

RESEARCH PROGRAMMES AND PROJECTS FOR 1991.

1. Introduction.

The Research Section has carried out various project in 1991, these included aquaculture programmes and collection of fisheries statistical data from several outlets. Aquaculture programmes implemented were giant clam, trochus, seaweed, oyster and tilapia farming. All of these aquaculture projects were conducted on trial basis where the potential of species and proposed sites were assessed.

Fisheries statistics collection was an ongoing and continuous program where data were collected from the Apia Fish Market, major non-processor and processor outlets, and from along the roadside where fishes were commercially sold. The annual total landing is therefore calculated from all informations collected from these sources.

2. Aquaculture programmes and projects

2.1. Giant clams (faisua)

The project concentrated on the rearing of juvenile seedlings of *Tridacna gigas* and *Hippopus hippopus*. *T.gigas* is not found in Samoa and *H. hippopus* is believed to be extinct. These two species were quarantined and reared in the Fisheries ponds and later transferred to the ocean nursery in Namu'a, Aleipata for grow-out. In mid 1991, a water pump was received through funds from the SPRAPD programme for the fisheries aquacultural clam project.

2.2. Oyster (*Crassostrea gigas*) Project

In May 1991, approximately 20% of the seeds of Pacific oyster (*Crassostrea gigas*) were harvested and sold at Apia Fish Market. Revenue from the oyster were distributed evenly between Safata village council and the Division.

2.3. Tilapia (*Tilapia niloticus*) Project

Approximately 200 fryes of *Tilapia niloticus* were received from Fiji in 1991. Some of the fryes were distributed to a local fish farmer in Afiosalani with remaining numbers kept in Fisheries ponds as broodstock.

2.4. Seaweed (*Eucheuma spp*) trial.

Mid 1991 saw the introduction of the *Eucheuma* seaweeds into Samoa lagoons. Approximately 10 kg of this seaweed from Fiji were used for growth trials in Aleipata, Siumu and Mulinuu peninsula in Upolu. Trials in Aleipata indicated site to be the most productive with a daily growth rate of 15%

3. Fisheries statistics

The primary function of any fisheries management agency is the collection of fisheries statistics for management purpose. Collections of these fisheries data was one of the major task implemented by the Research Section of the Division throughout the 1991 working year.

Fisheries statistic surveys were conducted randomly on three or four days per week. On each sampling day, the major taxa (families to species) of fin fish and invertebrates were recorded, measured and counted. Fish identity, weight and value were oftenly the main information recorded. Fisheries statistics data were collected from the Apia municipal fish market as the main data source and, fish center (i.e Sampac), retailers and wholesales, and along the roadside from Apia to Faleolo and Moataa to Falefa. Totals from sampling days were used to estimated total weekly landings.

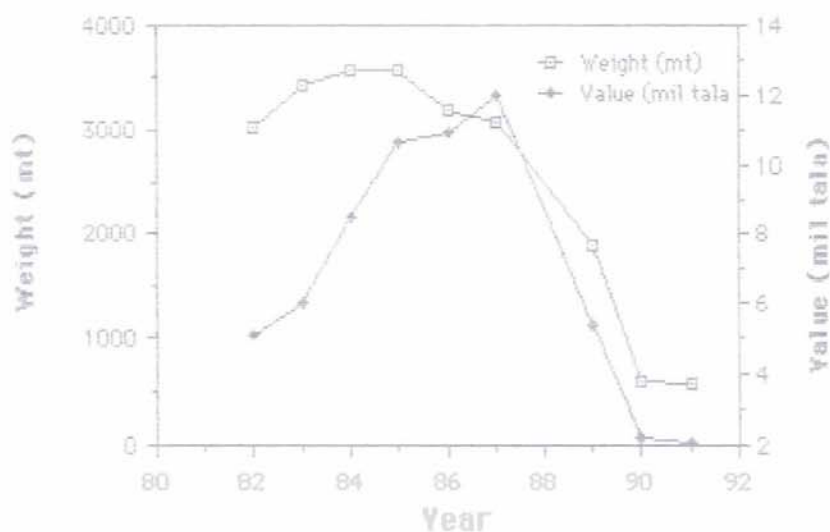
Estimated total fisheries landings of 1991 are summarised in Table 1. Estimation of landings were calculated from all fin fishes and non-fin fishes commercially sold via major outlets and from village consumption. An annual estimated total of 565.6 mt was landed with an estimated value of 2.14 million tala.

Table 1. Estimated total fisheries landings of 1991.

FISHERIES	TYPE	WEIGHT(mt)	VALUE('000)
Inshore	Finfish	90.3	500.0
	Crustacean	1.7	8.0
	Shellfish	3.2	8.6
Offshore	Bottomfish	258.4	994.3
	Tuna	211.0	632.3

Figure 1. summarises the trend of yearly estimated total landings from 1982 to 1991. Landings of 1982 to 1988 were generally approximated and total landings from 1989 to 1991 were statistically estimated. An alarming declines of estimated total landings from 1987 to the 1991, these could possibly attributed to certain factors; changes of distribution (increase in sales via other outlets apart from Apia Fish Market), decrease in the fishing effort (reduction in the number of 'alias' operated or few people actively fishing), decrease in fish and invertebrate stocks, effects of cyclone Ofa and Val on inshore and offshore fisheries and overfishing from destructive fishing method such as dynamiting. Figures for the year 1988 were not available.

Fig 1. Annual estimated total landings from 1982 to 1991.



3.1. Inshore fisheries 1991 estimated total landings.

Table 2. summaries inshore fisheries monthly estimated total landings (fin fish and non-fin fish) in Apia Fish Market and other outlets, hence accounted for only 45% of total inshore fisheries estimated annual landings. The estimated sales of 27.1 mt of reef and lagoon fin fish, 1.04 mt of crustacean and 0.62 mt were recorded from the Apia Fish Market and other outlets during 1991, and was total valued at 0.16 million tala. However, there is a dramatic decrease of inshore fisheries landed in the Apia Fish Market compared to 1990. The amount of inshore fish and invertebrates decreased by almost 60% and this was because of large amount of reef and lagoon fish and invertebrates sold via other outlets (shops, retrauants, etc.) unrecorded and the effects of the fisheries by both cyclone.

Most reef and lagoonal fishes were sold in string especially of small average fish whereas of large sizes were sold individually. The annual average price of fish string was \$18 tala whereas fish sold individually ranged from \$10 to \$20 tala.

Table 2. 1991 monthly summary of inshore fisheries estimated landings at Apia Fish Market.

MONTH	WEIGHT (mt)	VALUE ('000)
January	2.07	11.31
February	1.83	11.66
March	1.78	9.80
April	1.77	20.74
May	2.52	14.50
June	3.72	17.81
July	2.36	11.24
August	2.68	18.21
September	4.38	21.67
October	4.41	18.16
November	13.60	67.50
December	1.42	3.94

3.2. Offshore fisheries estimated total landings

The total estimated landings of offshore fisheries for both pelagic and bottom fish were 211 and 258.4 metric tonnes annually. The latter was valued at 0.63 million tala and the former was total valued at 0.99 million tala. The amount of pelagics landed was increased by approximately 22% and the bottomfish by 18% compared to landings of 1990. The reason for such increases was the increase of the numbers of fishing boats reoperated after cyclone Ofa.

The average monthly price per kg of both fishery were not uniform, the average price per kg weight of 1991 was approximately \$3.50 tala for tuna and \$5.50 for bottomfish. Fluctuation of price depends on where and when fish landed and landed volumes.

5. Trainings

- 7/1/91-15/1/91: VISUAL CENSUS OF FISH STOCK
ALEIPATA, WESTERN SAMOA : FAO/SPREP
On the job training on using a Fish stock assessment method through counting, identifying and assessing fish length.
Officer attended: Henrietta Winterstein and Etuati Ropeti.
- 10/3/91-18/3/91: GIANT CLAM SPAWNING
PAGO PAGO, AMERICAN SAMOA : FAO
Training on *Tridacna derasa* spawning induction.
Officer attended: Etuati Ropeti.
- 8/5/91-28/5/91: WORKSHOP ON TROCHUS RESOURCE ASSESSMENT,
DEVELOPMENT AND MANAGEMENT.
PORT VILA, VANUATU. :SPC
Focussed on *Trochus niloticus* reproductive biology and nutritive needs in relationship to hatchery requirement, Assessment methods and management strategies of the trochus resource were also tabled.
Officer attended: H. Winterstein.
- 8/9/91-15/10/91: FISH FARMING TRAINING
TUNGKANG MARINE LABORATORY
TAIWAN. :IECDF
Training of principles of fish-farming, fish biology, feed preparations, reproduction control, hatchery operation and farming practices.
Officer attended: Etuati Ropeti.
- 6/11/91-7/12/91: FISH STOCK ASSESSMENT.
SUVA, FIJI. :FAO and ICOD
The workshop focussed on assessment methods based on fish length frequency using Gulland and Fordwal's method. Assessment of fish stock by Length frequency and Hard part analysis. Formulation of data logsheet, and using several series of statistical tests in analysing multiple sets of fisheries length-frequency samples.
Officers attended: Patelesio Tualofa and Tavita Sasi.

6. Information and Library services.

A wide range of books, periodicals and publications on fisheries topics were made available to the Fisheries staff, the general public and NUS students through the Fisheries Division Library. Various articles on fisheries activities etc., were also published in the Departmental newsletter (FAAILOA) displays during national awareness programmes, e.g. World Food Day were produced to enhance public awareness of the fishery sector and its research activities.