Profile of Village Fisheries in Samoa

Kelvin Passfield *, Atonio Mulipola+ & Mike King*

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* Ausaid sponsored Samoa Fisheries Project staff
+ Principal Fisheries Officer, Samoa Fisheries Division

1. Executive Summary

A nationwide household fisheries survey was undertaken in October and November, 2000, to collect subsistence fisheries data and to complete a profile on Samoan village fisheries. The survey covered 1092 households in 66 villages, 40 in Upolu and 26 in Savaii, i.e. a 20% coverage of villages and a 5% coverage of Samoa's households. Sampling was stratified by village location, i.e. whether the villages were located on a **lagoon**, adjacent to **mangroves**, on a **cliff**, or **inland**. As well as analysing the data for all of Samoa, comparisons were made between these four strata, as well as for Savaii and Upolu. Additional comparisons were made between villages that had developed fisheries management plans under the Fisheries Division's Community Extension Programme, and those that had not.

Results were raised to account for all Samoan households, and showed that there are 11,700 fishers, living in 8,377 fishing households. The most common fishing method is diving and spearing, followed by gill netting, hook and line fishing, and gleaning. Most fishing takes place inside the lagoon. Eighteen percent of fishers are female, mainly gleaning along the shoreline for shellfish or diving in the lagoon for seaweed, sea cucumbers, sea urchins and other invertebrates.

The total subsistence seafood catch for the year 2000 is estimated to be 7169 tons, with a value of ST45 million. The average catch rate is 2 kg per person per hour fished. Villages with management plans have the highest catch rate of 2.8 kg per person per hour, compared with coastal villages with no management plans where the catch rate is 1.8 kg per person per hour. Fishers from cliff villages report the lowest catch rate at 1.6 kg per person per hour. For the purpose of monitoring the Fisheries Division community-based fisheries management programme, it is suggested that a catch rate of 1.8kg per person per hour is used as a monitoring baseline.

Average consumption of seafood per capita is 57 kg per annum, made up of 44 kg of fish, and 13 kg of invertebrates and seaweed. Inhabitants from lagoon villages report the highest per capita consumption at 68kg per annum, and inland villagers report the lowest at 45 kg per annum. Canned fish consumption per capita is 14 kg per annum, canned meat is 5.7kg per annum, and fresh and frozen meat is 92kg per annum.

Total seafood consumption for the country is 9,971 tons, with the seafood additional to that caught in the village being mainly pelagic species bycatch from the rapidly growing commercial longline fishery. The most commonly caught and eaten seafood surgeon fish (family Acanthuridae), except for inland villages, where tuna is more commonly eaten.

The total value of the seafood consumed in Samoan households is estimated to be over ST62 million per year, ST45 million of which is caught by village fishers. Together with fishery exports, the gross value of Samoa's marine resources is around ST100 million (approximately USD27 million) per year.

During the process of conducting the survey, training in survey techniques, including data enumeration and analysis was provided for Fisheries Division staff. A database for storage of the data was developed, and can be used for subsequent surveys. Valuable links were also established with the Samoa Statistics Department, and data to update several key figures calculated in this survey will now be collected during their Agricultural Census annual update. A major dedicated household fisheries survey will then only need to be repeated every 3 to 5 years.

2. Introduction and background

Samoa[1,2] consists of two larger main islands, Upolu (1108 sq. km.) and Savaii (1695 sq. km.) and seven smaller islands. Two of these smaller islands, Manono and Apolima, are inhabited. The islands occupy a relatively small area of the Pacific Ocean, between 13° 25'S -14°05'S and 171°23'W-142°48'W. The total land area is around 2,820 sq. km. The proximity of several other Pacific Island countries results in Samoa having the smallest Exclusive Economic Zone in the Pacific, at only 130,000 sq. km.[3].

An extrapolation of data contained in the Demographic and Vital Statistics Survey (Statistics Department, 2000) indicates that the country has a present population of around 175,000 (Upolu, 132,000. Savaii 43,000), with an urban population in the Apia area of 39,000.

Fisheries play an extremely important role in the economy of the islands. They are a major earner of foreign revenue for the country, with reported fish exports in the year 2000 of around 4500 metric tons (mt) worth SAT40 million (Watt and Moala, 2001). This is equivalent to between 60% and 70% of the total value of all Samoan exports.

Apart from the commercial importance of fisheries to Samoa, they are also of major subsistence importance to the people, especially to those living on the coastal fringe, contributing significantly to the health and nutrition of the people. This report aims to document the important marine resources, fishing methods, and fisheries habitats, and show to what level these are significant to the people. It places seafood consumption into perspective with regard to consumption of other sources of animal protein such as meat, and allows a value to be estimated for the subsistence resources.

Information for the report was largely obtained by conducting a nationwide household survey covering a 5% sub sample of the population. Some comparative historical information was available from several earlier surveys conducted within the past 25 years (e.g. Statistics Department, undated; Zann et al, 1984; King 1989; Zann, 1995, Mulipola 1997, Zann 1997), and from the draft Western Samoa Fisheries Resource Profiles (Bell and Mulipola, 1995).

In order to prepare this up to date profile of the village fishery of Samoa, a survey of a cross section of villages was undertaken over a three week period in October and November, 2000. As the degree of reliance on fishery resources would vary between villages for a number of reasons, a stratified sampling strategy was adopted. This was to allow more effort to be expended in surveying households more likely to engage in fishing. One major factor affecting fishing and fish consumption was likely to be the distance of the village from the coast. It was also possible that seafood catches may vary by coastal habitat, e.g. mangroves, lagoons, and cliffs. The survey was designed to take these possible variations into account.

[1] Excluding American Samoa.

[2] The Country's name was changed to Samoa from Western Samoa in 1997.

[3] Exact boundaries for EEZs are still subject to international negotiation.

3. Samoan village demography

The Samoan population is spread throughout 21,424 households in 324 villages on four islands. Most of these villages are on the islands of Upolu and Savaii, with only a small number of villages on the other two islands, Manono and Apolima. Approximately 68% of all villages are on the main island of Upolu with about 18% were classed as urban. These urban villages contain around 22% of the total number of households (Statistics Department, 2000).

For the purpose of the study, Samoan villages were classified as either lagoon, mangrove, cliff, or inland villages, depending on local geography. As was to be expected in a small island country, most villages lie on the coastal fringe. Approximately 42% of all villages, containing 38% of all households, are considered lagoon, 22% of villages containing 29% of households were classified as mangrove, and 6% of villages containing 4.5% of households as cliff. Though the definition of inland, for example as a certain distance from the coast, was not firmly established, the remaining 30% of villages containing 29% of households were classified as inland based on the local knowledge of the Fisheries Division Extension staff.

The number of households per village varied from a low of four to a high of 575, with an average of 65. The average number of people per household in 1999 was 8.2 (Statistics Dept, 2000). This extrapolates to a total population of approximately 175,700. Table 1 shows the breakdown of all Samoan villages by strata.

Table 1. Numbers of Samoan villages and households by strata.

Location	Upolu		Savaii		Total	
	Villages	Households	Villages	Households	Villages	Households
Cliff	0	0	19	971	19	971
Inland	80	5371	18	749	98	6120
Lagoon	87	5502	49	2609	136	8111
Mangrove	57	5374	16	848	73	6222
total	**224**	**16247**	**102**	**5177**	**326**	**21424**

4. Household survey methodology

4.1 Survey design

The survey sampling methodology was designed over a period of several months by project and counterpart staff in early to mid 2000, with additional advice sought from the SPC Statistical Unit in Noumea in regard to designing a statistically sound survey.

The questionnaire itself was designed later in the year by Fisheries Division and Project staff, in collaboration with the Samoa Statistics Department. Careful consideration was given to designing the questions in a way that would be likely to obtain useable data from the public. For example, rather than asking for quantities by percent, advice from Statistics Department staff suggested that fractions would be easier for respondents to visualise. Another example was asking respondents either the weight, **or** the value, of a consumed item, as some people find cost easier to recall or estimate than a weight. A copy of the questionnaire is attached as Appendix 1

After assessing the calendar of events scheduled for the Fisheries Division, as well as upcoming Samoan holidays and other National special events, it was decided that the first available opportunity to conduct the survey with relatively few disruptions would be late October and early November 2000.

4.2 Village and household selection

The Agricultural Census 1989 included some information on village fishing activities. Zann (1995) quoted information from this Agricultural Census on the number of fishing trips per week for each village, and the population of each village. From this information, a fishing activity index for most of the villages was calculated by dividing the average number of weekly fishing trips for each village by the population of the village, to give trips per week per person. An average index was then calculated for each stratum (Cliff, Lagoon, Mangrove, and Inland) for both Upolu and Savaii.

The index was then used to stratify villages for sampling, so that less effort was afforded strata where fishing was rare, and greater effort was placed in villages where fishing was common. The index was applied separately to Savaii and Upolu villages, to ensure a reasonable distribution of villages in both islands. The number of households was then selected for each island to allow similar levels of accuracy to be achieved for both islands, and thus make reasonable comparisons between the two islands possible. If the applied index resulted in less than 2 villages to be sampled in that stratum, a minimum of 2 villages was selected to allow at least one comparison within strata. This only occurred for cliff villages, where 2 villages were sampled instead of 0.3 villages as the indices indicated. The final number of villages selected was 40 for Upolu, and 26 for Savaii, or 66 villages in total, representing 20% of all Samoan villages.

Villages were randomly selected within each stratum by first sorting all villages by the number of households in each village. The total number of households in each stratum was then divided by the number of villages that were to be sampled in that strata. This provided a household "skip" number, providing a starting point and an increment to allow the required number of villages to be selected randomly.

If all households in the 66 villages were to be surveyed, that would amount to over 7200 households. In order to reduce this to a more manageable sample, the number of households to sample in each selected village was then decided on the following ad hoc basis.

- Less than 50 households, sample 50% of all households.
- Between 50 and 99 households, sample 20% of all households.
- More than 100 households, sample 10% of all households.

This resulted in 1092 households in total, or 5% of total Samoan households. Figure 1 shows the distribution of the 66 villages around Samoa. Appendix 2 shows details of all 66 villages surveyed.

Enumerators were left to select individual households such that the required number of households in each village were sampled. If, for example, 20% of households in a village were to be sampled, enumerators would select approximately every fifth household. Enumerators were told that if nobody was home, they were to leave that house as a "no response", and endeavor to come back later and try and sample the same house. However, there were no cases of "no response" recorded during the survey.

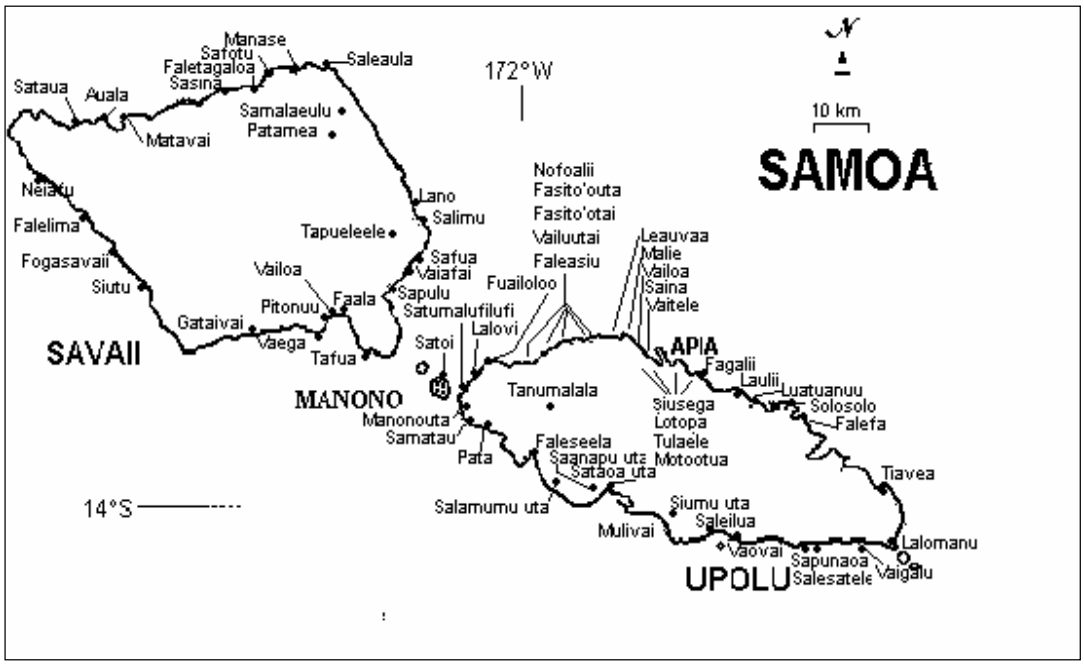

Figure 1. Map of Samoa showing approximate locations of surveyed villages.

4.3 Field testing, and survey enumeration

A half-day workshop for enumerators for Upolu was held immediately prior to the commencement of the survey. This was followed by field testing the questionnaire in one village. After minor modifications, the survey continued with a second village. Results were assessed after this village was completed, and further minor modifications were made to finalise the questionnaire.

A similar half day workshop was held in Savaii for Savaii-based enumerators prior to the field work there, and field training took place that same day with the first village being surveyed.

Debriefing sessions were held during the first few days of the survey for both islands, where completed questionnaires were checked, problems discussed and enumerators given additional advice on interviewing technique.

4.4. Data entry, editing, and analysis

Fisheries staff entered all data into a database designed in Microsoft Access. Data were then checked using queries for inconsistent or incomplete data, which were corrected where possible by going back to the raw data.

Each household surveyed was given a probability of selection (P of S) weight, to determine the proportion of total Samoan households it represented in the survey. Results for that household could then be raised to give overall results for each stratum, as well as for the whole country.

Tables were exported to spreadsheets for final analysis and preparation of output tables and graphs. During data entry and analysis, several possible improvements to the questionnaire design were noted. These are listed in Appendix 3, and should be considered for incorporation into any future questionnaires.

5. Results

5.1 Population

The total number of households surveyed was 1092, consisting of 681 in Upolu, 403 in Savaii, and eight households on the small island of Manono. The Manono responses were included with the Upolu sub-sample, making this up to 689 households. The total number of people included in the households was 9090, made up of 5818 from Upolu, including Manono, and 3272 for Savaii.

The P of S weights were applied to raise all figures obtained for the sampled population to figures representing the total Samoan population. Table 1 shows the figures obtained for the sampled population, as well as the raised figures.

Table 2. Population estimates based on the survey results

Island	Sampled no. of hh	Raised no. of hh	Sampled population	Raised population	Av household population
Upolu	689	16,223	5,818	131,866	8.13
Savaii	403	5,240	3,272	42,734	8.16
Samoa	1,092	21,463[4]	9,090	174,600	8.14

These figures are consistent with those obtained from the Statistics Department of 175,000 (Upolu, 132,000. Savaii 43,000), which indicates that the raising factors applied to the survey are correct.

All figures reported in the balance of this report are raised for the total Samoan situation using the P of S weights, unless otherwise specified.

5.2. Fishing activities

The survey indicated that there are 8,377 fishing households in Samoa. Within these households, there are 9,600 male and 2,100 female subsistence and small-scale commercial fishers, for a total of 11,700. These figures are similar, though higher, than those obtained in the Agricultural Census 1999, which found 6,700 fishing households, and 10,143 fishers in total. Zann, in Bell and Mulipola (1995) estimated there were 5,247 fishers in Upolu in 1991, while this survey estimated 7,900. Figure 2 shows the number of fishers estimated for each stratum for this survey.

[4] Note that there is a slight variation from the number of households reported in Table 1. This is probably due to rounding errors when using the P. of S. weights for each village.

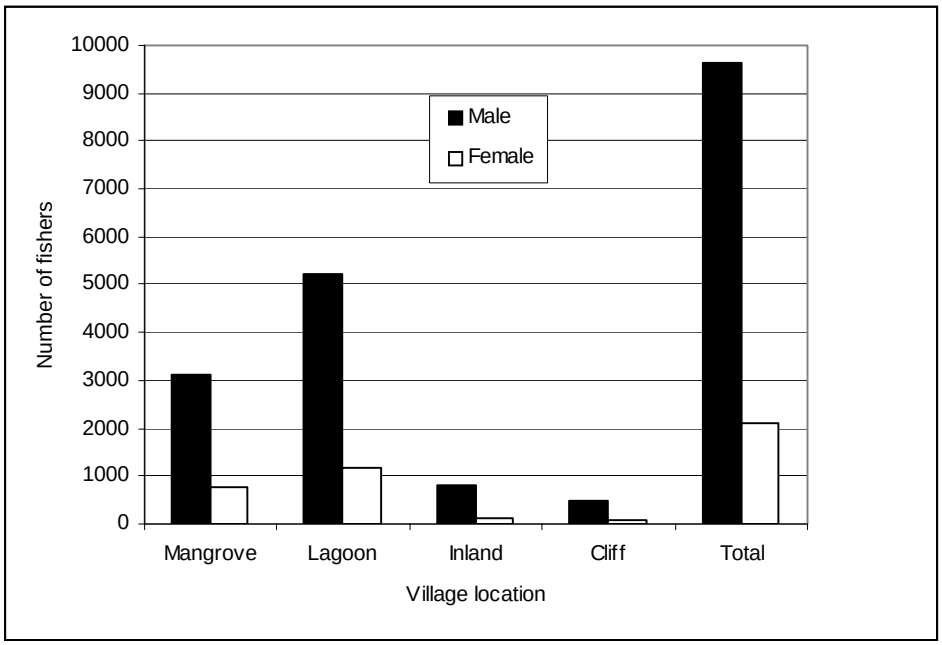

Figure 2. Number of male and female fishers in each stratum

A notable difference between the 1999 Agricultural Census and the year 2000 survey was in the total number of fishing trips per week, with the 2000 survey finding approximately three times as many fishing trips per week as the Agricultural Census (18,684 against 6,528). One possible reason for this difference is the weather. Good weather predominated for the 2000 survey, with few if any fishing days lost due to bad weather. Weather conditions at the time of the 1999 Agricultural Census are unknown, but may have been poor, resulting in less fishing trips. Zann (1995) estimated there were 9,879 trips per week during his 1991 survey for Upolu, compared to 12,972 for the current survey. Considering the increase in population since 1991, these figures correspond well.

The number of boats estimated from the 2000 survey was 5,242, a marked increase over the 2,221 found in the Agricultural Census. In both surveys, the vast majority of boats were non-motorised. The 2000 survey estimated 5,044 canoes and 198 motorised boats[5]. In 1991, Zann recorded 1,936 canoes in Upolu, while 3518 were estimated from this survey. It is possible that in this 2000 survey, a number of households that had use of a single boat stated that they owned the same boat, resulting in double or even triple counting of that boat.

[5] Motorised boats mainly consist of aluminium alia catamarans, and the 4.3m aluminium outer reef slope (ORS) boats (see Passfield et al, 1999 and Passfield and Vaofusi, 1999, for details on the ORS fishery.

5.2.1. Fishing methods

Figure 3 shows the percentage use of the various fishing methods, both by time spent fishing, and the total number of trips. The most common fishing method both by time spent and number of trips is diving and spearing. This was similar to results reported in King (undated) and Zann (1995), both of whom found diving and spearing being used for between 40% and 50% of all trips. This method is commonly used in villages, where a group of fishermen travel by canoe to an area of the lagoon, and then collectively dive and spear fish as a group. At other times, individuals swim out from shore and spear fish in the lagoon. Night spearing is also common in some villages, using underwater torches.

Though the number of gill net fishing expeditions is less than 10 % of the total, the percentage of total time spent is 18%, reflecting the fact that gill nets are often left unattended in the water for several hours, or overnight, i.e. the duration of fishing is longer. On the other hand, though the percentage of the total time spent gleaning is around 15%, the percentage of total trips is around 22%. This is because much of the gleaning is done by women, at low tide, and trip duration is less.

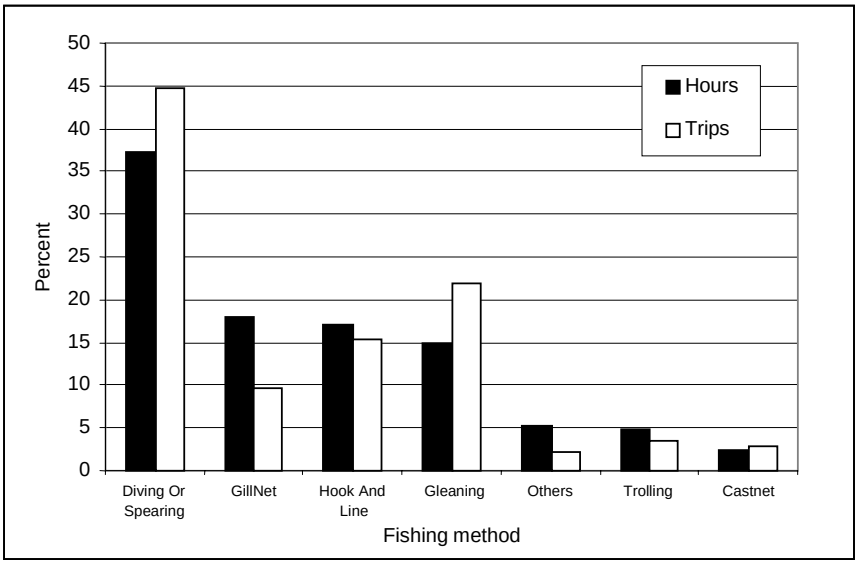

Figure 3. Percentage of each fishing method by number of trips and by total hours.

5.2.2. Fishing location

The proportion of total fishing trips undertaken in each of the fishing zones is shown in Figure 4. It can be seen that 82% of fishing trips are inshore, especially in the lagoon, where access is easier. Only 18% of trips are undertaken outside the reef.

Mangrove areas appear to be the least common fishing area, probably because they represent only a very small percentage of the total coastline. Fishing methods that can be used in mangroves are also limited, and probably consist mainly of crab harvesting. Fresh water such as streams were not included in the questionnaire, though the catch of fresh water prawns in figure 7 indicates that some fishing occurs there. Note that figure 4 represents the frequency of fishing trips, and not the time spent in each location. Time spent in each location is shown in Table 3.

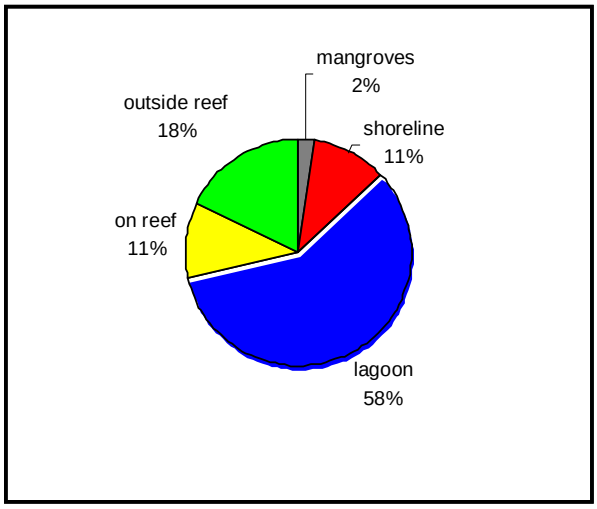

Figure 4. Reported percentage of fishing trips in each type of fishing area.

Table 3. Percentage of total time spent at each fishing location.

Village Strata	Mangrove	Shoreline	lagoon	On reef	outside reef
Inland	0.8	2.7	59	12	25.6
Cliff	0.0	16.0	57.1	3.0	23.9
Mangrove	2.7	9.5	51.3	10.3	26.2
Lagoons	0.6	11.5	44.8	12.5	30.8
Upolu	1.5	9.9	51.1	12	25.6
Savaii	0. 7	11.5	41.4	9.8	36.7
Project	0.7	10.3	38.2	15.6	35.1
Non project	1.5	11.2	51.3	9.5	26.4
Samoa total	1.3	10.3	48.3	11.4	28.7

5.2.3. Catch and effort

The total seafood catch reported from the survey is 7169 tons. The average CPUE for all fishing was 2.05kg/person/hr fished. These results are similar to those quoted by Mulipola (1997) from creel surveys conducted in Savaii in 1991 (1.8kg/person/hr) and 1996 (2.1kg/person/hr). Table 4 gives the breakdown for the seafood catch and the CPUE for the different strata. This shows that 29% of the seafood caught is classed as offshore. This includes bottom fish caught over the reef, as well as tuna and other pelagic species. It is interesting to note that villages in the Fisheries Project catch a higher proportion of offshore species, reflecting the fact that they spend more time fishing outside the reef than do Non-Project villages (table 3). This could be attributable to the efforts of the VFMACs (Village Fishery Management Advisory Committees), aimed at shifting effort from the depleted lagoon resources to the offshore resources (see Passfield et al, 1999).

Table 4. Seafood catch (% of total) by broad category of seafood, and total CPUE.

Village Strata	Inshore fish	Offshore fish	Crustacea	Molluscs	Other Inverts	Sea weed	CPUE kg/hr
Inland	59.8	12.2	4.7	16.9	6.4	0.0	2.25
Cliff	60.2	11.1	0.7	25.9	2.1	0.0	1.63
Mangrove	46.0	34.2	2.3	11.7	5.5	0.4	2.12
Lagoon	41.0	29.4	3.0	17.9	8.2	0.5	2.00
Upolu	46.4	28.7	3.2	13.2	7.9	0.6	1.99
Savaii	40.8	29.6	2.2	22.4	4.9	0.1	2.19
Project	32.9	42.6	1.5	14.2	8.0	0.8	2.80
Non project	50.6	22.3	3.6	17.0	6.4	0.2	1.77
Samoa total	44.8	29.0	2.9	15.9	7.0	0.4	2.05

Villages with management plans developed under the Project initiated community based fisheries management programme report a catch rate of 2.8kg/hr, 40% higher than the average. This catch rate is 55% higher than that for villages without management plans, as can be seen in Figure 5.

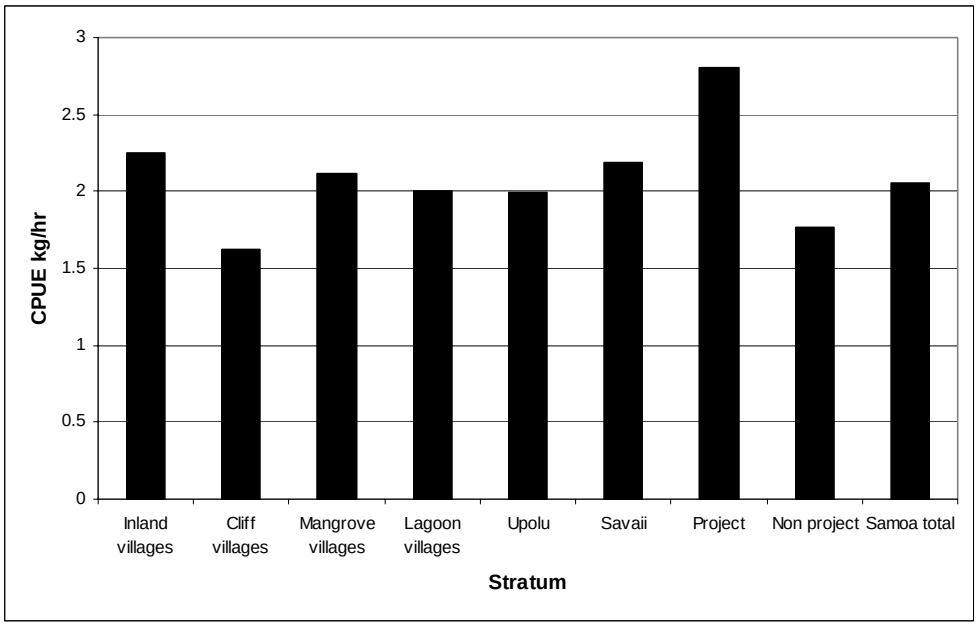

Figure 5. Catch per unit effort (kg/person/hr) for each strata.

5.2.4. Women's fishing

The survey found that 18% of all fishers are females. If the number and duration of trips are taken into consideration, women are responsible for about 10% of the total fishing effort. The average trip length for women was three hours, compared with four hours for men. Observations in the villages suggest that women mainly glean for invertebrates along the shoreline. Exceptions are women diving, sometimes from canoes, for invertebrates such as sea cumbers and sea urchins, and for seaweed.

Despite the lower effort expended by women, it is likely that they harvest around 23% of the total weight of seafood, assuming they are responsible for collecting most of the bivalve molluscs and other invertebrates harvested in the villages. Women are also the major contributors to post harvest processing of men and women's catch.

5.3. Subsistence consumption

5.3.1. Seafood

From the raised data obtained from question 10 (seafood caught) for the survey, there were 7169 tons of seafood caught in the villages. Question 11 (seafood sold or given away) tells us that, of this, 2876 tons was sold or given away, leaving 4293 tons for home consumption. In addition, question 12 (seafood bought or received) indicates that a further 3837 tons were bought and 1688 tons were received as gifts, giving a total of 9818 tons whole fish weight consumed.

It would be expected that the total seafood sold or given away (2876 tons) would approximate the total bought or received (5525 tons). However, there is a surplus of 2649 tons in the bought or received category. This can partly be explained by the fact that the bought and received category includes longline fishery bycatch purchased through commercial outlets. Of the total longline catch of around 5300 tons in the year 2000, log book and port sampling data suggest that approximately 880 tons of longline bycatch is sold on the local market, or taken home by fishing crew.

This leaves 1,774 tons unaccounted for. A possible explanation is that respondents have overestimated the amount bought or received (q.12). It is also possible that there is substantially more bycatch from the longline fishery, not recorded on log sheets and in port sampling, that finds its way into the local diet. This is more likely, particularly when catches of the preferred export species such as albacore are down, resulting in a higher percentage of the total catch remaining as bycatch on the domestic market.

From question 9 (number of seafood meals per week), it was estimated that annual subsistence consumption of seafood was 9,971 tons. This was estimated by multiplying the total number of meals of seafood consumed by a portion size of 366g per adult, and 188g per child under 15yrs. This portion size was ascertained by a separate questionnaire survey of Fisheries Division staff. This estimate from question 9, and that derived from questions 10, 11, and 12, correlate well, suggesting that a reasonable estimate has been achieved through these particular questions.

Consumption of different seafood groups

The different seafood varieties consumed is shown in Table 5. This table was derived by adding up the total number of meals that respondents reported were normally eaten of each seafood type. A child under 15 was assumed to eat 50% of an adult portion in each category.

Table 5. Percentage of total meals consumed containing various seafood groups

Strata	Crustacea	Mollusc	Other Inverts	Seaweed	Lagoon fish	Reef Fish	Pelagic Fish
Cliff	4.6	7.9	4.9	0.1	28.4	46.2	7.9
Inland	7.3	6.0	6.5	3.1	24.0	35.3	17.9
Lagoon	5.1	8.3	8.0	1.8	30.9	38.8	7.1
Mangrove	5.3	7.6	8.4	3.1	32.1	36.3	7.1
Savaii	5.1	7.7	5.8	0.4	29.3	44.6	7.1
Upolu	5.9	7.4	8.1	2.9	29.4	35.6	10.6
Samoa	5.7	7.5	7.6	2.4	29.4	37.5	9.9

Figure 6 shows the percentage of total meals made up by each of the various seafood groups for all strata combined. Finfish comprise approximately 77% of all seafood consumed, with invertebrates and seaweed making up the other 23%. The only notable variation across strata is shown in the inland villages, where pelagic fish comprised 18% of the total

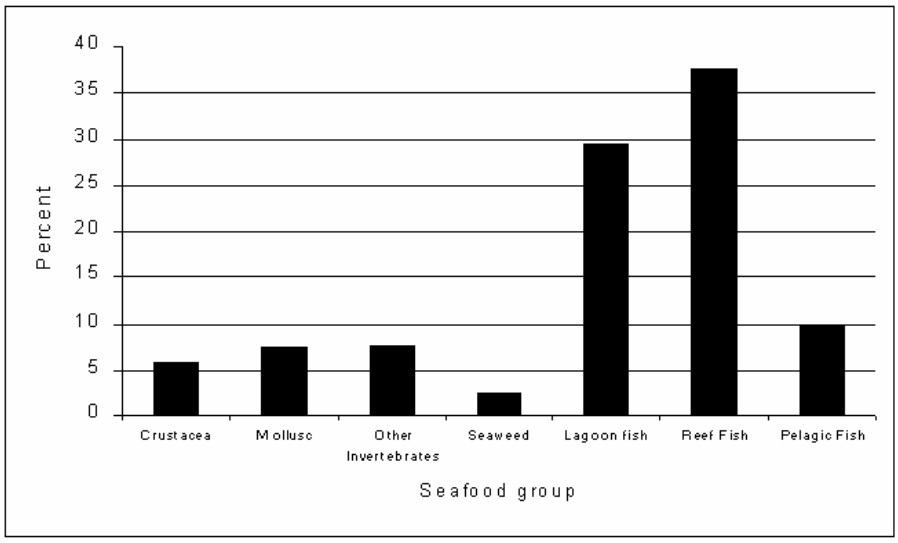

Figure 6. Percentage of total meals containing various seafood groups, Samoa.

Of the inland villages surveyed 44% could be considered as being in the Apia urban area. Pelagic fish are therefore more commonly eaten in inland villages presumably because inland villagers are more likely to have to purchase their fish from the Apia Municipal fish market, where pelagic species are generally cheaper to buy than reef or lagoon fish. The same reasoning could be used to explain the higher than average seaweed consumption in the inland villages, as seaweed is commonly available in the Fugalei Municipal market.

Seafood consumption can be further broken down within these larger generalised groups. Figure 7 shows the pattern of consumption in these more specific categories. The most commonly eaten seafood species are surgeon fishes, locally known as ***pone*** (*Ctenochaetus striatus*) and ***alogo*** (*Acanthurus lineatus*). These fish were also the most commonly eaten in 1984 (Zann et al, 1984), while in 1989 King (undated) found emperor the most common fish eaten, with surgeon fish ranked second (cited in Bell and Mulipola, 1995).

In the inland stratum, tuna is the single most common type of fish eaten, the only stratum where surgeon fish do not dominate. Other pelagic fish are also more commonly eaten in the inland villages, adding further support to the theory that these villages obtain most of their seafood from the fish market where bycatch from the longline fishery is sold.

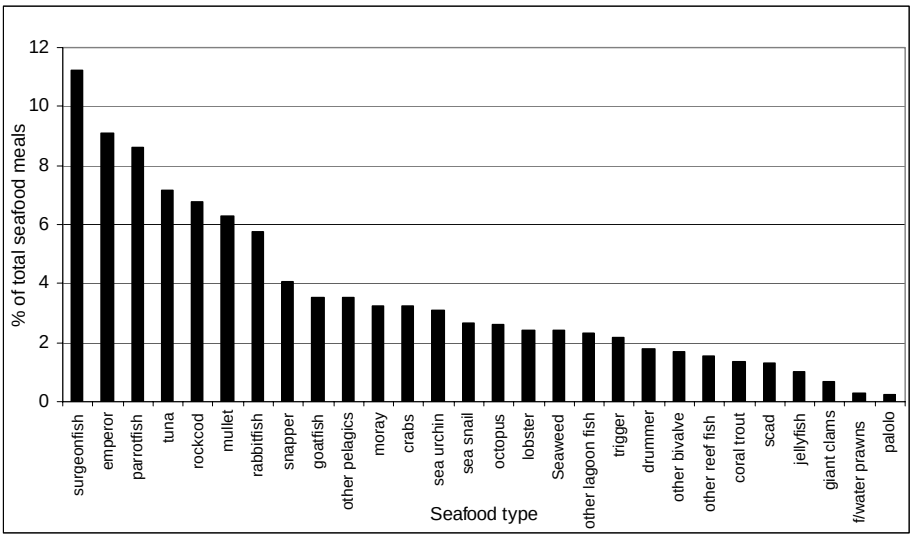

Figure 7. Percentage of meals containing specific seafood types, Samoa.

Note that snapshot surveys of this nature are unlikely to pick up any seasonal variation in catches. This survey was undertaken in October/November, and seafood types that were reported to be consumed rarely may be higher at other times. For example, scad consumption was fairly low for this survey, whereas if the survey had been conducted in March/April, it may have produced higher figures for this seasonally abundant species. Another seasonal species is *palolo*, reported to be eaten by 60% of all households, but only once or twice per year, in October and November.

Appendix 4 gives a list of common Samoan seafood items, with Samoan, common, and scientific names.

Seafood consumption per capita

Figure 8 shows the per capita consumption of seafood for the various strata, with 57kg being the overall average for Samoa. This is made up of approximately 44kg of fish, and 13kg of invertebrates and seaweed. This is much higher than the world average per capita consumption of fish of around 12kg (King, 1995).

Zann (1995) estimated fish consumption per capita in Upolu at approximately 21.5 kg per capita, i.e. a subsistence catch of 2,260 mt for the year (1991). The subsistence catch for Savaii has likewise been estimated at around 1400 mt, or 35 kg per capita, for the same period (Mulipola, 1997, Zann, 1997). King (1989) estimated subsistence catch at 4,600 tons, or around 30 kg per capita, by collecting data from school students issued with a one week fishing diary.

The higher per capita fish consumption reported from this survey (57 kg) compared to earlier surveys may be partly attributed to the large increase in the commercial longline fishery, and the associated influx of bycatch on to the local market. It is not inconsistent with other per capita fish consumption reported for the Pacific. Coyne et al, 1984, reported 61kg per capita for Micronesia, 63 kg per capita for Polynesia, and 23 kg per capita for Melanesia. The lower figure for Melanesia is probably because Melanesia consists of mainly much larger islands, with more inland dwellers, who do to have access to fresh seafood.

As would be expected, inland villages consume significantly less seafood than coastal villages. Villages located on cliffs also consume less seafood, reflecting the more difficult fishing conditions they face.

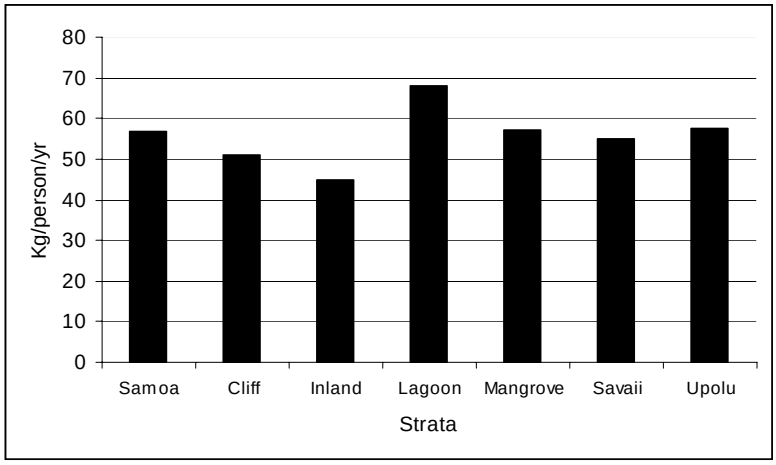

Figure 8. Seafood consumption per capita for each stratum

5.3.2. Canned fish consumption

In order to determine the relative importance of seafood in the Samoan diet, the survey also gathered information on consumption of other major sources of animal protein, so that this could be compared to fresh seafood consumption.

The most commonly eaten tinned fish eaten in Samoa is the 450g tins of *eleni*. Presumably this was at one time canned herring, hence the Samoan name. However, currently the fish is normally canned mackerel. Some small tins of sardines and tuna are also eaten, though this would be more in the urban area than the villages, where the cheaper commodities would be preferred. There are no local fish canneries, and all tinned fish is imported into the country. Overall, canned fish consumption for Samoa was 14kg per capita. Figure 9 shows the different per capita consumption by strata.

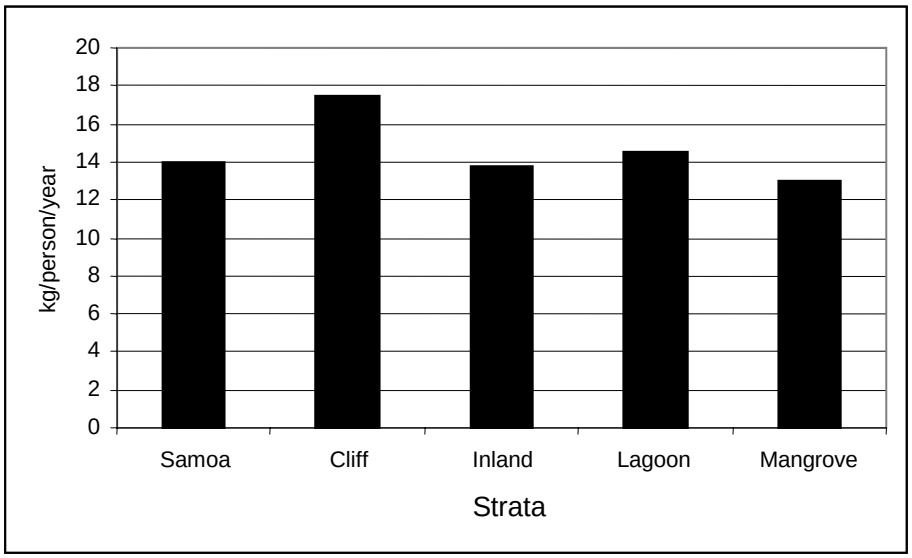

Figure 9. Canned fish consumption per capita by stratum.

5.3.3. Canned meat consumption

Canned corned beef is also a popular part of the diet, though as it is more expensive, it is less commonly eaten than tinned fish. There are several imported brands of tinned meat, as well as a locally produced variety.

Overall annual tinned meat consumption was calculated to be 5.7kg per capita. Details on each stratum are shown in Figure 10.

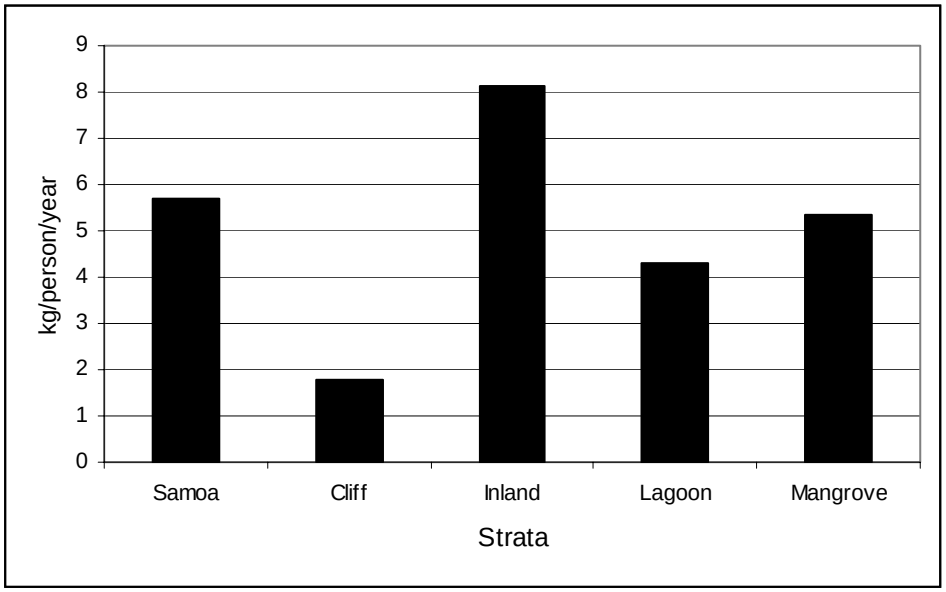

Figure 10. Canned meat consumption per capita by stratum.

5.3.4. Other meat consumption

Consumption of other fresh or frozen meat consumed in the household, including mutton flaps, chicken, sausages, salted beef, etc., is shown in figure 11. An estimated 94 kg per capita is consumed by the average Samoan person.

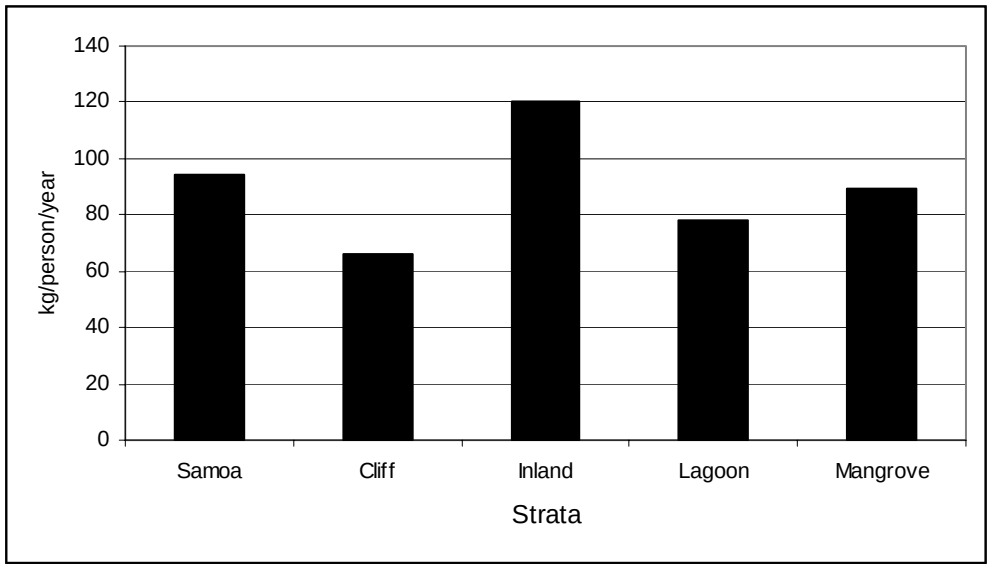

Figure 11. Fresh meat consumption per capita by stratum.

The inland stratum again shows the highest consumption of other meat. Rural inland villagers are likely to replace fishing activities with farming activities, and rely more on local produce such as chicken, pork, and occasionally beef than on seafood.

5.3.5. Total protein consumption

Figure 12 shows the total combined protein consumption (excluding such items as eggs and milk not covered in the survey) for each stratum. This shows an overall figure of 171kg per capita for Samoa. The figures are fairly uniform across all strata, though the cliff villages do appear to be a little lower than the others. This may be due to the small sample size (2 villages, 22 households).

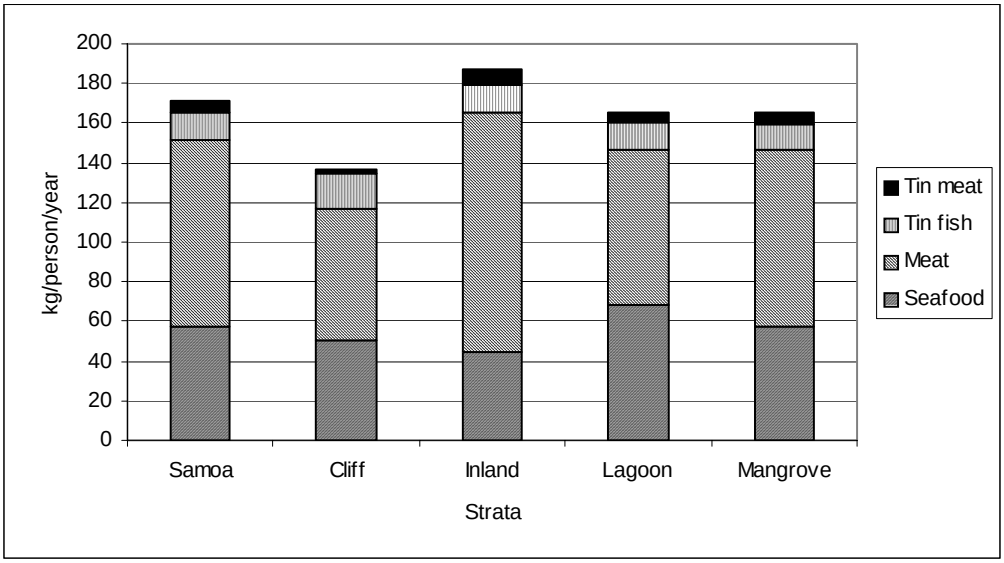

Figure 12. Total annual animal protein consumption per capita by strata.

5.4. Value of marine resources

An approximation of the value of marine resources to the village economy can be made by allocating a dollar value to the consumed seafood. A comparison can also be made with the value of other sources of animal protein in the household economy. The following figures were used to calculate these values.

Seafood. An average price of ST6.29 per kg for consumed seafood was calculated, based on the proportions of different seafood types reported to be consumed in Q. 9b. Values for each seafood were based on average market prices, of ST6.29 per kg, for reef fish, ST2.96 for pelagic fish, and a range of prices from ST0.50 per kg for the cheaper shellfish, to ST20.00 per kg for lobsters and crabs.

Canned fish. This was valued at ST4.40 per kg, based on ST2 for a 450g tin.

Canned meat. This was valued at ST15.40 per kg, based on an average price of ST7.00 per 450g for the cheaper brands.

Other meat. An average value for meat of ST4.69 per kg, based on 362 instances where value and weight of meat consumed were given in the survey, were given, with the 10 highest and the 10 lowest excluded as outliers.

Figure 13 shows the relative values of these commodities, as well as the total weights consumed. Note that preliminary figures available from the Statistics Department for canned fish imports for the year 2000 are about 30% below those obtained from this survey.

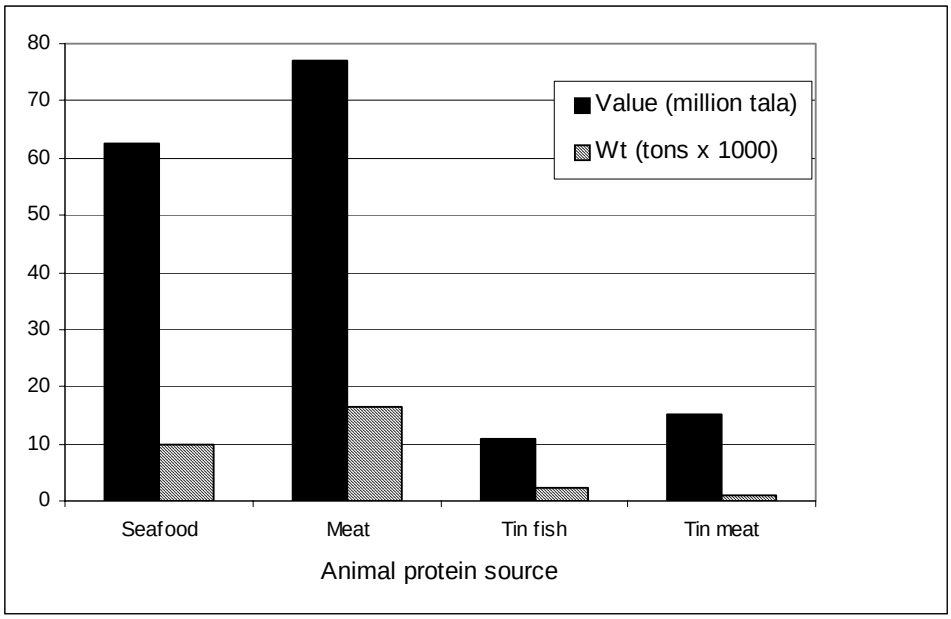

Figure 13. Value in millions of tala and weight in thousands of tons for the major sources of animal protein.

6. Discussion and conclusions

The household survey has documented the importance of seafood in the diet of Samoan people. It establishes an approximate value of the consumed seafood of over ST60 million per year. When added to the value of fishery exports, the gross value of Samoa's marine resources to the economy is around ST100 million per year.

The village level fishers harvest seafood weighing 7169 tons, valued at approximately ST45 million. This fishery can be considered the most important component of all Samoa's fisheries to the Samoan economy. The cost of harvesting the approximately ST45 million worth of seafood is low, with labour being the most significant input. In comparison, the cost of harvesting the ST40 million of exported tuna is probably around ST22 million, half of which leaves the country to pay for imports for the industry such as fuel, bait, fishing gear, as well as loan servicing.

The value of seafood to the health of consumers is well documented. The high per capita consumption of fresh seafood in Samoa would also assist in keeping the villagers healthy, saving the country money on health associated costs.

The most common fishing methods used are those that require a minimal financial outlay for fishing gear such as boats, nets, etc. These methods include diving and spearing, and gleaning. The most popular areas for fishing, again, are those that do not require a boat to gain access, i.e. lagoons.

Considerable time is spent fishing outside the reef, which must be beneficial to the sustainability of the inshore resources. It would be hoped that fishing time outside the reef could be further increased in future, through prudent village based management of inshore resources. The Fisheries Division can continue to assist by making village fishers more aware of the vulnerability of inshore resources, and at the same time increasing their ability to harvest pelagic resources outside the reef through training.

Of the 55 coastal villages and 927 coastal households included in the survey, 17 villages containing 303 households had fisheries management plans developed with Fisheries Project assistance. These villages had a catch rate 55% higher than villages without management plans. This suggests that the management plans have had a positive impact on fisheries in these villages, though it may be that those villages that have adopted management were already blessed with more abundant marine resources, and thus were more receptive to improved management.

Household fisheries surveys such as this are expensive in terms of labour and associated costs. They can however give an indication of the value of subsistence fisheries for a period around the time of the survey, and also provide an indication of the proportion contributed by seafood to the overall subsistence protein consumption of the country. Because of the costs involved, particularly in terms of manpower, they are likely to be repeated only every 3 to 5 years, and it would be useful to obtain some information in these intervening years.

An alternative method to collect subsistence fisheries data, which has been trialed on several occasions is the use of school students (King, 1989; 1995, Passfield, 1998; Hosch, 2000). Further consideration should be given to using this method in future, as it can provide a substantial amount of data at relatively low cost, on an annual or even quarterly basis. It can have an added advantage if it is also used as a teaching tool to raise awareness about marine resources in school age children. Considerable planning, time, and effort would be required to initiate such a programme, and get it included into the schools regular curriculum. After this initial push, it should require less effort to maintain than a nationwide household survey.

Finally, it should be noted that this was a survey based on respondent's recall of their fishing activities and seafood consumption patterns, rather than on direct measurements such as creel surveys or weighing food items to be consumed. Information contained in the report should be viewed with this

in mind. However, peoples knowledge of their own practices and habits should not be underestimated, and may in fact prove a more accurate in the long term than snapshot creel surveys and household diaries that are the other methods of collecting such information.

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Appendix one. VILLAGE FISHERIES SURVEY - FISHERIES DIVISION, SAMOA 2000

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1. a) Date (aso) ..……..... **c) Person interviewed (Suafa o le o faatalatalanoa)**

b) Village (nuu) .....…. **d) Name of interviewer (Suafa o le Alii/Tamaitai Ofisa)**

---

2. a) How many adults (15 years and older) are there in your house-hold? ……
Pe to'a fia ni tagata e silia i le 15 tausaga le matutua o le tou aiga?

b) How many children (less than 15) are there in your house-hold? …….
Pe to'a fia ni tamaiti e i lalo ifo o le 15 tausaga o le tou aiga?

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3. How many people from your household have gone fishing (including for figota) in the last 14 days?
E to'afia ni isi o le tou aiga na fagogota i le 14 aso talu ai.

Note for interviewer: if zero, go to question 9 and then 12,13 and 14.

---

4. How many fishing trips did each person do in the last 14 days?
E fia ni fagotaga a le tagata e toatasi o le tou aiga i le 14 aso talu ai?

Hint: start off by asking which person did the most fishing trips, and for how long

	| circle one |		
Person 1	M or F ?	Number of trips = …….	Each trip was about …….. hours
Person 2	M or F ?	Number of trips = …….	Each trip was about …….. hours
Person 3	M or F ?	Number of trips = …….	Each trip was about …….. hours
Person 4	M or F ?	Number of trips = …….	Each trip was about …….. hours
Person 5	M or F ?	Number of trips = …….	Each trip was about …….. hours
Person 6	M or F ?	Number of trips = …….	Each trip was about …….. hours
Person 7	M or F ?	Number of trips = …….	Each trip was about …….. hours

---

5. Methods of fishing used by the household. *Ituaiga faiva na faaaogaina e le aiga.*

Tick (√) ONE of the boxes in each row

- hand collecting or gleaning (aoina i lima)	used	none	¼	½	¾	all	of the time
- diving/spearing (tofu ma le matatao poo le tao)	used	none	¼	½	¾	all	of the time
- hook and line (matau, tautu etc)	used	none	¼	½	¾	all	of the time
- trolling (tosotoso, pa)	used	none	¼	½	¾	all	of the time
- gill netting (upega)	used	none	¼	½	¾	all	of the time
- cast nets (tili)	used	none	¼	½	¾	all	of the time
- others (nisi ituaiga) ……	used	none	¼	½	¾	all	of the time

---

6. How many fish fences (fish traps) are there in your village? …….. *<< Enter number*
E fia ni pa i'a o lo'o i totonu o le tou nu'u?

---

7. How many useable boats are owned by people in this household …..… canoes *(paopao)*
Pe fia vaa fagota a le tou aiga (li'o le vaega e talafeagai) …….. ocean canoes *(vaa alo)*
…….. alias *(alia)*
Enter a number (even if 0) for each of the four types of boat …..… others *(isi)*

---

8. Which places do people go fishing in? *O fea ogasami e fagogota ai tagata?*

Tick (√)one of the boxes in each row

- near mangroves *(tafatafa o toga togo)*?	for	none	¼	½	¾	all	of the time
- along shoreline *(tafatafa o le matafaga)*?	for	none	¼	½	¾	all	of the time
- lagoon/inside reef *(aloalo ma luma mai o le aau)*?	for	none	¼	½	¾	all	of the time
- on the reef *(luga o le aau)*?	for	none	¼	½	¾	all	of the time
- outside the reef *(tuaau)*	for	none	¼	½	¾	all	of the time

9a. How many MEALS of seafood (including freshwater prawns, shellfish, seaweed etc) do people in your family USUALLY eat each WEEK? ………………. meals each week.

E fia taumafataga a lo outou aiga I le vaiaso e masani ona aofia ai taumafa mai le sami?

9b. What kinds of seafood do people in your family eat? And how often?
O a ituaiga taumafa o le sami e taumafaina e le tou aiga? Ae pe faafia foi?

Hints:
Go through the types of seafood row by row.

Fill in only ONE of the four boxes in each row.
Either enter tick under never, or enter the number of DAYS per WEEK in column 1, or DAYS per MONTH in column 2, or DAYS per YEAR in column 3

		1. Very often *Tele o taimi*	**2. Sometimes** *Nisi o taimi*	**3. Rarely** *Seasea*	**4. Never** *Leai*
		How many days per WEEK? *Pe fia aso i le vaiaso*	How many days per MONTH? *Pe fia aso i le masina*	How many days per YEAR? *Pe fia aso i le tausaga*	*Leai*
CRUSTACEANS (PA'A/ULA) >>>					
crabs	paa				
lobsters	ula sami, papata				
fresh-water prawns	ulavai				
MOLLUSCS (FIGOTA) >>					
giant clams	faisua				
other bivalves	eg pae, tugane				
sea snails, sea hare	eg alili, gau, aliao				
octopus	fe'e				
OTHER INVERT (ISA ITUAIGA) >>					
sea cucumber	mama'o, fuga fuga, loli, sea				
sea urchins	savae, tuitui				
jellyfish	alu'alu				
palolo	palolo				
SEA WEED (LIMU) >>>					
sea weed	limu				
LAGOON FISH (I'A OLE ALOALO) >>>					
mullet	anae/aua				
drummer	ganue				
bigeye scad	atule				
goatfish	ulaoa/vete/iasina				
rabbitfish, ponyfish	lo, mumu, pauulu				
emperors	mataeleele, filoa etc				
other lagoon fish	isi ia o le aloalo				
REEF FISH (I'A AAU) >>>					
surgeonfish, unicorn	pone, alogo, manini, ume				
parrotfish	laea, fuga,				
rockcod	gatala				
trigger fish	sumu				
moray eel	pusi				
coral trout	papa				
snappers	malai, tamala, taiva				
other reef fish	isi i'a o le aau				
PELAGIC FISH >>					
tuna	asiasi, atu, tagi, apakoa, etc				
other pelagics (isi i'a aluga,samani,saosao,masimasi)					

---

10. What is the USUAL amount of seafood CAUGHT by people in your household in one week?
O le a se aofaiga MASANI o taumafa o le sami SA FAGOTAINA e le tou aiga i le vaiaso?

Note: Enter EITHER the weight in pounds OR the value in tala (if easier)

a) Inshore fish *(i'a aloalo & aau)*	About ….. lb weight,	OR	about ….. tala value.
b) Offshore fish *(i'ao faiva mamao)*	About ….. lb weight,	OR	about ….. tala value.
c) Crustaceans *(pa'a, ula, etc)*	About ….. lb weight,	OR	about ….. tala value.
d) Molluscs *(figota–alili,pae,aliao)*	About ….. lb weight,	OR	about ….. tala value.
e) Inverts.*(isi ituaiga–sea,tuitui etc)*	About ….. lb weight,	OR	about ….. tala value.
f) Seaweed *(limu)*	About ….. lb weight,	OR	about ….. tala value.

---

11. Of the seafood that your household usually catches *(O taumafa sami e masani ona maua e le tou aiga)* -

How much is sold or given away? *E fia e faatau pe foa'i?* ☐ none ☐ ¼ ☐ ½ ☐ ¾ ☐ all of the catch.
Tick (√) ONE of the boxes

---

12. How much fresh seafood does your family get from other people in one week?
O le a le tele o I'a e maua e le tou aiga mai isi tagata i le vaiaso

a) The family BUYS seafood;	Weighing about …….. lb,	OR	Valued at about …… tala
b) The family is GIVEN seafood;	Weighing about …….. lb,	OR	Valued at about ……tala

---

13. How many tins of fish (ia) and meat (pisupo) are usually eaten in your household in one week?
E fia ni apa eleni ma pisupo e masani ona taumafaina e le tou aiga i le vaiaso?

		fish (i'a)	meat (pisupo)	
Enter number of	6 oz tins			< *Enter number in each box even if zero*
Enter number of	12 oz tins			< *Enter number in each box even if zero*
Enter number of	1 lb tins			< *Enter number in each box even if zero*
Enter number of	3 lb tins			< *Enter number in each box even if zero*
Enter number of	6 lb tins			< *Enter number in each box even if zero*

---

14. How much meat (mamoe, siusiu pipi, fasi povi, moa etc) is eaten in your household in one week?
O le a le tele o le aano manufasi e pei o (mamoe, siusiu pipi, fasipovi, moa ma isi) e masani ona taumafaina e le tou aiga i le vaiaso?

People in this household eat meat with a TOTAL weight of …..... lb, OR, valued at about …… tala per week.

---

15. Assessment of person being interviewed by the interviewer

not reliable ☐ reliable ☐ very reliable ☐ . << place tick (√) in ONE box

Questionnaire designed by M.King and K.Passfield and subjected to trials on 23/24 October 2000.
Survey team leaders; Etuati Ropeti (Savaii) and Anne Trevor (Upolu).

Appendix two. Table of surveyed villages.

By applying the probability of selection weight, the results for each village were raised to represent the number of households shown in the final column.

No.	Village	Island	Number of h/holds	Number of h/holds surveyed	Location	Probability of selection weight	Households represented
1	Vaigalu	Upolu	10	5	LG	48.34	241.7
2	Satoi	Upolu	11	8	LG	1.83	14.64
3	Satuilagi	Upolu	11	7	LG	1.83	12.81
4	Tanumalala	Upolu	15	7	IN	31.6	221.2
5	Siumu Uta	Upolu	23	12	LG	20.14	241.68
6	Saina	Upolu	27	13	M	33.29	432.77
7	Lalovi	Upolu	35	17	LG	13.43	228.31
8	Salamumu Uta	Upolu	38	18	IN	13.31	239.58
9	Salesatele	Upolu	40	20	LG	12.09	241.8
10	Sapunaoa	Upolu	50	10	LG	24.17	241.7
11	Pata	Upolu	54	11	M	42.37	466.07
12	Mulivai	Upolu	55	11	LG	21.97	241.67
13	Tulaele	Upolu	58	12	IN	21.07	252.84
14	Vailuutai	Upolu	69	14	LG	17.26	241.64
15	Tiavea	Upolu	70	14	LG	17.26	241.64
16	Vaovai	Upolu	73	15	M	31.07	466.05
17	Saleilua	Upolu	76	16	LG	16.11	257.76
18	Lalomanu	Upolu	86	17	LG	14.22	241.74
19	Faleseela	Upolu	87	19	M	27.42	520.98
20	Fuailoloo	Upolu	95	16	LG	12.72	203.52
21	Sataoa Uta	Upolu	100	10	IN	25.28	252.8
22	Motootua	Upolu	101	10	IN	260.65	2606.5
23	Saanapu Uta	Upolu	121	13	IN	21.07	273.91
24	Samatau	Upolu	122	13	LG	20.14	261.82
25	Luatuanuu	Upolu	127	13	LG	18.59	241.67
26	Falefa	Upolu	141	15	M	33.29	499.35
27	Manono Uta	Upolu	142	14	LG	17.26	241.64
28	Fasitootai	Upolu	158	17	LG	8.95	152.15
29	Solosolo	Upolu	168	17	LG	14.22	241.74
30	Fagalii	Upolu	178	18	M	25.89	466.02
31	Laulii	Upolu	180	18	LG	13.43	241.74
32	Vailoa, Apia	Upolu	213	21	M	22.2	466.2
33	Nofoalii	Upolu	219	22	LG	10.99	241.78
34	Malie	Upolu	229	23	M	20.27	466.21
35	Lotopa	Upolu	242	23	IN	108.6	2497.8
36	Fasitoo Uta	Upolu	266	28	LG	15.11	423.08
37	Siusega	Upolu	281	28	IN	9.03	252.84
38	Leauvaa	Upolu	312	31	M	15.04	466.24
39	Faleasiu	Upolu	401	34	LG	6.04	205.36
40	Vaitele	Upolu	575	59	M	8.04	474.36

No.	Village	Island	Number of h/holds	Number of h/holds surveyed	Location	Probability of selection weight	Households represented
41	Manase	Savaii	23	12	M	11.78	141.36
42	Salimu	Savaii	25	13	LG	15.44	200.72
43	Tapueleele	Savaii	35	18	IN	13.87	249.66
44	Safua	Savaii	37	19	M	7.44	141.36
45	Fogasavaii	Savaii	39	20	CV	12.14	242.8
46	Neiafu Tai	Savaii	39	20	LG	10.04	200.8
47	Pitonuu	Savaii	42	20	M	6.73	134.6
48	Tafua	Savaii	46	23	LG	8.73	200.79
49	Faletagaloa	Savaii	52	10	LG	20.07	200.7
50	Vaega	Savaii	55	12	LG	18.25	219
51	Vaiafai	Savaii	61	12	LG	16.73	200.76
52	Falelima	Savaii	65	13	CV	18.68	242.84
53	Sasina	Savaii	68	14	LG	14.34	200.76
54	Patamea	Savaii	73	15	IN	16.65	249.75
55	Auala	Savaii	73	15	LG	9.42	141.3
56	Saleaula	Savaii	76	15	CV	16.19	242.85
57	Siutu	Savaii	82	16	LG	12.54	200.64
58	Vailoa, Savaii	Savaii	86	17	M	8.31	141.27
59	Sataua	Savaii	89	18	LG	11.15	200.7
60	Lano	Savaii	92	18	M	7.85	141.3
61	Samalaeulu	Savaii	113	11	IN	22.7	249.7
62	Faaala	Savaii	115	14	LG	16.73	234.22
63	Sapulu	Savaii	129	13	LG	15.44	200.72
64	Gataivai	Savaii	140	15	CV	17.34	260.1
65	Safotu	Savaii	151	15	LG	13.38	200.7
66	Matavai	Savaii	153	15.00	LG	13.38	200.7
Total			**7218**	**1092**			**21463**

Key. LG = Lagoon village, CV = Cliff village, M = Mangrove village, IN = Inland village.

Appendix 3

Lessons learned

Some suggested improvements to questionnaire

Q. 5. Trapping should be included as a fishing method. For the sake of this analysis, gleaning was deemed to include trapping, especially for crabs.

Q. 7. The number of boats owned by the household. As number were much higher for this survey than the Agricultural Census 1999, it should be asked whether the boat is exclusively owned by that household, or shared with other households, in case single boats are being counted more than once.

Q. 8. The area "outside the reef" should be split into two, i.e. to outer reef slope, for bottom fish, and more than 100m offshore, for tuna and other pelagic species.

Q. 10. Answers most likely contained pelagic and bottom fish from the reef slope. Offshore fish should be split into two, i.e. bottom fish, and tuna/ pelagic fish.

Q. 11 should ask about sold and given away separately, to allow for an estimate of the commercial component of the artisanal village fishery. This may require adding more categories, i.e. less than ¼, and more than ¾.

Q. 13. The number of meals of tinned foods needs to be extended to cover weekly, monthly, and yearly, as some people apparently answered one 3lb tin of meat per week, when it was probably more like 1 per month, for which there was no option.

Q. 14. Salted beef (povi masima) should also be specified in the question, as it is possible that people did not include this in their answer.

Appendix 4. List of Samoan marine resources[6]

Samoan Name	English Name	Species or family
A'u	long tom	Belonidae
Afa	mullet	Mugilidae
Afulu	gold-lined goatfish	Mulloidichthys flavolineatus
Anae	mullet	Mugilidae
Ataata	grouper	Epinephelus
Ali	flounder	Bothidae
Ali'ao	topshell	Trochidae
Alili	turban shell	Turbinidae
Alogo	blue-lined surgeon fish	Acanthurus lineatus
Alualu	upside down jellyfish	Cassiopea sp
Asi	coconut scraper shell	Vasticardium sp.
Atu	skipjack tuna	Katsuwonus pelamis
Atule	big-eye scad	Selar crumenophthalmus
Aua	mullet	Mugilidae
Ava	milkfish	Chanos chanos
Ava'ava	crescent perch	Theraponidae
Avaava moana	grunts/sweetlips	Haemulidae
Fai	sting ray	Dasyatidae
Faisua	giant clam	Tridacnidae
Fee	octopus	Cephalopoda
Filoa	emperor	Lethrinidae
Fuga	parrotfish	Scaridae
Fugafuga	sea cucumber / brown sandfish	Holothuria / Bohadschia sp.
Fugamatapuaa	lavender-headed parrotfish	Scarus psitticus
Fugamea	parrotfish	Scaridae
Fugausi	parrotfish	Scarus gibbus
Ganue	topsail drummer	Kyphosidae
Galo	humphead parrotfish	Scaridae
Gatala	grouper/cod	Serranidae
Gau	seahare	Dolabella sp.
Nofu	stonefish	Synanceiidae
Iasina	gold-lined goatfish	Mulloidichthys flavolineatus
Iaui	conger	Congridae
Iliilia	stripe-faced unicornfish	Acanthuridae
Ise	garfish	Hemiramphidae
Tito	golden-lined rabbitfish	Siganus guttutus
Koko	batfish	Platax sp.
Laea	parrotfish	Scaridae
Lai	leatherskin	Scomberoides sp.
Lalafi	wrasse	Labridae
Lalafutu	pompana/dart	Trachinotus sp.
Laumei	turtle	Chelonidae
Limu	sea grapes	Caulerpa sp
Lo	rabbitfish	Siganidae
Loli	blackfish (sea cucumber)	Actinopyga miliaris
Lupo Malai Malau	jack paddletail snapper soldierfish	Carangidae Lutjanus gibbus Holocentridae

[6] Note that this list is not exhaustive, but includes most commonly eaten species, as well as a number of others.

Samoan Name	English Name	Species or family
Malau mata puta	soldierfish	Holocentridae
Malau tui	squirrelfish	Holocentridae
Malauli	trevally	Carangidae
Malava	rabbitfish	Siganus argenteus
Malie	shark	Carcharhinidae
Mama'o	redfish	Actinopyga mauritiana
Manini	convict surgeonfish	Acanthurus triostegus
Masimasi	dolphinfish	Coryphaenahippurus
Mata pula	bigeye	Priacanthis sp
Mataelele	emperor	Lethrinidae
Matamu	emperor	Lethrinidae
Matapona	mullet	Mugilidae
Matu	silver biddy	Gerris oyena
Matulau	goatfish	Mullidae
Moaga	goatfish	Parupeneus chryserydros
Moo	blanquillos / tilefish	Malacanthidae
Mu	red bass	Lutjanus bohar
Mufiloa	emperor	Lethrinidae
Mutu	sergeant major	Abudefduf septemfasciatus
Pa'a	crab	Crustacea
Paalimago	mudcrab	Scylla serrata
Pae	ark shell	Anadara sp.
Pakupaku	vase shell	Vasidae
Pala	wahoo	acanthocibiidae
Palaau	spider conch	Lambis lambis
Palani	surgeonfish	Acanthuridae
Palolo	palolo worm	Eunice viridis
Palu sega	flower snapper	Pristipomoides zonatus
Palugutusiliva	rusty jobfish	Aphareus rutilans
Papa	coral trout	Plectropomus leopardus
Papata	slipper lobster	Scyllaridae
Patagaloa	wrasse	Labridae
Pau ulu	black spinefoot (rabbitfish)	Siganus spinus
Peapea	moorish idol	Zanclus cornutus
Pipi	cockle	Asaphis violacea
Pone	surgeon fish	Acanthuridae
Pone iusina	surgeonfish	Acanthurus nigricauda
Pone sina	surgeonfish	Acanthuridae
Ponepone	surgeonfish	Acanthuridae
Pu	helmet shell	Cassidae
Pusi	moray eel	Muraenidae
Sa'u	marlin	Istiophoridae
Saesae	unicornfish	Acanthuridae
Safole	flagtail	Kuhliidae
Sapatu	barracuda	Sphyraenidae
Sapoanae	great trevally	Caranx ignobilis
Savane	blue-banded sea perch	Lutjanus kasmira
Sea	pricklyfish	Stichopus horrens
Sue	pufferfish	Tetradontidae
Sugale	wrasse	Labridae
Sumu	triggerfish	Balistidae
Sumusumu	triggerfish	Balistidae

Samoan Name	English Name	Species or family
Tagi	dogtooth tuna	Gymnosarda unicolor
Tamala	black-tail snapper	Lutjanus fulvus
Taotao-ama	trumpetfish	Fistulariidae
Taotao	pipefish	Fistulariidae
Tatanu	goatfish	Mullidae
Taulaia	goatfish	Mullidae
Tautu	porcupine fish	Diodontidae
Tifitifi	butterfly fish	Chaetodontidae
Tivao	bream	Nemipteridae
Tu'u'u	angelfish	Pomacanthidae
Tugane	venus shell	Gafrarium sp.
Tuitui	boring urchin	Echinometra matthaei
Ula sami	lobster	Panulirus penicillatus
Ula sami	lobster	Panulirus fermostriga
Ula vai	freshwater prawn	Machrobrachium spp.
Ulua	jack	Carangidae
Ume	brown unicornfish	Naso unicornis
Vaga	long-spined urchin	Diadema setosum
Vete	goatfish	Mullidae