



**Fisheries Department**  
**Ministry of Natural Resources**  
**Government of Tuvalu**



# Annual Report 2018



*FJSH FOR LJFG*





Tuvalu Fisheries Department  
Ministry of Natural Resources  
Government of Tuvalu

## ***Annual Report 2018***

*Prepared by:*

The staff of Tuvalu Fisheries Department

*Funafuti, Tuvalu*

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## *Acronyms & Terms*

AA	Access agreement
AG	Attorney-General
ALB	Albacore tuna
AUD	Australian dollar
AWP	Annual Work Plan
BDM	Beche-de-mer
BET	Bigeye tuna
CFC	Community Fishing Centre
CFP	Ciguatera fish poisoning
CMM	Conservation and Management Measure (of the WCPFC)
CP1	TFD first Corporate Plan (2014-2016)
CP2	TFD second Corporate Plan (2017-2019)
EEZ	Exclusive economic zone
EU	European Union
FAD	Fish-aggregation device
FCA	Funafuti Conservation Area
FFA	Forum Fisheries Agency
FFV	Foreign fishing vessel
FIMS	Fishery Information Management System (of PNA)
FO	Fisheries Officer
FSMA	FSM Arrangement (for concessional fishery access between PNA domestic purse-seiners)
GEF	Global Environment Facility
GIS	Geographic Information System
GOT	Government of Tuvalu
GRT	Gross Registered Tonnage
HRD	Human resource development
IFA	Inshore Fisheries Advisor
IMO	International Maritime Organisation
IT	Information technology
IUU	Illegal, unregulated and unreported fishing
JICA	Japan International Cooperation Agency
LL	Longline
MCS	Monitoring, control & surveillance
MCSWG	MCS working group, FFA
MFED	Ministry of Finance and Economic Development
MNR	Ministry of Natural Resources
MPI	Ministry of Primary Industries (of New Zealand)
MRA	Marine Resources Act
MSC	Marine Stewardship Council
MT/mt	Metric tonnes
MTU	Mobile transmission units
NAFICOT	National Fisheries Corporation of Tuvalu
NAPA	National Adaptation Programme of Action
NFD	Non-fishing days
NPOA	National plan of action (on IUU fishing)
O&D	Operation and Development Section (of the TFD)
OFCF	Overseas Fishery Cooperation Foundation, Japan
OI	Outer Island
PADI	Professional Association of Diving Instructors
PAE	Party Allowable Effort (under the VDS)
PERMU	Public Enterprise Reform Management Unit
PFO	Principal Fisheries Officer
PIRFO	Pacific Island Regional Fishery Observer
PL	Pole and line
PNA/O	Parties to the Nauru Agreement / Office

PROP	Pacific Regional Oceanscape Programme
PS	Purse seine
PWD	Public Works Department
R2R	Ridge to Reef Project
RFV	Register of Fishing Vessels
RIMF	Regional Information Management Framework
SC	Science Committee
SDF	Special Development Fund (of the Government of Tuvalu)
SDG	Sustainable Development Goal
SFO	Senior Fisheries Officer
SKJ	Skipjack tuna
SMC	Senior Management Committee
SOP	Standard Operating Procedures
SPC	Secretariat of the Pacific Community
SRP	Sub-Regional Pool (of the VDS)
STCW	Standards of Training, Certification and Watchkeeping for Seafarers
TCC	Technical and Compliance Committee
TDF	Tuvalu Development Fund
TFD	Tuvalu Fisheries Department
TFSP	Tuvalu Fisheries Support Programme (MFAT)
TKIII	Te Kakeega III: National Strategy for Sustainable Development 2015-2020
TMTI	Tuvalu Maritime Training Institute
TNOP	Tuvalu National Observer Programme
TOR	Terms of reference
UNDP	United Nations Development Project
UST	United States Tuna Treaty
UVC	Underwater visual census
VD/ VDS	Vessel Day/ Vessel Day Scheme
VMS	Vessel Monitoring System
WB	World Bank
WCPFC	Western and Central Pacific Fisheries Commission
WCPO	Western and Central Pacific Ocean
YFT	Yellowfin tuna

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# 1 Background

## 1.1 The Tuvalu Fisheries Sector

Tuvalu is situated in the South Pacific Ocean between latitudes 2 and 13 degrees South and longitudes 172 degrees East and 177 degrees West, encompassing an Exclusive Economic Zone (EEZ) of 900,000 square kilometres and a land area of 26 square kilometres. The islands of Tuvalu, all low lying atolls, are homes to around 11,000 persons with over half living on the capital Funafuti.

Subsistence activities dominate Tuvalu's fisheries sector. A wide variety of techniques are used throughout the group to collect fish, crabs and shellfish which are consumed, shared or informally bartered. In the past Fisheries Centres were established on most outer islands with the intention of providing fishers with income earning opportunities, but most of these are no longer functioning. On the main island, Funafuti, artisanal fishing is limited to a small fleet of 4-5 meter outboard powered skiffs which mostly fish by trolling for tuna and by line fishing for reef fish.

More than half of the fish landed in Tuvalu are ocean species, predominantly two species – skipjack and yellowfin. The remainder is made of reef and lagoon species, with smaller amounts of bottom fish from deep slope areas. From census data it has been determined that 74 percent of households participate in reef fishing and 63 percent in ocean fishing. Studies in fish consumption over the past decade have resulted in estimates in fish annual per capita consumption of between 85 to 146 kilograms. Current annual fishery production, estimated at approximately 1,100 tonnes, indicates that per capita fresh fish consumption in Tuvalu is of the order of 100 kilograms per year.

Tuvalu waters are important for the two key industrial tuna fisheries of purse seine and longline. Fishing is predominantly undertaken by foreign vessels operating under access agreements and skipjack tuna make up the bulk of the catch. Fisheries licensing is now the major source of Government revenue based on the combination of license fees, selling of vessel days, transshipment fees, observer fees and joint venture dividends. It is also providing employment through the Tuvalu National Observer Program and (to a lesser extent) employment of Tuvaluans as stevedores during transshipment and a small number of crew on Australian tuna fishing vessels.

## 1.2 Purpose of this report

This report describes the objectives, activities and results of the Tuvalu Fisheries Department (TFD) within the Ministry of Natural Resources (MNR) during 2018.

At the end of 2016 Cabinet approved the Department's second Corporate Plan (CP2), covering the period 2017-2019. Annual work plans based on this Corporate Plan were developed for 2017 and 2018. The present report summarises the main achievements of the Department during 2018, as well as the challenges it faced during that year, and in some cases continues to face. Where possible, activities are reported against the thematic areas identified in the 2018 AWP.

## 1.3 Vision

The guiding vision of the Department can be stated as:

- ✿ Bountiful inshore fisheries supporting livelihoods and providing healthy local food
- ✿ Sustainable oceanic fisheries providing strong revenue and satisfying jobs

The physical and economic health of the Tuvalu population depends upon the health of its inshore and oceanic fisheries, which can be managed by Tuvalu. The health of oceanic fisheries cannot be managed by Tuvalu alone but requires regional and sub-regional co-operation.

#### **1.4 Mission**

The Department's mission is:

- ❖ *To maximise social and economic returns to the people of Tuvalu through the sustainable management and wise use of Tuvalu's living marine resources.*

On behalf of the people of Tuvalu, the Government, through its Fisheries Department, will act as a responsible custodian of oceanic or designated inshore fishery resources and fisheries rights so that they generate national revenues and sustainable employment opportunities. The Department will also support Kaupule / Falekaupule to manage inshore fisheries to support livelihoods and provide local food security.

#### **1.5 Objectives**

The primary objectives of the Department are indicated in the 2<sup>nd</sup> TFD Corporate Plan:

- Tuvalu's national rights and interests are secured and protected within the regional purse seine and longline Vessel Day Schemes, whose integrity and development have been promoted by Tuvalu through cooperation with other participating coastal States.
- Fisheries revenues to Tuvalu are maintained and further improved through the optimum allocation and pricing of Tuvalu's Vessel Days and associated purse seine and longline licenses.
- At sea employment for Tuvalu citizens (fishing vessel crew and fishery observers) has been increased significantly above present levels through the provision of appropriately trained personnel and the fullest application of local crewing licensing conditions.
- Tuvalu is fully compliant with the requirements of the WCPFC and other international fishery treaties to which it is a party.
- Tuvalu meets the requirements of overseas market states in regard to IUU fishing and fishery product food safety.
- Fishery surface patrols, aerial surveillance, observer coverage and other mechanisms are deterring and detecting IUU fishing activities, which are being effectively penalized through the Tuvalu legal system.
- New fishery joint ventures have been negotiated between the Government of Tuvalu and selected commercial fishing interests which provide increased employment for Tuvaluans and additional revenue streams to the Government of Tuvalu (GOT) while minimizing investment cost and risk.
- The National Fisheries Corporation of Tuvalu (NAFICOT) has been reformed to comply with the provisions of the Public Enterprises (Performance and Accountability) Act 2009 and acts as a vehicle for the GOT's commercial fishery interests.
- The relationship between the TFD and Kaupule/Falekaupule has been transformed such that Kaupule regulate local food fisheries supplying local needs, and the Department provides support in the form of data collection and analysis and fisheries management advice.
- FADs are available to fishers throughout Tuvalu and provide increased food security, higher financial returns, improved sea safety, and reduced fishing pressure on inshore resources.
- Small-scale fisheries increasingly target a more diverse range of ocean resources in order to reduce fishing pressure on coastal species.
- The safety of small-scale fishers has been improved through the installation of VHF radio equipment and the development of systems to respond to emergencies.
- The TFD has reliable information on coastal fishery resources in each island on which to base the management advice it provides to Kaupule.

- Conservation areas, by-laws and other fishery management arrangements have been established in those coastal fisheries where this is a high priority.
- Management plans for beche-de-mer, shark and other sensitive species are in place, if necessary through designation of these fisheries for management by the TFD under the MRA.
- Improved office space, IT and internet facilities and other support arrangements have been established to allow improved delivery of TFD functions.
- Appropriate TFD training and human resource management arrangements, including succession planning, have been implemented to support the optimum performance of the Department.
- Continued fine tuning of the TFDs organizational structure, recurrent budget and donor support has taken place to ensure that the available human and other resources correspond to the Department's evolving needs.
- Stakeholders and the general public are aware of TFD activities that affect them, and participate in them in a supportive way
- Fisheries Department staff and co-workers are able to access the information and knowledge needed for them to carry out their functions effectively.

Good progress has been made with many of these objectives, as we look back over the third year of the Corporate Plan period. However the fisheries sector is dynamic and subject to rapidly-changing circumstances which emphasises the need for the TFD to remain responsive and flexible irrespective of the planning framework.

### **1.6 Organisation**

The TFD organisational structure, shown in Figure 1, was introduced in 2014 and has been modified from time to time since then to reflect the establishment of a small number of new positions. The Department now comprises:

- An Administration Section, comprising the Director and Deputy Director, several professionals with cross-cutting responsibilities (Legal Officer, Economist and Librarian/ Public Relations Officer, Fisheries IT Officer) and the Executive staff. The Administration group is responsible, among other things, for recommending fishery policy initiatives, negotiating fishery access arrangements, and establishment of joint ventures in which the Tuvalu Government has an interest;
- An Oceanic Fisheries Section, responsible for industrial fishery vessel licensing, managing the sale of fishery access rights, compliance with Tuvalu's obligations under international fishery treaties and conventions, and monitoring, control and surveillance of fishing activities within the exclusive economic zone;
- A Coastal Fisheries Section, responsible for inshore fishery resource assessment, monitoring, and providing support to kaupule, fishers associations and other stakeholders in the management of coastal fishery resources and the marine environment, both in Funafuti and the outer islands;
- An Operation & Development Section, responsible for the running of the TFD vessels *Manau* and *Tala Moana*, construction and deployment of fish aggregation devices, vocational training of fishers and fishing vessel crew, and other development-oriented activities.

## 2 Fisheries Department Resources

### 2.1 Staffing

The organisational structure of the TFD Public Service establishment at December 2017 was as shown in Figure 1.

In addition to the public service establishment, several externally-funded projects continued to operate in 2018 and employed staff who work as part of the organisation. These included:

- One Fisheries officer recruited under the GEF-funded *National Adaptation Programme of Action* (against Climate Change) Phase 2 (NAPA2) project working in the Coastal Fisheries Section;
- Nine contract-employed officers and crew of the RV Tala Moana whose posts are funded through charters and cost recovery on the operations of the vessel;
- A Project Coordinator, Project Accountant and Project Officer for the World Bank-funded Pacific Regional Oceanscape Programme (PROP) in Tuvalu;
- Part time data collectors in each of the outer islands to gather information on fish catches, funded under the PROP project;
- Several temporary positions in the Department, also funded by PROP, to provide relief for staff undertaking training overseas and to strengthen sections that have recently had expanded responsibilities.

A Fisheries Adviser and part-time Coastal Fisheries Adviser, funded by the New Zealand Aid Programme, completed their assignments in Tuvalu in January 2018. A replacement Fisheries Adviser was recruited during the year, and started work in December. OFCF also funds a technical assistance position in the Operation section, which started in 2018.

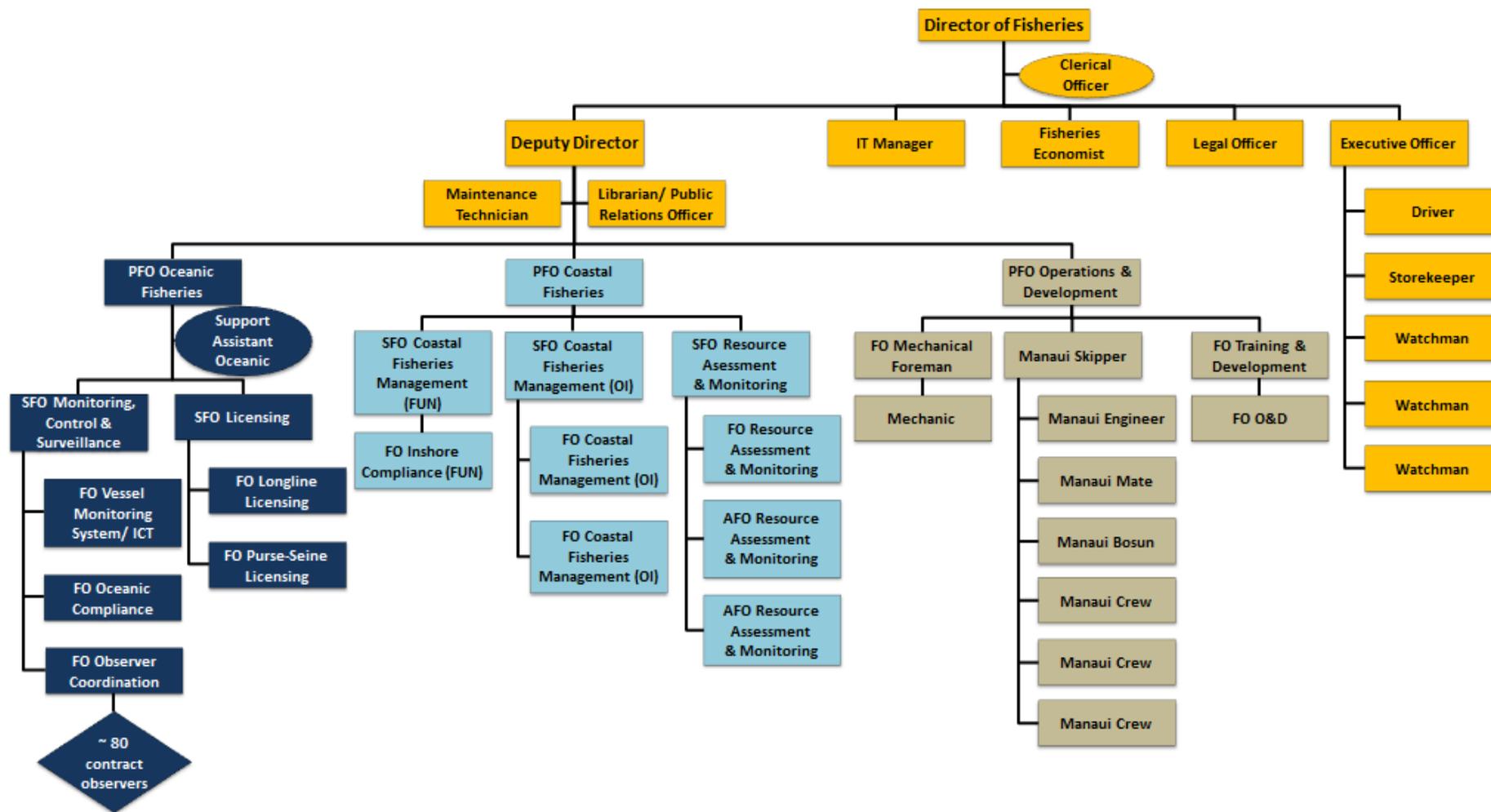


Figure 1: Tuvalu Fisheries Department Organisational Structure

In 2018 the Department also managed a pool of 81 trained and qualified fishery observers who are contracted to work on board fishing vessels when required (this has increased over time).

There were a number of staff movements during 2018, which left key positions vacant for some time and interfered with delivery of the work programme. The Principal Fisheries Officer (Oceanic) left to take up a similar job in a neighbouring country. The Fisheries Economist was recruited by a regional organisation. The Deputy Director left to join her husband in a posting to a Tuvalu mission overseas; and three more staff commenced long term training overseas. Staff turnover has been recognised as a significant problem affecting the work of the Department in recent years.

## **2.2 Assets and facilities**

In January 2018, all staff of the Tuvalu Fisheries Department moved into a new office building at Teone. These excellent new office facilities, funded by the New Zealand Government, provide great opportunities for improved service delivery. For the first time all Fisheries Department staff are in one building, with opportunities to work together much better than in the past. In late 2018 New Zealand funding was agreed to provide a solar powered system for the building that will provide for electricity needs.

The Department runs the RV *Manau*, an 18-metre fibreglass vessel provided in 1982 by the Japanese Overseas Fishery Cooperation Foundation (OFCF). The *Manau* was originally designed as a fish collection vessel to service outer island community fisheries centres, but is now used for deployment of fish aggregation devices, transportation of fisheries staff to the outer islands, and charters. The *Manau* is increasingly suffering mechanical problems and breakdowns and will soon reach the end of its service life. Agreement was reached with JICA during 2018 on a replacement for the *Manau*, which will become available in 2020.

The NAPA2 and R2R projects on the other hand jointly procured an additional project vessel, named the RV *Tala Moana*, which is more suited to passenger transport and outer-island field work, and was received in January 2016. The vessel is operated by the TFD on behalf of the Government of Tuvalu, and is made available for charter to other organisations when not in use for fisheries or NAPA2/ R2R work.

There is also a collection of vehicles, including a crane truck, motorbikes and scooters, freezers and refrigerators, an ice machine for supplying ice to fishers, 4 inflatable boats with outboard motors and trailers, laboratory and IT equipment.

The Department also has various items of laboratory and other apparatus used for fishery research purposes, previously donated by the Japanese International Cooperation Agency (JICA). Tables and chairs, book shelves and cabinets have been donated by the Korean Overseas Fisheries Association (KOFA), while others have been locally made and purchased by the Department. A complete set of furniture for the new office building was procured using funds from the TFSP and the Tuvalu Development Fund financed by the Government of Taiwan.

## **2.3 Budget**

Fisheries licensing, access fees and investments now generate a significant proportion of Tuvalu Government revenues: estimated income has increased from AUD \$14.8 million in 2014, to \$36 million in 2016, and over \$51 million in 2018. However, revenues in 2018 were boosted by payment of a large backlog of funds that had been held by the PNA Office – this is reported in more detail later in this report. The Fisheries Department plays an active and critical role in maximising these returns through its ongoing participation in regional and bilateral fisheries negotiations, and the development and implementation of strategies intended to promote Tuvalu's economic interests.

Although the TFD’s recurrent budget allocations are far less than the true cost of running the organisation, these have been increasing. In 2018 the recurrent budget allocation was \$925,277 – a 28% increase from the previous year; while development expenditure of \$554,000 was also agreed in the revised budget.

*Table 1: TFD Budgets for 2017 and 2018 in AUD*

Work Area	2017 Actual	2018 Budget	2018 Rev. Budget
<b>Administration</b>	244,931	294,315	294,315
<b>Operation</b>	244,236	281,780	281,780
<b>Coastal</b>	114,407	193,562	193,562
<b>Oceanic</b>	116,355	155,620	155,620
<b>Development Exp.</b>	100,000	350,000	554,000
<b>Total</b>	<b>819,929</b>	<b>1,275,277</b>	<b>1,479,277</b>

The Department has benefited from additional funding support to the fisheries sector from several major development partners, although these projects are now getting towards the end of their term:

- The New Zealand-Tuvalu Fishery Support Programme (TFSP) with variations is providing operational support funding of NZ \$ 1,708,760 over the 5-year period which commenced on 31<sup>st</sup> May 2014. The TFSP has also provided new office facilities for the Department, and continues to support ongoing technical assistance services;
- The World Bank Pacific Regional Oceanscape Programme (PROP), approved in December 2014, is providing a total of US \$7,910,000 over a 6-year period that commenced in June 2015;
- The GEF-funded NAPA2 project, is providing approximately US \$2.1 million to support fisheries development and food security activities in Tuvalu’s outer islands over the 4-year period that started in early 2015.
- The GEF-funded Ridge to Reef (R2R) project is a US\$3.7 million programme which supports sustainable livelihoods. This project, which started in mid-2016 runs through to 2020, and works closely with TFD and other relevant Government Departments.

Together these programmes support a wide range of activities by the Fisheries Department working in close collaboration with other partner agencies, including the Maritime Wing of the Tuvalu Police Department, the Tuvalu Maritime Training Institute (TMTI), and the Kaupule on each of Tuvalu’s islands. Activities to be supported by all three programmes are fully integrated into the Department’s Work Programme, under which most activities are funded by a combination of donor and recurrent budget allocations.

Additional support continues to be available through the main fisheries sector regional organisations (Forum Fisheries Agency (FFA), Secretariat of the Pacific Community (SPC), Parties to the Nauru Agreement Office (PNAO) and Western Central Pacific Fisheries Commission (WCPFC)). Technical assistance, training and small project funding is also accessible from time to time through a number of bilateral and multilateral partner agencies and NGOs.

#### **2.4 Internal management, monitoring and reporting**

The TFD work programme in 2018 was led through coordination of TFD senior management and key projects. This was done primarily through the Senior Management Committee (SMC), which comprises the TFD Director and Deputy Director, the three Principal Fisheries Officers, the Fisheries Legal Officer, Fisheries Economist, Fisheries Information Officer, PROP Coordinator, and the NZ-funded Technical Advisor (although this post was vacant for much of

the year). The SMC met several times throughout the year to discuss and reviewed implemented activities against the 2018 AWP.

The effectiveness of the SMC was further improved through regular meetings of all TFD staff, which were held to discuss the implemented activities, as well as professional and social issues within the department.

Quarterly progress reports were produced by the TFD, both for GoT internal purposes and to respond to the requirements of NZAP, World Bank and UNDP/ GEF, the Department's major external development partners. The department completed two out of three 4-monthly reports for internal purposes.

### **3 Administration Section Activities**

#### **3.1 General**

Many of the activities of the Administration Section during 2018 were ongoing from previous years. These included recruitment of personnel, staff appraisals, and reporting on activities. Many of the Administration staff were involved in regional meetings throughout the year. In addition, with the new departmental structure to promote effectiveness, one of the Fisheries obligations is for the fisheries information to be shared with the public. A new fisheries library was established in the new office, and the TFD website was updated and improved during the year.

#### **3.2 Fishery Access Negotiations**

Several of the staff of the Administration and Oceanic Sections are involved in fishery access negotiations, which take place between the TFD and distant water fishing companies or associations interested in fishing within Tuvalu EEZ. Negotiations usually take place in the second half of the year before the license period, often quite late in the year. For 2018, most of the negotiations were carried out in mid to late 2017 to discuss and agree the terms of agreement between parties, the license period and fee, number of fishing days and fee for each fishing day and other type of necessary fees such as transshipment fee, observer fee, etc.

#### **3.3 Joint ventures**

The Government of Tuvalu has been a partner in the Tuvalu Tuna Fong Haur (TTFH) purse-seine joint venture with the Fong Seong fishing Company of Taiwan since 2009. Although the JV has performed well over the years and paid substantial dividends to GOT, it was affected during 2017 by serious financial difficulties of the Taiwanese partner. Cash flow problems led to the JV vessel *Taumoana* being tied up in Majuro, Marshall Islands, as of May 2017, where it was subsequently arrested in response to claims by Fong Seong's creditors. In 2018 TTFH worked with legal representation in Marshall Islands and settled a genuine claim against the vessel by a helicopter service provider. A second claim for a mortgage held against *Taumoana* appears to be fraudulent, and will be contested in court with a decision expected by mid 2019. Assistance from FFA was provided both to assess the legal basis of the claim, and to evaluate the condition of the vessel.

In 2017 arrangements were concluded for a second JV, called TUSA, with the Korean fishing company Sajo. A second-hand Sajo purse-seiner was moved into the JV, renamed as the *Taina*, and has been fishing since the fourth quarter of 2017. The vessel's catch exceeded expectations in 2018, its first full year of operation, and the annual dividend and tax payments will be confirmed at a board meeting in mid 2019.

In late 2018, the Government received a further proposal for a purse seine fishing joint venture from the Korean company Dongwon. This arrangement was still under discussion and consideration at the end of the year.

There is one Longline JV with another Korean company called Friendly Tuna. This company has operated two Tuvaluan flag longliners, based in Suva and fishing mainly in the Tuvalu EEZ. In 2018 one of these two vessels ran aground and sank. The JV has never been profitable, and TFD intends to facilitate liquidation of the company in 2019.

### **3.4 NAFICOT**

In 2017 Government approved the reform of NAFICOT, and its registration under the Public Trading Enterprises Act. During 2018 recruitment of the Board directors was completed, although unfortunately one of the new Directors passed away late in the year, and another resigned for medical reasons. In 2019 it is planned to bring the organisation back up to strength and start to implement its work plan, which is mainly concerned with assuming the role of the Government partner in the various fisheries joint ventures.

### **3.5 Participation in regional meetings and workshops**

The number of regional fisheries meetings continues to expand, there are ten regular annual regional meetings on oceanic fisheries in which Tuvalu has to participate. These consist of: PNA official and ministerial meetings; FFC officials and ministerial meetings; WCPFC Annual Sessions, Technical Compliance Committee (TTC) and Scientific Committee (SC) meetings; the annual FFA Management Options Consultation (MOC); the FFA MCS working group; and the Observer programme coordinators meeting. There are usually more than a dozen additional meetings on topics such as fishery trade, economics, the US Treaty, legal arrangements and others.

Most of the staff involved in these meetings are from the Administration and Oceanic Sections. There are relatively few regional or international meetings that concern staff of the Coastal Fisheries Section, and in some ways this is unfortunate as regional meetings provide a good opportunity for participants to gain knowledge and develop their personal capacity. However a second Regional Technical Meeting on Coastal Fisheries, organised by SPC took place in November 2018. The meeting was well-attended by TFD Coastal staff and served as a valuable opportunity for information and knowledge exchange.

### **3.6 Staff training and workshops**

In addition to the meetings noted above, TFD staff attended various training workshops, in Tuvalu and overseas, in order to build up their capacity in areas relevant to their work. On the Oceanic Fisheries side, most of the training workshops were to do with the technical side of the vessel day scheme (VDS), data collection and analysis, MCS, and other related tuna workshops. In the Coastal Fisheries area a second study tour to New Zealand was arranged for Coastal staff so that they could gain experience in the roles and functions of a fisheries agency in a country where inshore fisheries management is better established.

### **3.7 Public Information and Awareness Program**

The Tuvalu fisheries department library was located for the first time in 2018 in the Fisheries new office. The fisheries library physical collection consists of five collections which include: periodicals, reference, main collection, audio/visual and the Tuvalu (country) collection.

The recent fisheries library repository includes 3,178 soft copies within the Fisheries library network shared drive, 223 print copies that have been indexed and 112 that have been scanned and repaired. Recent documents and Fisheries publications within the TFD website, include: TFD corporate plan, Annual work programs, Annual reports, Trip Reports, Project document and Due diligence, Managements plans, Technical reports, and Fisheries Legislation as well as posters and brochures.

During the year there were some twenty three library inquiries, includes overseas consultants and officers, as well as fisheries staff who base their research and work on the marine fisheries information. There were four new publications and two of them are known as grey literatures,

not formerly published which are the “Ha’apai Fish Species survey” and “Action Plan for Implementing FRFSP”. Two other documents have been formally published which are: AWP 2018 and the AR 2017.

In addition, the information officer is still working on improving the fisheries library by collecting fisheries related data and maintaining the library both electronically and physically.

The public awareness program was part of the TFD ongoing activities for the year 2018. The Fisheries department conducted 10 radio awareness programmes. Below is a table listing Radio awareness programs.

Apart from Radio awareness, there are also other awareness activities including the ongoing maintenance of the TFD website with fisheries vacancies advertised, fisheries progress reports, uploading recent fisheries related document to the website and also printing of fisheries reports.

*Table 2; Radio awareness programmes in 2018*

DATE	SECTION	TOPIC	SUMMARY
<b>2<sup>nd</sup> 2018</b> <b>Jan</b>	O & D	Sea Safety & CFC's centres	Facilitator: Nelly Seniola A brief update on CFC's centres and an awareness talk on sea safety for fishermen and the public.
<b>22<sup>nd</sup> 2018</b> <b>Feb</b>	Coastal	What are metro trips?	Facilitator: Lotokufaki Paka & Siale Suamalie Information for the general public about metronome trips, and why there are metronome trips.
<b>5<sup>th</sup> April</b>	Coastal	FRFSP	Facilitator: Lale Petaia & Hetoa Taula A brief talk on what is the FRFSP, and the current status of this plan.
<b>10<sup>th</sup> May</b>	Coastal	CFP	Facilitator: Paeniu Lopati & Simeona Italeli A brief updates on how many cases of CIGUATERA fish poisoning recently and also the current changes of CFP
<b>20<sup>th</sup> 2018</b> <b>May</b>	Admin	Updates on the metro trip to Vaitupu	Facilitator: Matelina Stuart Updates the public on activities that were done on Vaitupu island during the metronome trip.
<b>22<sup>nd</sup> 2018</b> <b>May</b>	Admin	Updates on the metro trip to Nui & Nukufetau Is.	Facilitator: Matelina S A brief updates on activities and work done on Nukufetau & Nui during the metro trips.
<b>7<sup>th</sup> 2018</b> <b>June</b>	Admin	What is happening in the Fisheries Department	Facilitator: Matelina Update the general public on fisheries activities, mainly the administration activities
<b>19<sup>th</sup> 2018</b> <b>July</b>	O&D	Sea safety & grab bags	Facilitator: Viliamu & Nelly Shared the information with the public on sea safety and the importance of grab bags to the lives of fishermen.
<b>23<sup>rd</sup> 2018</b> <b>August</b>	Admin	What is happening lately in the Fisheries Department	Facilitator: Matelina S A brief updates on recent activities that happening or being done lately by fisheries staffs
<b>13<sup>th</sup> 2018</b> <b>September</b>	O&D	FAD's	Facilitator: Viliamu & Nelly A brief update on information about FAD's and their importance.

## 4 Oceanic Fisheries Activities

### 4.1 General

Prior to issuing fishing licenses to fishing vessels, the Director of Fisheries signs an access agreement on behalf of the Tuvalu Government with the fishing company or association. This signed access agreement is a legal requirement under Marine Resources Act.

Tuvalu Fisheries Department issues fishing permits/licenses to its Joint Venture (JV) partners (Tuvalu Flag); Bilateral partners (companies or associations) representing vessels registered in China, Fiji, Japan, Kiribati, Korea, Papua New Guinea, Phillipines, and Taiwan; and vessels operating under the sub-regional pooling arrangement. Sub-regional pooling parties consist of five members: Republic of Marshall Islands, Nauru, Solomon Islands, Tokelau and Tuvalu. Vessels operating under two regional arrangements – the US treaty and the FSM Arrangement – are authorized to fish in Tuvalu waters and contribute to access fees, but their regional licenses are issued by the Administrators of these arrangements (FFA and PNAO respectively).

As a member of PNA, Tuvalu has agreed to manage both the Purse Seine and Longline Fisheries through the Vessel Day Schemes for these fisheries and must not allocate more days to fishing partners than its Party Allowable Effort (PAE). In 2018 Tuvalu’s PAE was 2,110 days for Purse seine and 7,500 days for longline. Tuvalu remained within both limits during the year, ensuring our contribution to sustainable management of our shared resources.

For purse seine, some flexibility is provided by trading, when companies that have purchased days in one EEZ can transfer to fish in another on payment of additional fees. Vessels other than Tuvalu flag also pay for each day fished in Tuvalu waters under the FSM Arrangement. Monitoring and control of these traded days is very significant and can be quite complicated when the same vessel is operating under more than one arrangement. For Longliners, Tuvalu did not fully implement the Longline VDS in 2018, but limited fishing effort through a limit on the number of licences issued. These were mainly for 12 and 6 months; with some for 3 months towards the end of the year.

There were 308 fishing vessels licensed to fish in the Tuvalu EEZ in 2018 (Table 3). These vessels comprised purse seiners (PS), longliners (LL) and fish carriers (FC). There were no pole & line or bunker vessels applying for licences in the last two years. Although the number of licences seems high, it is important to understand that most vessels only fish in Tuvalu waters for a few days during the year.

*Table 3: The number of licenses issued by gear and for support vessels (fish carrier & bunker) for the last 5 years (2014 – 2018)*

Year	Longline	Purse seine	Pole & Line	Fish Carrier	Bunker	TOTAL
2014	43	146	12	15	3	219
2015	26	188	1	34	7	256
2016	66	165	3	41	1	276
2017	115	202	0	40	0	357
2018	78	186	0	45	0	309

Issuance of licenses to fishing companies is one of the most important activities in the 2018 Oceanic workplan. The number of licenses issues for longliners has decreased from 115 in 2017 to 78 vessels in 2018. There were 12 vessels that were licensed for 12 months, 57 vessels for 6 months and 8 vessels for 3 months. For purse seiners the number of licensed vessels also decreased from 202 vessels in 2017 to 186 vessels in 2018. The main reason for this decrease was that one bilateral partner had an access agreement with the Government of Tuvalu, but they did not take up any fishing licenses in 2018.

Figure 2 shown below is the breakdown of vessels licensed in Tuvalu waters by flag and gear type for both bilateral, the pooling arrangement and regional agreements for 2018. The highest number of vessels licensed to fish in Tuvalu waters were 62 longliners of Korean flag. This is followed by the 57 purse seiner vessels from the FSM Arrangement, 31 UST vessels and 98 vessels licensed from bilateral partners. In addition, 25 fish carrier vessels flagged in Panama also applied for 2018, reflecting the growth of transshipment activities in Funafuti.

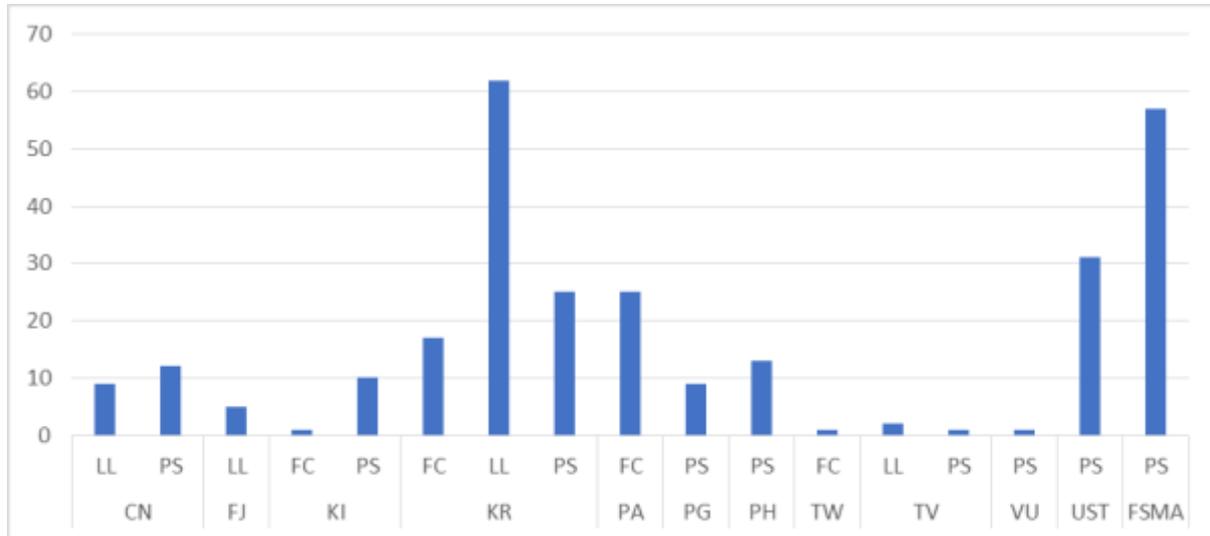


Figure 2: Annual number of fishing vessel licenses by flag and gear for 2018.

## 4.2 Catch by Tuvalu National fleets

### 4.2.1 Domestic fleets

Tuvalu had three flagged vessels that actively fished in the WCPO with their authority valid in 2018. There were two longline vessels and one purse seiner (FV Taina is a new JV) on the WCPFC Register Fishing Vessel (RFV) (Table 4). However, FV Tuipuga was grounded and caught on fire in June 2018.

Table 4: Tuvalu flagged vessels. Source: WCPFC FRV

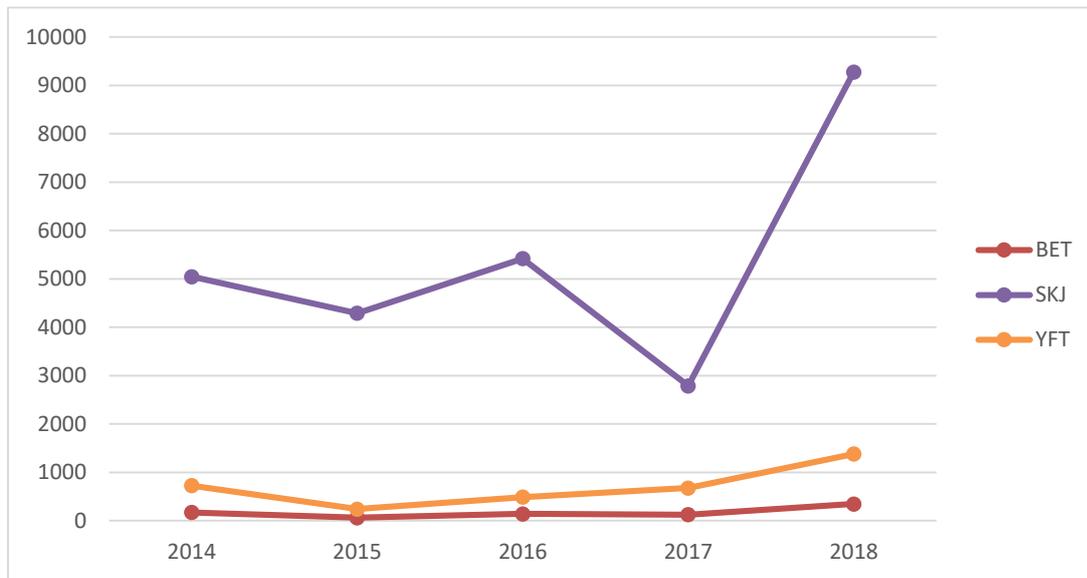
Vessel name	Flag	Registration number	Authority Period	Vessel type	IRCS
<b>Pakaso</b>	Tuvalu	23011010	7 Feb 2018 -7 Feb 2020	Longliner	T2RB3
<b>Tuipuga</b>	Tuvalu	23951010	22 Feb 2018 – 23 Feb 2020	Longliner	T2TT3
<b>Taina</b>	Tuvalu	34128217	20 Jul 2017 – 20 July 2020	Purse seiner	T2BX5

### 4.2.2 Purse seine

Tuvalu's purse seine flagged vessel made an estimated total catch of 10,995 mt in 2018 in the Convention Area (Table 5 & Figure 3). Skipjack is dominant in the PS catch of 9,271mt (84.3%) of the total PS catches in 2018; followed by yellowfin tuna of 1,379mt (12.5%); and bigeye tuna of 345mt (3.1%).

**Table 5:** Annual provisional catch estimates (MT) for Tuvalu PS fleet, in the WCPO (2014-2018) - (Source: TUFMAN 2)

Year	Bigeye (mt)	Skipjack (mt)	Yellowfin (mt)	TOTAL (mt)
2014	171	5046	726	5943
2015	60	4288	238	4586
2016	141	5418	488	6047
2017	123	2787	676	3586
2018	345	9271	1379	10,995



**Figure 3:** Annual provisional catch estimates (mt) for Tuvalu PS fleet, in the WCPO (2014-2018)

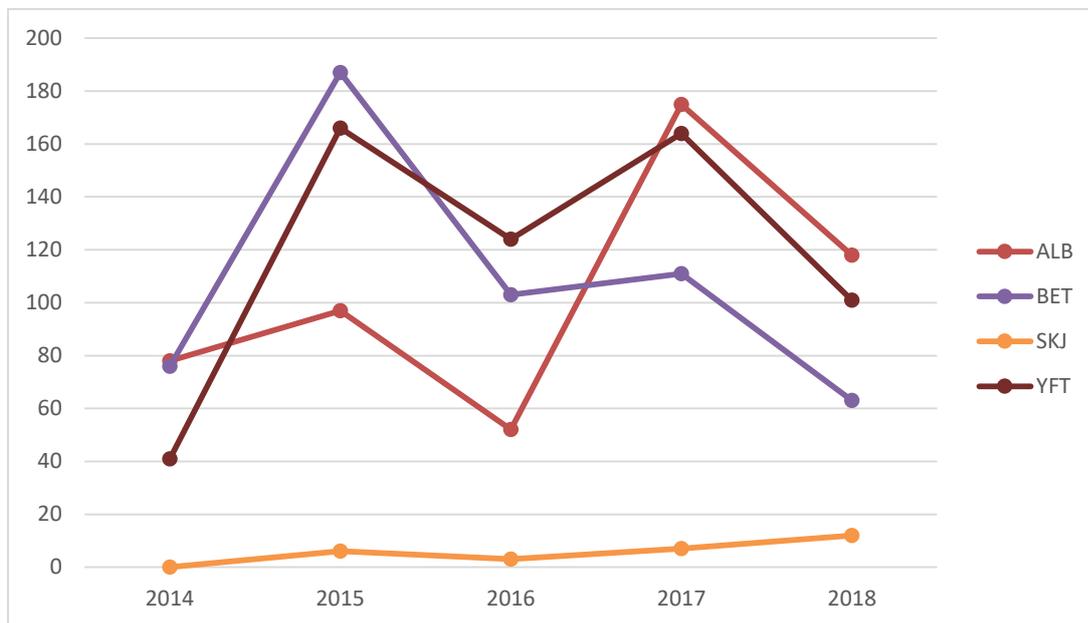
The PS catches were much higher than in 2017. The new joint venture with FV Taina in 2018 has performed well, while FV Taumoana was not operational for much of 2017 and did not fish in 2018. FV Taina in any case seems more efficient at catching tuna with higher catch rates compared to FV Taumoana. This may be due to better electronics, or captain’s or crew’s fishing skills.

#### 4.2.3 Longline

In 2018, Tuvalu longline flagged vessels made an estimated total catch of 176mt in the Convention area (Table 6 & Figure 4). Albacore tuna made up the highest catches in 2018 of 48.1% (243.144mt), yellowfin tuna of 29.7% (149.83mt), bigeye tuna of 16.7% (84.57mt), other species including billfish species of 4.6% (23.07mt) and 0.9% of (4.56mt) of skipjack tuna. Catches in 2018 were lower than in 2017, mainly due to one of the Tuvalu flag vessels not operating in the second half of the year.

**Table 6:** Annual provisional catch estimates (MT) for Tuvalu LL fleet (FV Pakasoa & Tuipuga), in the WCPO (2014-2018) -Source: TUFMAN 2

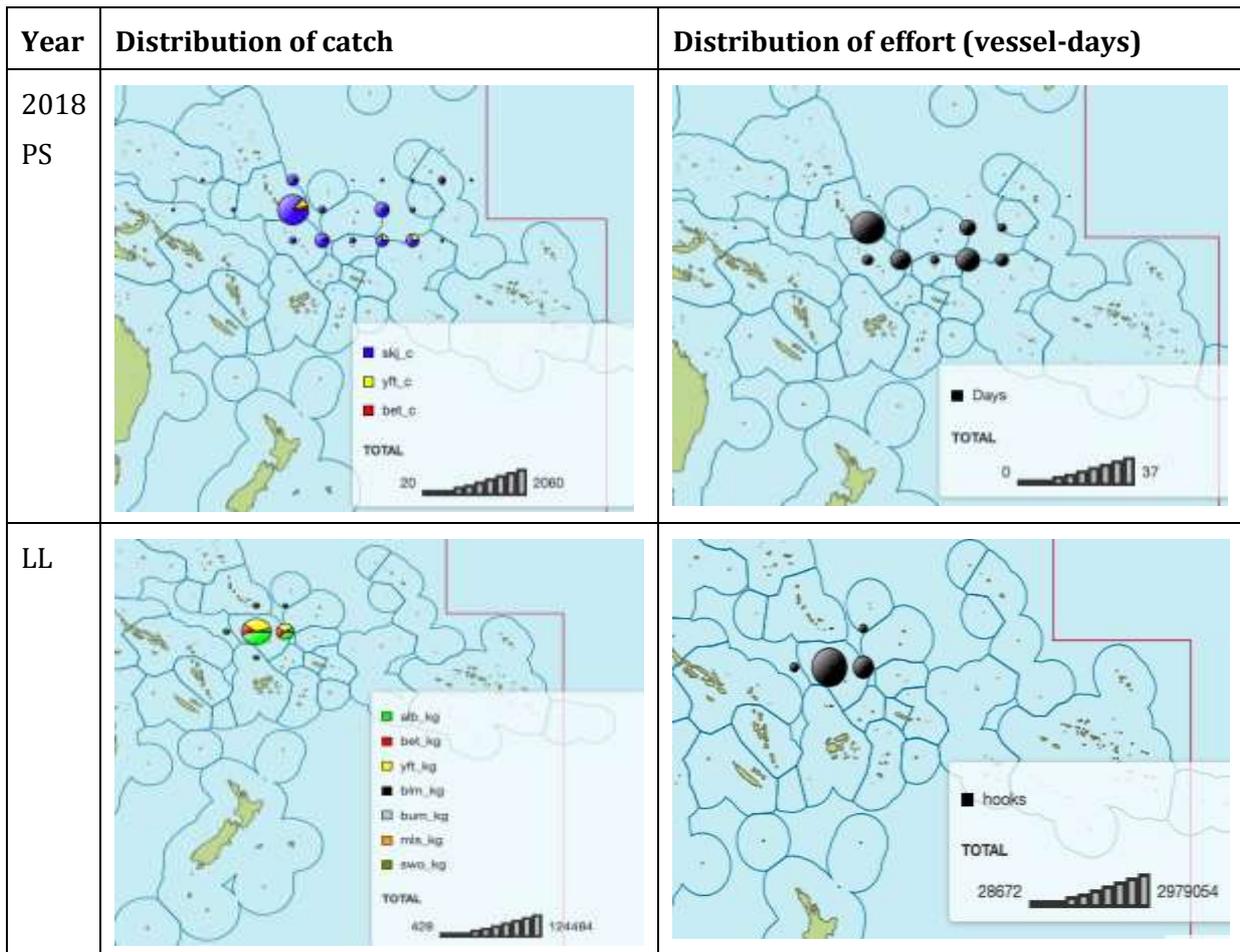
YEAR	ALB	BET	SKJ	YFT	TOTAL
2014	78	76	0	41	117
2015	97	187	6	166	359
2016	52	103	3	124	230
2017	175	111	7	164	282
2018	118	63	12	101	176



**Figure 4:** Annual provisional catch estimates (mt) for Tuvalu LL fleet, in the WCPO (2014-2018)

#### 4.2.4 Fishing catch and effort distribution for Tuvalu flagged vessels (PS & LL)

The fishing catch and effort in 2018 from Tuvalu’s PS vessel, with high catches of skipjack occurred mostly in the Kiribati EEZ with some catches in Tuvalu and the high seas. However, for the Tuvalu longline vessels, the fishing catch and fishing effort was mostly in the Tuvalu EEZ (Figure 5).



*Figure 5: Tuvalu national PS & LL fleets operations within WCPO area in 2018.*  
(Source: TUFMAN 2 – Regional reporting)

### 4.3 Catch from Foreign fishing fleets in National waters

#### 4.3.1 Annual catches from PS fleets

Catches by foreign flag purse seiners in the Tuvalu EEZ were made up of a total of 83,820 mt (93.6%) of skipjack tuna; a yellowfin tuna catches of 4,541 mt (5.1%); and a catch of 1,228 mt (1.4%) of bigeye tuna. The total annual catches of tuna from purse seine fleets in Tuvalu EEZ in 2018 were 89,589 mt.

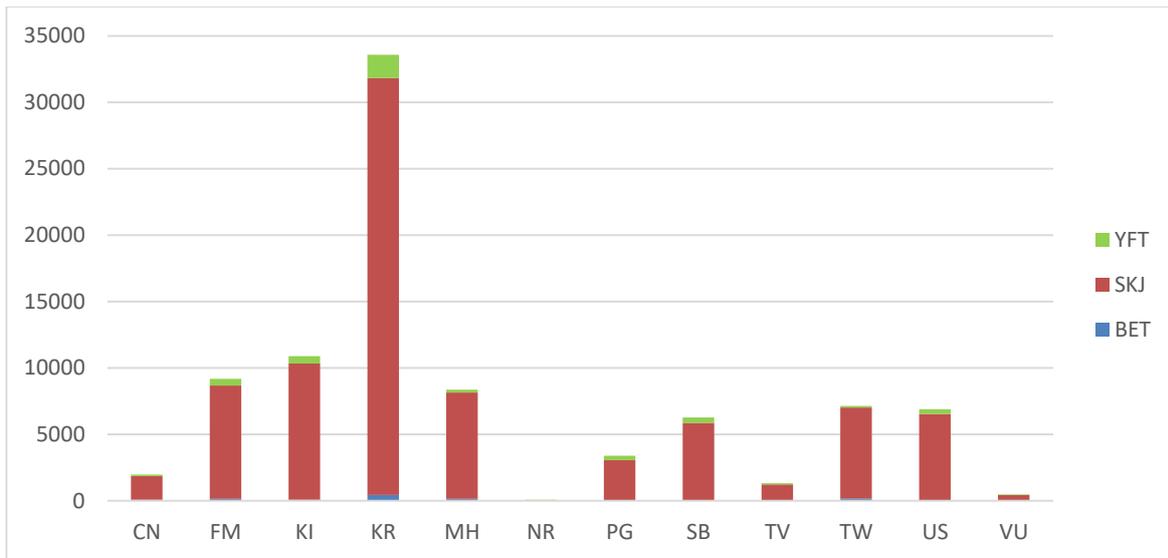


Figure 6: Annual catches (mt) from purse seine fleets in Tuvalu EEZ in 2018. Source: (TUFMAN 2 Report- RECON)

Figure 6 shows the percentage of the catch of the three main species for each of the different national purse seine fleets operating in Tuvalu waters.

#### 4.3.2 Annual catches from longline fleets

In comparison, for the longline fleets the most caught species is bigeye tuna with an estimated catch of 1,314 mt (36.2%); yellowfin of 1,280 mt (35.3%); and 1,037 mt (28.5%) for albacore tuna (28.5%). The total annual catch from longline fleets in the Tuvalu EEZ was estimated at 3,931 mt.

As shown in Fig. 7, Korean and Taiwanese vessels catch the highest proportion of bigeye tuna, while other fleets' landings are dominated by albacore and yellowfin.

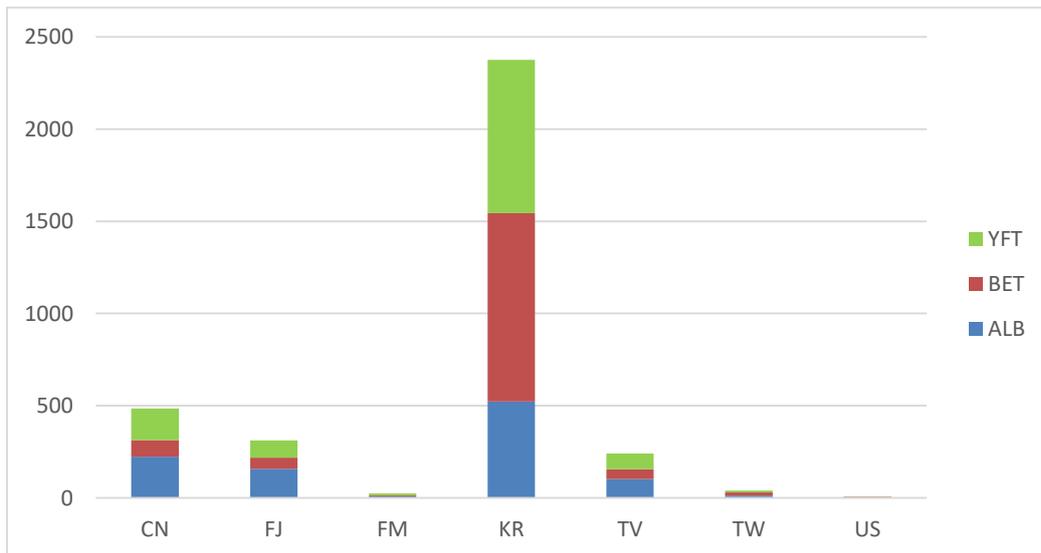


Figure 7: Catch composition from LL fleets in Tuvalu EEZ in 2018. Source: (TUFMAN 2 REPORT - RECON)

#### 4.4 Fishery Revenues

##### 4.4.1 Fishing licenses

The total fishery revenues from fishing licenses, VDS and other fees generated an amount of more than AU\$51m in 2018. There was an enormous increase in revenues - almost double the fisheries revenues in 2017 of AU\$26m. This increase was partly due to selling all Tuvalu's days of the PAEs for 2018; but the figure also reflects payment of a number of years' revenue from the FSM Arrangement which had been held by the PNA Office and was only distributed to parties in 2018. In Figure 8, it can be seen that revenues from the FSM Arrangement came to more than AU\$20m (39% of the total revenues) followed by bilateral sales of PS days of >AU\$15m (30%), and US Treaty payments of >AU\$6.5m (12.7%). Revenue received from the pooling arrangement was >AU\$4.2m (8.3%).

In other revenue, the transshipment levy raised >AU\$2.5m (5%) and there were still some transshipment fees outstanding for 2018 at the end of the year of >US\$59,000. Longline license revenues were >AU\$977,000 (2%). Licenses for support vessels (fish carriers) and other charges such as fines paid by fishing vessels were >AU\$1.0m (2%).

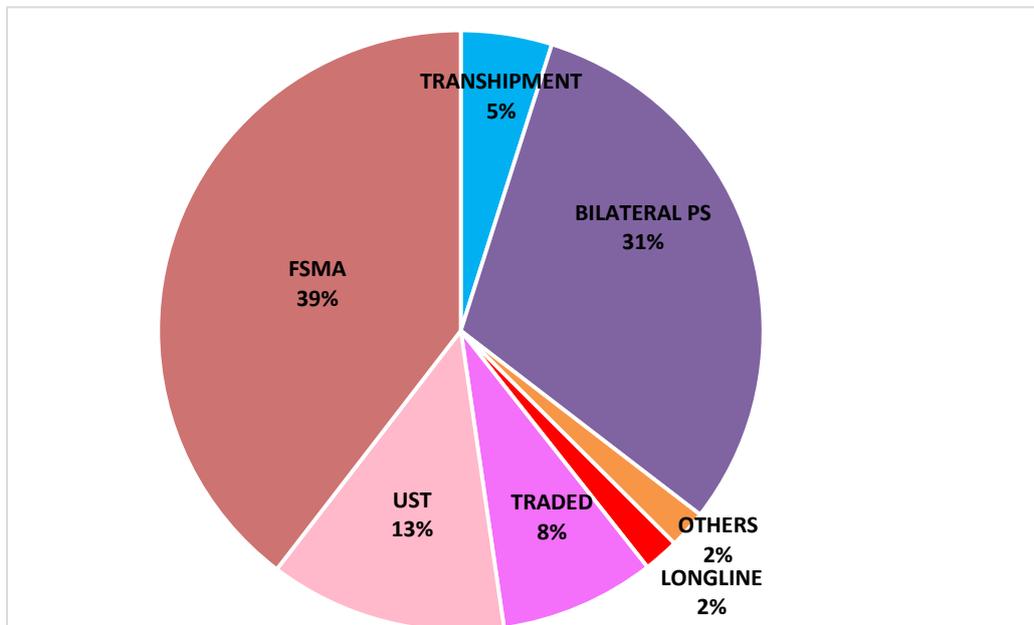


Figure 8: Revenues by licensing category for 2018

##### 4.4.2 Observer Levy

The total amount of observer levy received for 2018 was AU\$872,353.23. Observer fees are paid into the Tuvalu Development Fund then warrants issued monthly to transfer into the Observer vote. The observer fee receipts are typically very high in January of AU\$429,330.70 (see Figure 9) because most of the fishing licenses and observer fee remittances are all received by the department at the beginning of the year. This fund was used for the observer advances and final payments for observers deployed under Tuvalu's national observer programme. However, the expenses for the observer funds in total were AU\$513,236.61, these expenses were incurred for observer advances, and final payments when the observer trips are completed.

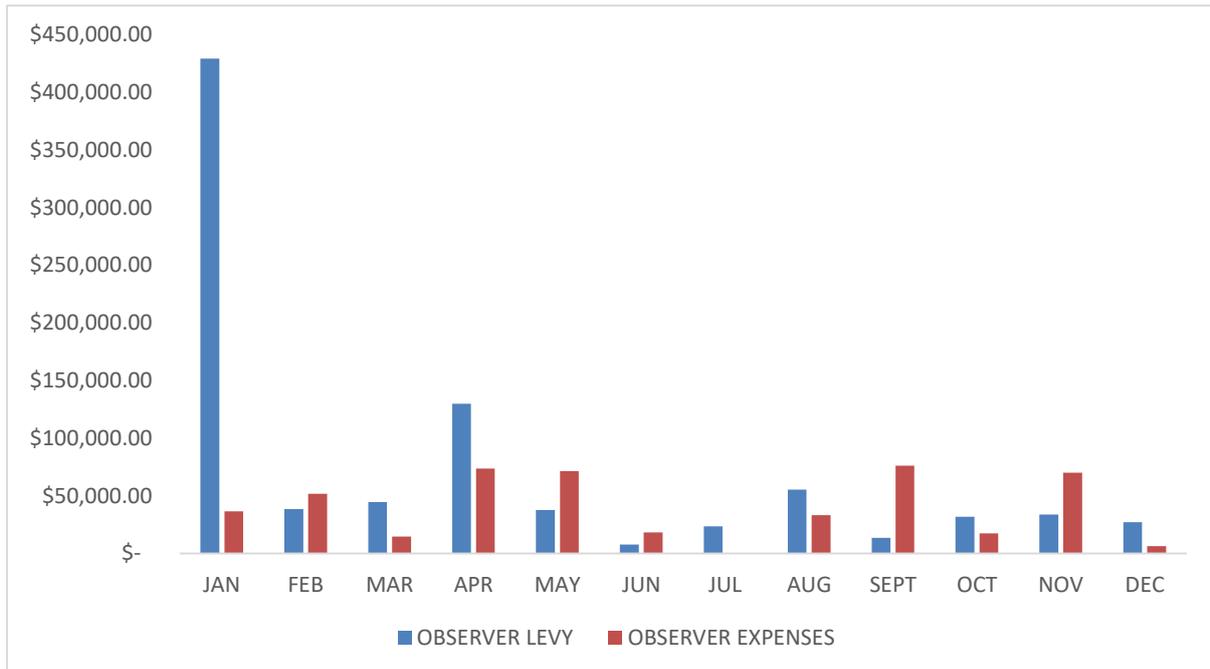


Figure 9: Observer levy funds received & expenses during 2018

#### 4.5 Transshipment

The port of Funafuti is the only designated port for fishing vessels in Tuvalu and has become popular and active compared to past years. Regional arrangements strictly ban transshipment by purse seine vessels at sea. This has led to an increased number of fishing vessels from distant water fishing nations coming into Tuvalu waters, in particular Funafuti Port to transship their catches to carrier vessels.



Figure 10 – Transshipment activity

#### 4.5.1 Advantages

The increase in transshipment activities within the Funafuti Port has generated high returns and revenue for the Government of Tuvalu by means of transshipment fees and port charges; and also provides employment for local people. It has also become more convenient for our national observer program, providing more opportunities for our observers to be placed on purse seiners. In addition, the increase in transshipment activities in port enables fisheries officers to undertake their duties and responsibilities in port rather than at sea. This is a safe and easy alternative as the MCS officer is able to seek the assistance of other colleagues and to promptly trigger an investigation if an infringement is identified.

#### 4.5.2 Disadvantages

Notwithstanding the fact of high revenue derived from transshipment, it entails a risk to our country when fishing boats transship in our port. There is a probability of contaminating our lagoon environment with waste oil, sewage and other contaminants discharged by fishing boats in our waters without our knowledge. This has become a major concern to the department and the public.

The MCS unit takes this matter into account and closely monitors transshipment in our port by placing observers on every fishing boat transshipping in port (100% coverage). Continuous efforts are made to minimize pollution and change the attitudes that cause it in our port.

#### 4.5.3 Transshipment Revenue

The table below illustrates the total revenue generated from transshipment fees from activities that were conducted in our port for the year 2018. Shown in the table are the amount of transshipment fees received for each month and the amount that has been paid and the unsettled amount at the end of the year.

*Table 7: Transshipment revenue by month*

MONTHS	TOTAL	UNPAID	PAID
JAN	\$ 271,004.00	\$ -	\$ 271,004.00
FEB	\$ 146,370.00	\$ -	\$ 146,370.00
MAR	\$ 229,225.00	\$ -	\$ 229,225.00
APR	\$ 125,600.00	\$ -	\$ 125,600.00
MAY	\$ 154,505.00	\$ -	\$ 154,505.00
AUG	\$ 64,190.00	\$ 6,850.00	\$ 57,340.00
JULY	\$ 16,685.00	\$ -	\$ 16,685.00
SEP	\$ 29,450.00	\$ 9,600.00	\$ 19,850.00
OCT	\$ 203,337.50	\$ -	\$ 203,337.50
NOV	\$ 224,260.00	\$ 35,200.00	\$ 189,060.00
DEC	\$ 319,685.00	\$ 33,650.00	\$ 286,035.00
<b>Grand Total</b>	<b>\$ 1,784,311.50</b>	<b>\$ 85,300.00</b>	<b>\$ 1,699,011.50</b>

#### 4.5.4 Transshipped Catch

The table below shows the volume of catch transshipped of each grade and the transshipment fee per tonne for each grade. There are 3 grades regularly offloaded in Funafuti port: BRINE, which is brine frozen fish for canning; MSC which is the same but meeting Marine Stewardship Council requirements; and PS which is Purse Seine Special and comprises super-frozen large yellowfin for the sashimi market.

**Table 8:** transshipment volumes by grade for 2018

<b>GRADES</b>	<b>TOTAL(MT)</b>	<b>VALUE(USD)</b>
<b>BRINE (\$10)</b>	<b>173650.5</b>	<b>\$ 1,736,505.00</b>
<b>MSC (\$12)</b>	<b>502</b>	<b>\$ 6,024.00</b>
<b>PS (15)</b>	<b>2613.5</b>	<b>\$ 39,202.50</b>
<b>GRAND TOTAL</b>	<b>176766</b>	<b>\$ 1,781,731.50</b>

**4.5.5 Transshipment Vessels**

The table below shows the number of transshipments in Funafuti port for 2018. It shows the number for each company and the number of transshipments by vessel flag.

**Table 9:** Transshipment by company and number of port calls

<b>COMPANY</b>	<b>FM</b>	<b>KI</b>	<b>KR</b>	<b>NR</b>	<b>PG</b>	<b>SB</b>	<b>TV</b>	<b>TW</b>	<b>US</b>	<b>VU</b>	<b>Grand Total</b>
AMERICAN EAGLE FISHING LLC									1		1
AMERICAN LEGACY FISHING LLC									1		1
CAPE FINISTERRE FISHING,LP									1		1
CAROLINE FISHERIES CORP INC	7										7
CITYPRO MANAGEMENT LIMITED	2										2
DIVING SEAGULL, INC	1										1
DONGWON INDUSTRIES CO LTD			43								43
FAIRWELL FISHERY CO LTD							2			1	3
HANSUNG ENETERPRISE CO LTD			1								1
KASAR FISHING CORPORATION	4										4
KIRIBATI & SAJO FISHERIES CO LTD		12									12
KIRIBATI AND HANSUNG ENTERPRISE CO LTD		2									2
KIRIBATI AND KT FISHERIES CO LTD		6									6
KIRIBATI AND SAJO FISHERIES CO LTD		8									8
KIRIKORE FISHERIES CO LTD		8									8
NAURU FISHERIES DEVELOPMENT CENTRE				1							1
NEW FAIR DISCOVERY CO LTD								1			1
OCEAN GLOBAL FISHERIES LLC									1		1
OCEAN WARRIOR LLC									2		2
PACIFIC GLOBAL FISHERIES LLC									1		1
SAJO INDUSTRIES CO LTD			17								17
SAJO OYANG CO LTD			3								3
SAJO SEA FOOD CO LTD			6								6
SEA HONOR LLC									1		1
SF FISHERIES CO LTD					4						4
SILLA CO LTD			31								31
SOUTHERN SEAS LOGISTIC LTD						7					7
TUSA FISHING COMPANY							7				7
WIN BEST CO LTD										1	1
WIN BEST FISHERY CO LTD										4	4
WIN HARVEST FISHERY CO LTD										3	3
YAP INVESTMENT TRUST	1										1
YUH YOW FISHERY CO LTD								1			1
<b>Total</b>	<b>15</b>	<b>36</b>	<b>101</b>	<b>1</b>	<b>4</b>	<b>7</b>	<b>7</b>	<b>4</b>	<b>8</b>	<b>9</b>	<b>192</b>

**4.6 Surface Patrol Operations.**

Conducting surface patrol surveillance in our maritime zone is an effective way to counter IUU activities. The crucial focus of such operations is to ensure fishing vessels in our maritime zone comply with our laws and regulations, and to enforce our Marine Resources Act 2006 (as amended).

Boarding, of fishing vessels during operations is not only to inspect the vessels for compliance but to encourage fishing vessels to comply at all times. As observed from operations in 2018, no vessels were identified as breaching our laws. The patrolling of our maritime zone is one of the tasks outlined in the Government’s Sustainable Development Strategy TK 3 with a target of 100 sea days. The targeted number of operational sea days was not met this year due to other priorities for the use of the Patrol Boat and mechanical faults.

There were three operations during the year: two regional operations and one national operation. Details of the two regional operations in which our officers participated are shown in the table below.

*Table 10: Regional surveillance operations in which Tuvalu participated*

<i>OPERATION</i>	<i>EDD</i>	<i>EDA</i>	<i>PLATFORM</i>	<i>BOARDINGS</i>	<i>TYPE</i>
<b>Island Chief 2018</b>	26/7/2018	31/7/2018	TE MATAILI	12	REGIONAL
<b>Kurukuru 2018</b>	4/10/2018	7/10/2018	TE MATAILI	7	REGIONAL

#### **4.6.1 Violations and Fines**

In 2018, two vessels were apprehended in port whilst transshipping for breaches of national laws. These two vessels entered Funafuti port to transship in port. Prior to initiation of transshipment the boarding officer advised the Vessels’ masters that contaminating fishery water is against Tuvalu law. The masters agreed and signed the boarding forms to prove that they had been informed.

The table below shows the vessels that breached our laws and the fines paid by these vessels. The first incident was reported by our observer who was monitoring transshipment on that vessel. The second incident was reported by our Coastal Fisheries staff who were on a dive survey when they witnessed the incident.

*Table 11: Fines paid for violations in 2018*

<i>VESSEL</i>	<i>OFFENSES</i>	<i>FINES</i>
<b>MICRONESIAN 101</b>	Dumping winch cable in Funafuti Lagoon	\$ 50,000 (USD)
<b>WIN BEST 707</b>	Dumping damaged and undersized fish in Funafuti Lagoon	\$200,000 (USD)

All the fines for the above offenses have been paid into the Government General Revenue Account before release of the vessels.

#### **4.7 Observer Program**

Tuvalu’s National Observer Programme (TVNOP) is one of the components under the Monitoring Control and Surveillance (MCS) unit, which monitors, records and reports on fishing activities in the Western Central Pacific Ocean (WCPO); also collecting scientific data on board Foreign Fishing Vessels (FFVs). Tuvaluan observers may be contracted either by the Tuvalu National Observer Programme (TVNOP), the Federated States of Micronesia Arrangement (FSMA) or the US treaty arrangement that is managed by the Forum Fisheries Agency (FFA).

#### 4.7.1 Observer training

In 2018 the program managed to complete 3 observer in-country training courses and participated in one Sub-Regional Basic Observer training course. In-country training courses comprised Part B and C debriefing training, Observer refresher training and 2 Marine Stewardship Council (MSC) training courses. The Part B and C debriefer training was conducted by Mr Manoi Kutan from the 30<sup>th</sup> July - 9<sup>th</sup> September and 12 trainee debriefers attended the course. All of them passed the course and are now certified debriefers. Following this debriefer training course, the Observer Program now has a total of 30 certified debriefers and it is believed to be the highest ratio of debriefers to observers for any program in the region.

With the support of PROP funding, the Observer Program was able to contract Mr Glen English who conducted the MSC course and Refresher training from the 9<sup>th</sup>-16<sup>th</sup> of April. There were 12 observers attending the course and they all made it through to be eligible as MSC certified observers. The MSC observer training course took only 2 days while the Basic Observer refresher course was for three days. Another MSC training course was conducted by Fisheries Officer Mr Onosai Takataka from the 27<sup>th</sup>- 29<sup>th</sup> November which 6 Observers attended and all were certified as MSC eligible observers. The observer program now has a total of 67 eligible MSC certified observers.

During the year only one sub-regional basic observer training occurred and it was held at the Vanuatu Maritime College in Santo, Vanuatu. Tuvalu Fisheries sent only one participant to attend the training. The duration of the training is 7 weeks which comprises 5 weeks of Observer Basic Training carried out by SPC staff and 2 weeks generic training (basic sea safety, firefighting, restricted radio communication, OHS and basic first aid training) conducted by the VMC staff.

#### 4.7.2 Observer placements

In terms of placement opportunities, most of our observers were placed on board Korean Flag vessels and FSMA vessels that are normally transshipping in our port in 2018. The total number of placements in 2018 under all three programs the TVNOP, POA and UST was 112. The majority of the placements (68 placements) were on Korean Flag vessels under our national program; 39 placements were on FSMA boats arranged by the PNA Observer Agency (POA); while 5 placements were on UST boats.

#### 4.7.3 Summary of general observer data table

Below is the summary of the Tuvalu National Observer Program 2018 in table format.

**Table 12:** Key statistics on the Tuvalu Observer Program

<b>Total number of active observers</b>	<b>80</b>
<b>Certified debriefers</b>	<b>30</b>
<b>Trainee debriefers</b>	<b>2</b>
<b>Debriefer Assessors</b>	<b>4</b>
<b>Certified observer with cross endorsement for IATTC</b>	<b>2</b>
<b>Number of observers deployed on FFA trips</b>	<b>5</b>
<b>Number of observers deployed on PNA trips</b>	<b>39</b>
<b>Number of observers deployed on National program trips</b>	<b>68</b>

#### **4.7.4 TVNOP Observer issues**

Only two issues were reported from the Observer Program:

- Late final payments to observers from the FFA program
- Difficult to send observer data to the PNA Observer Agency (POA) on timely basis due to the poor internet connection

#### **4.8 VMS Monitoring System**

The largest fisheries surveillance system in the world would be the Vessel Monitoring System (VMS) in the WCPO. There are two different VMS, one is the WCPFC VMS and the other one is the FFA VMS. The two are basically one system, split in to two areas of application. The WCPFC VMS monitors activities in the high seas in the WCPO while the FFA VMS monitors all activity in the FFA member country EEZs. As a member of the FFA and the WCPFC we are able to see vessel activities in our EEZ and the two adjacent high seas areas.

##### **4.8.1 Vessel activities monitored on VMS**

All vessels are monitored daily after working hours through an animation loop in the Regional Surveillance Picture RSP with reference to Trackwell and other MCS web based tools. Attention is focused on vessels entering TV zone with less than zero (-1 to -4) compliance index.

All vessels registered with the FFA good standing register are monitored and reporting normally on FFA VMS resulting in no manual reporting submitted through RIMF and Trackwell reporting.

Unknown vessels in the FFA VMS are further analysed by enabling AIS functionality in the RSP and WCPFC VMS.

##### **4.8.2 VMS related offenses**

ORYONG 312 was initially detected on VMS as allegedly conducting fishing activity in the archipelagic waters. Following a thorough investigation by the maritime police, it was concluded that the vessel was not engaging in fishing activities in the AW. The vessel was released. However, the department has found out that the vessel did not provide an entry report which is in breach of license conditions. The matter is to be addressed through a written warning.

##### **4.8.3 VSAT Dish and maintenance**

A maintenance schedule has been developed to guide Oceanic Fisheries staff since there was no service manual provided upon installation. The VSAT was out of service for most of the year and a new LNB has finally been installed and awaiting technical assistance from FFA to configure network settings.

A decision was made by the FFA and the Fisheries Department on a split account arrangement for the utilization of the VSAT in an effort to improve internet connectivity in the Fisheries building. In doing so FFA has agreed to continue providing funding assistance for the dedicated VMS account and PROP to fund the extra bandwidth servicing the whole building. TFD is working closely with FFA staff on the procurement of extended cables to enable access to the VMS room in the new building.

##### **4.8.4 VMS/MTU training**

Two VMS and MTU related training courses were conducted in country with the assistance of the FFA VMS team. The training is an ongoing activity in the oceanic annual plan and it is aimed at providing the basic knowledge on how to operate the tool and its various applications in terms of track analysis. The invitation was extended to the Maritime Police to train officers identified to man their newly established operation room in the Police HQ. Both training events were delivered successfully and the main objectives were achieved.

The first Tuvalu flag vessel MTU inspection was conducted on the F/V Pakasoa based out of Suva. The inspection is a mandatory requirement of the flag state under the WCPFC VMS CMM reporting requirement.

#### 4.9 Vessel Day Scheme

Management of VDS is an ongoing activity which utilizes VMS as the primary platform for monitoring through the PNA Fisheries Information Management System (FIMS). This includes the monitoring of each company’s allocation of days and verifications of Non Fishing Days to project actual VDS usage for reporting purposes.

This year witnessed another increase in the PAE for Tuvalu which allowed an increase in benefits from the vessel day scheme. A total of 2,110 days was allocated to Tuvalu’s PAE for the reporting year and a total of 2108 days was used by bilateral partners, multilateral arrangements, sub-regional pooling and the net effect of trading days. Transfer and trading of more than 400 days (in and out) was facilitated between bilateral partners and other countries. Overall, these arrangements resulted in the utilisation of more than 99 % of Tuvalu’s allocated days.

The table below shows the utilization of Tuvalu’s vessel days including allocations to the FSMA for Tuvalu’s domestic vessel, multilateral agreements and pooling.

*Table 13: Utilisation of Tuvalu’s PAE under the Purse Seine VDS*

Description	Days
<b>Agreed PAE for 2018</b>	<b>2,110</b>
<b>Days allocated to US Treaty</b>	302.7
<b>Days allocated to sub-regional pool</b>	308
<b>Days allocated to JV vessel for use under FSMA</b>	150
<b>Net number of days traded out (471 out; 426 in)</b>	45
<b>Days used under bilateral arrangements (1351 less 49 NFDS)</b>	1,302
<b>Unused days (PAE minus all of the above)</b>	<b>2</b>

The main purchasers of days under bilateral arrangements were the Korea Offshore Fisheries Association (KOFA); the Taiwan Deep Sea Tuna Purse Seine Boat Owners and Exporters Association; and the China Offshore Fisheries Association (COFA). Outside of these industry bodies, which represent multiple companies, access agreements were also concluded for the sale of days to four individual fishing companies.

##### 4.9.1 VDS Usage

According to the current usage chart, the usage rate is similar to the past 3 years for the same period. This is an indication that the usage has been consistent with the monitoring tools in place and most importantly the VDS rules.



Figure 11: Utilisation of days under the PNA VDS

#### 4.9.2 VDS Challenges

The complexity of rules associated with managing the vessel day scheme poses various challenges in terms monitoring and usage of days allocated under the PAE and sub-regional pooling.

Since the pooling allocations account for all participating members, it is impossible to offset bilateral days from pooling as we do not have access to other members usage to actually count whether this particular vessel has used up all allocated days in other members' EEZs or not. Tuvalu's bilateral agreements are mainly with Associations, whereas allocation of pooled days is to individual companies, which also complicates the matter.

TFD is working closely with the PNAO in addressing these issues by acquiring the company allocations and cross checking with the sub regional pooling allocations as some vessels have bilateral allocations and a sub-regional allocation and switch between the use of days. New features in FIMS in 2019 will also help to keep track of this better.

#### 4.10 Other matters

The EU 'Yellow Card' which was issued in December 2014 and which notified as Tuvalu as a country with the 'possibility of being identified as non-cooperating in fighting IUU fishing' was finally uplifted in July 2018. This was the result of a long programme of work which included new legislation, revision of the tuna management plan, improved transshipment monitoring and strengthening other MCS systems.

There are currently no vessels that have been registered as Vessels of Interest (VOI) for the reporting period. Two vessels were initially considered as possible VOI's for alleged transshipment/bunkering violations but these have been cleared. This followed a thorough investigation during port and at sea inspection, which found insufficient evidence to substantiate the transshipment claims.

The Pacific Maritime Security Program (PMSP) through the FFA has provided additional aerial surveillance capabilities to member countries. The program deployed a King Air 2 aircraft in November for a trial operation in the Tuvalu EEZ. The operation was successfully executed and fisheries officers went on board as air-riders during the operation. VMS historical data analysis will in future be a major element in identifying the potential areas of operation so the asset could be deployed effectively and in a coordinated manner.

#### **4.10.1 Other issues and challenges**

1. Frequent internet breakdowns due to problems experienced by the local internet service provider.
2. Difficulty of accessing project funding (PROP) in a timely manner when urgently needed for MCS activities.
3. The vacant PFO Oceanic position from the beginning of 2018, which cause some communication problems and loss of coordination between staff.
4. A heavy workload of overseas travel of staff to workshops and meetings.
5. The involvement of Te Mataili in other activities and the lack of training of Talamoana crew to be able to conduct fisheries patrols and at sea boarding.
6. The late appointment of the FFA aerial surveillance contact point in Tuvalu.

## **5 Coastal Fisheries Activities**

### **5.1 General**

Most of the Coastal management activities that were carried out in 2018 were ongoing activities that are carried out every year. The activities included outer islands monitoring through Metronome trips, creel survey monitoring, boat and canoe survey, ciguatera fish poisoning survey, GTX monitoring survey and Funafuti Reef Fisheries Stewardship Plan activities. There were also new activities that the coastal staff were involved in such as the Beche de mer survey to formulate the national sea cucumber management plan, coral planting, and the Environment campaign week tour for leaders of Tuvalu to the Conservation area.

A significant decrease within the coastal section's staffing from 2017 had greatly affected the performance of the coastal section in the first quarter of 2018. There were also issues with staffing for 2018 as a Fisheries Officer for Coastal fisheries was awarded long term in service training at the University of the South Pacific. The sudden change affected the performance and capacity of the coastal section for 2018. As a result, the senior management committee started recruitment as part of the procedure to minimize the effects of staff turnover. With financial aid from PROP, two additional recruits were added to fill in the affected areas within the coastal staffing for 2018. These positions were key positions for the coastal outer island management team i.e.

- Fisheries Officer coastal management
- Assistant Fisheries Officer coastal management

A position was also funded by the NAPA2 project to support work on locally managed marine areas. Overall the mandated activities for 2018 were successfully completed in line with the anticipated Annual work plan for 2018.

### **5.2 Data collection**

#### **5.2.1 Creel Survey Programme**

The creel surveys, which initially began on Funafuti Island and have expanded to the outer islands, are an ongoing activity which is funded by the Pacific Island Regional Oceanscape Program (PROP) for the fortnightly wages of island data collectors. Creel surveys are an important data collection programme which have been sustained through the continuous collection of information on fishing activities and catches for the whole of Tuvalu by means of the outer islands data collectors on contracts. These are established on all islands except the island of Niulakita. Surveys by the outer island collectors are reinforced by regular visits from

HQ staff during the Metronome trips to each island. The number of samples taken on each island during these trips is shown in figure 12.

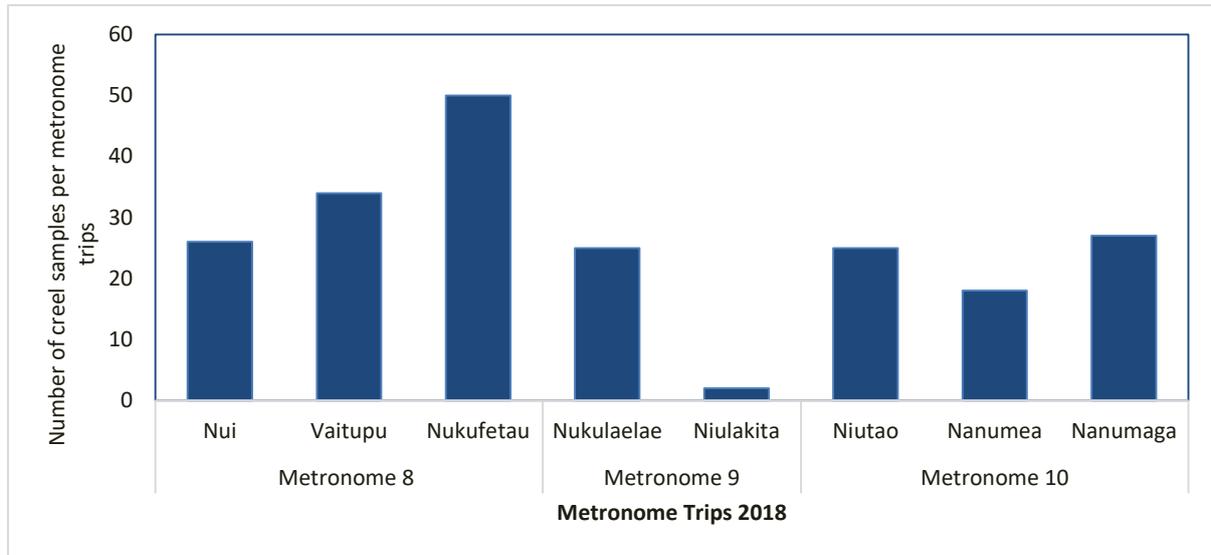


Figure 12: Creel samples per metronome trips by island, 2018.

An important analysis of creel survey results was prepared in early 2018<sup>1</sup>. This covered all data collected between April 2015 and December 2018. 1,491 landings were met, with most in Funafuti (503), 192 in Nanumea, 190 in Nanumaga, 188 in Nukufetau, and smaller numbers on all other islands except Niulakita for which no samples had yet been collected. Some key findings of the report were as follows:

- Fishers said they went on fishing trips 7-14 times per month, depending on the island;
- Overall 56% of the catch was for sale, and 44% for home use;
- The island with the highest percentage of catch for sale was Funafuti at 94%;
- Twenty-two different types of fishing method were reported, with trolling for tuna the most common and reported in 47% of all landings;
- The most common boat type was the dinghy with 64% of vessels, almost all of which were powered by 2-stroke outboard engines;
- Overall 36% of fishers said they were using different fishing grounds since 5 years ago with 69% saying that the number in the catch and 61% saying that size of fish had declined;
- A total of 39,263 specimens were measured during the survey, including 268 species of fishes in 106 families and 134 genera, and a total of 42.13 tonnes of catch;
- Of the 79 species that could be assessed for signs of overfishing, 24 of 62 tests done (39% overall) showed that 50% or more of the individuals landed were undersized (smaller than the length at maturity);

<sup>1</sup> Semese Alefaio, Simeona Italeli, Lotokufaki Kaitu, Ursula Kaly, Paeniu Lopati, Filipino Makolo, Lale Petaia, Maani Petaia, Hetoa Taula, Foe Tetoa and Aveta Vaguna, 2018: Creel Survey Report No. 2 – Tuvalu Fisheries Department.

- The main fishes showing strong signs of overfishing included acanthurids (pone), drummers (nanue), emperors (Noto, Muu) and snappers (e.g. Fagamea, Savane, Makala and Tagau);
- The best catches (in numbers of fish or weight) per unit of effort (fishers and hours spent fishing) were in Niutao (12 kg/fisher/hr or for the trip at 14 kg/hr) with Funafuti and Nukufetau having the lowest catches per unit of effort;

The report concluded that mechanisms for improving the poor status of the resources have now been developed and the Funafuti Reef Fisheries Stewardship Plan (FRFSP) is to be implemented. It is expected that the two main indicators used in the creel surveys will start to improve and overall yield of the fisheries increase. This may take a few years to allow time for undersized fish to grow and start to reproduce, increasing the population to sustainable levels. There is significant pressure on coastal fishery resources on all islands surveyed. Any mechanisms that seek to divert fishing effort offshore on to tuna and other oceanic species, which for our purposes are virtually unlimited, will be important for future management actions. Diversion offshore will need to be accompanied by greater effort in sea safety, fishing methods suited to pelagic species, a consideration of costs and prices and public awareness.

### 5.2.2 *Ciguatera sampling (GTX monitoring)*

Ciguatera is caused by blooms of toxin-producing single-celled microalgae called dinoflagellates that live naturally in Tuvalu's shallow waters on the surface of large macroalgae (the seaweeds or *limu*). Dinoflagellates are normally found in low numbers, but can suddenly undergo a population explosion, jumping from very few cells to millions per handful of algae. The main species that produce the toxins are *Gambierdiscus toxicus* (GTX), *Prorocentrum lima* and *Ostreopsis* sp. Much like weather warnings, the GTX monitoring programme was established on Funafuti to identify when outbreaks might be coming (due to an increase in the number of causative dinoflagellates). It is alleged that the toxin may take several months to accumulate or be removed or neutralized by antibodies of fish's liver, so there is scope for adequate warning. The GTX monitoring on Funafuti will, after sufficient sampling, also be able to determine 'hotspots' (areas of the reef that are actively having outbreak numbers of dinoflagellates) in order to warn the public.

By the end of 2018 a total of 121 samples was collected and analysed for the presence and abundance of toxic dinoflagellates. A total of 20 different sites were selected for testing to determine the level of GTX inside the lagoon. The results from these tests showed that the GTX levels at almost all of the sites along the main settlement were fairly high (more than 5,000 dinoflagellates cells per sample) compared with other more distant sites inside the lagoon such as Akau Tulaga. These results suggest that high levels of nutrients in runoff into the lagoon along the main settlement may be feeding ciguatera outbreaks. This is likely due to runoff from household liquid waste, pig waste and other human related coastal developments. However, in areas with low levels of GTX, it was noted that the health status of corals was still good with a good diversity of fish species.

This work is still in early stages and for this year PROP has procured new equipment for the laboratory including a new microscope. Staff need training in using this new advanced microscope. This work may also be extended in the future to the outer islands during metronome trips as may be requested by the *Kaupules*.

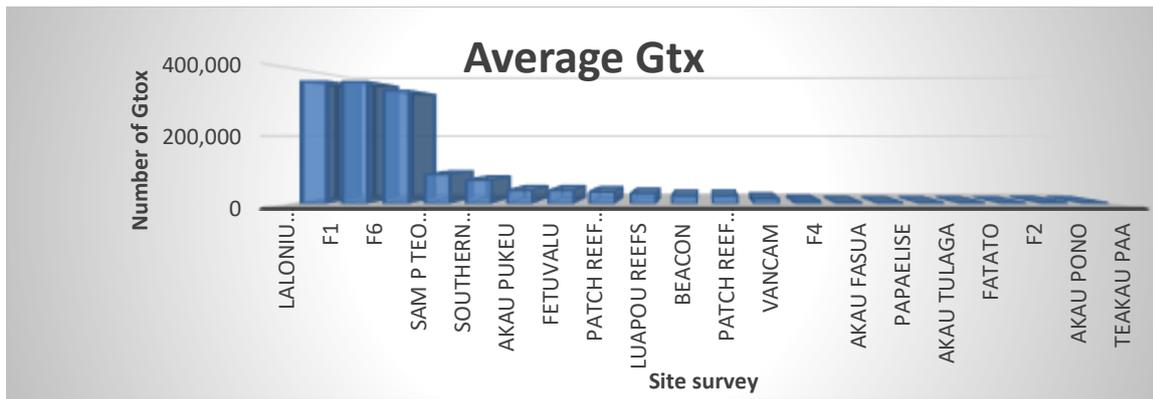


Figure 13: Average cell counts of Gambierdiscus toxicus per 100g of host algae at sites in Funafuti lagoon 2016–2018

### 5.2.3 Ciguatera cases

Ciguatera Fish Poisoning (CFP) continues to be a concern in some islands but is no longer as serious as it was in the past few years. Regular CFP assessments were conducted on all islands throughout the year during each metronome trip, where information was gathered on cases of poisoning in humans. The numbers of CFP cases were normally obtained from hospitals on each island by using a data sheet, which were then all brought back to Funafuti and transferred into a database in the office.

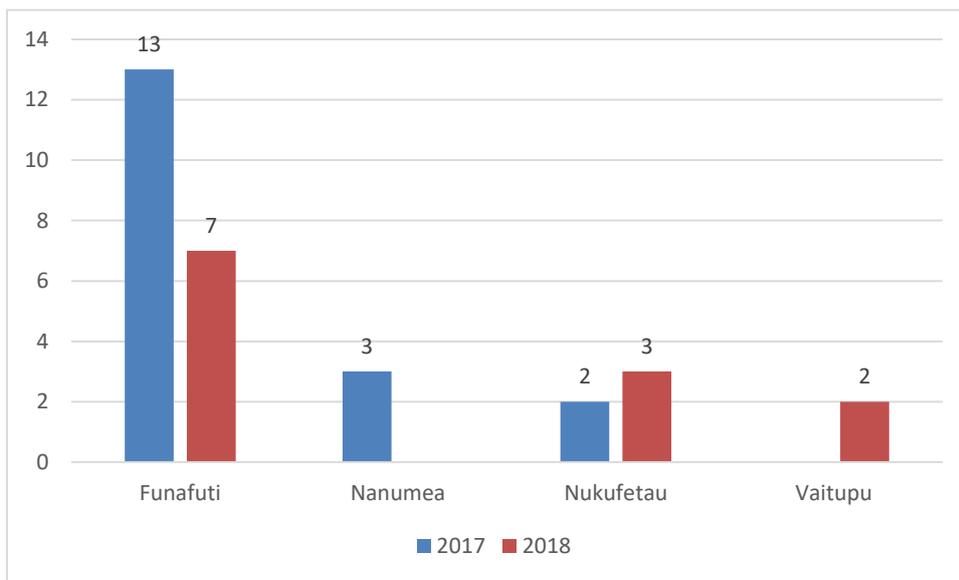


Figure 14: Ciguatera Fish Poisoning (CFP) cases 2017 & 2018

The graph above shows that there is a decrease in the number of cases in Funafuti for this year. Most of this cases has found that *Cheilinus undulatus* (Tagafa) is the main reef fish causing CFP and only few cases caused by *Siganus argenteus* (Maiava), *Plectropomus laevis* (Tonu gatala), *Cephalopholis argus* (Loi).

Apart from Funafuti, Vaitupu has had 2 cases for this year in which the primary reef fish causing CFP is *Acanthurus triostegus* (Manini), and it is the first time to record that this species could be poisonous compared with previous recorded cases. Nukufetau has slightly increased incidence and Nanumea has no case of CFP for 2018.



Figure 15: Species implicated in Ciguatera poisoning in 2018

#### 5.2.4 Boat and canoe survey

This particular survey was conducted on all islands during metronome trips except for the island of Funafuti which is not a part of the scheduled metronome trips. During the survey, officers recorded the measurement for the length of the boat, material of which the boat was built and the GPS reading for the exact location where the boat is located. A total of 401 canoes and boats were surveyed in 2018, with an overall number of 281 boats and 120 canoes. The results show that the northern islands (Nanumea, Nanumaga and Niutao) continue to rely heavily on canoe fishing. The highest numbers of boats were observed for the islands of Nanumaga, Nukufetau and Nukulaelae. More information and details of the results of the survey can be found in the Metronome Trip reports (8 & 9).

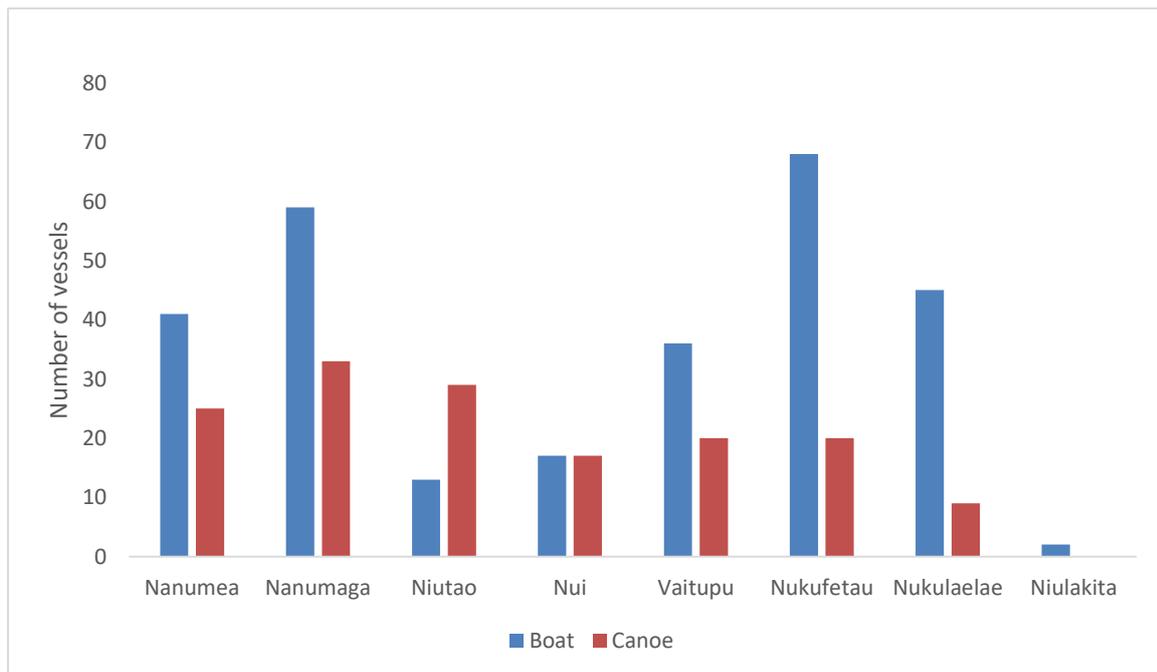


Figure 16: Summary of boat and canoe surveys results on all islands showing the number of each vessel type

### 5.3 Outer Island Support Programme

#### 5.3.1 Metronome trips



Figure 17: Group photo of community meeting in Nanumea

The Support Programme for Outer Islands has now been existing through the four metronome trips annually under the signed MOU between Tuvalu Fisheries Department (TFD) and the Outer Islands Kaupule for all the islands of Tuvalu from 2017-2019. These trips were made possible through the funding from projects: Pacific Regional Oceanscape Programme (PROP), Tuvalu Ridge to Reef (R2R) and Tuvalu National Adaptation Programme of Action (NAPA) II. These are ongoing fisheries support activities to the outer islands undertaken by Coastal officers to execute mandated activities under their scheduled work plans. Trips were made possible via charters of RV Tala Moana, FV Manauai and the normal routes of the MV Manufolau and MV Nivaga III during the year.

The overall objectives of the metronome trips are:

- i) Development of Community Based Integrated Management and Monitoring plans for all outer islands
- ii) Creel sampling survey
- iii) Ciguatera Fish Poisoning (CFP) survey
- iv) Evaluation of the Community Fisheries Centers (CFCs)
- v) Independent boat and canoe survey
- vi) Locally Managed Marine Area (LMMA) and Marine Protected Area (MPA) work
- vii) Fish Aggregating Devices (FADs) visits
- viii) Island profile work
- ix) Awareness programs; Community capacity building workshops and school awareness programs.

Moreover, these trips are implemented in cooperation with the Operation and Development section, NAPA II officer, R2R officer and Environment officers in related work activities within their scope of work. The table below shows the scheduled metronome trips from the year 2017 to 2019.

**Table 14:** Metronome trip schedule of planned outer islands survey trips to 2019

Year	Metronome	Islands	Start date	Finish date
<b>2017</b>	Metro 4 North (Manau)i	Nanumea, Nanumaga, Niutao	4/3/17	2/4/17
	Metro 5 Central (Manau)i	Nui, Nukufetau, Vaitupu	15/5/17	14/6/17
	Metro 6 South (Talamoana)	Nukulaelae, Niulakita	1/8/17	15/8/17
	Metro 7 North (Talamoana)	Nanumea, Nanumaga, Niutao	22/9/17	21/10/17
<b>2018</b>	Metro 8 Central (Talamoana)	Nui, Nukufetau, Vaitupu	1/3/18	30/3/18
	Metro 9 South (Talamoana)	Nukulaelae, Niulakita	15/5/18	31/5/18
	Metro 10 North (Talamoana)	Nanumea, Nanumaga, Niutao	1/8/18	30/8/18
	Metro 11 Central (Talamoana)	Nui, Nukufetau, Vaitupu	22/9/18	21/10/18
<b>2019</b>	Metro 12 South (Talamoana)	Nukulaelae, Niulakita	1/3/19	30/3/19
	Metro 13 North (Talamoana)	Nanumea, Nanumaga, Niutao	15/5/19	14/6/19
	Metro 14 Central (Talamoana)	Nui, Nukufetau, Vaitupu	1/8/19	30/8/19
	Metro 15 South (Talamoana)	Nukulaelae, Niulakita	22/9/19	7/10/19

### 5.3.2 Outer island quarterly visits



Outer islands quarterly visits are a regular activity continuing from the year of 2017 when it was first introduced. The purpose is to establish and maintain good communication and association with the outer islands Kaupule and outer islands data collectors (OIDC), as well as to maintain good quality data for the creel survey programme. An additional activity that was implemented during the quarterly visits was the dropping off of OIDC motorbikes to the respective outer islands. A total of 8 quarterly visits were conducted in the year to the island groups via normal routes of the MV

Manufofau and MV Nivaga III usually by two Coastal fisheries officers per visit.

### 5.4 Funafuti Coastal Management

Funafuti coastal management is a unit within the Coastal Division dedicated to oversee coastal fisheries related issues that exist within Funafuti. The Funafuti coastal section unit was initially introduced by the recently reviewed structure, recommended for the reason that more than 60 percent of Tuvalu’s population reside on the capital Funafuti. Thus the overpopulation on a small island like Funafuti will naturally cause a significant amount of coastal fisheries related issues.

#### 5.4.1 FRFSP

The Funafuti Reef Fisheries Stewardship Plan is a plan that was put together by the Tuvalu coastal fisheries collectively with the community of Funafuti and other stakeholders in 2017 to minimize the impacts of coastal fisheries issues within Funafuti coastal waters.



The FRFSP is projected to operate within a 5 year span and 2018 is the starting year for the FRFSP's implementation year. The coastal fisheries team is to assist the Funafuti Kaupule in achieving the anticipated goals and objectives of the FRFSP. This can be in terms of providing technical assistance, creating relevant TOR's for procurement purposes, and assisting in MCS activities. To begin with, the coastal Fisheries section worked coherently with the Kaupule of Funafuti in developing an action plan for

FRFSP. The plan will allocate the specifics for the operational year of 2018. The Fisheries department also assisted the Kaupule in terms of awareness programs such as field trip visits to the conservation area with primary and secondary students. The Fisheries Department was also heavily involved in procuring materials through PROP and R2R for demarcating the new boundary of the conservation area. A consultation to review the FRFSP was conducted late December to end a very busy year for the Funafuti coastal team.

#### 5.5 Other Activities

##### 5.5.1 Sea-cucumber survey

The coastal division's resource assessment management unit was given a task to execute by the Director of Fisheries. This was to review the status of Sea cucumber (Beche-de-mer) within Funafuti coastal waters. The Beche-de mer trade was first promoted in 1978 when surveys took place on all islands but only Nukufetau and Funafuti were considered to have commercially viable stocks. TFD purchased and sold product to overseas markets, and in 1979 exported 1.8 tonnes at a value of \$7,100 and 805kg exported in 1980 at a total value of A\$4,000. Apart from small quantities exported in the early 1980s, exports then ceased for the next decade and resumed on a small scale in 1993. After reviewing the biological characteristics of key species in Tuvalu only nine species were identified.

Even though it was evident that the resource was very limited and beche-de mer fisheries have produced numerous diver fatalities in Pacific Island countries, in 2009 a new operation commenced in partnership with a Chinese company. Without any management measures or a quota system in place the sea cucumber resources were nearly depleted from the coastal waters of Funafuti. Thus the need for the survey to be conducted to check the current status of the stock and also to determine what management strategies should be applied on beche-de mer.

### 5.5.2 MPI training NZ



*Figure 18: TFD Coastal staff and participants from the Pacific with organizers from NZ MPI.*

This training was organized and funded by the New Zealand Ministry of Primary Industries (MPI) in line with its Memorandum of Understanding on Pacific Capacity development. Two training events took place in the year of 2018, one in the month of February in which four staff participated in this short-term training attachment in Auckland. A second training was conducted in the month of December for the remaining staff (3) so that all staff in the Coastal section were able to have the opportunity to attend this important training programme.

The main objectives of the trip were to:

- Observe daily operations and compliance work of NZ MPI Fisheries
- Conduct inshore discussions on management plans, consultations and engagement, implementations and review
- Exchange information between Tuvalu Inshore Fisheries and MPI Fisheries on relevant fisheries activities
- Attend inspections of small-scale commercial fisheries, recreational fishing activities and commercial reporting requirements in action
- Attend the Business Writing workshop conducted by Write Ltd and the Data analysis workshop
- Learn and share experiences for working with community members and effective methods in getting the message across.



*Figure 19 – Auckland Fish Market and Compliance Activities*

### **5.5.3 RTMCF 2**

The Regional Technical Meeting on Coastal Fisheries (RCTMF) meeting is intended to focus on specific issues with input from member country government and territory administrations. The make-up of the meeting is also to maximize country input through group discussions and plenary sessions. SPC views this as essential for longer-term planning and will also be of considerable assistance to other agencies, regional NGOs and donors interested in national as well as regional coastal fisheries issues and sustainable management.

The overarching theme for RTMCF 2 was to discuss and address some of the main issues affecting coastal fisheries in support of better resource management, equitable access to resources and the safety of fishers.

Four Fisheries senior staff attended the RTMCF 2 with the goal to acquire optimum results in terms for the Fisheries mandated activities mainly in coastal fisheries data collection. Data collection has been an issue for Tuvalu; accumulating the paper trail and gruelling hours of data entry has been a concern for the Fisheries Department. The Tuvalu Fisheries Department would like the member countries to support a program/app where all the data entry for the concerned country is available and the data entry can be much more instantaneous and uploaded to a cloud server. The meeting was held in Noumea New Caledonia at the SPC main conference room from the 12<sup>th</sup> to the 15<sup>th</sup> of November 2018.

## **5.6 Project Funding**

### **5.6.1 NAPA II and R2R Project**

The Fisheries Department have continued to support the activities that are in-line with NAPA II and R2R. The fisheries coastal section assisted the R2R in the Development of Community Based Integrated Management and Monitoring plans for all islands covering and completing eight of the nine islands in 2018 (Funafuti, Nanumea, Nanumaga, Niutao, Nui, Nukufetau, Nukulaelae & Niulakita). The plan for Vaitupu will be completed in early 2019.

### **5.6.2 Pacific Regional Ocean-scape Program (PROP)**

PROP has played a major role in assisting the coastal fisheries section in producing and delivering quality services to the public, this was done by providing the coastal fisheries with ample financial assistance. The outer island consultations and metronome activities were all financed by PROP alongside materials for the Funafuti conservation area such as marker buoys and solar lights, night vision binoculars for MCS purposes, diving gear, research equipment and much more. The PROP assistance towards the fisheries coastal division will continue for another additional 2 years, and perhaps longer if the project can be extended.

## 6 Operation and Development Activities

### 6.1 General

Artisanal fishing is very important to all families in Tuvalu as their source of living, and therefore Operation and Development is devoted to helping artisanal fishers and their families to ensure safe fishing operations, good catch returns, sustainable fishing operations and healthy fish products. As such, the Operation and Development Unit has been and will continue to provide technical support to outer islands whenever the need arises. Unfortunately, there are times when such services are unable to deliver to those in the outer islands due to the lack of staff. Nonetheless, there were many achievements made throughout this year. Given below are the full details of all the activities undertaken.

### 6.2 Manau

On March 3 2018, “FV Manau” was re-launched from the slip and ready for operation. Despite her frequent breakdowns throughout the year due to her age, she successfully executed all charter requests. She successfully executed 31 charters before she was brought back to slip on November 20.

*Table 15: Manau Trip Summary*

Categorizing and Purpose	Total
<b>Fisheries Official Trips</b>	<b>12</b>
Metronome Trip	5
Installation of VHF radio phone	3
Fishing Trip - PLG, FOFA & Nukulaelae	3
<b>Projects Trip</b>	
NAPA II	1
<b>Government Official Trips</b>	<b>9</b>
Education	5
Agriculture - transportation of vegetables	1
Lands - Tidal gauge survey	2
Retreat MISS SIPIKANA	1
<b>Private Trips</b>	<b>10</b>
Transportation of cargo	2
Family picnic to Funafala and Fualefeke	7
Diversion - deceased family	1

*Table 16: Manau Fuel Use (March – December)*

No. of Trips 2018	Fuel Received 2018 (ltr)	Fuel Consumed 2018 (ltr)	Fuel leftover 2018 (ltr)
31	23,104	22,049	1,055

Keeping the Manau operational is the section's priority while waiting for her replacement. Agreement for the construction of the new Manau has been reached with JICA and signed by both parties in mid-December, but the Manau will still need to operate for some time to come.

### 6.3 Tala Moana

Tala Moana also provided an important service for TFD and for other Government Departments and Projects. During the year 25 charters were completed as follows:

**Table 17:** Tala Moana Charters

Category and Purpose	Total
Fisheries Official Trips	<b>5</b>
<b>Metronome trips</b>	4
<b>Environment week awareness program - Coastal</b>	1
Project Trips	<b>16</b>
<b>Ridge to reef - Monitoring of Outer island activities</b>	3
<b>CCECC - Consultation and survey on boat harbours to Outer islands</b>	9
<b>Climate Change - Developing climate change policy for outer islands</b>	1
<b>Climate Change - Disaster Act consultation</b>	1
<b>Strengthening of water security in vulnerable low lying states</b>	1
Government Official Trips	<b>2</b>
<b>Visiting and outreach program to all outer islands</b>	1
<b>Emergency</b>	1
Pending charter	<b>1</b>
<b>TEC - New York team project site visit to Vaitupu</b>	1
Outstanding Charter	<b>1</b>
<b>Metronome trip 11</b>	1
Grand Total	<b>25</b>

#### **6.4 Mechanical Workshop**

The core activity of the Mechanical Workshop Section is to keep the Department's fleet of vehicles, plant and equipment operational, and also for consultancy services and advice in the field of mechanical engineering.

The mechanical section undertook the following activities during the year:

##### **First Quarter:**

- Maintenance of the Manauai
- Clear out of the cargoes from the marine shed.
- Installation of new unit for ice machine
- Installation of Te Manauai anchor windlass
- Replacing of wire cable on winch
- Installation of lower units for coastal new boat funded under PROP
- Cleaning of the workshop and Manauai's office
- Maintenance of PS car.

##### **Second Quarter:**

###### ICE MAKER

- Repairing of leaking water tank
- Adding/Operating of extra water tanks
- Cleaning of defrost tank
- Plumbing of pipes from old tanks to new

- Maintenance of ice maker machine

**BOATS:**

- Top up of oil of boats for Oceanic, Coastal and Operation sections

**VEHICLES:**

- Inspecting and maintenance of crane truck. Changing of hydraulic oil and joining of hydraulic pipes
- Maintenance of PROP vehicle and tinting its windows
- Maintenance of all fisheries vehicles.

**OTHER ACTIVITIES:**

- Assisting with Keizo's workshop/training on how to use power/electric drills, fishing of Lure, and driving him on his fishing expedition.
- Assist Sakonju in fixing the leakage problem for ice maker machine, observing and detecting the ramp for winching of Te Manau and planning for renovation of that (JICA to fund this project).
- Assisting with Coastal trip to Fualopa Islet
- Repairing of Talamoana refrigerator

**Third Quarter:**

Maintenance/repair of all Ministry's vehicles:

- Fisheries vehicle
- Lands departments' vehicle
- Crane truck
- Coastal departments' trikes.

N.B: there were various problems faced during this period such as the need of an assistant or extra hands for the job, diagnostic system for guidance and insufficient tools needed for the job.

**Fourth Quarter:**

- Maintenance/ repairing of PS vehicle – installing of new injectors that enable the vehicle to run again.
- Working together with the Manau crew in mounting of trailer winch for Te Manau.
- Replacing of all light bulbs at workshop.

**6.5 Ice Supply**

Since the closure of the NAFICOT some years back, ice service was adopted and managed by the operation and development unit. Ice is sold to the public by the bucket at a price depending on the size of the bucket, the highest being \$3.50 for a 10 litre bucket. This year, a record for low sales of \$13,838.10 was collected, much less than previous years. The section identified the issues that resulted in the low sales:

1. Frequent leakage of refrigerant gas
2. Frequent water shortages as gutters are not properly mounted on the roof and long delays to refill the tanks by PWD, especially during the drought season.
3. Power cut due to non-payment and long delays in processing payments
4. In 2018 no dedicated staff to sell and monitor ice during working hours
5. Frequent break downs of ice machine and long delays in repairs

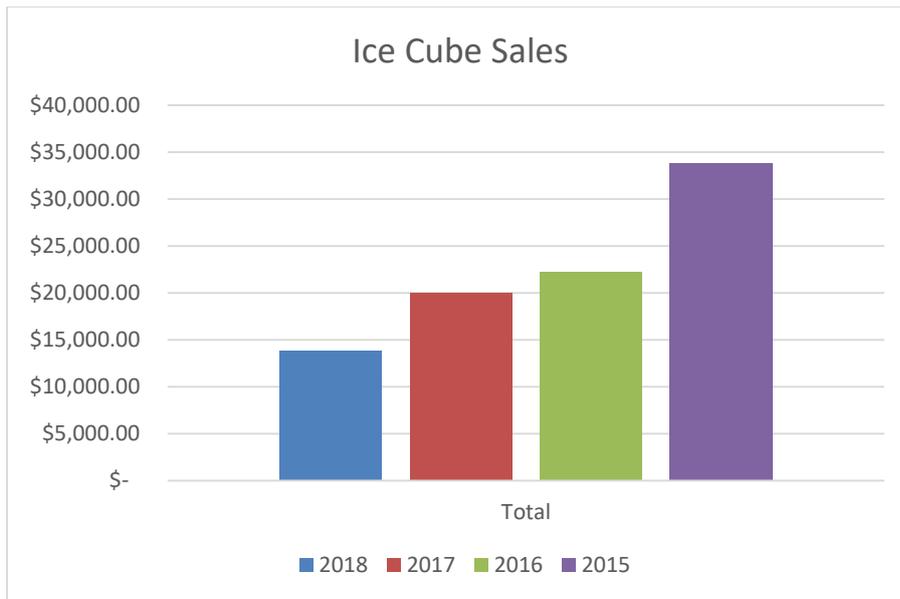


Figure 20: Ice sales revenue for the past 4 years

Our records show that ice sales have been declining for the past 4 years and will continue to do so if issues raised above are not taken in to consideration. Therefore, the section will treat these issues seriously and work on areas that need to be addressed.

### 6.6 Community Fisheries Training Centres

The failure of completing this activity since 2017 has motivated the Department and the NAPA 2 Project to push through and work hard to get some results. However, all the hard work and efforts put to this activity has paid off. Between September and October 2018, training centres on Nanumaga, Niutao, Nui, Vaitupu, and Nukulaelae were finally completed, while Nanumea and Nukufetau were completed in December. Training centres on the central islands are now open for business.



Figure 21: Images of CFC Training Centres on the Islands

## 6.7 Fisheries Training and Development Activities

### 6.7.1 Sea Safety Gears Survey

Operation and Development section initiated this activity to closely monitor the use of these grab bags. There are 160 bags altogether distributed to fishers, and it is our duty and responsibility to ensure the appropriate use of these bags and also to identify the items that are not functional and to be replaced if possible.

During our survey on Nanumaga Island, we found out that three (3) grab bags are missing on the Island. According to the fishermen's report the users of the three (3) grab bags are residing on Funafuti and took the bags with them. Hence, Operation staff closely monitored the movements of these bags and later acted in retrieving these bags and returning them to the Islands.

The table below shows our findings on items needing to be replaced.

**Table 18:** Results of checks on sea safety grab bags

#### Niutao

<i>Grab Bag User</i>	<i>Item</i>	<i>Status of Item</i>
<b>Tavita</b>	PLB	Activated
<b>Teleke</b>	Strobe light	Damage

#### Nanumea

<i>Grab Bag User</i>	<i>Item</i>	<i>Status of Item</i>
<b>Tailolo</b>	Map Compass	Lost
<b>Vaiuli</b>	VHF	Damage
<b>Neia</b>	Map Compass	Damage

#### Nanumaga

<i>Grab Bag User</i>	<i>Item</i>	<i>Status of Item</i>
<b>Sikiga</b>	Sea anchor	Damage
<b>Teinamasi</b>	Strobe light	Damage
<b>Telulu</b>	GPS	Damage
<b>Muliao</b>	Laser flare	Damage
<b>Muliao</b>	Strobe light	Lost
<b>Tekaile</b>	PLB	Damage
<b>Tekaile</b>	Mirror	Damage

#### Nui

<i>Grab Bag User</i>	<i>Item</i>	<i>Status of Item</i>
<b>Makitou Taeia</b>	VHF	Damage
<b>Makitou Taeia</b>	PLB	Damage (No power)

#### Nukufetau

<i>Grab Bag User</i>	<i>Item</i>	<i>Status of Item</i>
<b>Nukutasi</b>	Strobe light	Damage
<b>Kautapane</b>	GPS	Damage

#### Fishermen who had incidents during fishing operation

<i>Grab Bag User</i>	<i>Item</i>	<i>Status of Item</i>
<b>Minista</b>	PLB	Activated
<b>Minista</b>	Sea anchor	Damage
<b>Tavita</b>	PLB	Activated

There were two (2) major incidents this year due to out-board motor breakdowns. In both incidents the fishermen were rescued after the activation of Personal Locator Beacons, a device that tracks their movements during the emergency. The rescue of these fishers was highlighted as an achievement for the section following their hard-work and effort put to this sea safety training program into practice.

#### *6.7.2 Fish Preservation Training (Smoked Fish and Bottling)*

Tuvaluan people have been longing to learn new techniques on how to preserve their fish products sustainably. TFD through Operation and Development section was fortunate to provide such training to the communities with the support of NAPA 2 project. These two training courses had 2 components; one is the classroom session, which provides a platform for the participants to understand the causes of fish spoilage and the importance of preserving fish; and two is the practical session, in which participants participated in hands-on activities, such as Filleting, Marinating, Cooking, Etc. Participants were very eager to take part in this workshop training, as they found it very interesting and new to the community. These training events attracted a very large number of participants compared to other fisheries activities held in the past.



*Figure 22: Fish preservation training courses*

#### *6.7.3 FAD Program*

It has been confirmed that all FADs in the Outer Islands had gone missing except the Nanumea offshore FAD which still exists. The Department had no knowledge of how and when the FADs had gone missing due to poor collaboration between Kaupule and Fishermen’s Associations in terms of reporting. It is clearly stated in the Memorandum of Understanding (MOU) that both parties (Kaupule and Fishers) are responsible for reporting of any FAD incidents or losses, however they failed to do so.

FAD Deployment was a planned activity for the section this year but due to some delays in the procurement process and staff shortages the section were unable to execute this activity. However, 4 FADs on each island are now ready to be deployed and with the echo sounder procured and the temporary Assistant Training and Development Officer onboard, deployment will start in the first half of March 2019.

#### *6.7.4 Land-Based VHF radio station*

In September a fisheries team were deployed to install these systems in all Islands, and in November the installation process was completed. VHF Land-Based stations are now established and operating well. This activity is part of the Department’s Sea Safety program,

which enables fishers with grab bags, or any fisher who can access a portable VHF radio, to communicate to land in the event of an emergency. The system will be under the care of the Kaupule and the Fishermen’s Associations on the Outer Islands.



Figure 23: VHF Radio installations in the outer islands

## 7 Donor funding and projects

### 7.1 General

Over the past years, Tuvalu has benefitted from the generous support of donor agencies including New Zealand, UNDP, EU, Japan, Taiwan and many other organizations and countries. There are now several major projects under way, as described in the following paragraphs. These projects and programmes are fully integrated into the TFD work programme and support many of the activities already described in earlier sections of this report.

### 7.2 NZ Tuvalu Fisheries Support Programme (TFSP)

The TFSP commenced in July 2014 and supports the TFD through three major elements:

- Provision of technical assistance to the TFD through assignment of a Lead Advisor and an Inshore Fisheries Advisor.
- Construction of a new office building, completed in late 2017;
- A Grant Financing Agreement (GFA) for NZ\$1.71 million over a 5-year period (the amount of the initial grant increased during 2015, when additional funds were made available for fishery sector rehabilitation activities following tropical cyclone Pam, and then again in 2017 when funding was allocated to cover the cost of furniture for the new office building).

The first two activities are managed directly by NZ MFAT, while the GFA is managed by the TFD.

During 2018 a further GFA was agreed with New Zealand for NZ\$730,000 to provide a solar powered electricity supply for the new Fisheries office building. This will be installed during 2019.

### **7.3 World Bank Pacific Regional Oceanscape Programme (PROP)**

The Pacific Regional Oceanscape Programme (PROP) is a multi-country programme which supports economic development through better fisheries management in four countries initially: Solomon Islands, Federated States of Micronesia, Marshall Islands and Tuvalu. Other Pacific Island Countries that are members of the World Bank are expected to join the programme in due course. There is also a regional component of the programme, being managed by FFA and involving the PNA office, SPC and PIFS.

The Tuvalu Component of the PROP was declared effective on 9th June 2015. Over the next 6 years the PROP is providing additional support to the TFD to complement that being made available under the TFSP, and also supporting other Tuvalu agencies, in particular the Maritime Police. The SMC provides guidance on the priorities for the PROP.

Most of the programme is funded under an IDA grant. This is complemented by a GEF grant of \$1million specifically for conservation of the Funafuti lagoon.

### **7.4 UN/GEF National Adaptation Programme of Action (NAPA II)**

Tuvalu's National Adaptation Programme of Action (NAPA) II project seeks to provide "Effective and responsive island-level governance to secure and diversify climate resilient marine-based coastal livelihoods and enhance climate hazard response capacity." Funded by the United National Development Programme (UNDP) and the Global Environment Facility (GEF), NAPA II focuses on implementing three priorities outlined in Tuvalu's NAPA, on building resilience to climate change (i) in marine-based livelihoods, by (ii) improving access to disaster early warning systems for people on outer islands and (iii) through integrating climate change concerns into outer Island Strategic Plans and building capacities of outer island administrations.

The Coastal Fisheries Section has two NAPA II officers specifically recruited to implement the fisheries components of the project. These worked with the Fisheries Department through 2018, but this is the last year of the project.

### **7.5 UN/GEF Ridge to Reef Project (R2R)**

The GEF Pacific Ridge to Reef Programme seeks to maintain and enhance ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal resource management. The purpose of focusing on these areas is to effect poverty reduction, sustainable livelihoods and climate resilience for the people of the Pacific. In Tuvalu, the R2R project is focused on water and sanitation. In Funafuti, the estimated demand for freshwater is close to the estimated sustainable freshwater yield and poorly treated wastewater is discharged to groundwater and excess sludge is simply removed to pits.

Although the programme is headed by the Environment Department, the Fisheries Department has been working closely with project staff to develop plans for resource management in each island, using a consultative process, during 2018.

### **7.6 Other Assistance**

The Department has benefited from 'in-kind' assistance from OFCF with fisheries training as well as repair and maintenance of equipment. A full time TA is posted to the Operation section. As noted earlier, JICA will start the process of building a replacement for the Manau in 2019, continuing a long tradition of Japanese support for the sector.

TFD also receives technical assistance from SPC and FFA staff and consultants, and benefits from the US Treaty Project Development Fund (PDF) administered by FFA.

## **8 Issues and challenges**

### **8.1 Low recurrent budget allocations**

Although there was a significant increase on 2017, the 2018 recurrent budget allocation was again too low for an effective Fisheries Department (see Table 1). The Department cannot rely on its recurrent budget to implement its activities, since around 80% of the allocated budget is for staff salaries. While the Department has been able to secure donor funding to meet other needs, these projects are all of limited duration.

### **8.2 Staff retention and turnover**

The Department continues to experience a high level of staff turnover as qualified fisheries personnel leave to take up work overseas, in regional organisations and projects, or take advantage of long term training awards.

