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Tuna Fisheries' Monitoring: National observer programme capacity support, E-reporting, and E- monitoring.

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Regional Observer Cost Recovery (ROCR)

Endorsed by FFC94 to provide specific regional support services to provide capacity development and infrastructure support for FFA Members.

These areas of ROCR use are:

- a. Observer training quality assurance and certification
- b. Debriefing training quality assurance and certification
- c. Regional Coordination of observer programme activities and capacity development
- d. National Infrastructure Support

SPC Fisheries Monitoring's source for national programme support

Alternative funds to support non-FFA SPC members



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Putting faces to numbers

Grassroots benefits through training and employment

VU Observer Training



...and putting smiles on faces
TV observer training



...a career pathway through PIRFO



PIRFO Subregional Debriefer Part A training (Pohnpei)

Fiji National Refresher & Debriefer Part C





Regional Coordination

PIRFO Trainers workshop



National Infrastructure Support

Enhancing regional coordination among
observer programmes
ROCW23



PIRFO Competency Based Training
for practical skills.
Regionally recognised qualification.
Trademarked for security

Biological sampling



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2024 PIRFO Training Calendar



National requests submitted to FAME Director

PIRFO Activity	Location	Programmes	Date	Type
24 th Regional Observer Coordinators Conference	Majuro	Regional: CK, FJ, FM, KI, MH, NR, PW, PG, SB, TO, TV, VU, WS	27 Feb-1 Mar	W
Sub Debrief Part C	POM	PG & SB	April	D
Sub regional Debrief Part C	Pohnpei	FM, KI & NR	8-20 April	D
Samoa Observer (National)	Apia	WS	April - May	O
Nauru (National)	Nauru	NR	May	O
Sub regional Observer	Santo	FJ, WS, TV, TO, NR, VU, CK	6 May – 21 Jun	O
Kiribati (National)	Tarawa	KI	Jun - Jul	O
Vanuatu (National)	Santo	VU	August - Sept	O
FM Observer (National) LL and PS	Yap, FSM	FM	July - Aug	O
FJ Observer (National)	Suva, Fiji	FJ	Aug	O
MH Observer LL and PS (National)	Majuro	MH	Sep - Nov	O
VU Observer PS & LL (Refresher)	Port Vila	VU	Sep - Oct	O
TV Observer LL & PS (Transshipment)	Funafuti	TV	Oct - Nov	O
Sub regional Debrief Part A	Pohnpei,	Subregional: FM, KI NR	Nov	D
Sub regional Debrief (Assessor)	Nadi, Fiji	Regional: FJ, KI, NR, SB, TO, TV, VU, PG	Nov – Dec	D
PIRFO Trainers' Workshop (New)	Nadi, Fiji	Regional: KI, NR, SB, TO, TV, FFA, FJ, FFA	Dec	W

Approach

- *To reduce SPC's financial risk in providing national support a new SPC?FFA agreement with clear financial guidelines or direct access to the ROCR funds is needed.*
 - a. SPC and FFA to review and amend the ROCR Service Agreement to ensure functionality, transparency, financial security, and activity reporting between agencies, and to their governing bodies HoF and FFC.
 - b. SPC and FFA to collaborate to develop a workplan for the ROCR fund to support members needs throughout 2024.
 - c. SPC and FFA to collaborate with NOPs at ROCW24 to plan a training schedule and continue with providing training and programme support to NOPs.
 - d. SPC to report the ROCR annual workplan and budget to FFC and HoF, through the ROCW and MCSWG.
 - e. FFA proceed with a review of its observer programme to determine scope and scale of FFA observer related needs.

Data Collection Committee

SPC/FFA/PNA DCC role:

- Define and establish data collection fields, appropriate protocols and best methods for their collection;
- Rationalise and integrate data collection methods;
- Develop and optimise data quality assurance processes
- report to HoF and FFC.

DCC12 was held online 12-13 December 2022.

- DCC Strategy** –DCC Strategic Plan 2023-2027 & Workplan endorsed.
- Longline Transshipment**– DCC reviewed the TCC18 (WCPFC19) interim MSDF for longline-carrier high seas transshipments monitoring.
- EM longline data field standards** – A review of EM data provided.
- EM Longline Data Quality standards** – Recommended JSON formatted DCC Longline EM Minimum Data Fields Standards.
- DCC Workplan** prioritised elements of LL EM SSPs for development

Role of DCC

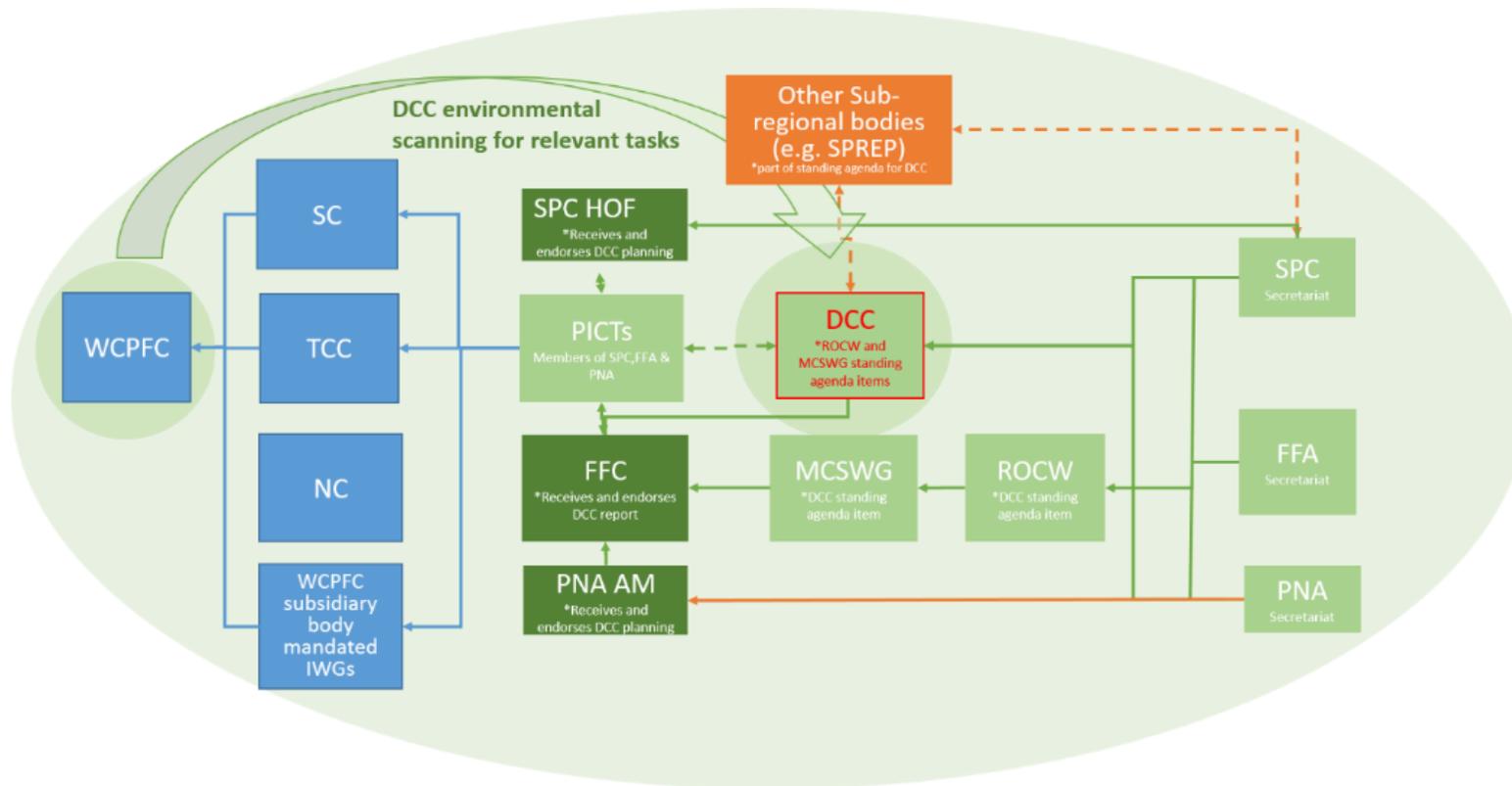


Figure 1. Schematic diagram of the relationship of DCC within the regional fisheries work programme. Legend: Blue - WCPFC processes; Green - FFA/SPC processes; Orange - sub-regional processes; Dashed (- - -) lines informal links; Solid (—) lines formal links

DCC will respond to evolving needs, but its purpose was to respond to:

- Regional data requirements by WCPFC SC, TCC, and subsidiary bodies.
- SPC HoF, FFC and PNA Annual meetings; and
- Requests of subsidiary bodies of SPC, FFA and PNA, e.g. PSM, CDS working groups

2023-2027 DCC Workplan High Priority areas



Categories	Elements with reference numbers from the source document	Priority	Milestone	Source
3. Implementing Operational EM Specifications, Standards and Procedures (SSPs)	3.1. EM Records Analysis and Development of EM Data	High	mid 2024	SSP support
	3.1.1. EM records compatibility	Medium	2025	SSP support
	3.2. EM Quality Assurance Processes	High	mid 2024	SSP support
	a) EM Data Quality Review (verification) protocols	High	mid 2024	SSP support
	b) EM Data Quality Validation	Medium	2024	SSP support
	c) EM data quality reviews and audits	Low	2027	SSP support
	3.3. EM transmission, traceability and interoperability standards	Medium	2024	SSP support
	a) Standard codes, formats, and ontologies	Medium	2025	SSP support
	b) DCC minimum standards for EM Data transmission and storage in a machine-readable format (i.e. JSON, XML, or CSV).	Medium	2025	SSP support
	c) EM records metadata standards for storage, filing and retrieval	Medium	2025	SSP support
4. DCC's role in other monitoring data standards.	d) Metadata standards for evidential Integrity and Chain of Custody procedures of EM records and EM data are regionally harmonised.	Medium	2025	SSP support
	a) A review of longline transshipment monitoring standards	High	mid 2024	TS-IWG
	b) An assessment of the collection of the EM longline draft minimum data fields	Medium	2025	SPC

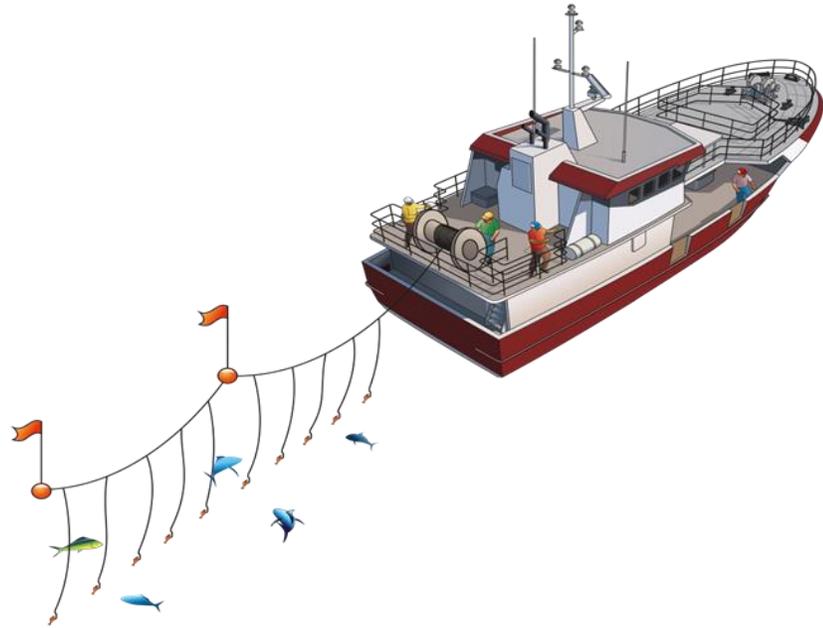
	c) Adjustments to e-logs for purse seine operations	Medium	2025	DCC Planning
	d) FAD log standards	Medium	2025	DCC Planning
	e) Revision and rationalisation of observer data fields, which should consider those required fields that can either be: i) assessed or verified through EM, or ii) accurately recorded by fishers.	High	2023	SPC
	f) Port sampling standards	Medium	2024	FFA- PMS/SPC
	g) Biological sampling	Low	2024	SPC
	4.1. EM LL beyond cameras (sensors, measuring fish, calibrating)	Low	2026	SSP support
	4.2 Electronic Reporting (ER) protocols	High	2023	DCC 2020
	4.2 ER Debriefing processes	Low	2025	DCC 2020
		Low	2023	
5. Longline Monitoring Coverage Levels		High	2024	SC17
6. Integrated Monitoring Systems Quality Assurance	6.1 Validation	High	2024+	DCC 2020
	6.1 Catch Documentation Schemes	Low	2024	FFA-CDS scanning
	6.2 Access to, and Dissemination of Data.	Low		SSP support



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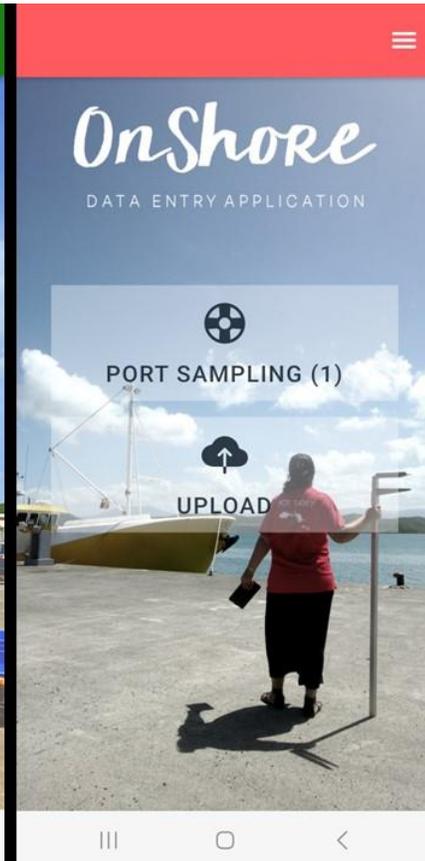
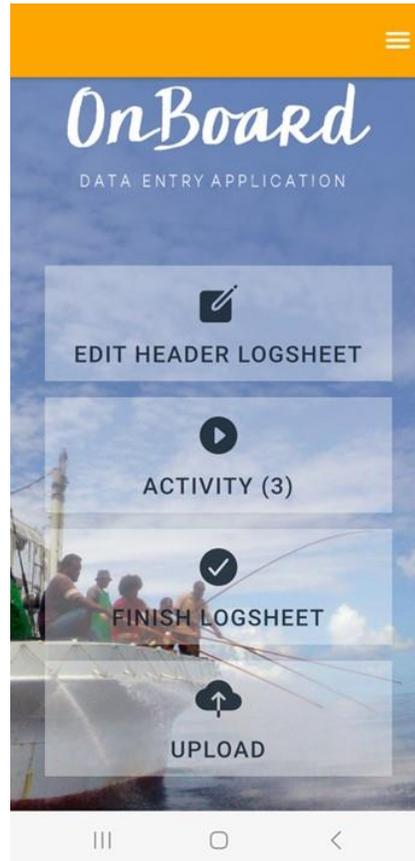
Electronic reporting: strategy and implementation

Electronic reporting: strategy and implementation



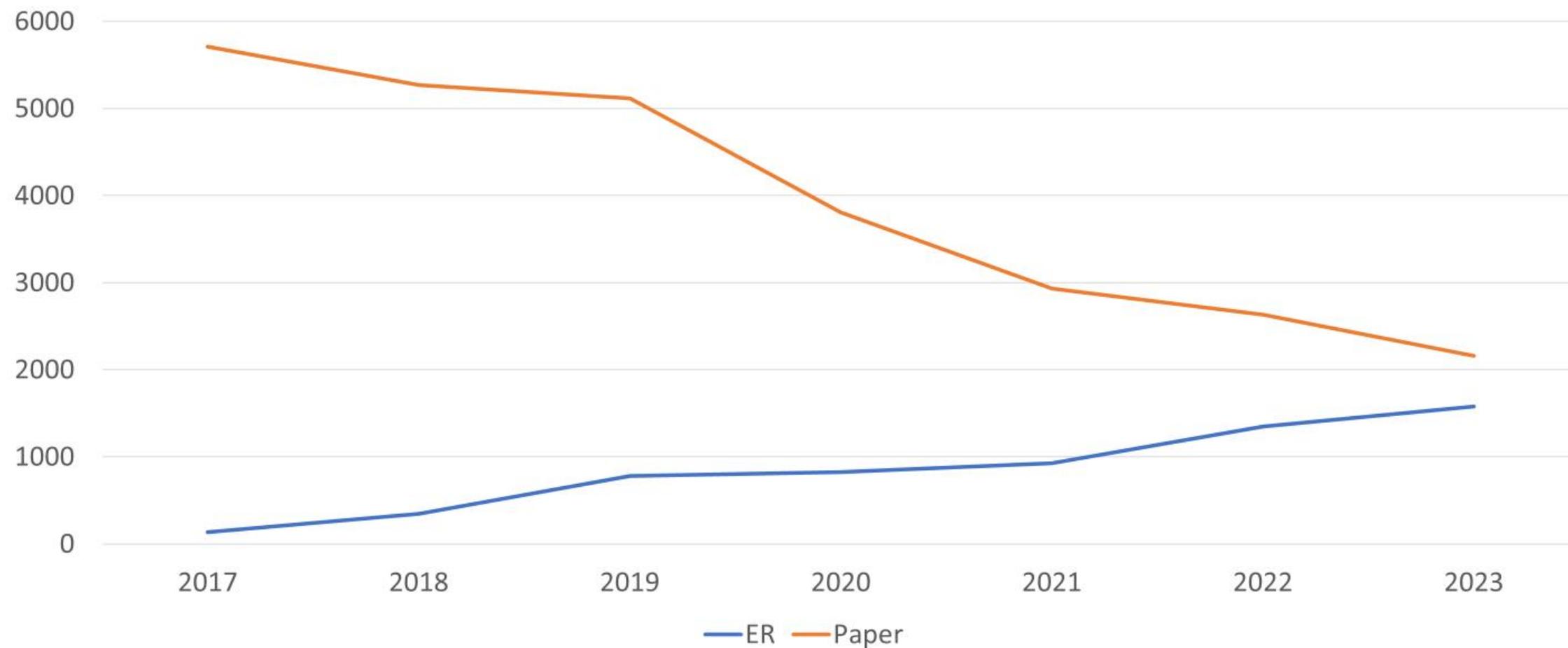
Three apps for improved LL fisheries monitoring:

- **OnBoard**
- **OnShore**
- **OLLO**



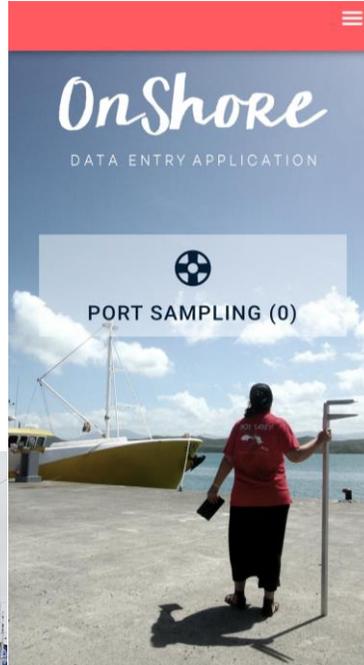
A vertical panel on the right side of the slide. At the top is a QR code. Below it is the text 'SCAN ME'. Further down is the Google Play logo and the text 'GET IT ON Google Play'. At the bottom is a small grid of app icons and the Pacific Community logo and name in both English and French.

Longline logsheets submission to TUFMAN2



OnShore: port sampling app

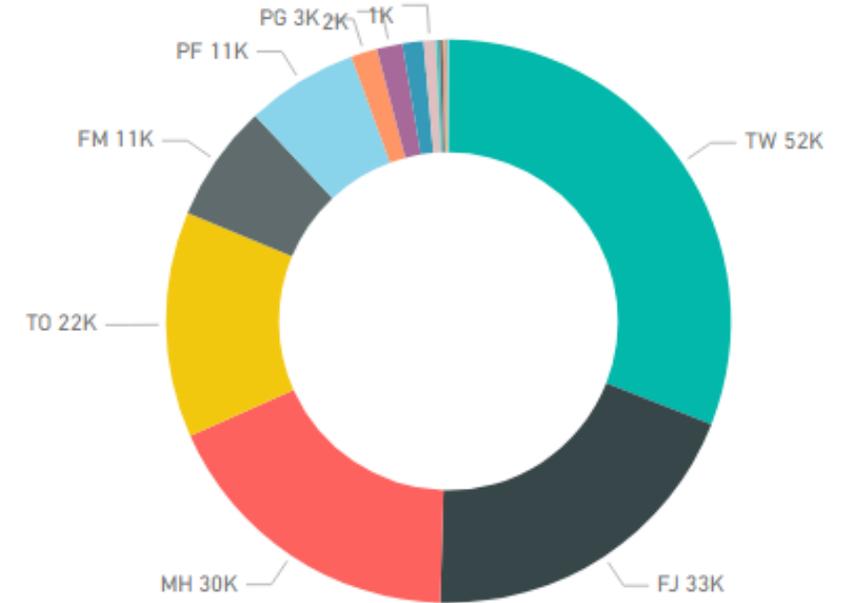
- In 2023
 - 851 sampling events
 - Almost 170K samples
- 2024
 - Improved biological sampling data recording



Ports - Nbr Catch

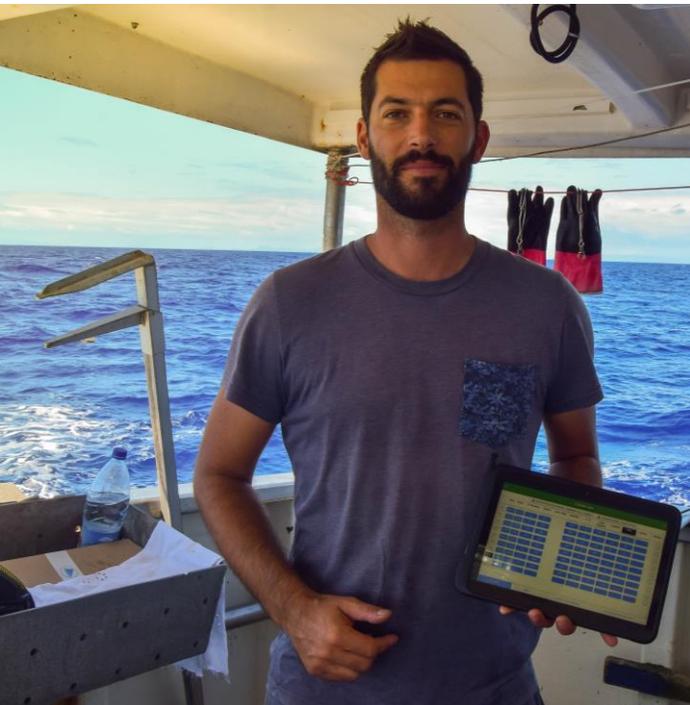
BY FLAG

Flag TW FJ MH TO FM PF PG NZ CN PH US NC SB W!

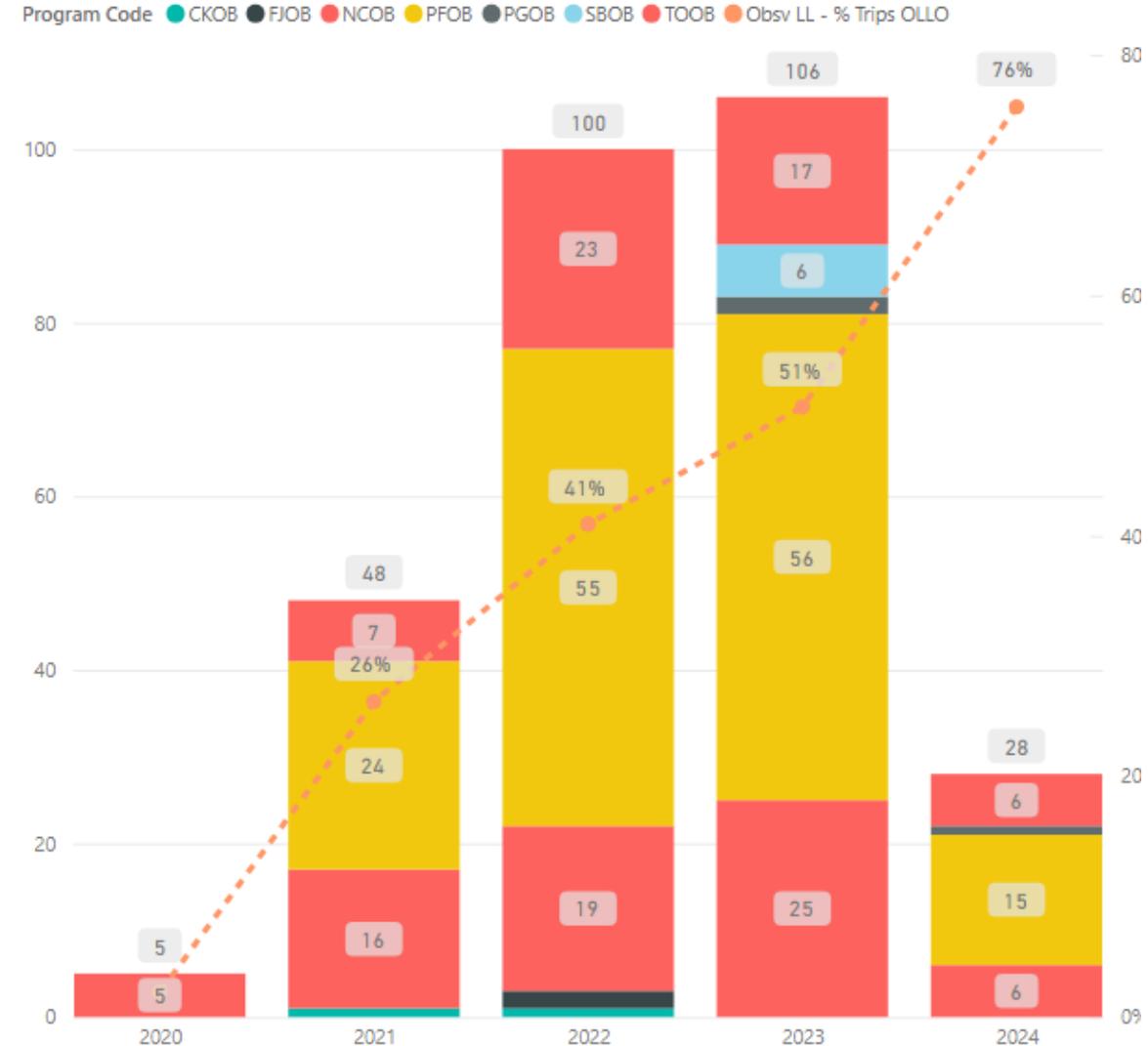


OLLO: observer app

- Since 2020
- 287 trips
- Almost 6000 sea days
- 34 observers – 7 PICTs



OLLO Trips by Departure date



LL observer: Electronic Debriefing in Tufman2



- New module in T2
- Use of DQ checks
- Automatic scores calculations
- Debriefing report

TUFMAN 2 | Logsheets | **Observer** | EM | Port | Artisanal | VMS | Reports | ACE | Ref tables | Security | Logs | Tools | Help | aurelienp@spc.int | 22 Apr 2024, 11:53 | PF

Observer debriefings / View

24-02: TLR:TAIVINI RAOULX 31 Jan 2024 - 15 Feb 2024 (LADY CHRIS 8)

Data entry | Summary

Section	Field	Answer	Score	Debriefer comments
Header details	Observer name	Cc	5/5	
	Observer trip ID #	Cc	5/5	
	Vessel name	Cc	5/5	
	Page numbers	Cc	5/5	View/Enter
LL-1 (pg 1) general information	LL1 - Data submitted	Cc	1/1	
	Observer programme	Cc	2/2	
	Observer name	Cc	1/1	
	Observer trip ID #	Cc	2/2	
	Trip start and end date and time	Cc	2/2	
	Trip start and end locations	Cc	2/2	
	Vessel departure port and date	Cc	2/2	
	Vessel name	Cc	1/1	
	Vessel departure date	Cc	1/1	
	Vessel departure port	Cc	1/1	
Vessel owner	Cc	2/2		

Save | Save & exit | Delete | Add another | Cancel | Drop attachment here | Actions | Info | Links (5) | Thumbs up!

Data entry | **Summary**

	Score	Percentage
Header details	20/20	100.0%
Total score (LL forms 1 to 4)	149/149	100.0%
GEN and tag recovery forms	113/113	100.0%
Data forms total score	282/282	100.0%
Written report score	64/64	100.0%
Journal score	36/36	100.0%
Data presentation/submission	3/3	100.0%
TOTAL SCORE	385/385	100.0%

Electronic reporting: Key take aways

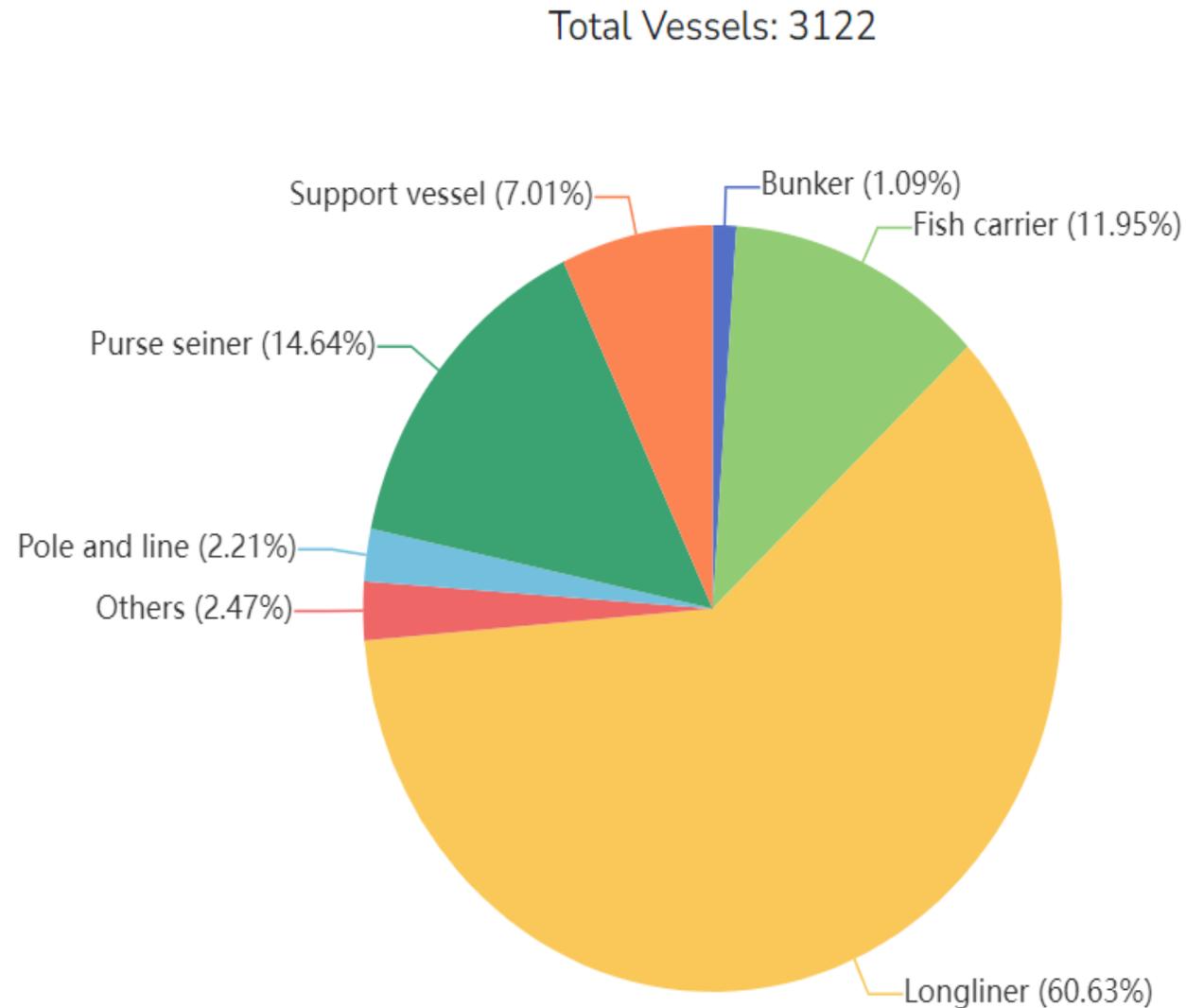
- ER is implemented by people
- ER is challenging at the start but benefits tangible
- Feedback essential







Longline fishery focus



- 5 % Observer coverage
- Lower levels of monitoring
- Higher risk of Illegal unregulated and unreported fishing (IUU)

Driven by National Aspirations

- Solomon Islands
- Marshall Islands
- FSM
- Palau
- Fiji
- Vanuatu
- French Polynesia
- New Caledonia

Sum of trips_n										
	FJEM	FMEM	LCEM	MHEM	NCEM	PFEM	PWEM	SBEM	VUEM	Total
2015	12				2					14
2016	45	5					15			65
2017	179	9		80			22	5	1	296
2018	93	1		58			6	2	1	161
2019	32	2		29					1	64
2020		11								11
2021	3	1								4
2022	7					53				60
2023			1			1				2
Total	371	29	1	167	2	54	43	7	3	677

EM trials since 2014



- 72 vessels

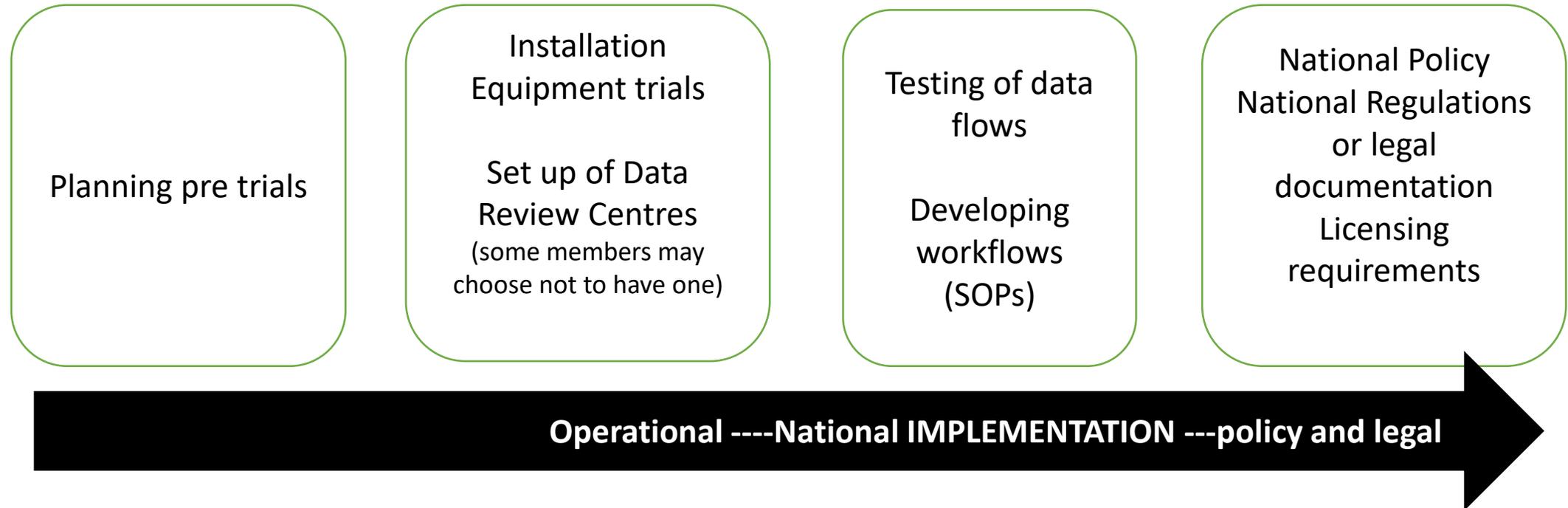


- Establishment of Data Review Centres
- >600 trips reviewed
- >80 trained in EM review
- Opportunity for women
- Exposure to AI development



- Development repositories for EM data

Stages of development



- Members are on different stages of EM development
- National experience drives regional development
- SPC provides technical expertise to support national aspirations

EM data standards development

June 2016	Electronic Monitoring Longline Process Standards workshop . This was the first attempt to consider specific data fields for LL EM.
November 2017	Second Regional Electronic Monitoring Process Standards Workshop . Aimed at enhancing the draft LL EM process standards (2016) and also considered Purse Seine and Transshipment EM data fields.
2019 – 2020	FFA EM LL Policy was developed and adopted by FFC
November 2020	DCC, agreed to Draft LL EM Minimum Data Fields standards covering both science and compliance
May 2022	Standards, Specifications, and Procedures (SSPs) to support the FFA EM LL Policy were adopted as interim guidelines by FFC. Programmatic guidelines provide a description of the different components of an EM program.
December 2022	proposed JSON format for the draft EM longline data fields , including adding fields to improve the Data Quality Control processes

Data & EM database developments 2023

- EM data was received by SPC from a **second** EM service provider using the proposed JSON formatted LL EM standard
- An EM module in Tufman2 is operational.
 - user-friendly interface
 - links EM data to other data sources (logsheets, port sampling, unloading)
- Efforts have been made to demonstrate to members – feedback needed

Development in EM Technology

- Wireless transmission of EM records
- Near real time monitoring– 4G network (NZ) - Starlink (Chili and US)
- Edge computing where some analysis is done in the systems on board
- SPC can support members wishing to trial such systems

- Considerations for a regional database of annotated images for Members decision making
 - Project at early phase and result to be presented at a designated meeting

Ongoing work

- Progress development and agreement on EM data standards, specifications and procedures
- Progress areas of priority according to Data Collection Committee (DCC) Strategic Plan
- Provide technical support to emerging and ongoing trials and testing of EM systems

Key points

- EM is suited to address significant monitoring gaps
- National aspirations drive regional development
- Development of standards has progressed
 - Streamline data flow
 - Guide service provider development towards members data needs
- Development of EM technology since first trials in the region requires testing of current approaches

Implemented by people!

