

Socioeconomic status of fisherwomen

Women's fishing in Tonga: Case studies from Ha'apai and Vava'u islands

By Dr Mecki Kronen, SPC Community Fisheries Scientist

Introduction

Over the last two decades, women's contribution to the subsistence and artisanal fisheries sectors in the Pacific has increasingly gained recognition. Contributions include not only subsistence but also small-scale, village-based commercial activities. Chapman (1987) showed that the total fishing yield supplied by women fishers is 32% in American Samoa and between 25 and 50% in the Gulf of Papua New Guinea. In Fiji Islands, invertebrate sales averaged 2000 tonnes, worth FJD 4.5 million, over a three-year period. Salt- and freshwater clams, which are exclusively harvested and marketed by women, comprise about 48% of this volume (The Women in Fisheries Network, www.wifn.org.fj, 11 June 2002).

Although considerable efforts continue to target women in fisheries development and management projects, women's contributions at both subsistence and commercial levels have yet been given due recognition by the relevant national and regional institutions. This gender bias is highlighted by the fact that national and regional statistics do not yet reflect women's – and children's – share in the fisheries sector, which has resulted in the characterisation of women as the 'invisible fisherfolk' (Ram 1993).

This paper addresses two issues that have been underestimated and undervalued in the past: the role and magnitude of women's and children's involvement in fishing activities in the South Pacific. Accordingly, this paper examines how Tongan women's fishing practices contribute to the family's seafood consumption and income generation. It aims at reviewing today's behaviour in comparison to documented gender related traditions and customs. Furthermore, an attempt is made to analyse if gender related fishing attitudes are already developed at an early age.

Methods

The results presented here are derived from socioeconomic surveys implemented in the framework of an interdisciplinary research project (DemEcoFish¹) assessing the status of reef and lagoon resources in

the South Pacific. Socioeconomic survey methods involved random interviews with men and women of all adult age groups (> 15 years) in four Tongan village communities. Primary school children of both genders were surveyed using participatory scoring and ranking tools.

Four villages were selected (Fig. 1): two each from the Ha'apai and Vava'u island groups. Each pair of villages per island group comprises one more traditional and one more urbanised community. Thus, Lofanga on Ha'apai and Ovaka on Vava'u represent the more traditional communities as they are located on small isolated islands where access to the main island is by motorised boats only. In contrast, Koulo on Ha'apai and Mataika on Vava'u are considered more urbanised villages because they are located in close proximity to the island groups' main centres.

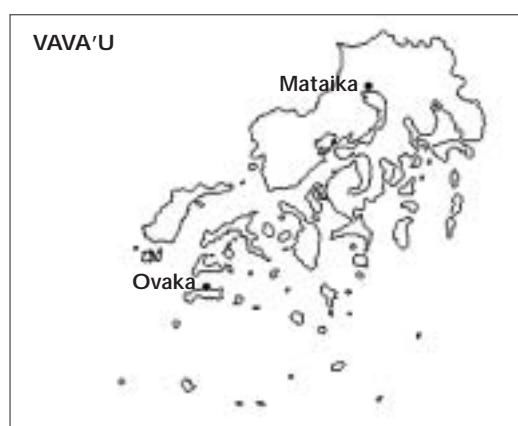
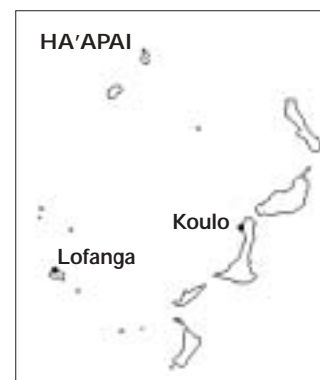


Figure 1
Location of the four villages surveyed in Vava'u and Ha'apai island groups of Tonga



¹ DemEcoFish is an ongoing research project (2001-2003) implemented by SPC's Reef Fisheries Observatory, and funded by the MacArthur Foundation. The major objective is to identify socioeconomic indicators to assess fishing pressure and thus the status of marine resources (reef and lagoon) used for subsistence and small-scale artisanal fisheries in the South Pacific.

Individual questionnaires were used to assess seafood consumption and fishing habits. Information on frequency of fishing activities, main fishing techniques used, target species, and reasons for fishing was gathered through participatory children's surveys. The children's survey results are presented as percentages of three village samples. A children's survey was not carried out in Lofanga due to holidays.

The assessment of women's role and contributions is based on comparisons between answers given by female and male individuals in each village.

In this paper, fishing is defined as the harvesting of all edible seafood. Differentiation is made between finfishing and the collection of other seafood (reef gleaning).

Results

Adult individual surveys

Survey sample

As presented in Table 1 survey samples represent between 25% and 55% of the total adult village population (> 15 years). Sample sizes of women and men per each village survey are comparable.

Seafood consumption

The consumption of finfish and other seafood is important in each village (Table 2). Canned fish is an

established food item in all communities, and seems to be slightly more preferred by women than men. Also, consumption of other (non-fish) seafood is prominent (88–100%). Variations in percentages may be explained by religious taboos² rather than individual or gender determined taste preferences.

Fishing activities

Seafood consumption patterns correspond to the involvement of village people in fishing activities. About half of all women villagers questioned in Ha'apai said they finfished, as did 6% to 21% of the women in Vava'u (Table 3). However, the involvement of women in reef gleaning activities is higher (72% to 92%) and more consistent when comparing all four villages.

By comparison, men's involvement in finfishing is higher but their participation in reef gleaning is substantial, too. In the case of Mataika (Vava'u) the percentage of men reef gleaning exceeds that of women.

As shown in Table 4, the frequency of finfishing trips is only slightly higher for male fishers in the small island communities of Lofanga and Ovaka. Frequency of other seafood collection is comparable and consistent between villages and gender groups. The high number of collection trips by men in Ovaka village is the exception. Duration of finfishing trips by women and reef gleaning trips by either gender group are comparably short, ranging from two to four hours each.

Table 1: Survey data

Village	Total no males surveyed	Age range surveyed	Total no females surveyed	Age range surveyed	Total population surveyed	Total population >15 years	% representation >15 years
Ha'apai							
Koulo	32	15–83	32	11–72	64	146	44
Lofanga	17	17–76	13	22–59	30	114	26
Vava'u							
Mataika	41	16–78	44	15–75	85	339	25
Ovaka	20	15–71	16	15–65	36	65	55

Table 2: Seafood consumption patterns

Village	Eat finfish (%)		Eat other seafood (%)		Eat canned fish (%)	
	males	females	males	females	males	females
Koulo	100	100	94	91	94	94
Lofanga	100	100	92	94	71	85
Mataika	100	98	76	100	98	98
Ovaka	100	100	100	88	80	94

Table 3: Fishing and reef gleaning activities by percentage

Village	Go fishing (%)		Go collecting (%)	
	females	males	females	males
Koulo	50	78	72	66
Lofanga	54	88	92	59
Mataika	21	59	82	90
Ovaka	6	80	75	10
mean:	44	76	80	56

² E.g. members of the Seventh Days Adventist Church do not eat shellfish.

³ Usually lobsters are spearfished by men at night in habitats that require motorised boats.

Table 4: Frequency and duration of all fishing activities

Village	No of finfishing trips/week		Duration of finfishing trip (hours)		No of collection trips/week		Duration of collection trip (hours)	
	females	males	females	males	females	males	females	males
Koulo	2-3	2-3	3	8	2	2	2-3	2-3
Lofanga	2	3-4	3-4	7	1-2	2	<6	<6
Mataika	2	2	4	5	1-2	1-2	3	4
Ovaka	2	3-4	2	3-4	2	4	3	3

Table 5: Time of finfishing

Village	Fishing (%)					
	night		day		night & day	
	females	males	females	males	females	males
Koulo	6	40	81	36	13	24
Lofanga	0	14	100	43	0	54
Mataika	11	8	67	24	22	68
Ovaka	0	0	100	63	0	37
mean:	4	16	87	42	9	46

Table 6: Time of shellfish collection – reef gleaning

Village	Collecting (%)					
	night		day		night & day	
	female	male	female	male	female	male
Koulo	0	0	96	100	4	0
Lofanga	0	0	100	100	0	0
Mataika	0	7	94	73	6	20
Ovaka	8	0	34	45	58	55
mean	2	2	81	80	17	19

Table 7: Fishing techniques

Technique	Koulo		Lofanga		Mataika		Ovaka	
	females	males	females	males	females	males	females	males
reef gleaning:								
iron bar ¹	24	0	54	26	21	11	17	3
collecting by hand ²	56	12	13	0	59	41	47	28
sub-total reef gleaning:	80	12	67	26	80	52	64	31
finfishing:								
catching by hand	3	0	0	0	0	0	0	0
handline	8	18	0	29	5	13	0	22
cast netting	3	9	25	3	3	8	7	15
netting	0	23	0	5	3	2	0	16
group netting	0	5	8	0	5	0	0	0
spear fishing ³	3	28	0	16	0	20	4	12
spear throwing ⁴	0	0	0	0	0	0	0	3
night fishing ⁵	3	0	0	0	4	5	25	1
deepbottom fishing (handline)	0	5	0	18	0	0	0	0
trolling	0	0	0	3	0	0	0	0
sub-total finfishing:	20	88	33	74	20	48	36	69

¹ Includes maka feke, a lure to catch octopus (according to a traditional Tongan legend) that simulates the shape of a rat.

² May involve the use of knives, woven baskets, plastic bags and containers, and using the feet to feel for some shellfish

³ Involves apna (breath-hold diving) and is performed during day and night, at Ha'apai mostly at night.

⁴ Throwing a long spear from mangroves or reefs, or from a boat.

⁵ May involve several techniques used by foot or from a boat, performed using a light (lantern) to attract fish.

³ Usually lobsters are spearfished by men at night in habitats that require motorised boats.

Major differences occur in the duration of men's finfishing trips. With the exception of Ovaka — where men spend in average only three to four hours on each finfishing trip — men usually finfish for five to eight hours at a time.

Similarities and differences in fishing activities are highlighted in Tables 5 and 6. Women prefer fishing during the day, whereas most men finfish during the night or the during the day, or exclusively at night. Other kinds of seafood are mostly collected during daytime, irrespective of gender³. However, all Ovaka villagers and, to a lesser extent, Mataika villagers also reef glean during the night and day.

Fishing techniques

The fishing techniques used mainly by women fishers in all villages surveyed, predominantly target invertebrates and shellfish (Table 7). However, while 80% of women in more urbanised villages reef glean, women fishers in isolated and more traditional communities such as Lofanga and Ovaka use such techniques less (~65%) in favour of finfishing. Finfishing techniques vary considerably between women from both villages. Women in Lofanga (Ha'apai) prefer cast netting and to a lesser extent group gillnetting, while night fishing and to a lesser extent cast netting and spear fishing are employed by women fishers from Ovaka (Vava'u). Finfishing techniques used by women in the more urbanised villages of Koulo and Mataika include handlines and catching fish by hand.

In comparison, male fishers use mainly handlines and all kinds of netting techniques in addition to deep-bottom fishing and trolling. Spearfishing is widely practiced in Ha'apai and also in Ovaka (Vava'u).

Habitats fished

Preferences for certain fishing habitats (as depicted in Table 8) are determined by accessibility and availability. Most women fishers reef glean without using a canoe or boat. Thus, none of the women interviewed said they fished in deep sea areas. However, while both Ha'apai villages are mainly surrounded by reefs, Mataika village on Vava'u has direct access to soft-bottom habitats. These characteristics are reflected in the percentages for either gender group. In the case of Ovaka, however, the balance of both habitats fished is determined by access to the reefs surrounding the isolated island and visits using boat transport to soft bottom habitats around the main island.

Objectives of fishing

The majority of all women fishers surveyed stated that they fished mainly for subsistence purposes, although finfish and other seafood were also collected as gifts. However, women, particularly those based at Lofanga (Ha'apai) also harvested for sale. By comparison, although male fishers concentrate on subsistence finfishing and the collection of seafood they are more commercially oriented. On average, the share of finfish for sale exceeds shares of other seafood sold. The percentage of men finfishing to generate income is particularly high in Lofanga (Ha'apai).

Surveys of children

Results given in Table 10 are average figures for primary school students (7–9 years) surveyed in the three villages of Koulo, Mataika and Ovaka. Data shows that girls go fishing either 'often' (1–3 times a week on a regular basis) or 'sometimes' (e.g. during school holidays and on most Saturdays), while boys mostly opted for sometimes only.

Household consumption was quoted as the main purpose by both girls and boys. However, more girls than boys fish for sale, and their mothers sell the catch.

Girls from all three communities almost exclusively use reef gleaning or general collection techniques. The majority of boys questioned cited primarily finfishing techniques although a considerable percentage of boys were found to also reef glean. However, this seemingly gender-related division of fishing activities at an early age is challenged by the contrasting information on the main species harvested by girls, which includes a considerable amount of finfish. This suggests that girls also use techniques other than just reef gleaning and collection by hand.

Table 8: Habitats fished

Village	Reef		Lagoon (seagrass, sand/soft bottom)		Deep sea	
	females	males	females	males	females	males
Koulo	90	69	10	28	0	3
Lofanga	91	77	9	3	0	20
Mataika	21	31	79	69	0	0
Ovaka	50	52	50	48	0	0

Table 9: Reasons for fishing by percentage

	Koulo		Lofanga		Mataika		Ovaka	
	females	males	females	males	females	males	females	males
finfishing:								
consumption	50	40	0	0	50	23	100	6
sale	0	0	0	0	0	4	0	0
consumption & gift	44	44	71	0	38	30	0	56
consumption & sale	0	4	0	40	12	8	0	0
consumption & gift & sale	6	12	29	60	0	35	0	38
collection:								
consumption	57	41	17	10	50	40	17	10
sale	0	0	0	0	0	0	8	0
gift	0	0	0	0	0	0	0	0
consumption & gift	30	45	58	58	39	26	67	60
consumption & sale	9	0	8	8	3	8	0	10
consumption & gift & sale	4	14	17	17	8	26	8	20

Table 10: Fishing activities of primary school children at Koulo, Mataika and Ovaka villages (%)

		Girls (%)	Boys (%)
Frequency of fishing	often (1–3 times per week)	33	16
	sometimes (during school holidays and most Saturdays)	63	85
	never	4	0
Purpose of fishing	family consumption	80	89
	sale	24	11
Fishing techniques used	reef gleaning	99	43
	finfishing	1	57
Fishing catch	finfish	19	73
	other seafood	81	27

Discussion

Overall, results support the statement that women's participation in fishing activities in the South Pacific region has been underestimated and undervalued (Dye 1983; Ram 1993; Matthews 1991; Vunisea 1997). An analysis of the frequency and duration of fishing trips performed by both gender groups suggests that women's contribution to household supply is at least as regular and reliable as men's. While alternative income sources to fisheries exist in each of the communities surveyed, women's fishing must be considered as a means to secure the household's protein and food provision when financial and agricultural resources are poor. Children's fishing activities give substantial support to women in providing seafood for household consumption (and as a potential source of income). As demonstrated, primary school children in Ha'apai and Vava'u fish between one and two times a week, and about 25% of the girls' catch is sold by their mothers. These figures indicate a much higher participation than found by Rawlinson et al. (1994) in the case of Viti Levu, Fiji.

Results of this study also challenge a number of observations stated elsewhere. The percentage and frequency of finfishing performed by women contrasts with the generally held belief that women are responsible for the collection of invertebrates only (Tonga et al. 2000), or that women only occasionally perform men's fishing (Matthews 1991). It also opposes the often-cited sexual division of labour in fishing (Bataille-Benguigui 1988). This study agrees with statements made by Schoeffel (1985), that Tongan women will use fishing gear if it is available at home (e.g. cast nets, handlines and spear guns). Based on the fact that women's fishing activities stretch far beyond shellfish collection, it is argued that little difference exists between men's and women's fishing activities.

To be successful, women must have as much knowledge of the marine environment and the ecology of marine resources as do men, as well as the expertise and skills in fishing techniques.

Similarly, men's fishing certainly includes octopus fishing (*maka feke*), and the collection of certain molluscs (*hoka fimgota*), which are usually considered as part of women's domain (Tonga et al. 2000). The men interviewed stated they were not selective in the techniques used or species targeted, nor did they feel they were performing women's work when they reef gleaned.

The results of this study indicate there are three substantial differences between women's and men's fishing activities: 1) women tend to prefer daytime fishing, 2) women focus on shallow waters close to shore, and 3) women mainly fish

without using canoes or motorised boats. Possible reasons for these differences are: 1) Oliver (1989) argued that the more fishing habitats that are available, the more stratified the gender roles in fishing become. All fishing communities have access to soft bottom lagoon and coral reef habitats, deep bottom and open ocean fishing grounds; 2) anthropologists and ethnologists argue that gender roles, including fishing activities, are determined by tradition (Vunisea 1997), and by mystical beliefs that are associated with men's fishing (Chapman 1987; Matthews 1991; Bataille-Benguigui 1992).

Traditional gender role definitions and mystical beliefs may explain why women are not actively involved in commercially oriented longline fishing or any of the organised night time spearfishing trips. None of the women questioned went fishing for more than six hours at a time. Also, only very few women take the risk of venturing to reefs and shallow water areas at night time.

This survey also revealed some questions yet to be answered. Conflicting with Matthews (1991) and Tonga et al. (2000), women from isolated and more traditional villages stated that they visit uninhabited atolls by motorised boats to reef glean and fish. Questions as to whether such fishing expeditions are composed of mixed gender groups, whether women organise themselves and thus command motorised boats, and whether women handline or use nets while boating, have not been conclusively answered yet. These answers may further elucidate whether women's preference for fishing in shallow waters is determined by practicability, traditions and customs or maybe simply reflect a lack of motorised transport. In the case of Mataika (Vava'u), changes associated with the introduction of motorised transport are not restricted to motorised boats but include vehicles. Most Mataika households are equipped with a vehicle, which both women and men use to gain access to fishing grounds.

Results indicate there have been substantial changes in the social role of women fishers in rural Tonga. However, education of children and overall social attitudes, regardless of the degree of geographical isolation of communities surveyed, still reflect a close connection to traditions and customs. Consequently, this study prompts the question: How much do traditions and customs continue to determine gender-specific roles and participation in Tongan fishing activities?

Despite a certain amount of urbanisation among the four communities surveyed, it is clear that women's role is still regarded as one of performing domestic duties. Similar to Lal and Slatter (1982) this is surprising as Tongan women have recently extended their production for consumption activi-

ties to bring in income. The women who operate small shop outlets, or receive salaries from employment in nearby urban centres are as much proof for this change in women's social role as those women who do not venture outside their village boundaries but harvest marine resources for sale.

In addition, there is a growing number of female-headed households in rural areas of Tonga due to the overseas emigration of male workers. Taking into account that reliable and regular submitted remittances may not be women's role in ensuring a daily food supply for the family, and generating income to cover school, church and basic monetary requirements, is increasingly important.

The question emerges as to whether Tongan women fishers' activities have expanded or whether even during historical times (when traditional circumstances predominated) Tongan women already informally performed fishing activities socially regarded as men's activities? Since the beginning of the 20th century, fishers have lost social status to farmers (Bataille-Benguigui 1992), and the economy has become increasingly cash based. In addition, social and gender roles have been redefined to accept a wider participation of women in village fishing activities. Deterioration of fishers' general social status may limit the future of small-scale artisanal fisheries in Tonga as more and more focus is given to alternative and financially more attractive income sources such as maritime fisheries, agriculture and other sectors. As a consequence, the importance of reef and lagoon fisheries in Tonga may further decrease. And thus it seems to be impossible to even speculate how far Tongan women fishers may further progress in fishing activities, and whether they may ultimately participate in commercially oriented artisanal fisheries.

Bibliography

- Bataille-Benguigui, M.-C. 1988. The fish of Tonga: Prey or social partners? *Journal of the Polynesian Society* 97(2):185–198.
- Bataille-Benguigui, M.-C. 1992. *Pêcheurs de terre, la mer dans la pensée Tongienne. Études rurales* 127–128:55–73.
- Chapman, M.D. 1987. Women's fishing in Oceania. *Human Ecology* 15(3):267–288.
- Dalzell, P., T.J.H. Adams and N.V.C. Polunin. 1996. Coastal fisheries in the Pacific Islands. *Oceanography and Marine Biology: An Annual Review* 34:359–531.
- Dye, T. 1983. Fish and fishing on Niuatoputapu. *Oceania* 53(3):242–271.
- Lal, P.N. and C. Slatter. 1982. ESCAP/FAO project in improving the socio-economic condition of women in fisheries: Relevance to the Fiji study to other South Pacific countries. SPC Fisheries 14/W.P. 30, 3.08.1982.
- Matthews, E. 1991. Women and fishing in traditional Pacific Island cultures. South Pacific Commission, Fisheries 23, Information Paper 14.
- Oliver, D.L. 1989. Oceania: The native cultures of Australia and the Pacific Islands. Honolulu: University of Hawaii Press. 1275p.
- Ram, V. 1993. Women in commercial fisheries in the South Pacific. In: G.R. South and G. Rao (eds). *Marine resources and development*. PIMRIS, USP Library, Suva, Fiji: 105–121.
- Rawlinson, N.F.J., D.A. Milton, S.J.M. Blaber, A. Sesewa and S.P. Sharma. 1994. A survey of the subsistence and artisanal fisheries in rural areas of Viti Levu, Fiji. ACIAR Monograph No. 35, Australian Centre for International Agricultural Research, Canberra.
- Schoeffel, P. 1985. Women in the fisheries of the South Pacific. In: *Women in Development in the South Pacific: Barriers and opportunities*. Development Studies Centre, Australian National University Canberra, Australia.
- Tonga, N., M. Naqasima-Sobey and N. Quinn. 2000. Local marine biological knowledge and management practices in Hihifo village, Ha'apai, Kingdom of Tonga. SPC Women in Fisheries Information Bulletin 7:9–13.
- Vunisea, A. 1997. Women's changing fishing participation. In: G.R. South (ed), *Symposium on sustainable harvest of Fiji's marine resources*, Suva, Fiji, 20th March 1997: 9–13.
- Women in Fisheries Network, 11.06.2002, Pacific Issue on Women, www.wifn.org.fj

