

# **FISHERIES DIVISION**

**1994/1995**

## **ANNUAL REPORT**

**MINISTRY OF AGRICULTURE, FORESTS,  
FISHERIES & METEOROLOGY**

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## **HIGHLIGHTS**

During the 1994/1995 year, Fisheries Division continued to face difficulties to effectively execute its programmes and thus achieve planned goals due to several contributing factors. As has been in past years, a major constraint was the comparatively low budget allocation for Fisheries.

The establishment of two village giant clam farms on Savai'i, using juvenile clams imported for the rehabilitation of the Giant Clam project after the cyclones Ofa and Val, was an encouraging result indicating the interest of the communities in such an undertaking. The year also marked the beginning of fresh-water fish farming by the private sector in a Fisheries Division's effort to lessen pressure on the over-harvested inshore fishery resources and thus generate a new source of good protein and possibly income.

A major undertaking during the year was the start of the Fisheries Extension and Training Project funded by AusAID. This is a 2-phase project of three years per phase. The first phase was started in March 1995. Funding of the second 3-year phase will depend on the first one. The project aims at establishing fisheries resources management at the community level and creating public awareness on issues pertaining to fisheries and fisheries management and conservation.

Even with certain constraints, Fisheries Division was able to curtail its activities to fulfil its obligations for the proper utilization and management of various fishery resources.

## **PROGRAMMES**

### **1. AQUACULTURE**

#### ***1.1 Giant Clams***

Through the rehabilitation giant clam programme funded by SPADP, three separate shipments of *T. derasa* and *T. squamosa* juveniles were imported from Fiji in July 1992 and February 1993. These giant clams were transferred to the Namu'a nursery after undergoing a quarantine period at the Fisheries Division hatchery. By 1994, the Namu'a company had lost interest in farming giant clams due to certain major problems experienced, particularly losses during the cyclones and poaching. With clams imported through the rehabilitation programme, two lagoon giant clam farms were started on Savai'i Island at the villages of Si'ufaga and Vaisala.

***Si'ufaga Giant Clam Project:*** This project was initiated as part of a package of the Ministry of Agriculture, Forests, Fisheries and Meteorology's Farming System Project. Together with other agriculture projects, a fisheries project, e.g. mussel culture etc, was also requested by the village of Si'ufaga. After a site survey, giant clams was determined as the most suitable marine animal to farm in the village lagoon and the project was initiated in December, 1994. The giant clams transferred to Si'ufaga consisted of about 338 *T. squamosa* and 182 *T. derasa* imported from Fiji

in 1992 and 1993 and originally raised at Namu'a. The clams were placed on trays at a density of 8 clams per tray and two trays were fitted into a cage for protection from large predators.

Table 1 records data on growth that were collected in four months between planting date, December, 1994 and July, 1995. From February to July, *T. squamosa* exhibited an overall mean shell length increment of 10 mm. This corresponds to an average growth rate of about 2 mm per month. *T. derasa* exhibited a slower growth for the same period having an overall mean shell length increment of only 8 mm, or approximately 1.6 mm per month.

**Table 1:** Mean shell lengths for giant clam species planted at Si`ufaga.

Survey Date	<i>Tridacna squamosa</i>		<i>Tridacna derasa</i>	
	Mean length (mm)	Increment (mm)	Mean length (mm)	Increment (mm)
Dec., 1994				
Feb., 1995	99		120	
May, 1995	108	9	128	8
July, 1995	109	1	128	0
Overall		10		8
Average growth rate		2 mm/month		1.6 mm/month

**Vaisala Giant Clam Project:** After a general survey of potential areas for giant clam lagoon farming, it was established that Vaisala lagoon is one of the areas that offer a potential site. This was after considering its clean, clear lagoon with good coral growth and the fact that a hotel is very close nearby to the site making it ideal for security. The farm was started in May, 1995 using 108 *T. squamosa* from a mixture of clams imported from Fiji in July, 1992 and February, 1993, 156 *T. derasa* imported from Fiji in February, 1993, 105 *H. hippopus* and 11 *T. gigas* imported from Australia in May, 1991. All clams planted at Vaisala were placed on trays at a density of 8-10 clams per tray without protective cages.

Table 2 records growth data recorded at the Vaisala nursery for marked cages, for the different species, that remained throughout the May-July period. Overall, *T. derasa* and *T. squamosa* showed equal growth rates which were higher than that for *H. hippopus*.

**Table 2:** Giant clams growth data recorded for species cultured at the Vaisala lagoon nursery.

	<i>Tridacna squamosa</i>				<i>Tridacna derasa</i>						<i>Hippopus hippopus</i>			
Tray # →	404		130		196		463		290		30		148	
1995	Len	Inc	Len	Inc	Len	Inc	Len	Inc	Len	Inc	Len	Inc	Len	Inc
May	117		120		145		153		163		159		158	
Jul	124	7	125	5	151	6	158	5	170	7	163	4	163	5
Growth rate mm/month	3.5		2.5		3.0		2.5		3.5		2.0		2.5	

Len=Mean shell length in mm; Inc=Shell length increment (mm)

During the period from May to July, *T. squamosa* had 7 per cent mortality, followed by *T. derasa* with 5.1 per cent mortality then *H. hippopus* having 0.95 per cent mortality and *T. gigas* with no mortality.

Sources of mortality have been caused mainly from predation by *Cymatium* snails. However, in the Si'ufaga case, a few clams are believed to have been lost as a result of trays overturning from strong currents that sometimes sweep through the area. In Vaisala, giant clam mortality has been caused mainly by *Cymatium*.

The mortalities recorded at both the nurseries indicate the level of maintenance required in order to increase giant clam survival and thus the success of the projects. It is apparent that the manual removal of the predator snail, *C. muricinum*, was not maintained in the periods between Fisheries Division visits. This can be attributed to the lack of the technical "know-how" and/or lack of commitment and involvement from those concerned in the villages. Mechanisms that would improve the project include:

- \* improved involvement by those concerned in villages during Fisheries Division visits so that their representative(s) can be trained "on the spot" on various aspects of giant clam farming including manual removal of *Cymatium* and record keeping;
- \* improved commitment from people concerned so that maintenance and farm management duties are consistently performed in the periods between Fisheries Division visits.

Without the cooperation of the people concerned on the above aspects, all these efforts to establish a possible "small" development can be wasted.

#### Future Activities

- Continuation on monitoring of growth and mortality at the village farms.
- Provide training for villagers concerned on farm maintenance and operation.
- Conduct surveys in other areas with potential lagoons for giant clam farming.

### **1.2 Fresh-water Fish Farming - Nile Tilapia, *Oreochromis niloticus***

### 1.2.1 Demonstration Farm

As mentioned in the previous report, the Demonstration Farm at Salani was funded with funds provided by the FAO South Pacific Aquaculture Development Programme (SPADP). Construction of 2 grow-out ponds (each measuring 20m x 25 m) and 2 nursery ponds (measuring 5m x 10m) was completed in late 1993.

In 1994, 1,800 *O. niloticus* fry ("Chitralada", a Thailand strain) were imported from Fiji. Six hundred fry were stocked into each of the 2 grow-out ponds at Salani. The rest of the imported fry were kept at the Fisheries hatchery to serve as broodstock. One of the grow-out ponds was harvested in June 1995, approximately after 1 year of culture. The results were disappointing in that even though survival was high (almost 100 per cent), growth was very poor in that only 25.5 kg of fish was obtained, with individuals averaging 43.3 g each. The poor growth was attributed to poor pond construction (pond design), poor farm management by the farmer and poor feed.

One of the major problems with the Salani Fish Farm, in terms of monitoring by the Division, is its location, remote and the road is always very bad making it impossible for vehicles to use. The farmer did not follow advice provided by the Division most of the time.

### 1.2.2 Hatchery

The remaining Nile tilapia fry imported from Fiji in 1994 after stocking the Salani grow-out ponds were kept at the Division hatchery for breeding. The hatchery is proving to be successful. Nile tilapia fry used for stocking the cage culture trial in Solaua and one of the ponds at the Solaua Aqua Farms were produced from the hatchery. In June 1995, the breeders at the Division hatchery were properly selected and sexed for proper breeding purposes.

### 1.2.3 Cage Culture

Another simple method of culturing fish is the use of cages deployed in natural bodies of water. A request from an individual from Solaua received by the Division for a way of using a swampy area near his home to produce fish prompted an assessment of the potential of the area for fish culture in May 1995. The results indicated that cage culturing might be an appropriate approach to take. A wire cage measuring 1.6m x 1.6m x 0.6m in height and covered with a 25 mm netting (except for the top) was constructed and deployed in the swamp in June 1995. The cage was stocked with 13 juvenile Nile tilapia in the same month from the Division hatchery.

### 1.2.4 Pond Culture

At the request of the Solaua Aqua Farms company which culture fresh-water crayfish imported from Australia as juveniles, one of their grow-out ponds was stocked with 3,450 Nile tilapia fry from the Division hatchery in June and July, 1995.

### Future Activities

- Continue to provide technical assistance for improving production from the demonstration farm.
- Continue experimental trials of cage culturing to assess its potential as a means of culturing fish.
- Conduct surveys to identify other areas with existing potential for inland fish farming.
- Conduct data collection at the Afulilo Reservoir to assess its potential for fish stocking.
- Provide assistance to establish new fish farms.

### ***1.3 Fresh-water crayfish***

As reported in the previous annual report, a joint venture between a local entrepreneur and an Australian partner initiated the culture of fresh-water crayfish, the Australian redclaw (*Cherax quadricarinatus*) and the yabby, (*C. destructor*) in early 1993. Animals of various sizes of both species were introduced from Australia and cultured in earthen ponds which were used in the fresh-water prawn culture project in the early 1980s at Solaua. This effort was disrupted by the sudden “disappearance” of the Australian partner. The advice provided by Fisheries Division on feed and feeding schedules enabled the local venture partner to obtain some crayfish which were in marketable size after about a year of culture. Samples were sent to Rarotonga and Fiji to test for potential markets there.

In a more “genuine” effort to establish the potential of farming fresh-water crayfish in Western Samoa, approximately 10,000 juveniles of redclaw, *C. quadricarinatus*, juveniles were imported in early 1995 with the operation under a different manager and the same local partner. These were stocked in one pond at Solaua and cultured using "green water" without application of supplementary feed. Growth rates have been encouraging.

#### Future Activities

- Provide technical assistance, where possible, to the local entrepreneur.
- Promote the farming of the Australian fresh-water crayfish if it has the potential.

## **2. FISHERIES STATISTICS AND RESOURCE ASSESSMENT**

### ***2.1 Fishery Product Commercial Landings***

The collection of fisheries landing statistics is one of the Division's on-going programmes. Data are obtained through the conduct of surveys on randomly chosen days of the week at various commercial outlets. On each sampling day, major taxa (families to species) of fishes and invertebrates are recorded, lengths are measured and numbers counted. The weights are then estimated from lengths, using a table of weight/length relationship for various types of fishes produced for similar studies in Fiji. Other information on economic value and effort (fishing hours, location, fuel consumption, number of crew, fishing methods, etc.) are obtained from interviewing sellers, proprietors of other outlets or from receipt books. Data are entered into the fishery database which is in ACCESS. On each sampling day, data are summarised and entered with landings estimated on a monthly basis and reviewed annually.

The Fisheries surveys which were implemented by the Division in the 1994/1995 period are as follows:

- (a) Inshore fisheries survey at the Apia Fish Market and Salelologa Agriculture Market.
- (b) Offshore tuna fishery survey for Apia Fish Market and Salelologa Agriculture Market.
- (c) Offshore deepwater fishery survey for Apia Fish Market and Salelologa Agriculture Market.
- (d) Apolima landing site survey.
- (e) Wholesalers, retailers, restaurant survey.
- (f) Roadside survey (Apia to Faleolo).
- (g) Alias landing catch survey, Savaii.
- (h) Longline catch survey of large fishing vessels.

Table 2a shows monthly summaries of fishery products sold at the Apia Fish Market while Table 2b records fishery landings at other outlets on Upolu for the 1994/1995 period. Table 2c records fishery products landings recorded from the Salelologa (Savaii) Agriculture Market and hotels.

As compared to last year, there were slight increases in tuna and bottomfish at the Fish Market in 1994/1995. However, there was a marked decrease in inshore fish landings. Marked decreases were also recorded in the Roadside and Retailers fishery product records as well as bottomfish landings at the Apolima landing site.

On Savaii, tuna landings for both 1993/1994 and 1994/1995 periods were about the same. However, a marked decrease in bottomfish landings for the 1994/1995 was observed. This could be attributed to the discontinuation of the export of bottomfish by the Savaii Fishermen's Association to Honolulu. Inshore fishery product landings in the 1994/1995 period showed an increase. This increase is attributed to the wider area of survey coverage which included hotels.

*Table 2a: Monthly summaries of fishery products sold at the Apia Fish Market on Upolu Island. [Wt in mt and Value in Tala (^000)].*

UPOLU	1994						1995						TOTAL
Site/Fishery	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	TOTAL
<b>APIA FM</b>													
<b>Tuna</b>													
Wt	77.0	63.5	73.3	35.0	24.4	45.6	49.2	57.1	56.3	30.2	76.0	55.1	<b>642.7</b>
Value	162.0	124.3	167.5	79.0	43.4	61.1	94.5	165.6	169.0	111.0	134.0	89.0	<b>1,400.4</b>
<b>Bottomfish</b>													
Wt	1.9	0.8	5.4	1.3	0.1	0.5	0.5	0.8	0.7	5.8	0.6	0.5	<b>18.9</b>
Value	8.3	5.1	27.5	6.0	0.5	2.4	3.1	5.3	3.8	31.3	3.4	1.0	<b>97.7</b>
<b>Inshore Finfish</b>													
Wt	9.1	5.6	5.6	6.8	2.1	1.4	0.1	5.6	5.7	2.6	5.6	2.6	<b>52.8</b>
Value	17.0	11.6	9.3	6.6	3.0	6.2	0.5	24.5	36.2	14.4	31.4	15.5	<b>176.2</b>

*Table 2b: Monthly summaries of fishery products sold on the Roadside from Apia to Faleolo, purchased by Other Outlets and landed at Apolima on Upolu [Wt in mt and Value in WST ^000].*

UPOLU	1994						1995						TOTAL
Site/Fishery	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	TOTAL
<b>ROADSIDE</b>													
Wt	3.2	1.6	0.7	1.2	0.8	1.0	0.1	0.04	0.1	0.1	0.2	0.3	<b>9.3</b>
Value	10	9	6	9	4	5	0.6	0.2	0.6	0.5	1.2	2.0	<b>48.1</b>
<b>RETAILERS</b>													
Wt	7.1	4.6	5.3	1.5	0.9	1.7	0.4	3.0	5.7	3.0	2.8	0.3	<b>36.3</b>
Value	27.9	23.9	16.2	6.6	4.0	7.4	2.4	17.0	11.4	16.0	12.0	2.0	<b>146.8</b>
<b>APOLIMA</b>													
<b>Bottomfish</b>													
Wt	4.4	3.7	1.5	1.4	2.2	1.8	1.5	1.9	3.3	1.6	2.3	3.6	<b>29.2</b>
Value	19.4	15.5	6.3	6.4	10.0	7.4	6.2	8.0	15.0	7.0	10.0	16.0	<b>127.2</b>

*Table 2c: Monthly summaries of fish sold at the Salelologa (Savaii) Agriculture Market and Hotels. [Wt in mt and Value in Tala (^000)].*

SAVAII	1994						1995						TOTAL
Fishery	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	TOTAL
<b>Tuna</b>													
Wt	1.0	31.0	35.6	7.0	3.7	3.0	14.0	5.1	8.4	5.5	4.1	1.9	<b>120.3</b>
Value	3.9	74.0	100.0	25.3	6.5	6.0	42.6	16.7	30.0	18.0	6.4	4.5	<b>333.9</b>
<b>Bottomfish</b>													
Wt	0.1	16.7	9.3	0.6	1.5	1.2	3.3 est	0.2	2.2	1.5	3.3 est	0.04	<b>39.9</b>
Value	0.2	98.0	51.2	3.3	9.0	4.8	19.2 est	1.3	14.5	10.0	19.2 est	0.1	<b>230.8</b>
<b>Inshore</b>													
Wt	2.4	2.0	2.2	1.8	2.1	2.5	2.3	1.1	1.4	1.2	1.7	1.2	<b>21.9</b>
Value	14.0	12.0	13.0	7.7	10.3	12.6	12.0	6.0	7.5	6.0	4.3	3.2	<b>108.6</b>

Table 3 below summarises the estimated total commercial fisheries landings for the major outlets in Western Samoa for the 1994/1995 period.

**Table 3:** *Summary of commercial fisheries landings for Western Samoa (Upolu and Savai'i) for the 1994/1995 period.*

<b>SURVEY</b>	<b>Weight (mt)</b>	<b>Value (WST '000)</b>
Tuna	763.0	1,734.30
Bottomfish (including Apolima)	88.0	455.7
Inshore	74.7	284.8
Roadside	9.3	48.1
Retailers	36.3	146.8
<b>GRAND TOTAL</b>	<b>971.3</b>	<b>2,669.70</b>

### **Future Activities**

- Continuation of the Fisheries data collection programme.
- Work on upgrading the collection, compilation/databasing and analysis systems for efficient generation of reports and information, and finer analysis operations.

## ***2.2 Fishery Product Exports***

Apart from the beche-de-mer and aquarium fish exports, there has also been quite a volume of fishery products exported for food. Even though there is anecdotal information of an increase in the export of food fishery products, proper recordings of these were only possible when a certification of fishery products for export system was initiated in early 1995. This process involves conducting inspection of fishery products to be exported for compliance with Terms and Conditions and issuing a Certification for Fishery Products for Export.

### **2.2.1 Aquarium trade**

As reported in the previous report, only one company, Lefaga Seaboard Ltd, was operational during the year in the export of aquarium fish. The operation is owned by a local company employing overseas and local divers as fish collectors. Table 4 records exports of aquarium fish during the period. The data indicates that assorted damsels dominated the export followed by assorted wrasses and then assorted angelfish. A total of 30,405 aquarium fish, valued at US\$19,634.00 were exported during the 1994/1995 period. Fisheries Division conducts inspection during packaging to ensure the Terms and Conditions given are kept and issues certification each time a shipment is made.

**Table 4: Aquarium fish export during the 1994/1995 period.**

Fish	Quantity (# pieces)	Average Price	Value (USD)	Fish	Quantity (# pieces)	Average Price	Value (USD)
Arothrons	21		21.00	Flagfin angel	47		74.50
Assorted angelfish	830		1,865.00	Flamehawk fish	13		39.00
Assorted anthias	198		310.50	Heniochus butterfly	323		163.50
Assorted blennies	173		106.50	Humuhumu (triggerfish)	575		654.50
Assorted butterflyfish	497		740.00	Imperator angel	2		20.00
Assorted clownfish	719		484.50	Lemon angel	98		219.50
Assorted damsel fish	19,368		7,257.00	Regal angel	57		178.50
Assorted gobies	107		32.10	Sailfish tang	2		1.00
Assorted tangs	844		542.00	Yellow angel	154		231.00
Assorted triggerfish	65		65.00	Harwickle wrasses	410		410.00
Assorted wrasses	3,529		4,811.50	Power brown tang	1		2.50
Bicolor angel	103		103.00	Yellow popper	2		2.00
Blennies	105		52.50	Cleaner wrasses	1,944		1,029.00
Boxfish	48		51.00	Clown trigger	4		2.00
Coral beauty angel	106		106.00	Domino damsel	60		60.00
<b>Sub-total</b>	<b>26,713</b>		<b>16,547.60</b>	<b>Sub-total</b>	<b>3,692</b>		<b>3,087.00</b>
<b>GRAND TOTAL</b>					<b>30,405</b>		<b>19,634.60</b>

### Future Activities

- Monitor development of the industry including trends in the fishery.
- Assess the potential of the resource for implementation of appropriate management strategies.

### 2.2.2 Beche-de-mer

The sea cucumber (beche-der-mer) fishery started in Western Samoa in the late 1992 and early 1993. By mid 1993, five companies were involved locally in the harvesting, processing and export of sea cucumber from Western Samoa to overseas markets. However, due to the nature of the resource whereby the decreasing volume of the more valuable species make the operation uneconomical, only three companies were operational by 1995.

Even though certain species always fix good value in the market, prices do vary depending on the situation of the beche-der-mer market from time to time as well as how well the beche-de-mer was processed.

Bech-der-mer species composition, by weight and value, exported during the 1994/1995 period is presented in Table 5. In terms of weights, brown sand fish made

up the largest portion (58 per cent) but a slightly lower portion in terms of value (47.6 per cent).

**Table 5:** Beche-der-mer export composition by weight and corresponding values.

Species	English Name	Weight		Value	
		Kg	% of Total	USD	% of Total
Holothuria (Microthele) fuscogilva)	White teatfish	767	2.64	1,980.35	2.47
Stichopus chloronatus	Green fish	3,044	10.49	19,907.42	24.83
Thelenota ananas	Prickly fish	235	0.81	282.00	0.35
Holothuria (Microthele) nobilis	Black teatfish	805	2.77	1,930.00	2.41
Actinopyga mauritiana	Surf redfish	1,537	5.30	5,395.64	6.73
Bohadschia argus	Tigerfish	1,662	5.73	5,257.52	6.56
Bohadschia marmorata/vitiensis	Brown sandfish	16,856	58.08	38,160.90	47.60
Holothuria (Halodeima) atra	Lollyfish	4,101	14.13	7,225.92	9.01
Stichopus variegatus	Curryfish	16	0.06	35.20	0.04
<b>TOTAL</b>		<b>29,023</b>		<b>80,174.95</b>	

### 2.2.3 Finfish

As reported above, proper collection and compilation of fishery products exported for food was initiated in early 1995 with the start of the certification system. Table 6 summarizes records of fishery products exported during the March-June, 1995 period. Bottomfish, tuna and bottomfish exports were mainly to the US, New Zealand and Australian markets whereas data recorded as Bottomfish and Inshore Fish were fishery product exports to American Samoa. The data indicates that in terms of volume, tuna account for 72 per cent of the total recorded fishery export. However, in terms of value, tuna account for 66 per cent.

**Table 6:** Records of fishery products exported for food in the March-June 1995 period.

FISHERY	WEIGHT		VALUE	
	KG	% of Total	WST	% of Total
Tuna	28,369.30	72.0	50,599.86	66.0
Other offshore pelagics	1,630.38	4.0	1,651.89	2.0
Bottomfish	7,200.23	18.0	13,442.08	17.5
Bottomfish & Inshore Fish	2,209.09	6.0	11,201.52	14.5
<b>TOTAL</b>	<b>39,409.00</b>		<b>76,895.35</b>	

### Future Activities

- Continue with the monitoring and inspection programme for harvesting and exporting of fishery resources such as aquarium, beche-der-mer, finfish and other marine products.
- Ascertain that terms and conditions for export fisheries resources are strictly adhered to by exporting companies.

- Continue with the certification of fisheries products for exports.

### **3. FISH AGGREGATING DEVICES (FADs)**

No FAD deployment was made during this fiscal year as funding was not made available in the Budget. However, the programme concentrated on maintenance and monitoring of the existing FAD fleet which were deployed during the last financial year. A total of nine trips were undertaken by the programme to carry out the necessary tasks.

However despite the effort to maintain and keep the devices for longer period, four FADs broke off and went missing before the end of the fiscal year. It is believed that the cause of the losses was due to natural sources (fish bite or during strong winds).

#### Future Activities

- Maintain and monitor the remaining FADs
- Seek funding to continue the programme
- Deployment of any new FADs when materials are available

### **4. EXPLORATORY FISHING**

The Exploratory Fishing Programme this year started off with a different course. Internal training of new crew took up most of the first three months. The new crew were mainly school leavers and were not familiar with the use of modern fishing gears but have the capability of becoming good fishermen if they are well and properly trained. The previous crews have taken up employment with the private fishing boats for better wages.

The training contents include general seamanship, fishing gear rigging, safety at sea, demonstration of fishing methods and fish handling on board. Sounding survey continued on the north side of Savaii (Saleaula to Sasina). Areas ideal for bottom fishing have been spotted off Saleaula and Sasina.

#### Future Activities

- Conduct trial fishing using bottom long line.
- Conduct re-investigation on the deep-water bottom fish resources on offshore banks at Falealupo and Apolima.

### **5. SURVEILLANCE**

Fisheries Division continued to join forces with the Police Maritime Wing in the execution of the patrol programme. During the period, six Taiwanese Long Line vessels licensed to fish in the Western Samoa's Exclusive Economic Zone (EEZ) under a bi-lateral agreement with Western Samoa, breached the Terms and Conditions of the said agreement. The Surveillance Committee, which include representatives from the Ministry of Agriculture, Forests, Fisheries and Meteorology, Police Department and the Attorney General's Office, held a series of meetings to discuss appropriate action to take to penalise vessels that breached the agreement. A fine was finally imposed on the vessels concerned. However, the vessel owners refused to pay the fine. As a result, their fishing licenses were suspended and they also lost their good standing on the Forum Fisheries Agency's Regional Registration upon Western Samoa's request.

Australia and New Zealand Royal Air Forces continued to assist our surveillance programme with their Orion flights conducting aerial surveillance of our EEZ.

#### Future Activities

- Continuation of cooperative patrolling of the EEZ with the Police Department.
- Accompany Orion Flights during aerial patrols.
- Spot inspections for dynamite fishing activities.

### **6. LICENSING OF FOREIGN FISHING VESSELS**

Of the 37 Taiwanese Long Line Vessels licensed to fish in Western Samoa's EEZ from 1 January to the 31 December 1994, six were suspended due to non-compliance with Terms and Conditions of Licensing Agreement. In the 1995 Licensing period, only eight vessels reapplied for renewal of their licenses. However, they were never issued with fishing licenses as they prefer a one-year period instead of the six months stated in the Terms and Conditions of the Agreement.

Two fishing licenses were issued to the Tropac Fisheries Co. in 1994. Their licenses were renewed in 1995 in addition to two other new fishing licenses making up the total of four licenses issued in the year at WSS\$4,000 per license.

### **7. FISHERIES ADVISORY SERVICES (EXTENSION AND TRAINING)**

With funds from the Government of Australia through AusAID, Fisheries Division has set up and improved its advisory services with the establishment of the Extension and Training Project. The Section's functions and objectives are:

- To establish community fishing practises consistent with the maximum productivity and sustainability of marine resources.

Objective: To develop an effective, community-focussed extension system.

- To build community awareness, motivation and commitment in communities so that they can be actively involved in appropriate marine resource management.

Objective: The creation of communities that are aware, committed and actively involved in appropriate marine resources management.

- To increase awareness of the general public, opinion makers and politicians, and thus provide reinforcement to the work of the extension in target resources.

Objective: Creation of an informed general public supportive of appropriate measures to ensure sustained marine resources.

The Fisheries Extension and Training Project commenced its implementation in March, 1995 with the appointments of local staff effect in June 1995. The activities within that short period were mainly on establishment, project planning/redesigning and the recruitment and training plans of new extension staff.

#### Future Activities

- Create a Fisheries Extension Service which is effective, well-trained and community focussed.
- Conduct technical and scientific training for the newly appointed Fisheries Extension staff.
- Conduct public awareness programmes and workshops.
- Develop an effective and community-focussed fisheries extension system.
- Undertake meetings with villages and setting various management and advisory committees.
- Organize and run workshops for high school teachers, pastors on the design of curricular incorporating components on fisheries resource conservation and environmental protection.
- Provide training/information on:
  - offshore fishing (operation of boats and gear);
  - aquaculture;
  - introductions/restocking of potential organisms;
  - creation of marine reserves
- Provide technical advice and assist the community in the preparation of their fisheries management plans and activities, e.g. on the maintenance and management of fish reserves and the creation of village by-laws for better management of their marine resources.

## **8. VEHICLES**

Four vehicles were used for Fisheries Division activities which included operational, research and development activities. One of these vehicles was used for activities on Savaii and the rest were based in Apia. All four vehicles were donated by USAID in 1992. Table 7 records details pertaining to the use of the Fisheries Division vehicles that were operational during the year.

*Table 7: Details on Fisheries Vehicle use during the 1994/1995 period.*

<b>Vehicle Plate Number</b>	<b>Location/Base</b>	<b>Type &amp; Model</b>	<b>Year of Purchase</b>	<b>Funding Source</b>	<b>Remarks</b>
Govt.9031	Apia Administration	Isuzu double cap pickup	1992	USAID	Office
Govt.9029	Apia Aquaculture & Research Trials	Isuzu single cap pickup	1992	USAID	Fisheries Statistics, Resource Assessment, Giant Clam, Fresh-water Fish Farming projects
Govt 9479	Apia Exploratory Fishing	Isuzu single-cap pickup	1992	USAID	FAD and Exploratory Projects
Govt 9030	Asau	Isuzu single-cap pickup	1992	USAID	Exploratory and Fisheries Statistics Projects & Office use

## **9. FISHERIES DIVISION FISHING BOATS**

### ***9.1 Tautai Matapalapala***

The 23-ton fibreglass research fishing vessel, Tautai Matapalapala, which was originally purchased with funds from USAID, is being maintained in excellent condition. The vessel is equipped with a radar, depth finder, Global Positioning Satellite (GPS) and two telephone radios.

During the period Tautai Matapalapala was used mainly for maintenance and monitoring of FADs and in conducting sounding surveys for fishing grounds particularly on the north side of Savaii. As reported above, good potential fishing areas for bottomfishing were located off Saleaula and Sasina.

### ***9.2 Tautai Iapani***

Tautai Iapani is a 28-foot aluminium catamaran (alia) powered by a 75 HP Mariner outboard motor. As reported in the previous report, this alia is based at the Asau Fisheries Division Sub-centre. As was the case last year, the vessel was used mainly for conducting experimental fishing and served as the platform for demonstration of fishing methods and training for Savaii fishermen.

## **10. FISHERMEN FUEL SUBSIDY**

Fisheries Division continued to issue permits to locally registered fishermen for the purchases of pre-mixed fuel for use on their fishing boats. The issuance of permits to fishermen for the purchases of pre-mixed fuel entitles the fishermen for fuel subsidy, which is a refund of the duty on imported fuel. Table 8(a) summarises sales of pre-mixed fuel by area of origin of alia owner as taken from Fisheries Division records.

*Table 8(a): Sale of pre-mixed fuel during the July 1994/June 1995 period*

UPOLU			SAVAI'I		
July 1994 to June 1995			July 1994 to June 1995		
Origin of Alia Owners	No. of 44-gal Drums	Subsidy Refunded by Government	Origin of Alia Owners	No. of 44-gal Drums	Subsidy Refunded by Government
Siumu	499	17,514.90	Sataua	165	5,791.50
Falealili	791	27,764.10	Safotu	45	1,579.50
Vaoala	70	2,457.00	Samalaeulu	58	2,035.80
Papauta	264	9,266.40	Palauli	68	2,386.80
Vailima	251	8,810.10	Lalomalava	109	3,825.90
Tanumalala	387	13,583.70	Auala	65	2,281.50
Apolima	153	5,370.30	Foaluga	145	5,089.50
Apia	426	14,952.60	Satupa'itea	94	3,299.40
Faleasi'u	113	3,966.30	Sala'ilua	101	3,545.10
Lalomanu	50	1,755.0	Salelologa	73	2,562.30
Satitua	75	2,632.50			
Saluafata	46	1,614.60			
Lufilufi	56	1,965.60			
Laulii	58	2,035.80			
Lotopa	56	1,965.60			
Lepea	100	3,510.00			
<b>TOTAL</b>	<b>3,395</b>	<b>119,164.50</b>	<b>TOTAL</b>	<b>923</b>	<b>32,397.30</b>

Table 8(b) summarises fuel purchases by base area of the fishing boats (alia). The table indicates that by far, fishing boats based in Apia are involved in more commercial fishing activities than any other base, even more than the whole of Savai'i combined. The main contributing factor to this is the better marketing avenues available on Upolu Island as well as the availability of more lucrative markets for fish in Apia.

*Table 8(b): Fishing Boats Fuel Purchases, sorted by Landing/Base during the 1994/1995 period.*

UPOLU			SAVAI'I		
July 1994 to June 1995			July 1994 to June 1995		
Fishing Boat Base	No. of 44-gal Drums	Subsidy Refunded by Government	Origin of Alia Owners	No. of 44-gal Drums	Subsidy Refunded by Government
Siumu	499	17,514.90	Sataua	165	5,791.50
Falealili	791	27,764.10	Safotu	45	1,579.50
Apia	1,612	56,581.20	Samalaeulu	58	2,035.80
Apolima	153	5,370.30	Palauli	68	2,386.80
Aleipata	125	4,387.50	Lalomalava	109	3,825.90
Faleasi'u	113	3,966.30	Auala	65	2,281.50
Saluafata	46	1,614.60	Foaluga	145	5,089.50
Lufilufi	56	1,965.60	Satupa'itea	94	3,299.40
			Sala'ilua	101	3,545.10
			Salelologa	73	2,562.30

<b>TOTAL</b>	<b>3,395</b>	<b>119,164.50</b>	<b>TOTAL</b>	<b>923</b>	<b>32,397.30</b>
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## **11. MECHANIC WORKSHOP**

The Division's mechanic workshop continued to provide the necessary services to repair fishermen's outboard motors at a fee of \$10.00 per repair regardless of the magnitude and nature of the repair. Assistance was also given in other areas. In summary, the workshop carried out the following:

1. Repairs of outboard motors for fishermen
2. Minor repairs to weed-eater, water pump and generators for Fisheries Division
3. Operation of Crane for hire by Fishermen
4. Assisted in the construction and assembling of FAD components
5. Conduct training of local fishermen for operation, care and maintenance of outboard motor.
6. Provide repair services to Tautai Matapalapala.

## **ACKNOWLEDGEMENT**

The Fisheries Division wishes to record its thanks and great appreciation to the following Governments and Regional Agencies for the kind assistance provided to the development of fisheries in Western Samoa during the year through the services of Consultants, services of Volunteers, supply of materials, supply of valuable information, funding Fisheries Division participation to Meetings and Trainings, provision of technical advises and many others:

1. Government of Australia
2. Food and Agriculture Organisation (FAO)
3. Forum Fisheries Agency (FFA)
4. Government of New Zealand
5. South Pacific Aquaculture Development Project (SPADP)
6. South Pacific Commission (SPC)
7. United Nations Development Programme (UNDP)

Thanks are due to the various local Government Departments in particular the Ministry of Foreign Affairs for positive attitude shown to various matters requested by the Fisheries Division.

Lastly, but not the least, thanks are extended to our Minister, Director, Deputy Director and Divisional Heads for the support they have given to the Fisheries Division throughout the 1994/1995 year period.