

PRESENT STATUS OF FISHERIES IN WESTERN SAMOA

**Faataui Stone Vaofusi
Fisheries Division**

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Introduction:

Western Samoa is comprised of volcanic islands located in the center of the South Pacific Ocean. It consists of four inhabited islands; Manono, Apolima with Upolu and Savaii being the two largest islands and eleven uninhabited small islands and islets. The main islands are surrounded by a barrier reef which enclose shallow lagoons. Most of the northern and western side of Upolu coastline is fringed by barrier and patch reefs. Also barrier and patch reefs are well developed along the southern side coastline of Savaii. Beyond the surrounding reefs is the offshore fishing area of 37,000 square miles which is one of the smallest EEZ area in the Pacific. A total land mass of 1,100 square kilometers support a population of 170,000 people.

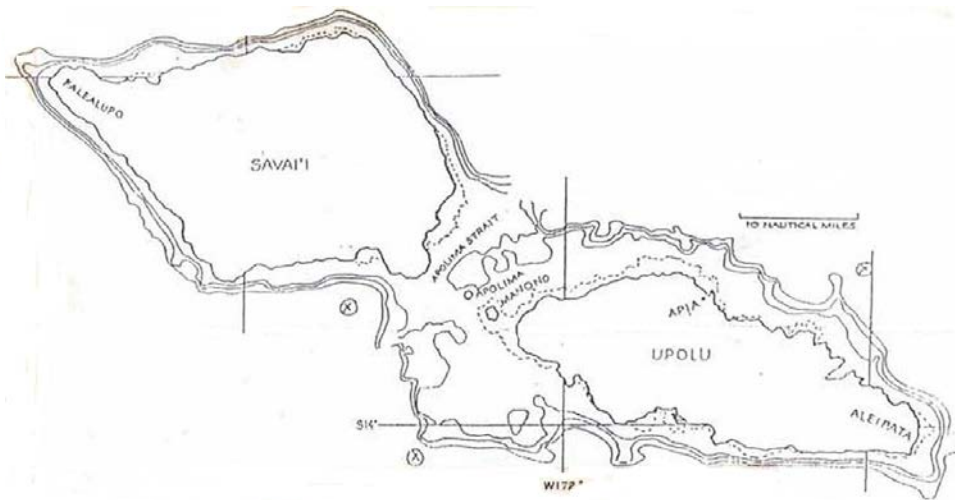


Fig 1. The map of Western Samoa.

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Historically, Samoan people were highly dependent on locally-caught fish and shellfish as a protein source. In 1989, a survey conducted shows that 58% of Western Samoan households engaged in fishing and 65% used caught fish in their meal (Fisheries Div Annual Report, 1989). However, fish protein sources are now mainly supplemented by canned fish, turkey tails and mutton flaps imported from overseas (Zann, 1990). Through the years, the amount of fresh fish declines because the catch from the reefs and lagoons was not able to meet the demands of a growing population.

Productivity of the lagoon area is poor due to the intense fishing pressure from the population. Lagoon and reef fishery resources of Samoa are documented to be well overfished (Helm, 1987). A recent assessment of the inshore fishery (Zann, 1991) documents over half of all rural household go fishing each week in inshore waters of less than 5m deep. Catch data of bottomfish and pelagics species indicates a decline in catches over the

last number of years, due mainly to sustained fishing pressure (Watt, 1990). Destructive fishing method such as dynamite and toxin, unregulated fishing gears, divers constantly working the few habitats available to reef animals result in fewer and smaller fish and shellfish being caught attributed to the current declining in catches. It is commonly found that during breeding season, female crabs and lobsters with eggs are seen sold in the market. Zann (1991) concludes that overfishing within the lagoon and the resulting difficulty in catching fish has resulted in a drastic decrease in per capita (9 kg) fish consumption since 1983.

INSHORE FISHERIES

As earlier as the 1970's, catches from Western Samoa's inshore waters were evidently declining. A survey undertaken by the Department of Statistics in 1978 showed that the estimated total landings of all fish and shellfish were 1,090 metric tonnes. Reef and lagoonal fish accounted for 666 mt and offshore species 423 mt (Zann, 1991). Estimates from Fisheries statistics surveys between 1986 to 1991, it showed that fish and shellfish landings at Apia Municipal Fish Market are declining. Landings at the Apia Fish Market between 1986-1990 are summarized in Figure 2.

Although the period of monitoring has been brief, major declines have occurred. During the five years of monitoring, the inshore fish total landings have declined from 246 mt to 36 mt. Comparing the inshore fish total landings of 1978 and the 1990 landings, it shows that landings are decreased by 52%. The most dramatic declines in landings occurred in scads, mullets, coral cods, parrotfish and giant clams.

* — fishing not fishing effort

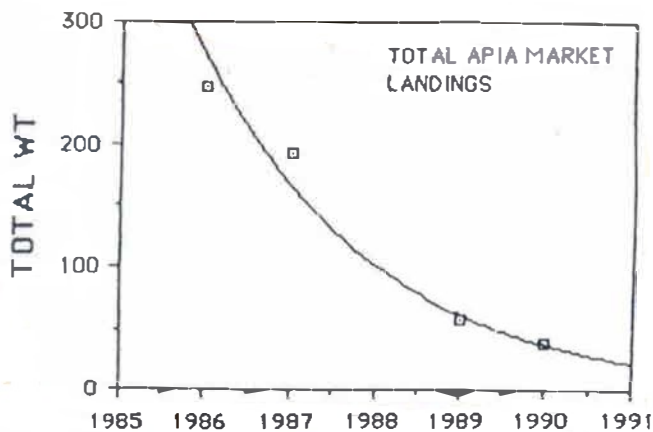


Fig 2. Estimates of total inshore landings at Apia Fish Market, 1985-90.

The dramatic declines in landings of inshore fish and invertebrates may be attributed to a number of factors:

- (i) decrease in fish and invertebrate stock due to overfishing and loss of nursery habitat.
- (ii) employment of destructive fishing methods; toxins and dynamites.
- (iii) a decrease in the artisanal fishing effort (because of the emigration of young men for salaried employment.

(iv) shifting of dietary due to monetary accessibility / availability (people tend to purchase mutton flap + turkey tail due to cheaper prices).

Reef and lagoonal fish and invertebrates are landed by several fishing methods; net (40%), spear (31%), trap (16%) and hook and line (13%) (Helm, 1987).

OFFSHORE PELAGIC FISHERIES.

The pelagic fisheries of Western Samoa have been actively promoted since 1975 by FAO (FAO, 1979), USAID (McCoy, 1988) and other agencies. Since then, estimates are available on the total annual landings and trends of pelagic species landings are summarized in Figure 3.

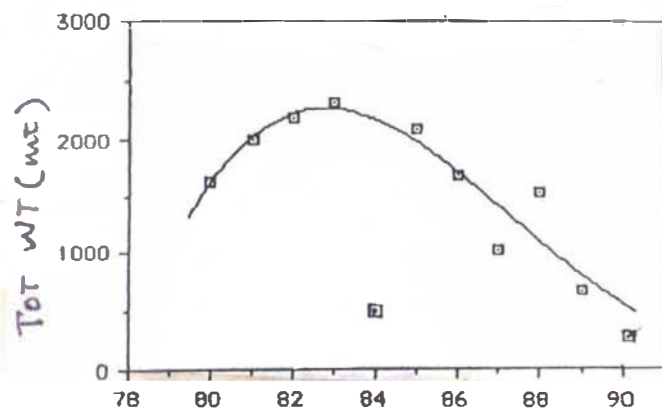


Fig 3. Estimates of landings of pelagic species by Fisheries Division (Note, the 1984 landings have been omitted from the regression).

The landings increases between 1978 to 1983 and this is due to the increasing of fishing effort (number of fishing unit-*alia*) which was increasing rapidly at that time. The sudden increase in 1980 reflects the highly successful introduction of FADs in that year. The progressive decline as from 1985 to 1990 indicates a reduction in fishing effort. In 1988-1989, many *alia* left the tuna fishery for the offshore bottomfish fishery. Some new snapper grounds have been discovered on the north-eastern part of Savaii island. The final decline (from 600 mt to 330 mt) occurred in 1990 after the cyclone Ofa destroyed 50% of the *alia* fleet. The decline in tuna landings can be attributed to the declining in fishing effort (less number of fishing *alia*) rather than depleting stocks. Only 22% of *alia* are still actively fishing out of 350 constructed since 1978.

There are several reasons attributed to the declining of tuna landings such as less aid available (reduce subsidies, fuel rebates etc), fuel costs have increased tremendously, and *alia* become very expensive and unaffordable by locals. However, tuna fishery is the only underfished resources in Western Samoa fishery at present.

Pelagic species are landed mostly by trolling method which accounted for 60% of annual total landings. The longlining (vertical) method was recently introduced by an SPC tuna fishery program and proved a success in catching large size tuna. However, fewer fishermen are longlined

because of the excessive cost of fishing gears.

OFFSHORE BOTTOMFISH FISHERY

Because of the lack of historical information on offshore bottomfish landings, trends are not well understood. However, it is evident that offshore bottomfish stocks are vulnerable to overfishing and that stocks have been depleted. A resource stock assessment of the deepwater snapper fishery of Western Samoa funded by UNDP estimated that the maximum sustainable yield is about 80 mt. The recommendable maximum allowable effort is 12 boats/alias, however, the current landings are somewhat in excess of this figure and about 30 alias are actively engaged in bottom fishing.

Generally, the trends of bottomfish landings are apparently declining not because of the reduction in fishing effort but of the depletion of stocks at many already exhausted fishing grounds.

Drop-line method accounted for 95% of all deepwater total landings.

OUTLINE OF WORK

The collection of statistical data from various fisheries surveys; Inshore fishery survey and Offshore fishery is one of the major responsibilities of my job. The data collection requires designing of survey forms for obtaining information, summarising and analysing of landings per fishery per month, quarters and annually. A generated report describes the current status of each fishery and the general status of marine resources in Western Samoa.

Inshore fishery Survey:

The inshore fishery survey is an ongoing data collection starting since the Statistic Unit was established. The survey included fish/invertebrates data from the central fish market, along the road side in villages and non-processor and processor outlets. The surveys are conducted randomly on three or four days a week for the main fish center and once a week for roadsides and other outlets (35 identified fishing outlets which purchase fish directly from fishermen). During the market and roadsides survey the sellers are interviewed to determine the prices, origin of catch and fishing method. Information on fish sales of the other outlets survey can be obtained from sales receipts and accounts, or from an interview with the vendor.

Offshore fishery surveys.

The offshore fishery survey is breaking into two major surveys; pelagic species survey and deepwater fish survey. Both surveys are conducted randomly on three or four days per working week at the Apia Fish Market. The sellers are interviewed to determine fish price, fishing method,

week.

Fish lengths are obtained from surveys with weights can obtained from the Length\Weight Conversion Chart developed by Zann based on fish weight and length measurements caught locally. Attached is the copy of the L\W chart. All data from each surveys are entered in a Microsoft dBase 4 on the Division's Hewett Packard Vectra computer and in Excel on an Apple SE Macintosh.

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