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1. HIGHLIGHTS

In October, the Governor of Vava'u, Honourable Tuita was appointed as Minister of Fisheries. The Secretary of Fisheries, 'Akau'ola was also appointed on the same day to replace Honourable Tuita as Governor of Vava'u. The decision to appoint a new Minister of Fisheries to take over the overall responsibility of overseeing and providing policy directions for the development of the fisheries sector, a responsibility that has for many years been part of the portfolios of the Prime Minister, has been a very important and historical event, and a positive development that has been welcomed by all.

Deputy Director of Agriculture and Forestry, Manase Felemi was appointed on Thursday December 19th 2002, shortly before the closing of government for Christmas, to be the post of Secretary for Fisheries. Mr. Felemi assumed duty in his new post on Friday January 2nd 2003.

Extensive damages to fishing vessels in Vava'u and Ha'apai were caused by Tropical Cyclone Waka on the eve of 2002. In view of the likely impact this would have on the overall performance of the fisheries sector, Government approved the launching of a project to repair those fishing vessels that were damaged by Cyclone Waka. Total funding provided by Government for this project was approximately \$537,000. The project provided 75% of the cost of repair and boat owners were expected to contribute the balance. A Management Committee for each of the two island groups covered by the project was established to oversee and manage the repair work.

Following the decision taken at the Multilateral High Level Conference for a new Commission to be set up for the Conservation and Management of the Highly Migratory Fish Stocks in the Western and Central Pacific, the Government approved a proposal put forward by the Ministry to host the new Commission. Unfortunately, the bid was unsuccessful. The Preparatory Conference for the establishment of the Commission decided in its meeting that was held in Manila, Philippine in November to accept the proposal put forward by the Federated States of Micronesia.

For effective management and administration, the Ministry of Fisheries was organised into three main divisions;

- Executive Management and Administrative Support
- Fisheries Research and Development and
- Fisheries Management.

At the end of the year, the Ministry was operating with a total of 105 permanent staff against a total of 117 approved permanent posts. During the course of the year, 7 officers left the Ministry through retirement, resignation or dismissal.

The total recurrent funding available to the Ministry during the financial year 2001/02 showed a decrease by 2.14% when compared to the funding level in 2000/01. Funding for staff salaries and associated costs showed an increase of 2.7% while Travel and Communications and Maintenance and Operational Costs decreased by 1.5% and 14.1% respectively.

The Ministry continued to perform its key role of overseeing the sustainable development of the fisheries sector. Through consultations and a close working relationship with the industry, the Ministry continued working on the development of management plans for a number of key fisheries including Tuna, Deep-Water Line Fishery, Marine Aquaculture, Seaweed and Charter Vessel Fishery.

The commercial fishing operation of the MV Takuo was not very successful with costs of operation far exceeding the revenue generated from the sale of catch. A decision was made to suspend the commercial operation, which had elements of research and training built into it for local fishermen. Alternative management arrangements were being considered for the MV Takuo, with the view to avoiding any further drain on the financial resources available to the Ministry.

The Ministry staff were able to attend some 40 training courses/meetings that were held both locally and overseas. Most of these workshops/meetings were being financed from external sources.

One of the major events of the year was the Royal Agriculture, Fisheries and Industries Show, which was held on a biennial interval. Although the Show was only held in 'Eua

and Tongatapu, it proved to be a very important event in terms of promoting greater awareness of the importance of fisheries for food security and to the economy. There was strong support from the private sector through sponsorship and provision of exhibits.

The Ministry continued to receive both financial and technical assistance from regional and international organisations and donor countries. Of particular note are the assistance and cooperation provided by the Forum Fisheries Agency, the Secretariat of the Pacific Community, the Food and Agricultural Organization of the United Nations, Japan International Cooperation Agency and the Australian Government.

The Ministry has estimated the total FOB value of fisheries export for 2002 from registered companies at T\$15.2 million compared to T\$14.8 and T\$10.4 million in 2001 and 2000, respectively. This was through export of 730.13mt of tuna (fresh and frozen), 174.71mt bottom seas fish (snapper and grouper), 318.96mt of aquarium rocks and 296.950 numbers of fish and giant clams and pieces of soft/hard coral, 6.8mt of dried shark fins, 285.84mt of seaweed and other miscellaneous products.

Following an initial request from the Government of Tonga in 1998, the Tonga Fisheries Project, which is part of the Tonga-Australian development cooperation programme, finally commenced implementation in January 2002. The project is an integrated sectoral development and resource management whose overall goal is to contribute to the economic development and social wellbeing of the people of Tonga, through sustainable development and management of living marine resources. The project is expected to be implemented over four years with a total budget of approximately T\$5.2 million. The project will focus on the following four broad areas:

- Capacity building in the Ministry of Fisheries;
- Providing assistance to small scale fishers;
- Developing commercial tuna longline fishing; and
- Enhancing sustainable community-based management of inshore resources.

2. STRATEGIC PLAN

- **Mission Statement**

To utilize the marine resources of the Nation in a sustainable way to feed and contribute to the economic development of the Nation.

- **Philosophy Statement**

The senior staff established the values of the Ministry of Fisheries (MoF) as follows:

Direction

Establish a clear direction that is internally agreed to and is understood by all those who have dealings with the Ministry. The purpose, mission and objectives set will be easy to evaluate.

Achieving

Make a worthwhile contribution towards the sustainable development of fisheries resources in Tonga whilst meeting the needs of resource users (fishers, consumers, exporters, fish merchants, association, companies and markets).

Caring

Provide a people-oriented service with concern for well being of society, customers, employees, fisheries resources and the environment.

Balanced

Maintain a balanced concern towards the need of society and the individual against the sustainability of fisheries resources according to the best information available for conservation and management.

Structured

Create a framework of policies, procedures and rules according to identified strategies which will encourage competence, expertise and rewards through effective management practices.

- **Vision**

In the year 2002, the Ministry of Fisheries will be an organization:

- Whose staff has the required skills and expertise to analyze and formulate sound policies that would promote effective conservation and management of fisheries resources for their sustainable development.
- Which continues to provide services that are essential for the progressive development of the fisheries sector.
- That supports a viable fishing industry based on tuna and other fisheries resources.
- That ensures Tonga is a leading country in the South Pacific in aquaculture development including the enhancement of fisheries resources.
- That supports the sustainable development of small-scale fisheries that provide the principal supply of seafood for local consumption.

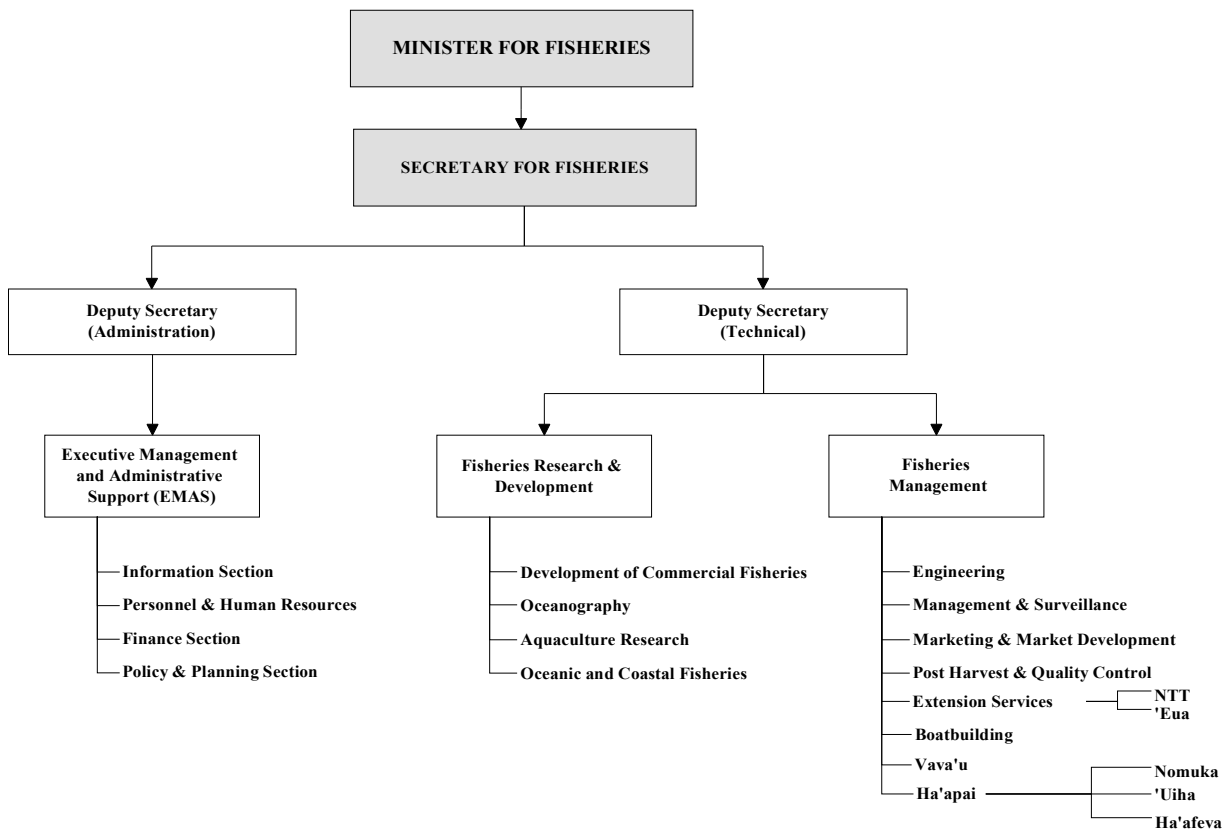
- **Key Goals**

The Strategic Key Goals of the Ministry of Fisheries are to:

- Improve the management systems of the organization and increase the number of qualified staff.
- Improve the capacity of staff to analyze and formulate sound fisheries policies and undertake effective sectional planning and project evaluation.
- Use an efficient accounting system and undertake effective financial control.
- Improve the effectiveness of information/data collection and the safekeeping of the scientific, economic, technical and social database.
- Improve the capacity of the Ministry to undertake and maintain routine assessment of fisheries resources, which support the country's fisheries management and development programme in order to provide a scientific basis for management decisions.

- Develop an advanced and self-sustained national aquaculture programme.
- Increase the availability and use of oceanographic information and data.
- Develop improved systems of providing boat-building and engineering support services to other sub-programmes within the Ministry and to the fishing industry.
- Create fisheries management conditions where the reasonable business and food-security aspirations of fishermen can be attained while safeguarding the fisheries resources.
- Improve export market development, marketing systems and conditions to ensure increased export and local consumption of fish and other marine products.
- Create fisheries quality control standards to ensure the health security of the consumers to improve quality of fish export and local sale.
- Develop a self-managed fishing industry based on the sustainable exploitation of tuna and other offshore resources, and encourage greater private sector involvement in the operational aspects of fisheries.
- Develop extension services programme that emphasizes effective delivery of services, and whose staff are identified with projects implemented by all sub-programmes.
- Provide increased support toward the development of the special role and needs of small scale fishermen/women and coastal fishing communities.

Structure of the Ministry of Fisheries 2002



3. STAFFING

The Ministry has a total of 117 permanent staff posts that were approved under the Budget Estimates for 2002/03. By end of 2002, only 105 posts were filled. Of the 12 posts that were vacant, 7 vacancies arised from resignation, retirement or dismissal while 5 were posts that were never filled prior to 2002. Details of the approved posts and vacancies for 2002/03 are as shown in Table 3.1 below.

Table 3.1: Details of Permanent Staff Posts by End of 2002

Level	Post Title	Post Abbreviation	No. of Posts	No. of Vacancies
L/1	Secretary for Fisheries	SF	1	-
L/2	Deputy Secretary	DS	2	1
L/5	Principal Fisheries Officer	PFO	5	1

Level	Post Title	Post Abbreviation	No. of Posts	No. of Vacancies
L/7	Senior Fisheries Officer	SFO	2	-
	Senior Computer Programmer	SCP	1	-

L/9	Fisheries Officer	FO	8	-
	Technical Officer Grade 1	TOI	3	1
	Computer Programmer	CP	1	1
	Accountant	ACC	1	1
L/11/9	Technical Officer Grade II	TOII	9	1
	Computer Operator Grade 1	COI	1	-
L/12	Master (M.V Ekiaki, MV Takuo)	MA	2	-
	Chief Engineer (MV Takuo)	CE	1	-
	Engineer (M.V Ekiaki)	E	1	-
	Second Engineer (M.V Takuo)	SE	1	-
	Computer Operator Grade III	COIII	1	-
	Senior Fisheries Assistant	SFA	13	1
	Fisheries Assistant	FA	17	3
	Mate/Leading Fishermen	M/LF	2	1
L/13	Computer Assistant	CA	2	-
L/14	Fisheries Trainee	FT	29	1
L/14A	Driver	D	2	-
Total Established Staff Post			105	12

4. EXECUTIVE MANAGEMENT AND ADMINISTRATIVE SUPPORT DIVISION

The Executive Management and Administrative Support Division is comprised of three sections: (i) Personnel and Human Resources Development Section, (ii) Policy and Planning Section and (iii) Finance Section and (iv) Information Section

Following the appointment of the Governor of Vava'u, Honourable Tuita as the new Minister responsible for Fisheries, and 'Akau'ola as the new Governor of Vava'u, in October 2002, the vacant post of Secretary for Fisheries post was advertised and the Deputy Director of Agriculture and Forestry, Mr Manase Felemi was subsequently promoted and transferred to the Ministry of Fisheries to assume in his new role as the new Secretary for Fisheries.

4.1 Personnel and Human Resources Development Section

This Section is responsible for personnel administration, human resources development and planning and coordination of staff training. Table 4.1 lists the names of the Officers who worked in this Section.

Table 4.1: Staff of the Personnel and Human Resources Development Section

Name	Post
Mr. Mafi 'Akau'ola	Deputy Secretary for Fisheries
Mrs. Losaline Tafea	Principal Fisheries Officer
Mrs. Katalina T. Fifita	Senior Fisheries Assistant
Mrs. Mele Fukofuka	Fisheries Trainee
Mrs. Losilini Loto'ahēa	Computer Operator Grade III

- **Staff Appointments, Promotions and Retirements**

Tables 4.2 to 4.4 below provide details on the new staff appointments, promotions and resignations/retirements/dismissals during the course of 2002.

Table 4.2: Staff Appointments, 2002

Name	Post
Mr. Manase Felemi	Secretary for Fisheries
Miss. Melesia `Aho	Computer Programmer
Mr. Pau-mo-Levuka Likiliki	Technical Officer Grade I
Mr. Paea Tai	Captain, MV Takuo
Mr. Hopoate Finau	2 nd Engineer, MV Takuo
Mr. 'Amanaki Tu'itupou	Fisheries Trainee
Mr. Ului Pele	Fisheries Trainee

Table 4.3: Staff Promotions, 2002

Name	Designation	Present Post
Mr. Siola'a Malimali	Technical Officer Grade II	Fisheries Officer
Mr. Tevita Talakai	Senior Fisheries Assistant	Accountant
Mrs. Katalina T. Fifita	Senior Fisheries Officer	Technical Officer Grade II
Mr. Sailosi `Ahoafi	Fisheries Assistant	Senior Fisheries Assistant
Mr. Veā Kava	Fisheries Assistant	Senior Fisheries Assistant
Mrs. `Emeline Tonga	Fisheries Trainee	Fisheries Assistant
Mr. Talia'uli Napa'a	Fisheries Trainee	Fisheries Assistant

Table 4.4: Staff Resignation, Retirement and Dismissal, 2002

Name	Post	Reason
Mr. `Aisea Tupou	Senior Fisheries Officer	Retired
Mr. Afemui `Ufi	Master, MV Ekiaki	Retired
Mr. Sione Fili	Fisheries Trainee	Resigned
Miss. Melesia `Aho	Computer Operator	Resigned
Mr. `Alamoti Fa`uvao	Fisheries Trainee	Resigned
Mr. `Aisea Tu`ipulotu	Technical Officer I	Resigned
Mr. Siva`a Fetuani	Fisheries Trainee	Dismissed

- **Short-Term Training, Workshops, Local & Overseas Meetings**

The staff of the Ministry has continued to benefit from attendance at short term training courses and meetings organised and funded by regional and international organisations, and donor countries. Table 4.5 below shows the details of the local and overseas training courses and meetings that were attended by staff.

Given the limited number of scholarships available to the fisheries sector, the Ministry continues to heavily rely on short training courses as a means of upgrading the technical knowledge and capability of its staff. In addition, continued attendance at regional and international forums were considered important to ensure that national issues and concerns were raised and noted at such meetings.

Attendance at overseas meetings were funded either by the host organisations/countries, from the recurrent budget of the Ministry or from the Project Development Fund (PDF) facility administered by the Forum Fisheries Agency. The funding assistance available under this facility were mainly for fisheries development projects, including attendance at regional and international meetings.

Table 4.5: Training Courses and Meetings Attended during 2002

Course/Meeting/Workshop	Duration	Location
Sustainable Use of Coral Reef Fisheries Resource: "Special Emphasis on Shellfish Seed Production and Release"	21–25 January	Fiji
Training for officers of the Ministry of Fisheries	23 January	Tonga
SPC/Nelson Polytechnic Pacific Island Fisheries Officer Training	21 January – 26 May	New Zealand and PNG
Forum Fisheries Committee Meeting 50	18 February – 1 March	PNG
Course/Meeting/Workshop	Duration	Location

Seminar on "Prevention of Oil Pollution"	4-6 March	Tonga
Meeting International Fund for Animal Welfare	23 February – 1 March	New Zealand
Aquaculture Meeting	11–15 March	Fiji
Review of the NZODA/Tonga In-Country Training Project	18-28 March	Tonga
Monitoring Control Surveillance Working Group Meeting	9–12 April	Marshall Is
Data Consultation	11-12 April	Marshall Is
FAO's First Session of the Sub-Committee on Aquaculture	18–22 April	China
Marine Engineering Class 3	29 April–19 July	New Zealand
"Species Working Group Meeting" and "Annual Session of the Forum Fisheries Committee Meeting"	3 May 6-10 May	Federated States of Micronesia
"Challenging, Inspecting and Reviewing our Organization, Techniques for Internal Consultants and Modern Managers, RIPA International"	20 May-7 June	United Kingdom
"26th FAO Regional Conference for Asia& Pacific"	13-17 May	Nepal
"FAO World Food Summit Meeting"	10-14 June	Italy
"Promoting private property rights-based Fisheries Management Regimes in the Western and Central Pacific Ocean and Future Trends for Fishing Access in the Pacific"	24-28 June	Fiji
Programme of Youth	19 June – 11 July	Japan
"TSC Course- Responsible Fisheries in the Pacific Islands Region: The implementation of post UNCED international instruments"	24 June-5 July.	Fiji
"15th Meeting of the Standing Committee on tuna and Billfish"	18–27 July	Hawaii.
"Two Consultation meetings with Charter Operators/Skippers for Charter Fishery Management Plan"	30 July – 7 August	Tonga
Fish Handling and Processing Course	20-31 August	Tonga
Vava`u Pearl Farming Association, Four meetings with Vava`u local fishermen regarding Waka Project"	25 August	Tonga
"Training for FAO National Correspondent"	1-2 August	New Zealand
"Dry-docking of MV Takuo"	4 - 8 August	Fiji
Order and buy materials for Waka Project	17- 30 August	Fiji
"IIFET 2002 Conference: Fisheries in the Global Economy"	19 – 23 August	New Zealand
Air Service talks with Government of Brunei	21-22 August	Brunei
Agricultural, Fisheries and Industrial Show	2–4 September	Tonga
Regional Live Reef Fish Trade Management	16-20 September	Fiji
"Management Systems for Coral in Trade Cities and Coral Specimen Identification"	18–20 September	Tonga
World Council of Whaler Conference	26-29 September	Faeroe Islands
Regional Workshop on Management Systems For Coral Trade (CITES Requirements and Coral Identification)	18–20 September	Tonga
Course/Meeting/Workshop	Duration	Location
"Seminar on Integrated Inshore Resource Management in Tropical Island Countries"	26 September-6 November	Japan

1st PROCFISH/C Project advisory committee	8-10 October	Fiji
Prepare Sea-food processing facilities for World Food day	11-19th October	Tonga
MCS Scheme Workshop	21-23 October	Fiji
MCS Training Course	4-8 November	Australia
Training Program for all Revenue collectors across Civil Service	10 November	Tonga
International Business Development, Export Planning & Project Filing	11-15 November	Tonga
“Preparatory Conference for the Establishment of the Commission for the Conservation & Management of Highly Migratory Fish Stocks in Western and Central Pacific, 3rd Session”	18-22 November	Philippines.
Two meetings with Vava`u local fishermen regarding Waka Project		Tonga
Workshop on FAD Deployment	25-29 November	Tonga
Consultation meeting regarding the new market complex for Vava`u	31 October -6 November	Tonga

- **Staff Movement during 2002**

Table 4.6 provides details on staff movement that were effected during 2002 in response to manpower requirement in the various offices/stations of the Ministry. As a general policy officers are required to serve a term of three years in any one station before they are moved to another.

Table 4.6: Staff Movement During 2002

Name	Post	Pre-Location	New Location
Mr. Tala`ofa Loto`ahea	Senior Fisheries Assistant	Pangai	Nuku`alofa
Mrs. Losilini Loto`ahea	Computer Operator Grade III	Pangai	Nuku`alofa
Mr. Tevita `Ahoafi	Technical Officer Grade II	Nuku`alofa	Pangai
Mrs. Silika Ngahe	Technical Officer Grade II	Nuku`alofa	Vava`u
Mr. `Ofa Moala Fakahau	Fisheries Officer	Vava`u	Nuku`alofa
Mr. Tu`iniua Tupou	Fisheries Assistant	Nuku`alofa	Niatoputapu
Miss Moana Nau	Fisheries Trainee	Pangai	Nomuka
Mr. Haani Lave	Senior Fisheries Assistant	Nomuka	Nuku`alofa
Mrs. `Emeline Tonga	Fisheries Assistant	Nuku`alofa	Vava`u
Mr. `Asela Lausi`i	Fisheries Trainee	Nuku`alofa	Pangai
Mr. Sioeli T. Valu	Fisheries Trainee	Tongatapu	Vava`u
Mr. Fotu Tu`i`onetoa	Fisheries Trainee	Nomuka	Pangai
Mr. Tu`atalatau Tonga`onevai	Senior Fisheries Assistant	Pangai	Ha`afeva
Mr. Tevita `Atana	Senior Fisheries Assistant	Ha`afeva	Pangai

4.2 Policy and Planning Section

This Section is responsible for the development planning activities of the Ministry, for the provision of policy advice to management and the coordination and monitoring of development projects. One of its major tasks in 2002 was the development of management plans for key fisheries, including tuna, deep sea line fishery, aquaculture, seaweed and charter vessel. The staffing situation of the section is outlined in Table 4.7.

Table 4.7: Staff of the Policy and Planning Section, 2002

Name	Post
Mr. Vilimo Fakalolo	Principal Fisheries Officer
Mr. Kolianita Lavemai Alfred	Fisheries Officer
Mr. Pau-mo-Levuka Likiliki	Technical Officer Grade I
Miss Melesia `Aho	Computer Programmer
Mrs. Keasi Takau Pongi	Technical Officer Grade II

Miss Melesia `Aho was appointed to the Ministry in March as a Computer Programmer after she graduated with a Bachelor of Science in Mathematics from Auckland University. Eight months into her probationary period, her appointment was terminated in October to accommodate her wish to take up a career opportunity with the Tonga Retirement Fund Board. The Ministry also appointed Mr. Pau-mo-Levuka Likiliki in March and was recruited to this sub-section after initially working in the Management section. He has graduated with a Bachelor of Arts in Marine Affairs Studies and Biology from the University of the South Pacific.

- **Cyclone Waka Rehabilitation Project**

On Thursday 11th April, 2002, his Majesty's Cabinet approved the launching of a project to repair fishing vessels in Vava'u and Ha'apai that were damaged following the wake of Tropical Cyclone Waka that visited the islands of Vava'u and Ha'apai on the eve of 2002. Total funding allocated for this project was approximately T\$537,000, which was to cover 75 per cent of the cost of repair and the balance was to be met by the individual boat owners. A management committee for each island group was approved to be set up to oversee and manage the repair work.

- **AusAID-funded Tonga Fisheries Project**

The Tonga Fisheries Project, part of the Tonga-Australia development cooperation program, started in January 2002 after a long history of design and redesign from an initial request for assistance from the Government of Tonga (GoT) in 1998. It is an integrated sectoral development and resource management project whose overall goal is to contribute to the economic development and social well-being of the people of Tonga.

The Project's purpose is to improve the welfare of the people of Tonga through sustainable development and management of living marine resources. The project was designed over four years with a full-time Australian Team Leader/Institutional Strengthening specialist, a full-time Master Fisherman for the first three years, plus a number of short-term advisers.

The prime purpose of the project is to promote sustainable management and development of marine living resources, through:

- Capacity building in the Ministry of Fisheries (MoF)
- Providing assistance to small-scale fishers
- Developing commercial tuna longline fishing
- Enhancing sustainable community-based management of inshore resources.

Main achievements in 2002 against planned outputs and in response to emerging needs include:

- Preparation of draft fisheries management plans
- Extending the original proposals for fish aggregating devices (FADs) to increase the number, make them more suitable to the needs of small-scale fishers, addressing environmental and safety issues and finding innovative ways of making them self-funding
- Refurbishing the MV Ekiaki.
- Preparation of a draft Ministry of Fisheries Strategic Plan
- Providing advice and briefings to the new Minister of Fisheries
- In response to Cyclone Waka and in conjunction with AusAID Nuku'alofa, implementing an innovative approach to help small-scale fishers repair damaged boats, using additional AusAID funding as surety for loans to assist in the refurbishment project.

- Developing cost-effective and innovative approaches to asset management, in relation to MV Takuo and five fishing vessels recently donated by the Korean government
- Setting up a project office, including a large meeting/training room for the Ministry, after fire severely damaged the previous offices.
- **Bid for Tuna Commission**

His Majesty's Cabinet passed a Decision (C.D NO.1359 on 3rd August, 2000) to approve that Tonga's bid for the Tuna Commission – Central Western Pacific (TC-CWP) headquarters, to be located here in the Kingdom. A sub-committee was formed to assess and compile a report for the bid, with the Ministry of Fisheries as the Secretariat.

It was unfortunate that at the end, the bid by Tonga was unsuccessful although it was initially favoured by international experts appointed by FFA to assess all bids. The decision taken at the Preparatory Conference held in the Philippines in November was to accept the proposal by the Federated States of Micronesia.

- **Multilateral Treaty on Fisheries with the United States of America**

Under the Multilateral Treaty on Fisheries between the governments of Certain Pacific Island States and the government of the United States of America, an annual amount of US\$18 million is paid to the FFA, as the Treaty Funds Administrator, this amount is then shared amongst the Pacific Island States who are party to the Treaty based on an agreed formula. Tonga, as a party to the Treaty has received the following amounts since 1997. These funds were paid directly to the Government's general revenue.

Licensing Period (Year)	11th (1998)	12th (1999)	13th (2000)	14th (2001)	15th (2002)
Amount (US\$)	148,446.53	148,661.22	148,131.22	147,682.00	147,321.72
T \$	2118,818.59	230,947.99	284,584.02	310,388.29	309,564.45

In addition to the above, and in accordance with the agreed formula for the distribution of the Treaty funds, there is approximately US\$1.78 million held in a trust fund called the Project Development Fund (PDF), and is shared equally amongst the parties to the

Treaty, for the funding of fisheries development projects. As at December 2002 Tonga's share of the PDF was US\$468,200.00.

- **Duty Free Diesel Fuel Scheme**

The following two tables provide a summary of diesel fuel granted by Fuel Concession Committee in 2002 for those fishing vessels that had been approved to participate in this scheme, and the volume of fish caught by the participating fishing vessels.

Table 4.8: Details of Fuel Approved to be Issued Under the Fuel Concession Scheme, 2002

Type of Fishing	Diesel (l)	SAE 30 (l)	Hydraulic (l)	Refrig. (l)	Grease (Kgs)
Bottom Fishing 57 applications	320,465	6,510	460	0	18
Tuna Fishing 74 applications	3,260,000	51,880	7,300	6,270	3,080
Total 131 applications	3,580,465	58,390	7,760	6,270	3,098

Table 4.9: Catch Data from Fishing Vessels Participating in the Fuel Concession Scheme Year 2002

Type of Fish	Landing (m/t)	Local Fish (m/t)	Export Fish (m/t)
Snappers	240.474	105.109	135.364
Tuna	1,446.139	496.958	949.181
Total	1,686.613	602.067	1,084.545

4.3 Finance Section

The Finance section consists of three staff only with the assistance of the Administrative Assistant to the Secretary for Fisheries, Mrs. Katalina T. Fifita when she is available. Staffs are as follows:

Table 4.10: Staff of the Finance Section

Name	Post
Mr. Tevita Talakai	Accountant
Mr. Siaosi Vaioleti	Fisheries Trainee

- **Recurrent Estimate**

The total expenditure estimate for the Financial Year 2002/03 decreased by 36.44 % when compared with FY 2001/2002. The staff salary vote allocation was decreased by 7.42% from \$853,784.00 in 2001/02 to \$760,464.00 in 2002/03. Travel and Communication was decreased by 9.28%, maintenance and operation vote decreased by 49.93% and Purchase of Goods and Services decreased by 54.25 %.

Table 4.11: Expenditure Estimate by Major Components, 2000/01 – 2002/03

Expenditure by Major Component	2000/01 (T\$)	2001/02 (T\$)	% Change	2002/2003 (T\$)	% Change
Established staff	831,109	853,784	2.73	760,464	-7.42
Un-established staff	92,616	88,014	-4.97	86,005	-2.28
Travel and Communication	96,034	94,533	-1.56	85,758	-9.28
Maintenance and Operations	685,031	781,023	-14.01	391,096	-49.93
Purchase of Goods and Services	1,165,920	1,021,904	12.35	467,537	-54.25
Capital Expenditure	25,006	81,004	223.94	65,117	-19.61
Total	2,895,716	2,920,262	0.85	1,855,977	-36.44

Table 4.12: Expenditure Estimate by Funding Source, 2000/01 – 2002/03

Funding Source	2000/01	2001/02	2002/03
Government of Tonga Fund	980,590	1,037,449	1,037,449
Government of Tonga: Revolving Fund	1,878,117	1,695,804	805,011
Overseas Donor Funding (Cash/Token)	37,009	187,009	13,518
Total	2,895,716	2,920,262	1,855,978

The Government cash funding remained the same in 2001/2002 and 2002/2003 at \$1,037,449. Of this total 64% was for staff salaries, wages and associated costs, and only 36% was available for actual development and operational activities.

- **Revenue Collection**

The total revenue collected by the Ministry during 2002/03 was T\$551,723.51 of which T\$309,564.45 was received as proceeds from the Multilateral Treaty on Fisheries with the United States through the FFA. The remaining balance was revenue collected from sales of produce & products, fishing vessels licencing fees, market fees and sundry sources.

4.4 Information Section

The Information Section consists of the Computer Unit, Library and Audiovisual Unit. It continues to fulfill its obligations regarding the designing and developing of computer programs, storing and dissemination of fisheries information for MoF, Government Agencies, fishing communities and other regional and international organizations. The staffing situation of the Information Section is outlined in Table 4.13. below.

Table 4.13: Staffing Situation of the Information Section, 2002

Name	Post
Mr. Sosaia Tulua	Senior Computer Programmer
Mrs. Lavinia Vaikona Vaipuna	Computer Operator Grade I
Mr. Palu Faupula	Computer Assistant
Mr. `Emeline Tupou	Fisheries Trainee (Librarian)
Mr. Matafonua Langi	Fisheries Assistant (Audio Visual Unit)
Miss Takako Ueda	J.O.C.V (Audio Visual Unit)

- **Computer Unit**

This Unit operates and maintains all computer hardware and software, provides computer services to all sections, and trains Fisheries personnel on the use of computer equipment and applications. The Ministry's inputs are coordinated into regional computers and network systems. This Unit is also responsible for servicing the outer islands' computer needs and requirements.

Information Network Services

The operating system for TONGAFISH network continued to run under Windows NT Server 4. The Network has one NT Domain file server and one Backup Domain Server.

E-mail Server

All staff have access to email through a System Domain *tongafish.gov.to*. Vava'u and Ha'apai Fisheries are linked to the main island through e-mails and Network Dial-up via NT Server.

Computer Hardware

The following table shows the types of hardware/computer equipment currently used by the Ministry, and their locations.

Table 4.14: Inventory of Computer Equipment of the Ministry of Fisheries, 2002

Specification	No.	Use
Nuku'alofa		
Server PIII	1	Domain Server
AMD System	3	1 Secretary for Fisheries, 1 Head Aquaculture, 1 Poasi.
Pentium 4	1	Surveillance - donated by FFA
Pentium III	10	3 Policy & Planning, 2 Accounts, 1 Oceanography, 1 library - donated by SPREP, 1 Audio Visual, 1 computer room donated by SPC, 1 Computer room.
Celeron	4	1 Aquaculture, 1 Filing, 1 Losaline, 1 Accountant
Compaq Presario	2	1 Policy & Planning - donated by FAO, 1 Market Manager
Pentium 116	4	2 Extensions, 1 Market Clerk, 1 Engineering
Pentium II	1	Surveillance - donated by FFA
Notebook PII	1	1 Principal Fisheries Officer
HP Laser 5si	1	Server Printer
HP 5L	1	1 Market Clerk
HP LaserJet 1100	2	1 Secretary for Fisheries, 1 donated by FAO (Policy Planning)
HP LaserJet 1100A	1	Aquaculture
HP LaserJet 1200	3	1 Planning and Policy, 1 Accounts, 1 Audio Visual
HL-2600 CN	1	Colour printer - computer room
Vava'u		
AMD System	1	New Computer for Officer In Charge
Notebook PII	1	New Computer
HL 1440 printer	1	Officer in charge
HP 5L	1	Clerk
Ha'apai		
AMD System	1	New Computer
HP LaserJet 1200	1	New Printer

Computer Software

The following computer software have been acquired by the Ministry over the past years and have been used in 2002.

Table 4.15: Inventory of Computer Software, Ministry of Fisheries by End of 2002

Type	Program Name
Operating System	Windows NT, Window Me, Windows 98, Windows 95,
Mapping	MapInfo
Graphics	Adobe Photoshop 5
Office	Office XP
Antivirus	Vet
E-mail Server	FTGate
Databases	Tuna database, Takuo Logbook database, Vote System Database, Staff Database, Aquarium Database, Vessel Registration Database, Export Marine Resource Database, Filing System Database, Home consumption, Hosts of system and software utilities.

- **The Library**

Since the fire that destroyed the Ministry's Library, a storeroom is temporarily used as the Ministry's Library. The Ministry is still seeking funds to rebuild a new library. A new computer and printer were donated to the Ministry's Library by SPREP.

- **Audiovisual Unit**

The main objective of the Audiovisual Section is to promote and increase fisheries public awareness through the creation of documents, video and radio programmes, photos and fisheries booklets.

Audio Visual Room

The Audio Visual Room was shifted to the main office in 2001, as a result of the fire that destroyed the Public Awareness Building. As a result of that fire the Audio Visual equipment and facilities the Ministry once had were destroyed. However, the Ministry has requested equipment of a total value T\$12,033 to revive its Audio Visual Unit. More equipment was requested under JICA funds. It is expected to arrive at the Ministry in 2003. This assistance is approximated at T\$137,334.00.

This unit has filmed tapes for the Ministry's Public Awareness Programmes including its Aquaculture activities which were displayed at the Agriculture/Fisheries Show.

Awareness talks were presented to 20 Primary schools from Tongatapu. Fisheries brochures were handed out to promote awareness amongst those participated.

5. FISHERIES RESEARCH & DEVELOPMENT DIVISION

The Fisheries Research and Development Division is subdivided into 3 main sections: Aquaculture & Research, Oceanic and Coastal Fisheries and Commercial Fisheries Development.

5.1. Aquaculture and Research Section

A number of ongoing projects that have been identified as suitable for Tonga involves the propagation and/or growing of marine organisms. Programs include enhancement of giant clams, introduction of trochus and green snails to create new commercial fisheries, pearl oyster farming and seaweed culture to earn foreign currency. Research and trials currently being conducted are aimed at the following:

- To relieve pressure on over-exploited traditional inshore fisheries
- Convert unused areas of natural water or agriculturally poor areas to useful production
- Revive and enhance over-exploited resources and introduce exotic species of commercial value

The staffing situation of the Aquaculture and Research Section is outlined in the following table.

Table 5.1: Staffing Situation of the Aquaculture and Research Section

Name	Post
Mr. 'Ulunga Fa'anunu	Principal Fisheries Officer (also Head of Division)
Mr. Vailala Matoto	Fisheries Officer
Mr. Siola'a Malimali	Fisheries Officer
Mr. Poasi Fale	Technical Officer Grade II
Mr. Feauini Vi	Fisheries Assistant
Mr. Sione Holopulu	Fisheries Assistant
Mr. Saia Niumeitolu	Fisheries Trainee
Mr. Sitiveni Sefesi	Fisheries Trainee
Mr. Tevita Sonatane Ha'unga	Fisheries Trainee
Miss Makeleta Vaikaka	Fisheries Trainee
Mr. Kenichi Kikutani	JICA Expert

Mr. Poasi Fale, Technical Officer Grade II successfully completed his undergraduate studies in Marine Science from James Cook University, Australia and resumed duty in December. Mr Kenichi Kikutani completed, in the second week of December, his two year contract as JICA Expert on shellfish seed production.

- ***Training***

Training programs and attachments, both overseas and locally, were with the aim of developing staff skills. Mr. Vailala Matoto, Fisheries Officer, Head of the Stocks Survey Program continued his Ph.D. studies in Fisheries Science, in Japan. Mr. Siola'a Malimali attended a one week conference in China on aquaculture.

A training program on Limutanga'u farming was conducted at the Sopa Research Centre for both existing and potential farmers from April to October 2002. The training was funded from FAO under its Technical Co-operation Programs (TCP). The objectives of the training were to:

- Acquire skills in farming of Limutanga'u through "hands-on" practice.
- Acquire skills in isolation and storage of spore during off-season
- Acquire skills in germinating and seeding farming nets.

The training was conducted by Mr. Kazuhiro Toyama, an expert on limutanga'u farming from Okinawa, Japan. There were twenty-four participants, eight representatives were from private companies that currently export limu, four Fisheries staff and the remaining were local fishermen.

- **Shellfish Culture**

Giant Clam

The Division continued to supply requirements for the community's sanctuaries and export to aquarium markets. The overseas aquarium market offers good prices for relatively young clams. Clams of 1 to 9 inches shell length were sold to aquarium

exporters. A total of 18,012 clams (1249 *T. derasa* or Tekanoa, 11318. *maxima* or Kukukuku and 5445 *T.squamosa* or Matahele) worth \$39,637.00 were sold. The selling prices of the clams and market demand are given at Table 5.2 & 5.3 below.

Table 5.2: Selling Prices per Species of Giant Clam

Shell Length (inch)	1	2	3	4	5	6	7	8	9	10
\$/ <i>T.squamosa</i>	1.00	1.50	2.25	3.5	5.0	6.75	8.75	10.00	11.25	-
\$/ <i>T.derasa</i>	1.00	1.25	2.00	3.5	5.0	6.75	8.75	10.00	11.25	12.50
\$/ <i>T.maxima</i>	1.00	1.50	2.50	3.25	4.75	6.25	-	-	-	-

Table 5.3: Market Demand and Size Distribution of Giant Clam Species

Shell length (inch)	1	2	3	4	5	6	7	8	9	Total
<i>T. squamosa</i>	1226	1089	2125	1005	-	-	-	-	-	5445
<i>T. derasa</i>	-	-	-	8	20	226	747	204	44	1249
<i>T. maxima</i>	8076	2815	407	20	-	-	-	-	-	11318

The demand for *T. derasa* was highest for 2 - 4 inches but the stock of the Ministry was mainly bigger than 7 inches. The demand for *T. squamosa* was higher for 3 inches which represents 39% of the total sale and the others ranged from 18 – 22 %. The demand for *T. maxima* was higher due to its beautiful mantle colour, but stock on hand was mostly 1 to 2 inches shell length.

The result of the first spawning of *T. gigas* was better than the second spawning. At the end of December about 1500 and 600 clams survive from 2001 and 2002 spawning respectively. About 100 clams from 2001 spawning were transferred to ‘Atata and ‘Eueiki sanctuaries. No spawning was conducted with *Hippopus hippopus* due to insufficient brood stock. The growth rate of the *T.gigas* is more than double of the common species (*T. derasa*, *T. squamosa*, *T. maxima*)

Green Snail, Turbo marmoratus (‘Elili lanumata)

Spawning, rearing and releasing of green snail are conducted annually. The number of young snails already released and those still in hatchery are given at the table 5.4.

Table 5.4: Record of Hatchery Produced Snails Already Released and those Still in Hatchery

Releasing Sites	Number / Year					Total
	1998	1999	2000	2001	2002	
Tongatapu Islands	2850	200	900	3000	590	7540
Vava'u Islands	1050	800	250	957	1000	4057
Ha'apai Islands	500		1050	850	1000	3400
Niuatoputapu Island			300			300
'Eua Island				1000	300	1300
Vanuatu	300					300
Ponaphei		300				300
Samoa		300				300
Total	4700	1600	2500	5807	2800	17497
Snails in hatchery	Shell height of 55 – 65 mm					5000
	Shell height of 15 – 30 mm					4000
	Shell height of less than 15mm					5000

The result of a recovery survey of the released hatchery produced green snails is given at Table 5.5. This result indicated that in two years after release, they became mature for natural reproduction and reached suitable size for harvesting. The minimum size for green snails in Vanuatu and Japan are 15cm and 13cm respectively.

Table 5.5: Results of the Recovery Survey for Hatchery-Produced Snails Conducted in March and October, 2002

No. recovered Shells	Releasing Date	Average size when:		Size (cm) increment
		Released	Recovered	
5	Aug-94	-	16.75	-
58	Jun-98	6.16	14.66	8.5
9	May-99	5.75	12.32	6.57
13	Feb-00	5.67	11.45	5.78

Trochus, Trochus niloticus (Takaniko)

About 2000 young trochus with shell diameter more than 4cm were spawned in 2000 are used in poly-culture with giant clam. The trochus helps to clean the weed that grows on the tank and clams. About 800 trochus of more than 50mm shell diameter were released at Uolanga Lalo reef and 'Atata island.

The results of the new recruitment survey conducted in places other than the releasing sites, 'Eueiki and Fukave Islands, witnessed the natural reproduction of released shells. The distribution of new recruitment shells is given at Table 5.6.

Table 5.6: New recruitment trochus and its location

Locations	No. of Trochus
Pangaimotu Reef	36
Ualanga Lalo Reef	73
Kolonga	56
Sopu	41

Pearl Oyster

There were 2000 spats that were harvested after three months of rearing, for grow-out. Half of these were then transferred to Vava'u and the other half remained in Tongatapu and was reared at a longline outside the reef crest adjacent to Fisheries Centre at Sopu. About 200 one-year old oysters at both sites still survive. The high mortality was due to damage by cyclone Waka. No spawning was conducted this year due to busy schedule of the consultant from ACIAR, however, this is planned for next year.

Seaweed (*Cladosiphon sp. or Limutanga'u*) Eexport

Both Sea Star Fishing Company and Tangle Nano Company were farming Limutanga'u at the beginning of the season, July 2002. The companies concentrated on harvesting wild stock due to good weather conditions and prolonged favourable water temperatures. As a result they were neglecting their respective farms. The wild stocks harvested were more than enough for their market's demands.

5.2 Oceanic & Coastal Fisheries Section

The Head of Oceanic and Coastal Fisheries, Sione Vailala Matoto, Fisheries Officer continued his study towards his PhD in Fisheries Science in Japan. As such, Mr. 'Ulunga Fa'anunu, Principal Fisheries Officer and Head of the Aquaculture and Research Division also took up the duties of the Head of Oceanic and Coastal Fisheries Section.

5.3 Commercial Fisheries Development Section

This is the section which has responsibility for the two fishing vessels, the MFV Ekiaki and MFV Takuo. The staffs in this section are also part of the Fisheries Management staff. Staffs are as follows:

Table 5.7: Staff on the Commercial Fisheries Development Section, 2002

Name	Post
Mr. Silivenusi Ha'unga	Fisheries Officer
Mr. Mafi Makasini	Fisheries Trainee
Miss. Lupe Fakalelu	Fisheries Assistant

- **MFV Takuo**

The year 2002 was the Takuo's fourth year of operation on a semi-commercial level. Due to poor catch performance, training for local fishermen as well as research has been suspended while the vessel concentrated on trying to improve its fishing efforts to cover operational costs. Staff are as follows:

Table 5.8: Staff of the MV Takuo, 2002

Name /Remarks	Post
Mr. Paea Tai	Captain
Mr. Sione V. Taunga	Chief Engineer
Mr. Hopoate Finau	Second Engineer
Mr. Falosita Loloa	Mate (Chief Officer)
Mr. Heamoni Tukuafu	Boson
Vacant	Leading hand
1 Filled & 1 Vacant	2 Greasers
1 Vacant	Cook
2 Filled & 8 Vacant	10 AB Fishermen Crew

The MV Takuo took only one fishing trip during the first quarter of the year. She took 60 days (23/01/02 – 22/03/02) trip altogether which included 8 Sundays, bunkering time in Suva, steaming days and fishing days. The catch landed at the Tu'imatamoana market amounted to 9.781mt and this was sold locally and it earned a total net revenue of T\$34,809.52. All revenues were deposited into a revolving account. MFV Takuo has been anchoring at Nuku'alofa harbour since the end of March due to shortage of operating funds. An attempt was made to revive the operations of the Takuo with funds allocated from the Project Development Fund facility at FFA to cover its operating costs. An amount of approximately T\$131, 300 was injected into the Takuo Revolving Fund.

- **MFV Ekiaki**

The MFV Ekiaki was used mainly for research and training, and for the implementation of the Tonga Fisheries Project component on fish aggregating devices (FAD) deployment. Staffs are as follows:

Table 5.9: Staff of the MV Ekiaki for 2002

Names	Post
Vacant	Master
Mr. Haani Lave (SFA)	Acting Master
Mr. Paea Mapu	Chief Engineer
Vacant	Mate
Vacant	Greaser
3 Filled & 1 Vacant	4 AB Fishermen Crew

The Tonga Fisheries Project took over the management and the operation of the MFV Ekiaki since May 2001. The vessel has become a crucial part of the Tongan Government's contribution for the implementation of the Tonga Fisheries Project, which is funded by the Australian Government. MFV Ekiaki will be used by the Tonga Fisheries Project throughout the 4 year life of the project.

MFV Ekiaki surveyed 'Atata Island (26/11/02) for the deployment of the first FAD bouy. On 29th November 2002 the FAD was placed between 21⁰ 00.39' South and 175⁰ 20.14' West. The distance was about 10nm to the west of 'Atata. She left for Nomuka on Monday 30th December 2002, searching and surveying a location for the second FAD bouy to be deployed. On Wednesday 11th December 2002 the FAD was placed between 20⁰ 10. 57' South and 174⁰ 59.4' West.

6. FISHERIES MANAGEMENT DIVISION

For management purposes, the Fisheries Management Division was divided into the following sections:

- Management and Licensing,
- Support Services,
- Marketing and Market Development,
- Post Harvest and Quality Control,
- Extension

6.1 Management and Licensing

The Management and Licensing Section was responsible for fisheries management, monitoring and control, which included surveillance, enforcement, licensing and legislation. Staff are as follows:

Table 6.1: Staff of the Management and Licencing Section for 2002

Name	Post
Mr. Viliami 'Anitimoni Petelo	Principal Fisheries Officer
Mr. Tevita Finau Latu	Senior Fisheries Officer
Mr. 'Ofa Moala Fakahau	Fisheries Officer
Mr. Uanoa 'Ahoafi	Technical Officer Grade I
Mr. 'Inoke Mapuhola	Senior Fisheries Assistant
Mr. Sailosi 'Alofi	Fisheries Assistant
Mrs. 'Ana Tapu Latu	Fisheries Trainee
Mr. Siosiu Tuamei'api	Fisheries Trainee
Miss Telesia 'Uhatafe	Fisheries Trainee

The work programme and activities of the Division during 2002 revolved around the following areas:

- Coordinating fisheries enforcement operations and prosecution of offenders in accordance with the Act and its Regulations
- Surveillance programmes such as aircraft/boat patrolling in Tonga's 200 nm.
- Observer Programme in the FFA member countries under the Fisheries Treaty with the United States of America.
- Regional Register of foreign fishing vessels.
 - Quality control, inspection and certification of marine products for export.
 - Screening applications for licenses issued under the Fisheries Act 1989 and its Regulations such as fishing vessels (local, commercial & sports fishing), fish processing establishment, fish fences, marine products, etc.
 - Collection of resource rent of the local value of marine products commercially exported and other license fees.

Table 6.2 provides details of the number of companies that have been registered with the Ministry and have been granted licences to export marine products.

Table 6.2: List of Registered Exporters of Marine Products, 2002

Name of Exporter	Address	Marine Products Exported	Established
Dateline Aquarium Fish Export Co.Ltd.	Navutoka	Live tropical fish, invertebrates, hard and soft corals, gaint clams.	1994
Walt Smith International	Ma'ufanga	Live tropical fish, invertebrates, hard and soft corals, gaint clams.	1980
Sesilia Trading	Fanga	Shark Fin	2001
Sea Star Fishing Co.Ltd	Ma'ufanga	fresh tuna and seaweed	1990
Maritime Projects Co.Ltd	Sopu	Snapper, grouper, shark dried fin	1980
Alatini Fisheries Co. Ltd	Small Industries	Fresh tuna, snapper and grouper	1990
Vanisi International Co.Ltd	Tatakamotonga	Live tropical fish, invertebrates, hard and soft corals, gaint clams.	2000
Friendly Island Fishing Co.Ltd	Fanga	Fresh tuna	1994
Coral Kingdom Co.Ltd	Small Industries Centre	Live tropical fish, invertebrates, hard and soft corals, gaint clams.	2001
Emerald Marine Products	Kolofo'ou	Shark fins	2000
South Pacific Paradise Co.Ltd	Kapeta	Live tropical fish, invertebrates, hard and soft corals, gaint clams.	2001
G& J Fishing Co. Ltd	Ma'ufanga	Fresh Tuna	2002
Tangle Nano	Sopu	Seaweed	2001
George Nakao Farm Services Co.Ltd	Sopu	Seaweed	2002
South Sea Fishing Co. Ltd	Fanga	Fresh Tuna	2002
Riot Fishing Co. Ltd	Nuku'alofa	Fresh Tuna	2002
Fung Shing Co. Ltd	Nuku'alofa	Fresh Tuna	1990
Maui Fishing Co.Ltd	Ma'ufanga	Fresh Tuna and Seaweed	1994
Island Fresh Seafood Co.Ltd	Nuku'alofa	Shark fin and Giant clams	

- **Marine Exports from Tonga**

Fisheries products commercially exported include dried shark fins, aquarium fish, hard and soft corals, aquarium rocks, tuna, snapper, and grouper. Exports for home consumption included reef fish, octopus, pelagic and other marine products such as mollusk shells. Turtle shells and souvenirs made from black coral and oyster shells are also being exported. Countries like Australia, Japan and New Zealand require letters from the Ministry certifying that such products have been harvested following the CITES (Centre for International Trade in Endangered Species) requirements.

Dried Shark Fins

Sesilia Trading and Emerald Marine Products Ltd exported about 6,838kg of dried shark fins in 2002 valued at \$547,040.00 dollars, compared to 4327.9 kg in 2001 and 1620 kg in 2000.

Lobster

Island Fresh Co. Ltd exported 137kg of lobsters in 2002. The Ministry does not encourage commercial export of this product as the stock is considered to be overexploited.

Snapper & Grouper Fisheries

‘Alatini Fisheries and Maritime Projects exported 174.71 mt of snappers and groupers (cc.186.2 mt in 2001) and valued at fob \$115,386.00. Both years were based on \$T3.00 per pound fob value although the true returns to the kingdom are greater. Individual boat owners were catching and selling their catch to the exporting companies.

Tuna Fishery

There were 730.13mt of fresh tuna that were exported in year 2002 and valued at \$4,818,858.00. In year 2001, 1,202.40 metric tonnes were valued at \$7,935,840. The FOB value for tuna in 2000-2002 remained at T\$3.00 per pound. Exporters included Sea Star Fishing, ‘Alatini Fisheries, South Seas Fishing and Friendly Island Fishing Company. The latter ceased operation on the last quarter of 2002 due to administrative and financial problems. The tuna operators continue to benefit from duty free fuel. Some boats spend more time in port due to mechanical problems.

Aquarium Fishery

Five companies collected and exported live tropical aquarium fish, aquarium rocks (live rocks), live (hard) & soft coral, invertebrates and cultured giant clams. Aquarium exporters are Walt Smith International, Dateline Aquarium Fish Export, Vanisi International, Coral Kingdom and South Pacific Paradise.

A mean FOB value of T\$13.80 per kg was used to calculate the value of fish exported. For invertebrates, soft corals, cultured clams, aquarium rocks (slap, solid and branch rocks) a mean FOB value of T\$3.50 is used. For live (hard) corals, the FOB value depends on the species that was harvested. Since most of the live coral exports were small and medium pieces, the mean FOB value used was \$6.00 pa’anga per piece. Each

company was restricted to harvest not more than 100,000 fish and 100 tons of aquarium rock per year. The total export from the five registered aquarium companies are as summarised in table 6.3.

Table 6.3: Quantity and Value of Aquarium Products Exported in 2002

Species	Total Weight (kg)	Total Pieces	FOB value	Total Value (T\$)
Live (hard) corals		29,826	6.00	178,996.00
Soft corals		39,844	3.50	139,454.00
Live tropical fish		172,173	13.80	1,211,907.20
Cultural giant clams		55,107.00	3.00	238,413
Aquarium rocks	318,960.00		3.00	956,880.00
Total	318,960	296,950		2,725,650.20

The value of aquarium exports for 2002 increased by 79% from the 2001 value of T\$1,514,910, and the 2000 value of T\$1,520,230. The live coral harvest continued throughout the year under CITES procedures and requirements.

Seaweed

The seaweed industry exported 285.84mt in 2002 valued at T\$100,044.00 based on a FOB value of T\$0.35 per kilogram as compared to T\$42,672.00 in 2001; an increase by 57%. Seaweed exported were from three companies: Tangle Nano, Sea Star Fishing, and George Nakao Farm Services. A summary of the estimated total value of all marine products exported in 2002 is provided in table 6.4.

Table 6.4: Summary of the Marine Products Export (by species) in 2001

Fisheries Exported	FOB Value in 2000	FOB Value In 2001	% Change	FOB Value In 2002	% Change	Unit Price
Dried Shark fin	129,600	346,232	63	547,040	37	\$80/kg
Tuna	5,187,936	7,935,840	35	8,867,892	11	\$3/lb
Frozen locally	1,076,850	1,466,402	27			\$3/lb
Cannery	1,463,880	2,223,210	34	4,049,034	45	\$3/lb
Snapper & Grouper	924,891	1,228,920	25	1,153,086	7	\$3/lb
Fisheries Exported	FOB Value in 2000	FOB Value In 2001	% Change	FOB Value In 2002	% Change	Unit Price
Lobster				2,172		\$16/kg
Aquarium	1,520,230	1,514,910	0.4	2,751,477	45	
Seaweed	108,500	42,672	154	100,044	57	\$0.35kg
Total	10,411,887	14,758,187	42	15,214,708	3	

As can be seen from the above table, the total revenue collected from the exports of marine products during 2002 was estimated to be over T\$15 million, which was an increase of 46% from the 2000 figure and 3% from the total value of exports for 2001. In 2002 the tuna export industry was affected by the El Nino conditions. As a result the long line catch dropped by about 40% compared to 2001.

- **Fish fences**

The license policy for fish fences has been renewed and consultation with license holders in 2003. Factors for consultation include mesh sizes, seasonal closure, distance from one fence to another, and total closure of fish fence located on the mullet breeding grounds and route. On the current licensing practice for fish fences, a license is valid for a period of 12 months. In 2002, fifty nine (59) fish fences were licensed compared to seventy nine (79) in 2001, although some licence holders have yet to erect any fish fence in some of the licenced sites.

- **Enforcement and Prosecution**

In accordance with the Fisheries Act, fisheries inspectors were appointed to monitor compliance with approved/stipulated fishing practices. The officers visit landing sites, at least twice every week to check for undersized lobsters and giant clams, as well as turtle fishing during the closed season from August to February. Offences have been reported to the Ministry of Police and are awaiting court hearing.

- **Tuna Management and Development**

Currently, Tonga has no access agreements with distant water fishing nations (DWFN) with the exception of the Multilateral Treaty of Fisheries with the United States, which allows US purse seiners to fish within Tongan waters. However, there have been very little US purse seine fishing operation in Tongan waters, due to the low productivity of our zone as compared to the equatorial belt.

- **Vessel Monitoring System (VMS)**

The Forum Fisheries Agency Vessel Monitoring System (FFA VMS) main site in Tonga is the Ministry of Fisheries. The FFA VMS system is primarily aimed at distant water fishing nations (DWFNs). Due to the increase in the number of fishing vessels (both domestic and locally based foreign fishing vessels) operating in Tonga, and the need to closely monitor their operations to ensure full compliance with fisheries regulations, there is a need to implement a vessel monitoring system as soon as possible. This has been identified as a high priority need and is planned to be addressed in 2003. The Legislative Assembly of Tonga have passed the Fisheries Bill 2002 and it is now awaiting royal assent. Further consultation is being sought for the review of a Fisheries Regulation. This move has been very much appreciated in terms of a more adequate Fisheries Act and Regulations, especially the amendments to address, improve and facilitate VMS issues

- **Fishing Vessels Licensing and Registration**

All fishing vessels of 6 metres in length and above were required to be registered with the Ministry of Fisheries. At the end of 2002, a total of 55 fishing vessels were registered and licensed with the Ministry of Fisheries. A summary of the registered fishing vessels, and their target fisheries, is provided in table 6.5. Fishing licenses were issued to locally based foreign fishing vessels on the condition that they were chartered either by Tongan nationals or by local companies

Table 6.5: Summary List of Local Fishing Vessels

Type of Fishing Vessel	Quantity	License Issued
Deep Sea Bottom Fishing	21	Nuku'alofa, Vava'u
Tuna Long Line	17	Nuku'alofa
Locally Based Foreign Fishing Vessel	15	Nuku'alofa
Government Research and Training Vessel	2	Nuku'alofa
TOTAL	55	

Following the decision to open up Tonga's waters to locally-based foreign fishing vessels, companies have utilised this opportunity to charter foreign fishing vessels to increase their fishing capacities. Fishing licenses issued to locally-based foreign fishing vessels are subject to certain terms and conditions including the need to provide reports on catch using prescribed forms, the need to land all catch at specified ports and the prohibition of transshipments.

6.2 Support Services Section

Support Services comprise the Boatbuilding Yard and the Engineering Workshop, which offered support to other sections within the Ministry as well as providing technical services to the private sector and individuals on a user pay basis.

- **Boatyard**

This Unit was responsible for the construction and repair of small fishing vessels. Set up some 20 years ago for the construction of medium sized fishing vessels, the operations of the Boatyard has significantly been downsized with focus on repair and construction of small fishing vessels. Staff of the Unit, as outlined in Table 6.6, has also been tasked with the responsibilities of maintaining and renovating the Ministry's fishing vessels, boats and buildings.

Table 6.6: Staff of the Boatyard for 2002

Name	Post
Mr. 'Aisea Tupou	Senior Fisheries Officer
Mr. Tevita Taulafo	Technical Officer Grade II
Mr. Sione Fine Tupou	Fisheries Assistant
Mr. Sekope Tiueti	Fisheries Trainee

The Boatyard Unit successfully completed the re-building and renovation of the Fisheries Public Awareness Building that burnt down in 2001. It is now used as a conference room and office for the AusAID team working for the Tonga Fisheries Project. This work was funded and facilitated by the Australian Government.

The Unit also carried out the renovations of the Nomuka Free Wesleyan Church 23-footer fishing vessel. The work was coordinated by the Central Planning Department which had sourced the funding for the project.

The Officer-in-Charge of this Unit, Mr. 'Aisea Tupou and some of the staff assisted with the implementation of the Ministry's Waka Rehabilitation Project for Vava'u and Ha'apai. which commenced in October 2002 in Vava'u.

- **Engineering**

The Engineering Unit is responsible for the overall repair and servicing of the Ministry’s fishing vessels (MFV Takuo, MFV Ekiaki and MFV Vete), refrigeration plants and vehicles. It also offers repair and maintenance services, at cost, to mariners and the general public. In 2002, the following major activities were conducted:

- Renovation to the ice-making plant at Nomuka in March, with funding assistance provided by the Government of New Zealand.
- Dry-docking of the MFV Takuo in Suva, Fiji and the MFV Ekiaki at the Fuaa slipway in Nuku’alofa.
- Major repair works on the MFV ‘Ekiaki, funded by Tonga Fisheries Project which included the installation of new shelter, generator engine, electrical wiring and new lighting.

The staffing situation of the Engineering Unit is detailed in table 6.7. Since most of the vehicles, boats and ice plants were very old and were subject to frequent breakdowns, the staff of the Unit were required to regularly travel to the other islands to carry out repair work to these assets of the Ministry.

Table 6.7: Staff of the Engineering Unit for 2002

Name	Post
Mr. Sioeli.K.Pasikala	Fisheries Officer (Head of Section)
Mr. Lomio Tonga	Fisheries Officer
Mr. Pala'a Mausia	Senior Fisheries Assistant
Mr. Viliami Tonga Vaka	Senior Fisheries Assistant
Mr. 'Uluaki Vaipuna	Fisheries Assistant
Mr. Lisiate Pola	Fisheries Trainee
Name	Post
Mr. Fonua Kite Fanua	Fisheries Trainee
Mr. Mangisi Tupou	Driver
Mr. 'Etuini Kaufusi	Driver

Table 6.8 provides an inventory of the all the vehicles that were operated by the Ministry in 2002. As will be noted, more than half of the vehicles were about 10 years old and while some of them are still in fair conditions, there were those that would need to be replaced in order to minimise cost of repair and maintenance.

Table 6.8: Ministry's Vehicles in 2002

Year	Reg. No.	Type	Location	Standard	Funded	Remarks
1990	P936	Toyota Hiace	Sopu	Fair	PDF	Under repair
1992	P149	Toyota Hilux	Sopu	Fair	JICA	Needs replacement
1992	P1118	Toyota Hilux	Tuimatamoana Market	Fair	JICA	
1992	P1119	Toyota Hiace	Sopu	Fair	JICA	Needs replacement
1994	P1026	Toyota Hiace	Sopu	Good	Treaty Fund	
1997	P152	Toyota Hilux	Sopu	Good	Treaty Fund	
1997	P1120	Toyota Hilux	Sopu	Good	JICA	For Secretary
1990	P35	Toyota Hilux	Ha'apai	Fair	PDF	
1997	P103	Toyota Hilux	Ha'apai	Good	PDF	
1997	P39	Toyota Hilux	Vava'u	Good	PDF	

6.3. Marketing and Market Development Section

This Section has been set up to coordinate development activities pertaining to marketing of marine food products both in overseas and local markets. The Head of this Section, Fisheries Officer Mr Po'uha Hasiata is also the Manager of Tuimatamoana Fish Market. He was assisted by a senior Fisheries Assistant, Mrs Makalita Mafile'o who was also the clerical officer for the Market, and three daily paid labourers

- **Tu'imatamoana Fish Market**

The Tu'imatamoana Fish Market was built about 15 years ago, equipped with freezers, cool storage rooms, ice making machines and fully furnished trading area to facilitate local fish trade, storage and the production of ice for fishing vessels. The facility, however, has suffered from poor management and maintenance due to lack of funds. As a result, it has been allowed to deteriorate to a situation where all freezers and cold storage facilities were no longer working, and most the fish handling equipment and accessories have broken down. The status of the refrigeration facilities of the Market are summarised in table 6.9

Table 6.9: Status of the Refrigeration facilities at Tu'imatamoana Market, 2002

Item	Condition
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Air blast Freezer No. 1	Broken since 1998.
Air blast Freezer No. 2	Broken since January, 2000.
Freezer Store No. 1	Broken since February, 1999.
Freezer Store No. 2	Worked but broken on August, 2000.
Freezer/Chiller	Broken since 1998.
Chiller Room	Broken
Ice Store	Used for storage ice.
Ice machine.	Worked well.

No products were stored at the market throughout 2002 due to breakdown of all cold storage facilities. This problem started in 1999 and it has affected the market services for the public as well as its revenue collection. These facilities urgently need repair or replacement.

Ice Production

In 2002, the Market produced more than 430mt of ice for sale. It has only one ice making machine which has a maximum production capacity of 2.5mt per 24 hours operation. This was considered not sufficient to cater for the existing demand and consideration should be given to adding another ice-making plant, if the Market is expected to continue this service to the fishing community and the general public. There would therefore be a need for consultation with the fishing community fishermen/general public to ensure that such a service is necessary and that the Government should continue to be involved in its operation.

Fish Landing

The Market recorded a total of 183.6mt of fish landed at the Market for sale in 2002 as compared to 478.1mt in 2001. While this clearly a cause for concern, it was also noted that there were new outlets which opened in 2002. In addition, it was considered that there was under-reporting of the total volume of fish landed at the market for sale, due to shortage of staff, which was a result that was not possible to make a complete coverage of landed catch.

Fish Handling and Processing Equipment

Table 6.10 provides a list of the fish handling and processing equipment currently being used at the Tu'imatamoana Fish Market. These were made available to fish traders on a hiring arrangement.

**Table 6.10: Fish Handling and Processing Equipment at
Tu'imatamoana Fish Market, 2002**

Items	Condition
6 Heavy duty trolley	Only two were working and four were broken.
2 Big fish cutting band saw	One old needs repair and services, new one worked well.
1 Small fish cutting band saw	Broken and need to repair and service.
4 Manual pallet truck (for easier loading)	All broken and need replacement.
150 Blue fish crates	All damaged and need replacement
24 Blue cooler ice-boxes	All in a hiring pool and using inside the market. Some need repair.
8 Hanging weighing scales	Five were working well and using inside the market and 3 were broken.
2 Platform weighing scales	Both broken, one under repair, one need replacement.

Fish Processing and Packing Room

Part of the Tu'imatamoana Fish Market was leased to the Friendly Islands Fishing Company. The company has renovated the rented space into a state of the art fish packing facility, to facilitate its fish export operations. The monthly rental fee is T\$1,000 which is deposited into the Fish Market Revolving Fund account and used to cover part of the cost of operating the market.

6.4 Post Harvest and Quality Control Section

The Post Harvest and Quality Control section was responsible for quality control management to meet international requirements like *Hazard Analysis & Critical Control Point (HACCP)*. All marine exporting companies in Tonga have to be certified to meet HACCP requirements. As such, the bulk of the work of the Section revolved around the inspection of fish export packing facilities, certification and documentation, and the implementation of post harvest and processing activities.

The biggest challenge in regards to quality control and management is the need to develop a set of national quality standards for marine food products against which the quality of all imports and exports will be assessed. This is very important if Tonga is to penetrate new markets with more stringent quality standard requirements.

6.5 Extension Section

This Section is responsible for providing technical advice to fishermen on proper fishing practices, management issues and general fisheries development. Due to shortage of staff extension has been carried out by the same staff that were involved in resources management, monitoring control and surveillance and quality control.

7. OUTER ISLANDS FISHERIES DEVELOPMENT

Offices have been set up in Vava'u, Ha'apai and Niuatoputapu to facilitate fisheries development in the outer islands. The office in 'Eua was damaged by a tropical cyclone sometime ago and since then it has not yet been possible to open up a new office due to lack of funding. Fisheries development activities for 'Eua are being coordinated and monitored from the Ministry's head office at Sopa.

To date, the Ministry has not been able to set up an office at Niuafu'ou due to funding constraints. There is plan however to construct a new office and staff quarter for Niuafu'ou in the 2003/04 financial year.

7.1 Niuatoputapu Fisheries Service

The fisheries development activities in Niuatoputapu were managed by only one staff member. Officers from the head office regularly visit the island to assess the status of operation and to carry out general repair and servicing of machinery and equipment. Due to its remoteness and the transportation costs involved, it has not been easy to make regular visits to the island.

Fisheries in Niuatoputapu is not as developed as in the other islands; most fishing operations were for home consumption. There was an ice-making plant and cool storage room operated by the Ministry on the island which was powered by a diesel generator. The generator was quite old and was subject to frequent breakdowns.

- **Training**

The Ministry conducted a training programme for the local fishermen of Tafahi on trawling and long-line fishing techniques. The training also involved identifying best fishing sites. A follow up session of this training is expected to begin next year to cover safety at sea skills, safe fishing practices and the proper use of radio telephone at sea.

7.2 Vava'u Fisheries

Fisheries in Vava'u is fairly well developed and as such there are a lot development activities going on which require a cadre of qualified staff to coordinate and monitor. There were a total of 12 staff members stationed in Vava'u, as detailed in table 7.1.

Table 7.1: Staff Stationed at Vava'u in 2002

Name	Post
Mrs. Silika Ngahe	Technical Officer Grade II
Mr. 'Otenili Fisi'ikava	Technical Officer Grade II
Mr. Toma Kauvaka	Technical Officer Grade II
Mr. Vea Kava	Senior Fisheries Assistant
Mr. Koliniasi Hafoka	Fisheries Assistant
Mrs. 'Emeline Tonga	Fisheries Assistant
Mr. 'Aisea Vailea	Fisheries Assistant
Mrs. Sisilia Soakai	Computer Assistant
Mr. Sese Malimali	Fisheries Trainee
Mr. Sauaki Talasinga	Fisheries Trainee
Mr. Tekiteki Vailea	Fisheries Trainee
Mr. Sioeli Valu	Fisheries Trainee

- **Aquaculture and Research Operation**

The main focus of Aquaculture & Research Unit was pearl oyster farming, with emphasis on technology and knowledge transfer to members of the Vava'u Pearl Farmers Association. After years of research and trials, it is now confirmed that black pearl could be commercially farmed in Vava'u. In response to this, a Pearl Farmers Association was set up to coordinate and manage pearl farming activities on the island. Assistance was provided to Association members in setting up their own individual farms. It is expected that the industry will expand and become a major revenue earner for Vava'u. The stock of pearl oysters of the Ministry is as follows:

- 214 spats and 50 big oysters giving a total of 264 Wing Oysters
- 42 medium-size and 10 large-size black-lipped oysters.
- There are 316 pearls for the Ministry.

- **Extension and Resource Management**

The Extension Section continued to provide technical assistance for fishermen especially on gear development and on the use of new technologies. The Section continued to encourage and promote the private sectors on their fishing efforts and production for both domestic sales and fish exports.

Local Fishing Vessels

There were only four local fishing vessels licensed with the Ministry in Vava'u during 2002. These fishing vessels were licensed for bottom-fishing. There were still a small number of privately owned fishing vessels that were known to be engaged in commercial fishing without any licence from the Ministry. Letters have been sent out to some of these boat owners, and announcements have been made over the radio encouraging owners to come forth and register their boats.

To facilitate the timely licencing of fishing vessels, the Officer-in-Charge of Vava'u has been authorised to sign and issue licencing certificates for fishing vessels between 6-10 metres in length. There were still some practical problems encountered which have hampered the timely renewal of licences. These include the inability of boat owners to obtain on time certificate of seaworthiness from the Ministry of Marine and Ports which was a prerequisite for issuance of licences, and the failure of boat owners to apply for renewal of licences on time.

Fish Fence

This section was also responsible for registration and licensing of fish fences. This task included site survey, and measuring of fish fence before erecting and issuing of licenses. There were 9 fish fence holders who were able to renew their licenses in 2002. There has been a decline in the number of fish fence holders when compared to past years.

This was believed to be the result of Cyclone Waka. The Ministry re-assesses the fish fence location annually before deciding on license renewal and location.

Duty Free Diesel Fuel Scheme

All four boats mentioned above were entitled for fuel concession. This was an appreciated benefit for Vava'u fishermen. The Officer-in-Charge of Vava'u has been authorised to assess and approve applications for duty free fuel for fishing vessels registered in Vava'u, as an effort to enhance the timely issuance of duty free fuel certificates.

Law Enforcement

In line with the provisions in the Fisheries regulations, four officers were appointed as Fisheries Inspectors to be responsible for carrying out law enforcement activities, which involve the inspection the fishermen's catch every morning upon their arrival, to ensure compliance. Enforcement has been a challenging responsibility for the officers involved. There were no any offences noted during 2002.

Public Awareness Program

A one week Public Awareness Program on "The importance of Coral Reef and Conservation Management of Marine Resources" was launched for all secondary schools, with the co-operation of the Ministry of Health, Ministry of Agriculture and Forestry, the Department of Environment and the Vava'u Youth Congress. The program involved lectures, drama, video and field trips.

- **Engineering**

This section was responsible for the repair and maintenance of the Ministry's boats, outboard engines, vehicles and the refrigerator and ice-block machine. Assistance was also offered to private fishing vessels. Where necessary, officers from Tongatapu regularly visited Vava'u to assist with their engineering work.

The major problems encountered by this Unit include the unavailability of spare parts at local stores, lack of appropriate tools and equipment, and the lack of funding to cover the costs involved in the repair and servicing work.

- **Boatyard**

This section continued to maintain and repair of the Ministry's boats as well as local fishing vessels. With the commencement of the Waka Rehabilitation Project, the workload of the Boatyard increased significantly and another officer was transferred from Tongatapu assist with the project. In addition, two daily labourers were recruited to help with the implementation of the project. Their employment would be terminated once the project is completed.

By end of the year, repair to one 28ft fishing vessel and 5 small fishing vessels, and the construction of a new 18ft fishing boat were completed. The total cost of repairing the six boats and the construction of the new one was \$7,512, of which \$5,184 was funded by the project and the balance was contributed by the boat owners.

- **Major Achievements in 2002**

The following is a summary of the major activities that were accomplished by the end of the year.

- Deploying of two FADs under the Tonga International Game Fishing Association (TIGFA) program.
- Deploying spat collectors for Black Lip Oyster.
- Releasing more green snails to 'Ene'io and Taunga.
- Expanding of the seaweed farming (Eucheuma) at Talihau.
- Fencing of the two fisheries quarters at Fangatongo.
- Painting of the office.
- Repairing of the two workshop roofs.
- Licensing of all fish fences before the end of the year.
- Repairing and painting the two fisheries boat.

- Servicing of all fisheries vehicle.
- Inspecting all Fish Retail Shops.
- Constructing one smoke house for training purposes.
- Renovating the main office building to accommodate a library/conference room.

- **EU-funded Vava'u Regional Development Program**

Under the Vava'u Regional Development Program funded by the European Community, the following fisheries development projects have been approved to be implemented. The Program was scheduled to commence in 2003.

- New local fish market
- New fishermen wharf
- New boatyard building and dry docking facilities.
 - New ice-making machine
 - Hatchery for pearl farming
 - Equipment for training room.
 - Construction and deployment of new FADs.

7.3 Ha'apai Fisheries

The scattered nature of the Ha'apai group, coupled with other constraints, continued to pose challenges to the Ministry's efforts in Ha'apai. Unlike Vava'u, there was no commercial fishing vessel registered in Ha'apai. As such, activities during the year revolved around the implementation of pilot commercial trials (pearl oyster farming, giant clam farming) the sale of ice, promotion of community-based approach to development and management, boat and engine repairs, and other minor fisheries activities.

The sub-stations at Nomuka and Ha'afeva continued to operate throughout the year although they functioned primarily as providers of ice and general extension work. Other research and development work throughout Ha'apai were implemented and coordinated by staff based at Pangai. The full complement of staff that worked at the Ha'apai office is as detailed in table 7.2.

Table 7.2: Staff Stationed at Ha'apai, 2002

Name	Post
Mr. Tevita Mafi 'Ahoafi	Technical Officer Grade 2, (Officer-in-charge, Ha'apai)
Mr. Tu'atalatau Tonga'onevai	Senior Fisheries Assistant, (Station Manager, Ha'afeva)
Mr. Moana Nau	Fisheries Trainee, (Station Manager, Nomuka)
Mr. Haani Lave	Senior Fisheries Assistant
Mr. Tevita 'Atana	Senior Fisheries Assistant
Mr. Sosefina Vili	Senior Fisheries Assistant
Mr. Siosifa Fisi'ipeau	Fisheries Assistant
Mr. Talia'uli Napa'a	Fisheries Assistant
Mr. Sione T. Mailau	Fisheries Trainee
Mr. 'Asela Lausi'i	Fisheries Trainee
Mr. Fotu Tu'i'onetoa	Fisheries Trainee

- **Aquaculture and Research**

The staff of this sub-section continued to promote Aquaculture development in Ha'apai by rearing and collecting of black-lip oysters, juvenile giant clams and releasing of green snails.

Green Snails

A total of 1,000 young green snails were transferred from Sopu Aquaculture and released in Ha'apai during 2002. These were released at the western reef of Uoleva (600) and at the south west reef of Matuku Island (400). The two areas are being monitored monthly by staff from Pangai.

Black-lip Oyster

By the end of the year, there were 183 Japanese Winged Oysters and 77 Black-lip pearl oysters on the brood stock line at the western reef (Hakau-tu'u-taha) facing Taufa'ahau Wharf at Pangai, all of which are considered ready for pearl cultivation.

A private sector entrepreneur, Mr. Paula H Lausi'i of Faleloa has established a small pearl farm with more than 100 black-lip pearl oysters with the assistance of fisheries staff from the Pangai office. Assistance is needed for such small establishment especially with ropes and floating materials.

Sea Weed

An expert on seaweed farming from Japan, Mr. Toiyama led a survey team that conducted a feasibility study on the export potential of seaweed found in Ha'apai. This survey was conducted around 'Uiha, Felemea and Koulo area, where most of the seaweed can be found. The survey concluded that good quality seaweed can be grown in Ha'apai.

It is important that further trainings be continued in this area for fisheries staff and community alike. It was apparent from the survey that there was good potential for a sustainable export industry to be established in Ha'apai but it would require commitment from all players such as farmers, the Ministry and an export company. At the moment there is no export company interested in setting up a farming operation in Ha'apai.

- **Extension**

Extension staff continued to assist local fishermen in their needs for information, technical advice and demonstration of proper care and maintenance of fishing equipment. The same staff are also involved in law enforcement, monitoring, control and surveillance work.

Fish fences

A total of 12 fish fence licences were issued by the Ha'apai office in 2002. The locations of these fences are given in the table below. These fish fences were continually monitored to ensure compliance with provisions in the fisheries regulations,

Table 7.3: Location of Fish Fences Licenced at the Ha'apai Office of the Ministry of Fisheries, 2002

Location	Number
Uoleva	3
Hihifo	2
Fakakai	1

Haato'u	2
Pangai	2
Lofanga	1
Faleloa	1

- **Boatyard and Engineering**

Due to lack of private sector involvement and capability in the area of boatbuilding and marine engineering, the Ministry has continued to operate its Boatbuilding and Engineering Unit at Ha'apai, not only to cater for the needs of the Ministry but also to provide such needed service to the general public. Such service includes repair of outboard engines and boats, re-charge of batteries and welding of anchors for local fishing boats.

Major Assets at Ha'apai Fisheries

Table 7.4 below provides a summary of the major capital items/assets of the Ministry in Ha'apai.

Table 7.4: Major Capital Items at Ha'apai Fisheries at as End of 2002

ITEMS	QUANTITY	CONDITION	REMARK
Staff quarters	6	Good	Needs painting
Ice making machine	3	1 recently refurbished and 2 are very old	One each in Nomuka, Pangai and Ha'afeva. The latter two are very old and need replacing
Large deep freezer	2	Not working	1 freezer needs repairing; one is beyond repair.
Vessels/engines	2 fibreglass vessel 1 inboard, MV Vete 1 x 40Hp Yamaha 1 x 15 Hp Mariner 1 x 25Hp Yamaha	Good Good Good Good Not working	Needs VHF & Echo Sounder Needs renovation
Vehicles (P103 &P935)	2	P103- Good	P935- Needs servicing
Computer	1	Good	Need extra computer
Photocopier	1	Good	
Printer	1	Good	
ITEMS	QUANTITY	CONDITION	REMARK
SSB Radio	1	Good	
VHF Radio	1	Good	
Fax	1	Good	

- **Nomuka and Ha'afeva Sub-Stations**

Nomuka was fortunate to have a new fully functional and well equipped ice-making machine and generator installed, which was donated by the New Zealand Government. Water shortage, however, is still a major constraint to the ice-making operation on the island. There is a plan to construct new water tanks in the new financial year as an effort to rectify the situation.

The ice-making machine in Ha'afeva is very old and needs to be replaced. In addition there is also a need to increase the water storage capacity to ensure the continued supply of water for ice-making purposes. A replacement ice plant is expected to be provided under the AusAID-funded Tonga Fisheries Project in 2003.