FISHERY AND AQUACULTURE COUNTRY PROFILES	Food and Agriculture Organization of the United Nations	FID/CP/WSM
PROFILS DES PÊCHES ET DE L'AQUACULTURE PAR PAYS	Organisation des Nations Unies pour l'alimentation et l'agriculture	October 2009
PERFILES SOBRE LA PESCA Y LA ACUICULTURA POR PAÍSES	Organización de las Naciones Unidas para la Agricultura y la Alimentación	

NATIONAL FISHERY SECTOR OVERVIEW

SAMOA

1. GENERAL GEOGRAPHIC AND ECONOMIC DATA

Area:	2 935 km²
Water area:	129 000 km²
Shelf area:	[no continental shelf]
Length of continental coastline:	447 km
Population (July 2007):	179 478
GDP at purchaser's value (2007):	523.8 million USD[1]
GDP per head (2007):	2 919 USD
Agricultural GDP (2007):	32.3 million USD[2]
Fisheries GDP (2007):	28.5 million USD[3]

2. FISHERIES DATA

2005	Production	Imports	Exports	Total Supply	Per Caput Supply
	tonnes liveweight				kg/year
Fish for direct human consumption[4]	4 501	4 776	1 744	9 292[5]	50.5
Fish for animal feed and other purposes	----	---	----	---	

Estimated Employment (2003):	
(i) Primary sector (including aquaculture):	11 700[6]
(ii) Secondary sector:	[not known]
Gross value of fisheries output (2007):	42.9 million USD[7]
Trade (2007):	
Value of fisheries imports:	[unknown]

[1] 2007 average exchange rate: US$1 – ST$2.62; GDP source: Samoa Source: Bureau of Statistics, unpublished data; GDP at current market price.
[2] The contribution to GDP of agriculture and forestry; In the official statistics, "agriculture" does not include fisheries.
[3] Official fishing contribution to GDP; From Gillett (2009). The Contribution of Fisheries to the Economies of Pacific Island Countries and Territories. Pacific Studies Series, Asian Development Bank, Manila
[4] Data from FAO food balance sheet of fish and fishery products (in live weight)
[5] Modified to reflect actual supply
[6] From Mulipola, A. 2003. Fisher Creel Census 2003 Report. Fisheries Division, Ministry of Agriculture, Apia, Samoa. Figure includes subsistence and small-scale commercial fishers.
[7] From Gillett (2009); includes the six fishery production categories: (1) coastal commercial fishing, (2) coastal subsistence fishing, (3) locally-based offshore fishing, (4) foreign-based offshore fishing, (5) freshwater fishing, and (6) aquaculture.

Value of fisheries exports:	7.6 million USD[8]

3. FISHERY SECTOR STRUCTURE

3.1 Overall fishery sector

Fish and fishing is important to Samoa, both economically and socially. In 2007 over half of all exports of the country consisted of fishery products. About a quarter of all households receive some income from fishing. Fish (fresh, frozen and canned) are an important feature of the Samoan diet, and on average households consume fish most days of the week.

The country's fisheries can be placed into six categories. These categories and the associated production in 2007 are:

	Coastal Commercial	Coastal Subsistence	Offshore Locally-Based	Offshore Foreign-Based[9]	Freshwater	Aquaculture
Volume of Production (metric tonnes)	4 129	4 495	3 755	25	10	10
Value of production (USD)	19 557 592	14 903 842	8 362 836	49 300	33 206	33 206

Source: Gillett (2009).

No discussion of the fisheries sector in Samoa would be complete without a discussion of the "alia" catamaran fishing craft. Originally designed and built by an FAO project in Samoa in the mid-1970s, much of the recent history of fishing in the country involves the alia. The box describes the large change in the alia fleet in the past decade.

Box: The Rise and Fall of the Samoan Alia Fishery

The offshore fishery in Samoa commenced in the late 1970's, when alias were first constructed for deep-water bottom fishing and trolling around fish aggregation devices (FADs). An alia is a catamaran style-vessel of around 9.0 metres in length, originally constructed from plywood, but nowadays constructed from aluminium, and is powered by a 40 h.p. outboard motor. Trial vertical and horizontal longlining primarily targeting albacore commenced in the early 1990s, with many alias being converted or purpose-built for longlining during the mid 1990s. Commercial longline fishing vessels (over 12.5m) entered the fishery in the late 1990's. In 1994, Samoa's longline fleet was comprised of 25 alias, increasing to around 200 vessels in 1999, the majority of which were alias. Following four years of sustained high fishing effort (more than 7.5 million hooks set per year), catch rates in the Samoan longline fishery declined substantially in 2002/03. Localised depletion, general overfishing, interactions with large longliners, oceanographic factors and natural cycles of abundance have been cited as possible explanations for this decline, however, the exact cause is yet to be determined. Source: Hamilton (2007)[10]

Main trends and important issues in the fisheries sector

The main trends in the fisheries sector include:

- After a disastrous safety record in the 1990s, sea accidents on alia longliners decreased markedly in the early 2000s.

[8] Gillett (2009)
[9] This is the catch in the Samoa zone by vessels based outside the country.
[10] Hamilton, A. 2007. The Samoa Alia Fishery. Development of Tuna Fisheries in the Pacific ACP Countries (DEVFISH) Project, Forum Fisheries Agency, Honiara.

- Since the mid-1990s, participation in the village fisheries management programme has steadily increased.
- There has been a decline in albacore abundance in the Samoa zone, likely due to a combination of several factors.
- The contribution of fisheries and agriculture to the Samoan GDP have remained about equal during the present decade.

Some of the major issues in the fisheries sector are:

- The longline fishery is highly dependent on selling the albacore to the tuna canneries in American Samoa, but the continuation of operations at those canneries is uncertain, due to competition with canneries in low-wage countries.
- The participation of small alia longliners in the tuna longline fishery is being challenged by economic viability and competition with larger longliners.
- The tuna longline fishery in Samoa is constrained by a small EEZ, space in the Apia harbour, and high cost of air freight to fresh tuna markets.
- The fishery production from the characteristically small village fishing areas is likely to be approaching the sustainable limit.
- Although there has been considerable enthusiasm for aquaculture in Samoa in the past, the present production is tiny.
- Difficulties arise in the partitioning of the attention of available Fisheries Division staff between domestic and international aspects of fisheries management.

3.2 Marine sub-sector

The marine fisheries have two very distinct components, offshore and coastal:

- Offshore fisheries consist almost exclusively of tuna longlining, from small "alia" catamarans and from much larger mono-hull vessels.
- Coastal fishing, mainly on the reef and inside lagoons, is carried out for subsistence purposes and for sale in local markets.

3.2.1 Marine Catch profile

In recent years catches by the Samoa-based offshore fleet have ranged from about 1 700 to 3 700 tonnes (tuna plus bycatch).

Catches by the Samoa-Based Offshore Fleet

	2003	2004	2005	2006	2007
Total catch (mt)	2 916	1 982	1 681	2 713	3 755
Catch value (USD)	6 443 816	5 996 125	4 636 511	7 895 875	8 377 705

Source: Gillett (2009)

Estimates of the coastal marine catch are more open to speculation. Two recent surveys (one of creel fisheries; one from a household income and expenditure survey) indicate that about 4 500 tonnes is taken annually by the coastal commercial fisheries and an amount slightly less by the coastal subsistence fisheries.

3.2.2 Marine landing sites

Most locally-based offshore vessels unload their catch in Apia, the capital and largest urban area. Some of the smaller alia longliners (when they are operating) offload catch at a few of the smaller landing sites, especially at the east and west ends of the island of Savaii.

Subsistence and coastal commercial fishery landings occur at villages throughout the coastal areas of the country, roughly in proportion to the distribution of the population. Much of the coastal commercial catch is transported by road for sale in urban areas. Some is sold along the roads.

3.2.3. Marine fishing production means

Virtually all offshore production is by longlining – either by alia catamarans or, in recent years mostly larger mono-hull vessels. The number of vessels operating in recent years and the number of hooks set is given in the table:

Yearly period	Number of LL vessels	Total Fishing Effort (No. hooks)
2002-2003	24	7 492 729
2003-2004	17	5 262 957
2004-2005	32	4 595 439
2005-2006	54	3 799 366
2006-2007	60	5 686 408
2007-2008	60	6 103 754

Source: Annual reports of the Fisheries Division

The bulk of Samoa's tuna catch being taken by 14 large longliners of 12.5 – 20.5 metres or more in length. A number of steps have been taken by the Samoan Government to try to preserve and revitalize the Alia catamaran fleet (mostly vessels less that 11 metres) through fishery management, fiscal measures and development assistance (Hamilton 2007).

Most of the alia craft go on short trips of one to two days in duration. The larger mono-hull vessels stay out much longer, with trip limitation being set by the ability to carry ice – often about two weeks.

Coastal fishing (both subsistence and commercial) employs a wide variety of production means. Fishing is undertaken by villagers operating in shallow lagoon waters adjacent to their lands. Fishing is for both subsistence and commercial purposes, with a significant overlap between the two. Fishing occurs from canoes or other small vessels, or on foot, and may involve the use of spears, nets, or hook and line, or, in the case of sessile invertebrates, simple hand-gleaning. Spearfishing is especially common, with most divers using mask/fins/snorkel and a sling-type spear. Night spearing is also common in some villages, using underwater torches. Trolling, using open motorized craft outside the reef is common, but the viability is affected by fuel costs and the presence/absence of anchored fish aggregating devices.

3.2.4 Main resources

The main target species captured in the offshore fishery are albacore (about 80% of the total catch), yellowfin (8%), and bigeye (3%). The other species taken include (in descending order) wahoo, dolphinfish, skipjack, striped marlin, blue marlin, and various species of oceanic sharks.

An FAO study[11] carried out in Samoa in the 1990s reported that subsistence fisheries make use of 500 species. The most important resources for Samoa's small-scale fisheries are: finfish (especially surgeonfish, grouper, mullet, carangids, rabbit fish), octopus, giant clams, beche de mer, turbo, and crab. A study in 2006 identified the major species caught by spearfishing:

Common Species in the Spearfishing Catch[12]

Samoan name	English name	Scientific name
Alogo	Lined surgeonfish	*Acanthurus lineatus*
Pone	Striated surgeonfish	*Ctenochaetus striatus*
Fuga	Five-banded parrotfish	*Scarus ghobban*
Saesae	Unicornfish	*Naso* spp.
Laea	Parrotfish	*Scarus* spp.

[11] Zann, L., 1992. The Inshore Resources of Upolu, Western Samoa. Field Report number 2, FAO/UNDP Project SAM/89/002, Apia, Western Samoa.

[12] Source: Gillett, R. and W. Moy (2006). Spearfishing in the Pacific Islands: Current Status and Management Issues. FAO Fishcode Review No.19, ISSN: 1728-4392, Food and Agriculture Organization of the United Nations, 72 pages.

Ume	Long-nosed Unicornfish	*Naso unicornis*

3.2.5 Management applied to main fisheries

Management Objectives

The objectives of fisheries management in Samoa appear in the legislation only in very broad terms. The Fisheries Act states that the Director of the Department of Agriculture, Forests and Fisheries may "propose management and development measures designed to obtain the maximum benefits from the fishery resources for the people of Samoa, both present and future".

Fisheries management objectives must therefore be obtained or inferred from other sources. The Ministry of Agriculture and Fisheries Corporate Plan (2005-2007) has the goal of "Growing a Healthy and Wealthy Samoa". The broad objectives of management interventions in the fisheries sector are suggested in the mission statement of the Fisheries Division: "Promoting the optimum and ecologically sustainable use of the country's fishery resources and the development of suitable alternatives to harvesting depleted resources in order to maximize benefits to Samoa".

For the offshore fishery, the Samoa Tuna Management and Development Plan 2005-2009 gives two major overall management goals: (1) To ensure the sustainability of harvesting of tuna resources throughout their range, and (2) To maximize the long-term economic and social benefits accruing to the people of Samoa from the utilization of its tuna resources. The Plan establishes the specific objectives of:

- Continuing to strengthen the exercise of sovereign rights of Samoans over tuna;
- Increasing the economic gains received by Samoa through exercising its rights over tuna;
- Ensuring effective participation by Samoa in regional tuna management activities, and
- Continuing recognition of the cultural values in tuna policy and planning, particularly the importance of the contribution of tuna to food security, protection of the interests of small scale fishers, and respecting various local by-laws and conservation measures.

For the coastal fisheries, fisheries management occurs on a geographic basis within village fishing areas. Many villages have their own management scheme and objectives. Because there are about 230 coastal villages in Samoa, the number of management schemes and associated objectives is quite large. Typical objective for village-level management in Samoa are given in King (2001)[13]: "to protect the marine environment in order to increase the number of fish and shellfish available for present and future generations".

Measures and institutional arrangements

The management measures and institutional arrangements for the offshore fisheries are detailed in the Samoa Tuna Management and Development Plan 2005-2009. The main measure used to achieve the stated objectives in the plan is licence limitation. Restrictions are currently placed on longline vessel license numbers by size class, as follows:

Category	License Limit (number of licenses) 2005 – 2009
Class A: *Less than and equal to 11m*	No limit
Class B: *Over 11m and up to 12.5m*	15
Class C: *Over 12.5m and up to*	15

[13] King, M., K. Passfield, and E. Ropeti (2001). Village Fisheries Management Plan: Samoa's community-based management strategy. Samoa Fisheries Project, Fisheries Division.

15m	
Class D: *Over 15m and up to 20.5m*	12
Class E: *Equal to or greater than 20.5m*	5

Licence limitation is applied by the Fisheries Division and enforced by several government departments.

A large number of management measures are formulated and applied at the village level. A report on the status of village fishery management[14] gives the management tools in use at the village level. Figures in the right-hand column indicate the percentage of all villages using the particular action or regulation.

ACTION/REGULATION	**PERCENTAGE**
Banning the use of chemicals and dynamite to kill fish.	100%
Banning the use of traditional plant-derived fish poisons.	100%
Establishing small protected areas in which fishing is banned.	86%
Banning other traditional destructive fishing methods (eg smashing coral).	80%
Organizing collections of crown-of-thorns starfish.	80%
Enforce (national) mesh size limits on nets.	75%
Banning the dumping of rubbish in lagoon waters.	71%
Banning the commercial collection of sea cucumbers (Holothuroidea).	41%
Banning the capture of fish less than a minimum size.	41%
Banning removal of mangroves (in villages with mangroves).	27%
Restricting the use of underwater torches for spearfishing at night.	21%
Banning the removal of beach sand.	14%
Placing controls or limits on the number of fish fences or traps.	<10%
Prohibiting the collection of live corals for the overseas aquarium trade.	<10%
Banning the coral-damaging collection of edible anemones (Actinaria).	<10%
Protecting areas where palolo worms, *Eunice* sp, are traditionally gathered.	<10%
Offering prayers for the safe-keeping of the marine environment.	<10%

3.2.6 Fishing communities

The concept of "fishermen communities" is not very relevant to Samoa. Those individuals that are involved in the offshore fisheries do not live in separate communities, but rather are widely dispersed around where the vessels are based, the Apia urban area. Nearly all households in coastal villages are involved in coastal fishing activities – mainly subsistence but often selling the surplus.

3.3 Inland sub-sector

Compared to the marine fisheries of Samoa, the production from inland fisheries is quite small.

According to officials of the Fisheries Division, the total annual inland harvest is unknown, but likely to be about 10 mt per year. The main freshwater fishery species are tilapia (there are occasionally roadside sales near lakes), eels, and freshwater shrimps.

Where inland fishing is managed, it is done so on a village-level. It is likely that the management is oriented to protecting the flow of food from the resource to the village.

[14] King, M. and U.Fa'asili (1998). Community-Based Management of Subsistence Fisheries in Samoa. Fisheries Division, Ministry of Agriculture, Forests, Fisheries and Meteorology, Apia, Samoa.

3.4 Recreational sub-sector

Although subsistence fishing may have a large social component and be enjoyed by the participants, there is little recreational fishing in the village as a leisure activity. In Apia there is some sports fishing (mainly offshore trolling) and occasionally there are sports fishing competitions. Some of the hotels offer fishing as an activity for their guests.

3.5 Aquaculture sub-sector

A review of aquaculture in Samoa[15] states that the culturing of aquatic animals was not a traditional practice in Samoa. However, a traditional form of giant clam ranching was practiced on village reefs or in lagoon where a community placed giant clams in a fenced off area for special occasion or reserves for seafood supply in bad weather. The idea of initiating aquaculture in Samoa dates to 1954 when the Secretariat of the Pacific Community investigated the possibility of establishing fish ponds near Apia. However, significant aquaculture activities did not occur until the 1980s when several trials pertaining to farming tilapia, freshwater and marine prawns, oyster, eucheuma seaweed, green mussels and giant clams were investigated. Aquaculture activities have been initiated in Samoa to:

- Alleviate pressure on over-exploited inshore reef and lagoon fishery resources;
- Create an additional/alternative source of food and income;
- Increase fishery production.

Aquaculture development efforts in Samoa have historically been directed at providing alternative sources of fishery products, mainly through the introduction of exotic species. Trials have included:

- Mussels: Philippine green mussel *Perna viridis*;
- Tilapia: *Oreochromis mossambicus* and *O. niloticus*;
- Carp: *Carassius auratus;*
- Oysters: Pacific oyster *Crassostrea gigas*;
- Trochus: *Trochus niloticus*
- Giant clams: *Tridacna gigas* and *T. derasa*;
- Freshwater prawn: *Macrobrachium rosenbergii*;
- Marine prawn: *Penaeus monodon*;
- Seaweeds: eucheuma *Kappaphycus alvarezii* and *Eucheuma denticulatum*.

Another review of aquaculture in Samoa in 2001[16] states that aquaculture in Samoa can be broadly divided into two types:

- Village-level aquaculture. This mainly involves Nile tilapia aquaculture in local waterways, and the provision of giant clams to participating villages.
- Commercial aquaculture. This has not developed in Samoa, despite previous attempts using a range of species.

As the village giant clam nurseries are oriented to enhancing the wild stock, aquaculture harvesting is largely limited to tilapia. According to officials of the Ministry of Agriculture and Fisheries, the tilapia ponds are mostly quite small with poor productivity.

The total annual harvest of cultured tilapia (which is largely the entire aquaculture production) is unknown, but likely to be about 10 mt per year. This equated to less that 1/10 of one percent of the fisheries production of Samoa.

Little information is available on any management of aquaculture activities in Samoa. Management is likely to be limited to measures to prevent poaching prior to a scheduled harvesting.

[15] Mulipola, A. (1998). Samoa Aquaculture, Profile. Fisheries Division, Ministry of Agriculture, Forests, Fisheries and Meteorology, Apia.
[16] Rimmer, M., L.Bel, M.Lober, and A.Trevor (2001). Evaluation of the Potential for Aquaculture in Samoa. Samoa Fisheries Project, Fisheries Division, Ministry of Agriculture, Forests, Fisheries & Meteorology.

4. POST-HARVEST USE

The catch from the offshore fisheries is mainly for the export market, about 75% of the total catch is sent abroad. 80% of these exports are frozen tuna destined for the tuna cannery in neighboring American Samoa. The remaining exports are mainly fresh chilled fish and mainly for markets in the United States. The catch from offshore fisheries that is not exported is sold locally, mostly in the Apia fish market.

Production from coastal commercial fishing is surveyed by the Fisheries Division. Most of the catch is sold at the Apia fish market, Fugalei agro-produce market, on the Apia-Faleolo roadside, and the Salelologa market. Whole finfish accounted for 64% of the total volume of fishery items traded. Invertebrates and processed items accounted for 24% and 11%, respectively of the total volume.

The catch from subsistence fisheries is consumed in the coastal villages near where it is caught, but some is shipped to friends and family in Apia.

The giving of fish for cultural purposes (faasoso) is important in Samoa. Most of this occurs domestically, but a significant amount faasoso fish is exported. Fisheries Division records show about 1.5 tonnes of pelagic fish and 10.0 tonnes of other fish was exported as faasoso in the 2007/08 financial year.

The small amount of inland and aquaculture production is mainly for subsistence purposes, but some roadside sales of tilapia occur.

5. FISHERY SECTOR PERFORMANCE

5.1 Economic role of fisheries in the national economy

A recent study by the Asian Development Bank attempted to quantify the fishery-related benefits received by Samoa in various categories. The study gave the available information (focused on 2007) on the contribution of fishing/fisheries to GDP, exports, government revenue, and employment. The results can be summarized as:

- Official estimates show that fishing in 2007 was responsible for 5.4% of Samoa's GDP. A recalculation shows it to be 6.2%.
- Exports of fishery products are about 55.3 % of all exports
- Access fees paid by foreign fishing vessels represent 0.15% of all government revenue
- With respect to employment, 41.7% of households in Samoa have at least one fisher.

From the above it can bee seen that fisheries make a relatively important contribution to GDP, exports and employment.

5.2 Demand

The per capita consumption of fish in Samoa, based on the 2005 FAO food balance sheet, is 50.5 kg. Various other studies have made estimates ranging between 46.3 and 73 kg. Considering Samoa's population, 50.5 kg of fish consumption per capita translates into a 2010 demand for 9 086 tonnes of fish.

Factors influencing the future demand for fish are a rising population, an increase in the price of fish, relative cost of fish substitutes, and the level overseas cash remittances.

5.3 Supply

The government has several strategies to increase the national fish supply. The main mechanism is the promotion of village level management of traditional fishing areas to stabilize fisheries production. The government also encourages aquaculture and offshore fishing.

5.4. Trade

The Samoa Bureau of Statistics tracks the country's exports, including the export of fishery products:

Fish and Total Exports of Samoa

	2002	2003	2004	2005	2006	2007
Fish exports (USD millions)	8 615	5 253	4 864	4 258	5 558	7 634
Percentage fish exports of all exports	62.7%	35.6%	40.8%	35.7%	53.8%	55.3%

Exchange rates ST$ to the USD: 2002 – 3.37; 2003 – 3.00; 2004 – 2.78; 2005 2.72; 2006 – 2.78; 2007 – 2.62

According to Fisheries Division staff, since 1997 export bans on several types of fishery products (coral, aquarium fish, and beche de mer) have resulted in almost all commercial fishery exports in recent years being tuna products.

5.5 Food security

Fish, both local and imported, is an important element of food security in Samoa. A survey in 2006/07 showed that the average frequency of consumption of fresh finfish was 2.8 times per week, and that for invertebrates was 0.8 times per week. The average frequency of consumption of imported canned fish was 4.5 times per week. In 2002 the Samoa Household Income and Expenditure Survey revealed that 9.3% of weekly household expenditure is for fish.

The food supply in Samoa suffers from frequent cyclones. After especially severe cyclones, fish (both imported and local) is critically important. This is because the local fish supply is less affected by cyclones than agriculture supplies, and because imported canned fish is an important component of post-cyclone relief efforts.

5.6 Employment

Fisheries employment in Samoa has two distinct components: formal jobs in the offshore fisheries and less formal participation in the coastal fisheries.

- An Asia Development Bank study[17] estimated that in 2008, 295 jobs were associated with offshore fishing (on vessels and in shore facilities). This represents about 1.3% of the formal employment in the country.
- As for employment in small-scale fishing, a survey[18] conducted in 2007 to assess the socio-economic status of rural villages, found that 41.7% of households have at least one fisher.

5.7 Rural development

Rural development is a major thrust of the government's efforts in the fisheries sector. A major component of the work program of Fisheries Division is to enhance the capabilities of villages to manage their coastal fisheries resources, as an integrated part of village development. In addition, the Fisheries Division has major involvement in rural extension activities, and in supporting rural port facilities to the village level.

Unlike many other countries, all villages in Samoa are within an easy commute of the largest urban area – so halting the rural-urban drift is not a major government policy objective. In addition, the major issue in population movement is not a migration to the urban area, but rather a migration to overseas countries, especially New Zealand.

6. FISHERY SECTOR DEVELOPMENT

6.1 Constraints and opportunities

Some of the major constraints of the fisheries sector in Samoa are:

- The small size and limited productivity of the village fishing areas.

[17] Gillett (2009)

[18] Mulipola, A., A. Taua, O.Tuaopepe, and S.Valencia (2007). Samoa Fisheries Socio-Economic Report 2006-2007. Fisheries Division Ministry of Agriculture and Fisheries, Apia, Samoa.

- The small area of Samoa's exclusive economic zone – the smallest of any Pacific Island country.
- The difficulties associated with developing a small-scale offshore fishery, especially the sea safety issues associated with longlining from small catamarans.
- A large dependence on a cannery in a neighboring country, which has an uncertain future.
- The lack of inexpensive air transport to markets for fresh chilled tuna.
- Crowded conditions in Apia harbour
- With increasing exploitation of albacore, an increasingly noticeable seasonality of the resource

The opportunities in the fisheries sector include:

- Value-adding to the fishery products, for both domestic consumption and for export.
- Cooperation with neighboring countries to enable greater exploitation of the offshore resources outside of the Samoa EEZ.
- Greater use of fish aggregating devices to promote offshore fishing by small-scale fishers.
- Greater linkages to the expanding tourism industry

6.2 Government and private sector policies and development strategies

The fisheries policies of Samoa can be inferred from a variety of documents. The general policy thrust is given by the mission statement of the Fisheries Division:

> "Promotes the optimum and ecologically sustainable use of the country's fishery resources and the development of suitable alternatives to harvesting depleted resources in order to maximize benefits to Samoa".

The main government policy in the offshore fisheries is to work within the framework of the Commercial Fisheries Management Advisory Committee to address issues affecting the management and further development of the offshore fisheries in Samoa.

For the coastal fisheries, the main policy is the empowerment of villages to actively engage in the management and development of their coastal fishing areas. This is done primarily through establishment, reviewing, and strengthening of village fisheries management plans, fish reserves and creation of by-laws.

The private sector's policies are not formalized. Judging from the attitudes and recent action of the companies engaged in offshore fishing, the main policy is not one of expanding but rather surviving during a period of poor albacore fishing – as has been the case for the last few years.

6.3 Research

A large amount of fisheries research has been undertaken in Samoa over the years. Much of the older work is listed in the Samoa Fisheries Bibliography[19] and the research carried out on the main fishery resources in Samoa is summarized in the Western Samoa Fisheries Resources Profiles[20].

More recent research projects by the Fisheries Division are given in the annual reports. They include:

- Fish and shellfish poisoning project: Macro algae species of *Sargassum* sp and *Halimeda* sp which are considered hosts to the poisonous dinoflagellate *Gambierdiscus toxicus* were collected for sampling.
- Monitoring of fish spawning aggregations: This project investigates sites and times of breeding of inshore fish species. This involves collection, measurement and analysis of gonads from twelve selected species.

[19] Gillett, R. D. and D. Sua (1987). Western Samoa Fisheries Bibliography. Document 87/6, FAO/UNDP Regional Fishery Support Programme, Suva, 90 pages.

[20] Bell, L.. (1995) Western Samoa Fisheries Resources Profiles. Report 95/18, Forum Fisheries Agency, Honiara.

- Giant clams: This is a study to identify the status of the recruitment of giant clams in the Savaia and Tafagamanu coastal area.
- Evaluation of community-base fish reserves: Seven villages have been selected, consulted and trained on the simplified monitoring and reporting methodologies of regular Fisheries research. Assessment exercises have been conducted by village members trained by Fisheries staff.
- Feed trials for tilapia feed: Different combinations of local ingredient were formulated and tested using three ponds at the tilapia hatchery.

There is also an active tuna research programme which collects catch and effort data from the locally-based longliners. This information is analyzed by the Fisheries Division and by the Oceanic Fisheries Programme of the Secretariat of the Pacific Community in New Caledonia.

6.4 Education

Education related to fisheries in Samoa is undertaken in a variety of institutions:

- Academic training in biological, economic and other aspects of fisheries is given at the University of the South Pacific in Suva, Fiji.
- Training courses are frequently organized by the following regional organizations: the Secretariat of the Pacific Community in New Caledonia and the Forum Fisheries Agency in the Solomon Islands.
- Courses and workshops are also given by NGOs and by bilateral donors, such as those by Japan.
- Many government fisheries officers and other professionals have received advanced degrees in fishery-related subjects at overseas universities, especially those in New Zealand, Australia, and Hawaii.

6.5 Foreign aid

The largest fisheries-related programme in Samoa in recent years has been the Australian-funded Samoa Fisheries Project. The project had major involvement in the promotion of management of coastal resources by adjacent communities and of conventional management of offshore fishing. A re-orientation of the Fisheries Division to being more focused on the fisheries stakeholders was a major achievement. The project was concluded in 2003, but the positive impact of that work is still very evident today.

Bilateral programmes of technical cooperation, collaboration and assistance have been provided by the governments of Australia, China, Japan and the European Union. Multilateral donors include UNDP and FAO. Samoa also enjoys technical assistance or the channeling of multilateral donor assistance from various regional agencies including, FFA, SPC, and SOPAC[21].

7. FISHERY SECTOR INSTITUTIONS

Responsibility for fisheries and marine resource matters is vested in the Fisheries Division of the Ministry of Agriculture and Fisheries. The Division is headed by Assistant Chief Executive Officer. It is headquartered in Apia, and employs about 35 staff.

According to its latest annual report (2007/08), the substantive work of the Fisheries Division is organized into six services:

- Inshore Fisheries Services
- Offshore Fisheries Services
- Aquaculture Services
- Community Fisheries Advisory Services
- Regulations and Enforcement Services
- Fish Market Services

The Commercial Fisheries Management Advisory Committee (CF-MAC) is the official body that represents the offshore fishing industry. The Committee is comprised of representatives from the private sector and relevant government departments: two elected representatives from the

[21] Pacific Islands Applied Geoscience Commission

Upolu Fishermen's Association, Savaii Fishermen's Association, Fish Exporters Association and Boat Builders Association and one appointed representative from the Treasury Department, Ministry of Agriculture, Forests, Fisheries and Meteorology, Fisheries Division, Ministry of Transport, Port Authority and the Department of Trade, Commerce and Industry.

By their nature, stakeholders in the village fisheries are less formally organized. Individual village councils often consult with representatives of the Fisheries Division. Many villages have fishery management committees made up of the various local stakeholders in fisheries.

Some of the important internet links related to fisheries in Samoa are:

- www.maf.gov.ws – The website of the Ministry of Agriculture and Fisheries
- www.spc.int/Coastfish/Countries/Samoa - Information on Samoa fisheries, links to other sites concerning Samoa and its fisheries, and some SPC reports on Samoa fisheries
- www.paclii.org/cgi-paclii - Text of Samoa fishery legislation
- http://moana.library.usp.ac.fj - Institutional repository for published and unpublished documents produced by Fisheries Division of the Ministry of Agriculture and Fisheries, Samoa

8. GENERAL LEGAL FRAMEWORK

The main legislative instrument relating to fisheries in Samoa is the Fisheries Act of 1988 – prepared with assistance from FAO and the Forum Fisheries Agency. The Act has been amended several times, including in 1999 and 2002.

The Fisheries Act controls the operation of both domestic and foreign fishing vessels. The stated purposes of the Act include the conservation, management and development of marine resources, the promotion of marine scientific research and the protection and preservation of the marine environment. An important provision of the Act is that the Director responsible for fisheries "may, in consultation with fishermen, industry and village representatives, prepare and promulgate by-laws not inconsistent with this Act for the conservation and management of fisheries". Using this provision, many villages now have by-laws to assist in managing their fishing grounds. Samoa's Constitution has important implications for fisheries. Under Article 104 of Constitution, all land lying below the line of high water is vested in the State and therefore legally all Samoans have equal access to coastal resources. In practical terms, the village by-laws apply equally to village residents and outsiders and no Samoans can be differentially excluded from fishery areas.

Other legislation relevant to fisheries includes the Territorial Sea Act of 1971, and the Exclusive Economic Zone Act of 1988.

REFERENCES

Bell, L. 1995. Western Samoa Fisheries Resources Profiles. Report 95/18, Forum Fisheries Agency, Honiara.

Gillett, R. 2009. The Contribution of Fisheries to the Economies of Pacific Island Countries and Territories. Pacific Studies Series, Asian Development Bank, World Bank, Forum Fisheries Agency, Secretariat of the Pacific Community, and Australian Agency for International Development.

Gillett, R. and W. Moy. 2006. Spearfishing in the Pacific Islands: Current Status and Management Issues. FAO Fishcode Review No.19, ISSN: 1728-4392, Food and Agriculture Organization of the United Nations.

Gillett, R. D. and D. Sua. 1987. Western Samoa Fisheries Bibliography. Document 87/6, FAO/UNDP Regional Fishery Support Programme, Suva.

Hamilton, A. 2007. The Samoa Alia Fishery. Development of Tuna Fisheries in the Pacific ACP Countries (DEVFISH) Project, Forum Fisheries Agency, Honiara.

King, M., K. Passfield, and E. Ropeti. 2001. Village Fisheries Management Plan: Samoa's community-based management strategy. Samoa Fisheries Project, Fisheries Division.

King, M. and U.Fa'asili. 1998. Community-Based Management of Subsistence Fisheries in Samoa. Fisheries Division, Ministry of Agriculture, Forests, Fisheries and Meteorology, Apia, Samoa.

Mulipola, A., A. Taua, O.Tuaopepe, and S.Valencia. 2007. Samoa Fisheries Socio-Economic Report 2006-2007. Fisheries Division Ministry of Agriculture and Fisheries, Apia, Samoa.

Mulipola, A. 2003. Fisher Creel Census 2003 Report. Fisheries Division, Ministry of Agriculture, Apia, Samoa. Figure includes subsistence and small-scale commercial fishers

Mulipola, A. 1998. Samoa Aquaculture, Profile. Fisheries Division, Ministry of Agriculture, Forests, Fisheries and Meteorology, Apia

Rimmer, M., L.Bel, M.Lober, and A.Trevor (2001). Evaluation of the Potential for Aquaculture in Samoa. Samoa Fisheries Project, Fisheries Division, Ministry of Agriculture, Forests, Fisheries & Meteorology.

Zann, L., 1992. The Inshore Resources of Upolu, Western Samoa. Field Report number 2, FAO/UNDP Project SAM/89/002, Apia, Western Samoa.