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LIST OF ABBREVIATIONS

AB Fishermen	:	Able bodied Fishermen
AusAID	:	Australian Agency for International Development
CDS/ISIS	:	Computerised Documentation System\Integrated Set Information System
CITES	:	Convention on the International Trade of Endangered Species
CPUE	:	Catch per Unit Effort
DWFN's	:	Distant Water Fishing Nations
EMAS	:	Executive Management and Administrative Support
FAO	:	Food and Agriculture Organisation
FAD	:	Fishing Aggregate Devices
FCC	:	Fuel Concession Committee
FFA	:	Forum Fisheries Agency
FFA VMS	:	Forum Fisheries Agency/Vessel Monitoring System
FMD	:	Fisheries Management Division
FMP	:	Fisheries Management Plan
F.O.	:	Fisheries Officer
FOB value	:	Free-on- board – the price of the product source before freight and Insurance is added
FRD	:	Fisheries Research and Development
FY	:	Financial Year
HACCP	:	Hazard Analysis & Critical Control Point
HP	:	Ha'apai
hp	:	horse power
ICLARM	:	International Center for Living Aquatic and Research and Management.
JICA	:	Japanese International Co-operation Agency
JOCV	:	Japanese Overseas Co-operation Volunteer

MCS	:	Monitoring, Control and Surveillance
MHLC	:	Multilateral High Level Conference
MLCI	:	Ministry of Labour Commerce and Industry
MFV	:	Motor Fishing Vessels
MT	:	Metric Tones
NFS	:	Niutoputapu Fisheries Sub-station
NUK	:	Nuku'alofa
NTT	:	Niutoputapu
NZODA	:	New Zealand Overseas Development Aids
OIC	:	Officer-in-Charge
PHRD	:	Personnel and Human Resources Development
PP	:	Policy and Planning
SPC	:	Secretariat of the Pacific Community
SFO	:	Senior Fisheries Officer.
TDS	:	Tonga Defense Services
TOI	:	Technical Officer Grade 1
TOII	:	Technical Officer Grade 11
UNDP	:	United Nation Development Programme
USP	:	University of the South Pacific
VFS	:	Vava'u Fisheries Section
VV	:	Vava'u

1. Strategic plan

1.1 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.

1.2 Philosophy Statement

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

(a) *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.

(b) *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).

(c) *Caring*

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

(d) *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.

(e) *Structured*

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

1.3 Vision

In the year 2001, the Ministry of Fisheries will be an organization:

- (a) 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.
- (b) Who continues to provide services that are essential for the progressive development of the fisheries sector.
- (c) That supports a viable fishing industry based on tuna and other fisheries resources.

- (d) That ensures Tonga is a leading country in the South Pacific in aquaculture development including the enhancement of fisheries resources.
- (e) That supports the sustainable development of small-scale fisheries that provide the principal supply of seafood for local consumption.

1.4 Key Goals

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

1. Improve the management systems of the organization and increase the number of qualified staff.
2. Improve the capacity of staff to analyze and formulate sound fisheries policies and undertake effective sectional planning and project evaluation.
3. Use an efficient accounting system and undertake effective financial control.
4. Improve the effectiveness of information/data collection and the safekeeping of the scientific, economic, technical and social database.
5. 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.
6. Develop an advanced and self-sustained national aquaculture programme.
7. Increase the availability and use of oceanographic information and data.
8. Develop improved systems of providing boat-building and engineering support services to other sub-programmes within the Ministry and to the fishing industry.
9. Create fisheries management conditions where the reasonable business and food-security aspirations of fishermen can be attained while safeguarding the fisheries resources.
10. Improve export market development, marketing systems and conditions to ensure increased export and local consumption of fish and other marine products.
11. Create fisheries quality control standards to ensure the health security of the consumers to improve quality of fish export and local sale.
12. 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.
13. Develop extension services programme that emphasizes effective delivery of services, and whose staff are identified with projects implemented by all sub-programmes.
14. Provide increased support toward the development of the special role and needs of small scale fishermen/women and coastal fishing communities.

2. Divisions

The Ministry is divided into 3 main divisions; Executive Management and Administrative Support (EMAS); Fisheries Research and Development (FRD); and Fisheries Management. The EMAS Division is further sub-divided into four main Sections; Personnel and Human Resources Development; Policy and Planning; Finance and Information.

2.1 Executive Management and Administrative Support Division

2.1.1 Personnel and Human Resources Development

The Personnel and Human Resources Development consist of 7 established staff members.

Staff are as follows:

Name	Post
'Akau'ola	Secretary for Fisheries
Mafi 'Akau'ola	Deputy Secretary for Fisheries
Losaline Tafea	Principal Fisheries Officer
Tonga Fifita	Senior Fisheries Assistant
Mele Fukofuka	Fisheries Trainee
'Asela Lausi'i	Fisheries Trainee
Telesia 'Uhatafe	Fisheries Trainee

Appointments

Table 1: Appointments during 2001

Name	Post
Kolianita Lavemai	Fisheries Officer
Sione Vai Taunga	Chief Engineer
'Aholiapi Taunisila	2 nd Engineer
Fonuakite Fanua	Fisheries Trainee

Promotions and Upgraded during 2001

There was no promotions or staff upgrade in the Ministry during the year 2001. This was due to the Government's effort to establish Public Reform Proposals.

Resignations, Retire, study leave and dismissals

Table 2: Resignations, Retirement, study leave and dismissals during 2001

Name	Post	Reason
'Aholiapi Taunisila	2 nd Engineer (MV Takuo)	Resignation
Sio 'Ofanoa	Senior Fisheries Assistant	Resignation
Siosua Finau	Master (MFV Takuo)	Retired
'Ofa Paongo	Fisheries Assistant	Dismissed
Sione V Matoto	Fisheries Officer	Study leave, Japan on a doctorate programme
Siola'a Malimali	Technical Officer II	Study leave, Fiji doing BSc programme
Poasi Fale	Technical Officer II	Study leave, Australia doing BSc programme

Staffing

There were no new, redesignated or upgraded posts during Financial Year 2001/2002.

Table 3: Established and Non-established Staff of the Ministry of Fisheries as of 31st December 2001

Job Category	Job Classification (JB)	Job Abbreviation	No. 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
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.V Ekiaki, M.V Takuo)	M/LF	2	1
L/13	Computer Assistant	CA	2	-
L/14	Fisheries Trainee	FT	29	1
L/14A	Driver	D	2	-
L/14A/13A	AB Fishermen (non-established), (MV Ekiaki, Takuo.)	ABF	15	1
L/14A/13A	Cook (non-established) (MV Takuo)	CK	1	
L/14	Greaser (non-established) (Takuo)	GRS	3	-
Total	Established post		105	13
	Non-established post		19	-

Short-term training, workshops, local & overseas meetings

Several members of staff attended short-term training programmes and meetings both locally and abroad as shown on Table 4.

Table 4: Local/overseas short-term training, workshops and meetings during 2001

Name	Course/Meeting/Workshop	Duration	Country
Sioeli Pasikala (counterpart) Lomio Tonga	Outboard Motor Maintenance Course and Safety survival at sea	15 th -18 th Oct.	Tonga
Silika Ngahe	Fish Handling and Processing	20 th -30 th Aug	Tonga
Siaosi Vaoleti and Telesia 'Uhatafe	Induction courses for new appointees into the civil service	25 th -26 th Jan	Tonga
Keasi Takau	Training program on Training Needs Analysis		Tonga
Tonga Fifita and Siaosi Vaoleti	Basic Accounting & Bookkeeping	5 th -23 rd March	Tonga
Sione Mailau and Matafonua Langi	Scuba Diving (International Open Water Diver)		Tonga
Silika Ngahe	Workshop on Weight Control and Management of Obesity	18 th October	Tonga
Kolianita Lavemai	Confirmation of nominations to Comprehensive Hazard and Risk Management Program (CHARM) workshop	26 th – 28 th June	Tonga
Mafi 'Akau'ola	Seminar " Tonga Update"	29 th May	Tonga
Losaline Tafea	Career Development Workshop	29 th -30 th Nov.	Tonga
Viliami Vaka, Paea Mapu and Mangisi Tupou	Class 4 Engineering and Class 5 Engineering	12 th -23 rd March	Tonga
Siliveinusi Ha'unga	4 th Meeting of Monitoring Control and Surveillance (MCS) working Group, FFA.	13 th -16 th March	Solomon Islands
Akau'ola and Mafi Akau'ola	Special Session of Forum Fisheries Committee (FFC 46) and 13 th Annual Consultation and Negotiation Meetings of the Pacific Island Parties with USP Apia.	19 th -29 th March	Samoa
Akau'ola and Mafi	Annual Session of Forum Fisheries Committee Meeting	7-11 th May	Cook

Akau'ola			Islands
'Asela Lausi'i and Talia'uli Pauli	2001 SPC /Nelson Polytechnic Pacific Island Fisheries Officers Training Course	12 th Feb.-16 th June	New Zealand
Sione Holopulu and Sese Malimali	Regional Training on Sustainable Use of Coral Reef Fisheries Resources with Special Emphasis on Shellfish Seed Production and Release	7 th Feb.-2 nd March	Fiji
Vilimo Fakalolo	Group Training Course in Fisheries Development Planning	9 th Jan-23 rd Feb.	Japan
Akau'ola	24 th Session of the Committee on Fisheries	26 th Feb.-2 nd March	Rome
Taniela Taungakava	Ordinary Individual Training course in the field of Collection and Processing Fishery Data on Tuna	27 th Mar.-15 th May	Japan
Tevita Finau Latu and Po'uha Hasiata	Post-Harvest Program Workshop	9 th -13 th April	Samoa
Akau'ola	Special 47 th FFC Meeting	23 rd April	New Zealand
Akau'ola and Mafi Akau'ola	First Preparatory Conference	21 st April	New Zealand
Feauni Vi	Mangrove Wetland Protection & Sustainable Use	12 th -16 th June	Fiji
Siliveinusi Ha'unga and Lavinia Vaipuna	Pacific Islands Regional Workshop on Fisheries Sustainable	16 th -18 th July	New Caledonia
'Emeline Tupou	Workshop on Marine Information Management (PIMRIS)	10 th -13 th July	Fiji
Sailosi 'Alofi	Soft Coral Taxatomy Workshop	5 th -8 th September	Fiji
Matafonua Langi	Digital Video Production Course	16 th Aug.-16 th Dec.	Japan
Silika Ngahe	Women in Fisheries Network Workshop	3 rd -7 th Dec.	Fiji
Keasi Takau	Seminar on Integrated Inshore Resources Management	27 th Sep.-7 th Nov.	Japan
Martin Finau	Observer on MFV "Daniel", United States Foreign Fishing Vessel	12 th Sep.-	
Siosefina Vili	Trainers of Women engaged in Small Scale Post Harvest Fisheries Activities	19 th Nov.-7 th Dec.	N.Z.
'Emeline Tupou	Environmental Information Sharing,Networking & Clearinghouse sub-regional workshop	3 rd -7 th Dec.	New Zealand

Table 5: Staff movement during 2001

Name	Post	Former station	New station transferred to
Silia Soakai	Computer Assistant	Nuku'alofa	Vava'u

2.1.2 Policy and Planning

Kolianita Lavemai, Fisheries Officer was appointed to her post on February 2001 after completing a Bachelor of Arts in Economics and Management & Marketing from the University of the South Pacific. Keasi Takau also provided inputs into the Human Resources and Development section.

The Ministry of Fisheries Strategic Plan 1996 - 2001 reflects its core business as well as providing direction for the development of strategic goals that are practicable and achievable by the Ministry, Government, industry, and the community. Some of the objectives set to be completed in year 2001 were not achieved due to a number of reasons such as limited funds and delay in the implementation of the AusAID management project.

Staff are as follows:

Name	Post
Vilimo Fakalolo	Principal Fisheries Officer
Miss Kolianita Lavemai	Fisheries Officer
Miss Keasi Konilia Takau	Technical Officer Grade II

Training

Vilimo Fakalolo, Principal Fisheries Officer attended overseas training in Fisheries Development Planning from January 9th- 23rd February in Japan. Keasi Takau, Technical Officer Grade 2 also attended a local training program on 'Training Needs Analysis', and an overseas seminar on 'Integrated Inshore Resource Management' that was held in Japan from September 27th - November 7th, 2001.

Fisheries Regulations

The review, revision and translation of Fisheries legislation and regulations undertaken by FAO were completed in year 2001. The Fisheries Bill was processed through the Law Reform Committee but could not be submitted in time to the Legislative Assembly session in 2001. Both the Fisheries Bill and the Aquaculture Bill are to be submitted to the Legislative Assembly session in 2002.

AusAID Fisheries Project

The Secretary for Fisheries attended the final selection process of the consultants to implement the AusAID Fisheries Management Project that was held in Canberra, Australia. The contract was awarded to Hassalls. This AusAid Fisheries Project is expected to be implemented in early 2002.

Bid for Tuna Commission

The FFC committee decided at its meeting in the Cook Islands that the matter be considered at a meeting to be held during PrepCon2 in Madang in February 2002.

The Ministry's projects were implemented in the year 2001 are detailed in table 6 below:

Table 6: Projects implemented in year 2001

Project title	Funding Agencies and Amount (T\$)	Project description and location	Current status
'Strengthening and Improving Educational Awareness'	US Treaty Fund. \$14,028.00	Computer, Audio Visual Equipment and office furniture, Nuku'alofa	Approved and implemented but unfortunately destroyed by fire
'Upgrade of <i>Tonet</i> Information Network System'	US Treaty Fund \$17,041.50	Computers for new staff, Nuku'alofa	Approved, Implemented and completed.
'Outboard motors and Inboard engine ,	US Treaty Fund \$42,192.00	Outboard motors and inboard engine, Vava'u and Ha'apai	Approved, Implemented and completed.
'Renovations of staff quarters, Engineering and Boatyard Workshop.	US Treaty Fund \$73,028.00	Building materials, Vava'u	Approved, Implemented and completed.
'Renovations of staff living quarter.	US Treaty Fund \$14,616.00	Building materials, Ha'apai	Approved, Implemented and completed.
'Professional Local Diving Training'	US Treaty Fund \$9,000.00	Training, Vava'u and Nuku'alofa	Approved, Implemented and completed.
Translation of Fisheries Legislation	FAO \$20,000.00	Translation of Fisheries Legislation, Nuku'alofa	Approved, Implemented and completed.
Repalcement of Nomuka Ice plant	New Zealand \$74,640.00	New Ice block machine & generator	Approved and to be implemented in 2002.

Duty Free Diesel Fuel

Summary of Diesel fuel granted by Fuel Concession Committee from January, to December 31st, 2001.

Table 7.

Table 7: Summary of Diesel Fuel granted by Fuel Concession Committee for year 2001.

Type of Fishing	Diesel (litres)	SAE 30 (litres)	Hydraulic (litres)	Refrig. (litres)	Grease (Kgs)	Others (litres)
Bottom Fishing 61 applications in 2001	282,500.0	9,220.0	1,060.0	0.0	25.5	120.0
Tuna Fishing 73 applications in 2001	2,730,300.0	60,460.0	9,605.0	4,062.5	52.0	1,524.0
Total 134 applications in 2001	3,012,800.00	69,680.00	10,665.00	4,062.5	77.5	1,644.0
Bottom Fishing	9.38%	13.23%	9.94%	0%	32.90%	7.30%
Longliners	90.62%	86.77%	90.06%	100%	67.10%	92.70%

Catch Data from qualified vessel for Fuel Concession for year 2001.

Type of Fish	Landing (m/t)	Local Fish (m/t)	Export Fish (m/t)
Snappers	290.485	147.625	142.860
Tuna	2,121.407	570.460	1,550.947
Total	2,121.407	570.460	1,693.81

2.1.3 Finance

The Finance section consists of two staff only with the assistance of Katalina T. Fifita when she is free.

Staff are as follows:

Name	Post
Tevita Talakai	Acting Accountant
Siaosi Vaoleti	Fisheries Trainee

Recurrent Estimate

The Total Expenditure Estimate (Summary by Cash i.e. Government and Overseas cash funding) for the Financial Year (FY) 2001/2002 increased by 8.48% when compared with FY 2000/2001. The Establishment Vote was increased by 2.73% from \$831,109.00 (2000/2001) to \$853,798.00 (2001/2002). Travel and Communication was decreased by 1.56% as well as Purchase of Goods and Services by 12.35% respectively. Maintenance and Operation Vote was increased by 14.01%.

Table 8: Percentage increase/decrease of the Expenditure Estimate (Summary by Cash)

Expenditure Estimate by Cash	1999/2000	2000/2001	2001/2002
	T\$	T\$	T\$
Established staff	809,452	831,109	853,784
Unestablished staff	97,267	92,616	88,014
Travel and Communication	68,508	96,034	94,533
Maintenance and Operations	623,523	685,031	781,023
Purchase of Goods and Services	2,022,673	1,165,920	1,021,904
Capital Expenditure & Operational Grant and transfer	25,008	25,006	81,004
Total	3,646,412	2,895,716	2,920,262
Funding Source			
Government of Tonga Fund	980,590	980,590	1,037,449
Government of Tonga: Revolving Fund	2,608,717	1,878,117	1,695,804
Overseas Donor Funding (Cash/Token)	57,105	37,009	187,009
Overseas Donor Funding (In – Kind)	0	0	0
Total	3,646,412	2,895,716	2,920,262
Percentage Increase/decrease	%	%	%
Established staff	3.88	2.68	2.73

Unestablished staff	61.4	-4.78	-4.97
Travel and Communication	-19.03	40.18	-1.56
Maintenance and Operations	-25.29	8.10	14.01
Purchase of Goods and Services	116.65	-41.81	-12.35
Total	34.86	4.36	-2.14

The following graphs indicate the changes in the spending pattern of the Ministry over the last three years:

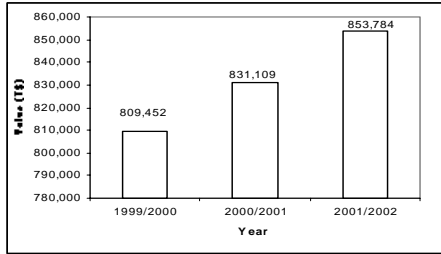


Figure 1
Money spent (pa'anga) on established staff from 2000/2001-2001/2002

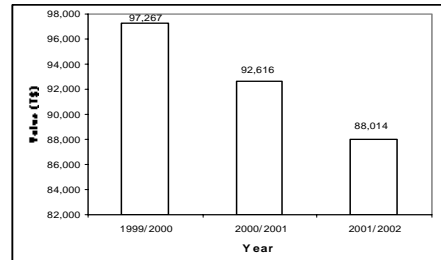


Figure 2
Money spent (pa'anga) on Unestablished 2000/2001-2001/2002

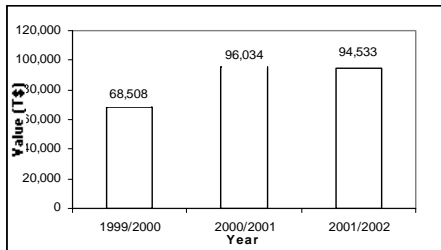


Figure 3
Expenditure (T\$) for Travel and communication 2000/2001-2001/2002

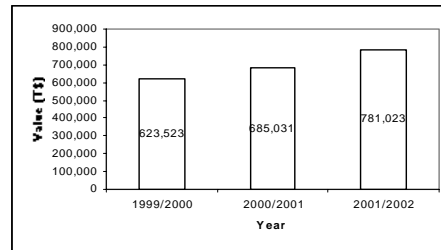


Figure 4
Expenditure (T\$) on Maintenance and Operations 2000/2001-2001/2002

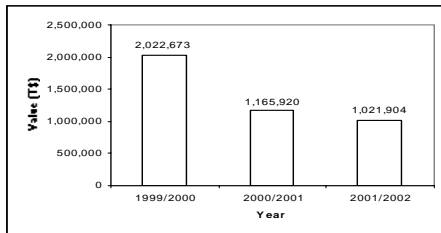


Figure 5
Expenditure (T\$) for purchase of Goods and Services 2000/2001-2001/2002

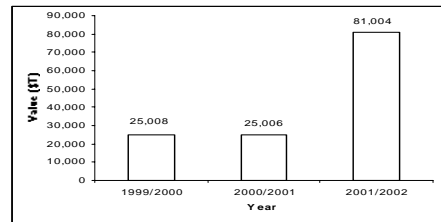


Figure 6
Capital Expenditure (T\$) 2000/2001-2001/2002

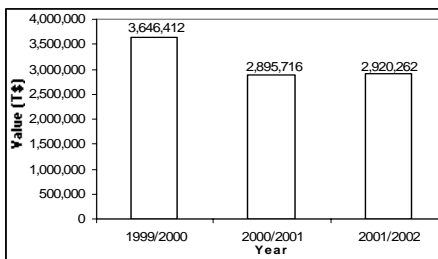


Figure 7
Total Recurrent Estimate of Ministry of Fisheries 2000/2001

Table 9: Percentage allocation of the Recurrent Estimate by Government Cash Funding

Percentage allocation by vote	2000/2001	2001/2002
	%	%
Established Staff	27.65	62
Unestablished Staff	3.08	3
Travel and Communication	3.20	8
Maintenance and Operations	22.42	12
Purchase of Goods and Services	42.82	12
Capital Expenditure	0.83	3
Total	100	100

Local Funding (cash)

The Government cash funding was increased by 5.79% from \$980,590 (2000/2001) to \$1,037,449 (2001/2002). It also shows that 62% of the government cash funding is allocated for Established staff only while 38% are divided among other votes.

Revenue estimate

The Total General Revenue that was received from US treaty funds amounted to T\$594,972.31 for financial year 2000/2001. This US Treaty Fund is administered by FFA. In addition the total revenue collected for the financial year 2000/2001 was approximately T\$338,187.58 plus miscellaneous revenue collected from various Fisheries Centres in the Northern Islands.

2.1.4 Information

The Information Section consists of Computer, Library and Audiovisual sub-section. It continues to fulfill its obligations regarding the storing and dissemination of fisheries information for MoF, Government Agencies, fishing communities and other regional and international organisations.

Computer

This sub-section operates and maintains all computer hardware and software, provides computer services to all sections, trains Fisheries personnel on the use of computer equipment and applications, and co-ordinates the Ministry's inputs to regional computer, and network systems.

Personnel

Staff are as follows:

Name	Post
Sosaia Tulua	Senior Computer Programmer
Lavinia Vaikona Vaipuna	Computer Operator Grade I
Palu Faupula	Computer Assistant

Staff Movement

Silia Soakai, Computer Assistant was permanently transferred to Vava'u Fisheries during 2001.

Training

Lavinia Vaipuna, Computer Operator Grade I attended a one week workshop on "FAO Pacific Islands Regional Workshop on Fishery Statistics", held in Noumea, New Caledonia.

Information Network Services

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

E-mail Server

All senior staff has access to email through 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

Location	TYPE	QTY	NOTES
Nuku'alofa	Server PIII	1	Domain Server
	Server P	1	Backup Server
	Pentium III	6	4 New Computers, 3 under the project proposal, 1 donated by SPC, 2 from previous years
	Celeron	5	Only four is still working
	Compaq Presario	2	From previous years
	Notebook, flat panel 18" screen and a docking station	1	For Secretary for Fisheries
	Notebook PIII	1	New Notebook for Deputy
	Notebook PII	2	Only one is still working (SFO)
	HP Laser 5si	1	Server Printer
	HP 5L	2	Only one is still working
	HP LaserJet 1100	3	One for 'Akau'ola, Tonga
	HP LaserJet 1100A	1	Library
	HP LaserJet 1200	1	New printer for Planning and Policy
	Apple Color Laser	1	Donated by JICA
Compaq Presario 7500	1	Destroyed in Fire	
Vava'u	Pentium II	1	New Computer
	Notebook PII	1	New Computer
	HP Laser 6L	1	From previous year
	HP 5L	1	From previous year
Ha'apai	Canon Inkjet Printer	4	New Printer
	Pentium II	1	New Computer
	HP Laser 6L	1	From previous year

Computer Software

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, Hosts of system and software utilities.

The Library

Staff is as follows:

Name	Post
'Emeline Tupou	Librarian (Fisheries Trainee)

The library was located at the ground floor of the Public Awareness Building. The Ministry's staff saved most of the materials from the library when the fire broke out at the Public Awareness Building September 2001. The cause of fire has not yet been determined.

Currently, a storeroom is temporarily used as the Ministry's Library. The Ministry is seeking funds to rebuild a new library. Funds are being sought to rebuild the library.

A new computer and printer were donated to the Ministry's Library by the Secretariat of the Pacific Community (SPC) in Noumea.

Training

'Emeline Tupou, Fisheries Trainee (Librarian) attended the PIMRIS meeting held in Suva, Fiji in September 2001. She also attended a sub-regional workshop in New Zealand on Environmental Information Sharing and Networking in December 2001.

Audiovisual Section

Staff are as follows:

Name	Post
Matafonua Langi	Fisheries Assistant
Takako Ueda	J.O.C.V

Main Objectives.

- Promotion and increase fisheries public awareness through the creation of documents, video and radio programmes, photos and fisheries booklets.

Audio Visual Room

The Public Awareness Building was built in 1994 by the Boatbuilding Section of the MoF under JICA project which cost T\$70,000. The Audio-Visual room was located on the top floor next to the conference room.

The Government of Japan through JICA donated at mid year 2000 the new audiovisual equipment such as video, digital cameras, video recorder, video editing machines, colour video monitor and accessories which were worth \$137,334 pa`anga. Ministry of Fisheries also bought some new computer equipment in September under the Project Development Fund which were worth \$14,028.00. Details of the equipment bought under the Project Development Fund (PDF) are shown below in Table 10. The JOCV also donated camera sets. All audio-visual equipment and computers were destroyed when the fire broke out at the Public Awareness Building on 19th September, 2001. However, the total estimated cost of all items destroyed is approximated at T\$450,000.00.

Table 10: Computers and Audiovisual equipment purchased under the above project

Model Name	Description	Qty
Compaq Presario 7500	Computer	1
HP Scan Jet Hewlett Packard 1100	Scanner	1
Printer LaserJet Hewlett Packard 1100	Printer	1
Secretary Chairs	Chairs	2
Sony Manvica FD 73 Digital Camera	Digital Camera	1
Floppy Disk	Diskettes	5 Boxes
CD write recorder	CD write recorder	1
Laptop	Toshiba Satellite	1

Training

Matafonua Langi, Fisheries Assistant attended two training sessions in the year 2001. The first one was local training on Scuba Diving (International Open Water Diver) and the other one was on “Digital Video Production Course” which was held in Japan from 27th September-7th November.

2.2 Fisheries Research & Development

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

2.2.1 Aquaculture and Research

Background

A number of ongoing projects that have been identified suitable for Tonga involve the propagation and/or growing of marine organisms.

Aquaculture objectives:

- To relieve pressure on over-exploited traditional inshore fisheries
- Convert unused areas of natural water or agriculturally poor areas to useful production
- Revival and enhancement of over-exploited resources and introduction of commercially exotic species
- Programmes includes 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

Staff are as follows:

Name	Post
'Ulunga Fa'anunu	Principal Fisheries Officer
Vailala Matoto	Fisheries Officer
Poasi Fale	Technical Officer Grade II
Feauini Vi	Fisheries Assistant
Sione Holopulu	Fisheries Assistant
Saia Niumeitolu	Fisheries Trainee
Sitiveni Sefesi	Fisheries Trainee
Tevita Sonatane Ha'unga	Fisheries Trainee
Makeleta Vaikaka	Fisheries Trainee
K. Kikutani	J.I.C.A Expert

Training

Training programmes and attachments, both overseas and locally were conducted 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. Poasi Fale, Technical Officer Grade II continued studying for a degree in aquaculture at James Cook University, Australia. At the end of the year Siola'a Malimali, joined aquaculture in Sopa after successfully completing his Bachelor of Science from the University of the South Pacific.

The 2nd International Training Course on "Sustainable Use of Coral Reef Fisheries Resources with Special Emphasis on Shellfish Seed Production and Release", in co-operation with the Government of Japan through the Third Country Training Programme of JICA, was held at the Mariculture Centre, Sopa from 7th February to 2nd March 2001. The objectives of the training were to:

- Acquire practical skills in producing green snails, trochus, and giant clam seeds and their safe release on to appropriate coral reef habitats through "hand-on" practice.
- Acquire practical skills in carrying out underwater field surveys of appropriate grow out habitats for releasing seeds and for monitoring the health and growth of released seeds over time.

The participants from abroad were from Fiji, Vanuatu, Solomon, Kiribati, Samoa and Kosrae. The two local participants were from Vava'u and Tongatapu Fisheries.

Shellfish Culture

Giant Clam

The giant clam hatchery which started in 1989 continues to enhance coral reefs and to revive wild stocks. Local demand for clam meat continues to exceed its limited supply. The overseas aquarium market offers good prices for relatively young clams. Clams of 1 to 8 inches shell length were sold to aquarium exporters. A total of 13791 clams (3335 *T. derasa* or Tekanoa, 7742 *T. maxima* or Kukukuku and 2714 *T. squamosa* or Matahele) worth \$30,381 were sold. The monthly operational costs of the hatchery and income earned from sale of clams were \$2,000 and \$2500 respectively. The selling prices of the clams and size distribution of the market demand are given at Table 11 & 12 below.

Table 11: Selling Prices per Species

Shell Length (inch)	1	2	3	4	5	6	7	8	9	10
\$/ <i>T. squamosa</i>	1.00	1.5	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	1.5	2.5	3.25	4.75	6.25	-	-	-	-

Table 12: Market Demand and Size Distribution (size vs. number)

Shell length (inch)	1	2	3	4	5	6	7	8	9	10	Total
<i>T. squamosa</i>	623	935	1003	83	11	37	22	-	-	-	2714
<i>T. derasa</i>	9	348	1600	605	255	295	101	60	22	4	3335
<i>T. maxima</i>	3978	2853	792	117	2	-	-	-	-	-	7742

The demand for *T. derasa* was highest for 3 inches and represented 48% of the total sale. Followed by 4 and 2 inches, that represented 18% and 10% respectively. The demand for *T. squamosa* was higher for 2 and 3 inches. In the last two years *T. derasa* was not spawned. As a consequence there were insufficient stocks of small size clams (1 and 2 inches) to meet the demand. 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.

Two new species *T. gigas* and *Hippopus hippopus*, introduced from Australia were spawned successfully for the first time in the year 2000. The estimated production after 13 months was 8,000 *T.gigas* and 2,000 *H. hippopus*. The production rate from the larval stage is 0.004% and 0.0025% respectively. The growth rate of *T.gigas* is more than double of the common species (*T.derasa*, *T. squamosa* and *T.maxima*) whereas for *H. hippopus* the rate is almost the same.

At the end of the year, the total number per species of clams at 'Atata, Kolonga, 'Eueiki and the Ministry's ocean nursery are shown on Table 13 below.

Table 13: The Total number per species of clams at 'Atata, Kolonga, 'Eueiki & the Ministry's ocean nursery

Species	Ministry	'Atata	Kolonga	'Eueiki
<i>T.derasa</i>	1,000 (2&3 yr. old)	200 (3 yr. old)	-	-
"	4,000 (6-9 yrs old)	1500 (6-9 yrs old)	330 (4-9 yrs old)	550 (4-9 yrs old)
<i>T.gigas</i>	55 (10 yrs old)	19 (10 yrs old)	-	38 (10 yrs old)
<i>T.squamosa</i>	3000 (2 yrs old)	500 (8 yrs old)	-	-
"	10 (7 yrs old)			
<i>T.maxima</i>	2000 (2 yrs old)	-	-	-
<i>T.tevoroa</i>	2 (5 yrs old)	-	-	-
<i>H.hippopus</i>	11 (10 yrs old)	-	-	-

Green Snail, Turbo marmoratus ('Eili lanumata)

The green snail seed production and release started in 1996 using brood stocks introduced from Vanuatu and Okinawa in 1995. Young snails are reared in the hatchery for at least 2 years then released when they reach 60mm shell height. The number of young snails already released and those are still in hatchery are given at Table 14.

Table 14: Record of hatchery produced snails already released and those are still in hatchery.

Releasing Sites	Number / Year				Total
	1998	1999	2000	2001	
Tongatapu Islands	2850	200	900	3000	6950
Vava'u Islands	1050	800	250	957	3057
Ha'apai Islands	500		1050	850	2400
Niuatoputapu Island			300		300
'Eua Island				1000	1000
Vanuatu	300				300
Ponapei		300			300
Samoa		300			300
Total	4700	1600	2500	5807	14,607
Snails in hatchery	Shell height of 55 – 65 mm				4,500
	Shell height of 15 – 30 mm				25,000

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

Table 15: Result of the recovery survey in April, 2001

No. recovered	Releasing Date	Average size when:		Size (cm) increment
		released	Recovered	
2	Aug-94			
25	Jun-98	5.42	11.12	5.7

5	May-99	8.96	14.66	5.7
3	Feb-00			

Trochus, Trochus niloticus (Takaniko)

Spawning technique of trochus was demonstrated during the green snail seed production workshop. About 20,000 young trochus of more than 3cm-shell diameter from last years spawning were used in polyculture with giant clam. The trochus helps to clean the weed that grows on the tank and clams.

About 350 and 500 trochus of more than 50mm shell diameter from the spawning in December, 1998 were transferred and released at Fukave and Ha'apai respectively.

The recovery survey in June at Fukave Island recaptured 125 out of 400 brood stock released in 1994. This recovery rate of 31.1% indicated the good survival rate of the introduced trochus. A new recruitment survey was conducted in February in places other than the releasing sites 'Eueiki and Fukave Islands. The result indicates the natural reproduction of released shells, which have spread out to surrounding reefs and islands. The distribution of new recruitment shells is given at Table 16.

Table 16: New recruitment trochus measurement and location

Locations	Shell Diameter (mm)				
	63.7	73.7	71.6	96.6	100.5
Pangaimotu Reef	63.7	73.7	71.6	96.6	100.5
Manima Reef	50.0	50.0	-	-	-
Kolonga	124.8	-	-	-	-

Pearl Oyster

A two year survey started in 1999 with technical and financial support from ACIAR concluded that there was insufficient spat of black lips to quickly build an industry in Tonga and that a hatchery would be a better option (Lane, 2001).

In November Mr. Paul Southgate, of the James Cook University, conducted spawn induction of black lips at the Ministry's Mariculture Centre. This program was made available with financial assistance of the ACIAR. About 17 millions out of 38 millions larvae developed to D stage in the second day. Four millions of these were cultured indoor in four 500 litres tanks at 1 million larvae per tank. About 200 thousands of 24 days old larvae were transferred with collectors to Vava'u on 15th December 2001. The remaining larvae of about 1.2 millions were kept in the hatchery.

Seaweed, Cladosiphon sp. or Limu Tanga'u, export

Both Sea Star Fishing Company and NANO Company's mozuku farming was a success in this year's season. The weather was mainly fine throughout the season with favorable water temperatures that boosted the growth and production per net from 50 to over 100 kgs. Because production of natural seaweed was better this year, and quality is superior to farmed seaweed, the major portion of the export quantity consisted of natural seaweed. For instance NANO Company exported about 400 tons of which only 70 tons was harvested from their farm. About one thousand nets were not harvested.

2.2.2 Oceanic & Coastal Fisheries

The head of Oceanic and Coastal Fisheries, Vailala Matoto continued his Ph.D. in Fisheries Science in Japan. As a consequence 'Ulunga Fa'anunu continued to head Oceanic and Coastal Fisheries.

Live reef fish survey

The live reef fish survey was made possible with financial and technical assistance from SPC. Three Scientists from SPC, lead by Mr. Being Yeeting, conducted the survey in Ha'apai with the assistance of three local staff. The main objective of the survey was to determine if live fish trading could be feasible in Tonga.

The high commercial species are *Plectropomus leopardus*, *P. areolatus*, *P. laevis*, *Epinephelus polyphkadion*, *E. fuscoguttatus*, *E. lanceolatus*, *Cromileptus altivelis* and *Choerodon schoeneinii*. The preliminary result indicated that none or only few of the above species were observed. The most common species observed were *P. pessuliferus*, *Variola Albimarginata* and *V. louti*, and *Cheilinus trilobatus*. Unfortunately, these species have very low market value mainly because their survival rate is poor when it comes to handling and transport.

2.2.3 Development of Commercial Fisheries

This is the section, which has responsibility for the two fishing vessels, the MFV Ekiaki and MFV Takuo.

The staff in this section are also part of the Fisheries Management staff.

Staff are as follows:

Name	Post
Tevita F. Latu	Senior Fisheries Officer
Silivenusi Ha'unga	Fisheries Officer
Mafi Makasini	Fisheries Trainee
Lupe Fakalelu	Fisheries Assistant
Martin Finau	Fisheries Assistant
Taniela Taungakava	Fisheries Trainee

MFV Takuo

Principal Particulars			
Length (OA)	39.39m	Capacities	
Length (PP)	33.50m	Fish holds (bale)	137.63m ³
Breadth (Mld)	7.50m	Fuel oil tanks	147.44m ³
Depth (Mld)	3.10m	Fresh water tanks	24.07m ³
Designed load draft(Mld)	2.70m	Lub. Oil tanks	6.88m ³
Gross tonnage	337t	Main engine (600PS x 420/309rpm)	1 set
Net tonnage	102t	Generator engine (204PS x 1500rpm)	2 sets
Speed (trial max)	11.03 knots	Generator (170kVA)	2 sets

The year 2001 was the Takuo's fourth year of operation. Takuo continues to operate on a semi -commercial level. Training for local fishermen as well as research has been suspended while the vessel concentrated on trying to cover operational costs from fishing activities.

The MFV Takuo staff are as follows:

Name	Post
Paea Tai	Master
Sione V. Taunga	Chief Engineer
Hopoate Finau	Second Engineer
'Ofa Napa'a	Mate/Leading Fisherman

Table 17: MFV Takuo Fishing Operation from January to December 2001

	Voy 1	Voy 2	Voy 3	Total
Fishing days	58	56	27	141
Sunday at Sea	11	13	10	34
Steaming/ changing fishing ground	11	20	7	38
Total days at sea	80	89	44	213
Days at Port	44	68	40	152

Table 18: Landing and catch by Species Composition

Landings (mt)	Voy 1	Voy 2	Voy 3	Total
Overseas market	19	61	0	80.0
Local market	5.4	7.8	12.8	26
Total	24.4	68.8	12.8	106
Catch by species composition (kg)				
Albacore	16128	55827	6183.0	78138
Big Eye	1865	1260	970	4095
Marlin	876	1730	810	3416
Landing (kgs)				
Skipjack	60	1510	140	1710
Swordfish	320	1365	310	1995
Yellowfin	2270	2125	1095	5490
Others	880	1080	1105	3065
Total	22447.8	65034.6	10638.6	98121

Table 19: Percentage of Total Catch by Species Composition

Species Composition	%
Albacore	75.87
Big Eye	3.76
Marlin	1.27
Skipjack	6.34
Swordfish	0.78
Yellowfin	5.41
Others	6.57
Total	100

Figure 8: % Total Catch by Species Composition

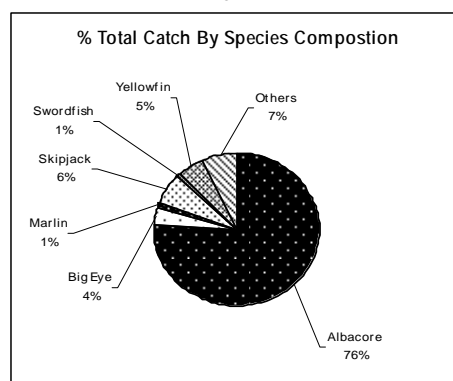


Table 20: Quantity of Species Composition per Voyage (No. of fish)

Species Composition	Voy 1	Voy 2	Voy 3	Total
Albacore	896	1178	856	2930
Big Eye	95	181	44	320

Marlin	24	156	112	292
Skipjack	8	46	8	62
Swordfish	10	20	16	46
Yellowfin	104	374	110	588
Others	652	342	147	1141
Total	1789	2297	1293	5379

Table 21: Catch per unit effort (by 100 hks) by pieces and weight (CPUE)

Species Composition	CPUE by pcs	CPUE wt (Kg)
Albacore	1.31	25.0
Big Eye	.06	1.32
Marlin	.02	1.10
SkipJack	.11	.60
Swordfish	.01	.64
Yellowfin	.20	1.77
Total	1.71	30.43

MFV Ekiaki

The M.V. Ekiaki was not in operation during the year and as a result staff members were reallocated to other sections in the Ministry.

Repair and maintenance work for MV Ekiaki was carried out including dry-docking during which the propeller was replaced and underwater and anti-fouling paint applied including repairing of some hairline cracks. Sea trial of the MV Ekiaki was conducted at full speed in order to check out the condition of the main engine. This has been concluded to be in a good condition. Although approval had been granted to sell the vessel, it was decided to defer implementation until the requirements of the AusAID project had been ascertained.

Staff are as follows:

Names	Post
Vacant	Master
Paea Mapu	Engineer
Vacant	Mate

2.3 Fisheries Management Division

The Fisheries Management Division is further sub-divided into Management and Licensing, Support Services, Marketing and Market Development, Post Harvest and Quality Control, Extension, Vava'u and Ha'apai.

2.3.1 Management and Licensing

Introduction

The Management and Licensing Section is responsible for fisheries management, monitoring and control including surveillance, enforcement, licensing and legislation, extension and quality control activities.

Staff are as follows:

Name	Post
Viliami 'Anitimoni Petelo	Principal Fisheries Officer
Uanoa 'Ahoafi	Technical Officer Grade I

Tevita Mafi 'Ahoafi	Technical Officer Grade II
Silika Ngahe	Technical Officer Grade II
'Inoke Mapuhola	Senior Fisheries Assistant
Haane Lave	Senior Fisheries Assistant
Sailosi 'Alofi	Fisheries Assistant
Tu'iniua Tupou	Fisheries Assistant
'Ana Tapu Latu	Fisheries Trainee
Siosiu Tuamei'api	Fisheries Trainee

Management duties include:

- Preparation of fisheries management plan in conjunction with other sections such as Planning and Research.
- Screening applications for licenses issued under the Fisheries Act 1989 and its Regulations such as fishing vessel (local, commercial & sports fishing), fish processing establishment, fish fences, marine products, etc.
- Conveying views of the MoF to the public and private sectors and other Government Institutions/Departments such as the Ministry of Labour, Commerce and Industries (MLCI) with regards to trading & development licenses, Ministry of Lands, Survey and Natural Resource (MLSNR), and the Ministry of Marine and Ports for safety and seaworthiness of fishing boats and other departments such as Customs, Health and Tourism.

Monitoring and Control responsibilities include:

- Co-ordinating fisheries enforcement and prosecution in accordance with the Act and its Regulations eg. fishing with dynamite and other fisheries offences
- Surveillance programmes such as aircraft/boat patrolling in Tonga's 200 mile zone
- 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, examination and inspection of marine products for export. HACCP (Hazard Analysis and Critical Control Point)

Licensing responsibilities include:

- (a) Registration and licensing of fishing vessels and fish fences,
- (b) Collection of 0.5% resource rent of the local value of marine products commercially exported and other license fees.

Legislation responsibilities includes:

- Co-ordinating the review of fisheries legislation.

Other miscellaneous tasks include:

- Preparation of letters of authorisation for export of all marine products designated by Fisheries Act or required under CITES (Convention on the International Trade of Endangered Species).

Table 22 List of Active Exporters of Marine Products

Name of Exporter	Address	Marine Products Exported	Year of Establishment
Dateline Aquarium Fish Company Ltd. (Paula Vi)	Haveluloto	live tropical fish & invertebrates	1994
Walt Smith International (Walt Smith)	Ma'ufanga	live tropical fish & invertebrates	1980
Sesilia Trading	Fanga	shark fin	2001
Sea Star Fishing	Tuimatamoana Market	fresh fish	1990
Maritime Projects Co. (Tonga) Ltd	Sopu	fresh fish, dried shark fin	1980
'Alatini Fisheries Co. Ltd (Bill Holden)	Small Industries	fresh fish	1990
Vanisi International	Nakolo	live tropical fish	2000
Friendly Island Fishing	Fanga	fresh tuna	2001
Coral Kingdom Live Tropical	Small Industries Centre	live tropical fish	2001
Emerald Marine Products	Kolofo'ou	shark fin	2000
South Pacific Paradise	Kapeta	live tropical fish	2001

Marine exports from Tonga

Tonga continues its commercial exports of dried shark fin, aquarium fish, soft coral & coral rock, tuna, snapper, and grouper. Exports for home consumption include all forms of reef fish, octopus, pelagic and marine products. Other exports include mollusc shells, turtle shells, and other souvenirs made from black coral and oyster shells. Since Tonga is not a party to CITES (Convention for International Trade of Endangered Species), destinations such as New Zealand, Australia and Japan, require letters of authorisation for clearance.

Dried shark fin

Sesilia Trading and Emerald Marine products Ltd exported about 4327.9kgs of dried shark fin in 2001 valued at 346,232.00 dollars i.e. \$80per kgs compare to 1620 kgs in year 2000 and 1045 kgs in 1999. The FOB value for 2000 and 1999 was T\$80 per kilogram.

Lobster

The Ministry of Fisheries does not encourage the commercial export of Lobster products due to the depletion of stock caused by over harvesting.

Snapper & Grouper

Two companies, 'Alatini Fisheries, Maritime Projects exported 186.2 metric tonnes of snapper and grouper (cc.140.12 mt in 2000) valued at T\$1,849,84.00 FOB value. Both years were based on T\$3.00 per kilo FOB value although the true returns to the Kingdom are greater.

Tuna

1202.40 metric tonnes of fresh tuna were exported and valued at T\$7,935,840.00 compared to 786.10 metric tonnes in 2000 which was valued at only T\$5,187,936.60. The FOB value for tuna was T\$3.00 per kilo. The FOB value for tuna in 1999 and 2000 was T\$3.00 per kilo. Exporters were Friendly Island Fishing, Sea Star Fishing, Alatini Fisheries, Maritime Project, Fung Shing Fishing Company and Discovery Corporation.

Local fishermen sell their catch to fish exporters for export to overseas markets and sell the rest in local markets. The granting of duty free fuel concessions have been beneficial to fish exporting companies.

Aquarium fish & coral rock

Five companies collected and exported live tropical aquarium fish, coral rock and cultured giant clams in the year 2001.

They are as follows:

- Walt Smith International
- Dateline Aquarium Fishing
- Vanisi International
- Coral Kingdom
- South Pacific Paradise

The live fish fob value ranged from T\$1.25 for Fiji devil and other fish to T\$9 for flame hawk, T\$20 for imperial angel, and T\$25 for clown trigger. The mean value of T\$13.80 is used to estimate these fishes. The invertebrates and soft coral have a FOB value of T\$3.50 per piece. Cultured clam, slap, solid and branch corals have a FOB value of T\$3.50. The FOB value for live coral depends on the species harvested and since most of the exports are small and medium sized pieces, the FOB value used is the mean value between the value of the small and medium coral which is T\$6.00 per piece. Each company were directed to harvest within a maximum of 100,000 fish and 100 tonnes of coral rock per annum.

Table 23 below summarises the number of fish and weight of coral (including branch, slap, soft coral and solid coral rock) exported in 2001.

Table 23 Quantity and fob Value of Aquarium Fish & Invertebrates Exported in 2001

Company	Species	Total Weight (kg)	Total pieces (numbers)	Value per Kg	Total Value
Dateline Aquarium	Soft coral		14,021	3.50	\$49,073.50
	Live fish		8,708	13.80	\$120,170.40
	Invert		65,606	3.50	\$229,621.00
	Live Coral		19,926	6.00	\$119,556.00
	Dead Rock	157,471		3.00	\$472,413.00
	Giant Clam		9,023	3.00	\$27,069.00
Total		157,471	138,746		\$1,017,902.5
Walt Smith Inter	Soft coral		8,154	3.50	28,539.00
	Live fish		6,586	13.80	\$90,886.80
	Invertebrates		18,545	3.50	\$64,907.50
	Live Coral		3,137	6.00	\$18,822.00
	Dead Rock	22,027.7		3.00	\$66,083.1
	Giant Clam		3100	3.00	\$9,300.00
Total		22,027.7	78,832		\$249,999.40
Vanisi International	Soft Coral		1,230	3.50	\$4,305.00
	Live Coral		707	6.00	\$4,242.00
	Invertebrate		1741	3.50	\$6,093.50
	Dead Rock	24,362		3.00	\$73,086.00
	Giant Clam		2,090	3.00	\$6,270.00
					93,996.50
South Pacific	Soft Coral		1,084	3.50	3794.00
	Live Coral		75	6.00	450.00
	Invert		1,0017	3.50	35,059.50
	Dead rock	7,232		3.00	21,696.00
					60999.50

Coral Kingdom	Soft coral		1,490	3.50	5,215.00
	Live coral		1,011	6.00	6,066.00
	Invert		1,980	3.50	6,930.00
	Dead rock	8,515		3.00	25,545.00
	Clam		294	3.00	882.00
	Live fish		6,356	13.80	87,712.80
Total		7,562kgs	373		287,346.00
Grand Total		137,459.07	217,951		\$1,555,327.90

The aquarium production for 2001 was 2.3 % greater than year 2000. This is due to the increase in the number of companies exporting live corals. Live coral harvest continues through out the year. There were five companies exporting live tropical fish to overseas markets compared to only three companies in year 2000. They were Dateline Aquarium, Walt Smith International, Vanisi International, South Pacific Paradise and Coral Kingdom.

Aquarium industry generated exports with fob value of T\$1,555,327.90 FOB value in 2001 compared to T\$1,520,230.30 in 2000 and T\$794,729.40 in 1999.

Miscellaneous

In 2001, 121.92 metric tonnes of seaweed were exported amounting to T\$ 42,672.00 compared to third trial year amounting to T\$108,500.00. The production of seaweed for the year 2001 shows a major decrease when compared to previous years. Most of the seaweed exported was from the farms of Nano Merchandise Company Ltd and Sea Star Fishing Company Ltd.

Table 24 Summary of the Marine Products Export (by species) in 2001

Species/ Group	Fob value (TOP) in 1999	Fob value (TOP) in 2000	% Proportion of increase (↑) or decrease (↓) Of fob revenue in 1999 compared to 2000	Fob value TOP in 2001	% Proportion of increase (↑) or decrease (↓) of fob revenue in 2001 compared to 2000
Dried Shark fin	83,600.00	129,600.00	↑ 35	346,232.00	↑ 63
Tuna	1,312,710.00	5,187,936.60	↑ 75	7,935,840.60	↑ 35
Fresh tuna					
Frozen locally	1,051,645.00	1,076,850.00	↑ 2	1,466,402.00	↑ 27
Cannery	281,740.00	1,463,880.00	↑ 80	,2223,210 00	↑ 34
Snapper & Grouper	1,756,260.00	924,891	↓ 47	1,228,920.00	↑ 25
Aquarium fish & coral (including giant clams and live coral)	616,991.60	1,520,230.00	↑ 59	1,555,327.90	↑ 3
Seaweed	95,263.00	108,500.00	↑ 12	42,672.00	↓ 61
Total	2,402,927.3	10,411,887.0		14,796,426.5	

Export

The export value for the marine products during the year 2001 were estimated to be over T\$14 million compared to T\$10 million in 2000. However the true return to the Kingdom is much higher because the price of fish in overseas markets continues to rise.

Fish fences

A few problems were encountered in the registration and licensing of fish fences. There was also a decline in the stock of highly valued species such as mullet and other coastal fish. Applicants for fish locations argued as to who should be entitled to the best positions. As the problems mounted together with the big decline of high valued mullet and other coastal fish, the Ministry decided that the current policy be reviewed. Factors such as mesh sizes, seasonal closure, distance between fish fences, and total closure of breeding grounds were reviewed.

The licensing period is valid for only twelve months after which applicants may re-apply. However some fishermen do not install fish fences on the site licensed but pay for the license for the sake of owning the sites. The total number of registered fish fences up to the end of the year 2001 was 84.

Enforcement and prosecution

Some of the staff members were appointed as authorised officers and fisheries inspectors to monitor compliance with the Fisheries Act and its Regulations. These officers visited the major landing sites of domestic catch, which is Fuaa wharf twice every week, to check the undersized lobsters and giant clams, as well as turtle fishing during the closed season from August to February. During the year 2001, no offences were prosecuted but warnings issued for certain infringements.

Tuna Management and Development

Currently, Tonga has no access agreements with distant water fishing nations except the US Tuna Agreement. Which allows US purse seiner vessels to operate within Tongan waters. However there is very little activity in Tongan waters due to the low productivity of the zone as compared to the equatorial belt.

Tuna Management Advisory Committee

His Majesty's Cabinet approved the establishment of the Tuna Management Advisory committee to advise the Minister and to provide recommendations and advice to the Secretary on the management of the tuna fisheries. The committee members consists of representatives from various Government Ministries, Fish Exporters, Non-Government Organisations (NGOs), Game Fishing Companies and representatives from Ha'apai and Vava'u. The committee is scheduled to meet once every year or as necessary. The first meeting was held on the 25th October 2001 and officially opened by HRH Prince 'Ulukalala Lavaka Ata, the Prime Minister and Minister for Fisheries.

The meeting agreed on the following points:

- Increase the number of tuna licenses from 25 to 30 vessels
- Set up a small working group to consider a number of issues pertinent to the fisheries.

This working group consists of representatives from the:

- Chamber of Commerce
- Maritime Projects Co Ltd
- Friendly Islands Fishing Co Ltd
- Maui Fishing Co Ltd
- Ministry of Finance
- Ministry of Civil Aviation
- Ministry of Fisheries

Monitoring Control Surveillance (MCS) in Tonga

Tonga's National Monitoring, Control and Surveillance (MCS) Committee held its first meeting in 2001 and was established to provide proper coordination amongst Departments involved in the above activities. The

committee also has links to the regional committee coordinated through the Forum Fisheries Agency. The National committee is chaired by the commander of the Tonga Defense Services and includes representatives of Government Ministries and the private sector.

Vessel Monitoring System (VMS)

All distant water-fishing vessels that operate in the region are required to be fitted out with the FFA vessel monitoring system. VMS is not compulsory for Tongan vessels fishing in Tongan waters but the matter is still under active consideration. Tonga's National MCS Committee continues to support the implementation of the FFA vessel monitoring system.

Legislation and Regulation

The new Fisheries Act includes important international fisheries provisions as well as provisions for the installation of a Vessel Monitoring System. Such a system will not only assist with management of the fisheries but will also be invaluable for search and rescue operations. This Act will be submitted to Parliament in the New Year.

Licensing

Currently there are 44 vessels licensed to fish for tuna and snapper, that includes two Government Research and Training vessels, one sport fishing vessel and one locally based foreign fishing vessel. Some of these vessels are under repair but most are operational. A summary of the list is on Tble 25.

Table 25: Tuna and Snapper Licensed Fishing Vessels

Type of Fishing Vessel	Quantity	Licensed Issued
Snapper Bottom line	14	Nuku'alofa
Snapper Bottom line	7	Vava'u
Sport Fishing	1	Vava'u
Tuna Long Line	19	Nuku'alofa
Locally based foreign vessel	1	Nuku'alofa

Currently, Tonga has no access agreement with DWFNs (Distant Water Fishing Nations) other than the US treaty, however it may issue fishing licenses to Locally Based Foreign Fishing Vessel (LBFFV) since the policy regarding the closure of Tongan Waters to all foreign fishing vessels was rescinded according to a Cabinet Decision on 9th September 1999.

Local Fishing companies make use of this opportunity and can now charter vessels registered in other countries.

The LBFFV license have several important terms and conditions attached, the most important is that all catch must be landed in Tonga.

2.3.2 Support Services

Support Services section consists of Boatbuilding and Engineering sections, which offers support to other sections within the Ministry as well as providing technical services to the private sector.

Boatbuilding

This sub-section is responsible for the construction of small fishing vessels. It also provides maintenance and renovations for the Ministry's vessels and building.

Staff are as follows:

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

Fishing Vessels

The fishing vessel (23-footer) for NiuaToputapu fisheries was successfully completed. Work also began on the construction of four new vessels (23 footer) for the private sector, two of which were completed by end of the year 2001. The two incomplete vessels are still under construction and are expected to be complete early next year. This section also supports fishermen by providing them with free estimates on costing for materials needed in construction of fishing vessels. Special attention and work was given to the Public Awareness Building which involved a major tidying up after the fire.

Future Needs

- More training is required for staff
- Renovations needed for Boatbuilding shed and Boatyard store.

Engineering

The Engineering sub-section under took the overall mechanical responsibility for the Ministry of Fisheries fishing Vessels M.V. Takuo, M.V. Ekiaki and M.V. Vete as well as refrigeration plants and vehicles.

This sub-section also extends its services to Private-owned fishing vessels belonging to local fishermen and also participates in the training of these fishermen on basic skills on how to maintain their own fishing vessels. A major repair and repaint was carried out in August to Tuimatamoana Market's forklift.

Dry-docking work was carried out on the MV Ekiaki.

Staff are as follows:

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

Training

An Outboard Motor Maintenance Course and Safety survival at sea programme was conducted during the year. The main purpose of this training was to equip the local fishermen with the basic skills to properly maintain their outboard motors and to teach basic survival skills at sea. The Head of the engineering section, Sioeli Pasikala, Fisheries Officer, was counterpart to Mr. Simon Osborn (Trainer from New Zealand) and

accompanied him during his trips to the outer islands. The outer islands where training took place included 'Eua, Ha'afeva, Pangai (Ha'apai) and Vava'u. The participants were mostly local fishermen from the outer islands. Lomio Tonga, Fisheries Officer also assisted with the training course. This training was funded by the New Zealand Government through NZ ODA.

Viliani Vaka, Senior Fisheries Assistant complete his Engineer Certificate Class 4 while Mangisi Tupou, Driver and Paea Mapu, Chief Engineer for M.V. Ekiaki also completed their Class 5 Engineering certificates.

Additional staff are needed the following areas:

- 1x refrigerator engineer

Table 26: Ministry's Vehicles in 2001

Years	Registration No.	Type	Location	Standard	Fund	Remarks
1990	P936	Toyota Hiace	Sopu	Fair	Treaty Fund	
1992	P149	Toyota Hilux	Sopu	Fair	JICA	On Public Tender
1992	P1118	Toyota Hilux	Tuimatamoana Market	Fair	JICA	Transferred from the main office.
1992	P1119	Toyota Hiace	Sopu	Fair	JICA	
1994	P1026	Toyota Hiace	Sopu	Good	Treaty Fund	
1997	P152	Toyota Hilux	Sopu	Good	Treaty Fund	
1997	P1120	Toyota Hilux	Sopu	Good	JICA	Secretary For Fisheries

Ice Plant

Most of the refrigeration facilities and ice block machines are in very poor condition and need to be replaced.

Constraints

- Lack of Spare parts
- Lack of required working tools.

2.3.3 Marketing and Market Development Section

The Officer in charge of the Tuimatamoana market is Po'uha Hasiata, Fisheries Officer. Makalita Mafile'o, Senior Fisheries Assistant is responsible for handling all the financial aspects of the market and record keeping and Mafi Havea, Fisheries Assistant is responsible for operating and controlling the cold storage facilities, fish sales and fish landing areas and also collects market fees and ice sales.

Staff are as follows:

Name	Post
Po'uha Hasiata	Fisheries Officer
Makalita V. Mafile'o	Senior Fisheries Assistant
Mafi Toutai Havea	Fisheries Assistant

Financial Status

In the 2001 - 2002 FY, the Program Budget provided T\$64,199.00 under Recurrent Estimates for market operation and a revolving fund of T\$131,501.00 was provided under the Development Estimates for market development.

Table 27: Program Budget under Recurrent Estimate

Pogram Codes	Description	Allocation	Exp.1/7-31/12/01	Bal. as at 31/12/01
24:042001:1001:0-00-0	Salaries	20,698.00	11,416.80	9,281.20
24:042001:1002:0-00-0	Staff Overtime	3,000.00	1,051.30	1,948.70
24:042001:1003:0-00-0	Staff Allowance	1,000.00	-	1,000.00
24:042001:1101:0-00-0	Labor Wages	4,000.00	3,910.67	89.33
24:042001:1102:0-00-0	Labor Overtime	2,000.00	799.38	1,200.62
24:042001:1203:0-00-0	Telecom Charges	2,000.00	180.91	1,819.09
24:042001:1301:0-00-0	Fuel	1,000.00	422.09	577.91
24:042001:1307:0-00-0	Maint. Office Building	2,500.00	413.92	2,086.08
24:042001:1310:0-00-0	Maint.Specialized Equip	4,000.00	1,011.47	2,988.53
24:042001:1402:0-00-0	Electricity Supply	15,000.00	13,526.08	1,473.92
24:042001:1405:0-00-0	Water Supply	2,000.00	1,412.75	587.25
24:042001:1406:0-00-0	Office Supply	1,000.00	99.20	900.80
24:042001:1407:0-00-0	Printing & Stationery	1,000.00	-	1,000.00
24:042002:1310:0-00-0	Maint. Specialized Equip	5,000.00	-	5,000.00
24:042003:1420:0-00-0	Research	1.00	-	1.00
Total	Research	64199.00	34,244.57	29,954.43

Table 28: Program Budget under Development Estimate

Program Codes	Description	Budgeted Allocation	Revenue deposited as from 1/7 - 31/12/01	Expenses from 1/7 - 31/12/01	Prog. bal. of 2000-01 to be revoted	Remarks
24:042001:1002:0-92-0	Staff Overtime	3,000.00	-	-	2.35	No fund deposited
24:042001:1101:0-92-0	Labour Wages	7,000.00	4,961.89	3,416.47	3,804.08	
24:042001:1102:0-92-0	Labour Overtime	2,000.00	1,400.43	783.61	820.07	
24:042001:1203:0-92-0	Telecom. Charges	2,000.00	-	-	-	No fund deposited
24:042001:1307:0-92-0	Maint. Office Build.	5,000.00	1,612.80	-	4,491.01	
24:042001:1308:0-92-0	Maint. Office Equip.	1,000.00	615.55	200.00	832.84	
24:042001:1309:0-92-0	Maint. of Vehicles	1,500.00	1,500.00	407.00	1355.64	
24:042001:1402:0-92-0	Electricity	20,000.00	16,551.54	-	5,426.50	
24:042001:1406:0-92-0	Office Supply.	5,000.00	1,096.65	-	820.98	
24:042001:1418:0-92-0	Training	500.00	500.00	-	-	
24:042001:1420:0-92-0	Research	80,000.00	-	-	-	No fund deposited
24:042002:1310:0-92-0	Maint.Spec. Equip.	5,000.00	1,032.33	-	5,646.04	
24:042003:1420:0-61-0	Research	1.00	-	-	-	No fund deposited
Total		132,001.00	29,271.19	4,807.08	23,199.51	

Table 29: Revenue Income Collected: 1st January - 31st December, 2001

Revenue Codes	Sources	1/1-30/6/01	1/7-31/12/01	Total 2001
	Cold Storage Fees	30.32	-	30.32
	Sale of Ice	20,871.06	18,060.62	38,931.68
	Table Rental Fees	2,441.94	3,074.70	5,516.64
	Hire of Weighing Scales	810.00	882.00	1,692.00
	Hire and use of Cooler Boxes	3,804.00	3,017.00	6,821.00
	Tenancy Rental Fees	-	1,000.00	1,000.00
	Sundries	1,328.90	3,236.87	4,565.77
24:042000:0735:0-92-0	Market Revolving Account	29,286.22	486.40	
24:042000:0735:0-95-0	Market Revolving Account	-	28,784.79	
Market Total Revenue	2001. *	29,286.22	29,271.19	T\$58,557.41
MFV. Takuo	Fish Sales during 2001	6,149.32	-	6,149.32
24:031404:1012:0-92-0	Takuo Revolving Account	6,149.32	-	-
Fish Sales Total Rev.	2001 *	6,149.32	-	6,149.32
Total Revenue .	*(Market Plus Fish Sales)	T\$35,435.54	T\$29,271.19	T\$64,706.73

Magnitude of Market Services

Cold storage of goods

All cold storage facilities at the market did not operate throughout 2001, due to technical breakdown. Therefore no products were stored or frozen at the market. As a result this service was unavailable to customers and no income was generated. However, the demand for cold storage space is still very high.

Fish Landing

The weight of marine food products landed at Tuimatamoana Market for export and local sales during 2001 is given in Table 30.

Sixty-seven percent of the total landed products was exported and the remaining 33% were either sold locally, or for fisherman's own consumption. The total landing in year 2001 was 478.1 m/t. compared to 544.5 m/t. of year 2000. This decrease was mainly due to spreading of landing area away from the market where market staff could not record or collect the figures from those boats especially tuna long line catches. About 81.0% of 2001 total landing were from Tuna Fisheries as shown on the table below and the remaining 19.0% were from bottom line and reef fisheries.

Table 30: Weight of marine food products landed at Tuimatamoana Market during 2001

Products	Weight (Kg)	Fisheries Landing	Weight in Kg
Export	323,290.8 kg	Tuna Fisheries	387,174.1 kg
Local sales or family consume	154,879.7 kg	Bottom line and Reef Fisheries	90,996.4 kg
Total	478,170.5 kg		478,170.5 kg

Ice Production

During the year 2001, the market produced more than 486.6 m/ton of ice for sale. There is only one ice-making machine at the market, which has a maximum production capacity of 2.5 m/ton per 24 hours operation. This unit cannot cater for all the public demand especially local fishermen and private fishing companies.

Facilities and Equipment

Refrigeration Facilities

Table 31: Facilities and their working condition

Items	Condition during the year	Condition at the end of the year
Air blast Freezer No. 1	Broken since 1998	Broken (needs replacement)
Air blast Freezer No. 2	Broken since January, 2000	Broken (need to demolish and remove)
Freezer Store No. 1	Broken since February, 1999	Broken (need to demolish and remove)
Freezer Store No. 2	Broken on August, 2000	Broken (need to demolish and remove)
Freezer/Chiller	Broken since 1998	Broken (needs replacement)
Chiller Room	Broken	Broken (needs replacement)
Ice Store	Used for storage ice	Use for storage ice
Ice machine	Worked well	Worked well

Fish Handling Equipment

Table 32: Equipment and their working condition

Items	Condition
6 Heavy duty trolley	Only two were working and four were broken.
2 Big fish cutting band saw	Old one worked but need repair and services, new one worked well.
1 Small fish cutting band saw	Broken and needs repair and servicing.

4 Manual pallet truck (load easier)	One worked unsatisfactory and three broken.
150 Blue fish crates	Most were broken and the rest are stored and used inside the market.
24 Blue cooler ice-boxes	All in a hiring pool and used inside the market. Some need repair.
8 Hanging weighing scales	5 were working well and used inside the market and 3 were broken.
2 Platform weighing scales	Both worked well.

Vehicles

Forklift Truck

The forklift truck was taken to the engineering workshop at Sopa for servicing during February and was not completed until August as it awaits spare parts from overseas. Since then, the forklift was working well up to the end of the year.

Double cab van (P1118)

This van was working well during the year but needs body repair and mechanical services.

Upgrade of Tuimatamoana Market

There is still a great requirement to upgrade Tuimatamoana market cold storage facilities and fish retail area.

New fish processing and packing room

A commercial Tenancy agreement signed on January 31st, 2001 between the Ministry of Fisheries (Landlord) and the Friendly Island Fishing Co. Ltd (Tenant) led to the construction of a new fish processing and packing room at the eastern end of the market including one third space of the existing market. The construction started on the 12th July, 2001 and was completed before the end of December. A monthly rental fee of T\$1000.00 per month has been agreed to be paid by the Friendly Island Fishing Co. Ltd to the MoF. This payment was made effective on the date of occupation of the premises. This provides a modern fish processing and packing facilities in the Kingdom.

Constraints

- Break-down of all cold storage equipment affect market services and its revenue income.
- Lack of qualified refrigeration Engineers.
- Shortage of ice often occurs especially during summer months, good weather and peak time of tuna catches.
- Structure of market building does not meet the hygienic and overseas market requirement for example, HACCP.
- Fish retail area is very hot especially in summer due to close down of eastern end by new processing and packing room.
- The constant failure and shutdown to the main power supply affects operation and services.

Future Needs

- Need a new Air blast freezer of –30 to – 50 °C temperature, one storage freezer of –20 °C temperature and one Chiller room to replace the broken facilities.
- A new ice machine of 3 m/ton production capacity per 24 hours operation is needed to assist when there is ice shortage and also to provide a consistent supply and be on stand-by when the other ice-machine breaks down.
- Improve the market building structure especially in the fish retail area to lower the temperature and to equip the market with more hygienic and proper equipment. Also to renew the roof of the main building to avoid leakages and rust.

- A water blast compressor is required for the cleaning of the market.
- A standby generator would be a major asset especially when there is power shutdown.

2.3.4 Post Harvest and Quality Control

The Post Harvest and Quality Control section is responsible for quality control management to meet international requirements like *Hazard Analysis & Critical Control Point (HACCP)*.

Due to staff shortages, the Head of the Management, Surveillance, and Extension sections, Viliami A. Petelo, Senior Fisheries Officer has also taken over responsibility for Post Harvest and Quality Control. All marine exporting companies in Tonga have been certified as meeting HACCP requirements. They are 'Alatini Fisheries, Sea Star Fishing Company, Maritime Project, Discovery Cooperation, Friendly Island Fishing and Tangle Nano.

2.3.5 Extension

Extension staffs are also involved in Management and Licensing work that includes surveillance, enforcement, legal matters, and quality control.

Constraints

One of the major problems faced by this section is the shortage of staff. It also lacks a consistent work plan.

'Eua Fisheries sub-station

It is part of the work plan to re-establish the 'Eua centre. Currently there are no staff working there.

Niutopotapu Fisheries sub-station

The remoteness of the island makes it difficult for annual servicing of machinery and equipment from Tongatapu. Despite this, Niutopotapu Fisheries sub-section has been proceeding well except for some improvements needed in the following areas:

Electric generator

Only one electric generator is used to operate both the cooler and the ice machine. The other generator is broken and needs repair and servicing.

There was a problem to the motor used to operate the ice storage room but this problem had been fixed and now the cold ice storage room is running well.

There is only one staff member in Niutopotapu Fisheries sub-station.

Staff is as follows:

Name	Post
'Aisea Vailea	Fisheries Assistant

Training

The Ministry of Fisheries conducted local training for the local fishermen of Tafahi on Trawling and Long-line fishing. The training also covered 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.

Future Needs

- Equipment to maintain Fisheries compound like lawn mower, paint to re-paint the Fisheries Building
- Dry Cell power supply for the generator machine and radio telephone
- Electric bulbs for staff quarter

2.3.6 Vava'u Fisheries

Following are the details of the Vava'u staff for 2001.

Staff are as follows:

Name	Post
'Ofa Moala Fakahau	Fisheries Officer and Officer in Charge
'Aisea Tu'ipulotu	Technical Officer Grade 1
'Otenili Fisi'ikava	Technical Officer Grade 2
Toma Kauvaka	Technical Officer Grade 2
Siola'a Malimali	Technical Officer Grade 2
Sisilia Soakai	Computer Assistant
Ve'a Kava	Fisheries Assistant
Koliniasi Hafoka	Fisheries Assistant
'Emeline Tonga	Fisheries Trainee
'Alamoti Fa'uva'o	Fisheries Trainee
Tekiteki Vailea	Fisheries Trainee
Sese Malimali	Fisheries Trainee
Siva'a Fetuani	Fisheries Trainee
Sauaki Talasinga	Fisheries Trainee

Training

Several local and international training programmes, meetings, and workshop were conducted during the year 2001 as outlined below:

Name	Course/Meeting/Workshop	Duration	Country
Tekiteki Vailea	First Aid	1 day	Vava'u
Ve'a Kava & Tekiteki Vailea	Natural Resources Survey	1 week	Vava'u
Ve'a Kava & Tekiteki Vailea	Euchema Farming	4 days	Vava'u
Tekiteki Vailea	HACCP	1 week	Tongatapu
Ve'a Kava	Whale Sanctuary meeting	1 week	Tongatapu
Ve'a Kava	Whale Study Instructor	1 week	Tongatapu
Koliniasi Hafoka & Ve'a Kava	Day Skipper	1 day	Ha'apai
Koliniasi Hafoka	Outboard Engine Maintenance	4 days	Vava'u

Study leave

Siola'a Malimali, Technical officer Grade II completed 4 years of study at University of the South Pacific, and has completed his Bachelor of Science Degree.

Visitors

Visits to Vava'u in the year 2001

Name	Reason Of Visit
Silika Ngahe, Esaroma Ledua, Erick Lingvald	Eucheuma Culturing and Marketing
Sioeli Pasikala & Simon Osborne	Outboard Engines Maintenance
Idris Lane	Check Black Lip Collector Deployed
Sean Johnson, Toshihito	How to facilitate fishermen with ice-block machines & freezers

Aquaculture and Research

The main focus of Aquaculture & Research Sub-section was Pearl Oyster Farming and the transferring of the Pearl Oyster Project to the local association of pearl farmers. Work was also carried out on the collection and analysis of data from whales.

Pearl Oyster (Wing Oyster & Black Lip)

With the transfer of the Pearl Oyster Project to the local association, it is likely that the Pearl Oyster Business will expand and become very significant in the next few years. The Ministry has a total of 195 oysters (Wing Oyster) and 1,583 spats which was collected from the 2000 spawning season as well as 210 Black Lip oysters and 75 Black lip oysters that have been inserted with the nucleus.

Black Lip Collector

Idris Lane, a consultant from ICLARM introduced Black lip spat collectors to Vava'u. 10 longline spat collectors were deployed in search of Black lip oyster in 10 different sites. After 10 months the collectors were harvested and only 12 spats of Black lip oysters were harvested. The projected concluded that a hatchery would have to be used for the development of the pearl industry in Vava'u. Details of the survey is shown in table 33 below:

Table 33: Details of Black-Lip Collector survey

Location	Deployed Date	No. of collector	Harvest Date	Result
Vaipua	11/05/2000	100	12/03/2001	0
'Utungake	11/05/2000	100	12/03/2001	0
Hunga	15/05/2000	100	09/03/2001	6
Lisa	10/05/2000	100	09/03/2001	2
Talihau	10/05/2000	94	07/03/2001	1

Extension and Management

The Extension Section continues to provide technical assistance for Fishermen. Mainly focussing on gear development and Fisheries information services.

The extension policy is aimed at encouraging the production of fish and other marine resources for the domestic and export markets. It will be achieved if the following actions continue to be taken:

- Expand and improve fishermen training in gear technology and fishing business management
- Increased interaction between fishermen and the extension section through frequent exchanges of information and consultation

Local Fishing Vessels Licensing

There were six local fishing vessel licensed during the year. Four were licensed for bottom fishing and 2 for sports fishing.

Name of Vessel	Owner	Registration No.	License No.
Hakula	Jeff Le Stronge	LFV 053	BT 018
Dora Maria	Alisi Mead	LFV 03V	BT 03V
Guess Who	MJ Benny Ton	LFV 14V	CSF 02V
Kiwi Magic	Keith Mackee	LFV 03V	CSF 03V
Tavake	Ulaiasi Vaisima	LFV 04V	BT04V
Maikolo.H.Koli	Taniela Koli	LFV 12V	BTO5V

Fish Fence

Objectives guiding the issue of fish fences were as follow:

- To give people and coastal communities opportunities to utilize coastal zones for subsistence fishing.
- To give opportunities for people who do not have traditional rights to a coastal zone to fish.

The registration and licensing of fish fences is the responsibility of the Extension section. Other responsibilities include the survey of sites. The total number of registered fish fences up to the end of the year 2001 was 7.

Fish Aggregate Device (FAD)

The MoF Vava'u staff with members of the Tonga International Gamefishing Association deployed 3 Fish Aggregate Devices (FAD), on the 20th June, 2001. One was deployed on the northern side of the island, one on the Southern side and one underwater at Fatumanga Bank. Their locations are shown below.

FAD No.	Location
FAD No.1	180 34 '24 S 1740 03'54 W
FAD No. 2	180 40'10 S 170 12'20 W
FAD No.3	180 50'47 S 1740 12'44W

Engineering

This section is responsible for the overall mechanical maintenance of the Ministry's vessels, outboard engines, vehicles and the refrigerator and ice-block machine. Assistance is also offered to private fishing vessels.

Table 34: Vava'u Fisheries Vehicles, 2001

Motor Vehicles	Condition
Double Cap Van (P139)	good condition
Forklift	not working, needs spare parts
Motor Bike	not working, needs spare parts
Outboard Engines	
55 Hp Johnson	good condition
2 x 60 Hp Marina	good condition
40 Hp Yamaha	good condition
5 Hp Yamaha	good condition

Constraints

- Lack of tools and spare parts

- Lack of funds

Boatyard

This section continues to maintain and repair local fishing vessels. Some of the major constraints of this section are the lack of electrical tools and shortage of staff.

Maintenance carried out during the year 2001:

Job Description
Repair fishing vessel (UNCDF)
Repair and enlarge 28x30 footer I(UNCDF)
Renew fisheries quarter for Officer in Charge
Building one new quarter for Fisheries staff
Extend and enlarge fishing vessel, 28X32 footer (UNCDF)

Future Development

The MoF Vava'u continues to plan and formulate projects for the continued development of the Fisheries. Several of these projects were formulated using local funding while the Ministry continues to seek financial support from donor agencies abroad.

- Building a hatchery for Oyster Farming
- New local fish market
- New export facilities
- New Ice-Block machine
- New fishermen wharf
- A dry dock yard and facilities

2.3.7 Ha'apai Fisheries

The scattered nature of the Ha'apai island group, coupled with other constraints, continued to pose challenges to the Ministry of Fisheries' efforts in Ha'apai. Revenue is mainly earned through pilot commercial activities, the sale of ice, some boat and engine repairs, and miscellaneous sources. The Nomuka and Ha'afeva substations functioned primarily as providers of ice, while other ongoing projects, including work with pearl oysters and giant clams, were undertaken by the Pangai staff.

The staff in the Ha'apai Fisheries consists of 11 staff members including one peace corps, Daniel Clem who left early in the year.

Staff are as follows:

Name	Post	Section
Tala'ofa Loto'ahea	Senior FA, Officer in Charge	Administration, Finance and Computing
Sosefina Vili	Senior Fisheries Assistant	Administration, Finance and Computing
Tu'atalataua Tonga'onevai	Senior Fisheries Assistant	Extension, Management and Licensing
Losilini Koloa Loto'ahea	Computer Operator Gr.III	Administration, Finance and Computing
Siosifa Fisi'ipeau	Fisheries Assistant	Engineering
Sione Tu'imoala Mailau	Fisheries Trainee	Aquaculture and Research
Talia'uli Napa'a	Fisheries Trainee	Aquaculture and Research
Moana Nau	Fisheries Trainee	Extension, Management and Licensing
Sione Faleta Fili	Fisheries Trainee	Extension, Management and Licensing
Tevita 'Atana	Senior Fisheries Assistant, OIC Ha'afeva	Administration, Finance and Computing
Fotu Tu'ionetoa	Fisheries Trainee, OIC Nomuka	Administration, Finance and Computing
Daniel Clem	Peace Corps	Project management

Staff Movement and Leaves for 2001

Sione Fine Tupou, Fisheries Assistant was permanently transferred to Head Quarter Nuku'alofa. Tala'ofa Loto'avea, Senior Fisheries Assistant and his wife Losilini Loto'avea, Computer Operator Grade III took four months vacation leave from April to August 2001. Talia'uli Napa'a also took vacation leave from July to November.

Short-term training, workshops, local & overseas meetings

Name	Course/Meeting/Workshop	Duration	Country
Talia'uli Napa'a	Fishing Gear Technology	6 Months	Nelson, NZ
Sione Mailau	Grouper Survey	2 Weeks	Fiji
Sione Faleta Fili	Fish Processing and Handling	2 Week	Nuku'alofa
Sosefina Vili	Seafood Technology & Business Management	3 Weeks	Nelson, NZ
Moana Nau	Seaweed Farming (Euclidean)	1 Week	Vava'u

A one week training on Outboard Motor Maintenance Course and Safety survival at sea was held in October at Pangai for local fishermen. The training was provided by Mr. Simon Osbourne from N.Z. with Sioli Pasikala from the Ministry of Fisheries in Nuku'alofa as counterpart trainer. The course dealt with sea safety, navigation, and outboard motor maintenance. About 12 local fishermen participated in the program. This training was funded by the New Zealand Government through NZODA.

In December, two teams from SPC carried out a survey at Lofanga and Koulo mainly for coral and reef fishes especially grouper species.

Aquaculture and Research

The staffs of this section continues its work in rearing and collecting of blacklip oyster, as well as rearing juvenile giant clam and releasing of green snails.

Green Snails

A total of 1,000 snails were released at Houmatuku reef on the south west tip of Uoleva Island during the year 2001. A Survey conducted to recover the snails released in the past years showed a good growth rate.

Blacklip Oyster (Tofe Tonga)

By early 2001 there were 234 broodstock of Blacklip Oyster gathered locally from Kotu and 'O'ua Island. The oysters continued to grow well offshore of Pangai at a depth of 10 – 20m. These oysters are monitored and cleaned every two or three weeks to minimize mortality.

The second harvest of Blacklip spat collectors was undertaken early this year, but no Blacklip spat was found. The collector line placed at Felemea was not recovered, and is believed to have been stolen.

Japanese Winged Pearl Oyster (Tofe Siapani)

About 371 oysters left over from the 500 oysters that were received from Vava'u Fisheries in the previous year continued to grow very well. The oysters had reached the size appropriate for processing.

Enforcement and Prosecution

Staff members appointed as authorized officers and fisheries inspectors continued to monitor compliance with the Fisheries Act and its Regulation. Inspections are carried out each morning mainly at the Taufa'ahau wharf.

It has been difficult to include other places where fish are landed due to the lack of finance.

Inshore Fisheries Statistics

Data on the number of catch per species per fishermen were collected and entered into the Fisheries database program. The collection of Fisheries data was limited due to availability of transport, lack of finance and few staff members. This made collection irregular and inconsistent.

Fish fences

Fish fence licences are issued at the main office in Tongatapu. Twelve fish fences were licensed in Ha'apai during the year 2001.

Location	Number
Uoleva	3
Hihifo	2
Fakakai	1
Haato'u	2
Pangai	2
Lofanga	1
Faleloa	1

An amount of T\$650.00 was collected from licencing of fish fence in 2001. Two fish fences were located at Tungua, as well as one at Kotu.

Boatyard and Engineering

Engineering staff continued to repair outboard engines, re-charge batteries and weld anchors for local fishing boats.

Revenue

Revenue was collected mainly from the selling of ice blocks, and sawing timber as shown in Table 35 below:

Tabel 35: Total Revenue earned from the Ha'apai Fisheries

Month	Revenue from Ice-Block	Boatyard & Engineering	Fisheries Revenue	Total
January	1,998.90	59.96	48.00	2106.86
February	1,443.20	85.80	27.00	1556.00
March	500.70	59.80	15.00	575.50
April	1,412.80	7.92	3.00	1423.72
May	1641.50		6.00	1647.50
June	917.35	134.00	21.00	1072.35
July	1238.50	70.32	80.00	1388.82
August	703.50	110.00	18.00	831.50
September	691.30	80.92	347.00	1119.22
October	1484.60	10.00	83.00	1577.60
November	1399.50	10.00	118.00	1527.50
December	809.00		50.00	859.00
Total	14240.85	628.72	816.00	15685.57

Ice- Machine

The ice machine suffered numerous breakdowns throughout the year 2001. The main electric power supply failure and shutdown contributed to machinery malfunction.

Vehicle and Vessels

Both Fisheries van (P935 and P103) are still in good condition. Three new 40hp outboard engines and two new 20ft boats were received from Nuku'alofa. The MV Vete is still awaiting a new engine which is expected to arrive early next year.

Nomuka and Ha'afeva

The main duties carried out in these two substations are selling of ice as well as working closely with the local Fishermen of Lulunga and Mu'omu'a. Enforcement of fisheries regulation continues to be carried out at these 2 substations.

Fisheries Compound

A few minor damages caused by cyclone Waka upon the Fisheries Compound in Pangai meant that a more serious cyclone could threaten the office, boathouse, vessels and housing in the future. Construction of a foreshore might help to protect the compound from serious damage in the future.

Work required for the compound includes the renovation of the quarter that had been used by the officer in charge,

Constraints

Ha'apai Fisheries continues to face a few fundamental constraints on it's current activities primarily due to the lack of funds, as well as a low level of training and the lack of qualified staff. Lack of training and education has resulted in low motivation to pursue projects, and the inadequacies of the budget have compounded the problem.

Future Needs

- A new ice machine is needed to replace the old ice machine that was installed in 1987.
- Construction of a new foreshore to protect the fisheries compound from heavy waves.

3. Miscellaneous

3.1 USA Treaty on Fisheries

Since the implementation of the Treaty, Tonga received the following amounts under the 15 % shares in each licensing period. These funds were paid directly to general revenue each year.

Licensing Period	10 th (1997)	11 th (1998)	12 th (1999)	13 th (2000)	14 th (2001)
Amount (US\$)	149,722.98	148,446.53	148,661.22	148,131.22	147,682.00
T \$	230,769.00	2118,818.59	230,947.99	284,584.02	310,388.29

Project Development Fund

The balance of Project Development Fund as at December 2001 was T\$1,299,870.00. The Forum Fisheries Agency administers these funds for fisheries projects.

3.2 Conclusions

The objectives set out in the Strategic Plan continue to direct and guide the Ministry to achieve its vision. Some of the major objectives have been difficult to achieve mainly due to lack of qualified staff and limited funds.

The Ministry of Fisheries continues to support staff training overseas as well as giving staff members the opportunity to participate in local training programmes. The assistance by donor agencies in the area of staff training is very much appreciated.

The Ministry looks forward to participating fully in the Government reform programme. A better balance of salaries and operational funds within the overall budget is needed if the Ministry is going to address a number of the chronic problems identified in the report. The Ministry is confident that the AusAID Fisheries Management Project will make a timely contribution to strengthening the Ministry's capacity to manage and guide the development of the Kingdom's marine resources for the benefit of the Nation.



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GOVERNMENT OF TONGA

REPORT

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MINISTER

for

FISHERIES

for the year

2001