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STATUS OF OBSERVER DATA MANAGEMENT

WCPFC-SC22-2026-ST-IP03_Rev02
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Rev 1: Updates to EU observer data statistics based on the Annual Part 1 Report submission

Rev 2: Updates to Tables 3 and 4: Observer longline coverage for CCMs Japan and Vanuatu based on updated information and Part 1 reporting

[1] Oceanic Fisheries Programme of the Pacific Community

1. Introduction

1. Observer data management encompasses a number of activities that ensure the data collected by observers are made available for the work of the Western and Central Pacific Fisheries Commission (WCPFC) in a form that is both representative and of acceptable quality. The main data management responsibilities include the entry and management of observer data in a standardised database system but include a suite of additional activities described in detail in Williams (2011).

2. The Twenty-Second Regular Session of the Commission (27 November–4 December 2025; WCPFC, 2026) reconfirmed the Commission's support for Regional Observer Programme (ROP) data processing with its inclusion in the indicative budget for the period 2026-2028.

3. Staff supported by the WCPFC ROP data management project, based at the WCPFC Secretariat, mainly process data from the national observer programme of the Federated States of Micronesia (FSM). WCPFC members other than Pacific Island countries have also contributed to the ROP database including Australia, China, the European Union, Japan, Korea, New Zealand, Philippines, Chinese Taipei and the USA.

4. The majority of observer data processed by the SPC are ROP-defined purse seine trips[2], which have been designated as the highest priority for processing since 2010. The WCPFC requirement for 5% observer coverage in the longline fishery (established in 2012) has resulted in the submission of observer longline data; these data are now assigned equal priority for processing as the purse seine observer data. The Pacific Community Oceanic Fisheries Programme (SPC-OFP) also processes non-ROP observer data that are of importance to the scientific work of the WCPFC and so have been included in the description of observer data management and data summaries presented in this paper.

5. No Electronic Monitoring (EM) data were received by SPC-OFP during 2025. However, SPC-OFP has previously received EM data generated from EM initiatives undertaken by Fiji, French Polynesia, Federated States of Micronesia, Marshall Islands, Palau, and Solomon Islands in recent years. These data are aligned with the ROP minimum data standards but are considered as a different data source to data collected by human observers, which is consistent with the philosophy of WCPFC Project 93 – Review of the Commission's data needs and collection programs (FFA, PNAO, SPC and WCPFC Secretariat, 2019). The initiative to produce independent draft minimum EM data field standards in Pacific Island countries (SPC, FFA and PNAO, 2020) has also been adopted by the WCPFC in 2024[3]. A breakdown of data generated from EM initiatives has been included in this paper (Table 8).

6. The ROP data management funding line (USD 923,904) has remained static since its inception. To cover the increasing costs over the intervening period, SPC has supplemented this funding with other resources to delivering the work. However, that practice is no longer sustainable. The SSP will provide a paper to TCC raising the issue for discussion.

7. This paper serves to provide an update on the status of ROP data management at SPC-OFP, covering the following:

    - Activities over the past 12 months
    - Status of observer data entry, data provisions, coverage and issues; and
    - Future expectations.

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[2] CMM 2018-05 paragraph 5

Scope of the Commission ROP

5. The Commission ROP shall apply to the following categories of fishing vessels authorized to fish in the Convention Area in accordance with the Commission's Conservation and Management Measures 2004-01:

i) vessels fishing exclusively on the high seas in the Convention Area, and

ii) *vessels fishing on the high seas and in waters under the jurisdiction of one or more coastal States and vessels fishing in the waters under the national jurisdiction of two or more coastal States.*

[3] Interim EM minimum standards covering technical data and reporting

8. The SC is encouraged to review the information in this paper and provide suggestions for enhancements for future WCPFC meetings, as required.

2. Activities over the past twelve months

The work related to observer data management achieved over the past twelve months includes:

9. SPC technical staff continued to provide remote technical support and training to the observer data entry staff based at the offices of the WCPFC Secretariat. Further progress was made in refining the process for transferring WCPFC ROP data to the WCPFC Secretariat, such as the implementation of a Cloud Shared storage and Slack channel to help with communication.

10. Enhancements of the Electronic Reporting (ER) system (OLLO) for observers active in the South Pacific albacore longline fishery was one of the work priorities for the SPC development team during the past year. OLLO was used at-sea in New Caledonia, Tonga, Papua New Guinea, Solomon Islands, French Polynesia and Fiji during the last twelve months. Some of these programmes have now turned paperless and are exclusively using ER for their observer data reporting.

11. Due to the stability and robustness achieved by the E-reporting tool OLLO, the SPC technical staff developed an electronic debriefing module within Tufman2 for the purpose of reviewing data collected through OLLO. This module was released toward the end of 2024 and has been used by some countries after a training and testing phase. Some programmes already using OLLO have been trained on the new module in the past year. French translations for New Caledonia and French Polynesia's observer programmes were implemented. These two programmes undertook a PIRFO (Pacific Islands Regional Fisheries Observer) debriefer training session in 2025 and are therefore expected to start using the E-Debriefing module in Tufman2.
    - SPC technical staff continued to provide regular support to other countries and regional agencies processing observer data using the Tufman2 observer component.

12. Remote (and some in-person) support continued to be provided to Fiji, RMI and FSM to assist with quality control of data generated from EM systems and assistance on the use of the online web-based Observer database-reporting module ("Tufman Reports"), which summarise EM data and provide comparisons of EM data to other types of data (i.e., logbook, onboard observer and port sampling data).

13. In 2022, several SPC data experts began developing the JSON formatted DCC (Data Collection Committee) Longline EM Minimum Data Fields Standard[4]. This JSON-formatted standard is structured to improve data collection, validation and interoperability across multiple fisheries management systems, ensuring that Electronic Monitoring (EM) data integrates efficiently into national and regional databases. This JSON format is aligned with the DCC Standard while providing additional fields (supported by national EM programmes) to further support data quality assurance processes, including species identification validation and digital measurement verification. The JSON standard is also aligned with the WCPFC Interim EM standards.

14. Several CCMs (JP, KR, TW, US) now use the WCPFC ER observer data field standards to prepare and submit their observer data, which significantly reduces the time taken to load the observer data provided by these CCMs. Data that are not entered using the Tufman 2 system and do not align to the WCPFC ER observer data field standards are referred to by SPC as "non-standard" observer data; these data require the development of specific data loaders with the subsequent loading process being complicated (requiring manual intervention) and time-consuming. There remain some CCMs (for example CN, EU and NZ) that continue to submit their observer data in "non-standard" format and SPC will continue to liaise with these CCMs to explore options for enhancing the formats for their data submissions. Delays in availability of observer data due to data quality issues requiring manual intervention and/or referral to the original source often occur with non-standard data. However, as at the time of writing this paper, all the latest observer data submissions have now been loaded

15. "Tufman Reports" (SPC-developed reporting tool) continues to be enhanced and used regularly by national observer providers, the WCPFC and FFA Secretariats, and several other CCMs. This system continues to be used by Pacific Island countries and territories in preparation of the WCPFC annual reports Part 1 and

[4] https://pacificcommunity.github.io/tufman2-json-standard/longline-em/LATEST/

Part 2 for submission and will continue to expand and evolve over the coming years to meet the requirements of not only national observer programmes, but also SPC, the WCPFC Secretariat, FFA and the PNAO. Additional work has been undertaken this year to develop a quarto template and APIs to Tufman2 reports to automate the generation of the Part 1 reports (see Schattschneider, et al., 2026).

16. Beginning in 2023, SPC started receiving submissions of observer transshipment reports. The data collected to date covers the period from 2017 to 2025. To effectively manage these data, SPC developed a data entry module within Tufman2 in 2024. This module was specifically designed for processing and organizing the observer transshipment reports received by SPC during the year. Some of these data have been processed and entered into Tufman2. The details can be found in Table 9 of this document.

17. SPC has been generating many extracts to support the requirements of routine MSC audits. To optimize and facilitate access to these data, SPC has developed reports available through Tufman Reports, allowing member countries to retrieve the information independently without SPC's intervention. Also, please note that not all data may be available at the time of the request, depending on submissions to SPC and any backlog pending data entry. Given the high volume of observer reports that require manual data entry and the limited resourcing for data entry staff, the backlog is generally increasing, which can create challenges for the timeliness of observer data available for the MSC process.

18. SPC has been investigating and trialling modern data management tools such as Microsoft Fabric to implement robust and reliable processes, working with contemporary good practices in terms of automation, data registration, versioning and monitoring of the observer data processes.

3. Status of Observer data entry, data provisions and issues

19. Table 1 shows the status of observer data received and entered by SPC as of June 2026. Table 2 provides an indication of the available purse-seine observer data processed by fleet. Table 3 details the coverage of Regional Observer Programme (ROP) longline activity for 2024 as reported by the flag-state and according to the metrics proposed at TCC10 and agreed on at WCPFC11. Table 4 shows the coverage of ROP longline activity for 2025, as reported by the flag-state. Tables 3 and 4 also provide an indication of the longline ROP data submitted to WCPFC/SPC by year and fleet, with the coverage of those data provided; this allows a comparison to the coverage reported by the flag-state and is used to evaluate compliance in achieving the required ROP longline coverage of 5%. Tables 5 and 6 provide an indication of both ROP and non-ROP (i.e., total observer) data provided to SPC with an estimated total observer data coverage relevant to the scientific work of the WCPFC.

20. Pacific Island observers and programmes generate most of the observer data used by the Commission and Table 7 provides an indication of the quantity of data generated in recent years. Although no EM operational data were received by SPC-OFP in 2025, Table 8 summarises the EM-generated data previously submitted to SPC through regional EM pilot initiatives.

21. As noted in previous versions of this report, the summaries of observer data provisions presented herein continue to be constrained by several factors (see Williams et al. (2017) for the details of identified factors), including:

    - Accurate information on the complete number of vessel trips by gear and flag in the WCPFC Convention Area;
    - Accurate information on the actual number of observer trips by observer programme, gear and flag; and
    - Assignment of an ROP trip in the unprocessed data.

3.1 Purse seine

22. Provisions of purse seine observer data from 2012–2024 have been described in previous versions of this paper.

23. Observer data for an estimated 85% (1809 trips out of 2217 trips according to VMS data) of observer purse seine trips conducted during 2025 have been received at SPC at the time of writing this paper. The 2025 observer data received represents 96% of the trips with known observer placements (1880 trips).

24. A total of 52% (939 trips) of the observer data received at SPC for 2025 observer activities have now been entered. SPC employs a strategy of processing the most recent observer data (in this case 2025 data) as highest priority, mainly to ensure CCMs can satisfy their Part 1 and Part 2 reporting obligations (for which compliance applies to the most recent year). This is reflected in the "% of trips received without problems" in CATEGORY 5 of Table 1 whereby the outstanding data entry for 2025 (for example) had a higher priority than the outstanding trips to be entered in earlier years, and therefore a higher proportion in this column. The outstanding trips for earlier years will be entered once the current priority for 2025 data entry has been achieved (i.e., resolving the outstanding issues in trip data already received and working with observer programmes on the submission of trips not yet received). For the 2025 purse seine trips received at SPC, only 4 of the trips have problems awaiting to be resolved.

25. The breakdown of processed purse-seine observer data by fleet (Table 2) shows that the coverage of 2025 observer data submitted to SPC is generally high, with respect to the confirmed observer placements.

26. Figure 1 highlights the continuation in the data entry work done by the SPC team and the data entry staff in the region. This graph represents the number of purse seine trips entered during each month for the years 2024 and 2025, and the colours represent a breakdown of when the processed trips were conducted. The graph highlights (1) the priority given to the more recent trips and (2) the data entry work done to catch up with the backlog of the previous years.

27. As reported in previous years, the 'problematic' trip data held at SPC awaiting resolution are mainly due to incomplete or poor-quality scanned data submissions. However, trips conducted in 2025 and received by SPC so far, showed minimal problems.

28. It is important that observer trip data rejected by the observer programmes still be submitted to ensure all observer trip data are available, and that the problems encountered can be reviewed and referred to in future training, debriefing and data quality control procedures. Information on the trips with "unconfirmed observer placements" will require follow-up with flag state and observer service providers, in the absence of any observer trip reporting obligations. Provision of a list of ALL observer trips conducted by each observer service provider on a regular basis would enhance the summary reports presented in this paper. The lack of provision of 'observer placement lists' from some national observer programmes remains a major issue.

29. We also highlight the importance of observer service providers submitting debriefing evaluations/scores to allow the assignment of appropriate data quality indicators to the data. In the future, we plan to work with observer providers to resolve the backlog of observer debriefing data and incorporate debriefing data from the PNA Fisheries Information Management System (FIMS) observer-debriefing component into the regional observer database. We anticipate reporting summaries from the observer debriefing data in future versions of this report, such as overall quality scores, specific area which needs refresher training, trends etc.

30. Figure 2 provides an indication of the spatial coverage of the purse seine observer data for 2025, noting that the domestic fisheries of Indonesia, Philippines and Vietnam are not shown (although the Philippines purse seine fleet observer effort in the high seas pocket #1 is shown).

3.2 Longline

31. SC11 directed SPC to present a table of longline ROP coverage which included both the coverage reported by each CCM for their longline fleet and the coverage of that fleet according to data provided to the WCPFC. Tables 3 and 4 have been prepared in response to this recommendation for longline ROP coverage for 2024 and 2025, respectively.

32. Previous versions of these tables included the trips for fleets that are restricted to the home EEZ/adjacent high seas only (which are defined as non-ROP). The 15th WCPFC Scientific Committee (SC15), held in Pohnpei, FSM in August 2019, recommended that future versions of Tables 3 and 4 exclude the non-ROP defined data and only report on ROP longline coverage.

33. Tables 5 and 6 provide a breakdown of all longline observer data (ROP and non-ROP) provided to the WCPFC Scientific Services Provider for Commission work, covering 2024 and 2025, respectively. These tables use the common longline effort metric (hooks) and indicate that overall coverage was 6.7% and 4.1% (respectively for 2024 and 2025) according to data provisions to date.

34. Figures 3 and 4 provide an indication of the spatial coverage of all longline observer data (ROP and non-ROP) provided for 2024 and 2025, respectively. Spatial coverage of longline observer data has improved in recent years.

35. Table 9 provides a breakdown of the transhipment observer data processed at SPC. These data were received and processed in 2025 and include transhipments for the period 2017-2025.

3.3 Contribution of Pacific Island observer programmes

36. Table 7 provides a breakdown of observer data collected by each Pacific Island country and territory (PICT) observer programme for 2024 and 2025. For purse seine, the PICTs' observer data currently cover 97.1% of the tropical WCPFC fishery (based on total tuna catch estimates for the tropical fishery) for 2024, and 84.5% for 2025. For longline, the PICTs' observer data currently covers 2.28% and 1.82% of the fishery, respectively for 2024 and 2025, based on total WCPFC tuna catch estimates.

37. PICTs' observer programmes (Debriefing Observer Providers) during the past years have put a lot of effort into the debriefing process to ensure that the observer trip data are properly checked and verified for completeness and accuracy to meet the required standards (WCPFC ROP Agreed Minimum Standards and Guidelines), especially in providing high-quality observer trip data to support the WCPFC Scientific Services Provider for Commission work. For purse seine, the PICTs have debriefed around 99% of the observer trip data for each year 2024 and 2025, and for longline, it was 54% and 55%, respectively. Tables 10 and 11 provide the debriefing form field non-data issues and data issues as identified during the debriefing process for both the purse seine and longline gear.

4. References

Anonymous. 2010a. Report of the Seventh Regular Session of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. 7–11 December 2010, Honolulu, Hawaii, USA. Western and Central Pacific Fisheries Commission, Pohnpei, Federated States of Micronesia.

Anonymous. 2010b. Annual Report to the Commission – Regional Observer Programme. Meeting Document WCPFC7-2010/26. Seventh Regular Session of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC7). 7–11 December 2010, Honolulu, Hawaii, USA. Western and Central Pacific Fisheries Commission, Pohnpei, Federated States of Micronesia.

Schattschneider, J.L., Jones. T, Vidal, T. Streamlining scientific data reporting to the Commission (ST-WP-03). Twenty-second Regular Session of the WCPFC Scientific Committee (SC22), 11-19 August 2026, Apia, Samoa.

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WCPFC. (2026). Summary report of the Twenty Second Regular Session of the Commission (WCPFC22). *Western and Central Pacific Fisheries Commission, Manila, Philippines, 1 - 5 December*. https://meetings.wcpfc.int/node/29456

FIGURES

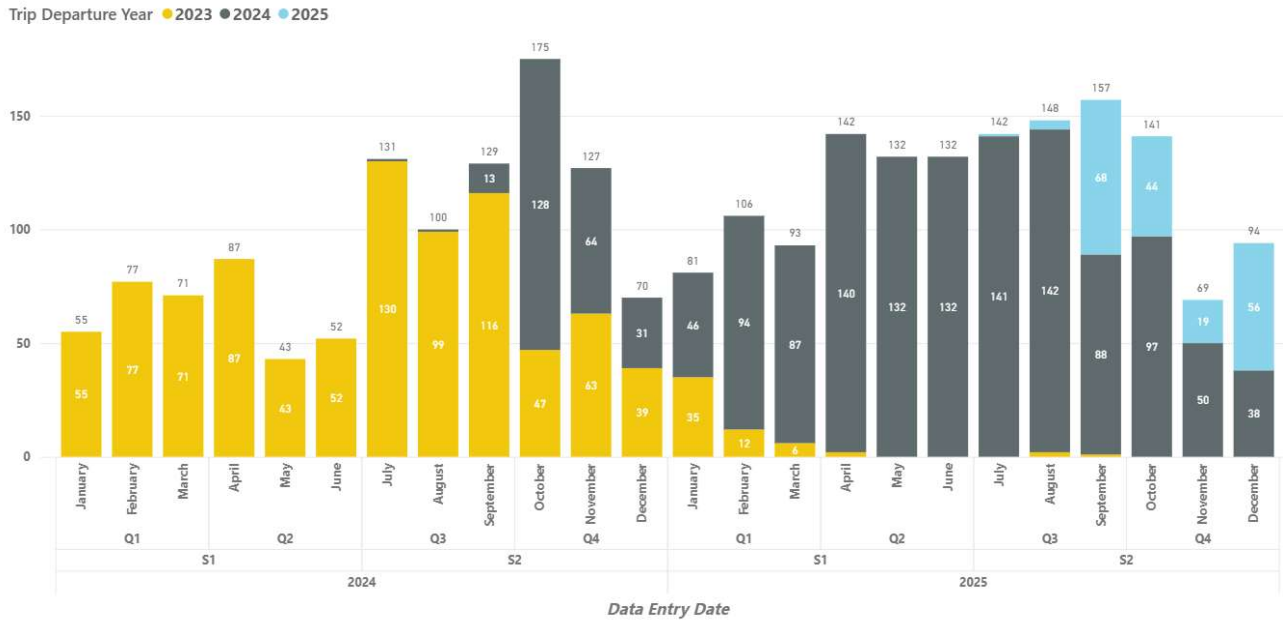


Figure 1. Monthly data entry of purse seine observer data over the past two years. The x-axis represents the year/month when respective observer data were entered into SPC system. The colours represent the departure year for the trips. For example, from January 2025 to December 2025, most of the data entry was from trips conducted in 2024.

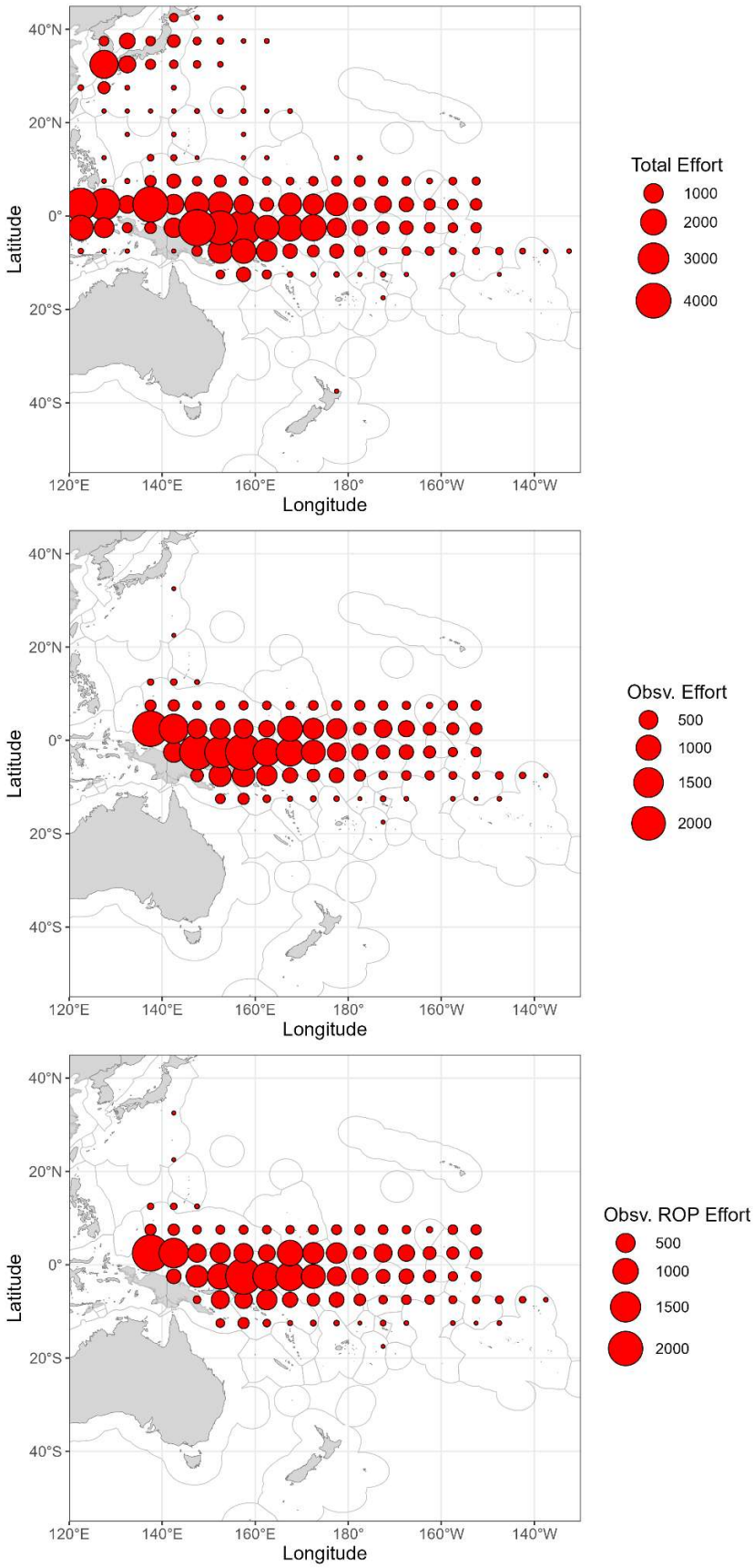


Figure 2. Distribution of purse seine effort (days; top), observed effort (days; middle) and observer ROP effort (days; bottom) in the WCPFC Area for 2025. A day of effort includes fishing and searching. (These data exclude Indonesia, Philippines and Vietnam domestic fisheries)[5]

[5] *The boundaries shown on this map, and others included in this paper, are for the purposes of illustration only and are not the expression of any opinion on maritime disputes or the delimitation of maritime claims.*

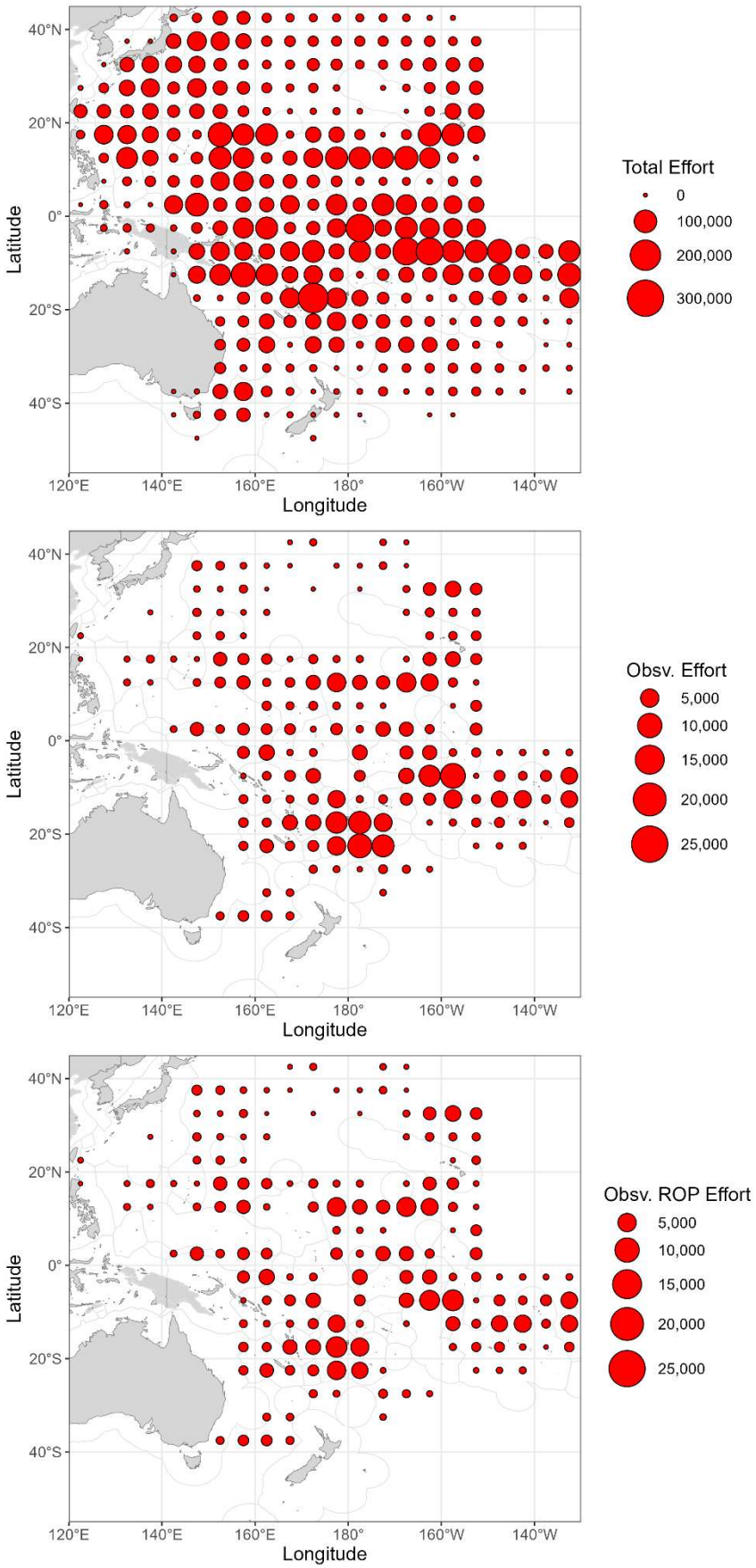


Figure 3. Distribution of longline effort (100 hooks; top), observer effort (100 hooks; middle) and observed ROP effort (100 hooks; bottom) in the WCPFC Area for 2025.

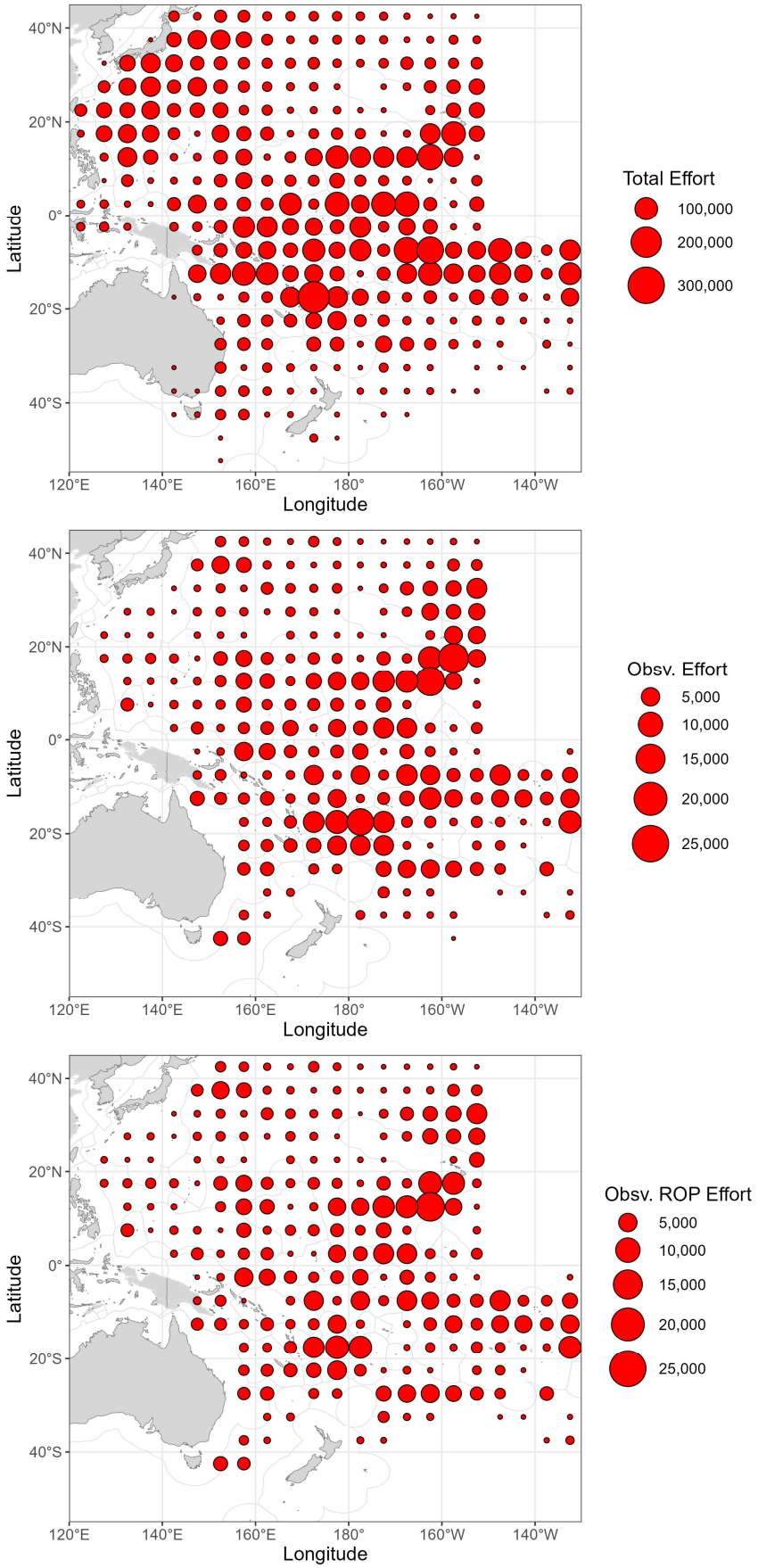


Figure 4. Distribution of longline effort (100 hooks; top), observer effort (100 hooks; middle) and observed ROP effort (100 hooks; bottom) in the WCPFC Area for 2024.

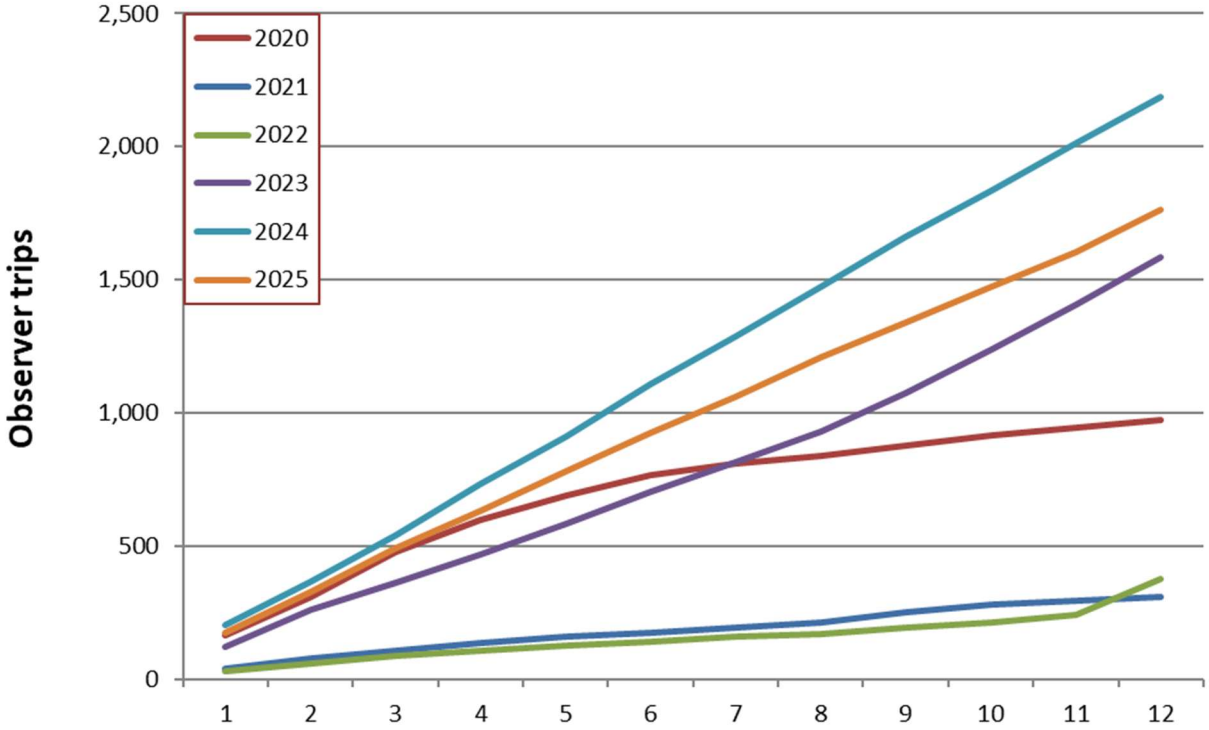


Figure 5. Cumulative monthly purse seine observer trips conducted in the WCPFC Area for 2020–2025 (based on data received and advice on observer placements).

TABLES

Table 1. Summary of the provision and processing of Purse seine Observer data. (Different colours represent categories – see NOTES below)

As at July 2026																
YEAR	1. Estimated Trips (VMS-derived)	2. Unconfirmed observer placements	3. Confirmed observer placements		4. Data received		5. Placements pending data		6. Data processed				7. Data with pending issues		8. Data shared to WCPFC (ROP)	
			Trips	% of estimated trips	Trips	% of placements	Trips	% of placements	Trips	% of Estimated trips	% of received data	% of trips received without issues	Trips	% of received data	Trips	% of data processed
2025	2,217	337	1,880	85%	1,809	96%	71	4%	939	42%	52%	52%	4	0%	720	77%
2024	2,461	272	2,189	89%	2,102	96%	87	4%	1,523	62%	72%	73%	4	0%	1289	85%
2023	2,119	534	1,585	75%	1,457	92%	128	8%	1,368	65%	94%	94%	3	0%	1179	86%
2022	2,173	1,796	377	17%	358	95%	19	5%	345	16%	96%	96%	0	0%	177	51%
2021	2,085	1,775	310	15%	310	100%	0	0%	309	15%	100%	100%	0	0%	106	34%

NOTES

1. **CATEGORY 1** represents estimated trips determined from VMS data. These trips exclude the Philippines and Indonesian domestic fisheries and purse seine trips undertaken completely outside the tropical waters (20°N-20°S). Since not all VMS trips correspond to fishing activities, SPC has developed an algorithm designed to differentiate fishing trips from non-fishing trips (such as transiting or returning to port). Consequently, the estimated values used to calculate observer coverage may not be entirely accurate, despite efforts to achieve the highest possible accuracy.
2. **CATEGORY 2** represents the difference between VMS trips (**CATEGORY 1**) and those trips that SPC has a record of having taken place (**CATEGORY 3**). These trips could arise due to potential non-fishing trips (e.g., transit only); gaps due to observer coverage waivers in association with the COVID pandemic (from 2020-2022); but also, it is possible that some of these trips may have had observer coverage but SPC has not yet been made aware of observer placements nor have observer data been received (largely affects the most recent years).
3. **CATEGORY 3** covers (i) data received at SPC and (ii) basic trip information provided by observer programmes indicating an observer trip took place, but data have yet to be provided. This field is used to estimate the observer coverage at the trip level.
4. **CATEGORY 4** covers data received at SPC (Observers' workbooks).
5. **CATEGORY 5** represents the number of observer trips registered in SPC's database for which the data has yet to be provided to SPC (i.e. the difference between columns 3. and column 4.).
6. SPC employs a strategy of processing the most recent observer data as highest priority, mainly to ensure CCMs can satisfy their Part 1 and Part 2 reporting obligations (for which compliance applies to the most recent year). This is reflected in the **"% of trips received without issues**" in **CATEGORY 5** whereby the outstanding data entry for 2025/2024 has higher priority than outstanding trips data entry in 2022/2023, for example. Every effort has been made to resolve the backlog from previous years.
7. **CATEGORY 8** represents the number of trips included in the WCPFC subset's database.
8. Observer data from the Philippines fleet fishing in the High Seas Pocket #1 are included in this table.

Table 2. Summary of purse seine observer data received at SPC, by year and flag.

2021											
FLEET	1. Estimated Trips (VMS-derived)	2. Unconfirmed observer placements	3. Confirmed observer placements		4. Data received		5. Data processed			6. Data shared to WCPFC (ROP)	
			Trips	% of estimated trips	Trips	% of placements	Trips	% of placements	% of received data	Trips	% of data processed
Cook Islands	3	3	0	0%	0	0%	0	0%	0%	0	0%
China	0	0	0	0%	0	0%	0	0%	0%	0	0%
Ecuador	27	27	0	0%	0	0%	0	0%	0%	0	0%
European Union	16	14	2	13%	2	100%	2	100%	100%	2	100%
FSM	224	224	0	0%	0	0%	0	0%	0%	0	0%
Japan	201	201	0	0%	0	0%	0	0%	0%	0	0%
Kiribati	227	227	0	0%	0	0%	0	0%	0%	0	0%
Korea	184	184	0	0%	0	0%	0	0%	0%	0	0%
Marshall Is.	110	110	0	0%	0	0%	0	0%	0%	0	0%
Nauru	151	151	0	0%	0	0%	0	0%	0%	0	0%
New Zealand	5	5	0	0%	0	0%	0	0%	0%	0	0%
PNG	367	171	196	53%	196	100%	195	99%	99%	54	28%
Philippines	50	0	50	100%	50	100%	50	100%	100%	50	100%
Solomon Islands	80	18	62	78%	62	100%	62	100%	100%	0	0%
El Salvador	11	11	0	0%	0	0%	0	0%	0%	0	0%
Tuvalu	31	31	0	0%	0	0%	0	0%	0%	0	0%
Chinese Taipei	281	281	0	0%	0	0%	0	0%	0%	0	0%
USA	62	62	0	0%	0	0%	0	0%	0%	0	0%
Vanuatu	55	55	0	0%	0	0%	0	0%	0%	0	0%
	2085	1,775	310	15%	310	100%	309	100%	100%	106	34%

2022											
FLEET	1. Estimated Trips (VMS-derived)	2. Unconfirmed observer placements	3. Confirmed observer placements		4. Data received		5. Data processed			6. Data shared to WCPFC (ROP)	
			Trips	% of estimated trips	Trips	% of placements	Trips	% of placements	% of received data	Trips	% of data processed
Cook Islands	6	6	0	0%	0	0%	0	0%	0%	0	0%
China	11	11	0	0%	0	0%	0	0%	0%	0	0%
Ecuador	29	27	2	7%	2	100%	2	100%	100%	2	100%
European Union	26	26	0	0%	0	0%	0	0%	0%	0	0%
FSM	219	200	19	9%	18	95%	17	89%	94%	16	94%
Japan	182	162	20	11%	20	100%	19	95%	95%	19	100%
Kiribati	262	245	17	6%	17	100%	17	100%	100%	17	100%
Korea	223	211	12	5%	12	100%	12	100%	100%	12	100%
Marshall Is.	107	99	8	7%	8	100%	8	100%	100%	8	100%
Nauru	143	127	16	11%	16	100%	15	94%	94%	15	100%
New Zealand	2	2	0	0%	0	0%	0	0%	0%	0	0%
PNG	352	213	139	39%	138	99%	128	92%	93%	17	13%
Philippines	44	0	44	100%	43	98%	43	98%	100%	43	100%
Solomon Islands	95	26	69	73%	61	88%	61	88%	100%	6	10%
El Salvador	12	11	1	8%	1	100%	1	100%	100%	1	100%
Tuvalu	54	50	4	7%	4	100%	4	100%	100%	3	75%
Chinese Taipei	257	242	15	6%	7	47%	7	47%	100%	7	100%
USA	70	61	9	13%	9	100%	9	100%	100%	9	100%
Vanuatu	79	77	2	3%	2	100%	2	100%	100%	2	100%
	2173	1,796	377	17%	358	95%	345	92%	96%	177	51%

Table 2. Summary of purse seine observer data received at SPC, by year and flag (continued).

2023											
FLEET	1. Estimated Trips (VMS-derived)	2. Unconfirmed observer placements	3. Confirmed observer placements		4. Data received		5. Data processed			6. Data shared to WCPFC (ROP)	
			Trips	% of estimated trips	Trips	% of placements	Trips	% of placements	% of received data	Trips	% of data processed
Cook Islands	4	0	4	100%	4	100%	4	100%	100%	4	100%
China	20	10	10	50%	5	50%	5	50%	100%	5	100%
Ecuador	30	17	13	43%	6	46%	6	46%	100%	6	100%
European Union	26	12	14	54%	11	79%	11	79%	100%	11	100%
FSM	212	1	211	100%	211	100%	211	100%	100%	204	97%
Japan	180	111	69	38%	68	99%	43	62%	63%	43	100%
Kiribati	300	44	256	85%	233	91%	228	89%	98%	203	89%
Korea	240	31	209	87%	187	89%	187	89%	100%	157	84%
Marshall Is.	99	0	99	100%	96	97%	96	97%	100%	94	98%
Nauru	124	6	118	95%	113	96%	112	95%	99%	111	99%
New Zealand	0	0	0	0%	0	0%	0	0%	0%	0	0%
PNG	321	181	140	44%	136	97%	87	62%	64%	7	8%
Philippines	34	0	34	100%	34	100%	34	100%	100%	34	100%
Solomon Islands	95	21	74	78%	68	92%	66	89%	97%	27	41%
El Salvador	10	3	7	70%	4	57%	4	57%	100%	4	100%
Tuvalu	64	1	63	98%	62	98%	62	98%	100%	60	97%
Chinese Taipei	227	68	159	70%	120	75%	113	71%	94%	111	98%
USA	70	1	69	99%	68	99%	68	99%	100%	68	100%
Vanuatu	63	27	36	57%	31	86%	31	86%	100%	30	97%
	2119	534	1,585	75%	1,457	92%	1,368	86%	94%	1179	86%

2024											
FLEET	1. Estimated Trips (VMS-derived)	2. Unconfirmed observer placements	3. Confirmed observer placements		4. Data received		5. Data processed			6. Data shared to WCPFC (ROP)	
			Trips	% of estimated trips	Trips	% of placements	Trips	% of placements	% of received data	Trips	% of data processed
Cook Islands	8	1	7	88%	7	100%	7	100%	100%	7	100%
China	0	0	0	0%	0	0%	0	0%	0%	0	0%
Ecuador	42	28	14	33%	11	79%	5	36%	45%	5	100%
European Union	42	25	17	40%	12	71%	5	29%	42%	5	100%
FSM	243	2	241	99%	241	100%	197	82%	82%	189	96%
Japan	181	37	144	80%	139	97%	89	62%	64%	85	96%
Kiribati	333	35	298	89%	281	94%	177	59%	63%	172	97%
Korea	264	40	224	85%	211	94%	167	75%	79%	162	97%
Marshall Is.	111	0	111	100%	111	100%	87	78%	78%	83	95%
Nauru	114	0	114	100%	113	99%	113	99%	100%	106	94%
New Zealand	0	0	0	0%	0	0%	0	0%	0%	0	0%
PNG	478	33	445	93%	439	99%	246	55%	56%	105	43%
Philippines	93	0	93	100%	93	100%	72	77%	77%	51	71%
Solomon Islands	107	21	86	80%	72	84%	58	67%	81%	26	45%
El Salvador	15	10	5	33%	2	40%	0	0%	0%	0	0%
Tuvalu	58	0	58	100%	58	100%	44	76%	76%	43	98%
Chinese Taipei	262	21	241	92%	223	93%	167	69%	75%	161	96%
USA	86	17	69	80%	69	100%	69	100%	100%	69	100%
Vanuatu	24	2	22	92%	20	91%	20	91%	100%	20	100%
	2461	272	2,189	89%	2,102	96%	1,523	70%	72%	1289	85%

Table 2. Summary of purse seine observer data received at SPC, by year and flag (continued).

2025											
FLEET	1. Estimated Trips (VMS-derived)	2. Unconfirmed observer placements	3. Confirmed observer placements		4. Data received		5. Data processed			6. Data shared to WCPFC (ROP)	
			Trips	% of estimated trips	Trips	% of placements	Trips	% of placements	% of received data	Trips	% of data processed
Cook Islands	4	0	4	100%	4	100%	3	75%	75%	3	100%
China	0	0	0	0%	0	0%	0	0%	0%	0	0%
Ecuador	37	25	12	32%	12	100%	1	8%	8%	1	100%
European Union	32	25	7	22%	7	100%	2	29%	29%	2	100%
FSM	209	2	207	99%	206	100%	98	47%	48%	93	95%
Japan	176	61	115	65%	109	95%	45	39%	41%	45	100%
Kiribati	289	64	225	78%	219	97%	71	32%	32%	69	97%
Korea	202	75	127	63%	119	94%	48	38%	40%	43	90%
Marshall Is.	88	0	88	100%	88	100%	25	28%	28%	25	100%
Nauru	117	0	117	100%	117	100%	108	92%	92%	108	100%
New Zealand	0	0	0	0%	0	0%	0	0%	0%	0	0%
PNG	538	0	538	100%	514	96%	274	51%	53%	95	35%
Philippines	91	0	91	100%	91	100%	74	81%	81%	65	88%
Solomon Islands	119	36	83	70%	80	96%	33	40%	41%	15	45%
El Salvador	17	10	7	41%	7	100%	0	0%	0%	0	0%
Tuvalu	66	5	61	92%	61	100%	44	72%	72%	44	100%
Chinese Taipei	130	14	116	89%	94	81%	67	58%	71%	66	99%
USA	85	16	69	81%	68	99%	39	57%	57%	39	100%
Vanuatu	17	4	13	76%	13	100%	7	54%	54%	7	100%
	2217	337	1,880	85%	1,809	96%	939	50%	52%	720	77%

Table 3. Provisional 2024 Longline Regional Observer Programme (ROP) coverage by CCM – based on reporting from CCMs and data submissions
The fleet breakdown, metric and reporting by CCMs is based on WCPFC11 Summary Report para 483-486 and Attachment L (Anon., 2010a). Flag CCM reporting is from Annual Report Part 1.

			REGIONAL OBSERVER PROGRAMME (ROP) DATA COVERAGE (minimum required for ROP is 5%)						
CCM Fleet	Fishery	Metric selected for Coverage	Total estimated effort	As reported by flag state		Total estimated effort	As per data submission		See NOTES
				Observer	%		Observer	%	
AUSTRALIA	Domestic	No. of Hooks	–	–	–	–	–	–	2, 17
CHINA	Ice/Fresh	Days fished	42,024	3,578	8.5%	48,763	3,106	6.4%	3, 10, 11, 22
	Frozen								
COOK ISLANDS	Pacific Islands	Days at Sea	434	56	12.9%	431	56	13.0%	8
EUROPEAN UNION	Distant-water	No. of Trips	32	3	9.4%	32	3	9.4%	4,10,19
FSM	Pacific Islands	No. of Trips	–	–	–	–	–	–	26, 27
FIJI	Pacific Islands	No. of Trips	581	118	20.3%	532	113	21.2%	7
FRENCH POLYNESIA	Pacific Islands	Days at Sea	–	–	–	–	–	–	2
INDONESIA	Domestic	No. of Trips	–	–	–	–	–	–	2, 19, 21
JAPAN	Ice/Fresh, short-trip	Days fished	14,748	878	6.0%	14,748	878	6.0%	10, 18
	Frozen, long-trip	Days fished	4,530	556	12.3%	4,530	556	12.3%	10, 18
KIRIBATI	Pacific Islands	No. of Trips	–	–	–	–	–	–	2
MARSHALL ISLANDS	Pacific Islands	No. of Trips	–	–	–	–	–	–	2, 25
NEW CALEDONIA	Pacific Islands	No. of Hooks	–	–	–	–	–	–	2
NEW ZEALAND	Domestic	No. of Hooks	–	–	–	–	–	–	2
PALAU	Pacific Islands	No. of Trips	–	–	–	–	–	–	2
PAPUA NEW GUINEA	Pacific Islands	No. of Trips	–	–	–	–	–	–	2
PHILIPPINES	Distant-water	No. of Trips	–	–	–	–	–	–	1, 16
REPUBLIC OF KOREA	Distant-water	Days at Sea	47,036	3,609	7.7%	53,410	3,180	6.0%	10, 20, 23
SAMOA	Pacific Islands	No. of Trips	–	–	–	–	–	–	2
SOLOMON ISLANDS	Pacific Islands	No. of Trips	–	–	–	–	–	–	2, 7, 9
TONGA	Pacific Islands	No. of Trips	–	–	–	–	–	–	2
TUVALU	Pacific Islands	No. of Trips	–	–	–	–	–	–	2
CHINESE TAIPEI	DTLL – STLL	Days at Sea	81,806	7,340	9.0%	81,806	8,441	10.3%	10, 14
USA	HAWAII/California-based	No. of Trips	1,364	225	16.5%	1,364	238	17.4%	6
	AMERICAN SAMOA	No. of Trips	–	–	–	–	–	–	2, 6
VANUATU	Pacific Islands and DW	No. of Trips	48	6	12.5%	118	5	4.2%	7

NOTES

1. The fleet breakdown, metric and reporting by CCMs is based on WCPFC11 Summary Report para 483-486 and Attachment L (Anon., 2010a). Flag CCM reporting includes information from Annual Reports - Part 1.
2. Domestic fleet fishing within their EEZ. There is no fishing in other EEZs but there may be very infrequent activities in adjacent high seas area. The activities of this fleet are therefore not relevant to the requirements for ROP longline coverage.
3. China has advised in their Annual Report Part 1 that their choice of metric is "days fished". Total estimated effort (of days fished) is determined from available operational logbook data, raised to account for incomplete coverage (of operational logbook data provided).
4. In a communication of 28 February 2015, EU advised that they will use "NUMBER OF TRIPS" for measuring and reporting observer coverage on its flagged LL vessels for years from 2014. For 2013, they had previously advised that "*We are currently exploring options for improving observer coverage on EU LLs. Recent amendments in the ES legislation should contribute also in improving these aspects. At TCC10, EU advised that legislation has been adopted*."
5. No information provided by the CCM for this fleet.
6. The information provided for the US fleets EXCLUDES activities in their respective EEZs, that is, the coverage rates provided are for their ROP trips only and estimated effort is for activities outside their EEZ.
7. The information provided for these fleets EXCLUDES activities of the domestic component (i.e. vessels fishing exclusively in the home EEZ and adjacent high seas only); the coverage represents the component that conduct ROP-defined trips only.
8. Most (if not all) vessel trips (and therefore most days-at-sea) would be non-ROP trips since mostly restricted to waters of national jurisdiction. Observer coverage is for all activities (ROP and non-ROP) of the domestic fleet.
9. Observer trip value represents the trip data provided to SPC in the absence of advice from this CCM on total number of observer trips conducted. This value may not represent the overall trips undertaken (i.e. it may be an under-estimate).
10. All vessel trips (and therefore days-at-sea) would be defined as ROP trips. "Distant-water" vessels have very long trips and since some fleets tranship at sea, the unit of coverage might more suitably be "days-at-sea" for these situations.
11. Covers both 'fleets' as coverage cannot be split by fleet at this stage.
12. Tuvalu advised their choice of metric was "Number of Trips".
13. -
14. Includes observer trips conducted by Coastal state observer programmes on Chinese Taipei-flagged STLL vessels.
15. -
16. No longline vessels from Philippines active in 2024.
17. Australia commenced producing data from their E-Monitoring system from 2015. E-Monitoring data are not yet considered to count towards ROP coverage.
18. Japan provided trip-level details for 2024 observer activities including trip monitoring information.
19. Observer data provided does not satisfy all of the ROP minimum data field standards.
20. There is evidence that additional observer trips have been conducted by coastal states, but the data have yet to be provided.
21. The number of total trips for the Indonesian domestic longline fleet is not known but has been estimated based on the annual catch estimate and approximate catch per trip.
22. 2024 observer data provided for the China longline fleet included some activity in the Pacific Ocean beyond the WCPFC Area; these data have been excluded in the coverage rates of data submitted in this table.
23. Effort metric for Korean longline fleet in 2024 is DAYS AT SEA. Coverage of data submitted represents only activity in the WCPFC Area.
24. -
25. Represents the chartered vessels in this fleet; no vessels were flagged to RMI in 2024.
26. Excludes trips/activities from chartered vessels and also non-fishing trips.
27. The information provided for these fleets EXCLUDES activities of either domestically-based (in home EEZ) or locally-based components of this fleet; that is, vessels from this fleet that fish exclusively in one Pacific Island EEZ and adjacent high seas only are not included (i.e. considered non-ROP trips); the coverage represents the component that conduct ROP-defined trips only.

Table 4. Provisional 2025 Longline Regional Observer Programme (ROP) coverage by CCM – based on reporting from CCMs and data submissions

The fleet breakdown, metric and reporting by CCMs is based on WCPFC11 Summary Report para 483-486 and Attachment L (Anon., 2010a). Flag CCM reporting is from Annual Report Part 1.

			REGIONAL OBSERVER PROGRAMME (ROP) DATA COVERAGE (minimum required for ROP is 5%)						
CCM Fleet	Fishery	Metric selected for Coverage	Total estimated effort	As reported by flag state		Total estimated effort	As per data submission		See NOTES
				Observer	%		Observer	%	
AUSTRALIA	Domestic	No. of Hooks	–	–	–	–	–	–	2, 17
CHINA	Ice/Fresh	Days fished	29,427	3,031	10.3%	29,427	919	3.1%	3, 10, 11, 22
	Frozen								
COOK ISLANDS	Pacific Islands	Days at Sea	203	–		203	–		5
EUROPEAN UNION	Distant-water	No. of Trips	12	2	16.7%	12	–		4,5,10,19
FSM	Pacific Islands	No. of Trips	–	–	–	–	–	–	26, 27
FIJI	Pacific Islands	No. of Trips	595	92	15.5%	595	92	15.5%	7
FRENCH POLYNESIA	Pacific Islands	Days at Sea	–	–	–	–	–	–	2
INDONESIA	Domestic	No. of Trips	–	–	–	–	–	–	2, 19, 21
JAPAN	Ice/Fresh, short-trip	Days fished	12,011	727	6.1%	12,011	–		10, 18
	Frozen, long-trip	Days fished	4,729	657	13.9%	4,729	–		10, 18
KIRIBATI	Pacific Islands	No. of Trips	–	–	–	–	–	–	2
MARSHALL ISLANDS	Pacific Islands	No. of Trips	–	–	–	–	–	–	2, 25
NEW CALEDONIA	Pacific Islands	No. of Hooks	–	–	–	–	–	–	2
NEW ZEALAND	Domestic	No. of Hooks	–	–	–	–	–	–	2
PALAU	Pacific Islands	No. of Trips	–	–	–	–	–	–	2
PAPUA NEW GUINEA	Pacific Islands	No. of Trips	–	–	–	–	–	–	2
PHILIPPINES	Distant-water	No. of Trips	–	–	–	–	–	–	1, 16
REPUBLIC OF KOREA	Distant-water	Days at Sea	21,460	2,735	12.7%	21,460	2,717	12.7%	10, 20, 23
SAMOA	Pacific Islands	No. of Trips	–	–	–	–	–	–	2
SOLOMON ISLANDS	Pacific Islands	No. of Trips	–	–	–	–	–	–	2, 7, 9
TONGA	Pacific Islands	No. of Trips	–	–	–	–	–	–	2
TUVALU	Pacific Islands	No. of Trips	–	–	–	–	–	–	2,
CHINESE TAIPEI	DTLL – STLL	Days at Sea	94,164	10,602	11.3%	94,164	9,752	10.4%	10, 14
USA	HAWAII/California-based	No. of Trips	1,249	113	9.0%	1,249	113	9.0%	6
	AMERICAN SAMOA	No. of Trips	–	–	–	–	–	–	2, 6
VANUATU	Pacific Islands and DW	Days at Sea	6,978	508	7.3%	6,978	508	7.3%	7

NOTES

1. The fleet breakdown, metric and reporting by CCMs is based on WCPFC11 Summary Report para 483-486 and Attachment L (Anon., 2010a). Flag CCM reporting includes information from Annual Reports - Part 1.
2. Domestic fleet fishing within their EEZ. There is no fishing in other EEZs but there may be very infrequent activities in adjacent high seas area. The activities of this fleet are therefore not relevant to the requirements for ROP longline coverage.
3. China has advised in their Annual Report Part 1 that their choice of metric is "days fished". Total estimated effort (of days at sea) is determined from available operational logbook data, raised to account for incomplete coverage (of operational logbook data provided).
4. In a communication of 28 February 2015, EU advised that they will use "NUMBER OF TRIPS" for measuring and reporting observer coverage on its flagged LL vessels for years from 2014. For 2013, they had previously advised that "*We are currently exploring options for improving observer coverage on EU LLs. Recent amendments in the ES legislation should contribute also in improving these aspects. At TCC10, EU advised that legislation has been adopted*."
5. No information provided by the CCM for this fleet.
6. The information provided for the US fleets EXCLUDES activities in their respective EEZs, that is, the coverage rates provided are for their ROP trips only and estimated effort is for activities outside their EEZ.
7. The information provided for these fleets EXCLUDES activities of the domestic component (i.e. vessels fishing exclusively in the home EEZ and adjacent high seas only); the coverage represents the component that conduct ROP-defined trips only.
8. Most (if not all) vessel trips (and therefore most days-at-sea) would be non-ROP trips since mostly restricted to waters of national jurisdiction. Observer coverage is for all activities (ROP and non-ROP) of the domestic fleet.
9. Observer trip value represents the trip data provided to SPC in the absence of advice from this CCM on total number of observer trips conducted. This value may not represent the overall trips undertaken (i.e. it may be an under-estimate).
10. All vessel trips (and therefore days-at-sea) would be defined as ROP trips. "Distant-water" vessels have very long trips and since some fleets tranship at sea, the unit of coverage might more suitably be "days-at-sea" for these situations.
11. Covers both 'fleets' as coverage cannot be split by fleet at this stage.
12. Tuvalu advised their choice of metric was "Number of Trips".
13. Observer coverage information (as nominated from flag state) was taken from the CCMs WCPFC Annual Report Part 1 prepared for SC14 (as per WCPFC11 Summary Report paragraphs 483 – 486).
14. Includes observer trips conducted by Coastal state observer programmes on Chinese Taipei-flagged STLL vessels.
15. This CCM did not have flagged longline vessels on the Record of Fishing Vessels in 2025.
16. No longline vessels from Philippines active in 2025.
17. Australia commenced producing data from their E-Monitoring system from 2015. E-Monitoring data are not yet considered to count towards ROP coverage.
18. Japan provided trip-level details for 2024 observer activities including trip monitoring information. Some data submitted recently have yet to be loaded and may not be included in the total effort for submitted data.
19. Observer data provided does not satisfy all of the ROP minimum data field standards.
20. There is evidence that additional observer trips have been conducted by coastal states, but the data have yet to be provided.
21. The number of total trips for the Indonesian domestic longline fleet is not known but has been estimated based on the annual catch estimate and approximate catch per trip.
22. Observer data provided for the China longline fleet included some activity in the Pacific Ocean beyond the WCPFC Area; these data have been excluded in the coverage rates of data submitted in this table.
23. Effort metric for Korean longline fleet in 2025 is DAYS AT SEA. Coverage of data submitted represents only activity in the WCPFC Area.
24. No activity in 2025 by this CCM's longline fleet.
25. Represents the chartered vessels in this fleet; no vessels were flagged to RMI in 2025.
26. Excludes trips/activities from chartered vessels and also non-fishing trips.
27. The information provided for these fleets EXCLUDES activities of either domestically-based (in home EEZ) or locally-based components of this fleet; that is, vessels from this fleet that fish exclusively in one Pacific Island EEZ and adjacent high seas only are not included (i.e. considered non-ROP trips); the coverage represents the component that conduct ROP-defined trips only.

Table 5. Coverage of Longline Observer data in the WCPFC Area, for 2024 (all observer data available to the WCPFC Science Service Provider; includes both ROP and non-ROP data.

	Hooks		
CCM Fleet	Total Effort	Observer	
AUSTRALIA	8,040,331		
CHINA	136,536,771	9,010,694	
COOK ISLANDS	767,335	100,590	
EUROPEAN UNION	1,626,113	105,490	
FIJI	33,646,217	4,331,127	
FRENCH POLYNESIA	19,490,290	1,112,733	
FSM	23,779,503	1,130,002	
INDONESIA	2,875,200	0	
JAPAN	33,697,104	3,161,998	
KIRIBATI	35,042,336	2,665,339	
MARSHALL ISLANDS	13,687,642	697,052	
NEW CALEDONIA	4,999,686	464,271	
NEW ZEALAND	1,570,989		
PALAU			
PAPUA NEW GUINEA	420,205		
REPUBLIC OF KOREA	98,419,772	3,592,820	
SAMOA	1,925,504	23,744	
SOLOMON ISLANDS	18,919,508	111,430	
TONGA	794,284	106,958	
TUVALU			
CHINESE TAIPEI	129,145,056	8,253,627	
USA	62,319,386	6,517,910	
VANUATU	10,578,968	1,368,741	
Total	**638,282,200**	**42,754,526**	**6.7%**

NOTES

1. Total effort (hooks) for Indonesia has been estimated.
2. CCM Fleet includes chartered vessels.
3. Observer data have been provided for activities outside of WCPFC area but are not included here.

Table 6. Coverage of Longline Observer data in the WCPFC Area, for 2025 (all observer data available to the WCPFC Science Service Provider; includes both ROP and non-ROP data).

	Hooks		
CCM Fleet	Total Effort	Observer	
AUSTRALIA	8,519,484	0	
CHINA	128,068,848	2,711,490	
COOK ISLANDS	286,300	0	
EUROPEAN UNION	822,900	0	
FIJI	31,771,825	4,642,458	
FRENCH POLYNESIA	20,749,730	1,159,317	
FSM	21,019,196	86,100	
INDONESIA	1,906,640	0	
JAPAN	25,439,670	93,571	
KIRIBATI	79,610,789	408,345	
MARSHALL ISLANDS	22,574,307	561,677	
NEW CALEDONIA	4,854,394	475,348	
NEW ZEALAND	412,600	0	
PALAU		0	
PAPUA NEW GUINEA		0	
REPUBLIC OF KOREA	40,992,420	2,648,051	
SAMOA	984,365	55,072	
SOLOMON ISLANDS	24,681,167	111,050	
TONGA	732,685	112,576	
TUVALU		0	
CHINESE TAIPEI	157,300,012	9,015,360	
USA	66,287,800	3,573,794	
VANUATU	9,855,722	701,894	
Total	**646,870,854**	**26,356,103**	**4.1%**

Notes

1. Total effort (hooks) for Indonesia has been estimated.
2. CCM Fleet includes chartered vessels.
3. Observer data have been provided for activities outside of WCPFC area but are not included here.

Table 7. Contribution of Pacific Islands' observer programmes to observer coverage, by gear, for 2024 (top) and 2025 (bottom).

2024				
Observer Provider/Programme	PURSE SEINE		LONGLINE	
	Trips	Cov% [1]	Trips	Cov% [2]
COOK ISLANDS	7	0.3%	11	0.28%
FEDERATED STATES OF MICRONESIA	62	2.8%	3	0.05%
FIJI	9	0.7%	95	0.47%
FRENCH POLYNESIA	0	0.0%	57	0.18%
KIRIBATI	228	11.4%	4	0.00%
MARSHALL ISLANDS	94	4.5%	43	0.14%
NAURU	0	0.0%	0	0.00%
NEW CALEDONIA	0	0.0%	28	0.12%
PALAU	0	0.0%	0	0.00%
PAPUA NEW GUINEA	591	21.6%	2	0.06%
PHILIPPINES	48	1.7%	0	0.00%
PNA Observer Programme	868	39.9%	0	0.00%
SAMOA	0	0.0%	2	0.00%
SOLOMON ISLANDS	67	1.6%	2	0.02%
TONGA, KINGDOM OF	0	0.0%	44	0.39%
TUVALU	221	13.0%	0	0.00%
VANUATU	0	0.0%	5	0.32%
Total	2195	95.8%	296	2.03%

2025				
Observer Provider/Programme	PURSE SEINE		LONGLINE	
	Trips	Cov% [1]	Trips	Cov% [2]
COOK ISLANDS	4	0.2%	13	0.49%
FEDERATED STATES OF MICRONESIA	22	0.9%	0	0.00%
FIJI	3	0.3%	66	0.42%
FRENCH POLYNESIA	0	0.0%	55	0.20%
KIRIBATI	96	5.7%	0	0.00%
MARSHALL ISLANDS	75	3.9%	72	0.22%
NAURU	0	0.0%	0	0.00%
NEW CALEDONIA	0	0.0%	28	0.13%
PALAU	0	0.0%	0	0.00%
PAPUA NEW GUINEA	505	18.8%	1	0.01%
PHILIPPINES	64	2.7%	0	0.00%
PNA Observer Programme	899	43.4%	0	0.00%
SAMOA	0	0.0%	4	0.01%
SOLOMON ISLANDS	59	2.4%	3	0.03%
TONGA, KINGDOM OF	0	0.0%	38	0.41%
TUVALU	120	7.5%	0	0.00%
US MLT Observer Programme	0	0.0%	0	0.00%
VANUATU	0	0.0%	13	0.14%
Total	1847	83.1%	293	2.05%

NOTES

1. Cov% represents coverage in the tropical WCPFC purse seine fishery using total target tuna catch estimate as the metric.
2. Cov% represents coverage in the WCPFC longline fishery using total target tuna catch estimate as the metric.
3. Trips represent observer trips conducted by the observer programme. This metric is not used in the estimate of coverage (see notes 1. and 2. above).
4. Represents data received and processed at SPC. Purse seine Observer data processed for 2024 and 2025 are estimated to be around 62% and 42% respectively of the total VMS estimated trips (cf. Table1).

Table 8. Annual longline E-Monitoring (EM) data reviews (sets), by national EM programme, 2015–2025.

	E-MONITORING DATA (Sets reviewed)										
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Australia	56	420	528	489	525	418	403	344	294	444	393
Fiji	222	621	2170	1510	484		93	114			
French Polynesia								171	1		
FSM		311	314	21	30	210	10		63		
Marshall Islands			810	629	310						
Palau		102	159	56							
Solomon Islands			74	25							
Vanuatu			41	43	23						

NOTES

1. According to data submitted to SPC.

Table 9. Number of transshipments from the observer forms, for the period 2017-2025.

				Offloading Vessel Flag - Total Transshipments											
Year	Carrier Obs Prog.	Carrier Flag	Obs Trips	KR	CN	FM	KI	TW	VU	PA	JP	PG	FJ	LR	Total
2024	TVOB	KR	1	14											**14**
2024	SBOB	KR	1	21											**21**
2024	SBOB	PA	1	12											**12**
2023	VUOB	TW	4		1			148							**149**
2023	VUOB	PA	3		5			98	9	5					**117**
2023	TVOB	KR	3	19	44		2								**65**
2023	FAOB	KR	1	3	9		3	2	1						**18**
2023	CNOB	CN	10		156	3	115								**274**
2022	VUOB	TW	3		1			104	1						**106**
2022	FAOB	PA	1	2	3		2	21	9		1				**38**
2022	FAOB	KR	1	9			3	1	2						**15**
2022	TVOB	KR	4	62	2		6	9	6	1					**86**
2019	KIOB	VU	2	16											**16**
2019	KIOB	KR	3	30				28	11			2			**71**
2018	KIOB	KR	6	35	4			12	16			12			**79**
2017	KIOB	LR	2		9			10	10					1	**30**
2017	KIOB	KR	5	30	23			22	6	3	5		1		**90**

NOTES

1. Only includes processed data (no data for 2025 has been processed yet).
2. "Obsv Trips" represents the total number of individual observer trips for the corresponding observer programme and carrier flag.

Table 10. Purse Seine debriefing form fields for the observer trips in period 2024-2025

Purse-seine Debriefing Form Fields - 2024	Debrief Non-data Issues								Debrief Data Issues							
Observer Programme	CC	EXCELLENT	VERYGOOD	GOOD	DNE	X	% Non-data issue	Total	ER	ERR	INC	INR	WEAK	% Data issue	Total	Grand Total
COOK ISLANDS	494	92	12	0	0	0	100.00	598	0	0	0	0	0	0.00	0	598
PNA Observer Programme	16,471	3,084	284	80	0	0	97.20	19,919	118	87	352	12	4	2.80	573	20,492
FIJI	4,506	780	180	80	0	0	95.80	5,546	31	102	80	30		4.20	243	5,789
FEDERATED STATES OF MICRONISIA	36,258	5,048	1,672	732	0	0	95.90	43,710	313	373	845	180	156	4.10	1,867	45,577
KIRIBATI	108,469	21,384	1,540	252	0	0	97.22	131,645	1,043	1,099	1,417	125	84	2.78	3,768	135,413
MARSHALL ISLANDS	50,715	8,600	1,728	540	0	0	93.39	61,583	887	1,646	1,408	173	248	6.61	4,362	65,945
NAURU	10,093	1,912	160	40	0	0	97.50	12,205	79	100	88	10	36	2.50	313	12,518
PAPUA NEW GUINEA	229,177	45,224	3,324	500	0	0	98.10	278,225	1,325	2,605	1,130	268	56	1.90	5,384	283,609
SOLOMON ISLANDS	87,514	17,184	1,220	392	0	0	98.45	106,310	335	666	421	163	88	1.55	1,673	107,983
TUVALU	125,518	24,792	1,748	388	0	0	98.07	152,446	521	1,313	740	322	108	1.93	3,004	155,450
Grand Total	**669,215**	**128,100**	**11,868**	**3,004**	**0**	**0**	**97.46**	**812,187**	**4,652**	**7,991**	**6,481**	**1,283**	**780**	**2.54**	**21,187**	**833,374**

Purse-seine Debriefing Form Fields - 2025	Debrief Non-data Issues								Debrief Data Issues							
Observer Programme	CC	EXCELLENT	VERYGOOD	GOOD	DNE	X	% Non-data issue	Total	ER	ERR	INC	INR	WEAK	% Data issue	Total	Grand Total
PNA Observer Programme	10,276	1,936	200	24	0	0	98.10	12,436	56	95	75	3	12	1.90	241	12,677
FIJI	1,837	320	88		0	0	96.02	2,245		17	75	1		3.98	93	2,338
FEDERATED STATES OF MICRONISIA	5,756	980	132	116	0	0	90.16	6,984	189	236	248	37	52	9.84	762	7,746
KIRIBATI	53,052	10,552	624	120	0	0	97.30	64,348	508	663	462	47	104	2.70	1,784	66,132
MARSHALL ISLANDS	32,104	5,672	1,008	164	0	0	95.14	38,948	578	417	731	187	76	4.86	1,989	40,937
NAURU	6,506	1,280	148	24	0	0	97.44	7,958	45	59	60	41	4	2.56	209	8,167
PAPUA NEW GUINEA	174,628	34,748	2,140	364	0	0	98.61	211,880	874	1,452	506	125	40	1.39	2,997	214,877
SOLOMON ISLANDS	32,219	6,176	660	100	0	0	98.70	39,155	127	213	119	23	32	1.30	514	39,669
TUVALU	54,304	10,804	628	100	0	0	98.62	65,836	222	445	133	114	8	1.38	922	66,758
Grand Total	**370,682**	**72,468**	**5,628**	**1,012**	**0**	**0**	**97.93**	**449,790**	**2,599**	**3,597**	**2,409**	**578**	**328**	**2.07**	**9,511**	**459,301**

NOTES

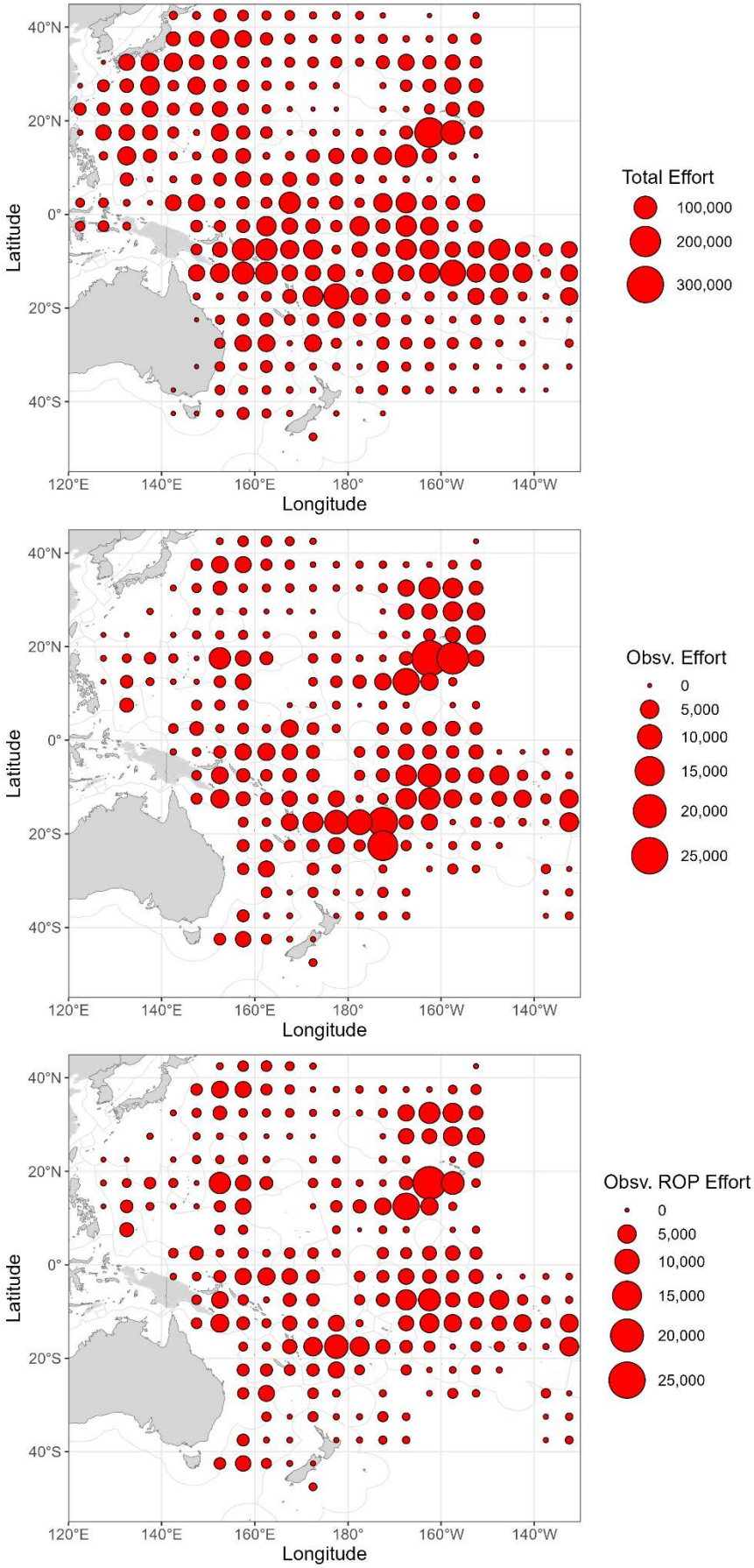
1. CC – Correct. The observer submitted fully completed and correct data.
2. EXCELLENT – The observer's written trip report and journal were well written, and it is very clear and easy to understand.
3. VERY GOOD – The observer's written trip report and journal were well written, and it is easy to understand.
4. GOOD – The observer's written trip report and journal are easy to understand but need improvement.
5. DNE – Did not encounter. The item was not encountered during the trip; for instance, no pollution was encountered or observed during the trip.
6. X – X factor. The data is correct; however, it looks incorrect and is not consistent with previous data collected by observers.
7. ER – Error. A mistake was made by the observer, and the debriefer was unable to correct the information.
8. ERR – Error, retrieved. A mistake was made by the observer, but the debriefer was able to retrieve (correct the mistake) and fill in the correct information.
9. INC – Incomplete. The data fields were presented blank either on one, some, or all forms. The debriefer was unable to find the correct information to fill in all blank data field(s).
10. INR – Incomplete, retrieved. The data fields were presented blank on one, some or forms, however, the debriefer was able to retrieve the correct information and fill in all of the blank data fields.
11. WEAK – The observer's written trip report and journal are not well written, and it's not easy to understand.

Table 11. Longline debriefing form fields for the observer trips in period 2024-2025

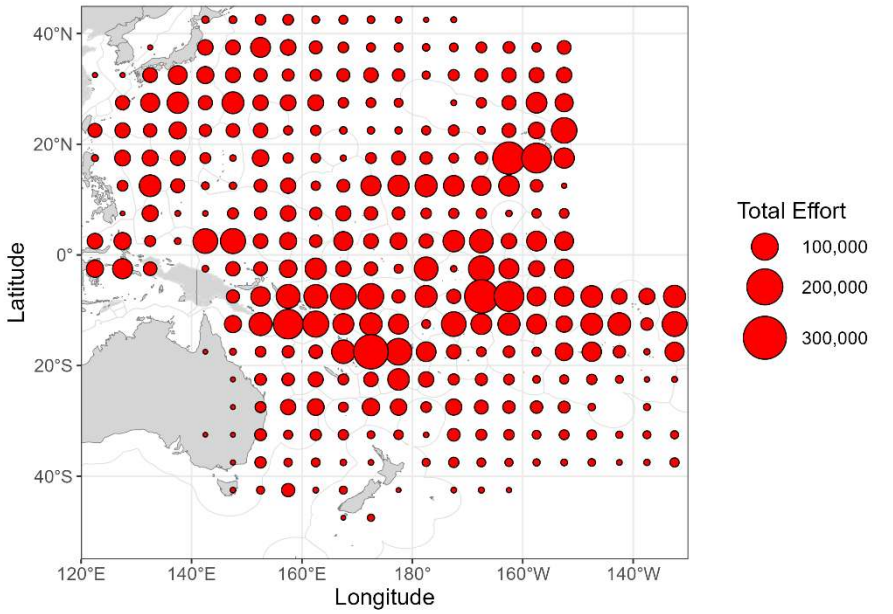
Longline Debriefing Form Fields - 2024	Debrief Non-data issues								Debrief Data Issues							
Observer Programme	CC	EXCELLENT	VERYGOOD	GOOD	DNE	X	% Non-data issue	Total	ER	ERR	INC	INR	WEAK	% Data issue	Total	Grand Total
COOK ISLANDS	616	392	72	16	0	0	97.86	1,096	6	16	0	2	0	2.14	24	1,120
FIJI	14,340	6,624	1,564	360	0	0	96.50	22,888	355	104	49	267	56	3.50	831	23,719
FEDERATED STATES OF MICRONISIA	604	156	112	60	0	0	88.51	932	3	1	67	2	48	11.49	121	1,053
MARSHALL ISLANDS	6,212	2,860	800	316	0	0	95.15	10,188	232	150	91	10	36	4.85	519	10,707
PAPUA NEW GUINEA	86	64	32	0	0	0	86.26	182	16	0	13	0	0	13.74	29	211
SOLOMON ISLANDS	538	256	28	0	0	0	96.25	822	9	17	6	0	0	3.75	32	854
TONGA	2,395	1,256	336	104	0	0	96.67	4,091	34	17	34	36	20	3.33	141	4,232
VANUATU	911	344	92	36	0	0	93.83	1,383	19	26	6	32	8	6.17	91	1,474
Grand Total	**25,702**	**11,952**	**3,036**	**892**	**0**	**0**	**95.88**	**41,582**	**674**	**331**	**266**	**349**	**168**	**4.12**	**1,788**	**43,370**

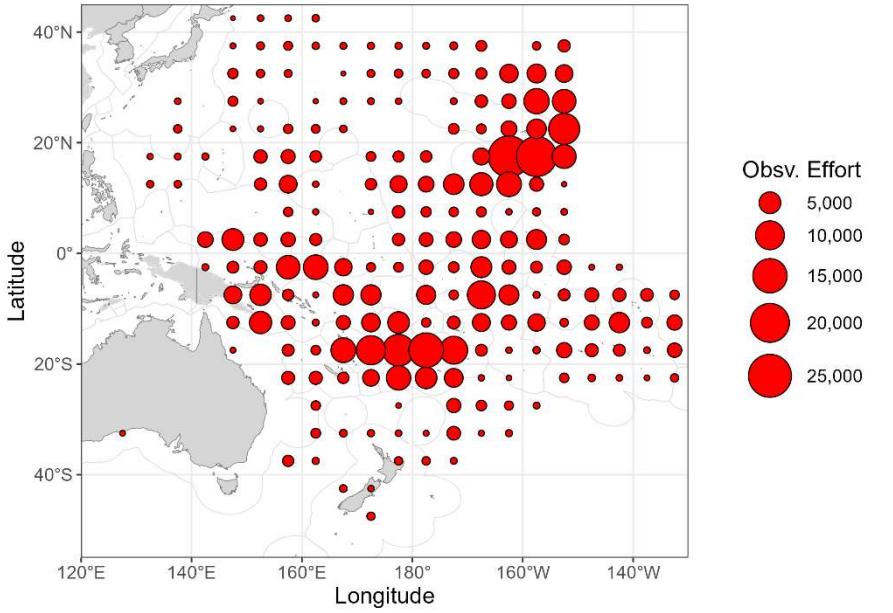
Longline Debriefing Form Fields - 2025	Debrief Non-data issues								Debrief Data Issues							
Observer Programme	CC	EXCELLENT	VERYGOOD	GOOD	DNE	X	% Non-data issue	Total	ER	ERR	INC	INR	WEAK	% Data issue	Total	Grand Total
COOK ISLANDS	612	380	96	4	0	0	99.82	1,092	0	0	2	0	0	0.18	2	1,094
FIJI	9,802	4,928	864	156	0	23	97.90	15,773	60	113	34	131	0	2.10	338	16,111
MARSHALL ISLANDS	4,791	2,020	592	400	0	1	95.14	7,804	134	73	124	36	32	4.86	399	8,203
FRENCH POLYNESIA	3,999	632	3,680	104	0	0	98.03	8,415	4	5	116	44	0	1.97	169	8,584
SOLOMON ISLANDS	365	204	72	12	0	0	99.85	653	0	0	1	0	0	0.15	1	654
TONGA	6,451	2,812	988	312	0	3	95.39	10,566	95	77	208	75	56	4.61	511	11,077
VANUATU	394	124	44	20	0	0	96.04	582	3	7	4	10	0	3.96	24	606
Grand Total	**26,414**	**11,100**	**6,336**	**1,008**	**0**	**27**	**96.88**	**44,885**	**296**	**275**	**489**	**296**	**88**	**3.12**	**1,444**	**46,329**

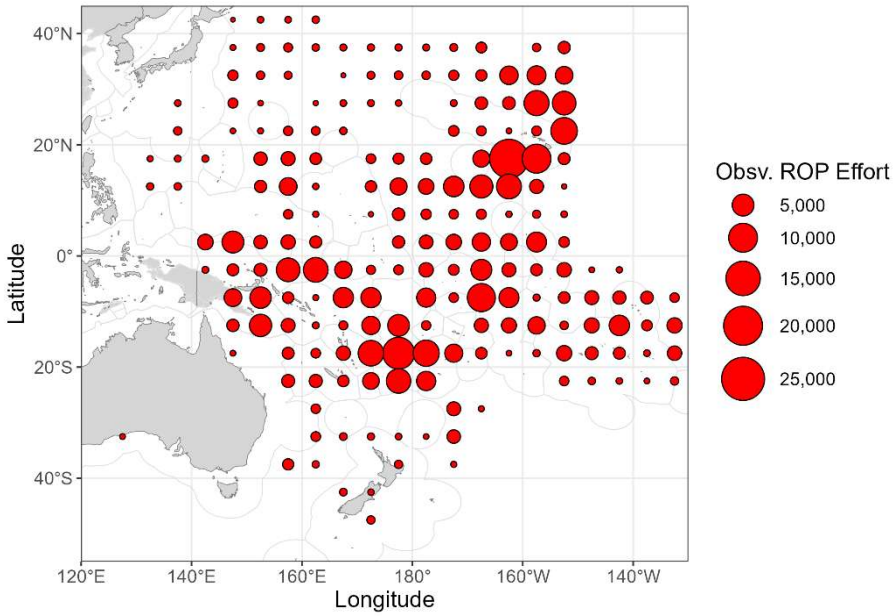
ANNEX 1 – Maps showing the distribution of Longline (hooks) and Purse seine Observer effort (fishing days)



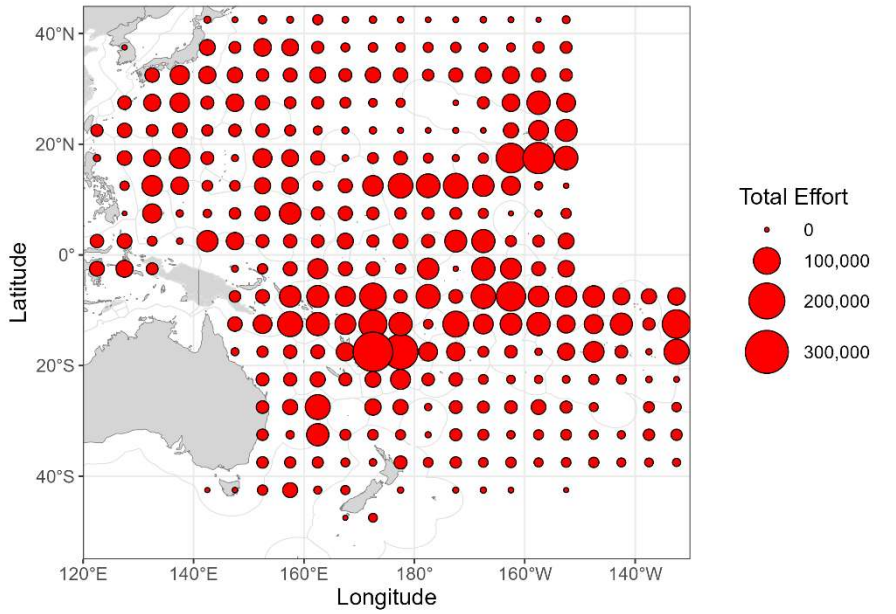
2023 – Longline effort

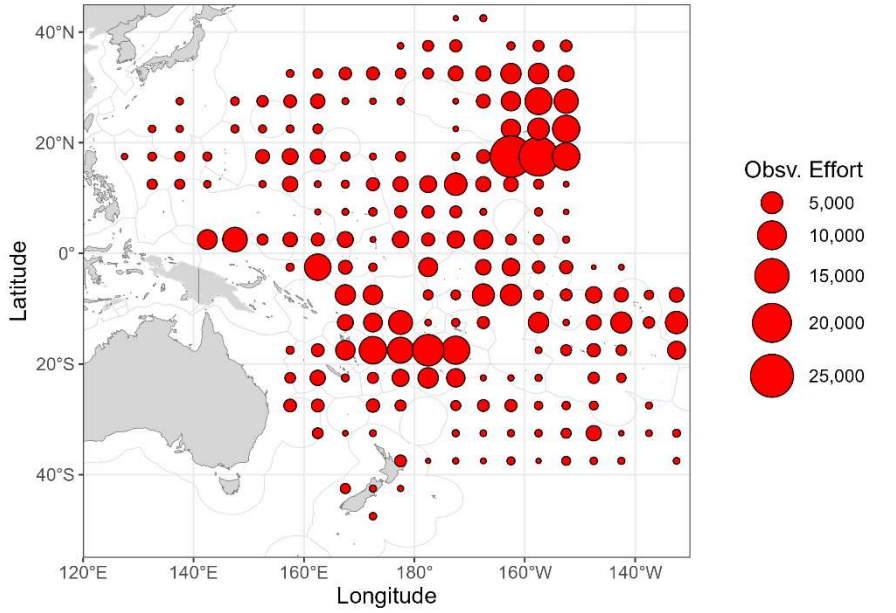


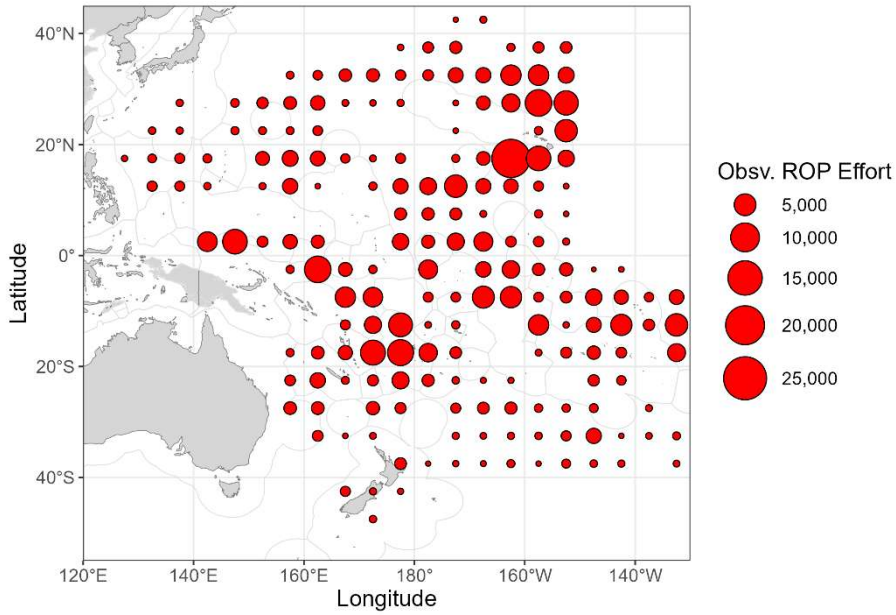




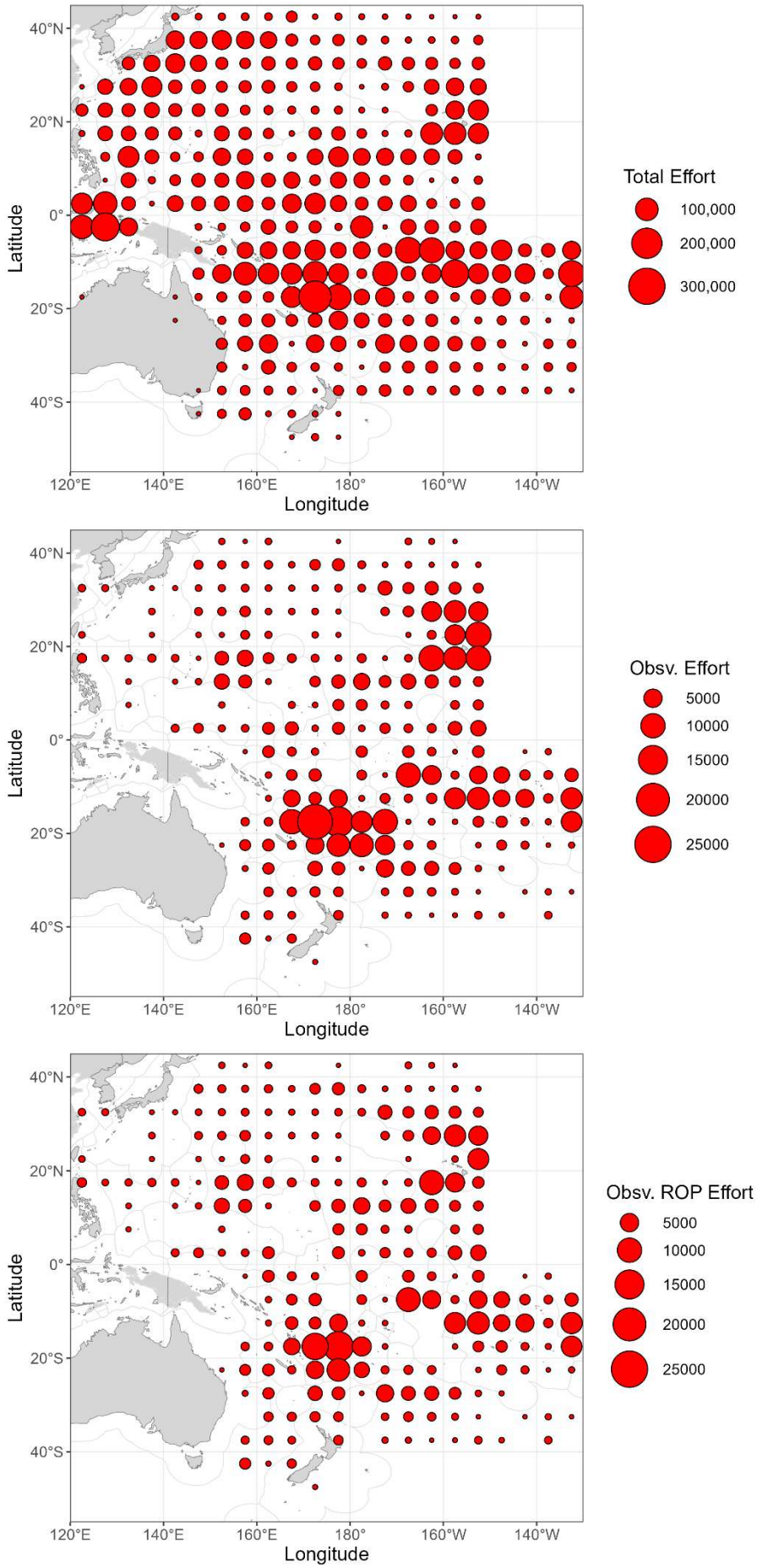
2022 – Longline effort



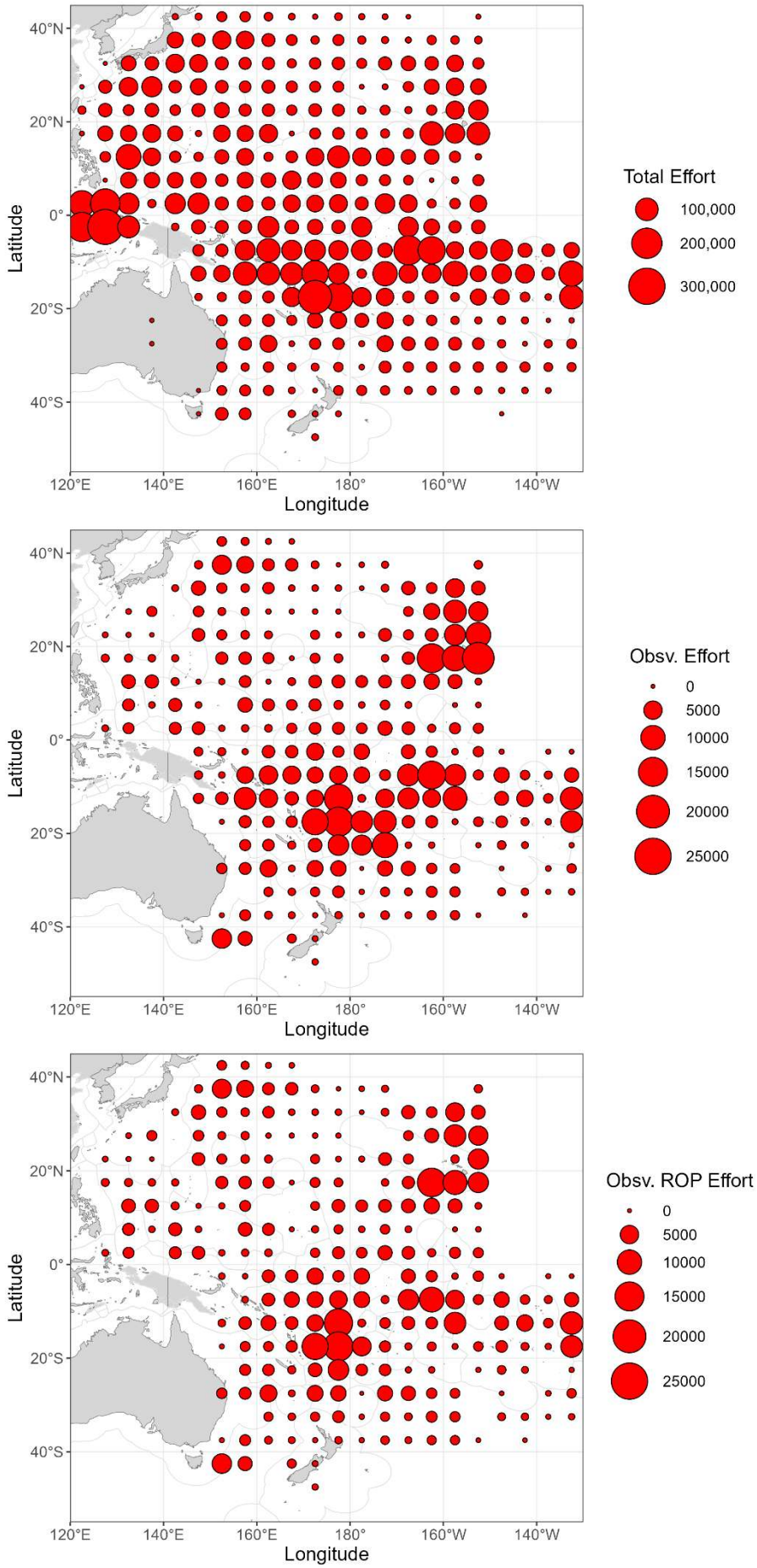




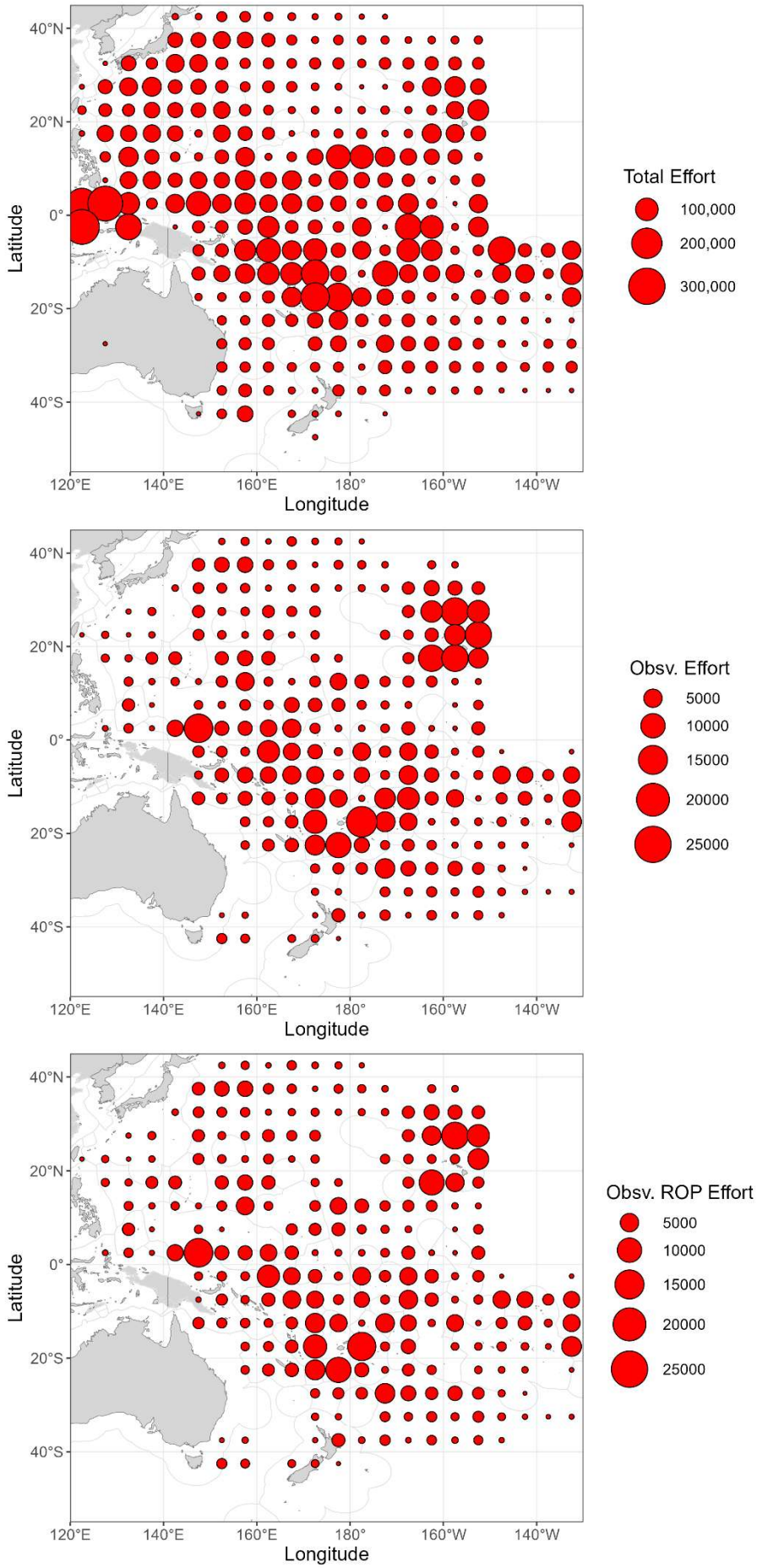
2021 – Longline effort



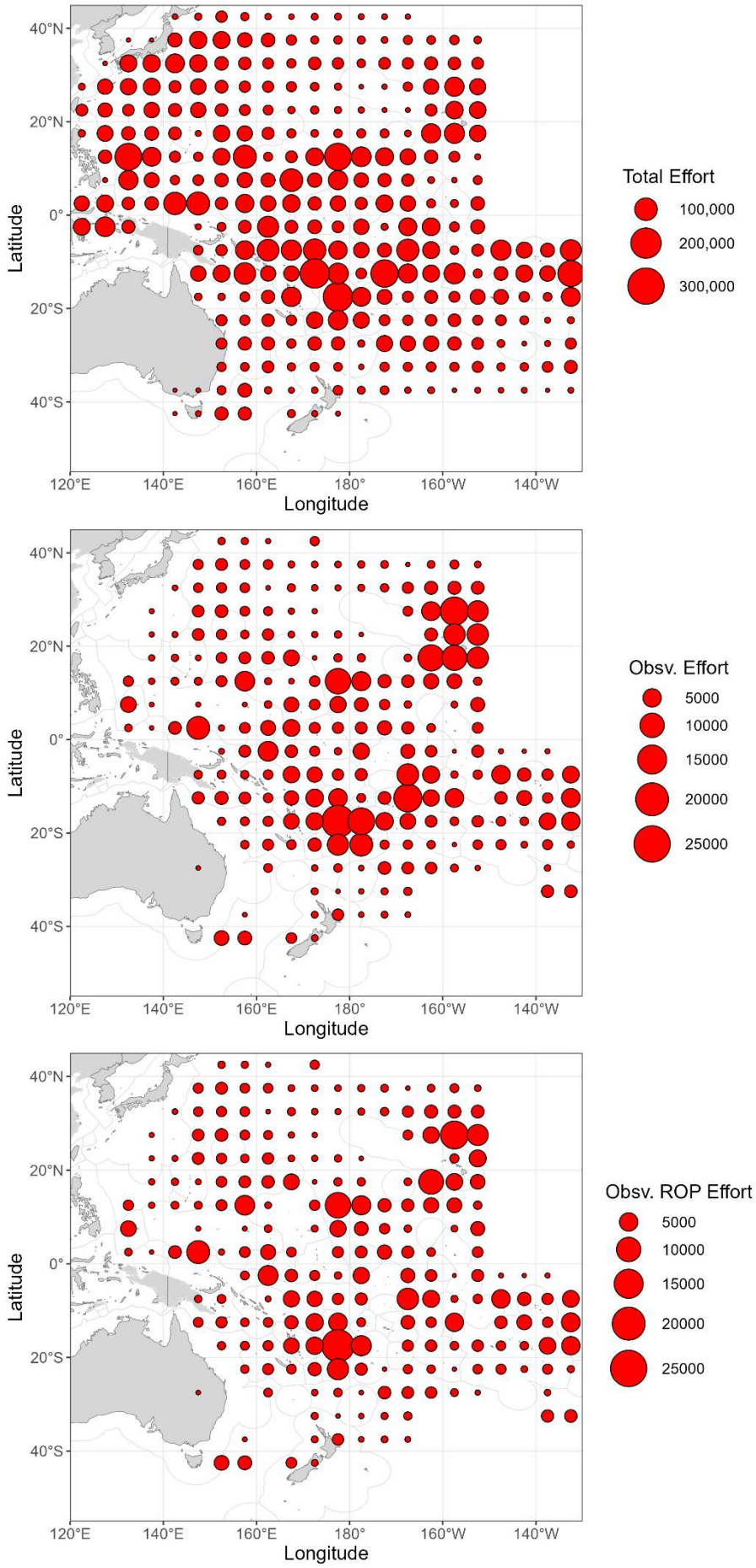
2020 – Longline effort



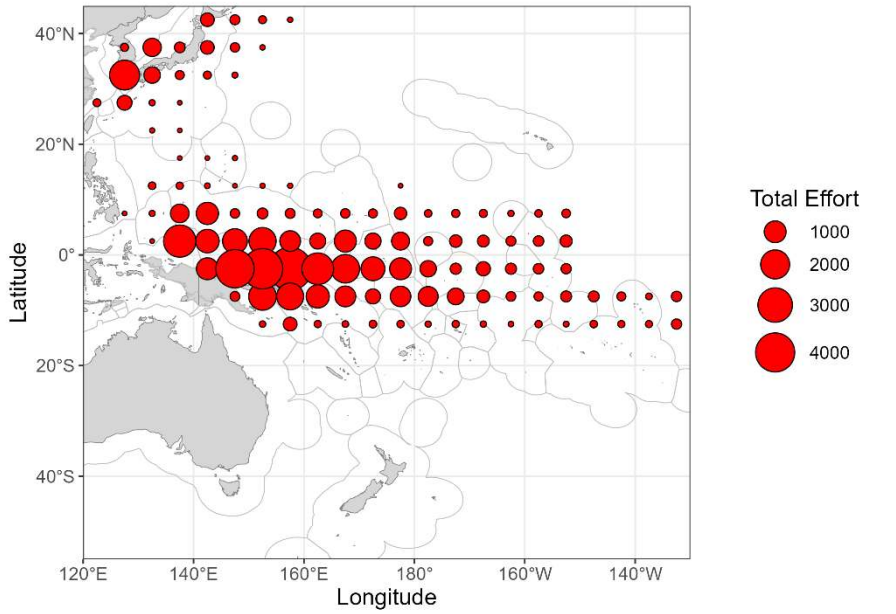
2019 – Longline effort

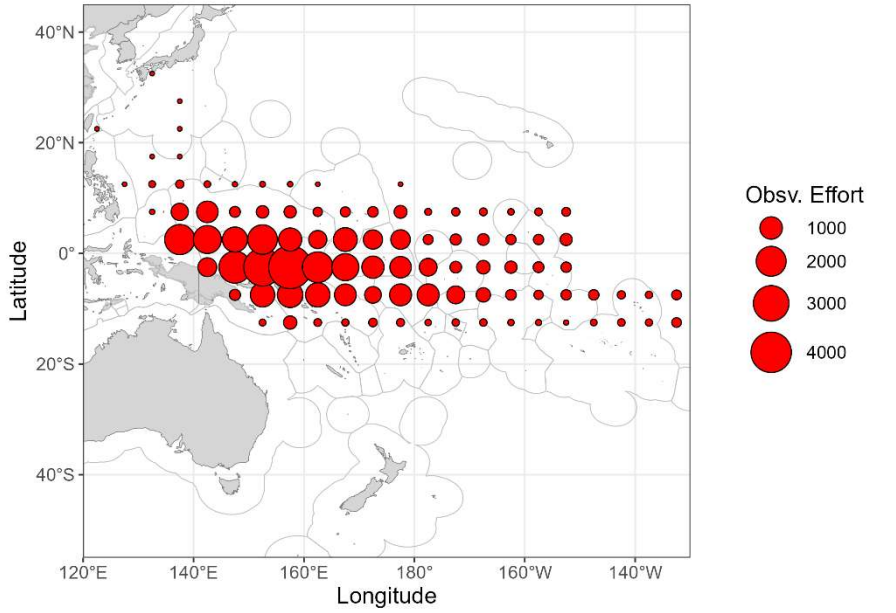


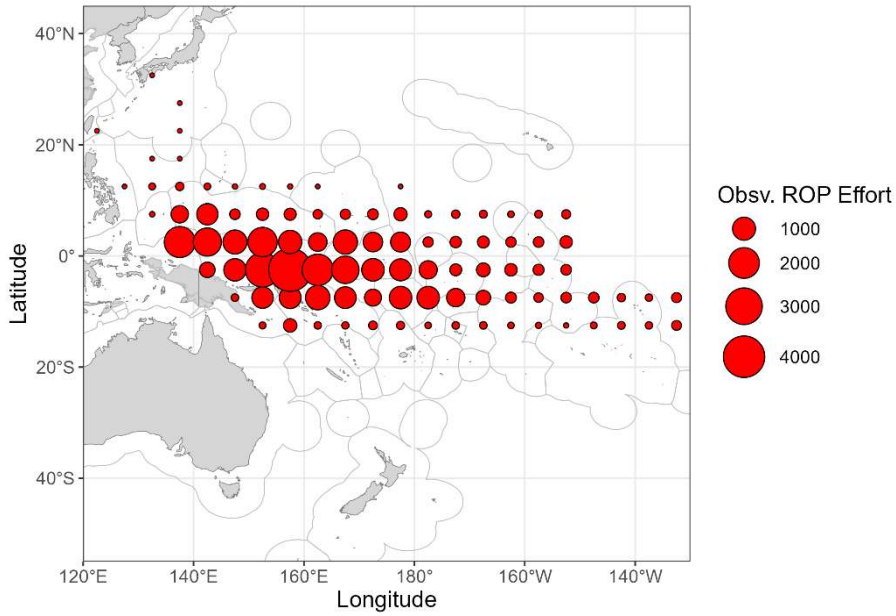
2018 – Longline effort



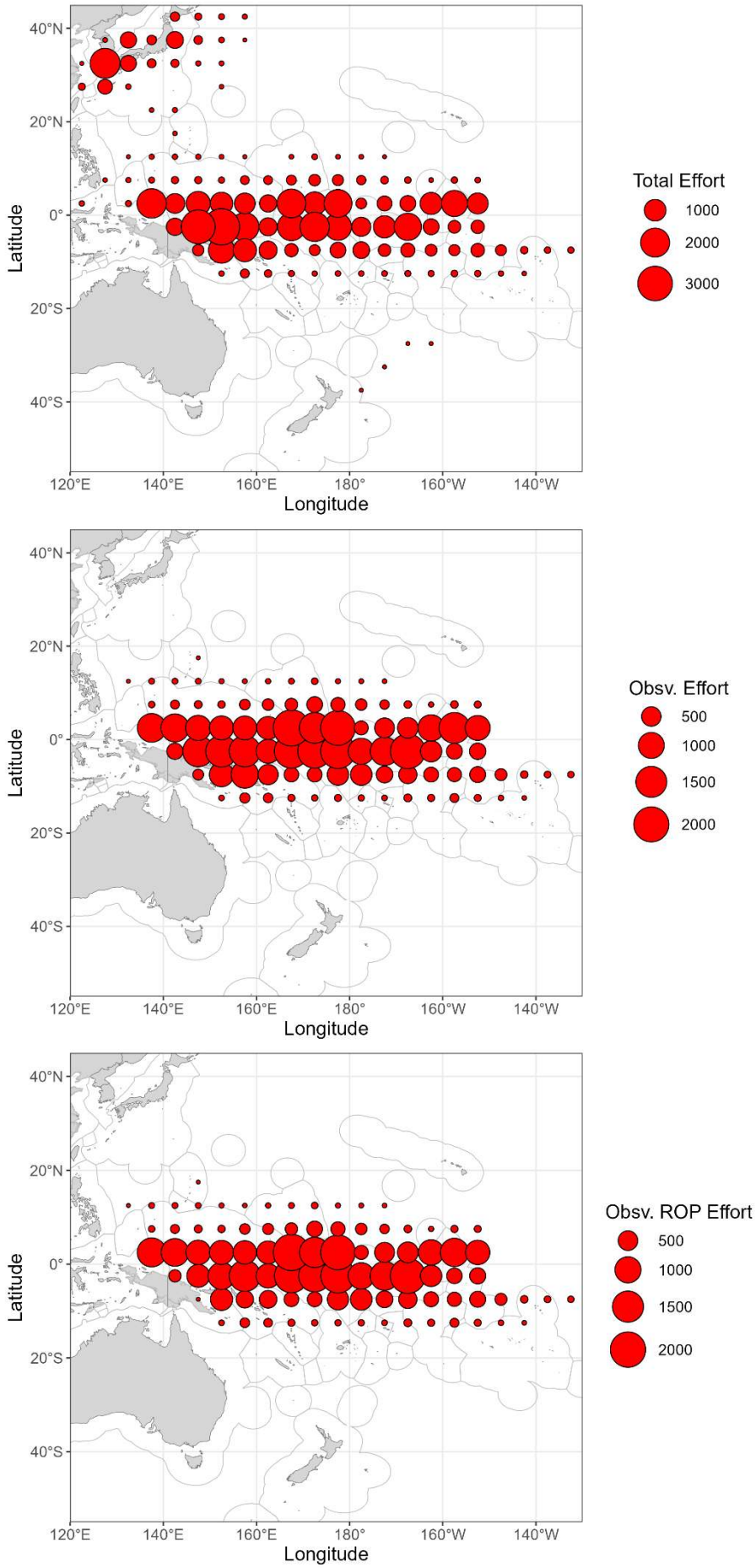
2017 – Longline effort



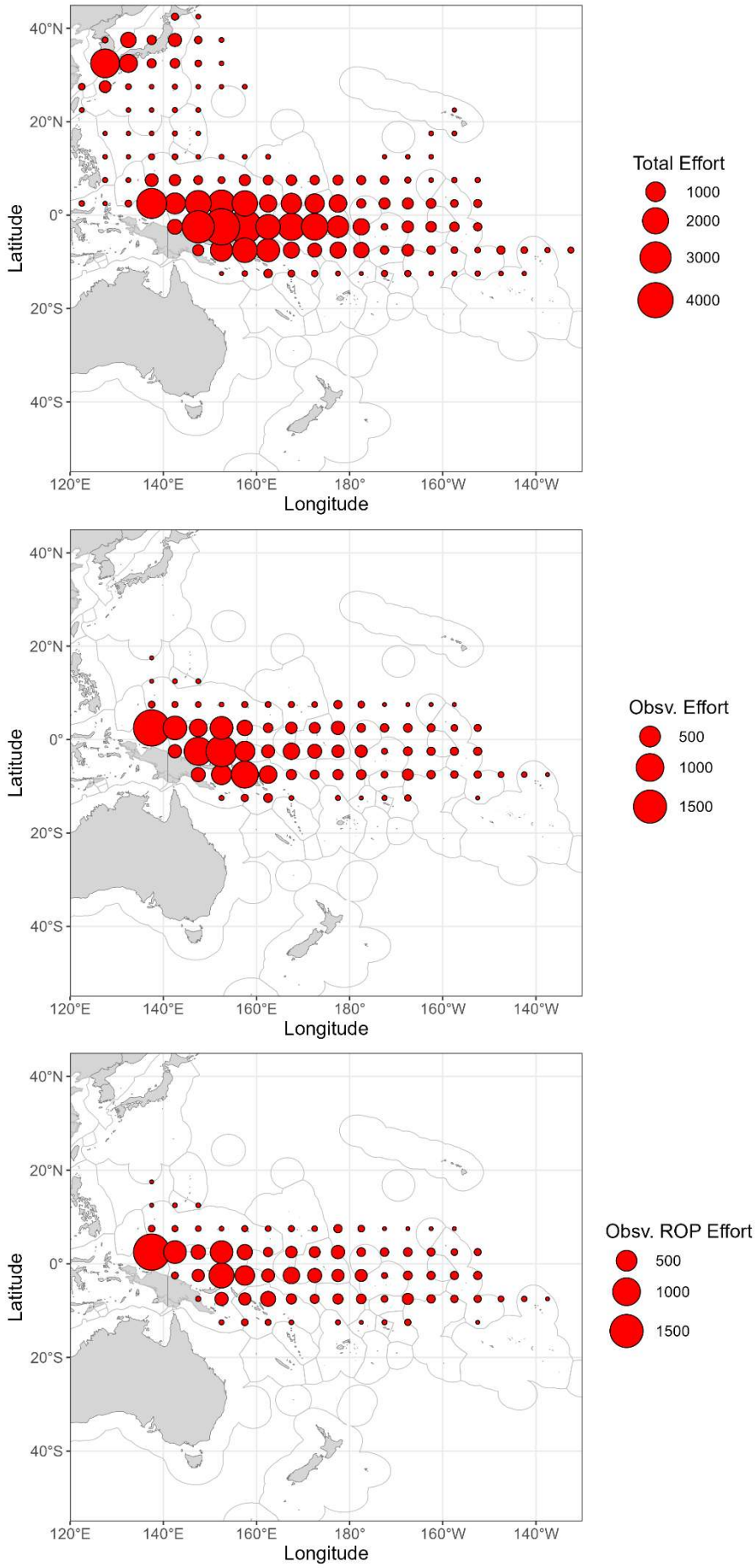




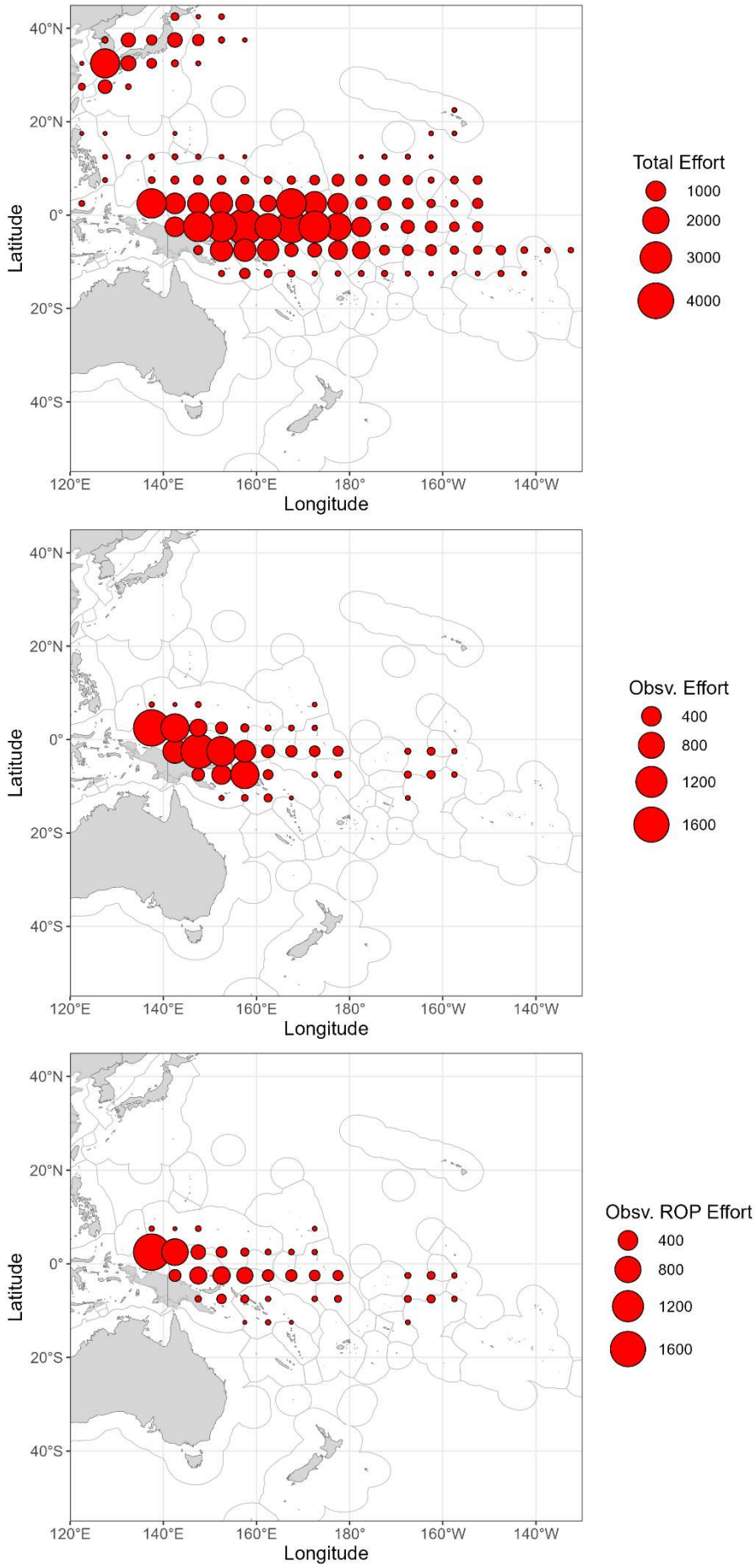
2024 – Purse Seine effort



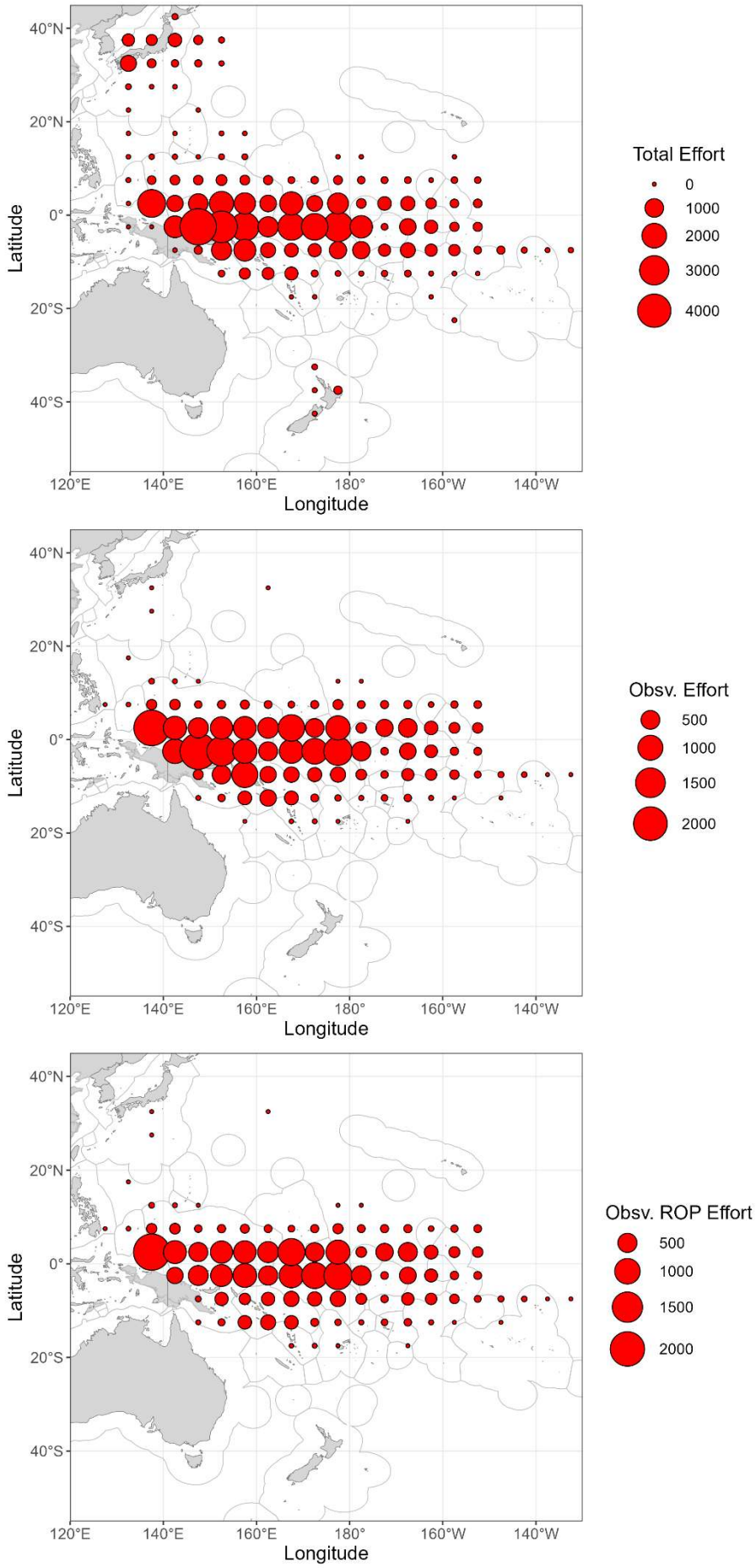
2023 – Purse seine effort



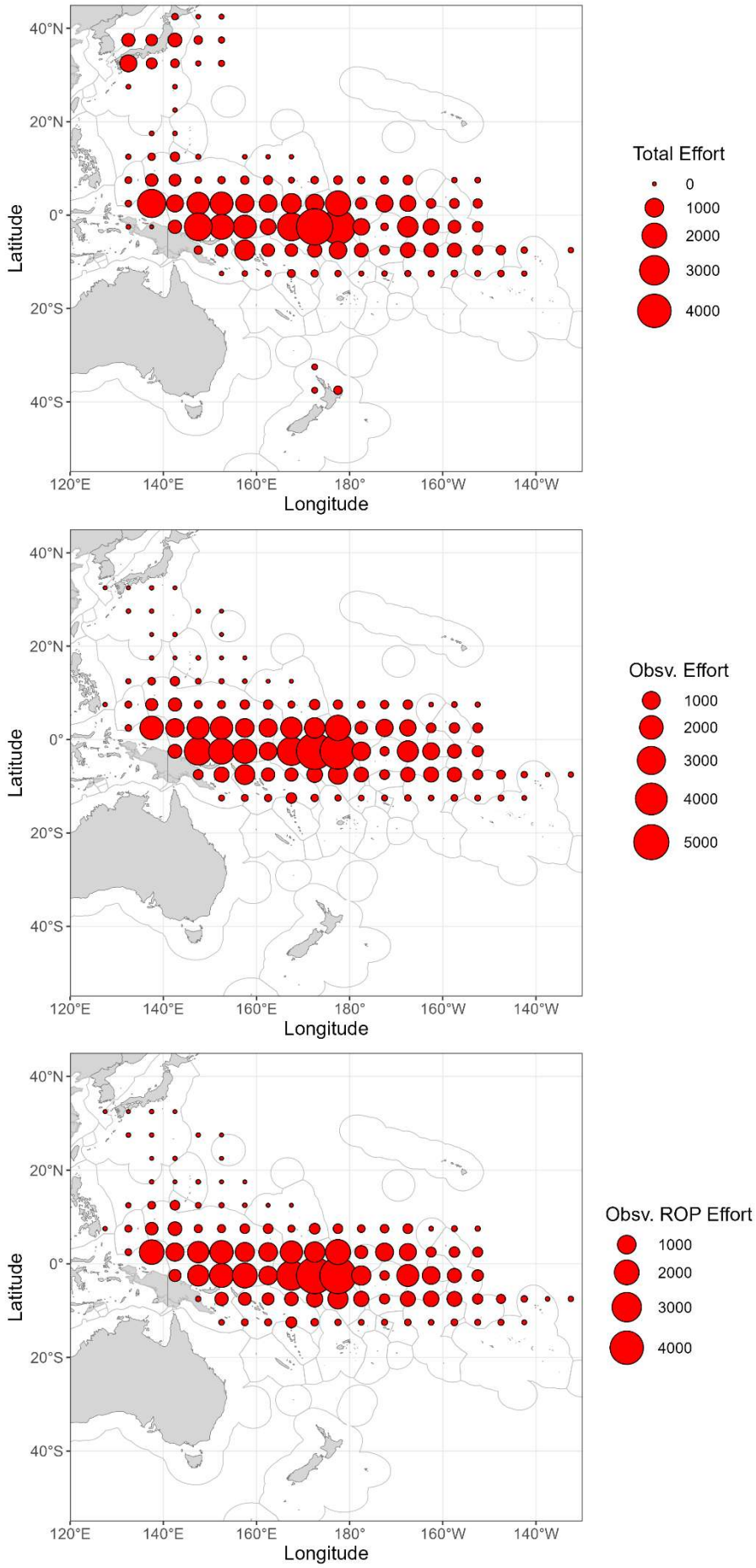
2022 – Purse seine effort



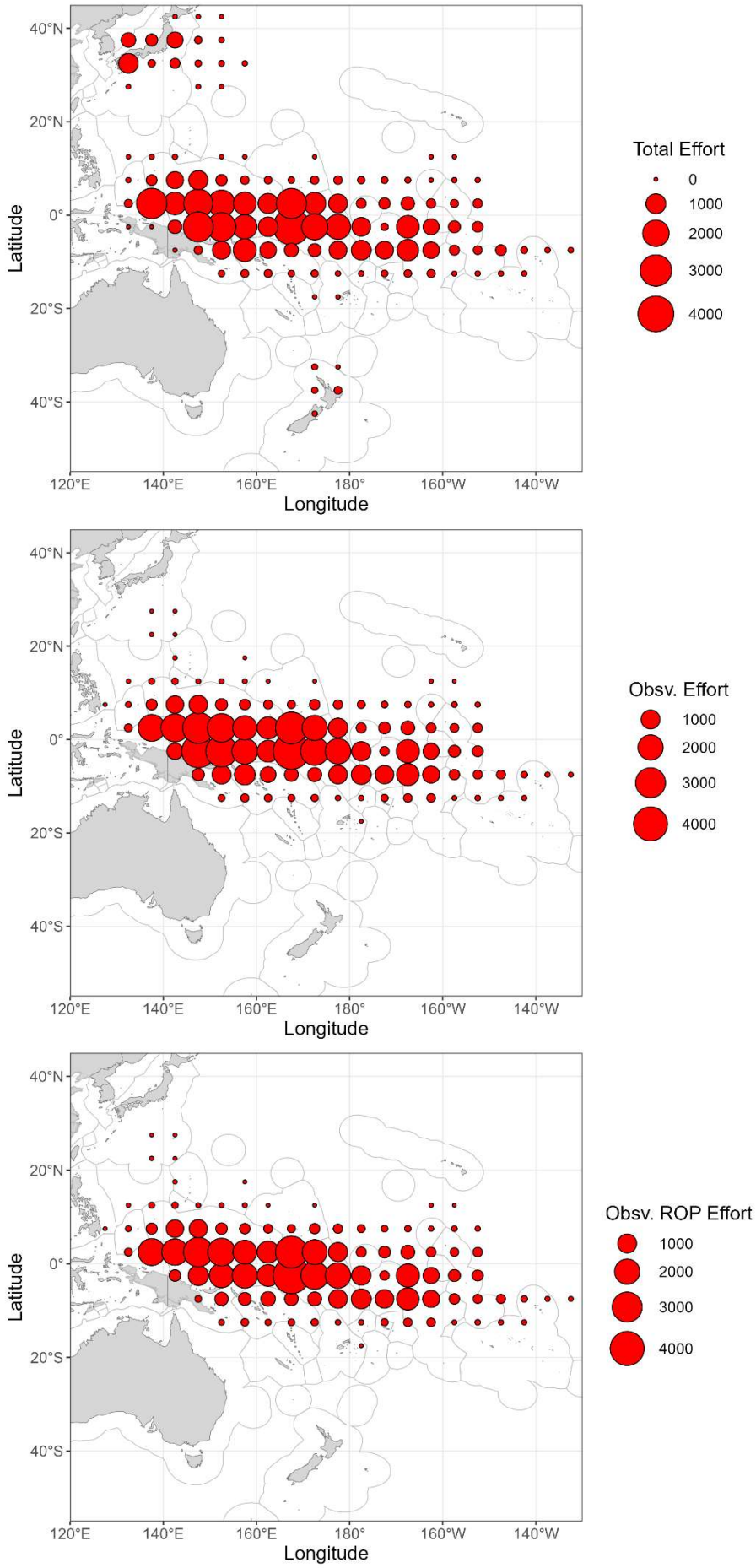
2021 – Purse seine effort



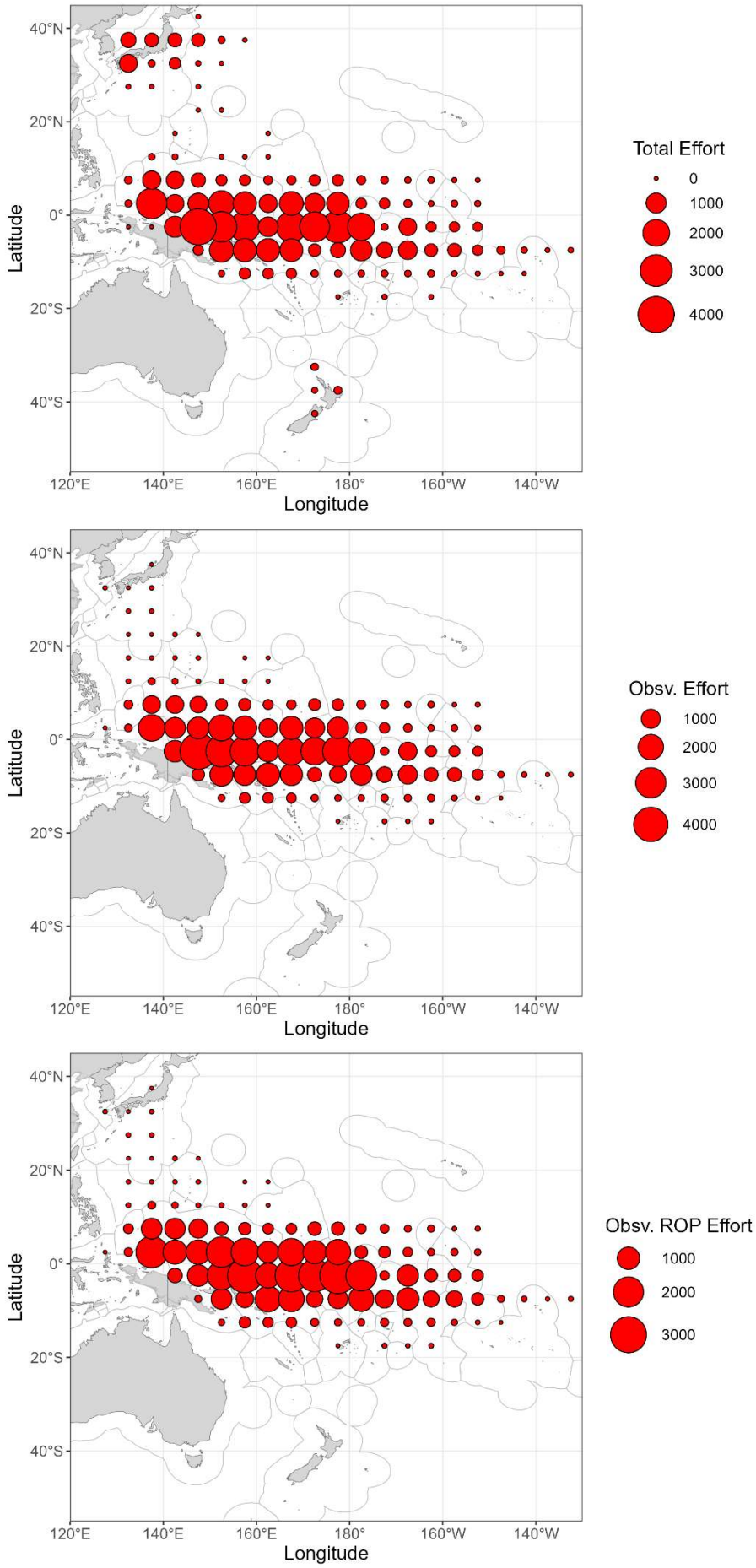
2020 – Purse seine effort



2019 – Purse seine effort



2018 – Purse seine effort



2017 – Purse seine effort

ANNEX 2 – Tables showing Longline and Purse seine Observer coverage by area

Longline Effort (1000s of hooks) Summary – 2024

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. LL subtropical north of 20N	1,057,840	63,539	6.0%	63,528	6.0%
2. Longline tropical 20N - 10S	3,052,837	208,145	6.8%	195,365	6.4%
3. Longline 10S to 25S	2,634,995	123,680	4.7%	93,076	3.5%
4. Longline 25S to 30S	218,817	26,389	12.1%	26,389	12.1%
5. Longline south of 30S	329,858	9,746	3.0%	8,792	2.7%
Total	**7,294,347**	**431,499**	**5.9%**	**387,150**	**5.3%**

Longline Effort (1000s of hooks) Summary – 2023

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. LL subtropical north of 20N	1,073,027	69,578	6.5%	69,578	6.5%
2. Longline tropical 20N - 10S	2,504,603	191,804	7.7%	182,115	7.3%
3. Longline 10S to 25S	2,282,302	139,158	6.1%	95,086	4.2%
4. Longline 25S to 30S	206,777	9,047	4.4%	8,285	4.0%
5. Longline south of 30S	410,196	12,897	3.1%	12,213	3.0%
Total	**6,476,905**	**422,484**	**6.5%**	**367,277**	**5.7%**

Longline Effort (1000s of hooks) Summary – 2022

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. LL subtropical north of 20N	896,475	53,092	5.9%	53,092	5.9%
2. Longline tropical 20N - 10S	2,633,084	184,638	7.0%	184,638	7.0%
3. Longline 10S to 25S	2,624,405	119,376	4.5%	91,517	3.5%
4. Longline 25S to 30S	193,205	2,821	1.5%	1,725	0.9%
5. Longline south of 30S	362,258	4,455	1.2%	3,946	1.1%
Total	**6,709,427**	**364,382**	**5.4%**	**334,918**	**5.0%**

Longline Effort (1000s of hooks) Summary – 2021

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. LL subtropical north of 20N	875,939	64,766	7.4%	64,766	7.4%
2. Longline tropical 20N - 10S	2,458,323	156,861	6.4%	153,049	6.2%
3. Longline 10S to 25S	2,645,300	93,577	3.5%	61,768	2.3%
4. Longline 25S to 30S	186,506	7,405	4.0%	7,405	4.0%
5. Longline south of 30S	521,913	6,640	1.3%	6,640	1.3%
Total	**6,687,981**	**329,249**	**4.9%**	**293,628**	**4.4%**

Longline Effort (1000s of hooks) Summary – 2020

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. LL subtropical north of 20N	1,063,094	60,448	5.7%	60,448	5.7%
2. Longline tropical 20N - 10S	2,503,379	121,349	4.8%	117,992	4.7%
3. Longline 10S to 25S	2,854,707	155,446	5.4%	111,225	3.9%
4. Longline 25S to 30S	249,173	17,439	7.0%	17,439	7.0%
5. Longline south of 30S	687,589	12,538	1.8%	12,538	1.8%
Total	**7,357,942**	**367,220**	**5.0%**	**319,642**	**4.3%**

Longline Effort (1000s of hooks) Summary – 2019

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. LL subtropical north of 20N	1,202,299	80,179	6.7%	80,179	6.7%
2. Longline tropical 20N - 10S	4,197,183	185,416	4.4%	161,166	3.8%
3. Longline 10S to 25S	3,400,047	167,452	4.9%	122,823	3.6%
4. Longline 25S to 30S	251,998	21,327	8.5%	21,327	8.5%
5. Longline south of 30S	553,042	20,478	3.7%	20,478	3.7%
Total	**9,604,569**	**474,852**	**4.9%**	**405,973**	**4.2%**

Longline Effort (1000s of hooks) Summary – 2018

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. LL subtropical north of 20N	1,084,417	89,673	8.3%	89,673	8.3%
2. Longline tropical 20N - 10S	4,820,606	191,131	4.0%	173,542	3.6%
3. Longline 10S to 25S	2,697,047	150,738	5.6%	136,513	5.1%
4. Longline 25S to 30S	238,405	18,149	7.6%	18,149	7.6%
5. Longline south of 30S	629,056	12,216	1.9%	12,216	1.9%
Total	**9,469,531**	**461,907**	**4.9%**	**430,093**	**4.5%**

***Total effort - Source: LONGLINE aggregated and raised Catch/Effort database, in thousand hooks**

Purse Seine Effort (days) Summary – 2024

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. Purse Seine N of 20N	993	4	0.4%	4	0.4%
2. Purse Seine 20N - 20S	40,599	35,960	88.6%	32,043	78.9%
3. Purse Seine S of 20S	0	0		0	
Total	**41,592**	**35,964**	**86.5%**	**32,047**	**77.1%**

Purse Seine Effort (days) Summary – 2023

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. Purse Seine N of 20N	1,012	0	0.0%	0	0.0%
2. Purse Seine 20N - 20S	35,138	35,138	100.0%	31,667	90.1%
3. Purse Seine S of 20S	0	0		0	
Total	**36,150**	**35,138**	**97.2%**	**31,667**	**87.6%**

Purse Seine Effort (days) Summary – 2022

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. Purse Seine N of 20N	846	0	0.0%	0	0.0%
2. Purse Seine 20N - 20S	40,658	11,071	27.2%	8,219	20.2%
3. Purse Seine S of 20S	0	0		0	
Total	**41,505**	**11,071**	**26.7%**	**8,219**	**19.8%**

Purse Seine Effort (days) Summary – 2021

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. Purse Seine N of 20N	1,088	0	0.0%	0	0.0%
2. Purse Seine 20N - 20S	40,393	10,003	24.8%	6,041	15.0%
3. Purse Seine S of 20S	0	0		0	
Total	**41,481**	**10,003**	**24.1%**	**6,041**	**14.6%**

Purse Seine Effort (days) Summary – 2020

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. Purse Seine N of 20N	968	3	0.3%	3	0.3%
2. Purse Seine 20N - 20S	40,401	23,632	58.5%	18,906	46.8%
3. Purse Seine S of 20S	59	0	0.0%	0	0.0%
Total	**41,428**	**23,635**	**57.1%**	**18,909**	**45.6%**

Purse Seine Effort (days) Summary – 2019

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. Purse Seine N of 20N	1,212	12	1.0%	12	1.0%
2. Purse Seine 20N - 20S	48,531	48,531	100.0%	43,104	88.8%
3. Purse Seine S of 20S	128	0	0.0%	0	0.0%
Total	**49,870**	**48,543**	**97.3%**	**43,116**	**86.5%**

Purse Seine Effort (days) Summary – 2018

Location	Total effort	Total obsv. effort (SPC data)	% to total	Total ROP obsv. effort (WCPFC data)	% to total
1. Purse Seine N of 20N	1,155	5	0.4%	5	0.4%
2. Purse Seine 20N - 20S	52,739	52,739	100.0%	45,643	86.5%
3. Purse Seine S of 20S	112	0	0.0%	0	0.0%
Total	**54,006**	**52,744**	**97.7%**	**45,648**	**84.5%**

***Total effort - Source: PURSE SEINE aggregated and raised Catch/Effort database**

Declaration of generative AI and AI-assisted technologies in the SC paper preparation process

Generative AI tool GEMINI was used to assist with code development and editing text in this document. All analytical choices, model specifications, diagnostic interpretations, and conclusions are those of the authors, who reviewed and verified all AI-assisted output. The methodology, model implementation, and the scientific conclusions are the responsibility of the authors.

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