

TUVALU FISHERIES DEPARTMENT

ANNUAL REPORT 2019



Annual Report 2019



Tuvalu Fisheries Department
Ministry of Fisheries and Trade
Government of Tuvalu



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Funafuti, Tuvalu
March 2020

Acronyms & Terms

AA	Access agreement	O&D	Operation and Development Section (of the TFD)
AG	Attorney-General	OFCF	Overseas Fishery Cooperation Foundation, Japan
ALB	Albacore tuna	OI	Outer Island
AUD	Australian dollar	PADI	Professional Association of Diving Instructors
AWP	Annual Work Plan	PAE	Party Allowable Effort (under the VDS)
BDM	Beche-de-mer	PERMU	Public Enterprise Reform Management Unit
BET	Bigeye tuna	PFO	Principal Fisheries Officer
CFC	Community Fishing Centre	PIRFO	Pacific Island Regional Fishery Observer
CFP	Ciguatera fish poisoning	PL	Pole and line
CMM	Conservation and Management Measure (of the WCPFC)	PNA/O	Parties to the Nauru Agreement / Office
CP1	TFD first Corporate Plan (2014-2016)	PROP	Pacific Regional Oceanscape Programme
CP2	TFD second Corporate Plan (2017-2019)	PS	Purse seine
EEZ	Exclusive economic zone	PWD	Public Works Department
EU	European Union	R2R	Ridge to Reef Project
FAD	Fish-aggregation device	RFV	Register of Fishing Vessels
FCA	Funafuti Conservation Area	RIMF	Regional Information Management Framework
FFA	Forum Fisheries Agency	SC	Science Committee
FFV	Foreign fishing vessel	SDF	Special Development Fund (of the Government of Tuvalu)
FIMS	Fishery Information Management System (of PNA)	SDG	Sustainable Development Goal
FO	Fisheries Officer	SFO	Senior Fisheries Officer
FSMA	FSM Arrangement (for concessional fishery access between PNA domestic purse-seiners)	SKJ	Skipjack tuna
GEF	Global Environment Facility	SMC	Senior Management Committee
GIS	Geographic Information System	SOP	Standard Operating Procedures
GOT	Government of Tuvalu	SPC	Secretariat of the Pacific Community
GRT	Gross Registered Tonnage	SRP	Sub-Regional Pool (of the VDS)
HRD	Human resource development	STCW	Standards of Training, Certification and Watchkeeping for Seafarers
IFA	Inshore Fisheries Advisor	TCC	Technical and Compliance Committee
IMO	International Maritime Organisation	TDF	Tuvalu Development Fund
IT	Information technology	TFD	Tuvalu Fisheries Department
IUU	Illegal, unregulated and unreported fishing	TFSP	Tuvalu Fisheries Support Programme (MFAT)
JICA	Japan International Cooperation Agency	TKIII	Te Kakeega III: National Strategy for Sustainable Development 2015-2020
LL	Longline	TMTI	Tuvalu Maritime Training Institute
MCS	Monitoring, control & surveillance	TNOP	Tuvalu National Observer Programme
MCSWG	MCS working group, FFA	TOR	Terms of reference
MFED	Ministry of Finance and Economic Development	TTC	Tuvalu Telecommunications Corporation
MNR	Ministry of Natural Resources	UNDP	United Nations Development Project
MPI	Ministry of Primary Industries (of New Zealand)	UST	United States Tuna Treaty
MRA	Marine Resources Act	UVC	Underwater visual census
MSC	Marine Stewardship Council	VD/ VDS	Vessel Day/ Vessel Day Scheme
MT/mt	Metric tonnes	VMS	Vessel Monitoring System
MTU	Mobile transmission units	WB	World Bank
NAFICOT	National Fisheries Corporation of Tuvalu	WCPFC	Western and Central Pacific Fisheries Commission
NAPA	National Adaptation Programme of Action	WCPO	Western and Central Pacific Ocean
NFD	Non-fishing days	YFT	Yellowfin tuna
NPOA	National plan of action (on IUU fishing)		

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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. The most recent household income and expenditure survey (2015/16) shows that 55% of households participate in fishing for subsistence and cash, although this rises to 75% in the outer islands. This is a reduction from previous surveys, and suggests a growing dependence on wages and salaries. Just under 10% of households regularly fish to sell their catches for cash. Fish consumption was estimated by this same survey at 72kgs/person/year (90kgs in the outer islands and 55kgs for Funafuti). Although this is still one of the highest consumption rates in the world, it also shows a decline over the past decade. Tuvalu waters are important for the two key industrial tuna fisheries of purse seine and longline. Fishing is generally 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 2019. In late 2019, a new Government changed the structure of ministries was changed, and TFD came under a new Ministry of Fisheries and Trade.

2019 represents the final year of the second Corporate Plan of the Fisheries Department. Where possible, activities are reported against the thematic areas identified in the 2019 AWP, based on this Corporate Plan.

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 2nd TFD Corporate Plan:

1. 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.
2. 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.
3. 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.
4. Tuvalu is fully compliant with the requirements of the WCPFC and other international fishery treaties to which it is a party.
5. Tuvalu meets the requirements of overseas market states in regard to IUU fishing and fishery product food safety.
6. 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.
7. 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.

8. 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.
9. 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.
10. 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.
11. Small-scale fisheries increasingly target a more diverse range of ocean resources in order to reduce fishing pressure on coastal species.
12. 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.
13. The TFD has reliable information on coastal fishery resources in each island on which to base the management advice it provides to Kaupule.
14. Conservation areas, by-laws and other fishery management arrangements have been established in those coastal fisheries where this is a high priority.
15. 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.
16. Improved office space, IT and internet facilities and other support arrangements have been established to allow improved delivery of TFD functions.
17. Appropriate TFD training and human resource management arrangements, including succession planning, have been implemented to support the optimum performance of the Department.
18. 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.
19. Stakeholders and the general public are aware of TFD activities that affect them, and participate in them in a supportive way
20. 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 final year of the Corporate Plan period. A new plan was developed during the year, covering 2020-2022, and this allows for completion of some unfinished business as well as a number of new initiatives organisation.

The TFD organisational structure, shown 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:

- PAn 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'i 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 2018 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:

- ✿ 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 were recruited in 2016 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 funded by the New Zealand Aid Programme, worked throughout the year; and an adviser from OFCF was also attached to the Department.

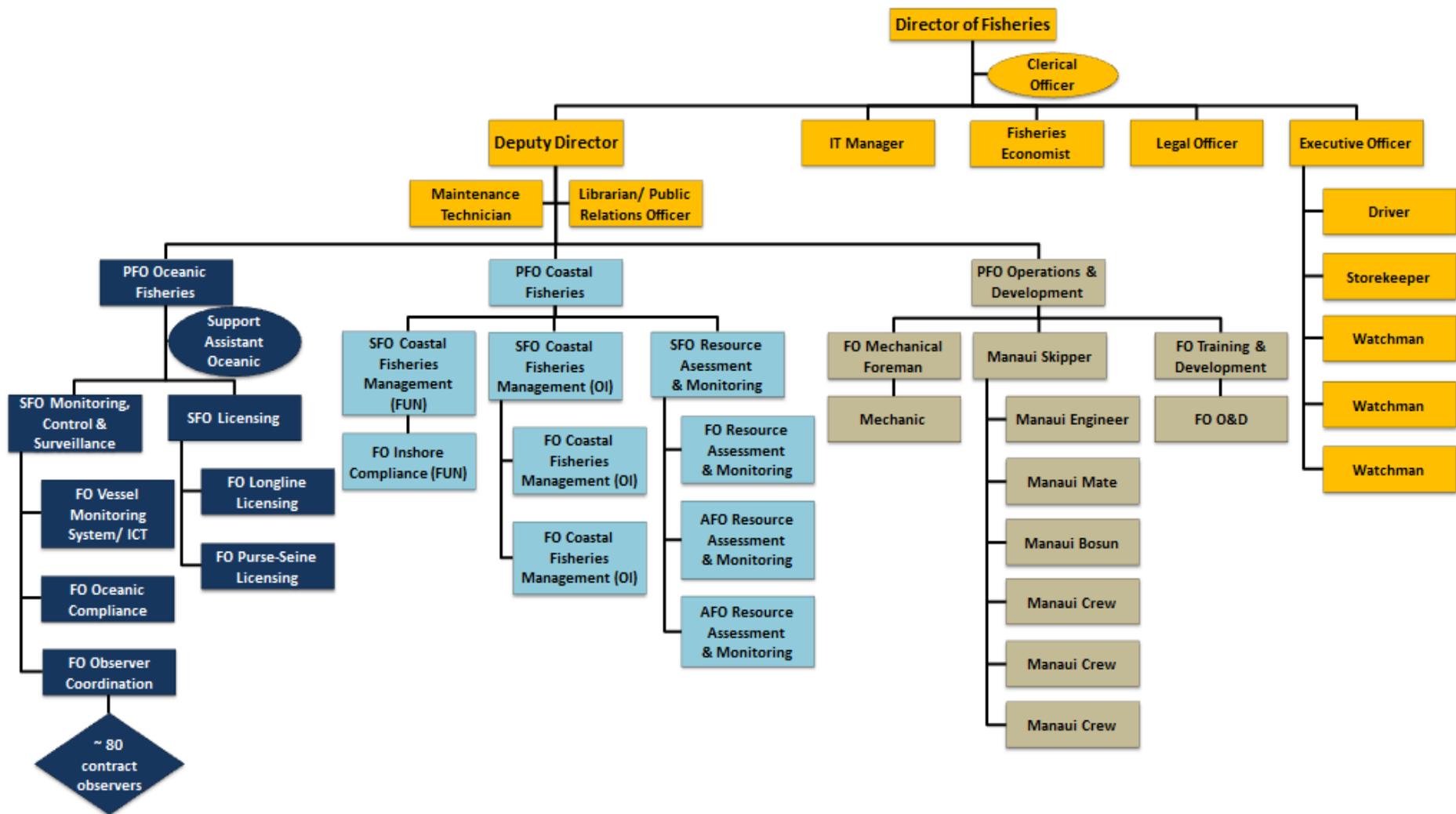


Figure 1: Tuvalu Fisheries Department Organisational Structure

In 2019 the Department also managed a pool of 77 trained and qualified fishery observers who are contracted to work on board fishing vessels when required (this has increased over time).

There were a fewer staff movements during 2019 than during previous years, but a number of key positions were left vacant for some time and interfered with delivery of the work programme. The Principal Fisheries Officer (Coastal) commenced long term training overseas, joining four other senior staff, and the Deputy Director post remained vacant throughout the year. On a positive note, a new Fisheries Economist joined the Department in late 2019, after completing a Master's programme in the UK; and the posts of Principal Fisheries Officer (Operation and Development), and Senior Fisheries Officer (Coastal Resource Assessment) were filled by substantive appointments. Staff turnover has been recognised as a significant problem likely to affect the work of the Department in recent years.

2.1.1 Assets and facilities

The new office facilities, funded by the New Zealand Government, provided a good work environment. The building was officially opened by the New Zealand Deputy Prime Minister on 2nd March. An important improvement to the building was undertaken during the second half of the year, with the installation of a photovoltaic solar power system, which meets the electricity needs of the office from renewable energy. This project was also funded by New Zealand.

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. Work continued on the design of a replacement for the *Manau*, funded by JICA, which will become available in 2021.

The NAPA2 and R2R projects on the other hand jointly procured an additional project vessel in mid-2015, 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.



Figure 2: Deputy Prime Minister of New Zealand with Tuvalu's Minister of Natural resources officially open the TFD Office

There is also a collection of vehicles, including a crane trucks, 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. Some of this equipment is now getting quite old – the ice machine and fisheries pick-up, for example, were not operational for much of the year.

The Department received new equipment in 2019, mainly funded by the World Bank PROP project. This included laboratory equipment, a high-performance drone for surveillance of Funafuti lagoon, and security cameras for the TFD Office.

2.2 Asset Management

Management of these various assets is the responsibility of the Fisheries Storeman, who has been compiling a comprehensive asset register during 2019. The Fisheries Storekeeper has been struggling with the preparation of reports to the Treasury Department and providing various documents to the Central Procurement Unit (CPU) in regards to procurement procedures, which have added to the workload. In May the Fisheries Adviser and the Fisheries Storekeeper developed the Department's instructions for the management of Fisheries assets, which have been approved by the Director and SMC. These asset management instructions were developed to ensure that all fisheries assets are not exposed to any loss or damage, and should be formally adopted in 2020 following clearance by the Attorney-General's office.

2.3 Budget

Fisheries licensing, access fees and investments continued to generate a significant proportion of Tuvalu Government revenues: estimated income for 2019 was nearly \$38 million – less than 2018 but these revenues 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 of strategies to promote Tuvalu's economic interests.

Although the TFD's recurrent budget allocations are far less than the true cost of running the organisation, there have been some increases in recent years. In 2019,

however, the recurrent budget allocation remained the same as the previous year at \$925,277; there was a small increase in the allocation for development expenditure to \$568,000.

The Department has greatly benefited from additional funding support to the fisheries sector from several major development partners:

- ✿ The New Zealand-Tuvalu Fishery Support Programme (TFSP) is provided operational support funding of NZ \$ 1,336,800 over the 5-year period which ended on 30th September 2019. Although all NZ funding was committed by that date, a number of activities continue into the first half of 2020, when a follow-up project will be designed.
- ✿ The World Bank Pacific Regional Oceanscape Programme (PROP), approved in December 2014, was designed to provide a total of US \$7,910,000 over a 6-year period that commenced in September 2014. During 2019 a 23 month no-cost extension of this project was agreed, although the formal restructure documentation will only be completed in 2020.
- ✿ 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 2019 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. 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.

Reports were prepared on the TFSP and PROP projects as required by the donors. Quarterly progress reports that were due for submission by Section heads proved

problematic. A new reporting format, which will be used mid-year to track progress with work plans, will be introduced in 2020.

3 Administration Section Activities

3.1 General

Many of the activities of the Administration Section during 2019 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. The fisheries library and the TFD website were updated and improved during the year.

3.2 Fishery Access Negotiations

A team led by the Minister of Natural Resources undertook fishery access negotiations in September with distant water fishing companies and associations for fishing in the Tuvalu EEZ. These focused on the number of fishing days and fees for each party, as well as introducing a number of new regional and national measures into the Access Agreements. A further round of negotiations to finalise these arrangements was completed in December, when the agreements were signed. It would be fair to say that conditions were quite challenging, after low tuna prices through 2019, with fewer days agreed for purchase under all arrangements.

3.3 Joint ventures

The case concerning a claim for a mortgage held against *Taumoana* by First Commercial Bank of Taiwan was contested in court through 2019, and a decision in Tuvalu's favour was finally delivered in December. Unfortunately First Commercial Bank have appealed the decision and submitted a further claim in early 2020, so further legal action will continue. The vessel has deteriorated considerably during the long period of detention in Majuro.

The second JV, TUSA, with the Korean fishing company Sajo continued operations of the Tuvalu-flagged purse seiner *Taina*, through 2019. The audited accounts of the company for 2018 were approved in a Board Meeting in May 2019, and showed a substantial profit for the year. Conditions in 2019 were more challenging, however, with low tuna prices and a breakdown affecting vessel operations, so no profit is expected for this year.

During 2019 negotiations on a joint venture with a second Korean fishing company, Dongwon Industries, continued through 2019. In August a decision to establish the JV company was made by Government, but the detailed agreements were still under discussion at the end of the year. As with the TUSA JV, TFD was assisted in this JV by the FFA who provided a vessel survey and valuation, legal advice on the agreements, and a review of the financial projections for the vessel.

The winding up of Tuvalu's longline JV – Friendly Tuna – was not implemented in 2019 as planned. This process will be completed in 2020.

3.4 NAFICOT

The National Fishing Corporation of Tuvalu (NAFICOT) Pty Ltd has been restructured to comply with the provisions of the Public Enterprises (Performance and Accountability) Act 2009, and incorporated under the Companies Act.

The NAFICOT Board of Directors had been established earlier in 2018, with the chairmanship by the Permanent Secretary of the Ministry responsible. The other four members of the Board have to be selected from public corporations and private sectors. Through 2019 one vacant position of the Board remained to be filled.

The NAFICOT management was finally established with the newly appointed Chief Executive Officer and the Financial Officer toward end of November 2019. They are temporarily provided with office space in the Fisheries Department Office at Teone while their office in the NAFICOT building is assessed for minor maintenance to the building. It is expected by June 2020 the management staff will move in to the new building including a new Administrative Officer. Currently the CEO is working closely with the Fisheries Department in developing policies for the operation of the NAFICOT and establishing/managing joint venture agreements with fishing partners from Korea.

NAFICOT receives a grant from Government (\$150,000 for 2020) and some revenue from a small property in the old Vaiaku Fusi. It is hoped that the joint venture arrangements will provide more substantial revenue from dividends in future. The NAFICOT accounts are only available from November 2019, but the corporation will submit quarterly reports to the Ministers responsible going forward.

3.5 Participation in regional meetings and workshops

The number of regional fisheries meetings continues to expand, with more than ten regional meetings in which Tuvalu has to attend and participate in. 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); and a range of technical meetings on MCS, observer programme management, fishery trade and economics, and others. Two important meetings that were more focused on coastal fisheries were organised by SPC.

3.6 Staff training and workshops

In addition to the meetings noted above, TFD staff attended various training workshops overseas, in order to build up their capacity in areas relevant to their work. On the Oceanic Fisheries side, several training workshops on the PNA Fisheries Information Management System (FIMS) were organised, and staff also participated in training on data collection and analysis, MCS, and other tuna-related workshops. In country workshops included consultations on a new crewing policy, development of a licensing handbook, a short course in management, and training in water quality monitoring and the use of the SPC TAILS system for outer islands data collectors.

3.7 Legal Services

The Fisheries Legal Officer (FLO) is responsible for giving legal advice to the TFD and also to prepare all necessary legal documents required. FLO completed a range of tasks in 2019, which included travel and advice at meetings and negotiations, as well as review and preparation of documents and a range of ad hoc advice on legal issues and processes. Important outputs completed during the year included:

- ✿ New access agreements for 2020 incorporating a range of new regional and national requirements;
- ✿ A new MOU with FFA on Aerial Surveillance, agreed by Government and signed;
- ✿ Agreed terms for Fisheries Revenue -Proposed Management & Control Process and Procedures;
- ✿ Draft employment contracts for NAFICOT staff;
- ✿ A consolidated draft of the Marine Resources Act incorporating all the amendments to the Act (this in consultation with FFA);
- ✿ Completion of draft Joint Venture agreements;
- ✿ Conclusion of the case on FV Taumoana in Tuvalu’s favour (providing support to private lawyer David Strauss);
- ✿ Agreement by Cabinet on a new crewing regulation (signed into effect in early 2020);
- ✿ An amendment to the Funafuti Conservation Areas Order (also signed into effect in early 2020).

3.8 Information Technology

In July 2019, the IT officer was appointed to the Tuvalu Public Service to continue to manage the Department’s IT systems with assistance from the international IT consultant. The majority of the work was normal day-to-day activities which involves maintaining and managing the computer network and security systems, databases as well as domain management.

One major accomplishment in 2019 was the development of the Management Information System (MIS) to centrally store and manage all electronic data for the department.

A number of activities were could not be completed due to delay in procurement processes, procuring of incorrect and incomplete IT equipment’s and incompatibility of computer systems.

As a way forward, it is important that all IT equipment is thoroughly assessed before procurement by the IT team to avoid delays and mistakes in future procurement and to allow more room for achievement.

3.9 Fisheries Economics

The Fisheries Economist works under the Administration section and is responsible for the provisions of economic advice to the Director of Fisheries in the formulation of policies on different arrangements that the Department is associated with. He also carries out economic analyses on major fisheries activities across the three different sections and provides recommendations to the Director of Fisheries for considerations. The fisheries economist resumed work in November 2019 from a long-term training and spent the last part of 2019 learning and familiarising himself with the fisheries systems.

3.10 Fisheries Adviser

The Fisheries Adviser is funded by New Zealand MFAT to provide advice and support on fisheries issues, primarily to the Minister, CEO and Director of Fisheries. He also acts as manager of the TFSP project. Achievements during the year included supporting the development of the new Corporate Plan, as well as completing the final year’s programme and reporting requirements for the TFSP project. He also assisted work in many areas described elsewhere in this report.

3.11 Public Information and Awareness Program

There are five collections within the library which include: periodicals, reference, main collection, audio/visual and the Tuvalu (country) collection.

Lately, the fisheries library repository has held approximately 3,198 soft copies within the fisheries library network shared drive, 96 hard/printed copies that have been manually catalogued and at the same time scanned, exporting into PDF's document. Recent documents and fisheries publications within the TFD website, include TFD Corporate Plan, Annual Work programs, yearly reports, Trip reports, Project documents and Due diligence, Managements plans, Technical reports, and Fisheries Legislation as well as notices and leaflets.

During the year there were some twenty library inquiries, includes overseas consultants, as well as fisheries staff who bases their research and workplace on the marine fisheries information. There are three recent documents formally published this year and e-copies were uploaded to the site which is: TFD Corporate Plan 2020/2022, Annual Report 2018 and the TFD Creel Survey Report No.2. Distributing of fisheries recent printed publications was also part of the information officer activity. Thus, printed copies of the three recent publications were distributed to Stakeholders, Private sectors and donors. Besides, the information officer is still working on improving the fisheries library by collecting fisheries-related data and maintaining the library both electronically and physically and also providing good services to work colleagues and patrons.

The public awareness program was part of the TFD ongoing activities for the year 2019. The Fisheries department conducted 7 radio awareness programmes. Below is a table listing Radio awareness programs. Apart from Radio awareness, there are also other awareness activities including preparation and advertisement of the World Tuna Day, ongoing of the TFD website with Fisheries vacancies advertised, fisheries progress reports, uploading the recent fisheries-related document to the internet site and also the printing of fisheries reports.

The Information officer had the opportunity to take part at the 2019 Taiwan Int'l Fisheries and seafood show in Kaoshiung, Taiwan represents the Tuvalu Fisheries Department. The primary intention and goal for attending the exhibition are to distinguish in which who may interest with the TFD pamphlets which contain data on commercial Tuna Fishing in Tuvalu plus TFD recent printed annual reports, work plans and Tuvalu common fish's posters.

The officer also served a two-week attachment training at the SPC in New Caledonia, Noumea. The attachment training focused on Communication activities, production and diffusion of information and materials for communities. Besides these trainings the officer also translate and voice out fisheries informational related short animated videos into local language (Tuvalu).The training was part of the Fisheries Department work program activity in 2015 but was achieved this year due to fiscal matters.

DATE	RESPONSIBLE SECTION	TOPIC	SUMMARY
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21 Jan 2019	Coastal	Update on Metronome trips and R2R activities to outer islands	Facilitator: Lale & Feagaiga Brief update on metronome trips to the outer islands plus activities that are done with collaboration with R2R Project.
14 Mar 2019	Admin	FRFSP	Facilitator: Samasoni (DOF) A summary update about the New Zealand Aid through the TFSP
26 April 2019	Admin	World Tuna Day	Facilitator: Matelina & Fetau Brief update on the Word Tuna Day event program and advertisement.
04 July 2019	Oceanic	Vessel Sighting	Facilitator: Saifoloi & Uni A brief update on vessel sighting includes: vessel monitoring system, FFA VMS tracking, types of fishing vessels, and the types of information collected when reporting.
10 July 2019	Oceanic	Vessel Sighting	Facilitator: Saifoloi & Uni A brief update on vessel sighting includes: vessel monitoring system, FFA VMS tracking, types of fishing vessels, and the types of information collected when reporting.
5 Aug 2019	FRFSP	Coastal	Facilitator: Sitia & Hetoa Brief update on the reviewing of the Funafuti Reef Stewardship Management Plan. Brief update on the status of implementing of activities of the FRFSP.
7 Dec 2019	FRFSP	Coastal	Facilitator: Sitia & Hetoa A brief update and advertisement on the FRFSP singing competition program

Table 1: Fisheries Radio Awareness Programmes during 2019

3.12 World Tuna Day

2019 was the first year for Tuvalu to celebrate World Tuna Day, with a programme of events leading up to the day itself on 2nd May. The Fisheries Department organized a range of activities for the public to mark this important event, which involved all staff of the Department working as a team. Events comprised: a Futsal tournament; a raw tuna dish competition; a fishing contest; boat racing; competitions in speeches, drawing, poems and essay writing on the subject of tuna; and a song competition.

These awareness activities were coordinated by the TFD in order for the public to engage and to recognize the importance of Tuna to our lives individually, to our families, our communities, our islands and especially to our country as a whole.

The Futsal tournament on Monday was the first activity that started the event. There were mixed teams from each of the eight islands competing, with the young boys and girls playing for their islands. This was followed by the fishing competition. The prize for the

biggest tuna was won with a yellowfin tuna of 65kgs. The prize for the most fish was won with a catch of 14 skipjack tuna.

The judges had a hard time deciding on the winners of the raw tuna dish competition, that same afternoon, due to the very high quality of the food prepared. Second prize was shared between three competitors. On Wednesday was the speech competition with speeches in Tuvaluan by Form 5 and Form 6 and English language speeches by Form 7 and USP Foundation students. The boat racing that afternoon drew a large crowd to the main wharf.

The programme highlight was on World Tuna Day itself: Thursday 2nd of May. Winners who competed in all the activities were awarded their prizes that day. The song contest was the final activity and this event entertained invited guests with original songs about tuna. The program of the World Tuna Day event ended at 2pm with entertainment from dancing groups from Motufoua secondary school and Fetuvalu High school, as well as the Underkavas live band.



Figure 3: 65kg Yellowfin which won the prize for the largest tuna caught in the WTD Fishing competition.

4 Oceanic Fisheries Activities

4.1 General

This was another productive year with most of the milestones being successfully achieved. The few “under achieved” milestones, including electronic reporting, surface patrols, and fish scales for use during transshipment, are to be carried forward to year 2020. There are a range of reasons for under achieving. These relate to staffing issues, conflicting schedules (training), availability of Te Mataili, etc.

On the positive side - fisheries revenues reached a new level in 2019. Two reasons for this were: 1) our ability to sell the majority (98%) of our 2019 PAE, and 2) increased Purse Seine activity by our bilateral partners in our EEZ. The observer program also continues to do well and has been getting a good share of sea days, particularly under the PNA program. In 2019, our program got more sea days under PNA than any other program in the region.

4.2 Fishing licenses in Tuvalu waters

Issuance of fishing licenses to fishing companies is always an important work of the Oceanic section and is an ongoing activity. In 2019 and for the first time the Department of Fisheries has migrated from a paper based to a paper-less licensing system. Fishing applications from purse seine (PS), longline (LL), fish carriers (FC), and bunker (B)

vessels can be and are now received and processed electronically using the PNA FIMs. The only exceptions are the Pole and Line (PL) vessels since there is no requirement at the moment for them to use the system. An exemption was also extended to some Korean LL vessels, but only for 2019.

Two training courses on FIMs were conducted in 2019 as part of building capacity of our licensing staff so they know how to operate the new licensing system. These training courses were run in Funafuti and Suva.

Interest in fishing in Tuvalu continues to increase as shown by the slight upward trend in number of fishing licenses issued annually by the TFD. A slight increase in fishing licenses (from 2018 level) is seen in the three gear types PS, PL and FC. In total, 334 license applications were processed and issued in 2019, an increase of 8% from that in 2018.

YEAR	LL	PS	PL	FC	B	Total
2015	27	190	0	34	7	258
2016	66	210	3	41	1	321
2017	115	173	0	40	0	328
2018	77	187	0	45	0	309
2019	70	199	14	51	0	334

Table 2:

Number of licensed fishing vessels by gear type since 2015

The number of fishing licenses for longline has fallen from 77 in the previous year to 70 licenses in 2019. For longline vessels, there are three licensing options including a 3 month, 6 month and 12 month. Three vessels were licensed for 12 months, 60 for 6 months and 7 vessels for 3 months. For purse seiners, the number licenses increased from 187 in 2018 to 199 vessels this year. This total include bilateral (102), FSMA (65) and US (32) vessels. There was also an increase in pole & line vessels from none (2018) to 14 vessels (2019). Similarly for fish carriers, there was also an increase in number by 6 vessels from 2018. Still no bunker vessel was registered for three straight years and this is thought to be due to the high licensing fee.

The figure shown below is the breakdown of vessels licensed to fish in Tuvalu waters by flag and gear type for both bilateral, the sub regional pooling (SRP) and regional arrangements (FSMA & UST) for 2019. The highest number of vessels licensed to fish in Tuvalu waters were 65 purse seiners from the FSM Arrangement, followed by the pooling arrangement with 51 vessels, and 41 Korean longline vessels.

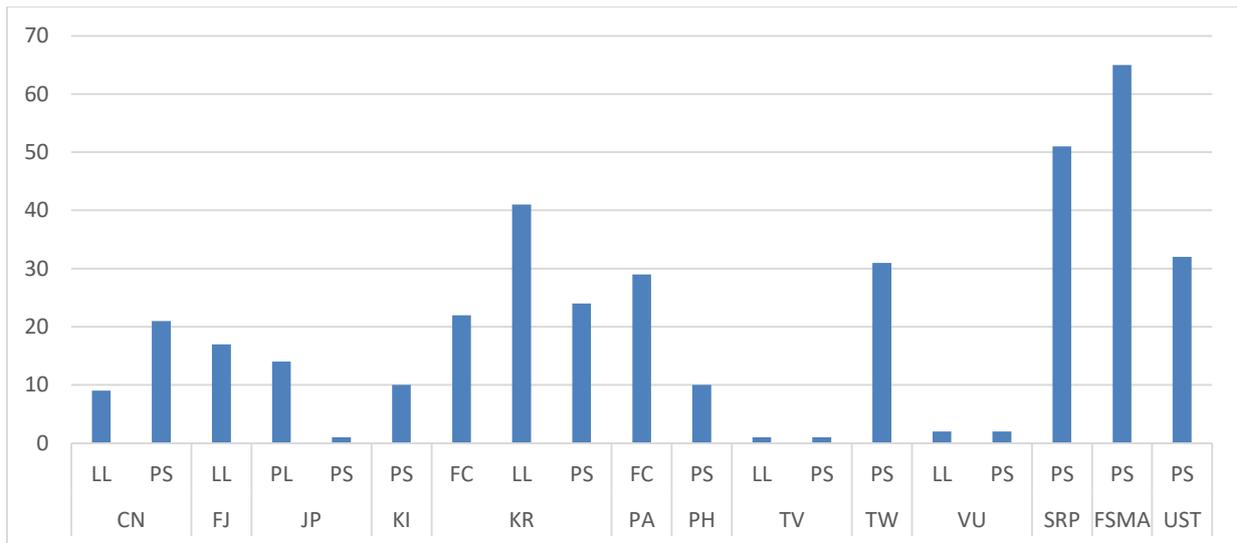


Figure 4: Annual number of fishing vessel licenses by flag and gear for 2019.

4.3 Catch by Tuvalu National fleets

4.3.1 Domestic fleet

Following last year’s accident with one of our LL flag vessels (FV Tuipuga), our number of Tuvalu flagged vessels has reduced from 3 in 2018 to 2 this year. The composition of the two flagged vessels is 1 LL and 1 PS and both are registered with WCPFC RFV.

Vessel name	Flag	Registration number	Authority Period	Vessel Type	IRCS
Pakaso	TV	23011010	8 Feb 2020 – 8 Feb 2022	Longliner	T2RB3
Taina	TV	34128217	20 Jul 2017- 20 Jul 2020	Purse seine	T2BX5

Table 3: Tuvalu flagged vessels. Source: WCPFC RFV

4.3.2 Purse seine

Tuvalu’s purse seine vessel landed an estimated total catch of 4,918mt in 2019 in the WCPO Area (Table & Figure). Skipjack dominated the catch with 4,709mt (95.8%) of the total catch, followed by yellowfin at 200mt (4.1%) and bigeye at 9mt (0.2%). Overall, the highest catch by Tuvalu flagged purse seiners was in 2018. For other years the catch ranged between 4,900 and 6,110mt. The reason for the exceptionally high catch in 2018 is attributed to the establishment of one new, additional JV (one PS vessel – FV Taina) that year. The other old purse seine (Taumoana) by this time was facing financial problems and had stopped fishing since 2017. The catch in 2018 came from FV Taina alone. The catch plummeted in 2019 due to lack of activity by the same vessel which experienced a long break-down.

YEAR	BET	SKJ	YFT	TOTAL
2015	0	5362	108	5470
2016	0	5970	140	6110
2017	8	4551	1082	5641
2018	345	9226	1379	10950
2019	9	4709	200	4918

Table 4: Purse seine catch by Tuvalu flagged vessels.

4.3.3 Longline

Tuvalu’s longline vessel made an estimated total catch of 336mt in the WCPO Area in 2019 (Table & Figure). This was an increase of 12% from 2018 and is the third highest for the last five years. Yellowfin tuna species was the majority, accounting for 148.5mt (44.1%) of the total longline catch, while bigeye made up 90.1mt (26.8%), albacore 82.5mt (24.5%) and skipjack 15.1mt (4.5%).

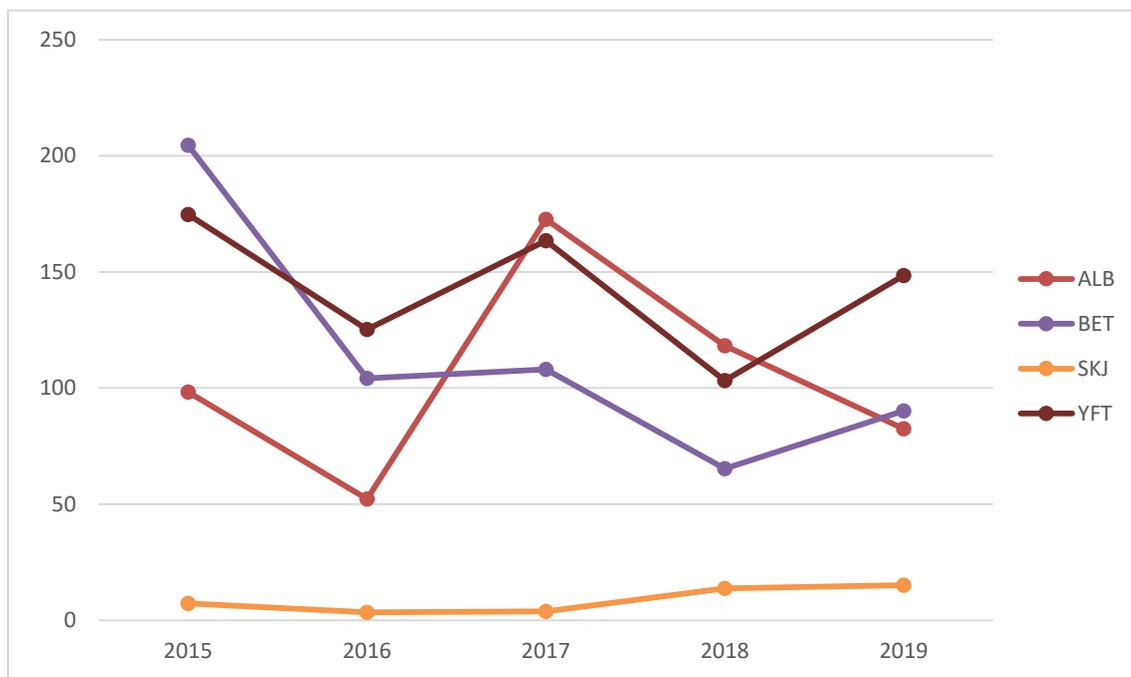


Figure 5: Catch by species by Tuvalu flagged longliners from 2015-2019

4.3.4 Catch and effort distribution for Tuvalu flagged vessels (PS & LL)

The fishing catch and effort in 2019 from Tuvalu PS vessel, with high catches and effort of skipjack occurred mostly in the Tuvalu EEZ, Kiribati EEZ and Line & Phoenix islands. However, for the Tuvalu LL vessel, the catch and effort mostly occurred in the adjacent high seas next to the Line & Phoenix islands (Figure 6).

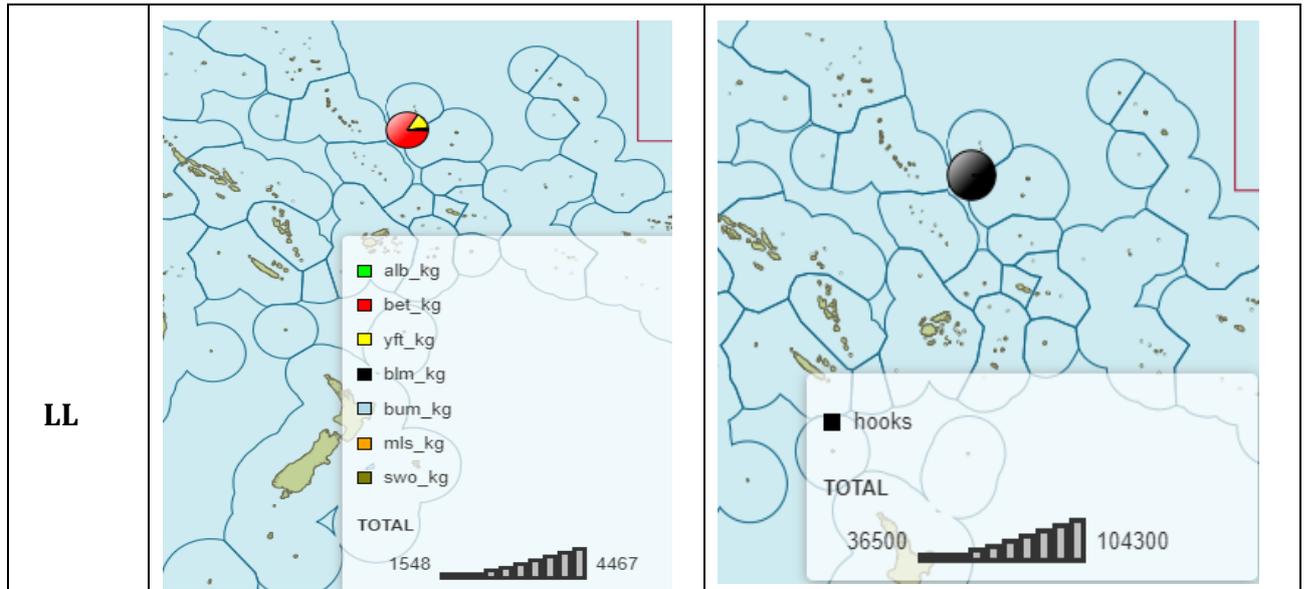


Figure 6: Fishing areas of the Tuvalu flag vessels in 2019

4.4 Catch taken by foreign fishing fleets in Tuvalu EEZ

4.4.1 Annual catches from Purse seine fleets

Total annual catch of tuna from all purse seine fleets in the Tuvalu EEZ in 2019 was 93,717mt. Skipjack constitutes the bulk of the catch accounting for 89,100mt (95%), yellowfin tuna with 3,707mt (4%) and the bigeye tuna the least with just 909mt (1%). Korean flag vessels landed the most skipjack tuna accounting for 44% of the total skipjack catch. Japan flag contributed the least with a total catch of only 175.66mt (0.2%). Japan had only one Purse seine vessel fishing in Tuvalu.

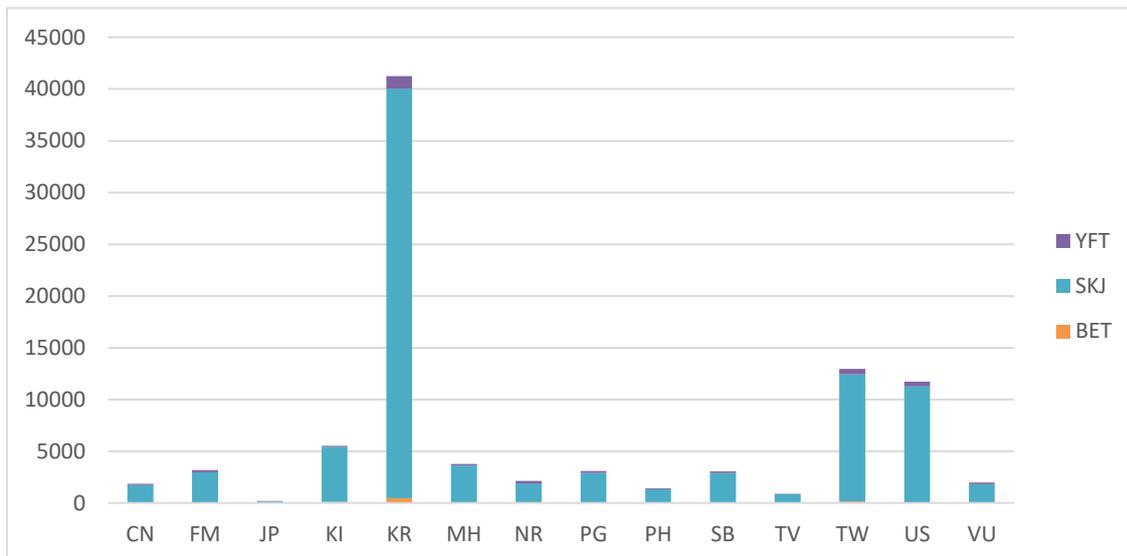


Figure 7: Catch composition from PS fleets in Tuvalu EEZ in 2019. Source: [Tufman 2 Dorado report – Recon].

4.4.2 Annual catches from foreign Longline fleets

In early 2020 the total annual catches of tuna from foreign longline fleets reported in the Tuvalu EEZ in 2019 were only 199.12mt. This is only a small part of the total catch

because of delays in sending logsheets from fishing companies and thus delays in entering of data into the TUFMAN 2 database. Fisheries will follow up with the companies to obtain logsheets and a more accurate estimate of total catches will be available later in the year.

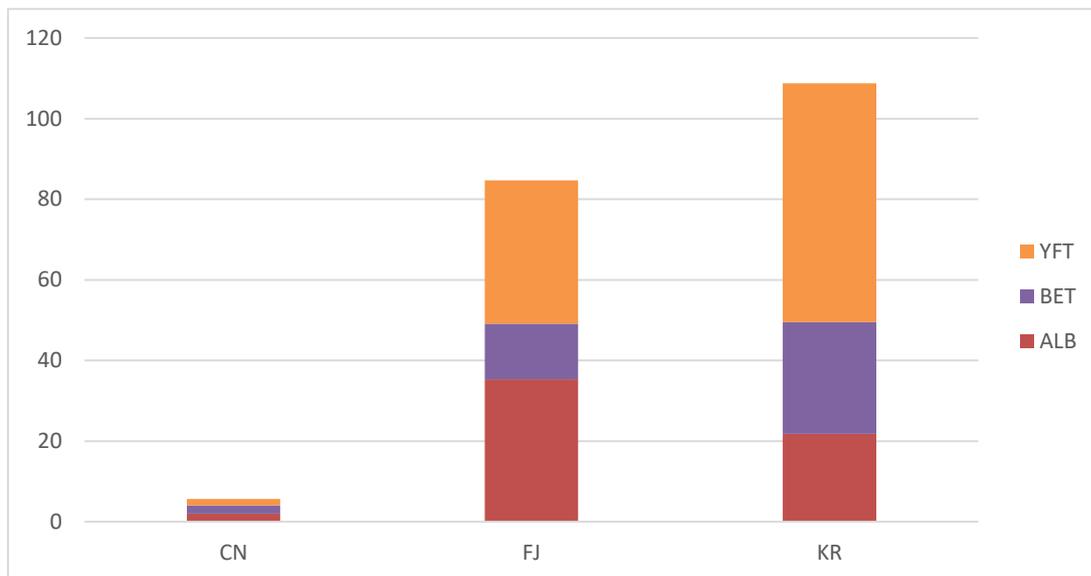


Figure 8: Catch composition from LL fleets in Tuvalu EEZ in 2019. Source: [Tufman 2 Dorado report – Recon]

4.5 Fisheries Revenues

4.5.1 Fishing licenses and fees

The total fisheries revenues from fishing licenses, VDS and other fees generated an amount of more than AU\$37.6m in 2019. This is a new record for revenue generated in one year, given the peak observed in 2018 was due to inclusion of revenues (AUD20m from FSMA) from other years. The high revenue this year was due largely to improved revenues from our bilateral arrangement (from 15m in 2018 to 19m 2019). The 2019 revenue received does not include earnings from the FSMA in 2018, which will be remitted in 2020.

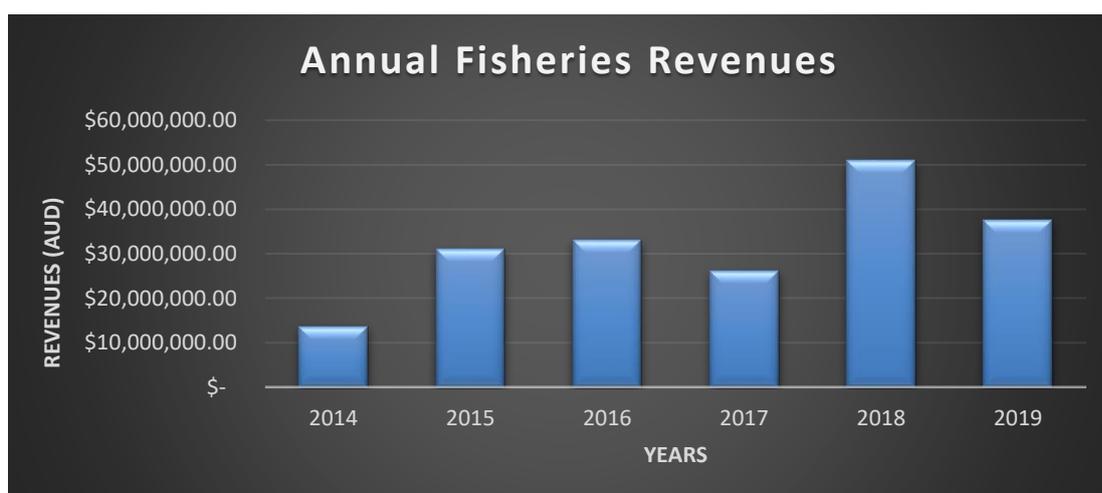


Figure 9: Annual revenues collected from Fisheries over the past 6 years

In Figure shows below, the highest revenues received from bilateral purse seine of AU\$19.1m (51% of the total revenues), followed by the pooling arrangement of AU\$8.7m (23%), US Treaty of > AU\$6.2m (17%), transshipment of AU\$1.3m (4%), longline of >

AU\$0.97m (3%), fish carrier of >AU\$0.70m (2%) and traded days > AU\$0.20m (1%). Revenue from the FSMA has not been disbursed so was not included in this year’s report.

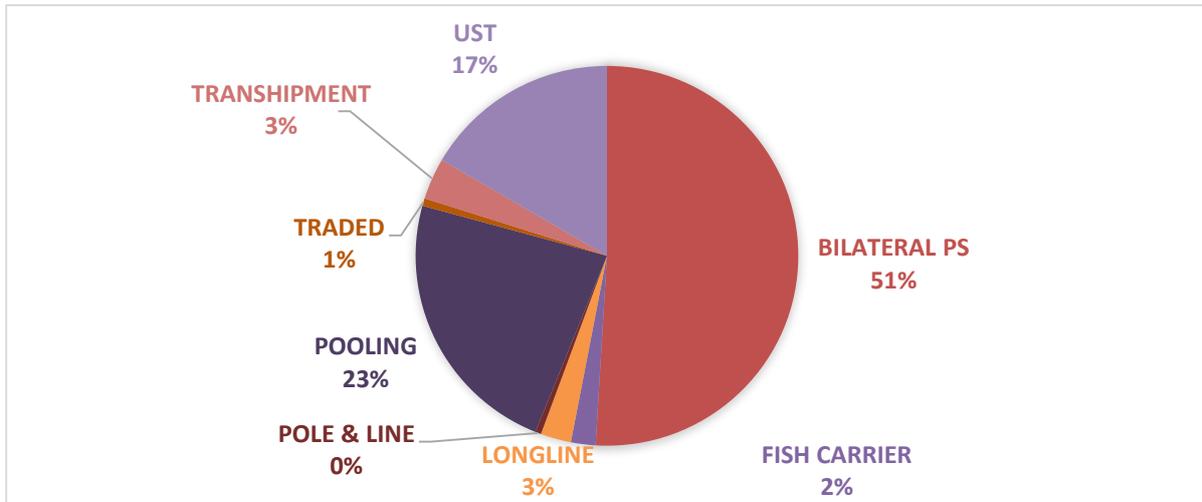


Figure 10: Revenues by licensing category for 2019

4.5.2 Observer Levy

Funding has always been an issue in meeting costs of doing business and delivering on fisheries management activities. Hence when the observer program came into existence, a funding mechanism was desired and an observer levy (fee) was proposed to be part of our licensing structure. It is now an essential element of our licensing fee structure and applies to all gear types, except for PL vessels. The money is utilized solely for the purpose of running the national observer program in terms of meeting observers’ payments, equipment, allowances, workbooks etc.

The total levy received for 2019 was more than AU\$1m. The peak period for receiving this remittance has been January coinciding with the peak licensing period. The other spike in July relates to licensing of several longline vessels. In terms of expenditure, the program spent around AU\$0.47m. in 2019.

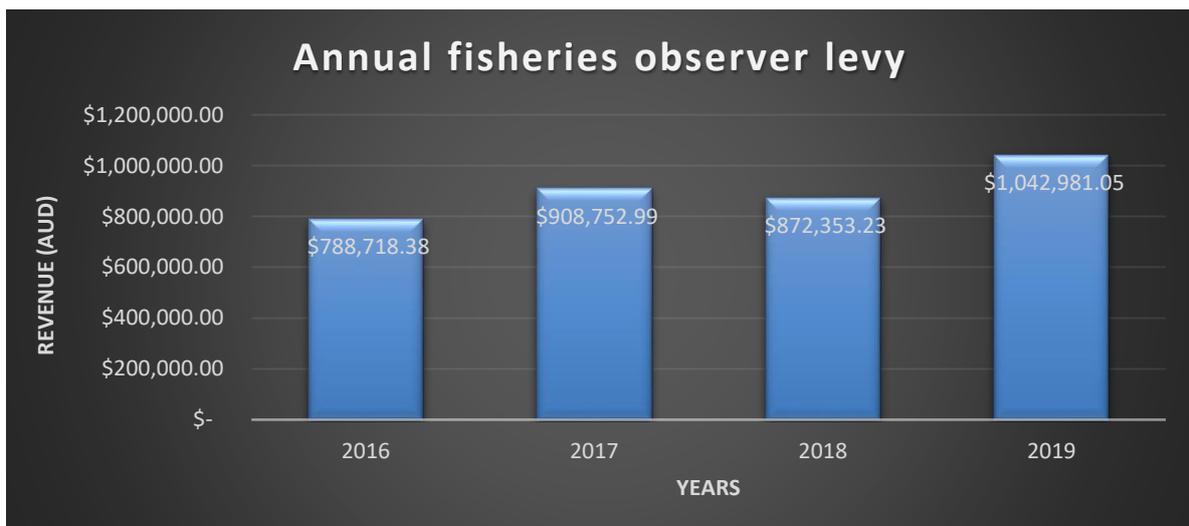


Figure 11: Annual observer levy received since 2016

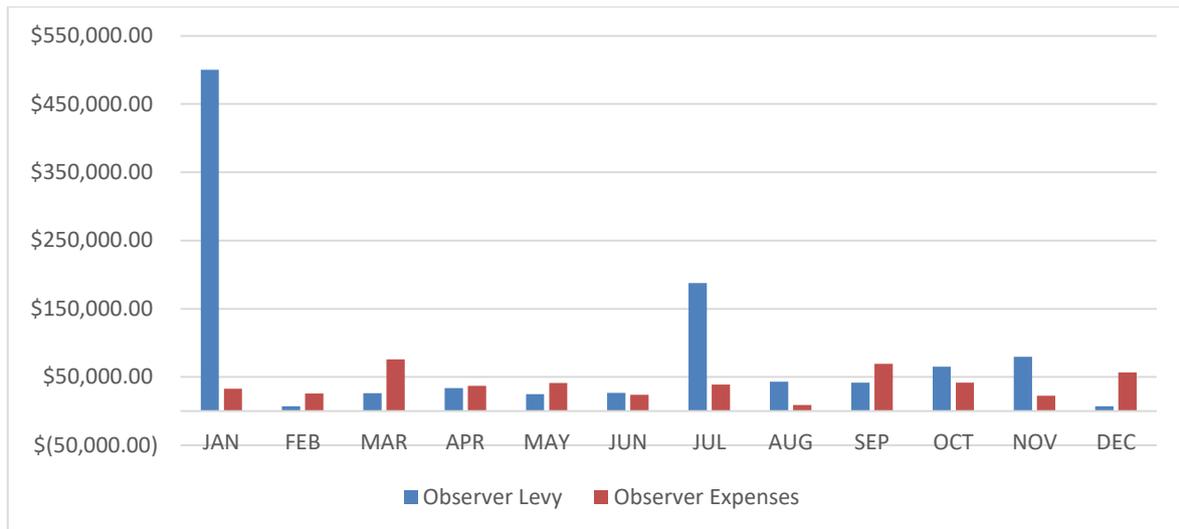


Figure 12: Observer levy received & expenses by month for 2019

4.6 Transshipment

The restriction on purse seine vessel transshipping at sea has triggered a positive response by vessel operators as seen in the increased number of PS visiting local ports of Pacific countries for that purpose. Funafuti, our only designated transshipment port has also seen an increase in PS making port calls in recent years not only for transshipping but also for other reasons such as crew exchange, maintenance, emergency purposes etc. Benefits flowing from this activity have also improved. Revenue has been well above the \$1 million mark since the introduction of new fees in 2016. A push by some key partners to cut back on these fees this year may result in a reduced level of revenue in future should this be accepted, although it could also encourage more transshipment.



Figure 13: Monitoring observer and local stevedores during transshipment

In 2019, one hundred and thirty one port calls were registered. This was 32% down from peak level reached in 2018 and was lowest for past five years. The dramatic fall in transshipment events probably relates to an issue this year when a request to reduce transshipment levies from some vessel operators was not approved by the Government.

YEAR	NO. OF VESSEL PER YEAR
2015	181
2016	134
2017	163
2018	192
2019	131

Table 5: Transshipment events recorded for the past five years

One advantage of in-port transshipping being that it allows MCS officers to board and inspect vessels 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 able to promptly undertake further investigation if any infringement is identified.

4.6.1 Transshipment revenue.

Transshipment revenue is solely based on the volume and the grade of the catch being transhipped in port. Thus the higher the catch (volume) transhipped, the greater the revenue. Revenue for 2019 fell by 29% from that in 2018 (a record high) but is still third highest for the reporting period (2015-2019). This trend reflects the volume of fish transhipped for the past years with the exception of 2015 when there was a much lower fee rate.

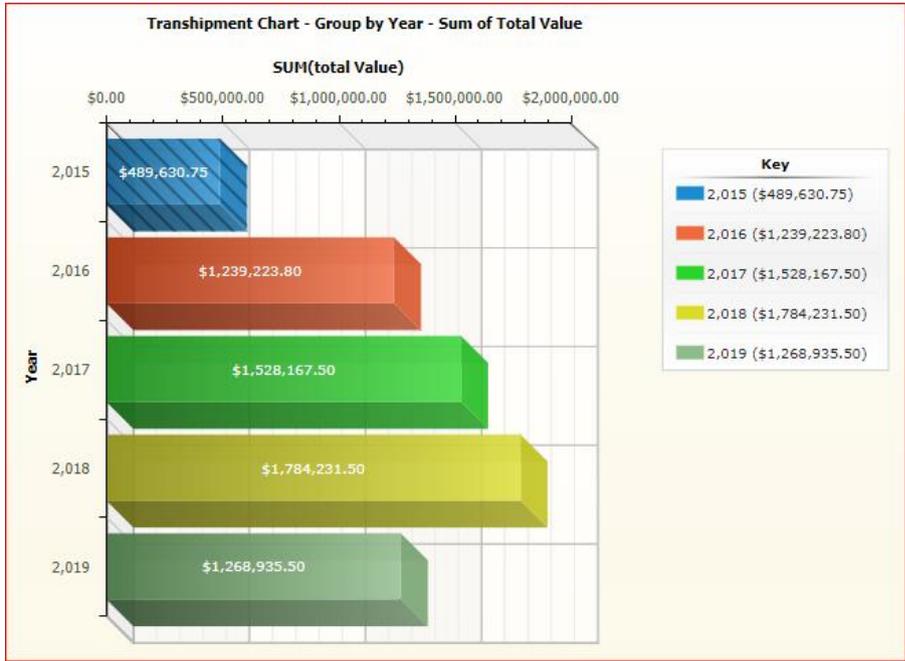


Figure 14: Annual revenue from transshipment since 2015

Some transshipment payments were still outstanding (11% of total) at the end December 2019. The unsettled amounts come from the same companies who were expecting a reduced fee, which was not agreed when cabinet ultimately ruled against it. At the time of preparing this report, a substantial amount of these outstanding payments had been settled.

Status of transshipment payment for 2019

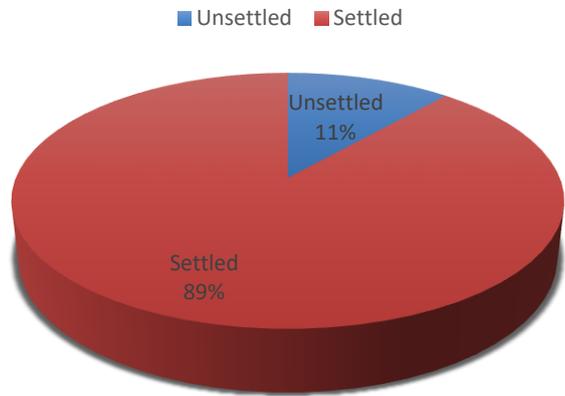
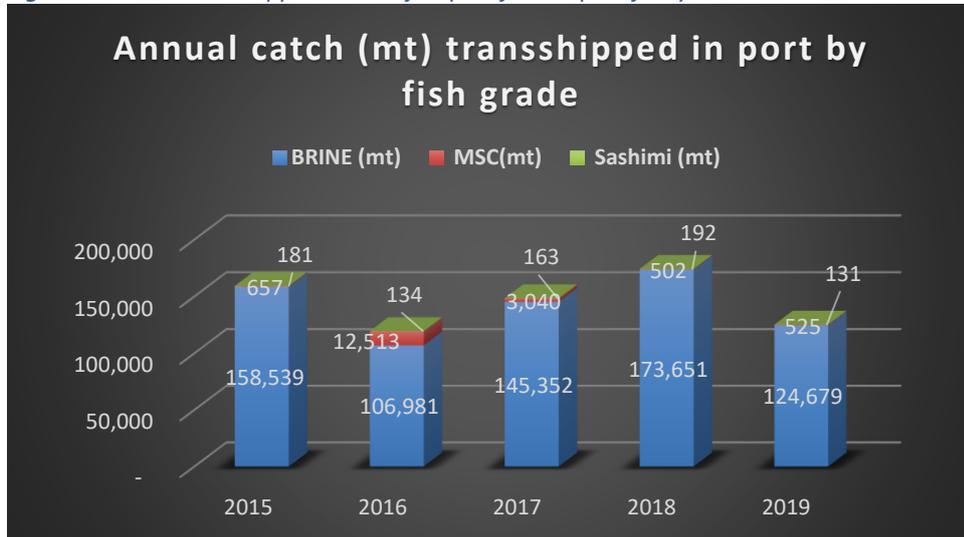


Figure 15: Transshipment payment status at the end of 2019

4.6.2 Transshipment by grade

Normally, purse seine catch is classified into three categories – Brine, MSC and PS. The brine being the dominant grade (97% of total weight). MSC and PS grades accounted for 2.7% and 0.3% respectively.

Figure 16: Catch transhipped in Funafuti port for the past five years



4.6.3 Transshipment issues and recommendations

It was not all good news for transshipment. There were issues faced in 2019 which require some action. While some issues can be easily dealt with at the operational level some require policy intervention. The issues include:



Figure 17: Tuna sorted during transshipment

- ✿ **Undersized tuna and damaged fish** – in large quantities left to spoil on board the vessel only to be dumped when the vessel leaves the lagoon at the completion of

the activity. This is a common problem and involves all vessels. Two issues here – first being the officers exposed to the foul smell emanating from spoilt fish, and secondly, dumping is not consistent with principles of responsible fishing and should be discouraged at all costs. At present, no system is in place to deal with the by-catch **Recommendation** – Fisheries Department to develop a policy on by-catch utilization.

- ❖ Delayed payment of transshipment fee by Companies. The confusion over a request for a reduction in fees and the contrary decision from Government caused delays in payments. Recommendation – officers dealing with transshipment matters to keep following up with fishing companies on the need to settle their bills.
- ❖ **Contamination of lagoon** – contamination (including dumping of rubbish) is a continuing risk to our lagoon and can be from many source; hence effective monitoring is paramount. **Recommendation** – everyone to work cooperatively and collaboratively.
- ❖ **Port inspectors** from other countries doing inspection of their flag vessels here in our port without prior knowledge of their local counterpart (MCS officers). Apparently some communication breakdown may have been the cause of this. **Recommendation** – responsible officers to bring to attention of their superior.
- ❖ **Inability to accurately determine the catch during transshipment.** Catches transhipped are current estimated, and while these are quite accurate they are not precise. This could be addressed by the use of scales that can weigh the contents of each brail. Given that revenue is based on weight and grade of fish transhipped this should be treated as a priority activity. **Recommendation** – Fisheries Department to procure appropriate fish scales as matter of priority.

4.7 Surface Patrol Operations.

The surface patrol operations are one of the key activities under the MCS milestones for 2019. It is important given the ongoing battle against illegal, unreported and unregulated (IUU). The core focus is ensuring vessels in our EEZ comply with our laws. The main activity involves the deployment of Te Mataili to do a surveillance run for ten straight days at sea. During this time it can undertake boarding on all vessels that may be encountered. These operations can be done either unilaterally (national) or regionally (together with other countries and coordinated through FFA).

The main challenge faced being is that there is only one vessel capable of undertaking this activity. In addition, the vessel is under the jurisdiction of a different Ministry. Thus it requires good planning and collaboration between the two parties (Police and Fisheries). 2019 saw the delivery of the new Patrol vessel, Te Mataili II and the returning of the Te



Mataili back to Australia. This meant that Tuvalu was without any Patrol Boat for several months in the first half of the year.

Figure 18: HMTS Te Mataili II taken during operation Kurukuru, 2019

As a result, there was only one operation (Operation Kurukuru, regional) completed for 2019. Te Mataili was sent to Australia along with its crew for a period of 3 months to prepare crew for the new patrol boat, Te Mataili II. After some delays, Te Mataili II made it to Tuvalu on October 3rd just in time for the Operation Kurukuru. Twenty three boarding's were made (10 LL and 13 PS) during the operation with a total of eighteen possible minor offences identified. The majority (80%) of the infringements were from longline vessels. Thirteen were possible offences under the Tuvalu MRA 2006 (*as amended*), one against the Tuvalu VMS Regulations, regulation 4(d) and 6, with four possible breaches being IMO related. These were dealt with by verbal warnings, but a written warning is being recommended in one case.

4.7.1 Aerial Surveillance

Agreement was reached with FFA on the terms and conditions for deployment of the FFA-managed aerial surveillance assets in 2019. There were three deployments of one of the Super-King Air aircraft, which flew missions on 10 days in the months of April, July and October. No unlicensed vessels or vessels not reporting on VMS were detected.



4.8 Observer Program

4.8.1 Placement

Our national observer program is one of biggest and also amongst the most successful programs in the region in terms of size and performance. The program has grown from only a few observers in 2010 to 77 active observers in 2019. The expansion enabled us to meet the constant, high demand for Tuvaluan observers from our bilateral vessel operators, and also from two regional observer programs namely the PNA observer program (managed

by MRAG – an agency

Figure 19: FFA Aircraft on the runway in Funafuti during deployment in 2019

based in Australia) and FFA observer program (US treaty vessels).

Our performance within the PNA program continued to improve. In 2019 and for the first time, our program claimed the highest share of sea days (4008) under the PNA, 4 points ahead of the Solomon program. Also, a Tuvaluan observer was among the top three (best observers) named during the golden calipers award held during the ROCW20. This is the same as the 2018 results which is an indication of continued good performance.

A total of one hundred and fourteen placements were undertaken this year. Our bilateral vessels contributed the most opportunities accounting for 63% of the total placement, second being PNA program contributing 35% and FFA accounting for just 2%. The low uptake by the US treaty vessel is due to shortage of qualified “cross-endorsed” observers. Therefore to improve our chances with US treaty vessels, a cross-endorsement training needs to happen as soon as possible. A contributing factor to the success of our program has been the continued high usage of our port for transhipment.

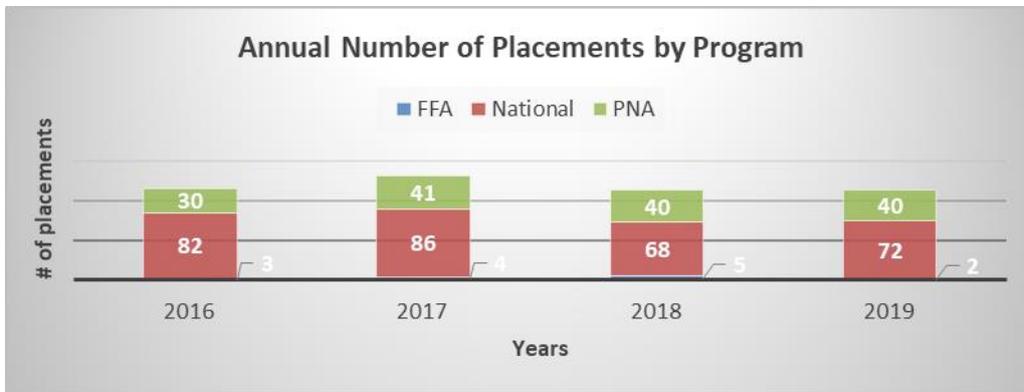


Figure 20: Annual number of placements by observer program between 2016 and 2019

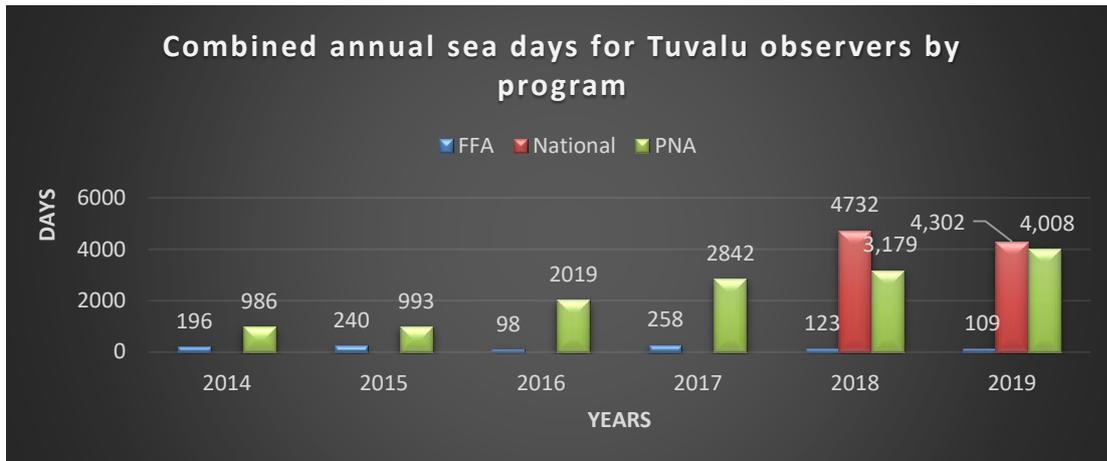


Figure 20: Annual sea days for our observers for the different programs. Observer sea days for our national program for the previous years could not be found, thus not presented.

4.8.2 Observer Training

Training is an important part of our observer program to ensure our observers have the appropriate skills and competency to meet our needs as well as meeting the regional observer standards. The venue and type of training depends mostly on our training needs and funding source. Funding support for our observer training has been coming from the FFA and PROP (World Bank). FFA trainings are usually undertaken outside of Tuvalu whereas PROP training courses are executed here in Funafuti for the purpose of training more staff.

Electronic-reporting was our top training priority in 2019. This is to align with our commitment to the PNA grouping (which Tuvalu is a party) that Tuvalu will fully implement the PNA e-reporting requirement (100% coverage) in 2020. Due to the large number of observers to be trained, an in-country training was conducted using PROP money to finance the travel and DSA of two trainers from PNA and POA. Twenty four observers were trained as a result. In fact this was the second time to run this workshop here in Funafuti. The first workshop occurred many years ago and participants have forgotten how to use the system so it was a refresher for them.



Figure 21: 2019 in-country e-reporting training participants

Other training that took place in 2019 includes one cross-endorsement training and one basic observer training. These are externally supported training and provide only two places for Tuvalu on each. They were carried out in Santo, Vanuatu. These two recent training courses brought the total number to four for cross-endorsed and eighty for basic-trained observers.

Tuvalu is yet to have an Observer Trainer and this is one area where training is most required. A local trainer certainly would bring certain benefits such as 1) lessen our dependence on outsiders to train our observers, 2) reducing cost (cost of hiring a foreigner), and 3) availability of a local trainer for regional consultancy work.

Types of training	2016	2017	2018	2019	Total
Basic observer	20	20	1	2	43
Cross-endorsed				2	2
Debriefers	4	14	12		30
Debriefers Assessors		4			4
E-reporting		0		24	24
MSC	20	15	18		53
Trainee Debriefers	13	12			25
Grand Total	57	65	31	28	181

Table 6: Number of observers participating in training between 2016 and 2019

Types of Training	2016	2017	2018	2019	Total
Basic observer	1	3	1	1	6
Debriefers	1	1	1		3
Debriefers Assessors		1			1
E-reporting		1		1	2
MSC	1	1	2		4
Trainee Debriefers	1	1			2
Cross-endorsed				1	1
Grand Total	4	8	4	3	19

Table 7: Types and number of observer training courses conducted annually between 2016 and 2019.

4.8.3 Summary of general observer data

The total numbers of observers qualified in different requirements is shown below. It is currently the view of TFD that a program of 80 observers meets the needs of Tuvalu. While we could train more, there are not enough opportunities for placement to keep a larger pool fully employed, and observers will get discouraged by the lack of earnings.

Total number of active observers	77
MSC certified observers	66
Certified debriefers	24
Debriefers Assessors	6
Certified observer - cross endorsement	4

Table 8: Numbers of qualified observers in 2019.

4.8.4 Challenges encountered with Observer Program

The following issues were experienced in 2019.

- ✿ Late final payment to observers from the FFA program.
- ✿ Difficulty sending observer data to PNA Observer Agency (POA) and SPC due to the slow internet connection during most times.
- ✿ The slow recruitment of an observer data officer has adversely impacted the timely submission of observer workbooks to SPC.
- ✿ Delayed submission of workbooks (TV) by observers at the end of their contract. Delays ranged between two months to more than twelve months. Since no rules were available to assist us in dealing with this particular problem, attempts were made to develop and adopt such rules. The rules were trialled in 2019. The whole idea behind developing such rules is not just to prevent cases like this repeating in future but also ensuring consistency in dealing with future cases.
- ✿ Observers missing flights – one observer missed his flight twice forcing the company to pay for the two tickets. This is one of those types of behaviour that can cause fishing operators to dislike our program. So it needs to be dealt with urgently. Unfortunately, there are no clear rules in place to provide guidance on how to deal with this issue.

4.9 Vessel Monitoring System

This section provides a summary of the fishing activities as monitored on the Vessel Monitoring System (VMS) a key surveillance system. It also provides an overview of VMS management for the reporting period. A mandatory requirement under the Oceanic Section annual plan is to provide reliable and readily available data for enforcement purpose and most importantly to Tuvalu Fisheries Department management.

4.9.1 Vessel activities monitored on VMS

Throughout the year vessel activities in-zone were concentrated to the north east sector of the EEZ (03 – 07S latitude and 177 -179W Longitude). This has been the hot spot for the past 4 years from 1st - 3rd quarter of the year, and this includes all gear types. In the last quarter of 2019, there was a sudden increase in the number of vessels entering the EEZ we recorded the highest number of vessels fishing in-zone averaging at 60 – 80 vessel

on any given day. This fishing pattern also triggered an influx of transshipment activities in Funafuti port.

4.9.2 Flag Vessel concentration per quarter

FV Taina (PS) and Pakasoa (LL) are the only flagged vessels that were actively fishing in the WCPO for 2019. Both vessels were authorized to fish beyond national jurisdictions with FV Taina the only Tuvalu sponsored vessel under the FSMA agreement.

FV Taina's fishing activities were mainly concentrated in Tuvalu, Kiribati EEZ and the High Seas between the Line and Phoenix groups. There are no significant VMS related issues for the vessel which was reporting normally on FFA VMS, with no manual reporting submitted this year. On a few occasions it was suspected that Taina was engaging in sea transshipment activities, but following further analysis it was concluded that it was not transshipping and tracks did not correlate with any interaction with a Carrier nor any other Fishing vessels in the vicinity.

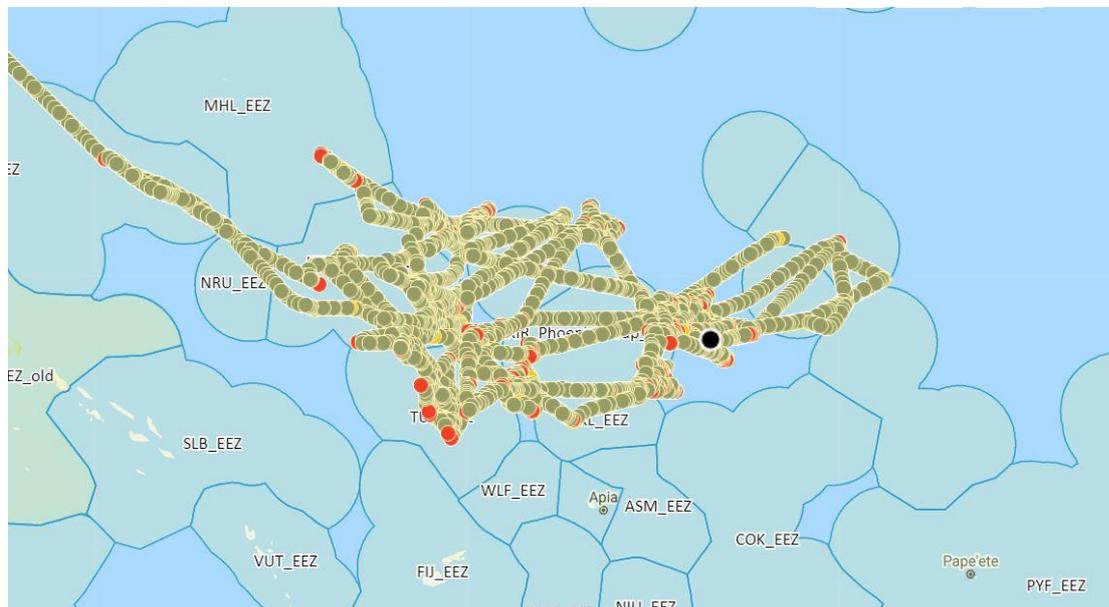


Figure 22: FV Taina fishing activities from vessel tracks for 2019

In contrast, FV Pakasoa focused its fishing operation within Tuvalu EEZ with a few trips to the high sea adjacent to western border. There were no VMS related issues reported and VMS was functional throughout the year with no manual reporting submitted.



Figure 23: FV Pakasoa fishing activities from vessel tracks in 2019

4.9.3 VMS related offences.

No VMS related offences were reported for 2019. However, there was an MTU related issue detected during at sea boarding and inspection from the last surveillance operation OPKK19. The use of an isolation switch on MTUs is of serious concern as it enables the master to switch the unit on and off. The unit must be powered directly from the ships mains and should not be tampered with during the course of its activity.



Figure 24: Isolation switch on a MTU on a foreign longliner

This is reported to be a common problem in the long line fleet and there is a need to have a consultation with our bilateral partners and authorized installers reinforcing the standards that need to be implemented during the unit fitting process. Alternatively, we can start prosecuting such infringement and should send out a strong message around the fleet that we are serious about this issue.

4.9.4 VSAT Dish and Maintenance

VSAT has been operational for the whole year and provided reliable internet for the VMS and the rest office building. Ongoing maintenance carried out as per maintenance schedule.

4.9.5 VMS/MTU Training

There was no VMS/MTU specific training for the year 2019

4.10 Vessel Day Scheme

Management of VDS is an ongoing activity which utilizes VMS as the primary platform for to provide data to PNA FIMS. This includes the monitoring of each company’s days under bilateral allocations, multilateral agreements and verifications of Non Fishing Days (NFD) to provide actual VDS usage for reporting purposes.

This year we maintained the same level of Party Allowable Effort (PAE). A total of 2,188 days was allocated to Tuvalu for the reporting year and a total of 679 days were allocated to multilateral and sub-regional pooling arrangements. Further transfer and trading were facilitated between bilateral partners and member countries resulting in the utilisation of 91.5% of the bilateral allocated days. Tuvalu’s compliance with the VDS scheme requires that this figure remains below 100% and is illustrated below:

Description	Number of Days
a. Party allowable effort	2,188
b. Allocation to US Treaty	254
c. Allocation to sub-regional pool	525
d. Allocation to domestic vessel	200
e. Net traded out (92 out – 216 in)	-124
f. Bilateral days fished in EEZ	1,147
Unused PAE ((a – (b+c+d+e+f))	186 days

Table 9: Utilisation of Tuvalu’s PAE in 2019

Overall PNA parties maintained the usage of days well within the limit agreed, with the total number of days fished slightly below the 2017 year.

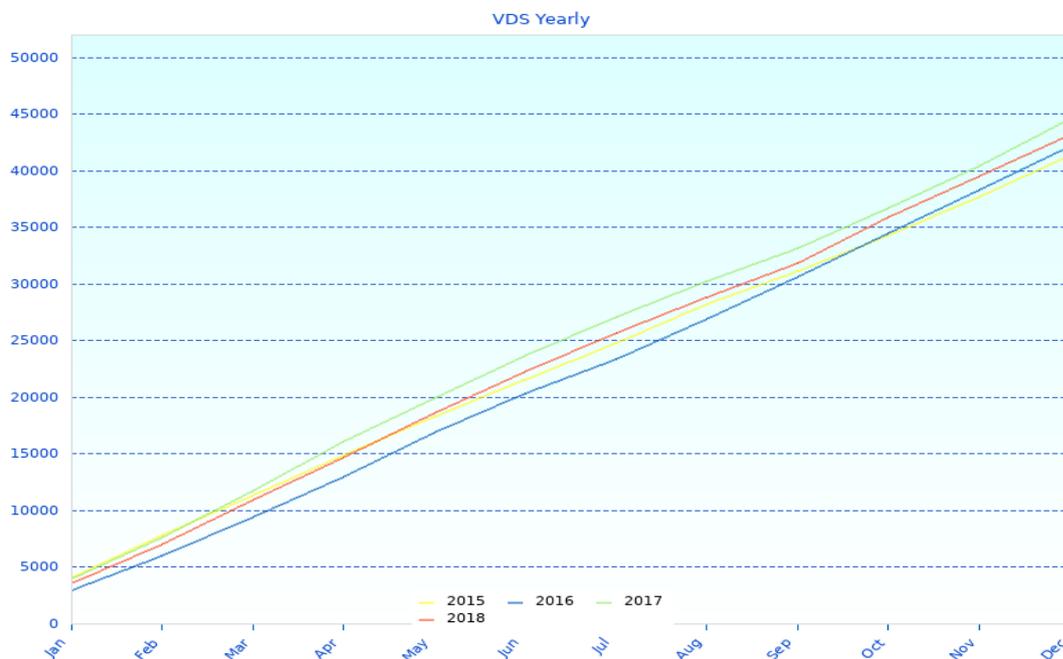


Figure 25: Total usage of days under the P/S VDS (all parties)

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.

4.10.1 Challenges

Monitoring VD switching from bilateral to sub regional pooling is still a concern, mainly for associations who have bilateral allocations. The main issue is the monitoring the allocations on each individual vessels as this is not provided by the association. A switch mechanism has been developed in the system and again the monitoring of the switch is still a challenge given some vessels can have bilateral days from association as well as individual companies.

VD management internal processes have been handled by different officers and this has been an issue particularly with trade in and out. The process can result in gaps particularly in communication that may result in misunderstandings and incorrect information on actual usage. This is very important for our compliance with the scheme, Government revenue and also the Disbursement Linked Indicator (DLI) reports under the World Bank's requirements.

4.10.2 Miscellaneous

The air surveillance program under the Pacific Maritime Security Program has proposed a zoning system within Tuvalu EEZ for effective and efficient deployment of air surveillance assets. The sectors is basically defined smaller area of operations within the EEZ, which enables surveillance planning to focus on a particular area given the limited aircraft capabilities and most importantly coordination with the surface patrol asset that will actually provide ground support. The initiative was welcomed by the Oceanic Section and provides important reference points for the annual aerial surveillance planning needs. This will also translate operational planning in to advice that strategic level could understand and make informed decisions. This work will be ongoing and requires inputs from our Maritime Police partners in terms of ground coverage capabilities before we could work with FFA to officially lock in coordinates for the proposed sectors.

A VMS small working group has been established and it is mandated from the Commission (para 74 WCPFC16 provisional outcomes document) to develop recommendations for TCC16's consideration to address VMS data gaps and improve the number of vessels reporting to the Commission VMS. This has been an ongoing issue with WCPFC vessels frequent breakdown of the approved units - mainly Inmarsat based systems. This calls for multiple rigorous testing of units before it even its type approved. The Working group will be reporting directly to TCC16 in its finding and make recommendations for CMMs approval on the standards and addressing the gaps identified.

Work on the FFA VMS to address analytical and reporting functions is ongoing. The system is currently not addressing specific areas of importance for reporting purposes. As an effective MCS tool there is need for reliable and readily available data to be presented for executive to make management decisions making particularly on vessel activities in TV EEZ.

The development of the Regional MCS strategy, has provided a clear guide to realign monitoring procedures at the national level in line with the four main priority outcomes. Most notably priority outcome 3, calls for the development of national SOP's to identify common issues that could be aggregated and evaluate to provide a way forward on how we could address the issues.

The National VMS compliance matrix provides a platform to approach such work at the national level. However, the matrix needs to be reviewed to capture the recent

amendments in the MRA and VMS regulations. VMS and VDS SOP work will be ongoing and will work closely with FLO in progressing this work

4.11 Other Work and Reports

MTU audit and inspection of Pakasoa was successfully executed last year in November. The vessel has no compliance issues and has clear records for compliance in 2019. The vessel is still in good condition to operate in WCPO. The MTU is up running and reporting normally on VMS.

There are currently no vessels registered as Vessels of Interest (VOI) from Tuvalu for the reporting period. A couple of vessels were initially identified for alleged transshipment/bunkering violations but these have been cleared following a thorough investigation conducted during port and at sea inspection.

The Pacific Maritime Security Program (PMSP) through the FFA has provided additional surveillance capabilities to member countries and VMS historical data analysis will be a major element in identifying the potential areas of operation so assets can be deployed effectively and coordinated manner.

4.12 Issues & Challenges Encountered

Some misunderstanding of PROP funded activities under Oceanic with Administration activity.

Changes to the department structure for the Oceanic Section in the new Corporate Plan (2020 – 2022) should have been discussed sooner with staff of the section.

Late nominations of staff to workshops and meetings.

The transitional period for the new Te Mataili II causing very few patrol days during the year.

Oceanic section's small boat (dinghy) still with the Workshop mechanic for 2 years now. This is needed for patrolling transshipment activity in Funafuti port.

Further FIMS training for senior staff in accessing FIMS, especially VDS and NFDs modules, is needed.

5 Coastal Fisheries Activities

The majority of 2019 activities were those that form part of the on-going core functions of the Coastal Fisheries Section (CFS). However this year, the CFS was also heavily involved in working closely with the Ridge-to-Reef (R2R) project in completing the scoping of the new outer islands management plans.

The CFS activities overall included outer islands engagement through Metronome trips, and on all islands including Funafuti, creel survey monitoring, boat and canoe surveys, ciguatera fish poisoning cases in humans (CTX survey), monitoring of the toxic dinoflagellates that cause ciguatera in Funafuti lagoon (GTX survey) and implementing the Funafuti Reef Fisheries Stewardship Plan (FRFSP) activities. There were also, related additional activities that the coastal staff were involved in such as a mariculture study with SPC, community outreach (FRFSP) and the Environment Week school excursion to the Funafuti Conservation Area (FCA).

A number of the Coastal Fisheries staff were new, being recruited in late 2018 and early 2019. This year Mr Sitia Maheu was recruited as acting Senior Fisheries Officer (SFO) for

Funafuti coastal management, Ms Matapua Falani was appointed SFO Resource Management, Mr Sione Falesene started work as Fisheries Officer (FO) Outer Islands, Mr Lavata Nivaga was appointed Locally-Managed Marine Areas (LMMA) and Marine Protected Areas (MPA) Officer and Mr Fuivaai Vaelei was recruited as acting Fisheries assistant officer for resource management. These significant staffing changes affected the expected performance and capacity of the coastal section for 2019. Despite the staffing changes, the new staff were able to exceed performance expectations, bearing in mind that most were fresh from tertiary studies. There are, however still some key positions within the CFS which need confirmation, notably the second SFO Outer Islands management position.

Most of the mandated activities for 2019 were successfully completed in line with the anticipated Annual work plan for 2019.

5.1 Fishery Resource Monitoring & Analysis

5.1.1 Creel Survey Programme (merged with Artisanal Tuna Survey)

The creel survey, which initially began on Funafuti Island in 2015 and was expanded to the outer islands beginning in 2017, is an ongoing activity which is currently funded by the Pacific Island Regional Oceanscape Program (PROP) covering survey costs and the fortnightly wages of Outer Island Data Collectors (OIDCs). The creel survey is a central data collection programme for TFD because for relatively low cost, it is able to provide a rapid assessment of the status of coastal fisheries resources to inform management of the complex multispecies fishery. The creel work has now been merged with the older Artisanal Tuna data collections supported by SPC for WCPFC processes. This work is being sustained through the continuous collection of information on fishing activities and catches for the whole of Tuvalu by means of the contracted OIDCs that are in place on all islands except the island of Niulakita.

An important role of the creel survey is to inform management through the use of a few indicators of health of the resources, the most important of which are: (1) The percentage of fishes landed that are undersized (expected to reduce with good management); (2) the number of fishes caught per fisher per hour; and (3) the weight of fishes caught per fisher per hour (both expected to increase with good management).

The first indicator is used to assess the harvesting of fish which have not reached the size at which they can breed. This is an important measure of the pressure on the resource because if the breeding population is reduced too much, replenishment for the resource will be compromised. Since early 2017, TFD has been raising awareness of the need to reduce the capture of these ‘under-sized’ fish to establish more healthy and resilient populations. Figure 1 shows an assessment across all species from all islands that have been measured in creel surveys. Prior to 2016, the creel surveys were not very extensive and the results are incomplete. While it is likely that for many larger and slow growing species more than half of the catch still comprises immature fish, the trend seen between 2016-2019 is encouraging as the percentage of undersized fish taken by fishers in Tuvalu has been falling. Ideally the number of undersized fish being landed should approach zero.

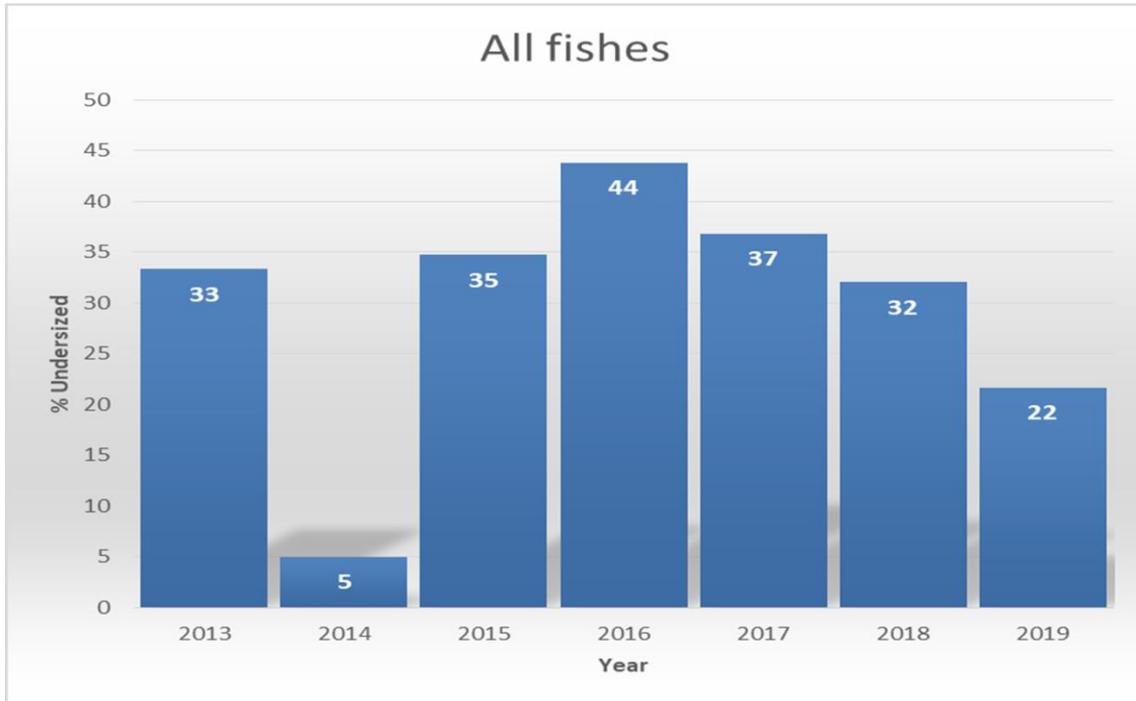


Figure 26: Percentage of all fish in creel survey samples that were found to be smaller than their species-specific size at sexual maturity (L_m)

The creel survey depends on data collectors who meet fishers when they return with their catch and interview them and collect data on the fishes and other seafoods. The survey includes the measurement of the length and weight of each fish in the catch and recording the fish species names. The unit is seeking spare parts to repair the creel survey motorcycle to assist the Funafuti data collector with her work.

Data collection during 2019 was lower than in other years, with problems with the databases, confusion between creel and artisanal tuna surveys (which have been merged), staff changes and insufficient training of outer islands data collectors (OIDCs). It is expected that these issue will be rectified in 2020, particularly with training conducted by the Inshore Fisheries Adviser, and construction of the Management Information System (MIS).

Creel samples per island per year

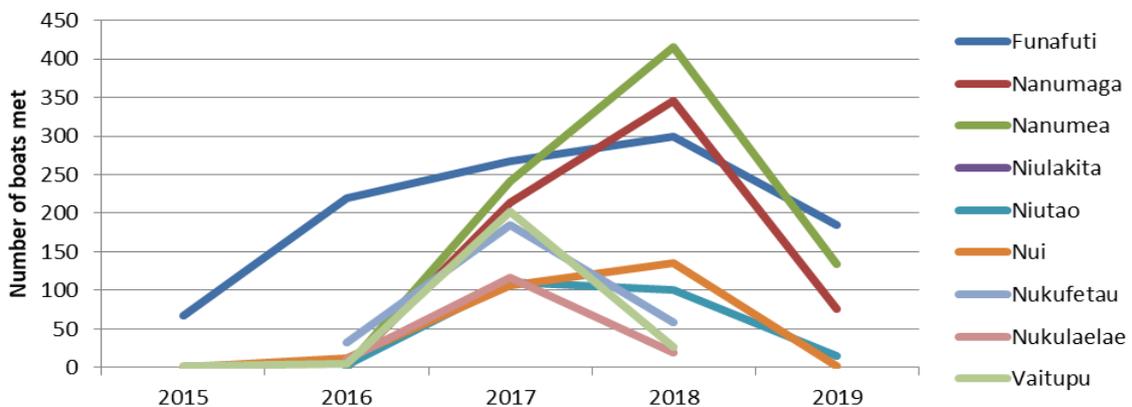


Figure 27: Number of creel samples collected by data collectors and CFS staff by island and year

5.1.2 Creel Reports to Support Management

No creel reports were completed in 2019, largely due to changeover of staff and outer island data collectors and confusion with the SPC and TFD databases (older Coastal and new Management Information System (MIS) databases). Support for staff was provided by the Inshore Fisheries Adviser (IFA) who recommenced work in October-November 2019, with further trips planned for 2020. Once the backlog of datasheets have been entered into the new MIS full reporting for all islands and each island separately as a report card will resume in 2020.

Although results for 2019 are limited because of the backlog of data entry, the results that are available show that there are undersized fish being landed on all islands for which there are data. No data are currently available for Nukufetau, Nukulaelae or Vaitupu for 2019 (Table 1). The overall average for 2019 in these preliminary results is, however, lower than in past years (see also Figure 1 above).

Species	All	Funafuti	Nanumaga	Nanumea	Niutao	Nui
Aseu, Fuaika <i>Caranx melampygus</i>	100			100	100	
Fakamea, Fagamea <i>Lutjanus bohar</i>	100	100		100		
Kanase <i>Crenimugil crenilabis</i>	8	18		0		0
Mago <i>Carcharinus melanopterus</i>	100					100
Maiava <i>Siganus argenteus</i>	0	0				
Manini, Koinava <i>Acanthurus triostegus</i>	2	0		3		
Nanue <i>Kyphosus vaigiensis</i>	100		100	100		
Savane <i>Lutjanus kasmira</i>	100	100				
Taiva <i>Lutjanus monostigma</i>	100			100		
Tanutanu <i>Lethrinus obsoletus</i>	0	0		0		
Teu <i>Caranx sexfasciatus</i>	100			100		
Ume, Pokapoka <i>Naso unicornis</i>	60	60				
Overall	22	21	100	13	100	50

Table 10: Summary of percent of fishes landed that were undersized on each island in 2019.

5.2 Research

5.2.1 *Ciguatera Toxic dinoflagellates (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 from a 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 2019 a total of 121 samples was collected and analysed (over 4 years) for the presence and abundance of toxic dinoflagellates. A total of 20 different sites were selected for testing to determine the levels 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 (as well as overgrowth of macroalgae). 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 two new advanced microscopes, for which CFS needs training. This work may also be extended in the future to the outer islands during metronome trips as may be requested by the *Kaupules*.

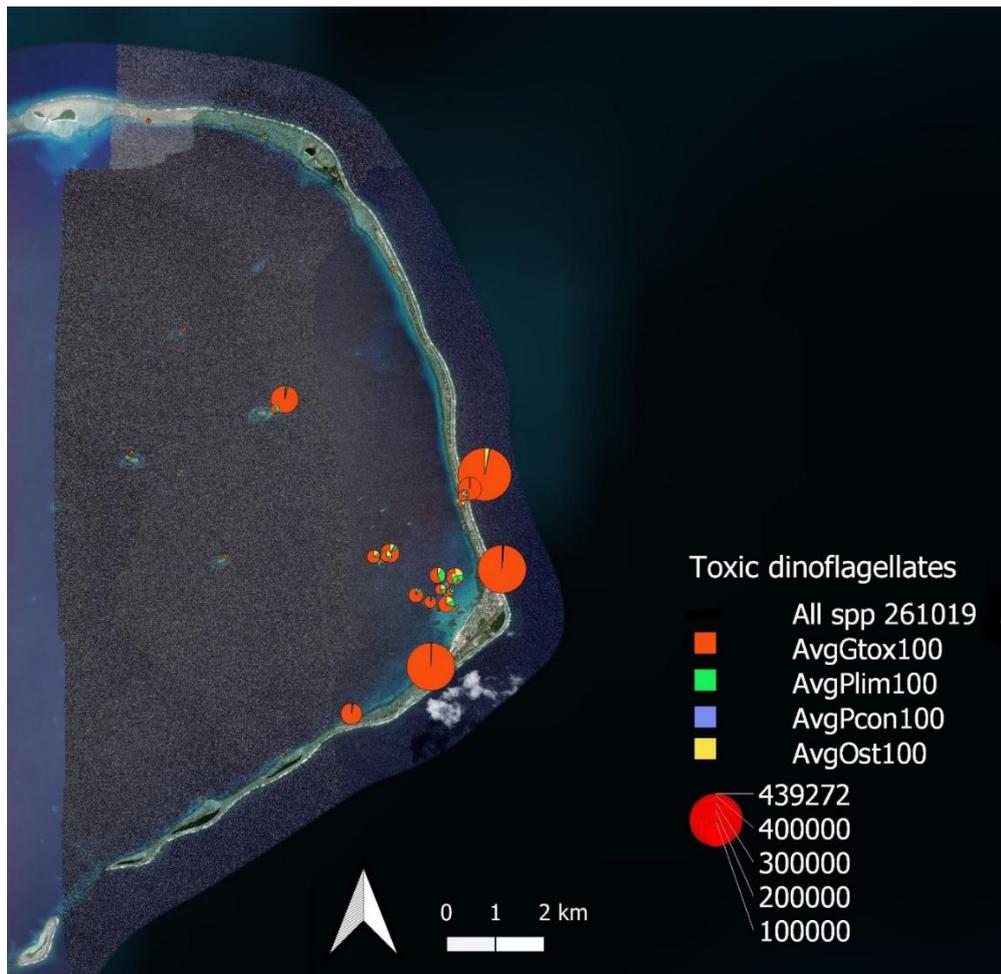


Figure 28: Incidence of *Ciguatera* causing organisms at sampling sites in Funafuti lagoon

5.2.2 *Ciguatera* Poisoning cases in humans (CTX monitoring)

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 *ciguatera* case assessments (CTX surveys) 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 brought back to Funafuti and transferred to a database in the office.

Ciguatera poisoning cases

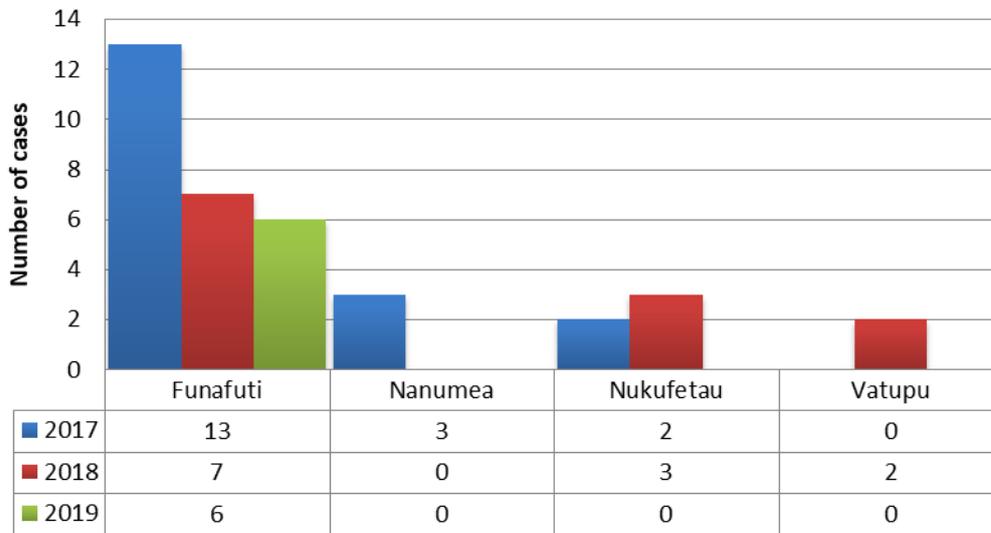


Figure 29: Ciguatera cases by island in the period 2017-2019

There has been a decrease in the number of cases in Funafuti over the past 2 years, with a total of 6 cases identified. Most of these cases were victims of consuming *Cheilinus undulatus* (Maori Wrasse / Napoleon Wrasse / Tagafa) which is one of the main reef fish that is highly associated with CFP. There were no cases recorded this year for the outer-islands.

5.2.3 Water Quality Monitoring

Two sets of high quality water quality probes were purchased through PROP to support water quality monitoring of marine waters, mainly in Funafuti where the population is high. The purpose was to take large numbers of samples throughout Funafuti lagoon, plot them on a GIS and use the results to identify potential areas of pollution for future planning to improve fisheries production and manage ciguatera outbreaks. This work carries on from the SPC work done in Funafuti in 2018 supported by Emma Newland as part of the Ridge to Reef Programme. An outcome of that work was the creation of a draft water quality monitoring plan in February of 2019. No further work on water quality was completed in 2019 and it is expected that surveys will be carried out in 2020.



Figure 30: Hand-held water quality meter and probes purchased by TFD for water quality monitoring.

5.2.4 Boat and canoe survey

The purpose of the CFS boat and canoe survey, carried out during metronome trips is to understand the potential fishing capacity on each island and how it changes over time. This survey is on-going and was completed in 2019 for 5 of the central and northern islands.

The total number of boats and canoes has been fluctuating on the outer islands, with a slight increase in 2019 compared with 2018. In future years, surveys will be undertaken on all islands, including Funafuti.

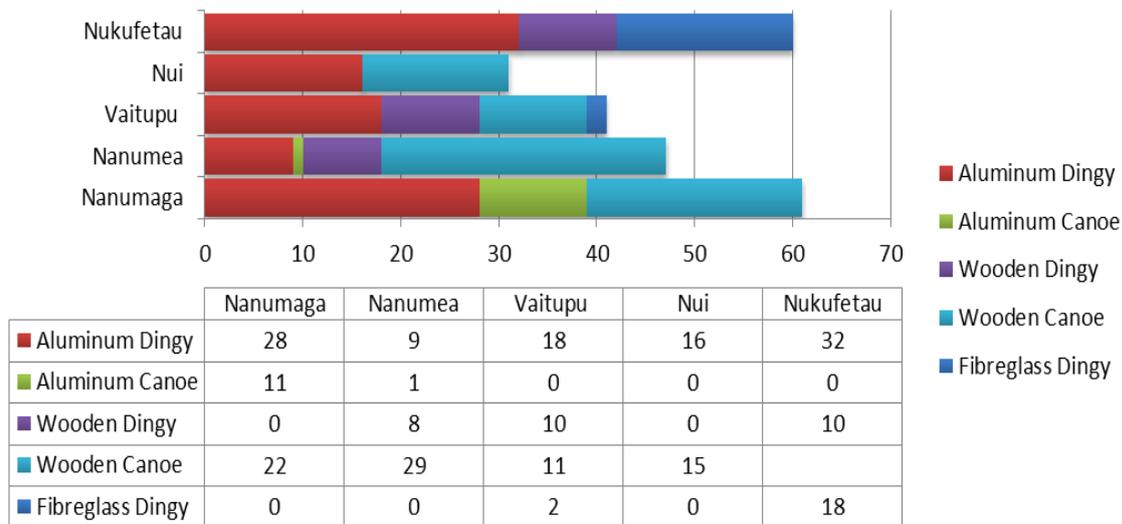


Figure 31: Numbers of boats and canoes by type recorded on 5 outer islands in 2019

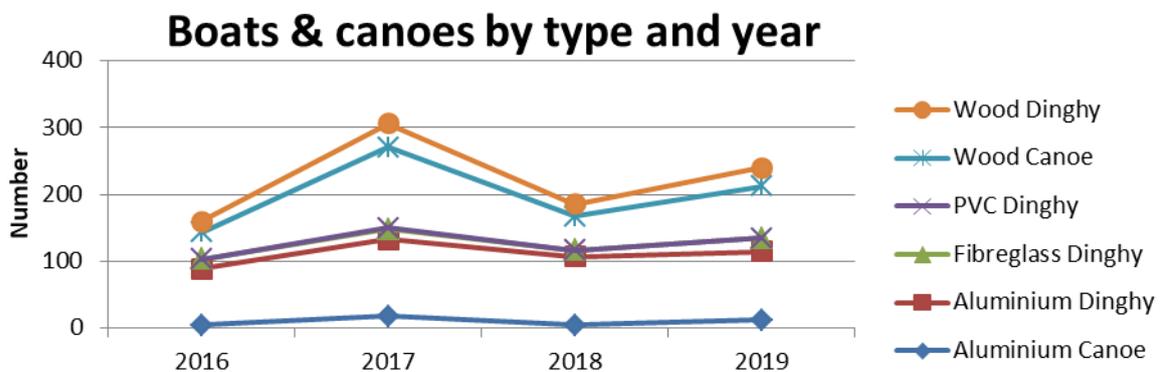


Figure 32: Numbers of fishing boats and canoes by type and year for all outer islands (excluding Funafuti)

5.3 Outer Island Support Programme

5.3.1 Metronome trips

The Support Programme for Outer Islands is delivered through four metronome trips annually under the signed MOU (for 2017-2019) between Tuvalu Fisheries Department (TFD) and the Outer Islands Kaupule for all the islands of Tuvalu. 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 allow ongoing fisheries support activities to the outer islands undertaken by Coastal officers to execute activities under their 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 trip are to, on an on-going basis:

1. Kaupule consultation: Brief meeting will be carried out with Kaupules to follow up their progress in relation to fisheries management and development;
2. Key informant and Group consultations: Including Kaupule, Falekaupule, fishers and the community in general;
3. Community Awareness Program: The awareness programs will target school students and the island community members on these three outer-islands. Specific topics would be delivered to each targeted group to enhance and increase their knowledge on fisheries issues. This would include delivering creel results and finding out any fisheries-related issues;
4. Collection of Ciguatera information: Gathering of ciguatera case information from the Health Centre, delivering new data sheets and/or interviewing any other cases known on the island;
5. Creel surveys: Additional Creel surveys will be conducted aside from the usual data that are being collected by our Outer-Island Data Collectors (OIDCs) on each island;
6. On-going training of OIDs: To improve data quantity and quality;
7. Strengthening of the Locally managed marine area (LMMA): This includes workshops and meetings to determine what each LMMA is supposed to provide; any issues, and documenting any existing rules or by-laws;
8. Independent canoe and boat survey: Collection of information on canoes and boats that are still used by fishermen on the island;
9. Assessments of the use of Fishing Aggregating Devices (FADs) by fishers (through the creel survey); and
10. Review of the Existing Fisheries Management Plan on the island and island profile work.

Moreover, these trips are often implemented in cooperation with the Operation and Development section, R2R officer and Environment officers in related work activities within their scope of work. The table below shows the metronome trips undertaken in 2019.

Year	Metronome	Islands	Start date	Finish date
2019	Metro 11 (Talamoana)	central Vaitupu	27/01/19	2/2/19
	Metro 12 (Talamoana)	South Nukulaelae, Niulakita	1/3/19	30/3/19
	Metro 13 (Talamoana)	North Nanumea, Nanumaga, Niutao	27/6/19	17/7/19
	Metro 14 (Talamoana)	Central Nui, Nukufetau, Vaitupu	2/9/19	27/9/19

Table 11: Metronome trip schedule of outer islands survey trips to 2019

5.3.2 Outer island quarterly visits

Outer islands quarterly visits are a regular activity which was begun in 2018. The purpose is mainly to establish good communication and association with the outer islands Kaupules and outer islands data collectors (OIDC), and particularly to keep training them and continually improve the quality of data being collected by them for the creel survey programme. A total of 4 quarterly visits were conducted in the year to the outer island groups via normal routes of the MV Manufofau and MV Nivaga III, with usually two Coastal fisheries officers per visit.

5.4 Funafuti Reef Fisheries Stewardship Plan (FRFSP)

Funafuti Coastal Management Unit within CFS is dedicated to coastal fisheries related issues within Funafuti and was introduced as part of the new departmental structure. This was done because more than 60 percent of Tuvalu's population resides on the capital, Funafuti and there are significant coastal fisheries issues. The staff in this unit are the main implementers of the Funafuti Reef Fisheries Stewardship Plan (FRFSP).

The FRFSP was developed through repeated consultations with the Funafuti Kaupule, fishers and the community with the guidance of CFS in 2017. This resulted in the development of a comprehensive plan for managing Funafuti's coastal fisheries through a series of management measures, the success of which is being constantly evaluated using the main indicators output from the creel monitoring programme. The approach is to support the Kaupule and Fishermen of Funafuti Association (FOFA) to implement the measures which are designed to reverse past damage to the coastal resources caused by overfishing, and return them to a more productive and resilient state. The four strategies of the FRFSP are:

- Strategy 1: FCA strengthened
- Strategy 2: Size limits so every fish can breed at least once
- Strategy 3: Targeting more pelagic fish (tunas and others)
- Strategy 4: Information, people & ecosystems

The FRFSP was designed as an on-going activity for the Coastal Fisheries Section, with 2019 being the third year of its implementation. The CFS assists the Funafuti Kaupule in achieving management goals and objectives of the FRFSP, including providing technical assistance, procurement of materials and equipment and assisting in monitoring, control and surveillance (MCS) activities to protect the conservation area. Through the creel monitoring, it also provides feedback on how well management measures are working.

5.4.1 Strategy 1: Strengthening the FCA

Installation of buoys and beacons to mark FCA boundaries

The installation of buoys and beacons was significantly delayed in 2019. The main problem was the heavy reliance of the Kaupule of Funafuti on the TFD to drive their activity. Currently, all materials are ready except for the sand. The Kaupule Funafuti offered to provide the sand, but were unable. Therefore, CFS will look for sand elsewhere and complete the work in 2020. At the moment, the PWD no longer sell sand as it is reserved for government developments, so other retailers are being sought.

FCA Hut

The FCA Hut is another delayed activity in 2019. The World Bank PROP were still trying to find the new Safeguard and EIA Officer. Once this officer is in office then the EIA of the FCA could be carried out. If it is passed then TFD will procure the FCA Hut materials for construction. Most likely this activity will roll over to 2020 due to the late appointment of this officer by the PROP.

5.4.2 Strategy 2: Size limits

Currently the size limits being used to assess the health of the coastal fisheries resources in Tuvalu via the Creel Survey are based on the size at maturity (Lm) derived from public sources such as Fish base. Although these were a good place to start, there is a need to develop Lm data specifically for Tuvalu, as size at maturity can vary significantly from place to place. This work will include training to ensure TFD can carry on the work throughout the country as needed. External assistance sought through PROP in 2019 was not commissioned, and it is expected this activity will be completed in 2020.

5.4.3 Strategy 3: Targeting more pelagic species

This activity is largely being carried out by the Operations & Development Section of TFD. CFS is involved through public awareness work on Funafuti and the Outer Islands, and through assessing the use of Fish aggregating devices (FADs) in creel surveys. In 2019 few data on FADs were collected in the creel surveys, and it is expected that the work in 2020 will include this information.

5.4.4 Strategy 4: Information, people and ecosystems

The Coastal Fisheries Section carried out significant work aimed at increasing public awareness and education regarding the FCA, undersized fishes, ciguatera and the importance of a healthy ecosystem to support productive fisheries. This work included public meetings on every island, meeting with fishers, radio shows and web stories on the www.tuvalufisheries.tv web site. The Funafuti aspect of this work was part of Strategy 4 of the FRFSP.

Song competition

A song competition was run and advertised to the public to improve their awareness and participation in the FRFSP. Only 3 candidates registered, and the competition was held at the Trade Fair on the 3rd of December 2019. The theme of the competition was ‘Tausiga Meola ite Tai’ and judges from TFD assessed the candidates. The prizes given were: 1st Prize – Eseta & mokopuna; 2nd Prize – Sea Breeze Production (Telito); and 3rd Prize – Tetele Kilifi.

Radio Awareness Program

A range of radio shows was run during 2019 covering issues related to coastal fisheries. CFS staff were interviewed by the Tuvalu Media on the Song competition, with Mr Hetoa Taula and Mr Sitia Maheu elaborating on the rationale for the song competition. The main messages were to inform the public that Funafuti has a fisheries plan (FRFSP) which everyone should be aware of, and which requires compliance from the public. Second, the son itself would be used to further raise awareness of the FRFSP though a popular medium. The third reason was to make use of talented singers who are out there to showcase their unique voices.

School Awareness

School awareness programs run during 2019 included a poster competition, a school excursion the the FCA.

Island Community Awareness

The community awareness program was designed in response to the Funafuti community's requirement that other island communities on Funafuti should be made aware of the importance of the FRFSP. The CFS conducted an awareness program for each of the 7 outer island communities according to their availability. The Unit began the awareness program at the end of October and was able to complete the program at the end of November 2019. The awareness team included people from Funafuti Kaupule, the R2R project, and Tuvalu Fisheries Coastal and Operations & Development staff. This activity was supported by the PROP project who funded the hire of meeting halls as well as the catering for refreshments for each meeting.

5.5 Training and regional meetings

5.5.1 Training

During 2019 training was provided by SPC on the use of QGIS, an open-source geographic information system software program designed to allow suitable data to be over overlaid on maps and or satellite images.

5.5.2 SPC Heads of Fisheries Meeting 2019

The Heads of Fisheries Meeting (HOF) is a regional meeting of the heads of fishery agencies of the Pacific Community (SPC) member countries and territories, or their appointed deputies, covering interests raised during the Regional Technical Meeting for Coastal Fisheries (RMTCF) as well as work of the Oceanic Fisheries Program (OFP).

The 11th HOF meeting was held in New Caledonia in March 2019 and was attended by four Fisheries officials and an observer from the Pacific Regional Oceanscape Program (PROP). The Acting Principal Fisheries Officer for Coastal Management, Mr. Lale S Petaia led the delegation for Tuvalu Fisheries with support provided by the Acting Principal Fisheries Officer for Operations and Development (O&D), Mr. Viliamu S Petaia, the Acting Senior Fisheries Officer for Coastal Management, Mrs. Tautalo Iese, the O&D Training officer, Mrs. Malifaga Niukena and the PROP Procurement officer, Mr. Tematiu I Vave (Figure 33 34).

The meeting was held at the SPC conference venue in Anse Vata, Noumea from the 11th to 13th of March 2019. On the 14th to 15th of March side meetings were held for the Pacific-European Union Marine Partnership Programme (PEUMP) and New Zealand Ministry of Foreign Affairs and Trade (MFAT) projects. Country members were not invited to the MFAT meeting, only the Coastal Fisheries Working Group and SPC's Fisheries, Aquaculture & Marine Ecosystems (FAME) officials were in attendance. The 11th HOF meeting was chaired by Dr Tu'ikolongahau Halafihi the Chief Executive Officer of the Ministry of Fisheries of the Kingdom of Tonga.



Figure 33: Participants at the 11th Heads of Fisheries Meeting

The Tuvalu delegates were mandated to express the following issues provided by the Director of Fisheries and the Technical Advisor for Tuvalu Fisheries Department. These were the key issues raised by Tuvalu during the 11th HOF meeting:

- ✿ Request SPC to assist in setting up the installation of the Network system for the newly erected TFD building;
- ✿ Tails + A follow up request on the proposed tails + app to suit Tuvalu Fisheries Department's Coastal fisheries data collection;
- ✿ Request SPC to assist in providing technical support in establishing a giant clam hatchery, aquaponics and assist Vaitupu milkfish farming;
- ✿ Request if the proposed study for methyl mercury in Tuna to be widened to other contaminants such as PCB's and cadmium;
- ✿ Reminder to SPC not to duplicate data with other regional organizations especially in terms of E-monitoring;
- ✿ SPC not to cancel out its Near-shore development section however to upgrade the status of the particular section to meet the demands of the member countries, this would mean in recruiting additional staff to the Near-shore development section;
- ✿ Tuvalu to support having a Regional Fisheries Minister's Meeting; and
- ✿ The timing of HOF should be coordinated with other fisheries agencies to minimize clashes with other major Regional meets such as PNA.

5.5.3 Regional Technical Meeting on Coastal Fisheries, RTMCF 3

The Regional Technical Meeting on Coastal Fisheries (RTMCF) was held in Noumea New Caledonia at the SPC main conference room from the 4th to the 8th of November 2019.

The RTMCF is an entirely different event from HOF where coastal technical officers are able to raise and discuss issues with SPC's member country and territory fishery agencies.



The RTMCF 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.

Figure 34: One of the sessions at RTMCF3

The agenda and themes for RTMCF3 were developed in consultation with SPC members and partners, with the specific priority topics having been selected through an online survey of SPC members:

- Science: New technologies, e-data processes and systems
- Aquaculture: Implementation of the Regional Action Plan on Aquatic Biosecurity
- Community-based fisheries: Scaling-up community-based fisheries management

The RTMCF3 is the first phase of the new governance framework, information flow and decision-making process for Pacific coastal fisheries and aquaculture, introduced by the 11th Heads of Fisheries (HoF) Meeting (March 2019), endorsed by the Special Regional Fisheries Ministers Meeting (June 2019) and the 49th Meeting of the Committee of Representatives of Governments and Administrations (CRGA, June 2019).

5.6 Project Funding

5.6.1 R2R Project

The Tuvalu Fisheries Department continued to support the activities of the R2R Project in 2019. The fisheries coastal section had previously assisted the R2R in the Development of Community Based Integrated Management and Monitoring plans for eight of the nine islands in 2018 (Funafuti, Nanumea, Nanumaga, Niutao, Nui, Nukufetau, Nukulaelae & Niulakita). The final plan was completed for Vaitupu 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 through providing the coastal fisheries with access to technical and financial assistance. In 2019, the outer island consultations and metronome activities were all financed by PROP alongside materials for the Funafuti conservation area such as indicating buoys and solar lights, night vision binoculars for

MCS purposes, diving gears, research equipment and much more. The PROP assistance towards the fisheries coastal division is expected to continue for an additional 2 years.

5.6.3 Tuvalu Fisheries Support Programme (TFSP)

The TFSP was in its final year in 2019, but provided support for an Inshore Fisheries Adviser (IFA) to cover the period Sept 2019 – May 2020 (4 inputs). In 2019, the IFA supported the CFS in the areas of work planning, budgets, the FRFSP, monitoring survey and data entry, quality and handling, ciguatera monitoring of cases and toxic dinoflagellates. It is expected that further work in 2020 will focus on training and further support in delivering the annual work plan.

5.7 Issues and Challenges in 2019

5.7.1 Databases

In 2019 steps were taken to improve the access to databases for storing and quick analysis of data needed for all aspects of the work in coastal fisheries. Late in the year, the IFA installed the rescued Coastal Fisheries Database into a remote virtual machine so that data entry could continue after the failure of the coastal server. Soon after that, the IT Adviser created a new Management Information System that captured all of the Coastal Fisheries data placing it within the TFD so that data entry could continue even in the face of poor internet. At the same time the IFA began communication with SPC on the Tails+Tufman2 database for use in coastal fisheries. These changes created confusion in where and how data would be stored, and a delay in entering some 700 datasheets from the creel survey. These issues will be fully resolved in 2020.

5.7.2 Other Challenges

The Funafuti Coastal Management Unit was able to complete part of the work plan for 2019, but there were some areas that will need to be completed in 2020. For example, the installation of buoys and beacons and the FCA Hut are two activities under the FRFSP. Although, there were mishaps along the route but the Funafuti sub section is dedicated and committed to complete the left over activities in the coming year.

One of the other issues faced by the section was a delay in reviewing the FCA Order Legislation which led to the delaying of most of the expected activities for this quarter with the FRFSP. Further, shipping schedules and technical problems with the RV Tala Moana and equipment often resulted in major hindrance or delays in metronome trips, thus affecting other work commitments. Some delays were also caused by the need to translate information into the Tuvaluan language. Though challenging, translated materials are considered more beneficial for the communities and in getting the right information across.

Another of the major challenges for 2019 was in sorting out and securing the positions of the proposed acting staff to fill in the available spots after half of the CFS staff left for training in 2018. Following on from this, there were significant requirements in familiarising the new acting CFS officers with their roles within a short period of time. These issues led to some aspects of the work plan not being completed in the year. At the same time there were issues with the outer islands data collectors that will be addressed in 2020.

A major issue affecting the delivery of the Annual Workplan concerns outside forces. Visitors from SPC, R2R, SPREP, UNDP, and other donors can require TFD's assistance outside of the work plan, sometimes with little notice. Further, this can include domestic

requests for disaster assessments and other purposes, often outside of TFD's mandate (mostly on environmental matters). Although some of these are critical to Tuvalu, and provision for surprises should be built in to the annual work plans, maybe as contingency days, others are not in TFD areas. The impacts on delivery of the work plan can be very large.

5.7.3 Recommendations

The following recommendations are made for improving the efficiency of the CFS in the future.

- ✿ The Fisheries Department could consider signing an MOU with the Marine department in terms of using the 2 marine vessels for metronome trips;
- ✿ The creel and tuna data collectors should work with either paper or tails+ data entry (either is OK), as it is expected that SPC and the IT adviser will be able to synchronise and therefore merge the two data sets in the future;
- ✿ It is recommend that a technical advisor for coastal fisheries section (Inshore Fisheries Adviser) is secured to assist with the large number of new and acting staff; and
- ✿ Partner organisations and donors should be actively given a copy of the annual work plan to inform them of TFD's priorities and asked to design work to improve delivery in those areas. Any new areas they wish to propose need to be carefully reviewed by CFS and TFD in general and, if considered necessary for Tuvalu, formally added to the work plan in following years. Existing work dropped for unplanned projects should be minimized.

A small number of contingency days should be added to the annual workplan for GoT requirements during the year, such as disaster assessments.

6 Operation and Development Section

6.1 General

Marine products have been and remain the main source of protein food for Tuvalu's people. Fishing activities are a way of life for Tuvalu and also an important means of increasing income to families, benefiting the economy of the country. However, the increasing population and increased numbers of people in salaried employment make it hard for artisanal fishing to meet the demand from the people. The Operation & Development section continues to: support artisanal fishing by providing technical assistance to ensure their health and safety at sea; provide technical training in catching fish; and build capacity in processing and storing fish products. 2019 saw achievement of many core activities through the year but with some activities still ongoing for next year. This part of the report provides full details of activities undertaken.

6.2 Fisheries Training and Development Activities:

6.2.1 FADs Program



Figure 35: Outer island FAD successfully deployed

A key objective of the TFD is to have an effective FAD network established throughout Tuvalu. There were 6 FADs deployed for: Nanumea, Nanumaga, Niutao, Nui, Vaitupu, Nukufetau. Of the outer islands, only Nukulaelae was left for deployment early next year. The Operation & Development Section works with each community in construction of their FAD's. Outer Islands fishermen selected the location of their FAD according to skills and the lessons they learn from losing FADs in the past, and all chose the near-shore FADs.

The "Lizard FAD" was the type of FAD used this year. Both sub surface and surface types were used with a rope length of 520 meters (nylon rope 370 meters & polypropylene rope, 150 meters). Fishermen on all outer islands have the capacity to construct this new FAD design, following assistance from the Operation & Development staff.

The locations of FADs on each island have been sent to the Marine Department and Police Department, as well as the Fishermen's Association, Secretary and Kaupule on each island. It is hoped that the latter will work together to maintain these FADs.

6.2.2 Fishing skills training

To complement the programme of FAD deployment, training in fishing skills around FADs was also provided. In October a specialist from Japan, Keizo Takahasi came to Tuvalu to train the fishermen of the island of Vaitupu in FAD fishing. Fishing gear donated by the OFCF were distributed among those who attended this workshop. Vaitupu was the third islands to benefit from this type of training. The specialist was accompanied by one of the Officers from the section and the Adviser from OFCF Toma Hayashi.



Figure 36: OFCF training participants in Vaitupu

6.2.3 Sea Safety

Providing safety equipment to fishers is a very useful and helpful practice to the communities as well helping to avoid expensive search and rescue operations when boats drift away from the island. A strong recommendation is for all artisanal fishers to have this equipment to take with them on every trip. At present approximately 50% of artisanal fishers in Tuvalu have a “Grab bag” which contains safety equipment; and all have received training in using the equipment provided in the bag. Procurement of the next order, to increase the coverage to near 100%, was delayed due to a requirement from the donor to complete a Memorandum of Understanding on the use of “Grab bags”. This agreement will be between the Fishers Association and Kaupule of each island and with the endorsement of the Fisheries Department. Finalizing the MOU, with stakeholder feedback, will be completed in 2020.



Figure 37: Training in the use of Grab Bag equipment in the Maneapa

6.2.4 Post-Harvest & Value Adding

Post-Harvest and Value adding activities, to provide for safe handling and storage of fish is an important issue to make the best use of catches. Value adding activities support families and provide income-earning opportunities. The methods preserve the shelf life of fish products. All island Communities have received training on how to preserve fish using smoking and bottling methods. All Islands have ownership of a smoke box under the care of their CFCs. The post-harvest and value adding activities are mainly provided for fishermen’s wives but are also open to anybody with an interest to attend.



Figure 38: Smoked fish products and training in fish bottling

6.2.5 Awareness raising

FAD awareness posters, pamphlets and brochures were all distributed to all Outer Islands at the school, hospital and Kaupule’s office. Three posters have been translated from English version to Tuvaluan version.

6.2.6 Capacity Building

Staff capacity building is a valuable process in encouraging Officers in the department to obtain, improve and retain the skills and knowledge to do their jobs competently. Operation and Development staff attended a number of meetings and training courses during the year. These included meetings on coastal fisheries organised by SPC; training and meetings arranged by OFCF and a management training course in Tuvalu.

6.3 Community Fisheries Training Centres



Figure 39: Invited guests at the opening of Community Fisheries Training Centres

Training Centres on each island create good environment for fisheries training on the Outer Islands, such as construction of FADs, refresher training on Safety at Sea techniques and checking their “grab” bags.

The Official Opening of the Community Fisheries Training Centres on each outer island was completed as shown below.

Date	Island	Attended Official
15/01/2019	Nui	Asela.Peneueta
16/01/2019	Vaitupu	Neli.Seniola
17/01/2019	Nukufetau	Asela.Peneueta, Neli.Seniola
14/03/2019	Nanumea	
15/03/2019	Niutao	Matelina.Stuart, Pafini.Fepuali
29/03/2019	Nukulaelae	Viliamu.Petaia & Neli Seniola
22/07/2019	Nanumaga	Vilamua.Petaia & Neli Seniola

Table 12: CFTC official opening dates

6.4 Mechanical Workshop

The role of the mechanical workshop is to maintain the machinery of the TFD so that it will continue in operation and service for a long life. The mechanics, together with the Manauai crews cooperate in the tasks of the workshop. The assistant mechanic post was filled in 2019. During the year there was an emphasis on tidying up the TFD workshop since:

- ✿ The cleaning up of the workshop and rearranging all the tools and equipment will help the Asset Manager to monitor accurately the stock and identify lost equipment.
- ✿ Working in a clean environment will help the health and safety of the staff and will attract the public to generate more revenue from the workshop

Achievement of tasks during the year included:

- ✿ Maintenance of the Manauai on the slip yard
- ✿ Painting and rearranging of the mechanical workshop with a new setting of storage of tools
- ✿ Changing the oil from the department Vehicle
- ✿ Maintenance of Nanumaga and Vaitupu CFC ice machine
- ✿ Changing lubricating oils of speed boats
- ✿ Installation of new batteries, filters and ensuring full operation of the crane truck
- ✿ 2 TFD motorbikes repaired and now operational
- ✿ Fully renovated the slipway winch shed with new roof and walls.

6.5 Vessel Operations

6.5.1 FV Manauai

The operation of the Manauai included a busy programme of charters from other government department, non-government organization, business and the public; as well as supporting work of TFD in the outer islands. Manauai completed a total of 45 trips for the year. There were some staffing issues due to the resignation of the Bosun early in the year, and replacements for three vacant position could only be filled on a temporary basis due to delays in substantive recruitment. The FV Manauai fuel consumption was **38,223** litres from January to December. Revenue collected from charters amounted to **\$18,786.61** but there was still an amount of **\$8,776.38** to be collected from the outstanding charters at the end of the year.

Categorizing of Trips	Purpose	Total
Fisheries Trips		8
Metronome Trip	❖ Metronome Trip to Outer Island for development of Management plan, training and awareness workshop	2
Operation and Development	❖ Deploying of FAD's and Sea Safety & Post Harvest Training	6
	❖ Training and Workshop with Fishermen	
	❖ Observing Milk Fish activities awareness workshop for schools	
GoT Trips	❖ Preliminary Survey FDAPIN project 2019 adviser for local fishermen for value add up.	8
	❖ Trip deployed of Nanumaga Fad and opening of Training Centre	
Ministry of Education Youth and Sport	❖ Drop off cargo to MSS (VTP) in preparation for the TMAC and Ration	2
	❖ Dropping off MSS Ration to VTP	1

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	❖ Diversion made to pick up student travelling to Japan	1
Agriculture Dept	❖ Diversion made to drop off Agriculture staff to VTP	1
PIF Committee	❖ Charter request to pick up food in preparation for the PIF	1
OPM	❖ Charter to request to drop off Namoliki to Nukulaelae ❖ Charter request to drop off ballot paper to the Southern Island	2
Private	❖	19
KPK	❖ Drop off Business cargo to Vaitupu	2
FOFA	❖ Fishing trip	1
Kaiga Fanoanoa Maeva	❖ Dropping off deceased and Family to VTP	1
Kaiga Fanoanoa Eseloma	❖ Dropping off deceased and family to NKFT	1
Steve Mc Kenley	❖ Diversion made to pick up them from Nukufetau	1
Fenua VTP	❖ Diversion made to pick up food and Island Chief from VTP for the opening ceremony of Funafuti Hall	2
	❖ Charter request to VTP again to pick up food from VTP to Funafuti	1
Taukelina	❖ Charter request to drop off Taukelina F to VTP	1
Jehovah Witness	❖ Dropping off church picnic to Fualefeke	2
	❖ Picking up church picnic from Fualefeke	1
Funafuti KPL	❖ Dropping KPL picnic to Funafala	1
	❖ Picking up KPL picnic from Funafala	1
Letasi Iulai	❖ Dropping off deceased and family to Nukufetau	2
Manutoga	❖ Dropping off deceased and family to Nanumaga	
Motusia A	❖ Dropping off business cargo to Nui	1
NGO's Trip	❖	10
TEC	❖ Charter request to carried out feasibility study on Funaota, Nukufetau	1
Ridge to Reef	❖ Diversion made to pick up participant to the workshop	1
Child Protection Project	❖ Trip to pick up survey team (Child Protection Project) from Nukulaelae	1
Taiwan Mission	❖ Trip to pick up Frank VTP/Fun ❖ Diversion to drop off Frank to VTP	2
CCECC Project	❖ Drop the oxygen bottles and foods to Nukulaelae ❖ Pick up team CCECC from Nukulaelae back to Funafuti	2
USP	❖ Trip to Avalau (planting mangroves)	2
Grand Total		45

Table 13: *RV Manau Summary of Trips*

6.5.2 RV Tala Moana

RV Tala Moana is intended to meet operating costs entirely from revenues collected from charters from projects, government and the public. TFD has no recurrent funding in the budget for Tala Moana which operates under a revolving fund. Work for TFD activities is supported through charters from projects. However, Tala Moana is an old vessel and maintaining the vessel is becoming increasingly challenging. This year the Fisheries arranged for a Ship's Surveyor to come to Tuvalu to assess the condition of Tala Moana as well as to plan repairs to be undertaken during slipping in Fiji.

Unfortunately RV Tala Moana ceased operations for several months due to a problem with the gearbox of one main engine. Despite ordering spare parts and engaging a local marine engineer, it proved not possible to fully correct this problem in Tuvalu, and the vessel finally continued operating on one engine, awaiting a chance to depart for slipping

in Fiji. Only 12 charters could be completed during the year and this greatly depleted the revolving fund.

In another issue, RV Tala Moana was chartered by the CARDNO on the 14/03/2019 to Nukulaelae. An accident occurred on the 16/03/2019 with the capsizing of the dinghy in the passage with two passengers onboard with their equipment. Compensation for the loss of this equipment added to the costs for the year.

Categorizing of Trips	Purpose	Total
Fisheries Trip		4
Coastal Fisheries	Diversion to pick up data collector and school excursion to Avalau	2
Metronome Trip	Metronome Trip to all Outer Island	2
Project Trips		3
Cardno Project	ADB Safeguard trip to Nukulaelae	1
CCECC	Project visit (Nukulaelae Boat Harbour) to Nukulaelae	1
ITP	ITP trip to visit VTP	1
GoT Trips		4
PMH	Emergency run by the Health Dept to pick up sick Patient from Nanumaga	1
Education	Emergency Run to drop off MSS Provision to Vaitupu Island	1
MHARD	To drop off MHARD team to Nanumea	1
OPM	Drop off ballot paper to NKFT	1
NGO Trip		1
TMTI	Drop off and pick up guest of Passing Out TMTI	1
Grand Total		12

Table 14: RV Tala Moana Summary of Trips

Overall, as shown in the table below, Tala Moana has been operating at a loss since 2017, when high costs of slipping in Fiji were incurred. While the vessel provides a useful service, both for TFD work in the outer islands and for other projects, this situation is not sustainable.

	Item	2016	2017	2018	2019	Total
Revenue	Boat fare			338.33	270.00	608.33
	Charter	478,024.00	407,227.17	464,857.66	212,968.05	1,563,076.88
	Other	0.10	312.00		300.00	612.10
	Unspecified	122.50	62.84	261.65	50.01	497.00
	Error Posting				36,106.74	36,106.74
	Transfer			5,095.00	810.2	5,905.20
	Total	478,146.60	407,602.01	470,552.64	250,505.00	1,606,806.25
Expenditure	Maintenance	6,947.94	246,477.17	60,513.45	8,513.62	322,452.18
	Operation	246,278.24	222,366.60	308,075.82	120,763.74	897,484.40

	Other	2,738.16	815.20	992.00	12,405.30	16,950.66
	Unspecified		5,504.90	1,603.50	1,124.26	8,232.66
	Wrong Posting		4,047.90	2,019.60	44,157.42	50,224.92
	Salaries	2,626.04	58,938.91	153,854.36	118,212.67	333,631.98
	Total	258,590.38	538,150.68	527,058.73	305,177.01	1,628,976.80
Net Profit		219,556.22	-130,548.67	- 56,506.09	- 54,672.01	- 22,170.55

Table 15: RV Talamoana operating expenditure and revenue for the past 4 years

The following defects were identified by the surveyor for repair during dry docking in Suva in early 2020, or by the vessel's engineers.

- ✿ Both main engines + generators to be overhauled (next dry dock).
- ✿ Electric oven needs new wiring (next dry dock)
- ✿ Steering system wiring to be assessed by qualify electrician and if needed, wiring to be replaced (next dry dock).
- ✿ Mega test of all electric motors (next dry dock).
- ✿ Port air compressor suction valve broken and need to be replaced (dry dock).
- ✿ Sewage plant (dry dock)
- ✿ Underwater Zinc Anodes (dry dock).
- ✿ Hawse Pipe (dry dock).
 - The starboard hawse pipe is severely corroded and it can only be fixed during dry dock due to the limited of materials.
- ✿ Chain Locker (dry dock).
 - The tank top in the chain locker is badly corroded thus allowing sea water to flow from the hawse pipe into the forepeak tank when the vessel is making way.
- ✿ Anchors (dry dock).
 - The Talamoana lost her last anchor on our last voyage to the Northern Islands. The anchor's shackle was believed to be snapped when the vessel attempted to anchor at Niutao Island. Attempts were made to retrieve the anchor recently but unsuccessful.
 - We are now working in placing an order and to receive a new anchor on the next dry dock.
- ✿ Gangway (dry dock).
 - This is one the very important issues that we had on Talamoana. The vessel has no gangway and there has been some concerns from passengers especially foreigners.
- ✿ Workboat repairs (dry dock).
- ✿ Main Air condition compressor shaft broken (under repair by engineers)
- ✿ Chillers (under repair by Technician Filiki).

6.6 Issues and Challenges

The Operation and Development section generally met its objectives for the year. Training programmes were delivered as planned and the successful deployment of FADs for nearly all of the outer islands was an important achievement. The Manau operated well throughout the year, delivering services to Fisheries and other stakeholders. However a number of challenges were also encountered:

- ✿ Despite assistance from OFCF it was not possible to repair the ice machine in the NAFICOT market during the year, so ice could not be provided to fishermen and there was zero revenue from ice sales;
- ✿ Maintenance of fisheries vehicles and outboard motors was made difficult by a lack of tools and basic spare parts;
- ✿ It is difficult to maintain full crews that comply with certification requirements for the vessels as the salaries are relatively low for qualified officers and engineers;
- ✿ A long breakdown of Tala Moana reduced the possibility to carry out charters and also contributed to the depletion of the revolving fund.

With regard to the Tala Moana, operating this vessel is becoming quite a burden on the Department. Analysis of the costs and earnings (Table 15) shows that there have been losses in three of the four years of operation. Although charter fees already seem high, it may be necessary to increase these charges in 2020 if the operation is to be sustainable.

