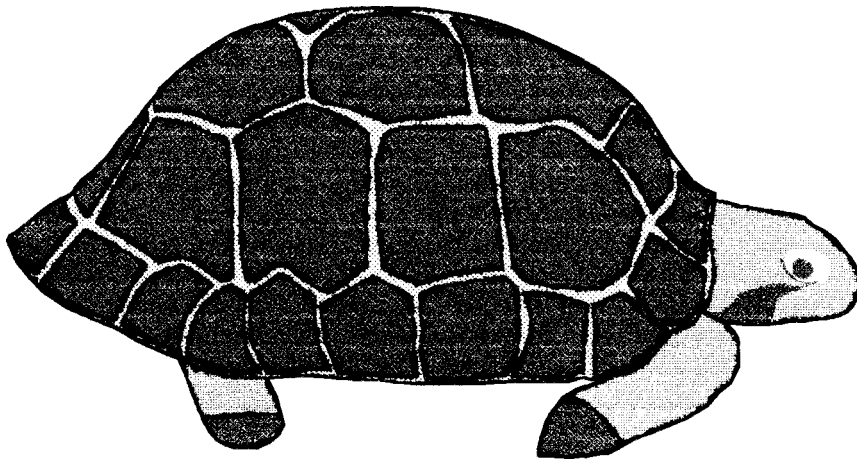


FISHERIES DEPARTMENT

MINISTRY OF NATURAL RESOURCES



SAVE OUR TURTLES

ANNUAL REPORT 1998

TUVALU

FISHERIES DIVISION ANNUAL REPORT
1993
Table of Contents

- 1. Introduction**
- 2. The fisheries division**
 - 2.1 Resources
 - 2.1.1 Personnel
 - 2.1.2 Aid Personnel
 - 2.1.3 Staff Training
 - a) local
 - b) overseas
 - 2.1.4 Meetings and Conferences
 - 2.1.5 PeaceSat
 - 2.2 Finance
 - 2.2.1 Expenditure
 - 2.2.2 Revenue
 - 2.3 Vessels
 - 2.4 Vehicles
 - 2.5 Buildings, Plant
 - 2.6 Fisheries Extension Services
 - 2.7 Fisheries Research Section
- 3. Marketing**
- 4. Resource Assessment**
 - 4.1.1 Deepwater Snapper Project
 - 4.1.2 Beche de Mer
 - 4.1.3 Shark Fins
 - 4.1.4 Dried Fish
 - 4.2 Catch Statistics
 - 4.2.1 NAFICOT Catch Statistics
 - 4.2.2 Household Fish Consumption Survey
- 5. Regulatory Activities**
 - 5.1 Foreign Fishing Vessels
 - 5.2 Domestic Fishing
 - 5.3 Commercial Fishing
 - 5.4 Surveillance and Law Enforcement
- 6. Development Projects**
 - 6.1 Giant Clam Project
 - 6.2 Program Support for Fisheries
 - 6.3 Small-scale Yellowfin Project
 - 6.4 Air-conditioning Unit

- 6.5 Fisheries Equipment and Furniture Project
- 6.6 Tasu I Observer Project
- 6.7 Ice-making Machine Project
- 6.8 Tuvalu Delegation to Fiji Meeting
- 6.9 Computer for Fisheries

7. Conclusion

1. INTRODUCTION

This report attempts to document all of the important activities that occurred in the fisheries sector for 1993. Some very good records, were kept in regards to some activities, and these activities were easy to document. Other activities were not as well recorded, and some extrapolation and guesses had to be made. Nevertheless it is hoped that all of the most important information from 1993 is available within this report.

1993 seemed to start off slowly, and then to have a gradual increase in activity until the end of the year. Two expats began to work at the fisheries during the beginning of the year, and several new projects began while other older projects continued. The Ciguatera monitoring project, the mechanics training school, and the RDA deepwater snapper projects all seemed to be areas with some successes. The fisheries brought an old boat back into service, the Ta Taulka, which was a bonus for the research and extension sections. Unfortunately the commercial sector of the fisheries did not enjoy a good year, as very few fish were caught for the public.

It is hoped that by paying attention to the successes and failures of 1993 the fisheries will be able to make 1994 a better year. The latter part of 1993 seemed to show solid improvement in the fisheries which has definitely continued into 1994 already. With hard work and an attitude of seriousness the fisheries could improve itself greatly in the coming years.

2. FISHERIES DIVISION

2.1 Resources

2.1.1 Personnel

During 1993 there were many vacant posts in the fisheries department, both among established and classified positions. The staff structure for 1993 called for 24 established positions, and 17 classified positions. Of the 24 established positions, there were 6 vacancies. Of the 17 classified positions, there were 2 vacancies. The total number of posts in the fisheries was 41. The following pages contain a list of all posts by section, including the names of the people filling each post, as well as those posts which were vacant at the time. Due to some very key posts remaining vacant, it was very difficult to successfully carry out all proposed activities. Some posts were not actually vacant, but were held by people who were attending long term training overseas. Some of these positions were Assistant Fisheries Extension Officer and Assistant Fisheries Research Officer. The Assistant Fisheries Extension Officer returned to work after training in Vanuatu late in the year, and the Assistant Fisheries Research Officer stopped working late in 1993 because he was going to Australia for a 3 year scholarship. Samasoni Auina was attending USP in Suva.

2.1.2 Aid Personnel

There were 3 different Aid personnel working for the fisheries in 1993.

The Principal Fisheries Officer worked all year until November when his two year contract ended. The officer worked on behalf of AID and 1993 was the second year of his two year contract. There was no replacement for the officer at the end of his contract.

The new Peace Corp volunteer or Fisheries Research Advisor began a two year contract with the fisheries in late January of 1993. His role is to assist the research section. This contract is under the United States Peace Corps.

The JICA Mechanical and Engineering Expert began working as the Fisheries Mechanic Advisor in March 1993. The expert had already served a two year contract here in Tuvalu from 1989-1991. The expert's contract was funded under JICA technical assistance to Tuvalu.

2.1.3 Staff Training

a) Local Training

Perhaps the most successful training that was conducted in Tuvalu last year was done by the JICA Mechanical and Engineering Expert for the Fisheries Mechanics section. The training that the Mechanical and Engineering Advisor conducted concerned the basics of Diesel engines and outboard engines, as well as basic skills in math. The mechanics that attended the training were very interested and put forth a good effort to learn. One problem that the fisheries faces in trying to conduct good training is the lack of an appropriate classroom. The room next to the RDA office was used for classes.

A Ciguatera monitoring training course was given by Dr. Ursula Kaly in October. This training course was attended by members of the fisheries research and extension sections. The purpose of this training course was to teach people what ciguatera is, and how we can determine exactly how much ciguatera there is on a reef. This information can also be used to guess when an outbreak of ciguatera will occur. The training course began on Funafuti with several lectures about what ciguatera is. The training went on to teach us how to look for the animals that cause ciguatera. The next segment of the training involved going to Niutao and Nanumea on the Manaui in order to sample the reefs there for ciguatera. The data that we collected was prepared in a report using the Excel program. This report not only gives the status of ciguatera, but can also predict to a degree when an outbreak may

occur. This training was very valuable and has taught many people skills that will be valuable to them for a long time.

Early in the year Robin Macdowel came to Tuvalu to check on the status of the PIMRIS data system. This training was mostly for Fisheries Research Assistant, who was in charge of the database system. The PIMRIS Information Expert said that the data entry had a long way to go at the time of her visit and she hoped that the pace of the work done to the system could increase.

Wayne Haight, a marine biologist from the National Marine Fisheries Service in Honolulu came to Tuvalu in February to give training in the proper techniques for data collection on fishing cruises. He accompanied the manui on a fishing trip to Vaitupu. RDA had just recently hired two new data collectors who learned much on this trip.

b) Overseas Training

The Fisheries Clerical Officer went to Fiji from September to November as an attachment to the Fiji Fisheries Department. The purpose of this training attachment was for her to acquire more clerical skills. According to the officer's report, she learned very much and thinks that what she learned will be of great assistance to her job.

The Fisheries Officer attended a workshop in Fiji from 2-6 August regarding Fisheries prosecution procedures. The workshop regarded FFA procedures for when a foreign fishing vessel is caught illegally fishing inside a country's exclusive fishing zone. The emphasis of the course was on gathering evidence that could be used to help in the persecution of the guilty fishing boat. The information in that workshop should prove very valuable to Tuvalu when it begins operation of its patrol boat.

The Fisheries Statistician and Assistant Fisheries Extension Officer both underwent training at the New Zealand School of Fisheries, Nelson Polytechnic. The four and a half month course was entitled "South Pacific Fisheries Officer Training Course". This course taught many different practical skills, such as engine and boat repair, fishing gear construction and repair, record keeping, book keeping, fish handling, and navigation.

2.1.4 Meeting and Conferences.

Several different meetings and conferences were attended by several members of the fisheries department in 1993. Listed below are some of those meetings, as well as who attended them.

Meetings and Conferences attended by Fisheries personnel, 1993.

South Pacific Strategy for United Nations conference on Straddling Fish Stock. January 21- February 8, 1993 Attended by the Fisheries Officer, Solomon Islands.

OFCF Symposium on Western Pacific Tuna Fishery, 19 February - 4 March Fisheries Officer, Tokyo, Japan.

2.1.5 Peacesat.

A technician from the FFA came to install a Peacesat terminal at the Fisheries department. All FFA member countries have Peacesat terminals. This service is free to all member countries, and maybe used to communicate with any other member countries for long periods of time, free of charge. Phone patches may also be used for the cost of the local phone rates to whatever party is being called. The Peacesat proved to be a very valuable addition to the fisheries department.

2.2 FINANCE

2.2.1 Expenditure.

The Fisheries Department had many different expenses in 1993. In most cases, the estimates of how much money would be needed was far greater than what was actually spent. The expenditure estimates and actual money spent are listed below.

EXPENSES	ESTIMATE	ACTUAL
Salaries, Civil Servants	32,283.00	28,446.16
TPF Contribution	1,614.00	893.20
Allowances	3,846.00	948.66
Wages & Overtime, Calssified Workers	16,042.00	15,691.00
Equipment Repair	2,500.00	2,500.00
Computer Maintenance	2,500.00	2,500.00
Building Maintenance	5,625.00	4,341.88
Office Expenses	1,500.00	1,500.00
Fishing Gear Purchase	8,000.00	4,294.20
Bank Service Commission	1,000.00	0
Civil Servants	10,101.00	7,649.00
TPF Contribution	505.00	376.40
Wages & Overtime, Classified workers at VTP CFC.	4,648.00	2,321.48
Extension Vessel Provision	12,000.00	7,571.35
Extension Vesse Personnel	30,000.00	21,809.28
Purchase of Fish Products*	6,000.00	22,090.85
Fish Aggregating Devices	20,000.00	9,941.00
CFC Operating Costs	6,875.00	1,404.31
Civil Servant Salaries	25,791.00	8,176.40
TPF Contribution	1,290.00	795.64
Development Research Project	11,800.00	11,530.88
Wages & Overtime, Classified Workers	8,420.00	9,088.01
Vehicle Repair & Maintenance	3,000.00	1,281.85
Manau Repair & Maintenance	8,500.00	8,409.56
Vehicle Petrol & Oil	1,100.00	918.59
Manau Running Expenses	22,500.00	22,500.00
TOTAL	247,440.00	196,979.49

* Purchase of Fish Products- This expenditure has a ccess to it own revolving fund, which is why the expenditure was able to be much greater than the actual money set aside for it.

Total Estimated Expenses for 1993

\$ 247,440.00

Actual Expenses for 1993

\$ 196,979.49

Uncommitted funds at end of 1993

AS50,460.51

2.2.2 Revenue

The fisheries department did not have many soures of revenue in 1993. Perhaps the greatest source of revenue were numerous charters of the Manau for non fisheries related charters, such as the Fusi and Lotohoni stores. Another source of revenue for the fisheries was the sale of fishing tackle from the fisheries store. This money was put into a revolving fund that was used to buy things such as line, plastic squids, hooks, and outboard motors.

2.3 Vessels

The fisheries division only had two vessels in operating in 1993. The Manui was only used for fishing under RDA charters. The Ta Tau Ika was only brought into service in July, and fished throughout the rest of the year sporadically due to problems with spare parts and batteries. Three launches were still under loan to Naficot in 1993. These vessels were kept in very poor condition, and did not go fishing very often. The fisheries research and extension sections only had the Ta Tau Ika and the small blue aluminium boat to use for work purposes. The Ta Tau Ika was usually used for commercial fishing, and the small aluminium boat had many large leaks, making it very difficult to use. If the research and extension sections had more boats of better quality, they may be able to achieve more work in the future.

2.4 Vehicles

The fisheries department and NAFICOT had two small trucks for the year of 1993. The fisheries truck was broken down frequently and was in very poor shape. The NAFICOT truck was in similar condition. One small motor bike was purchased by the fisheries, as well as two bicycles. The motorbike is generally to be used by administrators and the management, and the two bikes should be used by the research and extension sections.

2.5 Buildings/Plants

Several changes took place in the arrangement of different offices at the Fisheries station. The computers, Peacesat terminal, and surveillance satellite monitor were all relocated from the small room that face the ocean in the main Fisheries building to the large room in the small building under the Director's office. The new and large location has thick concrete walls that provide good insulation from the heat, which makes the air conditioning more efficient. After the old room was cleared out, it was not used for anything for the rest of 1993.

On several occasions the fisheries staff took time to clean up the station on Fridays. Rubbish was collected from all around the station, as well as any old equipment that was beyond repair. This rubbish was dumped in the wrong place, however. Despite advice, the rubbish was dumped at the end of Fongafale where it can easily wash onto the reef and kill coral. In the future any rubbish that is collected by the fisheries and carried away should be checked with the town council so that we can dump it into the proper place.

The NAFICOT plant was in a state of disarray for most of 1993. Inside the plant, old equipment was laying around, cluttering up the plant. It was impossible to move around at all. Most of the equipment on the inside was old and beyond repair.

The slipways at fisheries are cluttered with old launches that have been wrecked and are beyond repair. These vessels have been taking up space for years, and there were no plans to move them. The Kaleva blocked a small slipway next to the RDA office. The Marine Department will make all possible efforts to remove the Kaleva from its wrecked place.

2.6 Fisheries Extension Services

The Extension section faced a problem of manpower shortage in 1993. Two of the extension officers, attended long term training overseas during different times in 1993.

The extension section held only one workshop on Vaitupu in 1993 for local fisherman. While they were there they also taught the staff of the CFC about how to efficiently run the center on a day to day basis. All training courses that were supposed to be held in 1993 that were not conducted were rescheduled to take place in 1994.

The Vaitupu CFC was completed at the end of 1992 and was opened for business in February 1993. The wharf on Vaitupu was destroyed by a cyclone only 18 days after its completion, however the CFC

survived and was open for business after the cyclone. For 1993 the center spent \$20,000.00 on operating costs, and made \$18,000.00 for a net loss of \$2,000.00. The center will be under the operation of the fisheries department for the first two and a half years of operation, and after that time it should go to the island council. The extension officers made several trips to the center during 1993 to make sure that the center was being operated smoothly.

The Manauai spent most of 1993 running charters for the government and private businesses, and was almost never used to go fishing for the department. RDA chartered the vessel several times, however, to conduct research on the deep water snapper project. The fisheries department always provided a data collector for these cruises. The information gathered is being used to assess the availability of deep water snapper stocks. This information will later be used to help formulate a management plan for the exploitation of the deep water snapper resource.

Several Fish Aggregating Devices (FADs) were deployed as part of the RDA deep water snapper project. One FAD was deployed per island using the Manauai. The deployment went smoothly with no major problems. The FADs seemed to help local fisherman's efficiency on some islands, although the FAD on Funafuti does not appear to be producing much at all. It is probably too close to the island to do any good, however more research will be carried out in 1994 to ascertain its performance.

2.7 Fisheries Research Section

The Fisheries Research Section has three established staff, one Peace Corps Volunteer, and two classified workers. During 1993, the post of Fisheries Research Officer was vacant, and the post of Assistant Fisheries Research officer was filled but the Officer left on a long-term training in Australia in early part of the year. Two new workers were hired in the beginning of 1993 as fisheries observers. They were attached to the Fisheries Surveillance and Law Enforcement Unit.

A Fisheries database was set up under the research section in 1993. The fisheries statistician is in charge of this database, which contains relevant information about all of the different fisheries personnel. The database was still in development at the end of 1993, since it had only recently begun.

The Boat and Canoe survey was conducted only sporadically during 1993. The research section faced a shortage of people to conduct the survey, that is the main reason for not doing the survey. The Deep Water Snapper project was probably the most successful thing that the research section was engaged in 1993. Data was collected on several different trips aboard the 'Manauai' and the 'Tasu'. The data collected concerned the fish that were caught (length, weight, species, etc.), as well as hydrographic data that showed us how big the seamounts surveyed were as well as what they looked like. Data collection went very smoothly, and were stored properly in the RDA database. This information would be carried to Hawaii in early 1994 for further analysis.

The trochus survey was conducted from time to time on Funafuti. The results were never very encouraging, as the trochus were rarely found. Many of the trochus that were found were of very small size, which indicates that they are probably reproducing successfully. The idea of raising trochus here on Tuvalu does not seem to be a wise decision since trochus are not indigenous to Tuvalu, and the ecological effects of introducing a non-native species can only be disruptive to the system. The trochus probably will not reach exportable levels soon, however monitoring will continue from time to time in the future.

The giant clam circles at Amatuku were surveyed during the year. The clams were holding steady, with very few mortalities, and about 113 individuals surviving until the end of 1993. The research section wanted to conduct searches in order to place many more clams in the circles. A lack of scuba gear and a good boat hindered the progress of these attempts.

The Principal Fisheries Officer attended a workshop on the tagging of marine turtles. The research section received all of the necessary equipment to start tagging turtles. Unfortunately the turtle was re-

captured two days later by local fisherman, and was eaten. The tagging of turtles did not continue as the research section was told that the costs of fuel involved in catching turtles was too high.

The research section began a Ciguatera Monitoring project under the guidance of Dr. Uschi Kaly, a marine biologist from the James Cook University. The monitoring was done on Niutao, Nanumea, and Funafuti. Reports were made with the results of these surveys, and were written in both English and Tuvaluan. Copies of the reports were given to several members of the government, as well as to island council members from the appropriate island.

The research section noted how many fisherman made use of the fisherman's loans scheme from the Development bank of Tuvalu. Since 1987, only 12 loans were taken out to purchase boats and/or motors, and one loan was taken out to purchase equipment to produce dried fish. Of these 13 loans, only 2 were approved in 1993.

2.8 Fisheries Mechanics Section

The Mechanics section has one expert from Japan, three classified workers, and one established staff. The mechanics are responsible for the maintenance of all fisheries vessels, such as the Manui, the small outboard engines that the department uses, as well as maintenance of the fisheries truck. The mechanic section made money last year by providing small engine repair service to the community. The JICA Mechanical and Engineering Expert gave many classes to his staff on Fridays, which the staff seemed to enjoy very much. Records of the workshop balance had not been kept before the Expert arrived for his second contract. In September, however, record-keeping began again. The balance brought forward at the end of 1992 was \$2,184.12. From the 5/9/93 until the end of December 1993, the workshop repaired 16 outboard engines and one motorcycle. Many spare parts were sold throughout 1993 as well.

3. MARKETING

Since the fisheries department had only two vessels in 1993, very few fish were sold by the fisheries. The Manui was constantly chartered by private businessess and the government, and the amount of fish that it caught was extremely low. The majority of the fish caught by the Manui were caught while under charter from the RDA. The weight of fish caught under the RDA charters on the Manui for 1993 is about 2000kg. The Ta Tau Ika was only in service for the last half of 1993, however it provided some substantial catches from time to time.

NAFICOT provided almost no service to the fish market in 1993. With results such as those from 1993, NAFICOT needs to undergo some massive changes.

Fishing gear sales were another area of revenue for the fisheries. The demand for fishing gear in Tuvalu is tremendous, however the fisheries did not seem to satisfy this demand very well in 1993. Shortages of all gear were always taking place, and prices seemed to be very high at all times. The only other major supplier of fishing gear was the Fusi and some of the small shops, which all seemed to have very high prices as well. A recommendation for 1994 should be that the fisheries department was ordering from Japan and Fiji, which are both extremely expensive. Other fishing tackle companies will be explored. The main aim is to purchase good gears at a reasonable price acceptable to the local fishermen.

4. RESOURCE ASSESSMENT

There seems to be a growing interest in Tuvalu to begin exporting different marine products, such as Beche de Mer, shark fins, deep water snapper, dried fish, etc. There is certainly a tremendous market for many of these products overseas, however many obstacles must be overcome before successful export of these things can begin. As with any resource that a country wishes to exploit, a successful management plan must always be devised. The first step in making a management plan is to conduct a resource assessment. The resource assessment should be detailed and accurate. So far Tuvalu has only conducted a true resource assessment on deep water snapper stocks.

4.1.1 Deepwater Snapper Project

The USAID/RDA deepwater snapper bottomfishing project has been in progress since November 1992. The goal of this project is to assess the deepwater snapper stocks in Tuvalu, determining if it is an exploitable resource, and if so, how best to start a commercial fishery for the snapper. The project has been collecting data on both the Manau and the Tasu. Data consists of two different types, fishing data and hydrographic data. The fishing data is a record of how many hours each line spends fishing, and the species, length, weight and number of each fish caught. From this data we are able to determine the catch per unit effort for every line hour of fishing time. We can also differentiate between marketable export species and those which are not suitable for export. These figures are used to determine if the resource is commercially viable or not. The hydrographic data is a record of the vessel's exact location according to GPS satellite, and the depth at that location. This data is loaded into a program called "SURFER" which generates 2 dimensional topographic charts, as well as 3 dimensional maps.

The data from fishing has been used to determine the catch per unit effort on the seamounts. Since the depth is recorded with every fish that is caught, CPUE is able to be correlated with depth. This information is used to determine how many fish are present on the seamount. By tracing the depth contours from the 2 dimensional maps, how much fishing is done, and how many fish are present at the depth, can be determined.

CATCH DATA

All Species

CRUISE	KG	LINE HOURS	CPUE
21	247.7	78.8	3.14
22	284.3	47.1	6.04
23	225.4	34.3	6.57
25	659.6	79.1	8.34
26	297.4	48	6.2
27	361.4	67.75	5.33
28	288.6	76.71	3.76
29	292.4	98.75	2.96
TOTAL	2656.8	530.51	5.01

CPUE 5.01 Average All Cruises

MARKETABLE SPECIES

CRUISE	KG	LINE HOUR	CPUE
21	174.8	78.8	2.22
22	99.1	47.1	2.10
23	45.7	34.3	1.33
25	424.7	79.1	5.37
26	211.5	48	4.41
27	187.1	67.75	2.76
28	231.5	76.71	3.02
29	249.4	98.75	2.53
TOTAL	1623.8	530.51	3.06

Although the resource assessment provided some very useful data, the commercial fishing trial was not completed in 1993. It is hoped that the commercial fishing trial will be completed in 1994 in order to determine if the snapper are a viable option for Tuvalu's export fishery.

4.1.2 Beche - de - Mer

A growing number of people seemed to be interested in exporting sea cucumbers or Beche de Mer from Tuvalu in 1993. According to one of the local producer, roughly 2000kg of Beche de Mer were exported in 1993 from Tuvalu. There seems to be a tremendous demand for this product in China and a few other Asian countries. In the past Fiji has exploited their Beche de Mer resource and sold it to local restaurants as well as to companies overseas. However the Fiji Beche-de-Mer problem was to be taken into consideration seriously. Tuvalu could avoid the Fiji situation by conducting a good resource assessment of Beche de Mer in Tuvalu waters, and then devising a sensible management plan for it. The research section requested information from the SPC last year regarding Beche de Mer, and several good publications about its biology were also received. The research section did not have enough time or manpower to begin a resource assessment in 1993, however a step was taken in having to collect the right the information it needed to begin a resource assessment. A recommendation for the future based on 1993 experience would be to conduct as many visual censuses as possible from as many different locations in Tuvalu. If heavy fishing occurs in the future we could conduct more visual censuses that could be compared to the earlier surveys. This would give a good idea of how many Beche de Mer had been taken, and how many were left.

4.1.3 Shark Fins

It is not believed that a tremendous amount of shark fins were exported from Tuvalu in 1993. Most sharks fins that were collected were from incidental catches of sharks, as very few people went fishing specifically for sharks. If sharks were to be targeted as an export fish, a resource assessment should be conducted as well on them. Sharks are of tremendous ecological importance in Tuvalu, and if their numbers were drastically reduced, there may be extremely bad effects on other species of fish as well, such as deep water snappers especially. It was observed that hundreds of sharks were killed on many of the deep water snapper fishing trials. Usually the fins were hacked off of the shark, and the body was tossed overboard. The flesh and jaws were almost always wasted. The jaws could be sold at the handicraft center, and many people in Funafuti enjoy eating shark meat very much. Such large wastes of fish should always be discouraged in the future. The indiscriminate killing of large numbers of sharks has a tremendously disruptive effect on the seamounts, and should not continue in the future.

4.1.4 Dried Fish

Several companies expressed interest in exporting dried fish from Tuvalu in 1993. This seems to be a very viable product as all of the outer islands in Tuvalu are producing dried fish, and it requires no electricity to store or to make. Smaller fish such as flying fish might be an excellent fish to try and produce as a dried fish product. There was alot of interest voiced by local fisherman to produce dried

tuna products as well. The research section conducted research on the area of dried fish through correspondence with the SPC as well as the South Pacific Trade Office. The research section also gave local fisherman information that they requested regarding the construction of Solar fish dryers, as well as techniques for making fried fish. In the future Funafuti fisherman should start to produce dried fish for the local market, and later target overseas markets.

4.2 Catch Statistics

It has always been a priority of the fisheries department to have good catch statistics for all of Tuvalu every year. It was difficult in 1993 to have good statistics for all areas of fishing since no plan of action for conducting this research was prepared and manpower shortage also contributed to the problem. Some good statistics however, was collected from time to time throughout the year.

4.2.1 NAFICOT Catch Statistics

NAFICOT kept record of fish landed by their launches as well as the Ta Tau Ika. Not all vessels were able to fish throughout the entire year. The following table gives catches for the year 1993.

TOTAL FISH LANDINGS, REEF & PELAGIC FISHES, 1993.

	Ta Taulka	Napoli	Moemoeaki	Taumoana	Total
January	0	269.5	143	0	412.5
February	0	353.9	442.2	0	796.1
March	0	0	0	0	0
April	0	413.3	393.3	0	806.6
May	0	0	0	0	0
June	0	450.8	52.9	165.1	668.8
July	157.7	652.2	0	187.4	997.3
August	60.7	457.7	0	138.9	657.3
September	62.8	281	0	234.7	578.5
October	276.6	81.9	0	98.2	456.7
November	47.5	0	0	59.7	107.2
December	93.2	0	0	0	93.2
TOTAL	698.5	2960.3	1031.4	884	5574

According to these figures, NAFICOT should have collected about at least \$10,033.20 from fish sales. According to the research section's estimates, roughly 1,460 tons of fish are consumed by Tuvaluans in one year.

4.2.2 Household Fish Consumption Survey.

The research section conducted a survey in early 1993 of about 30 different households on Funafuti. Each household had about 11 people in it. All of the families ate a good amount of fish every day. Many people caught their own fish for the family, or they bought the fish from the market. Whenever people ate fish they usually ate about 0.5 kilos on that day. If there are 292 fishing days per year and 10,000 Tuvaluans, that means 1,460 tons of fish are eaten in Tuvalu every year.

0.5 kg fish per person X 10,000 People X 292 Days per year = 1,460 tons fish eaten in Tuvalu/year.

5. REGULATORY ACTIVITIES

5.1 Foreign Fishing Vessels

The only agreements made with foreign fishing vessels were with the USA for the months of June, August and December.

June - A\$150,277.21
August - A\$268,260.00
December - A\$267,772.86
Total - A\$703,249.09

These figures reflect actual revenue received from the United States.

The table provides details of revenues received by Tuvalu from FFV licensing fees, 1980-1991.

The Revenues received by Tuvalu from FFV Licensing Fees, 1980-1991.

YEAR	TOTAL AMOUNT RECEIVED. US\$
1980	\$40,847.00
1981	\$53,105.00
1982	\$149,354.00
1983	\$182,465.00
1984	\$138,890.00
1985	\$362,045.00
1986	\$267,018.00
1987	\$148,784.00
1988	\$298,694.00
1989	\$378,930.00
1990	\$302,750.00
1991	\$482,266.00
TOTAL	\$2,805,148.00

Table US Multilateral Treaty Fishing Agreement 1988 - 1991 cash benefit from 15% - 85% Shres.

YEAR	0.15%	0.85%	TOTAL CASH BENEFITS
1988-1989	\$134,480.00	+\$808.00	\$135,288.00
1989-1990	\$110,650.00	\$16,606.00	\$127,256.00
1990-1991	\$119,077.00	\$258,643.00	\$377,720.00
1991-1992	\$112,812.00	not yet determined	\$112,812.00
Total Cash Benefit	Up to 1991		\$753,076.00

5.2 Domestic Fishing

There were no fishing restrictions in place in 1993. Because the catch per unit effort was very low for some areas in 1993 it may become necessary to begin to regulate fishing in some areas. One such an area is in the lagoon near Vaiaku and the Fakai Fou. The area close to the village seemed to be wiped out during 1993, as most reef fish there were very small. Fisherman needed to go further away from the village to catch good sized fish. Good regulations may be one way of improving catches in Funafuti.

From October - December, 1991 there was no fishing expedition made under the project. All recruitment of project staff were made during this time period. The project in itself has 2 leels/categories of purposes. Its NATIONAL purpose is to adapt and apply new fishing techniques and Fisheries management strategies to expand small-scale commercial offshore fishing operation targeting initially on bottom fish along the sea mounts to the north and south of Tuvalu. This would encourage the development of offshore fishing for export under a careful management regime, thereby

creating new opportunities for economic gains and protecting the more heavily exploited nearshore resources from depletion through over-fishing. **This will involve two main thrusts:**

- (a) Bottomfish resource assessment and management,**
- (b) Establishment of a fleet of offshore fishing vessels operated by private Tuvaluan fishermen.**

Its regional purpose is to demonstrate a strategy for the establishment of sustainable bottom fish fishery within a strong framework of resource management. The approach, if successful, will be demonstrated a strategy which can be applied elsewhere in the South Pacific. It is anticipated that all resource assessment activities will be implemented in 1992.

5.3. Commercial Fishing

During the year, both fisheries division and NAFICOT were mandated to undertake a review of fisheries sector and its development. A review committee was appointed to execute the review. The committee consisted of officials from relevant departments and Ministries within the government. A number of recommendations came forth from the review work put forth to cabinet for its blessing. Cabinets approved the different roles of the two institutions. Fisheries will be responsible for formulation of fisheries policies, advise government on fisheries matters, and for fisheries research and extension activities. While NAFICOT will be fully responsible for commercial fisheries development activities. Since then, all commercial aspects of fisheries were no longer with fisheries but all transferred to NAFICOT.

(a) Te Tautai

The Te Tautai in 1991 was chartered by the SPC regional Tuna Tagging Program under SPC management. In return NAFICOT benefitted from the vessels charter fee payable to the corporation.

(b) Fish Market.

The NAFICOT corporation also continued operating the fish market. All fisheries boat sold their catch to the NAFICOT Fish Market.

5.4 Surveillance and Law Enforcement

Like the previous years, Tuvalu continues to be constrained by its lack of appropriate surveillance capabilities. However, there is interest expressed by the present government to obtain one patrol boat under Australian aid. So far not much development has been made on this issue during the year.

New Zealand and Australia Air Force Surveillance flight (RNZA & RAAF) over Tuvalu waters have been of great assistance to Tuvalu in the patrolling of its 200nm Exclusive Economic Zone.

The establishment of the Tuvalu Peacesat Terminal was made in April 1993. The terminal will enhance better capabilities for the transfer of fisheries data and improved communication needs as part of the efforts put forward for the upgrading of the Fisheries Division Data Base System. The Peacesat Terminal adds another step to better enhancement of the database to the already installed Maritime Surveillance Communication Network (MSCN) system. The network is especially dedicated to surveillance and law enforcement activities of the division. It is planned to move the MSCN into the National Coordination Center (NCC), when it has been constructed and open for operation in 1994.

7. CONCLUSION

The Division made very successful achievements during the year. The achievement in conducting ciquatera at the outbreak sites has led to the establishment of the ciquatera monitoring program. The monitoring program covers Funafuti and several other islands and has created a better situation for the island communities.

The resource assessment carried out on the country's deepbottom snapper stock has proved very successful. This has created interest in the local fishermen to participate in the fishery. The fisheries division however will take further steps into developing a better management plan for the sustainable development of these slow recruiting fishery resource.

The successful surveillance and law enforcement activities has resulted with good financial benefits for the country. It has therefore developed a commitment by government to invest in the procurement of a patrol vessel to increase the surveillance capability of the country. This will surely result with better monitoring and control of the foreign fishing vessels activities within the Tuvalu EEZ.

The 1993 year has been a very successful one and the division look forward to another year of good development in 1994.