The fact that habitats closer to shore and less efficient fishing techniques are used by women may explain their lower CPUE figures than those reported by men. Women's fishing trips in general tend to be shorter than those of men. And if women's major objective is to provide food for the family, their lower annual productivity is explained simply by the fact that they will stop once the required amount is harvested. One could argue that, generally speaking, women may be the more sustainable fishers as they often fish for subsistence rather than commercial purposes, and hence exploit frequently but in small amounts. However, in areas where demographic and income pressures increase, and where there are no other alternatives, women may also intensively participate in fishing for income.

All of these observations do not mean that Pacific Island fisherwomen (compared with fishermen) have less-developed traditional scientific systems to acquire detailed knowledge and skills concerning the behaviour of target species or habitats, to perfect fishing techniques, or to understand weather and tidal cycles. In order to perform effectively under time constraints, women must have acquired a solid understanding of the behaviour of inshore marine resources, weather and sea conditions. Therefore, opinions that regard women's fishing activities, such as "just collecting shells", or "not involving interesting technology", or "little economic significance" are unjustifiable (Gina-Whewell 1995).

It is worth emphasising that the data presented show general trends and are based on average figures. If looked at in more detail, the data show changes in women's fishing participation, including women who use motorised boat transport, go out night fishing, fish to earn money, and dive for invertebrates or finfish. Very often, the performances of these women are not accounted for individually but are included in data reported by their husbands.

Conservativeness may be a possible factor restricting women from exploring completely new avenues in fisheries. Conservative attitudes towards women are part of the strong traditional forces guiding the social values and norms of many societies (Ram-Bidesi 1995).

Women's participation in fisheries often concerns most, if not all, aspects of marketing. While commercial invertebrate fishermen very often liaise directly with agents, women are the ones most engaged in processing and transporting finfish and invertebrates to the local market, to buyers and to agents or middlemen. Women's participation in marketing should be a subject for further investigations.

Implications for fisheries management

The value of women's local knowledge and the way it is transmitted, and the potential for women to contribute to family well-being, financial stability and economic development, are now becoming broadly recognised (Williams 2001; Omoto 2004; Bennett 2005). A better and more detailed understanding of the roles that women and men play in reef and lagoon fisheries could assist in improving fisheries management because:

- target groups could be identified;
- communication and stakeholder involvement could be tailored;
- needs would be identifiable; and
- suitable solutions could be found and adopted.

As shown by Kronen and Vunisea (2005), the changing roles of women's and men's fishing strategies and practices in the Pacific strongly suggest that reef and lagoon fisheries are gaining importance for food security in coastal communities. Tongan and Fijian surveys have demonstrated that alternative and more lucrative income sources are preferred over artisanal fisheries. The increasing need for cash income results in increased rates of emigration of breadwinning household members seeking cash-paid jobs in nearby or distant urban centres. Accordingly, women have supplied and continue to supply the regular protein needs for their families. Also, women's catches are increasingly aimed at fulfilling cash needs that accrue seasonally (school and church fees), occasionally (funerals, weddings, etc.) or even regularly (basic household expenditure) if remittances are sent irregularly.

Community fisheries management approaches are often used in PICTs, because of the traditional community-based tenure and governance systems in place or, more recently, as a means to effective governance in isolated coastal areas that are hard to service, monitor and manage by a central governmental authority. While a community fisheries management approach addresses the entire com-

munity, gender issues demand that planning and governance decision-making be fine-tuned.

A small but good example is the sea turtle education and conservation campaign in Palau. This campaign mainly targeted women, although sea turtles in Palau are exclusively caught by men. However, while women do not participate in the fishery itself, they hold decisive roles in regulating the frequency and intensity of sea turtle catches as they control their use as traditional money (*toluk*), high-value jewellery (*klilt*) and food (popular and feasts) (Matthews 2002). The fact that Palau is a matriarchal society was not the only reason for this campaign but it was also the objective to take into account participation of more "invisible" groups, here women.

Furthermore, the detection of changes in gender roles is as crucial to effective fisheries management as the detection of resource status. Planning and governance decisions need to respond accordingly.

These arguments are expandable from the community level to the national level. Fisheries and government authorities can better respond with appropriate policies if roles — such as the participation and objectives of both women and men in reef and lagoon fisheries — and possible changes are better understood.

Some implications of women's roles in fisheries at the national policy and strategic planning level are:

- Social strategies and health
 - at the community level and, on a larger scale, at the national level, the contribution to food security in terms of protein and other nutritional value supplied by invertebrates and fish harvested by women;
 - limitations of women's involvement in reef and lagoon fisheries due to family responsibilities, caring for children, cultural barriers to adopting certain attitudes and to performing certain techniques, and lack of finance to invest in innovations; and
 - sociocultural barriers to acknowledging women's performance and to their full participation in decision-making and governance of resources.
- Economic strategies and migration
 - changes for women as main income providers. Today, many women have acquired an education, are conducting household business in the absence of working husbands and have taken a more influential role in village life. They can earn real income through fishing and controlling family finances. Often, this development has been reinforced

through networking among themselves (Vunisea 1995);

- changes in women's roles in isolated coastal situations where fisheries may be the only reliable resource for earning the necessary cash to cover daily life expenditures and to secure the well-being of the household due to migration of the male workforce. Although remittances may be important for the family, if supplied as commodities they do not meet the continuous need for cash;
 - the weakening of social share-and-care networks with increased urbanisation and loss of traditional structures, and the increased need for cash to fulfil social obligations and cater for basic household needs; and
 - changes in women's contribution to national GDP, not only in terms of monetary assessment of subsistence catches and their share in the informal fisheries sector, but also in view of the globalisation process, which may trigger substantial changes in the demand for fish, and thus impact on coastal fisheries.
- Environmental strategies
 - consideration of women's role, potential and contribution to the sustainable use of coastal marine resources as owners and users of the resources and educators of new generations.
 - Institutional strategies and awareness
 - acknowledging the need to provide the necessary institutional support for women fishers at national, extension and community levels;
 - changes in the role of women in fisheries require that training opportunities respond accordingly to provide the necessary skills at all levels; and
 - awareness by women fishers of the support available to them must take into account the societal changes that have taken place at all scales and in all environments, but also the great differences that still exist between urban and rural areas, main and isolated islands, cultures, and religions.

To conclude, the major question is not whether women in the Pacific hunt (or fish, for that matter), but whether to include women in Pacific Island coastal fisheries policies and strategic planning as equal partners with men. What is needed is an approach that acknowledges that the roles of women and men may differ, but that there is a need to pay equal attention to women and men in PICT coastal fisheries.

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