

FISHERIES DEPARTMENT
MINISTRY OF FISHERIES AND TRADE
GOVERNMENT OF TUVALU

ANNUAL REPORT 2023



Tuvalu Fisheries Department
Ministry of Fisheries and Trade
Government of Tuvalu

Annual Report 2023

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Acronyms and Terms

AA	Access Agreement
aFAD	Anchored Fish Aggregating Device
AG	Attorney General
AIS	Automatic Identification System
ASO	Aerial Surveillance Operations
AUD	Australian Dollars
AWP	Annual Work Plan
BET	Big eye tuna
CCFS	Compliance Case Files System
CEU	Compliance and Enforcement Unit
CFCs	Community Fishing Centers
CFMPs	Coastal fisheries management plans
CFO	Community Fisheries Officer
CFP	Ciguatera Fish Poisoning
CMMs	Conservation and Management Measures
CN	Chinese
COFA	Chinese Overseas Fisheries Agency
CPUE	Catch per unit effort
CTTF	Chinese Taipei Trust Fund
dFAD	drift FAD
EEZ	Exclusive Economic Zone
EIA	Environment Impact Assessment
ENSO	El Niño-Southern Oscillation
ER	e-reporting
EU-market	European Market
FADs	Fish Aggregating Devices
FAO	Food and Agriculture Organization
FDAPIN	Fisheries Development Assistance to Pacific Island Nations
FFA	Forum Fisheries Agency
FIMS	Fisheries Information Management System
FM	Federated States of Micronesia
FOFA	Fishermen on Funafuti Association
FRFSP	Funafuti Reef Fisheries Stewardship Plan
FRFSP2	FRFSP
FSM	Federated States of Micronesia
FSMA	Federated States of Micronesia Arrangements
FV	Fishing vessel
GTox	Ciguatera toxin
IRCS	International Radio Call Sign
IUU	Illegal, unregulated and unreported activities
JICA	Japan International Cooperation Agency
KOFA	Korean Overseas Fisheries Agency
KOFCC	Korean Overseas Fisheries Cooperation Center
KR	Koreans
LL	long liners
LLVDS	Long Line Vessel Day Scheme
LMMA	Locally Managed Marine Areas
MCS	Monitoring, Control and Surveillance

MCSWG26	Monitoring, Controlling and Surveillance Working Group 26 Meeting
MFT	Ministry of Fisheries and Trade
MNRD	Ministry of Natural Resources Development
MOU	Memorandum of Understanding
MPI-NZ	Ministry of Primary Industry of New Zealand
MSC	Marine Stewardship Council
NAFICOT	National Fisheries Corporation of Tuvalu
NGOs	Non-Government Organisations
NR	Nauru
NZ	New Zealand
NZ_TFSP2	NZ - Tuvalu Fisheries Support Program 2
OFCF	Overseas Fishery Cooperation Foundation
OPAGAC	EU certified fishing organisation
PAE	Party Allowable Effort
PDF	Project Development Fund
PLB	Personal Locator Beacon
PNA	Parties to the Nauru Agreement
PNAO	Parties to the Nauru Agreement Office
PNG	Papua New Guinea
POA	PNA Observer Agency
PROP	Pacific Regional Oceanscape Programme
PROPER	Pacific Regional Oceanscape Programme for Economic Resilience
PS	Purse seine
ROCW	Regional Observer Coordinators Workshop
ROP	Regional Observer Program
RSP	Regional Surveillance Picture
SC	Scientific Committee
SFO	Senior Fisheries Officer
SMC	Senior Management Committee
SPA	Special Protected Areas
SPC	Secretariat of the Pacific Community
TCA	Tuvalu Competent Authority
TDF	Tuvalu Development Fund
TEC	Tuvalu Electricity Corporation
TFD	Tuvalu Fisheries Department
TFSP	Tuvalu Fisheries Support Programme
TFSP2	Tuvalu Fishery Support Programme phase 2
TK	Tokelau
TMTI	Tuvalu Maritime Training Institute
TV-flag	Tuvalu flag
TW	Taiwanese
US	United States
USD	United States Dollars
USP	University of the South Pacific
VDS	Vessel Day Scheme
VHF	Very High Frequency
VMS	Vessel Monitoring System
VSAT	Vessel Satellite
WB	World Bank
WCPFC	Western Central Pacific Fisheries Commission
WCPO	Western Central Pacific Ocean

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1 Background

1.1 The Tuvalu Fisheries Sector

Tuvalu is composed of four reef islands and five atolls. They are spread out between the latitude of 5° and 10° south and between the longitude of 176° and 180°, encompassing an Exclusive Economic Zone **Error! Bookmark not defined.**(EEZ) of 750, 000 square kilometers and a land area of 26 square kilometers. The islands of Tuvalu, are homes to around 11,000 persons with ~60% living on the capital Funafuti.

Subsistence and artisanal activities dominate Tuvalu's local fisheries. A wide variety of techniques are used throughout the group to collect fish, crabs and shellfish which are consumed, shared or informally bartered. Fisheries Centres on seven of the outer islands, managed by the Kaupule with support from TFD, buy fish from local fishermen and sell to the public in either fresh, frozen or dried form. On the main island, Funafuti, artisanal fishing is limited to a small fleet of 4-7-meter outboard powered skiffs which mostly fish by trolling for tuna and by line fishing for reef fish.

It has been estimated that more than half of the fish landed in Tuvalu (59% by weight) are ocean species, predominantly 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 72 kgs/person/year (90 kgs in the outer islands and 55 kgs 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 management fees from Tuvalu flag vessels. The industry normally provides employment opportunities for observers, port monitors and stevedores, and it has also been planned to start placing crew.

1.2 Purpose of this report

This report describes the objectives, activities and results of the Tuvalu Fisheries Department (TFD), which was then within the Ministry of Fisheries and Trade (MFT), during 2023. As Tuvalu emerged from the COVID 19 pandemic, a number of activities got back to normal, such as observer placement and travel to outer islands.

2023 represents the first year of the Department's new Corporate Plan (2023 – 2025). This is aligned directly with the *'Te Kete'*, the national sustainable development strategy. Where possible, activities are reported against the thematic areas identified in the 2023 Annual Work Plan (AWP) based on the Corporate Plan.

1.3 Vision

The guiding vision of the Department is taken from *Te Kete* and is as follows:

- ✦ *Sustainable small-scale fisheries operations pertinent to income generation, food security and healthier diets are maintained and strengthened nationwide.*

✚ *Revenue generated from our ocean fisheries is optimized.*

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

1.4 Mission

The Department's mission, also taken from *Te Kete* is:

✚ *To increase the contribution of Fisheries to socio-economic development and quality of life.*

These high-level objectives build on earlier Corporate Plans, but reflect a change of emphasis towards building food security and greater economic resilience based on our fisheries resources.

1.5 Objectives

The primary objectives of the Department are as follows:

1: Develop a sustainable commercial fishery optimizing revenue from our own waters, which includes continued support for small-scale commercial fishers as well as efforts to develop a larger scale operation.

2: Foster sustainable management of oceanic fisheries resources – reflecting the importance of regional cooperation as well as monitoring control and surveillance in our waters.

3: Improve management of coastal fisheries, imperative for sustainable inshore resources, which face threats of overfishing and impacts of climate change.

4: Execute a consistent data collection and analysis facility to ensure best decisions are made throughout, in support of the effective management of both oceanic and coastal resources.

5: Increase the value of access fishing licenses in Tuvalu waters – maintaining and if possible increasing Government revenue while seeking to develop other economic opportunities.

6: Develop systems, staff capacity and facilities for a Tuvalu Fisheries Authority; the transition from a Department to an Authority will be an important step in improving the efficiency and effectiveness of the fisheries agency.

7: Promote public awareness and education on fisheries issues, with a new emphasis on attracting talented young people into the fisheries sector.

1.6 Organisation

The TFD organizational structure, shown in Figure 1, comprises:

✚ An Administration Section, comprising the Director and Deputy Director, several professionals with cross-cutting responsibilities (Legal Officer, Economist and Librarian/Public Relations Officer, Fisheries IT Officer) and the Executive staff. The Administration group is responsible, among other things, for recommending fishery policy initiatives, negotiating fishery access arrangements, securing assistance through development projects and establishment of new commercial initiatives in which the Tuvalu Government has an interest;

- ✦ 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 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;
- ✦ An Operation & Development Section, responsible for the running of the TFD vessels, construction and deployment of fish aggregation devices, vocational training of fishers and fishing vessel crew, and other development-oriented activities. The Corporate Plan calls for this Section to expand its activities to promote food security.

2 Fisheries Department Resources

2.1 Staffing

The Organisational structure of the TFD Public Service establishment at January 2023 was as shown in Figure 1. No new positions were approved from previous years. A number of staff that work for the Fisheries Department are employed on contract with the Government and do not form part of the establishment. These include:

- ✦ More than 70 Fisheries Observers who are only engaged when required to work on foreign fishing vessels;
- ✦ 7 Crew of the Manau II;
- ✦ 8 Data collectors – one on each of the islands of Tuvalu except Niulakita – who carry out creel surveys of catches.

In addition to the public service establishment, several externally-funded activities continued to operate in 2023 and employed staff who work as part of the organization. These included:

- ✦ A Project Coordinator, Project Accountant and Project Officer for the preparatory phase of World Bank-funded Pacific Regional Oceanscape Programme for Economic Resilience (PROPER);
- ✦ A Project Manager for the New Zealand funded TFSP2 project, which was in its 3rd year;
- ✦ Seven Community Fisheries Officers – one posted to each of the outer islands – funded by the TFSP2 project;
- ✦ Several temporary positions in the Department, to provide relief for staff undertaking training overseas and support project activities.
- ✦ A Fisheries Adviser funded by the New Zealand Aid Programme, worked throughout the year in Tuvalu apart from a period of home leave. An Inshore Fisheries Adviser (part time) funded from the same source was on contract during the year and made several visits to Tuvalu. The Adviser from OFCF, who is based in Fiji was also able to visit Tuvalu as planned.

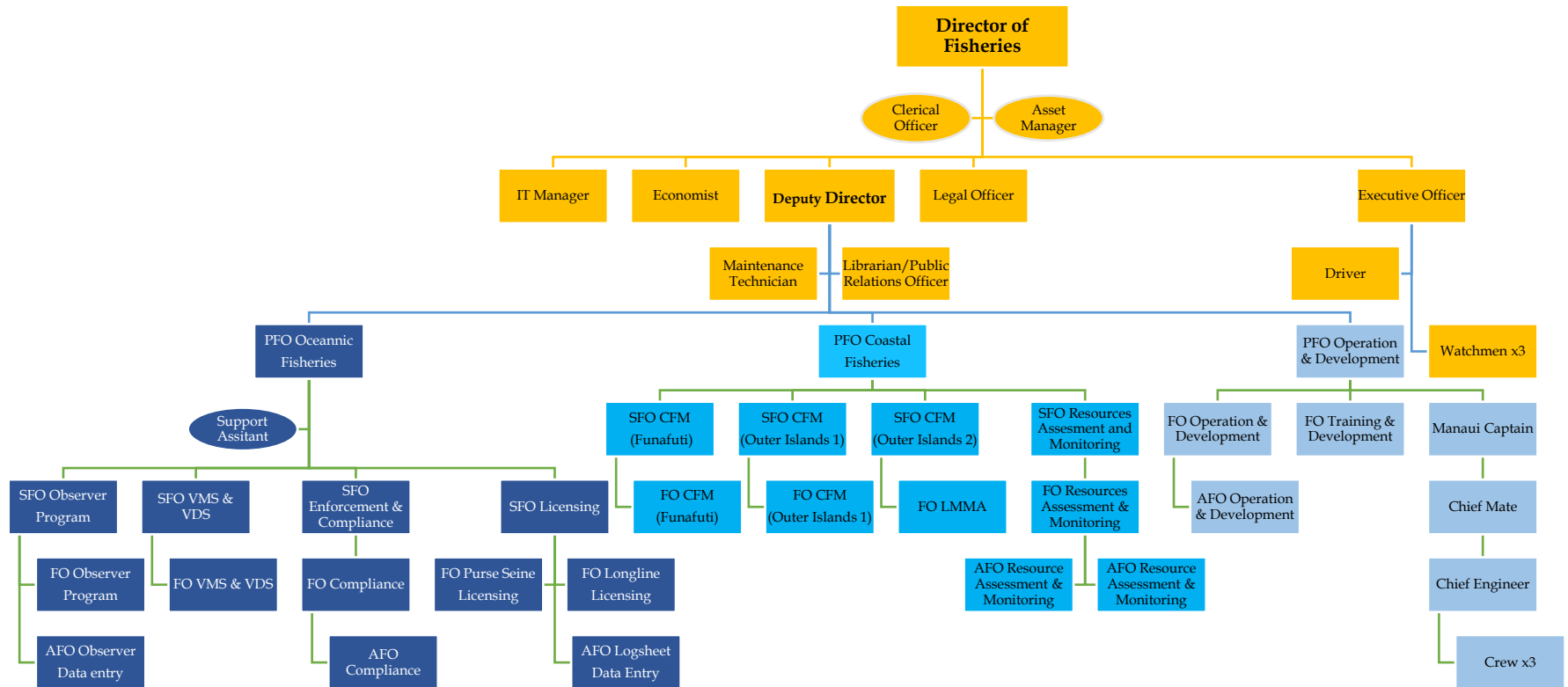


Figure 1: Tuvalu Fisheries Department Organizational Structure in 2023

2.2 Assets and facilities

Work continued in 2023 on the ongoing programme of maintenance for the TFD Office building. The new photovoltaic solar power system, which should meet the electricity needs of the office from renewable energy, continued to experience problems and will be repaired in early 2024. Building work for a new Mariculture Hatchery was completed in 2023, but wiring, pipework and installation of tanks and machinery will be done in 2024.



Figure 2: New mariculture hatchery building

The generator of RV Manauai, the 17-metre fibreglass vessel provided in 1982 by the Japanese Overseas Fishery Cooperation Foundation (OFCF), was repaired in 2023 by OFCF and the main engine overhauled. An inspection of the vessel by a New Zealand surveyor revealed a number of major safety issues and use of the vessel was curtailed pending a major upgrade.

The Manauai II, a new 19- metre multi-purpose Fisheries vessel donated by Japan International Cooperation Agency (JICA), was operational for part of the year, but continued to experience electrical and other faults.

TFD continued to operate a range of other equipment and assets, with valuable support for maintenance and replacement provided by OFCF. New equipment for the NAFICOT market, provided by the Korean Overseas Fisheries Cooperation Center (KOFCC) was commissioned with assistance from Korean experts, and a stand-by generator was donated. OFCF also replaced one of the ice-making machines that are used by the Corporation.

2.3 Asset Management

Management of these various assets is the responsibility of the Fisheries Asset Manager, who has been maintaining the Department's asset register. Achievements during the year included;

- ✚ Implementation and enforcing the asset policy;
- ✚ Clearing and checking a range of project equipment and materials delivered for various projects and;
- ✚ Procurement of materials and supplies funded by the recurrent budget in line with the Government's procurement rules.

Unfortunately, the Asset Manager resigned mid-year to take up a post with a non-Government organisation. Hopefully a replacement will be in post some time in 2024.

2.4 Office Maintenance

In 2023 the team continued to carry out its maintenance work, particularly the workshop building which was renovated. The exterior of the Fisheries Office was also repainted. Equipment, such as air conditioners, were serviced or replaced as required. Work also started on a new fuel storage shed, as current arrangements with petrol stored under the office building are a fire hazard.

2.5 Budget

Fisheries licensing, access fees and investments continued to generate a significant proportion of Tuvalu Government revenues: income for 2023 was \$43 million – this resulted from the increased number of fishing days sold under the VDS, of which 97% were sold during the year. Transshipment revenue remained low even after COVID restrictions were lifted, due to oceanographic conditions which favoured fishing in other areas. The Fisheries Department plays a critical role in maximising these returns through its ongoing participation in regional and bilateral fisheries negotiation, and the development of strategies intended to promote Tuvalu’s economic interests.

Although the TFD’s recurrent budget allocations are far less than the true cost of running the organisation, there had been some increases in recent years. However, these increases stopped in 2019. For 2023 there was again no increase, and as usual at the start of the year there was a delay of several weeks before TFD could access various important expenditure votes.

The Department relies heavily on funding support to the fisheries sector from development partners. 2023 was a difficult year as the World Bank PROP funding ended in August 2022 and the new PROPER project was in the preparatory phase. Only limited funding was made available for work on the documentation required for project approval. Project activities during the year were as follows:

- ✦ The preparatory phase for the WB Pacific Regional Oceanscape Project for Economic Resilience (PROPER) was executed during 2023. After a number of delays, the project preparatory grant was received in May. By the end of the year, all necessary documentation was ready, and the project agreements were signed. This project has a budget of US\$13 million, mainly financed from WB regional funds, and will run for 6 years from 2024.
- ✦ The New Zealand-funded Tuvalu Fishery Support Programme phase 2 (TFSP2) completed its third year of operations. It provides more than NZ\$4 million over 5 years plus further technical assistance (the Fisheries Adviser and Inshore Fisheries Adviser). NZ provided additional funding during 2023 to support activities that otherwise would have halted due to the gap between the two phases of the WB programme. Notable achievements included the construction of the new mariculture hatchery building, completion of a human resource development plan, supply of fishing gear for resale to the outer islands, and coastal fisheries management work in six outer islands.
- ✦ The Korean Overseas Fisheries Cooperation Centre, KOFCC, project for fisheries infrastructure progressed during the year. Detailed designs for the fisheries training centre, boatshed and store and a fisheries jetty were completed. At the end of the year the project was paused while awaiting a decision from the Environment Department on whether an EIA would be required. Korea also provided additional support to NAFICOT in the form of a generator and expertise to commission an ice machine and fish dryer.
- ✦ The Overseas Fisheries Cooperation Foundation continued to provide equipment and supplies in support of TFD programmes and to maintain assets, and technical assistance was resumed. Replacement of the engine for the Manau generator was the main input in 2023.

Together these programmes support a wide range of activities by the Fisheries Department working in close collaboration with other partner agencies, including NAFICOT, the Maritime Wing of the Tuvalu Police Department, the Tuvalu Maritime Training Institute (TMTI), the Kaupule on each of Tuvalu’s islands and the Fishermen on Funafuti Association (FOFA). Activities to be supported by 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 continued 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)).

2.6 Internal management, monitoring and reporting

The TFD Work Programme in 2023 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 Librarian/Public Relations Officer, Asset Officer, Projects Coordinators and the NZ-funded Technical Adviser. The SMC aim to meet monthly throughout the year to discuss and review activities and any issues arising.

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 TFSP2 and FAO projects as required by the donors. A range of documentation for the PROPER project was prepared by consultants and the Project Management Unit. A mid-year report on progress with the work plan was prepared, as well as a number of briefs for periodic meetings with the Minister and international meetings.

3 Administration Fisheries Activities

3.1 General

Many of the activities of the Administration Section during 2023 are repeated every year. These include recruitment of personnel, staff appraisals, and reporting on activities. Administration staff were involved in regional meetings throughout the year. Face to face meetings resumed with the lifting of COVID restrictions, but video-conference is also used much more since the pandemic. One of the Fisheries ongoing obligations is for fisheries information to be shared with the public. New posters were developed, and the fisheries library and the TFD website were updated and improved during the year.

3.2 Transition to a Fisheries Authority

Following the study completed in 2022, Cabinet approved the changing of the Fisheries Department to a statutory authority. A draft bill to establish the new Authority was developed with technical assistance, and the Fisheries team carried out consultations in all eight islands of Tuvalu with local communities and Kaupule. The feedback from these consultations, as well as a number of changes required by Cabinet, were included in the final draft which had a first reading in Parliament in July. The bill was passed into law in the November session, but only becomes effective on a date ordered by the Minister. This is now planned for 1st July 2025, allowing time to develop systems and procedures and a budget aligned to the new financial year.

3.3 Post-COVID impacts

With the lifting of many travel restrictions in late 2022, observer placement ramped up rapidly to reach 100% coverage of purse seine vessels by January 2023. Tuvalu's observer programme responded to the challenge, but inevitably a lot of trained observers had found other occupations during the pandemic and new observers were trained to replace them.

Transshipment remained at very low levels for most of 2023, even though restrictions had been lifted. While it is possible that some fishing vessels had grown used to using other ports, it seems that this was mainly due to the effect of oceanographic conditions and the activity picked up in the last weeks of the year.

3.4 Fishery Access Negotiations

Access negotiations were carried out with major bilateral partners for fishing in August. Payment conditions were mainly unchanged from previous years, although an increase in the observer levy was finally agreed with all partners. This will support an increase in observer remuneration in 2024.

Tuvalu successfully included requirements for FAD registration and tracking in all access agreements, in compliance with undertakings made to PNA.

Uptake of fishing days for 2024, under nearly all arrangements (foreign bilateral, TV-flag vessels and pooling) was less than in previous years. Tuvalu started 2024 with a large number of days unsold, which will pose a challenge in meeting revenue targets.

3.5 Joint ventures and domestic vessels

Tuvalu's fleet of six purse seiners operated throughout 2023, with TFD meeting flag state responsibilities and supporting their operations through all the usual licensing and registration processes. Most of the vessels are participating in Marine Stewardship Council (MSC) programmes which required information and commitments from Tuvalu as the flag state.

2023 also saw the start of activities for our Competent Authority, with the recruitment of an expert from Fiji to lead the CA unit, supported by two part-time inspectors. Training of these inspectors was carried out, and the CA also started its programme of vessel inspections and taking of samples for laboratory analysis. It is hoped that progress can be quite rapid, with a view to gaining EU-market access for our TV-flag fleet within the next 12- 18 months. A brief report from the CA is provided as an attachment.

3.6 Regional meetings

TFD Administration staff were back to the usual round of regional meetings in 2023. These included Officials' and Ministers' meetings of FFA and PNA, and of course the annual session of WCPFC. The latter was notable for the approval of a new Tropical Tuna Measure, which maintains most of the conservation measures of the previously successful CMMs for tropical tunas, but aims to increase observer coverage of the longline fleet and reduce the burden of the FAD closure on small island developing states. A target reference point for Albacore tuna was also agreed.

3.7 Training and workshops

In long term training, the Legal Officer successfully completed a Master's programme at the University of Wollongong, while the SFO (licensing) graduated with a MBA from the University of the South Pacific (USP). Two staff from the Coastal section started degrees at the USP (one BSc and one MA). The Captains of the two Fisheries vessels also re-validated their tickets at the Fiji Maritime Academy.

A number of staff signed up for regional short-term courses, including the Fisheries Leadership programme as well as competency based training and workshops, which are mainly delivered online. A one-week programme of work skills training was provided in-country by the USP for many TFD staff, covering areas such as project management and report-writing.

A new initiative in 2023 was the attachment programme for secondary school students. Six students (4 girls and 2 boys) were selected from more than 30 applicants, based on a fisheries test paper, for a three-week paid attachment in the long vacation. Their programme covered the work of TFD's three main sections with a week in each. The attachments aim to interest bright young students in a career in fisheries before they select their courses for study at University.

3.8 World Tuna Day

The programme to celebrate World Tuna Day on 2nd May was somewhat reduced in 2023 due to a limited budget provision. Activities focused mainly on young people, with competitions and awareness-raising programmes in schools. A closing lunch for senior personages in Government and the community was held on the day itself, hosted by the Minister.

3.9 Legal Services

The Legal Officer successfully completed a Master of Fisheries Policy at Wollongong University. He participated in a number of key regional meetings connected with the New US Treaty arrangements, as well as bilateral negotiations with Korean and Taiwanese Associations. Tuvalu has been at the forefront of regional initiatives to improve labour standards on fishing vessels and the Officer participated in regional meetings and working groups to advance this work. He also worked closely with a national consultant developing new regulations and bye-laws to provide the legal basis for improved management of coastal fisheries. As a qualified lawyer, he also assisted the Attorney General's Office in updating the Tuvalu Legislation website, and participated in the national 'Law and Justice' conference.

3.10 Information Technology

The IT Manager continued to support the department by improving and providing IT services. Technical assistance again played an important role in making sure the department achieved its goals and objectives throughout the year. A major improvement in general internet connectivity was achieved with the installation of a Starlink unit provided by PNAO. The TFD surveillance systems also benefited from a new V-sat connection after FFA cut off this service. After some difficulties in getting the system working with a new provider, it is now performing quite well and, unlike our other connections, is not affected by bad weather.

3.11 Fisheries Economics

The Fisheries Economist was engaged as acting Assistant Secretary for part of the year where duties included chairing the Board of NAFICOT and accompanying the Minister on official travel to Korea. As Chair of the PNA Pacific joint venture he assisted in the final winding up of the organisation. He was also involved in the budget process as well as M&E for Te Kete.

3.12 Public Information and Awareness Program

The Tuvalu Fisheries (country) collection is one of the library's five collections, along with periodicals, reference, the main collection, audio/visual, and the main collection. These collections were curated and expanded during the year. Information and news updates were regularly provided through the TFD website and Facebook pages. This year fieldwork was completed in two islands (Nui and Vaitupu) for a new series of videos on the role of women in Fisheries. TFD also provided TV and radio broadcasts on fisheries issues throughout the year, including under the theme "Uke a IKA ola lei tatou" ("Fish better fish forever") to promote responsible fishing methods and conservation efforts. Another area of work was the interactive sessions in schools to increase interest in fisheries and careers in the sector.

4 Operation and Development Activities

4.1 General

Coastal fishing serves as a cornerstone for nearly every household in Tuvalu, ensuring vital sustenance for their families. Moreover, numerous individuals who lack formal employment depend on small-scale commercial fishing as their primary source of income. Artisanal and subsistence fishing constitute the primary domestic fishing activities, with local fishers, including women in the outer islands, employing various methods to capture finfish and invertebrates for personal consumption, trade, sharing within communities, or sale at a local fish market (such as NAFICOT, FOFA or CFCs) or roadside stalls.

In recent years, the Operation and Development section has consistently upheld its dedication to supporting our communities. This commitment is evident through various initiatives such as awareness campaigns, training programs, the provision of fishing and safety equipment, as well as technical and advisory services. Through these efforts, our communities can access marine resources efficiently, improving their livelihoods while responsibly managing their resources.

In collaboration with stakeholders such as Island councils, fishermen's associations, and local communities, the Operation and Development section strives to deliver prompt and effective services to the people of Tuvalu. Keeping this commitment at the forefront, the Operation and Development section recruited seven (7) local Community Fisheries Officers (CFOs) in 2021 on a contract basis, funded under TFSP2-NZ. These officers operate closely within their respective communities, aiming to bolster collaboration and cooperation with local stakeholders.

Lastly, the section holds the responsibility of overseeing the operations of two Fisheries vessels, specifically named Manau I and Manau II. Maintaining the seaworthiness of these vessels is paramount for our sector, as it ensures the adequate support of all Fisheries Department (TFD) activities in the outer islands. However, the year 2023 posed challenges for the Tuvalu Fisheries Department (TFD) as both vessels encountered numerous issues, consequently hampering the delivery of certain activities to remote islands.

4.2 Anchored Fish Aggregating Devices (aFAD)

Anchored Fish Aggregating Devices (aFAD) represent a valuable initiative for Tuvalu's fishing communities, offering economic, social, and environmental benefits that contribute to sustainable fisheries management and the well-being of local communities.

This program was initiated in the 1980s by the Pacific Community (SPC) and the Government of Tuvalu through the Fisheries Department, rendering it one of the enduring activities within our Fisheries sector. Initially, the program has started as a small initiative but has evolved over time to become an essential part of the country's fisheries management strategy.

The program is now seen as crucial because it addresses key challenges faced by Tuvalu, such as sustainable food production and economic stability for local communities. In other words, it plays a vital role in ensuring that the artisanal fishing industry in Tuvalu is managed in a way that not only meets the current needs of the local population but also ensures that these resources are available for future generations.

The designs utilized by TFD fluctuate over time, contingent upon the chosen deployment site and its depth as agreed upon by fishermen. TFD has implemented four types of aFAD designs since the program's inception, including: Indo-Pacific aFAD (a), Subsurface aFAD (b), Lizard aFAD (c), and Spar buoy (d).

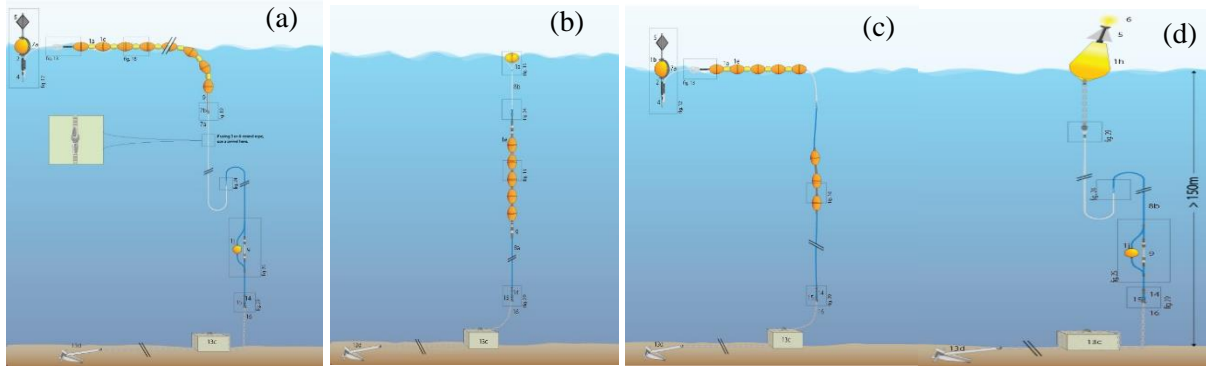


Figure 3: Indo-Pacific aFAD (a) Sub Surface aFAD (b) Lizard aFAD (c) Spar Buoy aFAD (d)

4.2.1 Status of aFAD in Tuvalu

In 2023, the anchored Fish Aggregating Device (aFAD) program continued to play a crucial role in Tuvalu's fisheries sector. Prior to mid-2023 deployment of aFADs, there were around 4 active aFADs distributed across various islands, 1 deployed in 2018, 1 deployed in late 2019, and 2 aFAD deployed in 2022. Over time, one of these aFADs was damaged by severe weather conditions. In mid-2023, an additional 3 Indo-Pacific aFADs were deployed on several islands, bringing the total number of active aFADs to 6.

There is a deficiency in gathering data related to fishing activities involving Fish Aggregating Devices (aFADs). Consequently, there is no scientific information available in the Department to demonstrate whether these aFADs are both effective in attracting fish and economically beneficial for fishermen. However, despite the lack of formal data, there are reports provided verbally by fishermen indicating that they believe these aFADs are successful in attracting fish and provide economic benefits. In summary, while there is no empirical evidence, there is some testimony supporting the effectiveness and viability of aFADs according to fishermen's experiences from all across the country. More details are shown in the table below.

Table 1: Status of aFADs in Tuvalu since 2023

FAD Number	Type or style of FAD	Depth of water	Location		Date / Year deployed	Date/of loss	Cause of loss	ISLANDS
			Latitude	Longitude				
1	In- shore Surface FAD	500	08°36.138'S	179°03.127'E	02/12/2013		Cut by one of the fishermen.	FUNAFUTI
1	Off-Shore Surface FAD	1000	08°28.728'S	179°02.813'E				
1	Lagoon FAD	40						
1	Sub-surface FAD	800					Status: in active TC Tino (2021)	
1	Nearshore FAD	700	08°59.200"S	179°05.933"E	20/03/2023		Status: active	
1	Off-Shore Surface FAD	1000	07°28.774'S	178°39.087'E	Wait to RV Talamoana			VAITUPU
1	Lizard FAD	500	07°29.053"S	178°39.847"E	28/10/2019		Status: in active (17/08/23)	
1	In-shore surface FAD	500	07°14.307'S	177°08.155'E	06/11/2013			NUI
1	Off-shore surface FAD	1000	07°12.896'S	177°07.747'E				
1	Nearshore FAD	400	07°13.537"S	177°08.073"E	29/10/2022		Status: Active	
1	In-shore surface FAD	500	08°00.526'S	178°18.568'E	06/12/2013		Loss during TC Pam	NUKUFETAU
1	Off-shore surface FAD	1000	08°01.592'S	178°17.209'E				
1	Lizard FAD		08°58.719'S	178°19.719'E			Cut by One of the Fisheremen.	
1	Nearshore FAD	400	08°58.719"S	178°19.719"E	20/04/2023		Status: Active	
1	In-shore surface FAD	500	09°22.051's	179°47.783'E	09/07/2013			NUKULAEAE
1	Off-shore surface FAD	1000	09°24.813'S	179°49.319'E	16/07/2021		Status: active	
1	In-shore surface FAD	500	06°17.491'S	176°18.298'E	18/10/2013		Loss	NAUMAGA
1	Off-shore surface FAD	1000	06°17.6025'S	176°17.80'E			Loss	
1	Lizard FAD	400	06°16.649'S	176°18.679'E	22/07/2019			
1	Nearshore FAD	700	06°17.586"S	176°18.112"E	01/09/2023		Status: active	
1	In-shore surface FAD	500	05°40.051'S	176°05.193'E	18/10/2013		Loss	NANUMEA
1	Off-shore surface FAD	1000	05°41.120'S	176°06.456'E			Loss	
1	Lizard FAD	400	05°41.599'S	176°07.192'E	21/07/2019	20/03/20	Tangle by Yacht	
1	In-shore surface FAD	500	06°06.932'S	177°17.664'E	19/10/2013			NIUTAO
1	Off-shore surface FAD	1000	06°07.894'S	177°21.241'E				
1	Lizard FAD	400	06°05.809'S	177°20.655'E	23/07/2019		status: in active (24/11/22)	

4.2.2 aFAD Construction and Deployment

The most challenging aspect of the aFAD program lies in constructing and deploying the aFAD system. This phase demands substantial physical labor and expertise to ensure that the chosen aFAD design is resilient enough to withstand various conditions and, importantly, to effectively attract fish.

The construction and deployment phase entail a collaborative effort between local fishermen and the Department. This collaboration isn't due to a lack of ability within local communities to construct their own aFADs, but rather to enhance stakeholder collaboration and cooperation. Additionally, this phase also serves as an opportunity to raise awareness among local communities about the aFAD program. Ensuring the community is well-informed is crucial for transparency and effective management.

In 2023, three Indo-Pacific aFADs were constructed and deployed on several islands, including the capital, Funafuti. Additionally, in partnership with the Meteorological Office (MET office), a wave buoy was affixed to the Funafuti aFAD to enable the MET office to track wave patterns effectively. Below are some snapshots captured during this activity.

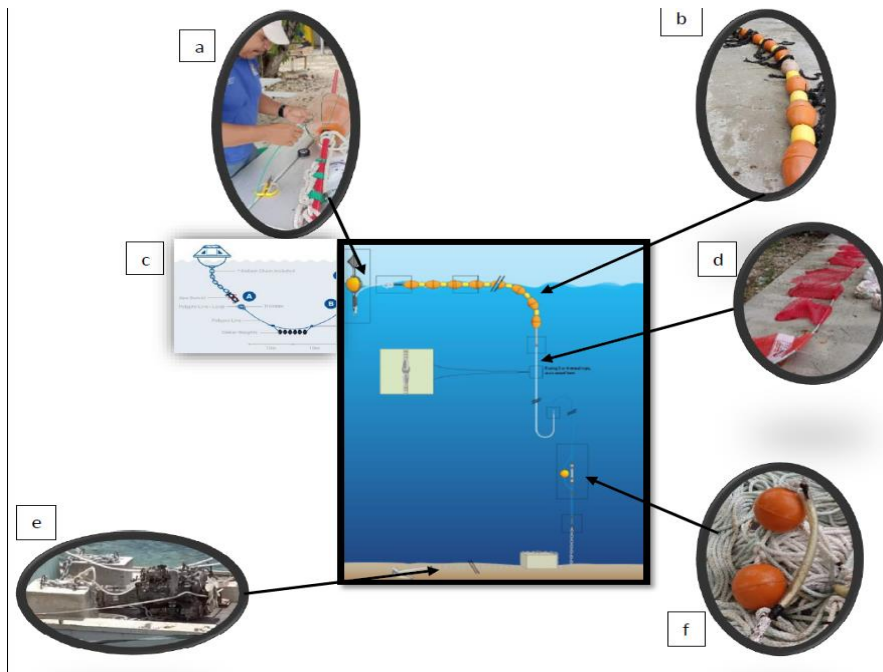


Figure 4: Diagram of active Funafuti aFAD

4.2.3 aFAD Monitoring and Maintenance

Continuous monitoring and maintenance of aFADs is an ongoing responsibility, with the Operation and Development section taking an active role. This task is deemed the most hazardous within the entire aFAD program, as it requires qualified divers from the O&D and Coastal sections to physically scuba dive to a depth of 25 – 40 meters and below in the open ocean to carry out maintenance on the aFAD system.

Every year our team of 2 or 3 officers will travel around the islands where aFADs are active to conduct thorough maintenance and repair works on the aFAD system, specifically on the floating system and the mooring system.

In early 2023, a lone officer embarked on the Manau II to Vaitupu to undertake repairs on the floating and mooring system of VTP aFAD. This task was facilitated by the assistance of the Community Fisheries Officer (CFO) and the SFO – Training & Development officer, who coincidentally was on annual leave in Vaitupu at the time. The aFAD had become severely entangled by a drifting FAD (dFAD) belonging to a foreign industrial fishing fleet. The entire operation was carried out successfully.

4.3 Safety of life at Sea Program

Encouraging fishermen to actively engage in fishing, particularly beyond the reef with Fish Aggregating Devices (FADs), entails a paramount responsibility of ensuring their safety while at sea. In Tuvalu, fishing predominantly occurs from small, outboard-powered boats measuring between 5 to 7 meters in length. These boats lack safety equipment, and fishermen often overlook safety precautions.

Recognizing this challenge, the Tuvalu Fisheries Department (TFD) has consistently prioritized sea safety through its Operations and Development (O&D) division. A range of awareness initiatives, including radio broadcasts, posters, and stakeholder consultations, have been implemented to underscore the importance of

sea safety. Additional funding from the NZ - Tuvalu Fisheries Support Program 2 (NZ-TFSP2) facilitated the extension of sea safety training across all islands.

In 2023, the Department's attention primarily centered on the yellow grab bags donated to active fishermen across the islands seven years ago. This focus stemmed from the fact that many of the items within these grab bags had become worn out, non-operational, lost, activated during incidents, or expired. The department's primary concern is that fishermen may encounter problems requiring the use of items from the yellow grab bags, only to find them non-operational or unusable, potentially hindering their ability to address critical situations effectively.



Figure 5: Yellow Grab Bags (2016) (a) and New Red Grab Bags (2021) (b)

4.3.1 Status of grab bags

The Operations and Development section conducts regular annual inspections to verify the proper utilization and operational condition of Grab bags. In 2023, the inspection primarily targeted the yellow Grab bags distributed to fishermen in 2016. A significant portion of the contents inside these Grab bags were found to be damaged, lost, missing, or expired. Additionally, some of the exterior of the Grab bags exhibited signs of wear and tear such as tearing, ripping, rotting, or rusting of zippers. Urgent replacement of these items is imperative, and the Tuvalu Fisheries Department, through the Operations and Development section, is actively addressing this pressing issue.

In addition, new red grab bags were all inspected as well and were found to be in all good conditions.

Table 2: Summary of Grab Bag distribution

Summary of All Safety Grab Bags dissemination in Tuvalu						
Islands	Yellow bags (OLD GRAB BAGS)	Red Bags 2022	Red Mini bags 2022	KPL bag Distributed	TFSP2 & KPL Share	Total Grab Bag
Nanumea	16	4	7			27
Nanumaga	16	13	5		13 sets	34
Niutao	16	4	10			30
Nui	16	9	5			30
Nukufetau	16	13	2	5		36
Vaitupu	16	2				18
Funafuti	54	32				86
Nukulaelae	16	13		7		36
Niulakita	1	1				2
sub-total	167	91	29	12		299
Grand total	299					
3 Most Important Devices and Replaceable (Inspected 2023)						
Device	Activated	Expired	Non Operational	Lost/Missing	Total	Remarks
VHF				14	4	18
PLB	1	161			5	167
GPS				5	5	10
Grand Total					195	Note: These are all yellow GB (distributed 2016)

4.3.2 Refresher sea safety training and inspection of grab bags

The O&D staff have conducted refresher training sessions for fishermen, primarily focusing on sea safety, during each island's Metronome trips. These sessions primarily concentrate on the proper utilization of gear and equipment found in the grab bags, with practical demonstrations provided. While conducting this training we provide community fisheries officers (CFOs) with the opportunity to lead the training sessions, while O&D staffs assist and evaluate their performance.

During refresher training facilitated by O&D staffs, inspections of the grab bags are concurrently carried out. In 2023, the primary focus of TFD was on the yellow grab bags. Replaceable devices, including critical ones such as PLB, VHF, and GPS, underwent inspection in the outer islands. Any non-operational devices were collected by O&D officers for shipment back to the supplier, with the aim of acquiring new items at a reduced cost. The NZ-TFSP2 is spearheading negotiations between TFD and the supplier as part of this new initiative. Currently, only the Northern Islands have collected their non-operational devices, and in early 2024, new devices will be distributed to those who have their items collected.



Figure 6: Nukufetau CFO (former) conducting Refresher Sea Safety Training at his community

4.3.3 Challenges and Issues

Upon facilitating the refresher sea safety training, O&D staffs noted a few issues:

- ✦ Because of the absence of sea safety regulations for small-scale boats, fishermen persist in venturing out to sea for fishing without their grab bags.
- ✦ Certain fishermen neglect the grab bag Memorandum of Understanding (MOU) and relocate with the grab bag to other islands.
- ✦ Despite the MOU stating otherwise, many fishermen maintain the belief that the grab bag is their personal property.

4.4 Post harvesting and value-added program

Effective post-harvest handling and value-added products is vital for sustaining the livelihoods, food security, economic development, health, and cultural heritage of Tuvalu communities reliant on fisheries resources. In this regard, the Fisheries Department (TFD), via the O&D section, persisted in offering technical assistance and guidance across Tuvalu's communities.

TFD has a longstanding tradition of offering these services to the local communities in Tuvalu, but these efforts dwindled over time. However, in 20117, there was a resurgence and enhancement of these services. As a result, TFD successfully introduced three methods of adding value to fish products, namely Smoke Fish, Bottling, and Tuna Jerky, which we believe every community in Tuvalu has the knowledge and skills in processing these products

In 2023, the Department effectively conducted several training sessions across all the outer islands as part of this initiative. These sessions specifically targeted local fish market staff, including NAFICOT, FOFA, and all Community Fishing Centers (CFCs).



Smoke Fish



Bottling



Tuna Jerky

Figure 7: Main Value-Added Products introduced across all islands

4.4.1 Refresher fish handling and new value-added methods training

In early 2023, the Food and Agriculture Organization (FAO) took the helm of Tuvalu's groundbreaking value-added training initiative, aimed at expanding product diversity within the fisheries sector by harnessing the potential of tuna raw materials. Held at the National Fisheries Corporation of Tuvalu (NAFICOT), the training drew participants from NAFICOT, the Fishermen on Funafuti Association (FOFA), and indigenous fish vendors. Guided by Mr. Kelvin Passfield, an esteemed FAO expert, the session introduced innovative techniques such as Tuna Sausage, Tuna Bacon, and Tuna Patties, with the overarching goal of empowering local producers and enhancing economic opportunities.



Tuna Sausage

FAO Led Initiative



Tuna Patties

Figure 8: New Value-Value Added Products

In mid-2023, on a Metronome expedition to the outer islands, O&D personnel conducted a value-added training session centered on Tuna Jerky. The primary objective was to enhance the skill set of staff members at community fishing centers (CFCs) to empower local communities. All CFCs in the outer islands were successfully trained.

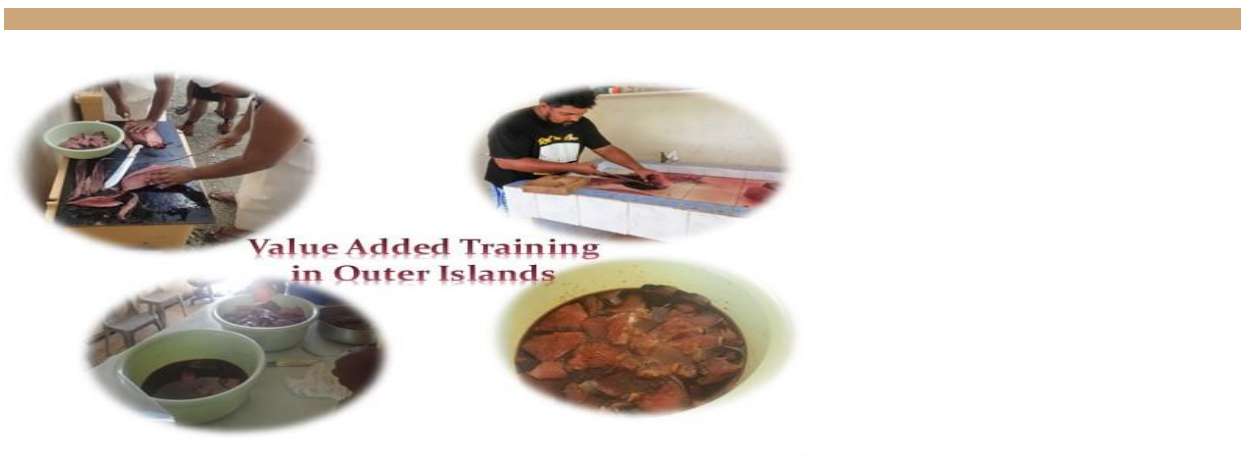


Figure 9: Value-Added training in Nui 2023 – tuna jerky

Looking ahead to 2024, the Tuvalu Fisheries Department (TFD) is poised to expand the application of skills acquired from FAO-led training initiatives to remote islands. Recognizing the particular importance of these innovative methods for communities in the outer islands, where challenges like limited cold storage and unreliable power supply persist, TFD is eager to leverage these techniques to prevent spoilage of fresh fish and ensure sustainable economic opportunities.

4.4.2 Good hygiene practices training

To promote good hygiene practices in Tuvalu's fish markets, including market operators, fishermen, and community members, should collaborate to implement and enforce hygiene guidelines. This may involve providing training on proper sanitation methods and conducting regular inspections to ensure compliance with hygiene standards. Additionally, raising awareness among consumers about the importance of purchasing fish from clean and reputable sources can further incentivize market operators to maintain high hygiene standards.

In 2023, the TFD through Operation and Development section (O&D) embarked on a significant initiative, targeting three primary fish markets: NAFICOT and FOFA in mainland Funafuti, and the Community Fishing Centers (CFCs) located in the outer islands. However, TFD only managed to implement this activity on the two (2) fish markets located in the main island Funafuti. These efforts encompassed informative presentation sessions and the showcasing of videos demonstrating proper fish handling and storage techniques within market environments.



Figure 10: Good Hygiene Practices Training Participants from NAFICOT and FOFA

4.5 Aquaculture and mariculture initiative

In 2023, the Operation and Development section assumed responsibility for all matters related to aquaculture and mariculture. Initially, this posed a significant challenge due to the lack of qualified staff to oversee these obligations. However, our team members successfully adapted and learned as they progressed.

O&D and Coastal joint effort, including the SPC expert, departed for Vaitupu on July 14, 2023 to implement this activity. However, their schedule faced significant delays due to unexpected and prolonged bad weather forecasts over Tuvalu, spanning nearly a week. Despite these obstacles, our united team persevered and accomplished the assigned task. They effectively deployed four cages, each measuring 4 x 4 meters, at a depth of 5 meters, with the capacity to house between 1000 to 1500 fish per cage, depending on their size.



Figure 11: Vaitupu Milkfish Cage

4.6 Fishing technique training

The Tuvalu Fisheries Department (TFD) conducts fishing technique workshops for fishermen throughout Tuvalu every year, with a particular focus on pelagic fishing, deep bottom fishing, and squid fishing trainings. TFD's objective is to reduce the impact of fishing practices on reef fish and coral ecosystems, especially considering the reported increase in reef fish stocks as indicated by Coastal section reports. Supposedly, O&D planned to conduct at least 3 fishing technique trainings in 2023, however, TFD only managed to facilitate 1 training throughout the whole year, due to some other important commitments.

In 2023, O&D seized the opportunity when Mr. William Sokimi, one of the most renowned Master Fishermen in the Pacific, visited Tuvalu to lead a training session for Purse Seine crew in the Tuvalu Maritime Technical Institute (TMTI).

Before the Purse Seine crew training commenced, Mr. Sokimi and the O&D team reached an agreement to arrange a one-day Squid fishing training. The session, held in Funafuti, was attended by only a few fishermen. This event was marked as historic, as it marked the first time in Tuvalu's history that a squid as large as 1.5 meters (measured from tip of nose to end of tail) was ever caught.



Figure 12: Argentine Shortfin squid (*Illex argentine*) found in Tuvalu

4.7 *Manau I* Operation

In 2023, the *Manau I* faced a challenging year marred by numerous mechanical and electrical malfunctions, resulting in the vessel completing only three trips throughout the entirety of the year. Between January and July, significant maintenance and upgrades were undertaken on the *Manau* vessel to enhance its operational efficiency and ensure safety during its operations.

The "RV" *Manau I* was de-slipped on May 3rd, 2023 for sea trial soon after the new Generator was installed and the main engine was overhauled. A technician from Fiji arrived on June 1st to install equipment on the bridge, requiring the vessel to be in the water. Completing the task as scheduled, the technician departed on June 3rd, returning on October 5th to finalize remaining tasks before leaving on October 7th.

Additionally, in 2023 the vessel has received a new boat from OFCF - Japan, a spare 40hp outboard motor purchased by TFD, and other necessary items, while NZ-TFSP 2 procured Life-Saving Appliances for the vessel.

Provided below is a comprehensive overview of the maintenance activities conducted and upgrades implemented during 2023.

4.7.1 Maintenance activities

Generator Issues (January 9th): The *Manau* vessel was pulled up to its slipping place due to generator issues encountered on January 9th. Subsequent maintenance work commenced while awaiting the arrival of a new generator.



Figure 13: Manau I dry dock

New Generator Installation: During March, a new generator, a new boat, and components for the main engine were delivered. The installation of the new generator took precedence, followed by a comprehensive overhaul of the main engine to enhance its performance. Mr. Sakoju Tetsuro from OFCF spearheaded this initiative. Additionally, all the new spare parts were generously donated by OFCF-Japan as part to their FDAPIN VII project.



Figure 14: New Generator Installation

Sea Trial: Following the installation of the new generator and overhaul of the main engine, the Manau vessel underwent a sea trial to verify the functionality and efficiency of both the generator and main engine, ensuring they met operational standards. On April 21st, four new batteries were received and promptly installed to replace the aging ones, enhancing the vessel's power supply and reliability.

Navigation Equipment Installation: Between June 1st and June 3rd, a Technician from TecAir Fiji skillfully installed Navigation Equipment on the Manau vessel, bolstering its navigational capabilities and enhancing safety during voyages. However, due to time constraints, the TecAir technician had to return to Fiji, leaving some navigation equipment unfinished. Consequently, TFD had to arrange for the same technician from TecAir to return and complete the remaining tasks from June.

Below is a comprehensive breakdown of all the navigational equipment that underwent repair.



Figure 15: TecAir Technician repair navigation equipment

Table 3: List of Navigation equipment underwent repair

EQUIPMENT:	MODEL/SERIAL NO.	REPORTED DEFECT:
GP-1971F	1000-6201-5051	RE-WIRING AND RELOCATION
FCV 295	2667-5177	RE-WIRING AND RELOCATION
FURUNO AIS	FA50	RE-WIRING AND RELOCATION
NMEA-2K1	000760	RE-WIRING AND RELOCATION
FURUNO HEADING SENSOR	PG700	RE-WIRING AND RELOCATION
FURUNO NETWORK SOUNDER	DFF1	RE-WIRING AND RELOCATION
WAAS GPS SENSOR G2183	60369455	RE-WIRING, NEW INSTALLATION AND CONFIGURED
FURUNO ETHERNET HUB	HUB101	RE-WIRING AND RELOCATION
FLUKE POWER SUPPLY	ST30	NEW INSTALLATION
ICOM MF/HF MARINE SSB IC-M801E	0202236	NEW INSTALLATION AND COMMISSION
ICOM VHF/HAILER IC-M506	01017212	NEW INSTALLATION AND COMMISSION
NMEA NETWORK	NMEA2000	NEW INSTALLATION

Construction of New Shelter: The motivation behind constructing a suitable and comfortable shelter for passengers stemmed from the inadequacy of the old shelter, which failed to provide sufficient protection during severe weather conditions, leaving passengers soaking wet. Consequently, the O&D team extensively deliberated on the issue, even seeking advice from OFCF experts, ultimately devising a brilliant plan to construct a sturdy wooden shelter. The construction works started from June and completed in late July.



Figure 16: Manau I new passenger shelter

The O&D section faced a challenging year in maintaining the operational status of Manau I due to numerous mechanical and electrical issues encountered. Furthermore, the lack of available spare parts on-site exacerbated the situation, adding to the burden. However, the maintenance and upgrades carried out on the Manau I vessel throughout the year a commitment to maintaining operational readiness and ensuring the vessel's capability to support TFD activities effectively. Despite our best efforts, Manau I continues to encounter mechanical and electrical malfunctions, leading to extensive time spent in dry dock. Presently, the vessel is docked on the slipway due to a steering system failure. Collaborating to address this issue are the Fisheries mechanic, experts from OFCF-Japan, the vessel's chief engineer, and the O&D management team.

4.7.2 Charter, revenue and expenditure

Although spending more time in dry-dock than at sea, Manau I managed to complete several trips to the outer islands in support of TFD's activities. The table below illustrates that expenditures surpass revenue, mainly because charter fees for both TFD trips to the outer islands were waived due to budget constraints.

Table 4: Charters

Voyage	Purpose	Route
1	To drop off Neli and team to construct milkfish cages in Vaitupu	Funafuti/Vaitupu/Funafuti
2 a)	To drop off Noa and team to conduct Outboard Motor Training in Niutao Island	Funafuti/Niutao/Nanumaga/Nanumea/Funafuti
b)	Diverted to Nanumaga & Nanumea to complete charter for Judiciary	

Table 5: Revenue from charters expenditure on TFD trips

Voyages	Charters	TFD Trips
1. To drop off Neli and team to construct milkfish cages in Vaitupu		\$7,596.00
2. a) Drop off Noa and team to Niutao		
2. b) Diversion to Nanumaga & Nanumea to complete charter for Judiciary	\$1,119.00	
<u>TOTAL</u>	<u>\$1,119.00</u>	<u>\$7,596.00</u>

4.8 Manau II Operation

Given the current condition of the Manau II, which, despite being relatively new, has encountered persistent issues since its arrival in 2021, the necessity for technical assistance from the Overseas Fisheries Cooperation Foundation - Japan (OFCF-Japan), NZ-Tuvalu Fisheries support Program (NZ_TFSP2), and PROPER is evident. Despite its recent construction, several areas of concern have been identified, including leaks leading to electrical malfunctions, rusting components, control panel issue, desalination pump failure, etc. These issues have posed a significant challenge for the Department, impacting the vessel's reliability and functionality.

2023 was a challenging year for the section in trying to negotiate a full repair to Manau II funded by JICA who donated the vessel because in 2022 a significant transition occurred in the ownership and responsibility

of the vessel, facilitated by the Ministry of Fisheries and Trade, now known as the Ministry of Natural Resources Development. The Permanent Secretary's endorsement of the vessel's warranty marked the transfer of full ownership and accountability from the Government of Japan via JICA to the MNRD and TFD. This pivotal shift introduced complexities for TFD, particularly in their efforts to negotiate a much-needed comprehensive overhaul of the vessel. Moreover, TFD's most steadfast partner OFCF-Japan to address the matter encountered constraints in assisting the Manauai II, prioritizing their commitment to the Manauai I in accordance with their official obligations outlined in the MOU for the FDAPIN VII project.

Furthermore, from the time of Manauai II's arrival in 2021 up to the present, the vessel has not undergone dry-docking, raising significant safety concerns. This lack of maintenance and inspection has potentially jeopardized the safety of the vessel and those aboard. However, an emergency situation arose on May 5 when the boat ran aground in the Vaitupu passage, resulting in damage to the keel. This incident presented the O&D staff with an opportunity to devise a plan for hauling up the boat, especially considering it was their first operation involving a larger vessel with constraints on resources. Lastly, the O&D team seized this opportunity to address any defects requiring attention while the vessel was in dry-dock.



Figure 17: Manauai II Emergency Slipping (First dry-dock operation)

4.8.1 Charters

Manauai II embarked on its operations smoothly in early 2023, encountering no major malfunctions, albeit facing minor issues such as leakage, low insulation, and a non-operational desalination pump. Despite these issues, they did not impede the boat from operating on a charter basis. Consequently, Manauai II successfully completed 15 trips from January to July. A detailed breakdown of the charters during this period is presented in the table below.

In mid-July, Manauai II experienced a significant electrical malfunction, leading to the suspension of all its charters to clients.

Table 6: Detailed breakdown of the charters

Voyage number	Purpose	Route
1	Fishing trip for Honda delegation	Funafuti waters
2	Consultation trip for AG's office	Fun/Nui/Nmaga/Nmea/Nto/Fun
3	Drop off cargoes	Fun/Vtp/Fun
4	Pick up MCAP team	Fun/Nui/Fun
5	Pick up passengers	Fun/Vtp/Fun
6	Drop off food cargo	Fun/Vtp/Fun
7	Drop off cargo	Fun/Vtp/Fun
8	Urgent FAD maintenance in Vaitupu	Fun/Vtp/Fun
9	Drop off team to work in the 3 islands	Fun/Nklae/Fun/Vtp/Nmea/Fun
10	Metronome (Central)	Fun/Nkft/Nui/Fun Fun/Vtp/Nui/Vtp/Fun
11	Pick up Fakavae and his family from Vaitupu	Fun/Vtp/Fun
12	Pick up CFO's for MCS&E training	Fun/Nklae/Fun Fun/Nto/Nmea/Nmaga/Fun
13	Drop off TEC technician to Nituaa	Fun/Nto/Fun
14	Metronome (North)	Fun/Nto/Nmaga/Nmea/Fun
15	Pick up people from the 2 islands	Fun/Nmea/Nto/Fun

4.8.2 Revenues and expenditures

Revenue is generated from charter fees across different client groups, each catering to different sectors. Category 1 includes Tuvalu Fisheries Department (owner and operator), World Bank (formerly PROP, now known as PROPER), NZ-TFSP2, and our reliable partner OFCF-Japan. Category 2 encompasses all government sectors, NGOs, the private sector, and the general public. Category 3 covers all foreign projects.

As evident from the below table, there is an accounted for of \$2,857.72 in the revenue. This variance arises because certain charters contribute their provisions directly to the revenue account, thereby inflating the charter fee beyond the anticipated calculation. Additionally, all payments made by passengers upon boarding the vessel are directly deposited into the charter revenue account, further contributing to the disparity in total revenue.

It is also evident from the table below that expenditure exceeds revenue. This is primarily because a significant portion of the charter fees for Category 1 has been waived. This decision was made to align with the budget allocation, considering the limited funds available for the Tuvalu Fisheries Department (TFD) to carry out its activities in the outer islands.

Table 7: Revenues from charters and expenditure on TFD trips

Voy #	CHARTERING PARTY	CHARTERS	TFD TRIPS
1	Honda (Japan)	\$900.00	
2	AG's office	\$10,125.00	
3	Kamoa	\$850.00	
4	MCAP	\$3320.38	
5	Molu & Famelea	\$987.00	
6	Kaupule Vaitupu	\$1109.00	
7	Nia	\$1112.00	
8	Operation & Development		\$429.00
9	DAS	\$13,295.00	
10	Coastal & Operation		\$18,680.00
11	Fakavae Charter	\$1,112.00	
12	Coastal & Oceanic		\$10,424.00

13	TFD (PDF)	\$2,587.00	
14	Metronome (North)		\$32,290.90
15	Fuligafou	\$3,904.00	
<i>TOTAL</i>		<u>\$39,301.38</u>	<u>\$61,823.90</u>
Total Revenue Collected		<u>\$42,159.10</u>	

4.9 Mechanical workshop operation

The Fisheries Mechanical Workshop is a vital resource for the TFD, established in 1989 through funding from the Japanese Government. Its primary aim is to offer technical assistance, including repair and maintenance services, for various TFD assets such as the Manau I and Manau 2, outboard motors, fisheries infrastructure like ice making machines, and fisheries vehicles.

The OFCF-FDAPIN project renovated the facility in both 2006 and 2013. However, the constant exposure to sea-spray from the island's ocean side has accelerated the deterioration of several exposed areas, such as the roof, winch, and electric roll-up doors.

The mechanical workshop building received maintenance earlier this year, primarily overseen by the TFD maintenance officer and his team. Among the tasks completed during the maintenance period were the repair of damaged roof sheets, a comprehensive painting of the entire workshop, and addressing issues with a few electrical wirings. These efforts aimed to ensure the structural integrity and functionality of the workshop, providing a conducive environment for its operations.

4.9.1 Maintenance and repair

Outlined below is a brief schedule for repair and maintenance activities conducted by the workshop throughout the year of 2023:

From January to March, the workshop received spare parts for the Manau from OFCF, followed by the overhauling of the Manau main engine. The old generator for the Manau was replaced with a new one from OFCF. Additionally, repairs were carried out on the NAFICOT ice machine.

Moving into April to June, maintenance efforts focused on repairing the ice machine in Vaitupu and installing an ice flake machine, and assembling the Manau II cradle for the emergency dry-dock of Manau II.

Throughout July to September, the workshop conducted tests on all ice flake machines and carried out maintenance on a Quadbike. Cables for the Coastal speedboat were replaced, and repairs were made to the fiberglass boat and trailer. Maintenance tasks were also completed on the PROP vehicle, and the NAFICOT ice machine underwent repair, along with the installation of a new portable ice machine.

In the final quarter, from October to December, the workshop replaced the winch cable and modified the Manau II cradle to accommodate the Manau for drydock. Additionally, repairs were conducted on the speedboat, and hydraulic pipes on the crane truck were repaired.

4.9.2 Operation and Development stock assessment

From mid-November to December, a stock assessment initiative was initiated by the Operation & Development unit to evaluate all assets under its purview. This encompassed stock belonging to both

vessels and the workshop, as well as items stored in all storerooms associated with the mechanical workshop and the vessels. Following the assessment, all assets have been properly registered in the stock inventory, and a new monitoring system will be implemented to track their usage effectively. As part of this process, outdated spare parts were discarded, and items deemed no longer usable were appropriately written off. All written off assets and stock assessment are in a separate report.

5 Coastal Fisheries Activities

5.1 General

The Coastal Fisheries Section in 2023 continued to provide essential core activities and services to our communities and partners throughout Tuvalu to sustain the effective productivity and management of inshore fisheries and to ensure long term food security for everyone. This means continuing mainstreaming technical services and advice to Kaupules of each island to sustainably manage their marine resources and improving the delivery of data collection on all islands. For 2023, it was a year of consolidation for our team as it embarked on a process of transitioning from thematic approach to a problematic approach based on delivering clear results to our communities. A number of significant steps were taken in 2023 as part of this transition. This includes; recruitment of new staff to replace those that moved on to other jobs outside the department; introducing the new school internship attachment; national MCS training for Kaupules and CFOs on Funafuti in July; and a dive training course for staff. In summary, 2023 was a successful year, with more than 80% of the workplan successfully implemented. The following sections highlight the activities undertaken by the team in the outer islands and Funafuti.

5.2 Outer Islands fisheries management

5.2.1 Locally Managed Marine Areas (LMMA)

Ongoing work was undertaken in the outer islands in order to have a better understanding of our locally managed marine areas (LMMAs). Under the Falekaupule Act, these areas cover 12 nautical miles and are hundred percent owned by the community, governed by the Falekaupule. Within the LMMAs, each island has one or more Special Protected Areas (SPA), designated for various reasons such as conservation, protecting biodiversity, addressing stock depletion, et cetera. Activities for 2023 comprised an awareness program targeting communities and schools to improve their knowledge on LMMAs, the rules and management measures within the LMMA, and the importance of these areas. Additionally, minor changes were made to of the recently created LMMA maps, which will be printed on billboards on each island. Rules and management measures for each island LMMA were verified during community consultations, catalogued as booklets and embedded into our Coastal Fisheries Management Plans. However, the formulation of the Tuvalu LMMA Strategy was a new activity for 2023, which was still in its initial phase of drafting by SPC using the information we have in hand for Tuvalu. The LMMA Strategy is more like a consolidated document and an essential tool to better manage and monitor these areas.

5.2.2 Coastal fisheries management plans (CFMPs)

Coastal Fisheries Management Plans (CFMPs) are vital in maintaining the sustainable management of inshore fisheries for all islands. Such tools assist the communities and the Tuvalu Fisheries Department to monitor and enhance stock abundance, which in turn supports economic growth, food security and livelihoods. In 2023, Coastal Fisheries Section worked with communities in the Outer Islands to validate CFMP information collected by TFD staff in 2022. The Southern Islands' (Nukulaelae and Niulakita) CFMP drafts are pending validation due to fisheries vessels breakdown. The activity is likely to be accomplished in the first quarter of 2024. **These CFMPs are expected to be fully developed and implemented by the second quarter of 2024.**



Figure 18: Process of steps in developing fisheries management plans

5.2.3 Metronome trips

TFD maintained its strong support for the delivery of technical support services and advice to outer island communities through the implementation of Metronome trips. In 2023, two Metronome trips (Metronome 25 & 26) were successfully implemented (see below table). These were regular visiting trips to the outer islands that are usually spearheaded by Coastal staff, along with several TFD officers from the other sections, in particular the Operation & Development Section. For 2023, the majority of those activities were those that rolled-out from 2022. These include boat and canoe surveys, Ciguatera Fish Poisoning (CFP) cases, data collector refresher training, pending work in relation to CFMPs planning process such as community consultations, community and school awareness programmes, FAD maintenance and deployment, post-harvest training, Grab bag inspection, and evaluation of equipment condition. There were also some additional tasks that were implemented in 2023. These were the review of Metronome Memorandum of Understanding (MOU) with Kaupule, and a household survey requested by the World Bank on gender issues. Unfortunately, the metronome 27 trip to the Southern Islands was not implemented because both fisheries vessels (Manau I&II) were broken down around that targeted period. This trip to the southern islands will be targeted to implement in early 2024.

Table 8: Trips to Outer Islands in 2023

Metro ID	Dates Occurred	Islands visited	Issues & Recommendations
Metronome 25	11 th May – 16 th June, 2023	Nukufetau, Vaitupu and Nui	Refer to https://tuvalufisheries.tv/library/
Metronome 26	12 th August – 27 th September, 2023	Niutao, Nanumaga and Nanumea	Refer to https://tuvalufisheries.tv/library/

5.2.4 Creel survey programme

The Creel program has been ongoing for almost a decade across 8 islands (except Niulakita) with each island having an assigned Data Collector. The program was initially funded by donor projects until 2022, when the Tuvalu Government took over funding responsibilities. This year, the Tuvalu Government continues to support the creel survey programme with funding aid from the Tuvalu Fisheries Support Programme (TFSP2) under New Zealand Aid.

On each island, Data Collectors are responsible for collecting fish landing catches on the beach and record details of each fishing trip from fishers. A minimum of at least 10 samples per week is the usual target for each Data Collector to achieve. The data collected from this programme is essential for supporting key decision making for those responsible for sustaining inshore resources in Tuvalu.

Despite its importance, there are still areas for improvements in the data collection program. Better management of the program is needed to ensure that data submitted to TFD office is accurate and that each Data Collector collects the required amount of data per week. This will provide a more accurate representation of the status of coastal fisheries across the different islands, and in turn inform more appropriate management measures. To address some of the inefficiencies in data collection, the data collection program is transitioning from paper-based system to the Ika Savea App (by SPC) in early 2024.

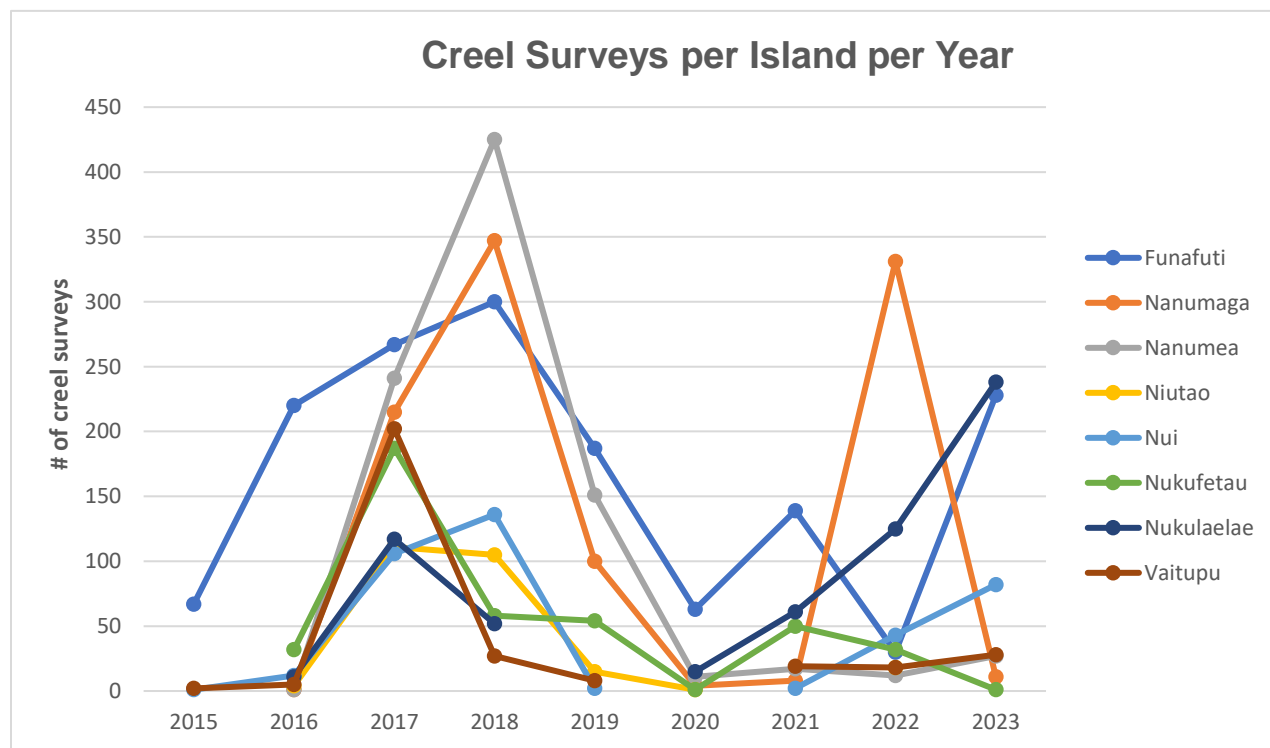


Figure 19: The number of surveys collected on each island per year

Figure 19 shows reported landings per island per year, based on data collectors' submissions. For some islands, the numbers in 2023 may be underestimated because there are still issues with the arrival of data from respective islands to the TFD office in Funafuti. It is important that proper management actions be taken to address the decline in the number of samples collected each year over the last 5 years, a challenge that remains a priority for the 2024 Creel survey program.

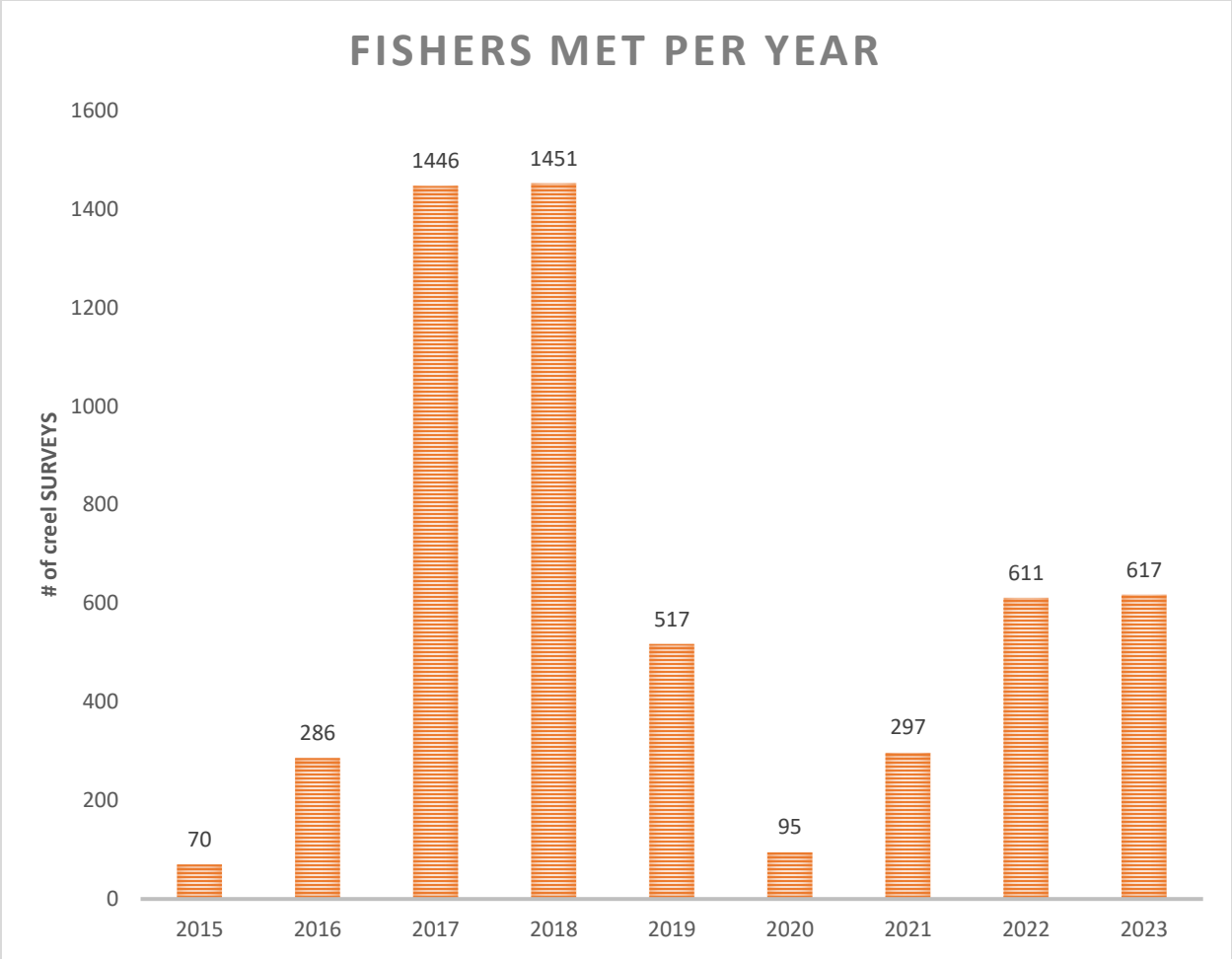


Figure 20: The number of creel surveys per year

Above summarises the total number of samples collected for each year between 2015 to 2023. In 2023, there has been a slight improvement from 2022.

5.2.4.1 Catch per unit effort (CPUE)

Table 1 below shows catch per unit effort (CPUE) by weight (kg) per fisher per hour and by weight per fisher per trip across Tuvalu. For all fishing methods, the median CPUE for 2023 is 1.3 kg/fisher/hr and 3.9 kg/fisher/trip. CPUE varies a lot by island. Nanumea and Funafuti had the lowest CPUE, indicating low fishing yields per hour. Nukufetau had the highest median CPUE, which could indicate a productive fishing ground. However, this should be interpreted with caution due to the small sample size. Nukulaelae and Funafuti report the most accurate median CPUE due to the large sample size (they have the greatest number of trips recorded). The average trip durations (hours) for Nanumaga, Funafuti and Nukulaelae were consistent with the national average. The trips taken by Nanumea’s fishers were the shortest, about one hour shorter than the national average.

Table 9: CPUE for 2023 across Tuvalu

Island*	Average CPUE (kg/fisher/hr)	Median CPUE (kg/fisher/hr)	Average CPUE (kg/fisher/trip)	Median CPUE (kg/fisher/trip)	Number of trips	Average trip duration (hrs)
Funafuti	2.7	1.1	11.2	2.1	221	2.5
Nanumaga	3	1.8	6.7	3.1	9	2.5
Nanumea	0.9	0.9	2.8	1.7	26	1.6
Nui	3.9	3.2	12.2	6.6	80	2.9
Nukufetau	10.5	10.5	41.9	41.9	1	4
Nukulaelae	3.2	3.8	12.1	6.9	237	2.4
Vaitupu	5.2	1.8	8.8	2.6	25	1.9
Tuvalu Total	2.9	1.3	11.2	3.9	600	2.5

*No data available for Niutao.

Table 9 shows CPUE across Tuvalu for 2015 -2023, with median CPUE of 1.4 kg/fisher/hour and 5.3 kg/fisher/trip. Although the median CPUE for 2023 is about the same as the period 2015 to 2023, the average trip duration is less. This may reflect differences in fishing methods, or different targeted species. For example, fishers could spend the same amount of time fishing for reef and pelagic species but catch vastly different weights on each trip.

Table 10: CPUE for 2015 to 2023 for all islands

Island	Median CPUE (kg/fisher/trip)	Median CPUE (kg/fisher/hr)	No. of trips	Average Duration of Trip (hrs)
Funafuti	3.9	0.7	1471	7.9
Nanumaga	6.8	2.6	995	2.9
Nanumea	2.3	1.3	879	2.2
Niutao	21.1	5.6	246	3.2
Nui	3.3	1.3	382	3.1
Nukufetau	13.7	3	405	5.2
Nukulaelae	9.7	3.2	594	3.2
Vaitupu	4.6	1.9	306	2.8
Tuvalu Total	5.3	1.4	5283	4.5

Table 11: Most-caught species that were landed in Tuvalu in 2023 based on creel surveys

	Species	% Undersize	Total Weight (kg)	Sample size	Tuvaluan Name
1	<i>Acanthurus triostegus</i>	6%	327	1375	Manini, Koinava
2	<i>Caranx melampygus</i>	42%	285	428	Aseu, Ulua, Fuaika
3	<i>Lutjanus gibbus</i>	18%	96	303	Taea
4	<i>Lethrinus amboinensis</i>	43%	50	278	Noto, Gutulo, Sapotu
5	<i>Lethrinus obsoletus</i>	60%	32	155	Tanutanu
6	<i>Crenimugil crenilabis</i>	32%	69	127	Kanase
7	<i>Siganus argenteus</i>	0%	32	93	Maiava
8	<i>Lutjanus fulvus</i>	58%	8	67	Tagau, Takape
9	<i>Lutjanus kasmira</i>	50%	11	60	Savane
10	<i>Epinephelus maculatus</i>	100%	60	56	Fapuku
11	<i>Liza vaigiensis</i>	24%	23	56	Kafakafa
12	<i>Hipposcarus longiceps</i>	11%	31	45	Ulafi
13	<i>Sargocentron spiniferum</i>	82%	8	45	Tamalau
14	<i>Aphareus furca</i>	95%	13	44	Palusega, Kotua, Taelepe, Takuoga
15	<i>Myripristis pralinia</i>	5%	6	41	Malau puku

Table 11 shows the percentage of fishes that were landed undersize (below the estimated size at maturity) across Tuvalu in 2023. Some species appear to be in a critical condition. For example, every Fapuku (*Epinephelus maculatus*) captured was undersized. Similarly, most of the Palusega (*Aphareus furca*) and Tamalau (*Sargocentron spiniferum*) were landed immature. This indicates that management measures should be implemented to control overfishing of these species. On the other hand, some species seem to be in better status, for example Maiava (*Siganus argenteus*) where no undersized individuals were reported

among its catch. Other species with more promising outlooks were Malau puku (*Myripristis pralinia*), Manini (*Acanthurus triostegus*), Ulafi (*Hipposcarus longiceps*) and Taea (*Lutjanus gibbus*).

5.2.4.2 Boat and Canoe Survey

The total number of boats and canoe counts were measured through a dedicated survey which was implemented during each metronome trip. This survey was focused only on those boats and canoes that are still seaworthy for fishing, transport and recreation, or repairable. Below highlight key results of each count from each island:

Table 12: The number of boats and canoe surveyed on each island

<i>Island</i>	<i>Aluminium boat</i>	<i>Wooden boat</i>	<i>Aluminium canoe</i>	<i>Wooden canoe</i>	<i>Fiberglass boat</i>	<i>Fiberglass canoe</i>	<i>Plastic boat</i>
Nanumaga	28	0	2	21	0	0	0
Nanumea	15	7	4	35	6	0	0
Niutao	21	0	2	28	0	0	0
Vaitupu	26	7	0	22	4	0	0
Nukufetau	38	5	0	8	18	0	0
Nui	23	1	0	24	0	0	0



Figure 21: Wooden boat and canoe

Table 12 show the number of boats and canoes surveyed during Metronome trip on each island. Each boat and canoe's coordinates were recorded as well. Nukulaelae and Niulakita are not included in the report, as the Metronome trip to the Southern Islands was postponed due to TFD vessels' breakdown.

5.2.4.3 Ciguatera Fish Poisoning (CFP) cases on each island

This activity was conducted all islands excluding Nukulaelae and Niulakita. During the first Metronome trip to the Central Islands, no cases were reported by island nurses. However, the trip to the Northern Islands revealed only one case in Nanumea. The team conducted an interview with the affected person and collected all the necessary information.

5.3 Funafuti Fisheries Management

5.3.1 Funafuti Reef Fisheries Stewardship Plan (FRFSP)

The Coastal Fisheries Section continued to support the implementation of the FRFSP. Given that Funafuti is a densely populated urban area and climate change events are becoming more intense with time, it is

crucial to continue working toward sustainability and the recovery of coastal resources. The second phase of the FRFSP (FRFSP2) started to be developed around mid-2023, based on the end-of-term evaluation of the previous plan that was conducted in December 2022. The FRFSP 2 is scheduled to be completed and endorsed in 2024, with implementation of the new plan’s activities upon its approval. FRFSP 2 is expected to engage all stakeholders, especially the Kaupule Funafuti as the primary stakeholder and TFD as the supporting stakeholder, to continue promoting cooperation and supporting all the activities under the **five strategies** for the successful recovery and replenishment of Funafuti’s coastal resources.

5.3.2 Funafuti 2023 GTox report

The abundance of *Gambierdiscus toxicus* and other potentially toxic dinoflagellates in the final quarter (Figure: 3) is the highest compared to other quarters in 2023. The risk of Ciguatera Fish Poisoning (CFP) incidents is categorized as “high” if the average density has exceeded $\geq 100,000$ per 100g, “medium” for sites between 10,000 and 100,000 per 100g and “low” for sites with an average density below 10,000 per 100g. (Kaly, 2000). Reasons for the sudden increase in the density of the dinoflagellates is unknown (Figure 1). However, there are links between an increase in *G. toxicus* and other potentially toxic dinoflagellates related to damage caused by hurricanes and storms (Darius et al. 2007). This increase in density of *G. toxicus* could be directly related to the transition of El Niño-Southern Oscillation (ENSO), or nutrient enrichment (Lehane and Lewis 2000), such as nutrient pollution from wastewater in Funafuti lagoon (Sharma, 2010; Fujita et al 2013; Newland 2018).

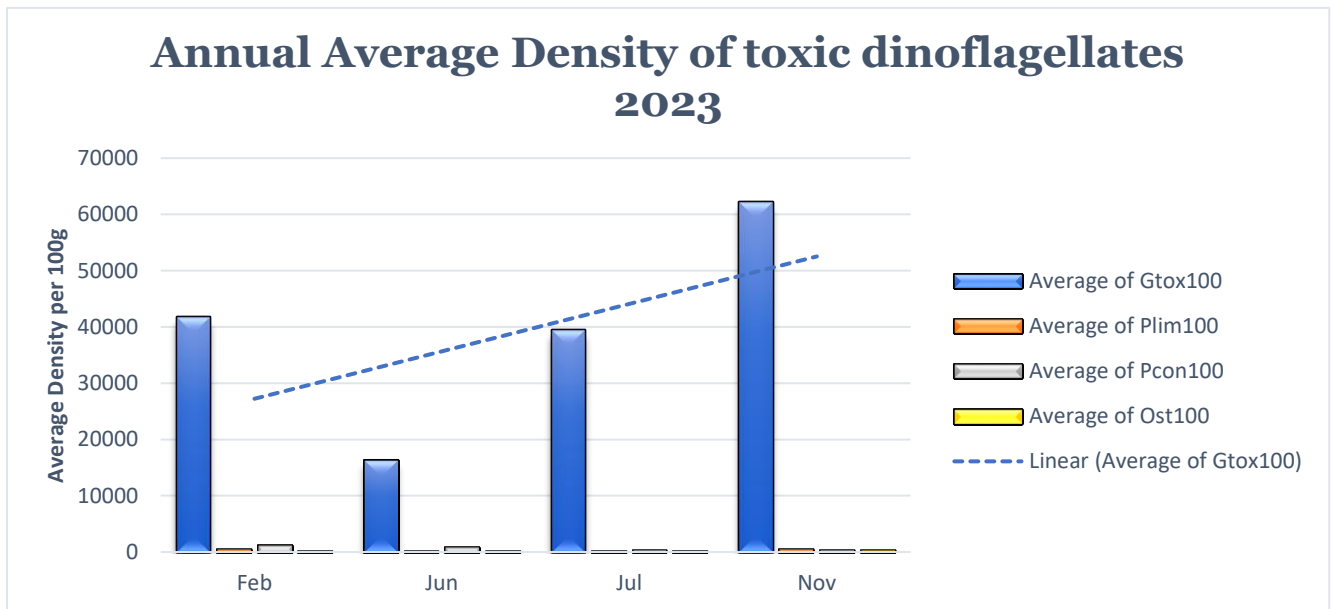


Figure 22: Average abundance of Gtox and other dinoflagellates

The above graph shows the average abundance of *Gambierdiscus toxicus* (Gtox) and other dinoflagellates which could be potentially cause an outbreak of CFP in 2023. There is a significant increase in Gtox abundance during the year, as illustrated by the trend line.

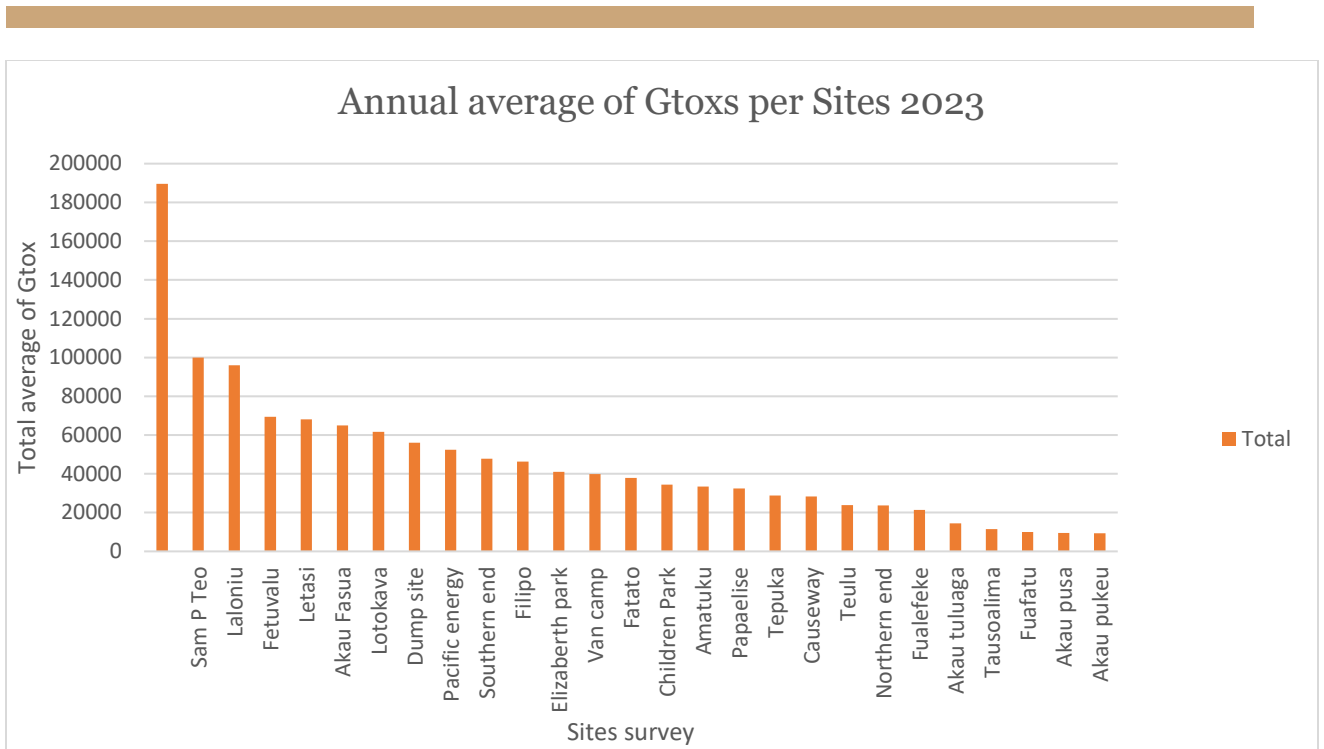


Figure 23: Abundance of *Gambierdiscus toxicus* (Gtox) per site 2023

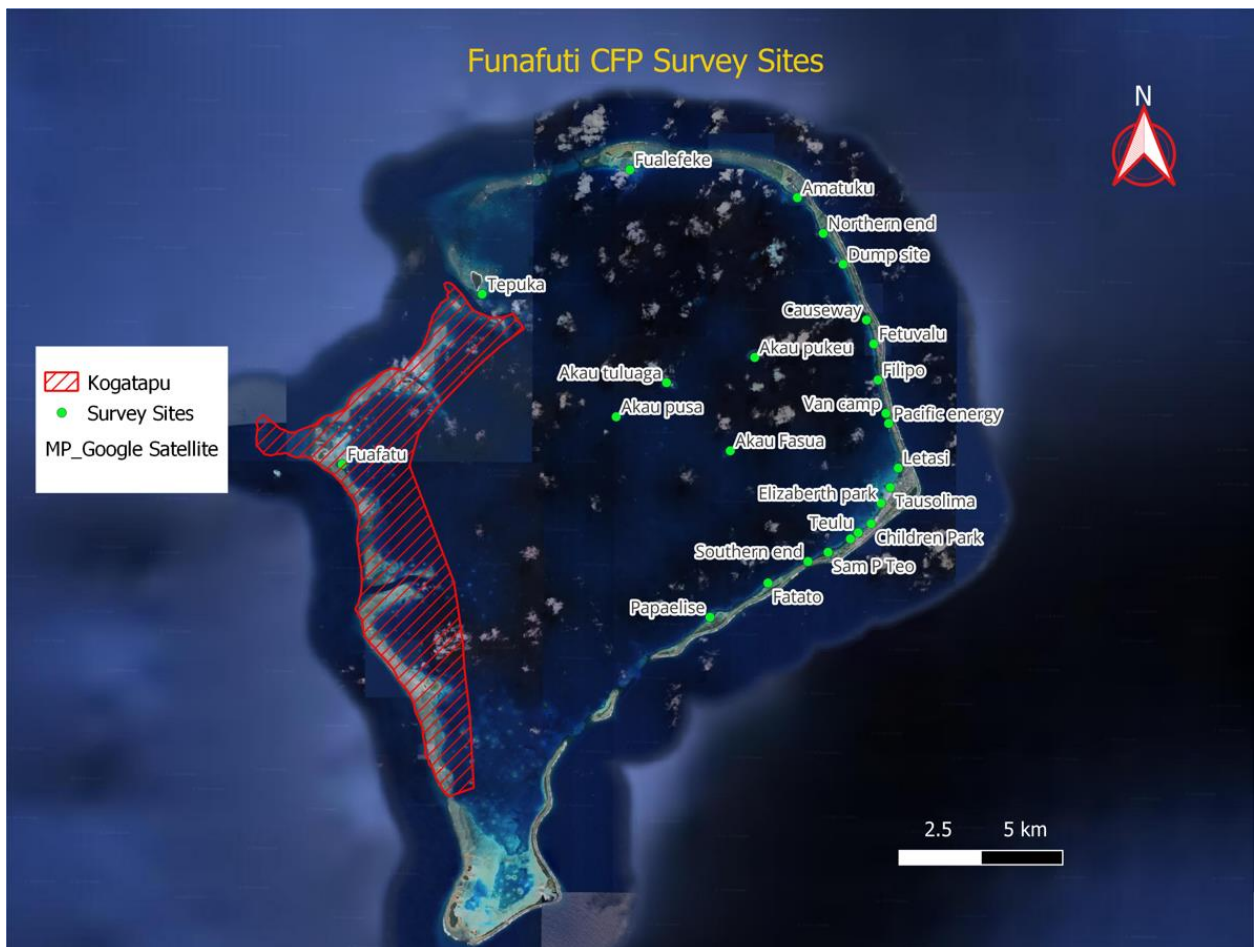


Figure 24: Location and density of *G.toxicus* and other potentially toxic dinoflagellates based on survey results

5.3.3 Additional Activities

5.3.3.1 Mass Tilapia mortalities reported in Tafua Pond

In the month of July, thousands of Nile Tilapia (*Oreochromis niloticus*) were found dead in Tafua pond and staff were tasked to investigate the causes of the mortalities that occurred in the pond.



Figure 25: Nile tilapia found dead in Tafua pond

The mortalities were reported to the Department several days after pig farmers around the bank of the pond started noticing the fetid odor and massive number of dead Tilapia floating on the surface of the pond. A rapid biological assessment was implemented to identify some answers to the problem. This includes taking of water quality measures such as pH level, turbidity and other environmental parameters. In summary, it was concluded that the likely cause for the problem is due to de-oxygenation in the water meaning lack of dissolved oxygen, due to high deposit of nutrient from pig manure, which causes the water to become eutrophic, and causes fish mortality. According to weather reports around that period, it was noticed that this event occurred after a prolonged period of heavy rainfall on Funafuti in July.

5.3.4 Training

5.3.4.1 Monitoring, Control, Surveillance & Enforcement (MCS & E) Training Course

In July, an MCS&E training course was jointly conducted by the SPC/MPI-NZ and staff of the Coastal Section, with the objective of enhancing the knowledge and skills of the Tuvalu Kaupule and Coastal Fisheries Officers (CFOs) in monitoring, control, surveillance, and enforcement (MCS&E) in coastal fisheries. The training programme covered several key elements related to fisheries compliance, aiming to strengthen understanding and promote effective practices. There were 8 Kaupule members and 8 CFOs from each outer islands that participated on the training, which also included 10 Coastal staff and Funafuti Kaupule participants. Overall, the Coastal Fisheries MCS&E Training Course provided a valuable platform for enhancing the knowledge, skills, and understanding of fisheries compliance among the participants. The comprehensive sessions covered key elements such as compliance ethics, legal frameworks, community engagement, and operational planning. The positive feedback received from the participants affirmed the effectiveness of the training in equipping them with the necessary tools and knowledge to fulfil their roles as fisheries compliance professionals.

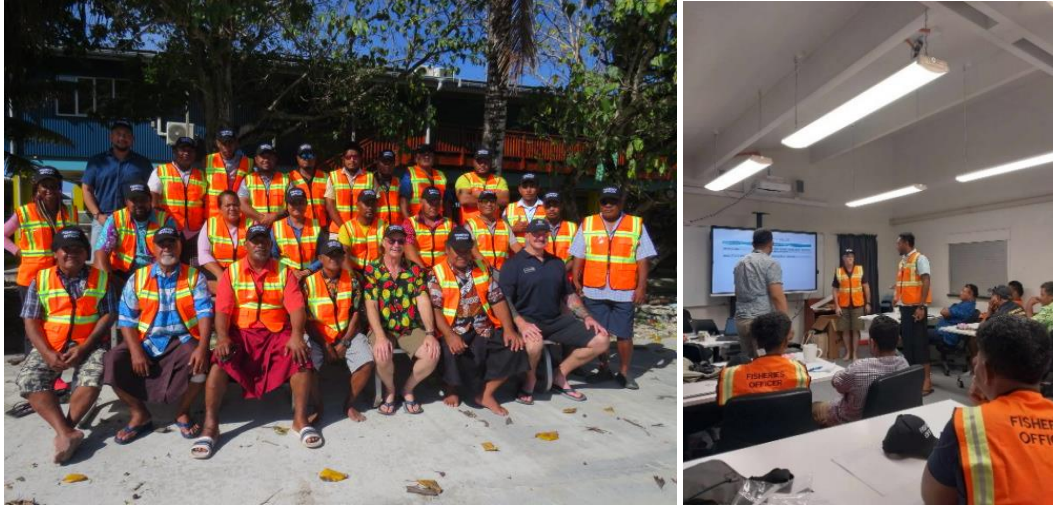


Figure 26: MCS & E participants

5.3.4.2 Scuba dive training

Between the month of July to August, a 12 day training course was successfully implemented at TFD. The intention of the training was to certify those TFD staffs that had not received formal scuba training and to provide an opportunity for relevant partners and agencies to participate in the training. A total of 11 participants were successfully certified to the PADI Open Water level which included 8 fisheries staff, 2 staff from Funafuti Kaupule and 1 from the Ports and Marine Department. The training was conducted by Greg Buxton an instructor from Suva Scuba company based out of Suva, Fiji and funded by TFSP2.



Figure 27: Open water certified divers

6 Oceanic Fisheries Activities

6.1 General

Another memorable year not only because of the things we were able to achieve but more so with respect to the hardship and challenges encountered and endured within the 12 months of 2023. Surface and Aerial Surveillance remained a huge challenge for TFD for the past years for reasons that are beyond the control of TFD. The prolonged La Nina event of this year, being responsible for the low fishing effort within Tuvalu EEZ hence the resultant low demand for days, prevented further sales of fishing days from taking place resulting in more than sixty fishing days (66) remaining unsold by the end of 2023. Low catch coverage in long line fleet due to slow provision of catch and effort data by long line (LL) operators continues, thus demanding for strong actions against LL operators. Moreover, secrecy around fishing days allocation is causing complication in terms of monitoring, requiring further collaboration.

Despite the many setbacks, the oceanic team collectively managed to achieve most of the set targets including key milestone activities such as a) achieving WCPFC compliant status once again, b) provision of observer insurance coverage, c) achieving more than AU\$43m in fisheries revenues, and d) observer total sea days reaching yet another record high.

Achieving compliant status is a testament of the hard work and dedication of oceanic staff given the many obstacles and challenges faced this year. Securing of Insurance coverage for the seventy-one observers has been a dream come true providing some peace of mind to observers and observers' families knowing they will be taken care of in the event of illness. As for fisheries revenues, this was the biggest revenue collected by Tuvalu since peak level reported in 2020, and it represents 70% of the total domestic revenues in 2023. This is attributed to the higher number of fishing days (PS PAE) this year and the ability of TFD to sell the majority (97%) of it.

Fisheries revenues comprise three main components as demonstrated below. The Vessel Day Scheme through fishing days is responsible for the bulk of fisheries revenues.

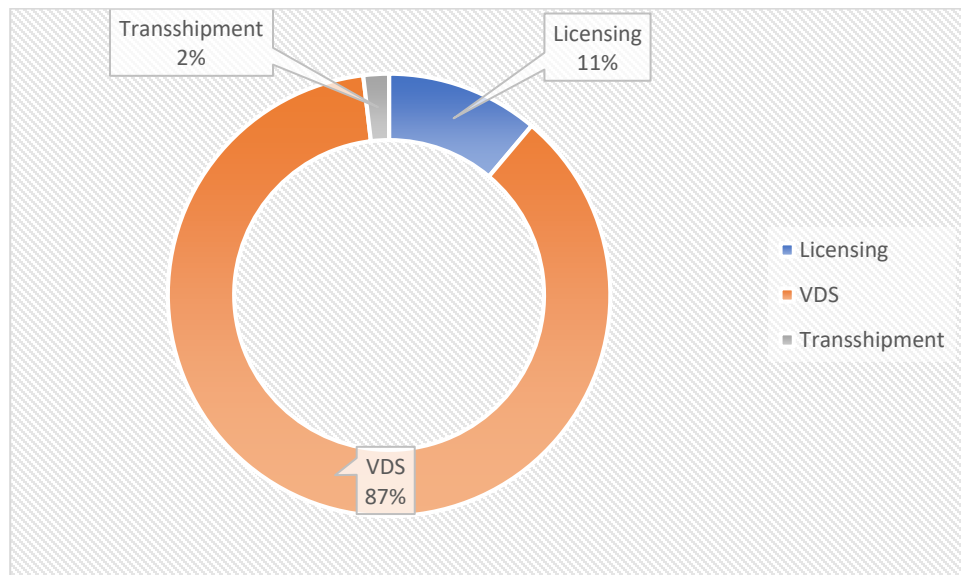


Figure 28: 2023 Total Fisheries Revenues by different Components

The Oceanic has four main sub-units and the next few sections of this report will focus on providing further details of the individual sections and the activities undertaken in 2023.

6.2 Licensing Unit

The licensing unit is responsible for the granting of Fishing Licenses and they are considered the first line of defense against IUU operators who may be looking to exploit the most valuable countries in terms MCS capabilities. The granting of fishing licenses follows a standard process which is strictly observed and adhered to. The signing of a Fishing Access Agreement (AA) is the starting or trigger point of the licensing process without which fishing license cannot be issued or processed. While the AA can be done via email, however, application and processing of license is all done electronically by way of the PNA FIMS platform.

Our licensing unit is also responsible for delivery of important obligations as required under the various fisheries treaties to which Tuvalu is a party. These may include, but is not limited to, preparation of the Part 1 report, provision of scientific data, submission of fish/did not fish report, provision of an updated licensing list etc. which are national commitments under the tuna commission (WCPFC). There are a number of regional annual meetings and workshops where our Licensing team would normally represent Tuvalu. These include the Stock Assessment Workshop, Tuna Data Workshop, and the Scientific Committee (SC).

6.2.1 Fishing licenses

6.2.1.1 Bilateral Vessels

There were 149 bilateral fishing licenses issued this year, a marginal increase of 16 licenses more than the previous year and the second lowest in the past five years. Fish Carriers registered the biggest increase (by almost six-fold the 2022 level). Despite the increase, the total fishing licenses was nowhere near the peak levels observed in 2019 and 2020. Change in fishing policies post 2019, COVID19 and adverse impacts of climatic conditions on tuna stocks, especially in 2023, all played a role in the observed declining trend.

The most common fishing fleet types in Tuvalu are the Purse seine (PS) and Long Line (LL). PS is usually the largest fleet and has been maintained at above 90 vessels for many years. The LL fleet at one point was over 70 vessels but decreased significantly since introduction of the LL VDS post 2019. Pole and Line was also common before 2021 but has undergone a sharp decline with only 1 vessel in 2022 and none this year. Support Vessels including bunkers and fish carriers, although not engaged in fishing themselves, but due to their supporting nature they are regarded as fishing vessels hence they also need to obtain a fishing license in the same manner as the fishing vessels. The only difference is that their licenses are valid for one year from date of issue and that of the PS and LL are valid only until December 31st.

Table 13: Number of bilateral fishing licenses by gear type for period 2019 – 2023

Years	Purse Seine	Longline	Pole & Line	Fish Carrier	Bunker	TOTAL
2019	104	70	14	51	0	239
2020	98	31	16	55	4	204
2021	108	27	12	26	10	183
2022	93	23	1	6	10	133
2023	96	9	0	33	11	149

6.2.1.2 FSMA and US Vessels

Tuvalu imposes no further licensing requirement on fishing vessels that are already granted Fishing Access under multilateral fishing treaties such FSMA and Tokelau/Tuvalu pooling arrangements. For such vessels,

so long they are listed on the vessels list of these two treaties, they are automatically considered and treated as licensed vessels with no need to obtain a Tuvalu license.

A total of ninety-eight (98) vessels were registered under the two schemes with FSMA 86 and US twelve (12).

Below is a graphical representation of all legitimate fishing vessels authorized to fish in Tuvalu waters by flag and by treaty types. The Koreans (KR), Taiwanese (TW), Chinese (CN) are most important bilateral fishing partners in 2023 whereas FSMA fleet (86) is dominated by Federated States of Micronesia (FM) and Nauru (NR). The US fleet operating under the TK/TV pooling arrangement has 12 vessels only and has been decreasing over the years. FSMA fleet on the contrary is growing and is driven by growing desire by PNA members to expand their domestic fleets.

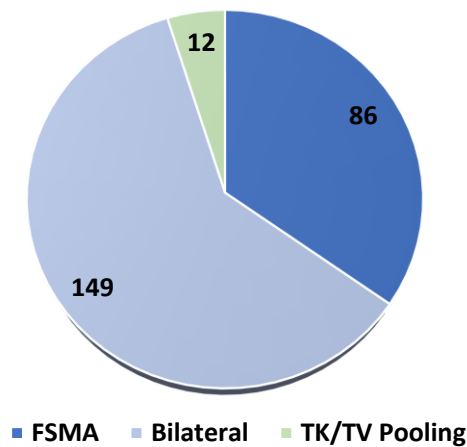


Figure 29: Fishing licenses by fishing agreement

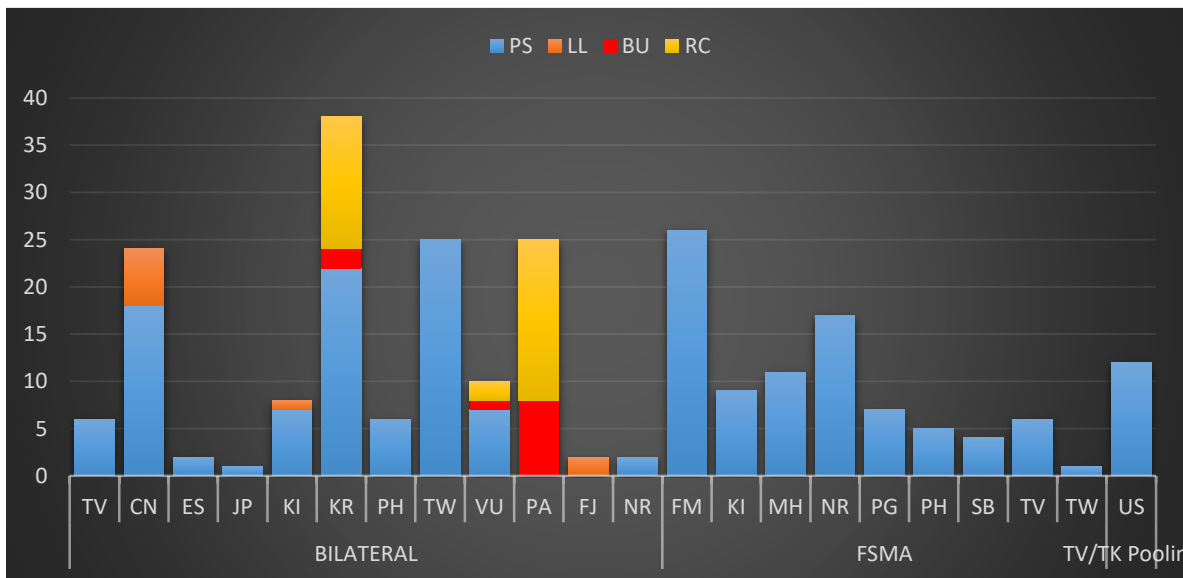


Figure 30: 2023 fishing licenses by fleet types and by flag

6.2.2 Licensing revenues

Licensing revenue is derived from two sources; i) the fisheries levy imposed on bilateral vessels as part of the licensing process, and ii) management fee paid by Tuvalu vessels. Licensing revenue for 2023 stands at US\$3,425,514 compared to US\$2,873,441 collected last year and is a reflection of the higher number of vessels this year. The management fee (flagship vessel) contributed the highest accounting for 44% of the licensing revenue.

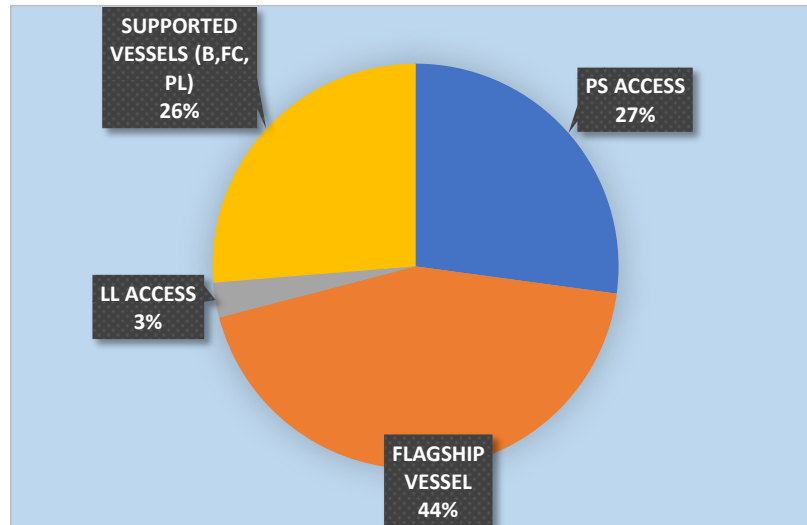


Figure 31: 2023 Licensing Revenue by Sources

Another important component of the Fisheries Levy is the observer levy/fee. The observer levy is a cost recovery initiative intended mainly to support the operation of the observer program hence is not part of government general revenue. Further information about this fund is provided under the Observer section.

6.2.3 Domestic Fleet

6.2.3.1 Fleet size and characteristics

Tuvalu's fleet size and characteristics has slightly changed following deregistration of its sole LL vessel (FV Pakasoa) from its list of fishing vessels in 2022. The delisting means Tuvalu has no more LL as of 2022. The remaining six vessels are Purse Seiners which operate exclusively in the WCPFC region. All were reportedly active throughout 2023. The six remaining vessels are as follows:

Table 14: Tuvalu Flagged vessels.

Vessel Name	Flag	Registration Number	IRCS	Vessel Type	Auth Period From	Auth Period to
DEOLINDA	TUVALU	38478221	T2PZ5	Tuna Purse Seiner	23-Mar-23	23-Mar-25
ELSPETH	TUVALU	37968220	T2PH5	Tuna Purse Seiner	12-Oct-22	12-Oct-24
COSMOS KIM	TUVALU	38498121	T2QA5	Tuna Purse Seiner	23-Mar-23	23-Mar-25
CARIBE	TUVALU	37868220	T2PC5	Tuna Purse Seiner	12-Oct-22	12-Oct-24
QUEEN ELLICE	TUVALU	37850920	T2FA3	Tuna Purse Seiner	05-Sep-22	08-Sep-24
TAINA	TUVALU	34128217	T2BX5	Tuna Purse Seiner	28-Jun-23	20-Jun-24

Source: WCPFC RFV

6.2.3.2 Purse seine catch

Tuvalu’s PS fleet landed a record estimated total catch of 42,101mt in 2023 (Fig. 32 below). As expected, skipjack tuna represented the highest volume with an estimated total of 31,102mt, yellowfin tuna 10,752mt and bigeye tuna 247mt. Both the skipjack and bigeye tuna catches experienced a slight drop but yellowfin tuna increased twofold compared to last year.

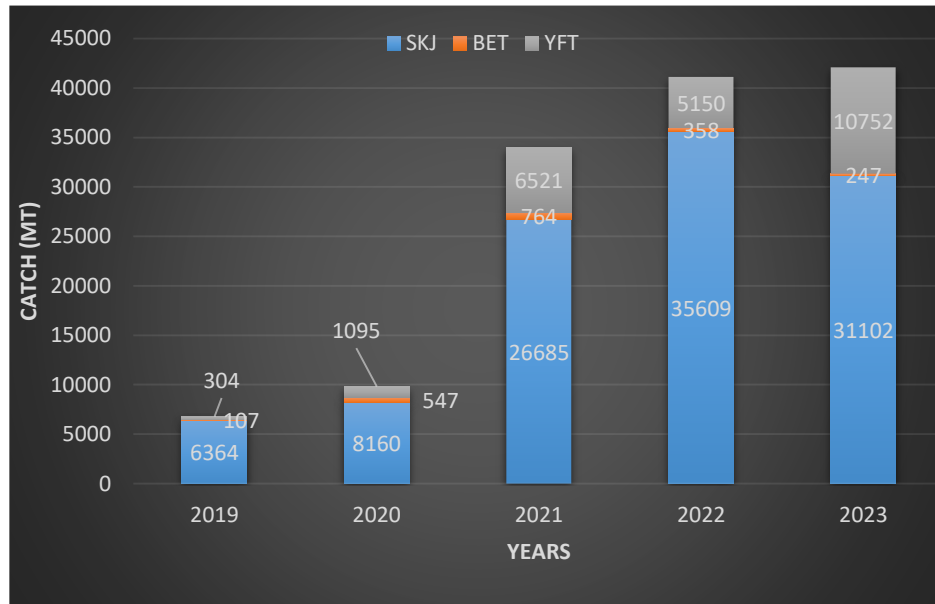


Figure 32: Annual raised catch by Tuvalu flagged vessels over the five past years (2019-2023)

6.2.3.3 Purse Seine Catch and Effort distribution

The Tuvalu PS fleet fished extensively over a large area ranging from PNG in the Western Pacific to the Line Group in far Eastern Pacific. The Eastern Pacific (EEZ of Line and Phoenix Groups) appears to be the best fishing location for the local fleet this year as indicated by effort and catches being highest there.

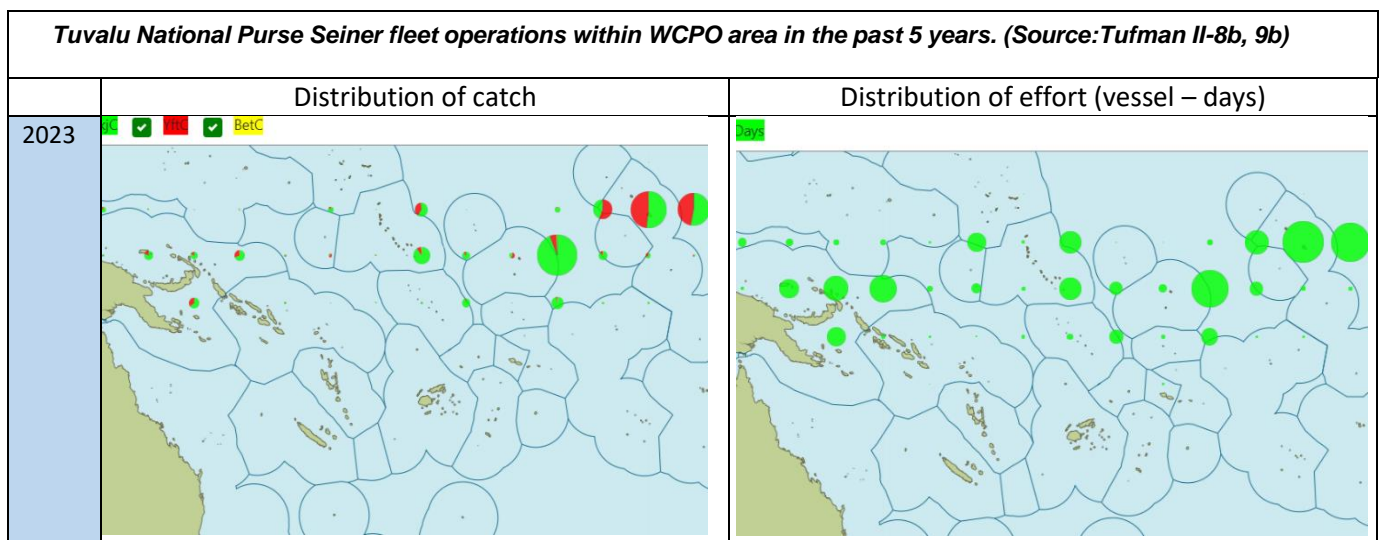


Figure 33: Effort and catch distribution by Tuvalu PS fleet for 2023

6.2.4 All fleets operating in Tuvalu EEZ

6.2.4.1 Purse Seine Fleets' Catch

The purse seine fleet landed a total of 21,574mt this year compared to 58,922mt in the previous year. This is a big drop, though part of the reason being due to incomplete data, it is largely due to the impacts of the extended La Nina event. The catch consists mainly of skipjack tuna (96%), YFT (3%) and BET (1%). The Marshallese fleet accounted for 27% of catch, Kiribati (24%) and Taiwan (13%). The combined catch last year was around 58,922mt.

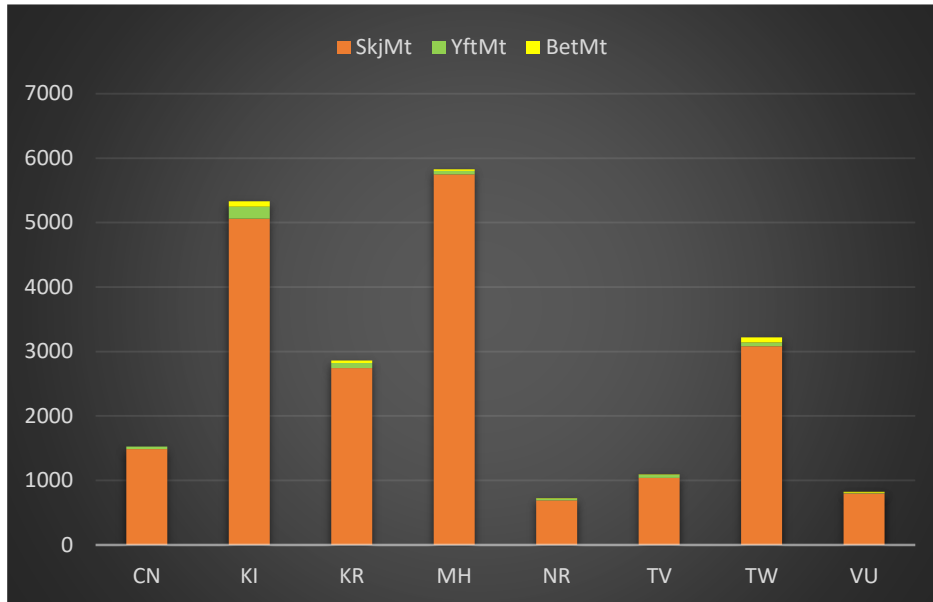


Figure 34: Total catch (mt) by different PS fleets

6.2.4.2 Longline fleets' catch

There were only 3 LL fleets (9 vessels in total) operating in Tuvalu EEZ in 2023. They consist of Chinese (6), Fijian (2) and Kiribati (1). The combined catch at the time of writing was only 134mt but this represents only 30% of the expected logsheets. The Fijian fleet caught the most with 61% (82mt), Chinese fleet 38% (51mt) and the Kiribati fleet 1% (0.8mt) of the total catch. The catch for KI came from one Chinese LL chartered by KI.

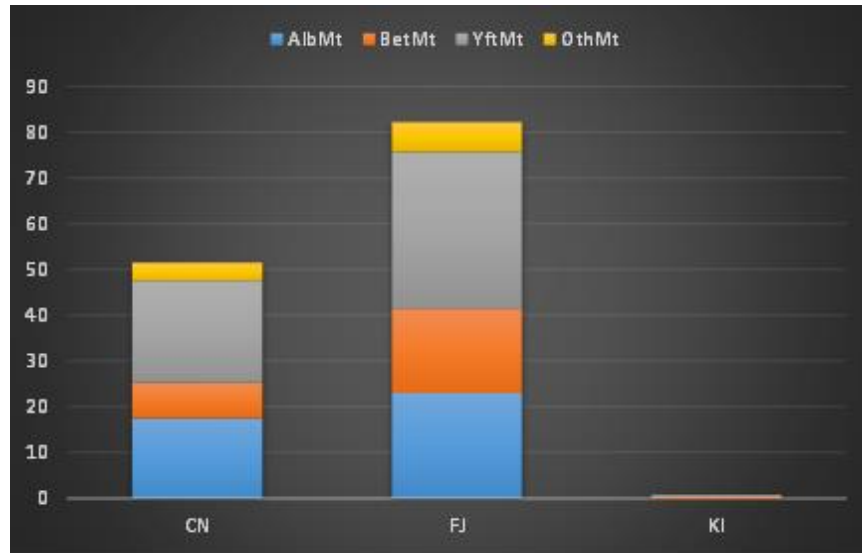


Figure 35: LL Catches by different fleets in 2023

6.2.4.3 Missing LL and PS logsheets (catch and effort)

There were missing data for both fleets with LL reporting being a lot worse with over 60% of LL logsheets still missing. Purse seine has fewer missing logsheet (<10%). LL operators have been contacted to provide those missing logsheets but the request was met with little to no success. The lack of response is a real challenge. Imposing penalties on non-compliance with reporting requirements will need to be enforced.

6.3 Vessel Day Scheme (VDS) and Vessel Monitoring System (VMS) Unit

6.3.1 General

This unit is manned by two staff whose roles involve taking care of two systems namely the VMS and VDS. More specifically they are responsible for the management and daily operation of both systems. These are critical tools in terms of fisheries surveillance and monitoring. The VMS is a satellite-based system that facilitates near real time reporting of vessel position, vessel speed and vessel direction enabling fisheries to instantly access such information remotely. VDS on the other hand, is a management arrangement employed by PNA to control the purse seine fishery through limiting fishing effort (days). The scheme is managed and monitored via PNA FIMs, another online system. These are hi-tech systems requiring specialized skills, knowledge and training.

In 2023, Tuvalu was allocated 2398 fishing days to be made available for sale to bilateral partners or any Distant Water Fishing Nations wishing to access our waters. Regrettably, 66 of these days remained unsold by the end of the year. The Department encountered difficulties in selling all of its allocated PAE, primarily due to the majority of fishing activities taking place on the western side of the Western and Central Pacific Ocean. Consequently, there was a reduction in fishing activities in Tuvalu's waters, resulting in some unsold fishing days.

The Fisheries Information Management System (FIMS) has recently developed a built-in module called "Trading" that is currently being used to facilitate the trading of fishing days. Unfortunately, this year, the number of trading days for fishing has been relatively low. This could be due to various factors, such as changes in fishing regulations, unpredictable weather patterns, or shifts in the market. Despite the low

number of trading days, the Fishing Information Management System (FIMS) continues monitoring the situation and addresses any issues that may arise.

The development of a new invoicing module to improve the accuracy and security of financial records is still in progress. Assuming no unforeseen obstacles, a trial run of this module is planned for 2024, contingent upon the developer and PNAO. The module is designed to be highly efficient and user-friendly to ensure ease of use. The ultimate goal is to enhance security and integrate financial information into the Government's financial systems for optimal performance.

The implementation of the Longline VDS continues in 2023 but differs from that of the PS fishery; instead of allocating days to companies or associations as the Purse seine fishery does, days are assigned to individual vessels. Upon obtaining a license, vessels are granted an initial 100 days. Once these days are exhausted, the decision to purchase additional days to maintain their fishing operations is at the discretion of the respective company, and TFD shall be informed of their choice.

6.3.2 Purse seine VDS

Both PS and LL fisheries are managed through restraining fishing effort (days) across the entire PNA membership. Thus every year, each PNA member is given an allocation of fishing days (Party Allowable Effort - PAE) for each fishery upon which the member can make its own allocation. This year Tuvalu's received a total PS PAE of 2398 days of which TFD managed to sell/assign 2332 (97%). Obviously, and as seen in the bar graph below, this was not first time TFD struggled to sell its allocated share of fishing days. The unsold days this year have been influenced by poor fishing within Tuvalu due to the extended La Nina phenomenon. The other years with unsold days were 2019 and 2020. As PAE increases, the challenge of selling them also intensifies.

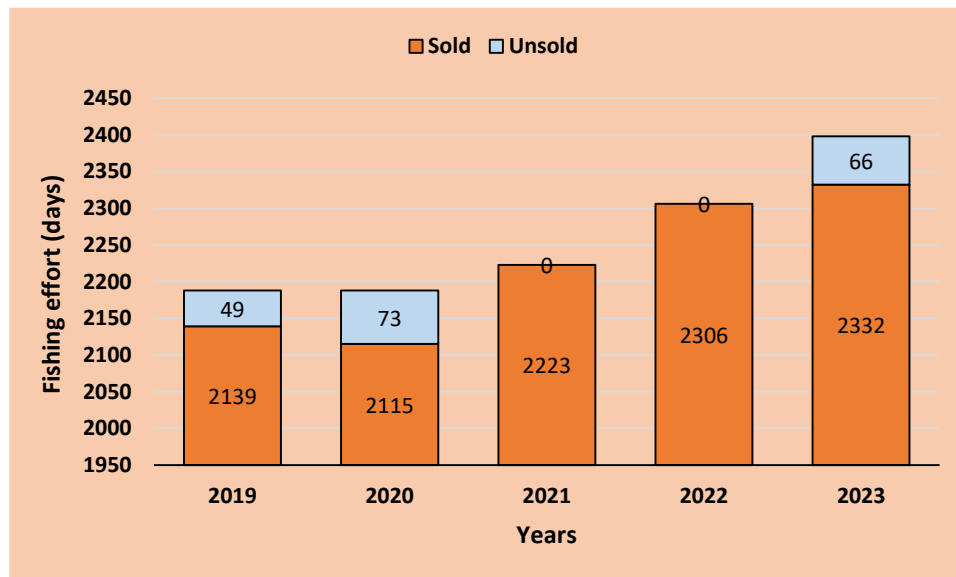


Figure 36: Tuvalu Annual PS PAE and Status

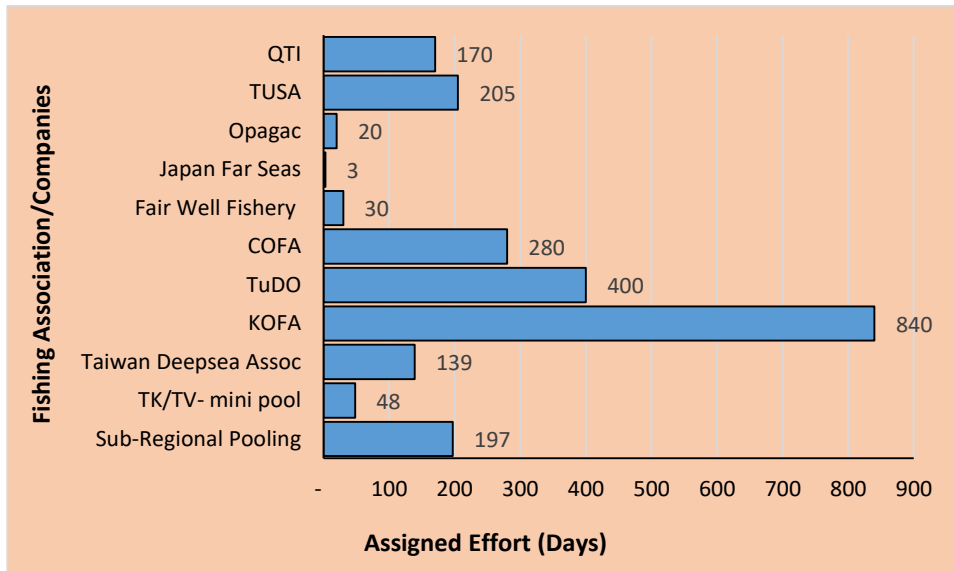


Figure 37: Assigned PS Fishing Days at end of 2023

6.3.3 Longline VDS

This is the second year of full implementation of the LLVDS by Tuvalu and is still in its early stage of implementation, with refinement urgently needed in certain specific aspects. Unlike the PS VDS, the annual LL PAE is excessively large relative to the demand for days. As such, the price of LL fishing days was kept as low as possible. The existing arrangement for LL is such that the first 100 fishing days is provided with the licence and for a further 100 days a fee of US\$5000 would apply. This year, Tuvalu received a PAE of 6751 fishing days of which nine hundred (900) days were awarded to the nine registered LL. One company ran out of days resulting in a purchased of a further 100 days thus bringing the total of assigned days to 1000 (15%) of 2023 PAE.

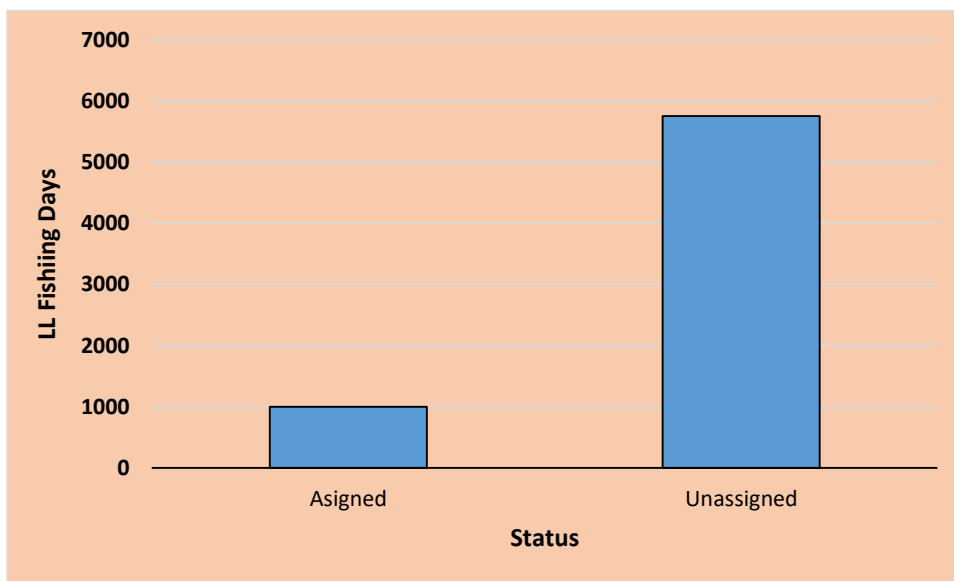


Figure 38: LL Fishing Days at the end of 2023. Unassigned days accounted for 85% of PAE in 2023.

In terms of monitoring Longline vessel days, there is a discrepancy between the calculation of fishing days on the Longline VDS at the national level and the FIMS system, specifically concerning vessel length factors. According to FIMS, vessels with an overall length of 40 meters or less are eligible for a deduction of 0.8 fishing days, while those with a length exceeding 40 meters will have a deduction of 1.3 days. However, the LL VDS calculation of Tuvalu follows a straightforward approach where one fishing day is equivalent to 1 fishing day, irrespective of the vessel's length. TFD still relies on an Excel spreadsheet as the primary tool for overseeing and managing our Longline Vessel Day Scheme (VDS). We remain receptive to exploring alternative solutions that may be more effective in meeting our needs to monitor LL VDS.

6.3.4 Vessel Days usage

The available data shows that Japanese fishing fleets have used a significant proportion of their allotted fishing days in Tuvalu waters, up to 63.25% of the total allotment. In contrast, OPAGAC and KOFA have only utilized 26.1% and 49.89% of their respective allotments. Fair Well Fishery has used only 13.33% of its total allocation, while COFA has exceeded its allocation by 1.45%. At the time of writing this report, the reconciliation of vessel days used by each company is still being undertaken, which may result in changes in the usage of fishing days. It is worth noting that some companies have gone beyond the limits of their allocation, which could have implications for their fishing activities in the future.

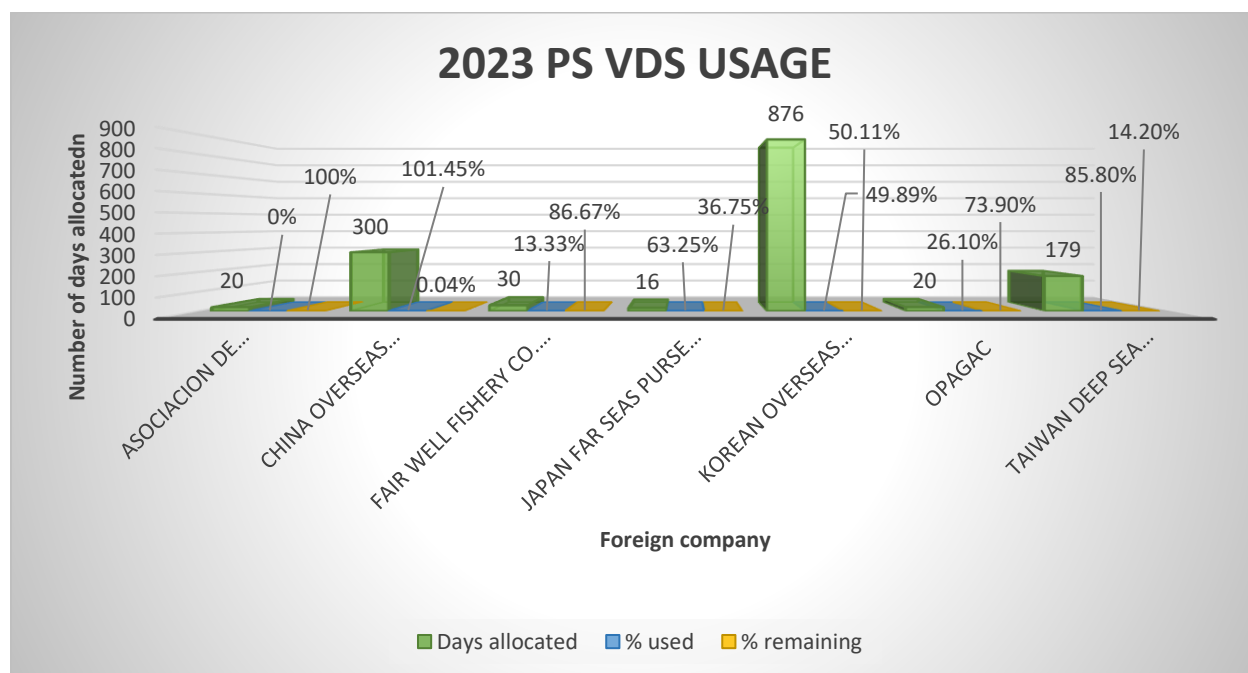


Figure 39: Highlight the VDS usage in the PS fishery from Jan - December 2023.

6.3.5 VDS Revenues

The PS fishery in Tuvalu has been a remarkable success and VDS has helped generate an impressive AU\$38,032,845.58 this year. The VDS revenue basically comes from the sales of fishing days done either individually (bilateral vessels) or collectively as a group (pooling). Trading of fishing days is also possible and an extremely valuable feature of the scheme. Overall, the purse seine fishery in Tuvalu has been a tremendous economic asset to the country, and its success is due to the collaborative efforts of Tuvalu and its partners.

Table 15: VDS revenue collected for 2023.

VDS Revenue HEADs	Estimated (AU)	Actual (US)	Actual (AU)
Bilaterals	26,932,432.00	21,463,850.00	29,576,079.47
Traded	540,541.00	505,850.00	748,267.84
FSMA	2,632,432.00	2,395,175.00	3,445,688.76
TK/TV Minipool	1,489,865.00	588,558.00	853,879.95
Sub Regional Pooling	4,067,838.00	2,482,200.00	3,408,929.56
Total	35,663,108.00	27,435,633.00	38,032,845.58

6.3.6 Vessel Monitoring System (VMS)

The VMS continues to be a reliable source of information providing near real time information of the fishing vessels' whereabouts. In 2023, rigorous monitoring of vessels brought to light the significant reduction in fishing activities within Tuvalu EEZ. This also implies a possible downturn in fishing practices which could have broader consequences for the ecosystem and local economy.

The VMS stores a lot of useful information that can be used for various purposes including surveillance. The VMS also has the capability of generating fishing hotspots report often provided to inform regional fisheries surveillance operations.

FFA's ongoing financial support to the VMS operation was maintained in 2023. The fund is used mainly for the procurement of required parts for the VSAT dish and internet costs associated with the Ops Room or VMS office.

The Regional Surveillance Picture of the TFD Ops Room has undergone an upgrade with enhanced GE layers. However, access to the latest advancements has been granted only to the two VMS officers. These improved GE layers facilitate the location of mutually agreed-upon boundaries by VMS officers and enable users to access the national framework for verifying the signing of relevant maritime border agreements.

FFA and TFD conducted an RSP audit to assess authorized user access, determine any need for reactivation, and authorize new users. A new account will be created for the TFD Ops Room to enable VMS officers to access the new setup on the walls. This action aligns with the responsibility of the VMS operation officer, who will handle any VMS-related issues requiring clarification.

A plan is being developed to enhance the capabilities of responsible officers with the latest upgrades and VMS processes. Despite the schedule being in progress, efforts are being made to ensure its execution in 2024. This initiative aims to ensure that the responsible officers are well-equipped to handle any new changes or upgrades with VMS.

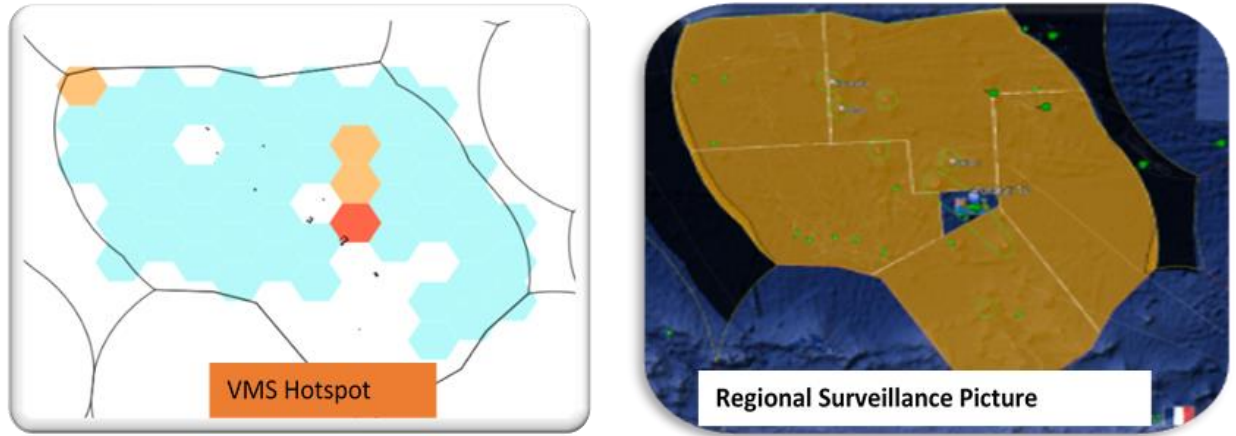


Figure 40: VMS Hotspot (left) and Regional Surveillance picture (right)

6.3.7 VSAT

The VSAT network connection has proven to be a dependable means of internet connectivity giving support to a wide range of fisheries software programs. During the MCSWG26, plans to terminate this service was revealed much to the surprise of the Tuvalu team. Despite repeated pleas and calls to FFA to retain this vital service, termination proceeded leaving TFD with no option but to explore alternatives on its own.



Figure 41: VSAT dish ongoing maintenance.

records AIS traffic data which can go beyond its radar range. M2 uses off-the-shelf marine radar to detect and track targets automatically. It is also equipped with a long range camera.

With the pandemic now over, TFD will continue to explore its usefulness in terms of surveillance and monitoring of illegal activities such as oil spill, dumping etc. that may take place during transshipment.

To keep costs to a minimal, a decision was taken to look for a provider who can restore connectivity using hardware already existed. TFD is now taking the necessary steps to implement this solution expeditiously as possible. If it works well, extending this service to cover the entire department will be given some consideration. Our primary objective at this juncture is to select a cost-effective option that facilitates improving our internet connectivity in the long run.

In the reporting period, the dish underwent customary maintenance procedures, focusing on enhancing its durability and safeguarding against potential harm caused by the salty breeze.

6.3.8 M2 Radar Satellite

M2 is a shore-based radar system procured for the purpose of monitoring transshipment during the COVID pandemic. The main purpose of the system is to keep a close watch on small local boat ensuring they do not approach fishing vessels within the designated transshipment area within port. The system keeps a log of vessel tracks along with time and position data allowing easy identification of any suspicious boat or activity.

The range at which it can detect vessels depends on vessel size, vessel material, and prevailing weather conditions. Additionally, M2 also

Total	Tracks	Peak activity	
	Alarm	Date	Time
1,340	109	Sat Jan 14	3am to 6am

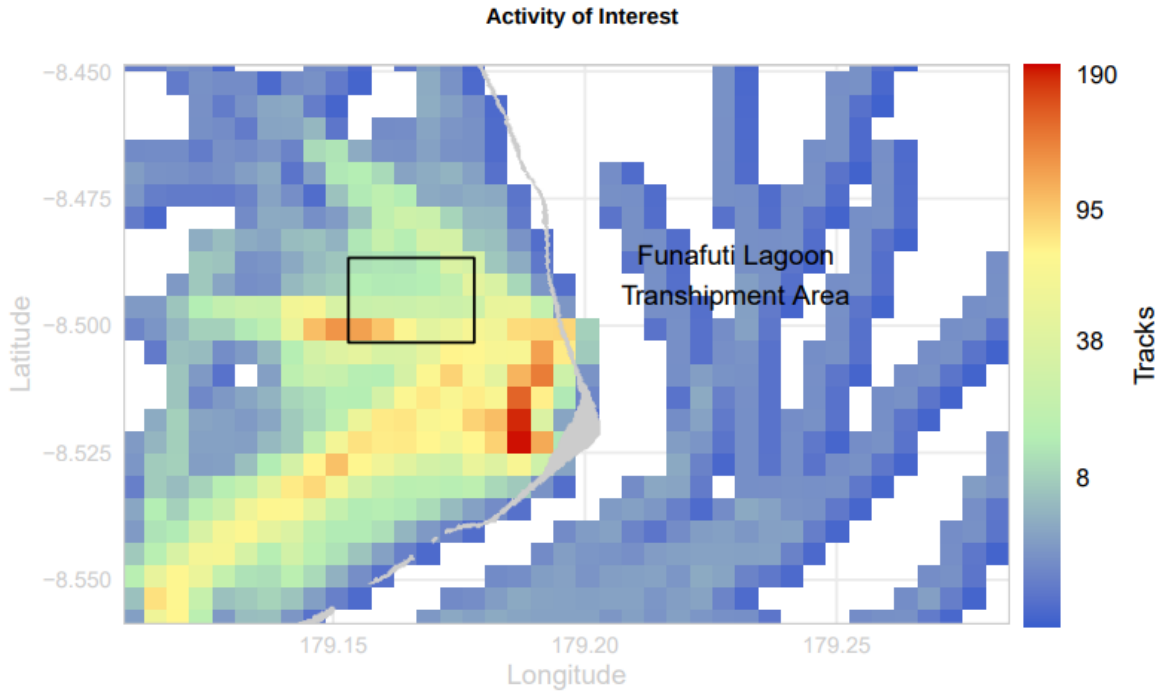
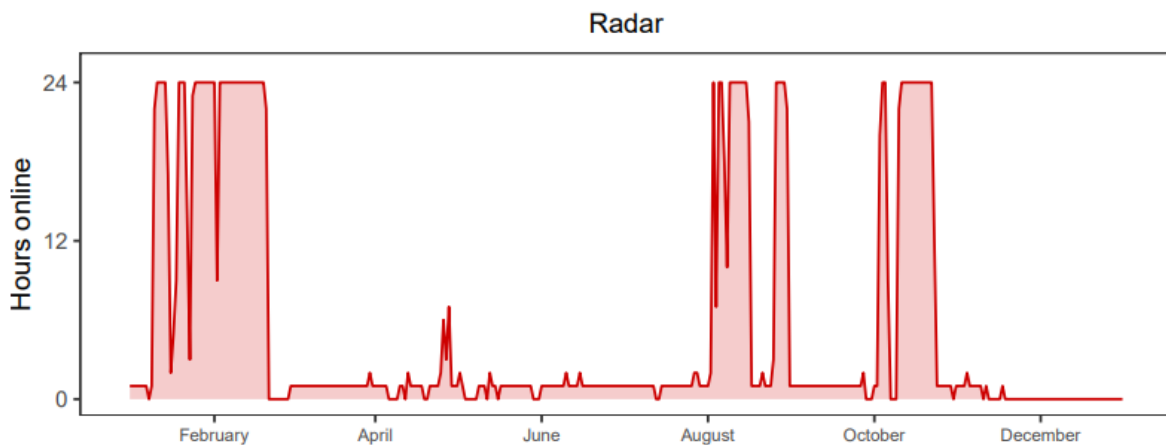


Figure 42: M2 radar activity of interest from Jan - June 2023

System Uptime

- ✚ The M2 radar system was functional (all 24 hours) on 60 days (16% of all days)
- ✚ The M2 radar system was offline (all 24 hours) on 85 days (23% of all days)
- ✚ AIS was functional (all 24 hours) on 260 days (71% of all days)
- ✚ AIS was offline (all 24 hours) on 67 days (18% of all days)



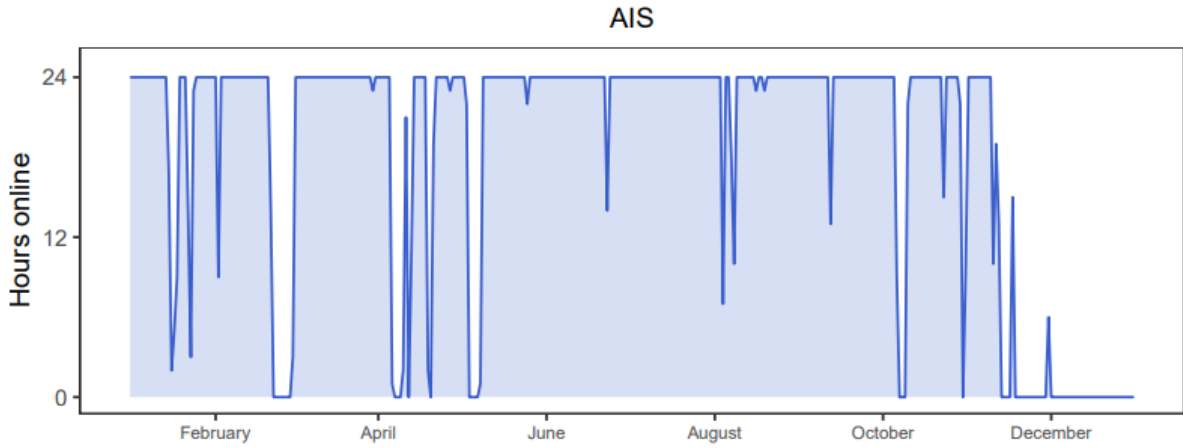
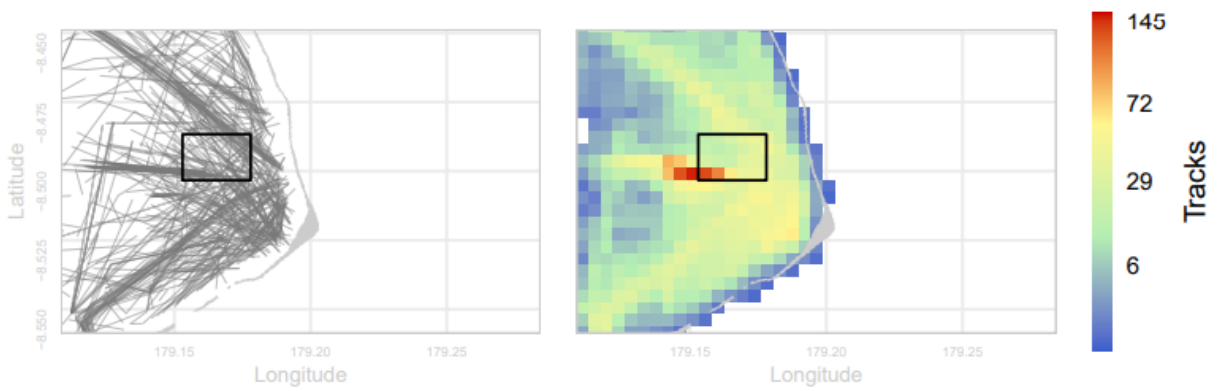


Figure 43: Hours per day that the M2 radar system and AIS, if applicable, were functional. Offline AIS may indicate the absence of AIS vessels.

6.3.8.1 Data Overview

Data were collected from January 1 through June 20 at the Tuvalu M2 site. During this time, 44,356 tracks were detected. After removing likely ‘false’ and insignificant tracks, 1,340 tracks remained for analysis. Anchoring and activity are monitored in the Transshipment Area.

Radar



AIS

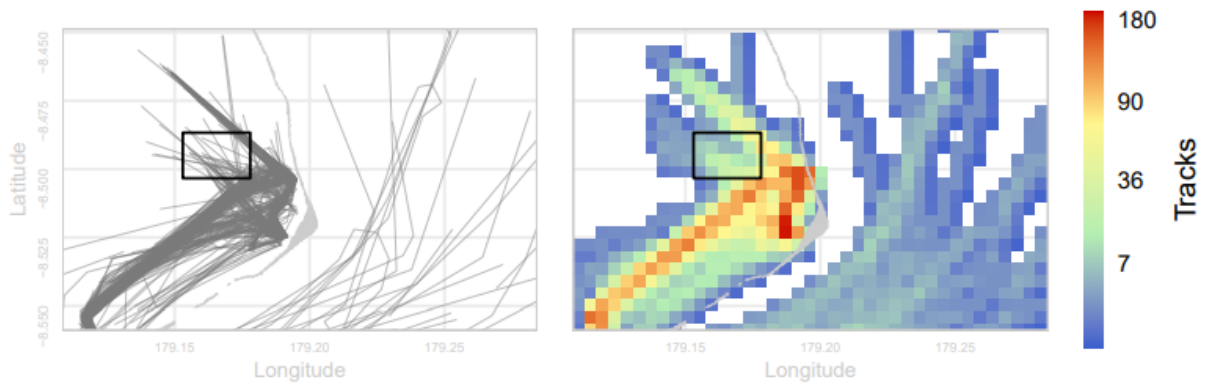
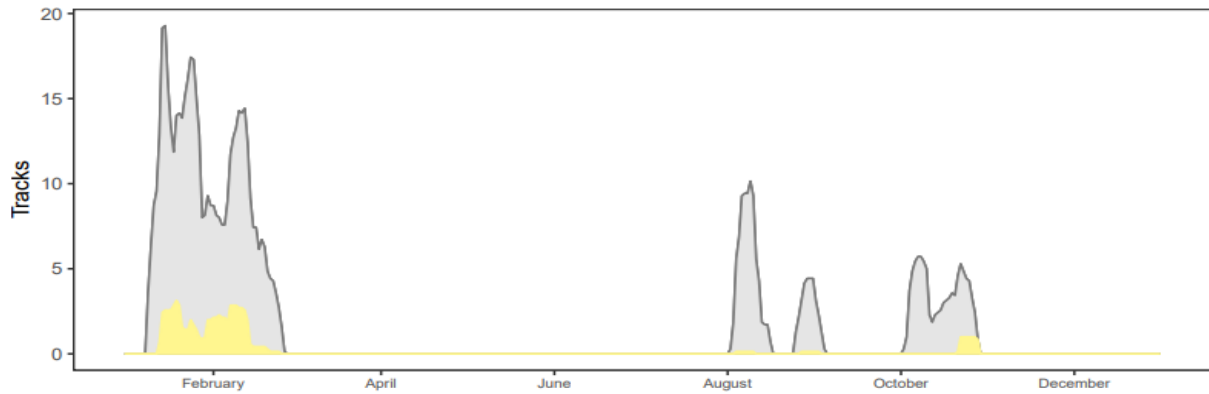


Figure 44: All tracks per area. Some detected tracks may be outside map boundaries.

Activity over Time

Radar



AIS

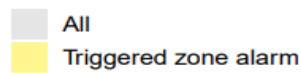
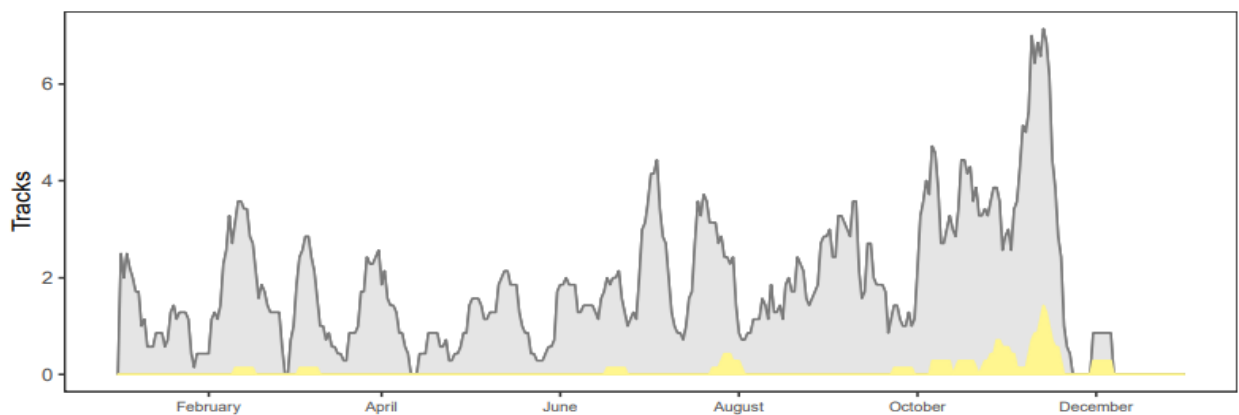


Figure 45: Seven-day track average per day across an entire study period

6.3.9 Challenges

6.3.9.1 LL VDS

Tuvalu's introduction of LL VDS and its implementation have presented a challenging task in monitoring its effectiveness. Consequently, a crucial need arises for additional personnel to work on VDS processes such as trading, monitoring of days, etc. Given the complexity and dynamic nature of PS VDS and LLVDS, it is imperative to have a dedicated fisheries officer responsible for ensuring its smooth implementation and seamless integration into the existing system.

6.3.9.2 Internet Connection

Internet connectivity in the VDS/VMS office remains an ongoing challenge. Although a new provider has been engaged, the problem still exists, and the unit is still working on finding a better solution to improve internet connectivity.

6.3.9.3 Monitoring of assigned days

Monitoring of days is not an easy task as there are multiple levels of authority involved. In the past, VDS officers get access to the full allocation information up to vessel level. This is not the case nowadays. For this reason, the monitoring of PS VDs allocated to Fishing Associations is extremely difficult. In other words, Associations now are more in control of both allocation and monitoring.

6.4 Compliance and Enforcement Unit (CEU)



Figure 46: Tuvalu fisheries officers at Fiji Navy

The Compliance and Enforcement Unit (CEU) main roles is to ensure compliance by all fleets with national, regional and international fisheries laws ensuring sustainability of our marine resources. Illegal, unregulated and unreported activities (IUU) manifested in many different forms remain an issue.

This report summaries the MCS activities conducted by the CEU in 2023. These activities include fisheries surveillance operations and dockside boarding & inspection.

6.4.1 Transshipment Operations



Figure 47 Crew on fishing boat load tuna into

Funafuti port is the only designated port of Tuvalu where transshipment can take place. Prior to and during first year of COVID19, the port has attracted a substantial number of fishing vessels for transshipping purposes. In 2022, only 9 arrivals took place and 76 were reported for this year. The full resumption of transshipment operations in-port is a good thing as it brings tangible benefits that local residents can enjoy and benefit such as employment and trading opportunities. For the government, it is another important source of government revenue. Table 16 below shows annual arrival, catch and revenue associated with transshipment. A substantial portion (66%) of 2023 transshipment revenue is still unpaid with due payment expected within this year (December 31).

Table 16: Transshipment arrivals, catch and revenue for the last 5 years.

Years	Arrivals	Transshipped Catch (mt)	Total Revenue
2019	131	125,335.00	1,268,935.00
2020	148	127,089.00	1,238,774.00
2021	69	127,089.00	545,430.00
2022	9	62,799.03	49,665.00
2023	76	75,695.00	559,824.00

In terms of food security, the by-catch and unwanted tuna which get offloaded is source of fresh fish for many families on Funafuti. As the cost of fish have become quite expensive on Funafuti, such fish offloads provide an alternative for residents on Funafuti atoll.

6.4.1.1 Transshipment Catch

The line graph below depicts the 2023 transshipped catch by species and by grade. The catch normally is divided into three different grades; Brine, Marine Stewardship Council, (MSC) and the Sashimi. Both the Brine and the MSC catch were common in 2023 but not sashimi grade.

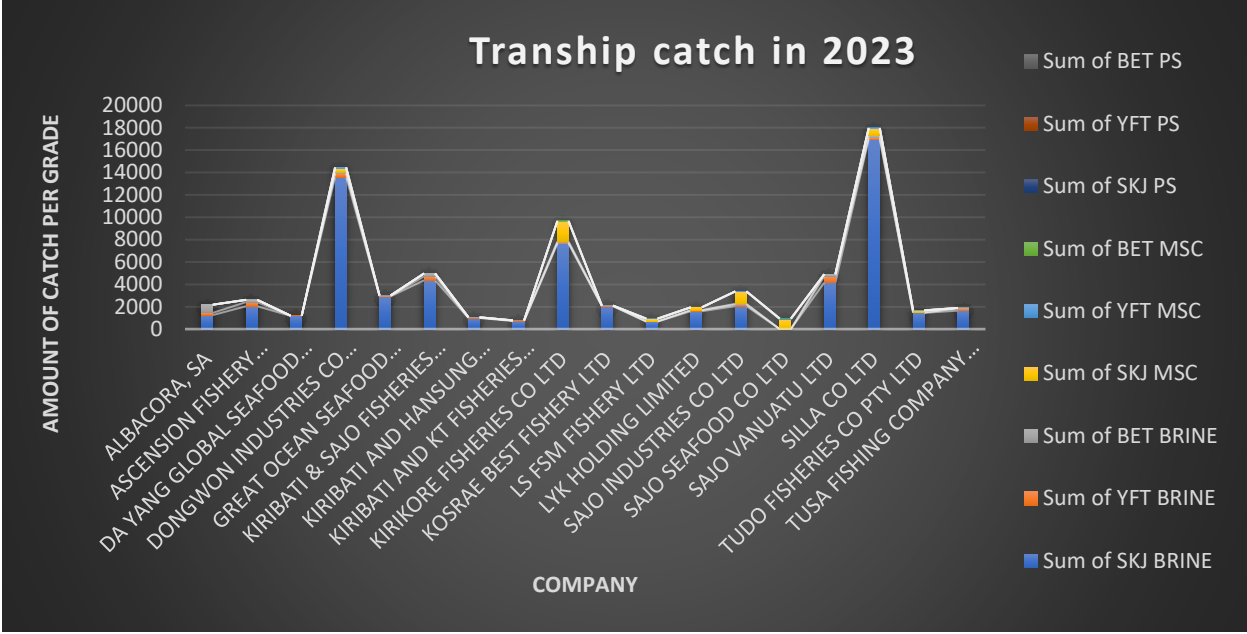


Figure 48: Total catch transhipped in Funafuti port 2023 by company

6.4.2 Surface Surveillance Operations

The malfunctioning of the national surveillance asset (Patrol Boat) has had a profound limitation on surveillance capability and consequently no surveillance operation was undertaken in 2023. Several fisheries staff as well as staff from Maritime Police, however, participated in three regional operations conducted this year as watch keepers (table below).

To assist Tuvalu in the policing of its vast EEZ, the Australian Government graciously donated a relatively small vessel in 2023 as a temporary replacement while awaiting news of its national asset taken to Australia for repair and maintenance. However, even the replacement boat, due to its small size, was deemed unsafe and unfit for surveillance purposes – the very reason why the boat was provided in the first place. The revelation came after several attempts that all failed.

Table 17: List of Officials from Tuvalu who attended regional operations in 2023

Name	Organization	Operation	Duration
Manuao Taufilo	Fisheries	Tuimoana	15-26 th May 2023
Teaunu Lopati	Fisheries	Island Chief	6-18 th August 2023
Ene Lapana	Maritime Wing	Island Chief	6-18 th August 2023
Tevai Teoti	Maritime Wing	Island Chief	6-18 th August 2023
Salemona Tefana	Maritime Wing	Kurukuru	17-28 th October 2023
Uni Liufau	Fisheries	Kurukuru	17-28 th October 2023

6.4.3 Aerial Surveillance Operations (ASO)

Aerial surveillance capability relies on partners namely the FFA and QUADs members (Australia, France, New Zealand and US) for support. The advantage of aerial operations is that they can cover a vast area within a short period of time. With due consideration to the lack of surface operations within Tuvalu’s EEZ, TFD approached the FFA for assistance resulting in the approval of several operations. Unfortunately and

to our dismay, only one actually took place due to problems with the lack of fuel and lack of accommodation in the country. These problems, however, are beyond the control of both TFD and FFA.

The map below shows the total area covered (in grey) by the aerial surveillance mission deployed to Tuvalu early in 2023. There were 9 flights in total with many more being cancelled due to the problems already explained above.

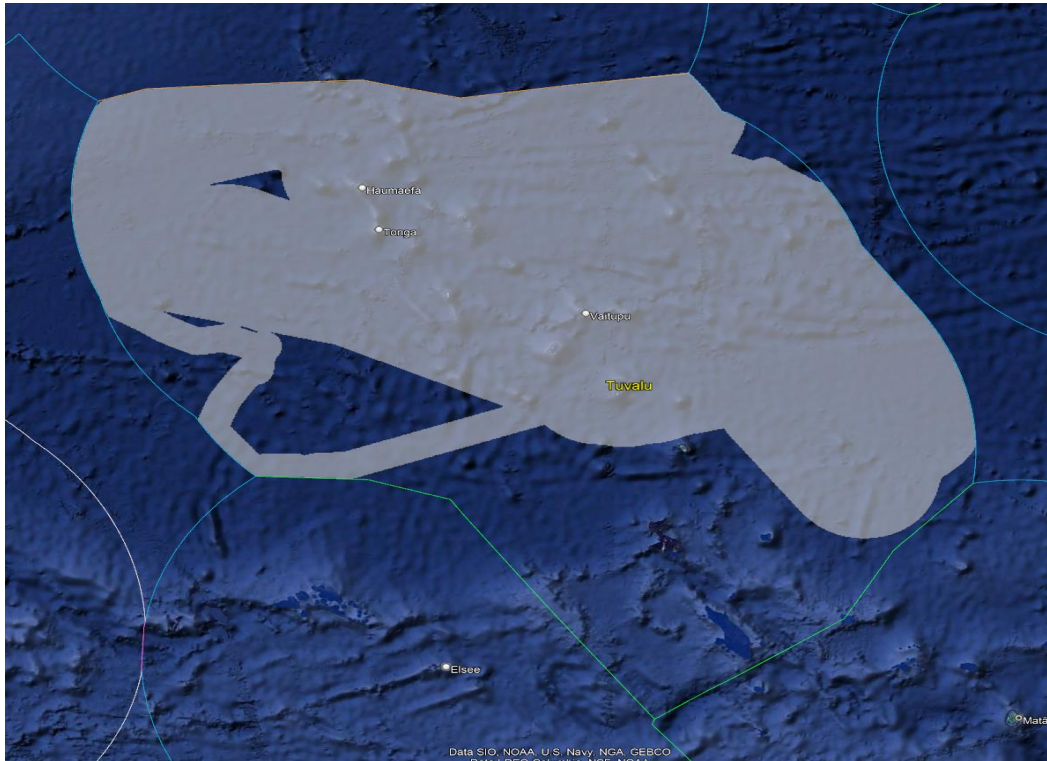


Figure 49: Snapshot of the total area covered (in grey) by the aerial surveillance in 2023

6.4.4 WCPFC Compliance Case Files System (CCFS)

The WCPFC CCFS is an online system operated by the Tuna Commission which keeps records of potential fisheries infringements (cases) reported to the commission through a variety of different sources including Fisheries Observers. This system allows each member of the tuna commission to view, review and amend all cases assigned to the member only. The assignment is based on the relationship of the member with a particular case, being either a flag state, coastal state, or observer provider. Improvement to the system has been ongoing and members can now see progress of the investigation by the flag state. The majority of cases reported to us reflect our status as an observer provider.

Throughout the year the CEU has been working to update the relevant cases on the system related to Tuvalu. The majority of the cases were a result of our status as an observer provider and are classified into three categories as follows: new cases, ongoing cases and closed cases. The table further down were infringements reported against our flag vessels and there are 49 in total to date. The real challenge lies in the inability of certain observer providers to furnish the observer report required, in order for us to proceed with our investigation.

Table 18: Infringements reported by Tuvalu as an Observer Provider

Observer Provider		
Closed Cases	Observer Report Sent	Observer report Not Sent
2	237	356

New Cases	
Observer Report Sent	Observer report Not Sent
5	10

Ongoing	
Observer Report Sent	Observer report Not Sent
231	345

Table 19: Potential Infringements reported against Tuvalu vessels

CASES		
ROP RECEIVED	CASES COMPLETED (CLOSED)	ROP NOT RECEIVED
5	7	37

6.4.5 Challenges and solutions

6.4.5.1 Oil Spill

Oil spills in the lagoon, although not frequent, is an issue often blamed on transshipment. But without proper evidence it is difficult to pinpoint the source of such reported spills as there are also other vessels in the lagoon when past spills occurred. This necessitates the need for the relevant authorities including Port services, Department of Environment and Fisheries to work together in finding ways to address the issue and to bring the responsible party to justice. Identification of the lead agency should be part of the way forward including Oil Spill response and prevention mechanisms.

6.4.5.2 Port Monitors

Port monitors are off-duty fisheries observers placed on fishing vessels to monitor transshipment. Often times, due to limited observers available, they are forced work long hours (15hrs) which could lead to fatigue and exhaustion putting their own life at risk. A formal contract specifically for port monitors should be sufficient to address the issue.

6.4.5.3 Transshipment Payment

Delay in the payment of transshipment fees is an ongoing issue for many fishing companies over the past many years. The unpaid fees this year is a concern given the relatively large amount. The lack of market for their fish is often cited by most companies as the real cause of the delay in their payments.

6.4.5.4 Surface asset

The long absence and the uncertainty surrounding the time of delivery of a replacement vessel have deeply impacted our MCS efforts as described above. The team will continue to explore other alternatives.

6.4.5.5 Shortages of aircraft fuel and accommodation

Shortage of fuel and availability of accommodation on the island have impacted our attempts to get aerial support from outside. TFD will endeavour to find ways to navigate around these problems.

6.4.5.6 CCFS

Working on cases on CCFS is challenging as it requires staff and time to go through piles and piles of observer reports.

6.5 Observer Program

6.5.1 General

The Tuvalu observer program is part of the Pacific wide observer program whose main purpose is to collect and collate tuna data on fishing vessels (mainly on PS) for compliance and scientific purposes. Starting from a few observers working part time more than 10 years ago, it now provides well-paid employment for 71 young men, without requiring a long period of training or high qualifications.

Our observers are popular with the fleets (mainly the Korean) and the regional programmes and they are known as good seamen and for doing a good job.

Table 20: Summary of the Tuvalu National Observer Program 2023

Qualifications	2023
Total Number of Active Observers	71
Certified Debriefers	17
Trainee Debriefers	6
Debriefers Assessors	5
MSC Certify Observer	49
Cross Endorsement Observers	15
Trainee Trainers	3

6.5.2 Observer Insurance

Observer insurance has been our top priority for the past several years. Through the dedication and hard work of our TA, the program managed to secure an Insurance Service Provider (VUMI Insurance) based in the US. Through this provider, the program was able to purchase a medical insurance (without life cover) for all its seventy-one observers. The medical insurance provides extensive coverage but for a limited period of one year only. Unlike the existing coverage provided by fishing vessels, this scheme is accessible 365 days (whether on duty or not) covering all expenses up to a maximum of 3 million USD per person.

6.5.3 Observer trips and total sea days

This was another record year for the program claiming a peak total of more than eleven thousand observer sea days. The national program has the highest share of sea days with 68% of the total and PNA 32%. PNA trips were slightly longer with an average of 32 days per trip compare to 30 days per trip for the national program.

The program was also approached for possible placements on vessels operating in other oceans. Due to the observer shortage experienced at the time and other considerations, such requests were declined.

In terms of costs, one sea day costs between AU\$40-\$115 for a national trip and US\$50-110 US for a PNA trip. Such a cost is met by the service provider themselves meaning the national program has likely committed around AU\$800,000 for observer sea days this year. The program on the other hand generates on average around AU\$1.2 million annually over the past five years. This means around AU\$400K is available per year for other operational costs which then raises the question as to the sustainability of the fund should the demand for national trips increase.

Table 21: Observer placement, trips and sea days provided by two service providers in 2023

Observer Provider	Placement	Trip	Sea Days
National Trips	68	259	7957
PNA Trips	47	116	3757
Total	115	375	11714

6.5.4 Observer e-reporting (ER) trips

The program is making some good progress following the ER training conducted last year and this year we are seeing an increasing number of observers taking up ER. At the end of 2023, a total of ER 121 (33%) trips was reported and we anticipate achieving 100% ER by end of 2024. As there are still several untrained observers, further ER training would be undertaken in 2024. In addition to untrained observers, several observers are struggling and they will also be included.

6.5.5 In-country trainings

The program organized two in-country training courses in 2023. The first training was train-the-trainers electronic debriefing in which two specialized trainers from the PNG Fisheries Authority were invited. The training was delivered within two weeks with six debriefers taking part. The basic observer training intended for new observers was the other training course. Three trainers, 2 from PNG and 1 from Nauru, conducted the training which took 5 weeks to complete. From the initial twenty observers, only eighteen managed to complete the five-week course. Both training courses were made possible by WCPFC funding.

Table 22: 2023 In-country trainings

Trainings	Date	Venue	Funding	Participants
1 Electronic Debriefing	14 th Jun – 30 th Jun 2023	NAFICOT conference Rm	SRF (WCPFC) – Project Proposal	6
2 Observer Basic Training	23 rd Oct – 24 th Nov 2023	TFD Conference Rm	CTTF (WCPFC) – Project Proposal	18

6.5.6 Overseas Training

6.5.6.1 Debriefers Part C

This training is the last and final step in the process of becoming a certified debriefer. This year, only two candidates from the program qualified to attend the training which was held in Nadi, Fiji. The two managed to complete this assessment and were awarded with debriefer certificates bringing the number of certified Debriefers to 17 to date.

6.5.6.2 Trainee Trainers

As part of the requirement, a trainer must attend a total of eight basic training courses to complete the trainer's course. To date our three trainers have completed only two attachments each. Thus further training attachments were arranged in 2023 for the three trainers including Alipele, Gagati and Vaelei continues. Alipele and Gagati were assigned to Vanuatu and Tonga respectively and Vaelei to Tuvalu program. All three have now completed three attachments each with five more training courses to go per trainer.

6.5.6.3 Observer levy

The observer levy is an important element of the license fee structure with all vessels being obligated to contribute. This fee, intended for supporting the observer program, varies between fleet types. The biggest cost, being observer sea days, amounted to around AU\$0.8m this year. The total levy this year was supposed to be US\$1.3m based on number of fishing licenses issued but only around US\$0.7m (**AU\$1,010,138.31**) was received and warranted into the observer vote at the time of the report.

Table 23: The table below is the summary of Observer Funds warranted from Tuvalu Development Funds in 2023.

Months 2023	Sum of Total Payment (USD)	Sum of Total Payment (AUD)	Sum of Final Payment (AUD)
January	\$22,300.00	\$31,252.61	\$31,222.61
February	\$5,025.00	\$6,883.25	\$6,873.25
March	\$14,781.00	\$21,566.47	\$21,536.47
April	\$23,120.00	\$33,248.87	\$33,238.87
May	\$15,000.00	\$29,493.72	\$29,543.24
June	\$0.00	\$2,600.00	\$2,600.00
July	\$11,025.00	\$13,565.68	\$15,700.40
August	\$63,764.00	\$92,065.39	\$92,055.39
October	\$43,865.00	\$82,911.82	\$82,911.82
November	\$54,975.00	\$84,954.21	\$84,904.21
December	\$425,758.86	\$497,120.61	\$609,552.05
Grand Total	\$679,613.86	\$895,662.63	\$1,010,138.31

6.5.7 Meetings and workshop attended

The program participated in a number of regional meetings in 2023 as the table below depicts.

Table 24: 2023 Regional Observer Workshop and meetings

10 th POA	Brisbane, Australia
ROCW 23	Brisbane, Australia
Biological Sampling	SPC, Noumea
Placement Officer and Safety Officer	Marshall Islands

6.5.8 Challenges and issues

6.5.8.1 Misallocation of the observer levy

This is common and caused by the existing practice of combining all dues (fishing license, vessel days, observer levy) into one payment by certain companies. This is done deliberately perhaps to avoid excessive bank deductions or charges. Misallocation takes staff time and attention away from other more important works or tasks. Sometimes misallocation can go undetected and may never be recovered, especially if payment details are vague. This is one way where observer money is lost.

6.5.8.2 High demand for MSC

The high demand for MSC late in 2023 has caused and is causing a shortage of MSC observers. At the same time, it is also provoking because non-MCS observers are being constantly rejected or forced to be replaced after completing just one trip. Training on MSC needs to happen as a matter of urgency to ensure everyone has an equal chance of being deployed.

6.5.8.3 Staff shortage

The increasing demand for observer data for various purposes including MSC audits in recent times is putting enormous pressure on the current limited manpower. Short contracts are normally provided as a quick fix however there is a need for a permanent establishment to deal with various requests for observer data.

7 Annex – Competent Authority Report 2023

1.0 Background:

This brief report provides highlight of Tuvalu Competent Authority (TCA) development and progress from September 2023 to December 2023 for the consolidation of the Tuvalu Fisheries Department Annual Report for 2023.

2.0 Tuvalu Competent Authority goals and objectives:

TCA goal and objective built upon the corporate vision of the Tuvalu Department of Fisheries in the maximization of Tuvalu marine resources to benefits resources owners and government both socially and economically.

A target outcome that TDF wishes to achieve is increasing the catch value of its current flagged vessels by accessing the EU market, the biggest and most lucrative market for the importation of fish and fishery products.

3.0 Progress and Development update:

Key institutional frameworks of TCA that determines its purposes, functionality, roles and responsibilities are now well covered under the Tuvalu Fisheries Department’s organizational structures and business objectives. Legislative requirements, CA guiding documents, staffing, equipment and tools, budgetary allocations, CA organization structures and other institutional components are in placed with improvements that would be progressively undertaken.

3.1 Engagement of Fishing Industries Supports:

In recent months, Tuvalu Department of Fisheries has secured support and renewed commitment of the operators of Tuvalu registered vessels.

3.2 Vessel Assessments:

During 2023 the CA commenced inspections of vessels. The new adopted Tuvalu Food Safety (Fishery Products) Regulation 2022 set standards equivalent to international requirements hence enable tuna fisheries being traded globally for human consumption.

3.3 Capacity and Competencies Developments:

Training is a continuous development; building on staff capacities and competencies Training provider FFA assisted in meeting training needs for Tuvalu CA. CA officers have been engaged in some recent regional training sponsored by FFA on Sampling and Fish Inspectors Courses held in Fiji during the year.

3.4 Sampling:

For EU market, monitoring of health indicators is part of the official control of CA and Tuvalu CA has started the programme of fish sampling from Tuvalu flagged vessels for analysis of histamine and heavy metals and other chemical determinants of product safety on exported tuna. An account has been opened with an accredited laboratory overseas.

4.0 Conclusion:

With the continuous support from Tuvalu Fisheries Department and Fishing Industries, Tuvalu CA will achieve its goal and objectives.