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Status of observer data management

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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 Nineteenth Regular Session of the Commission (27 November–4 December 2022; Anon., 2023) reconfirmed the Commission's support for Regional Observer Programme (ROP) data processing with its inclusion in the indicative budget for the period 2023-2025.

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[1], which have been designated as the highest priority for processing since 2010. However, the WCPFC requirement for 5% observer coverage in the longline fishery (established in 2012) has resulted in increased submission of observer longline data in recent years and 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. SPC-OFP has also been provided with some data generated from Electronic Monitoring (EM) initiatives undertaken by Fiji, French Polynesia and the Federated States of Micronesia 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 (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[2]. A breakdown of data generated from EM initiatives has been included in this paper (Table 8).

6. 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.

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

[1] 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.*

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

2. Activities over the past twelve months

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

The major developments for the Tufman 2 (Observer component) have now been completed, although there is regular, ongoing maintenance of this system. Enhancements of the Electronic Reporting (ER) system (OLLO) for observers active in the South Pacific albacore longline fishery was one of the features of work for the SPC development team during the past year. OLLO was used at sea in New Caledonia, Tonga, Papua New Guinea, Solomon Islands and French Polynesia and was also trialled in Fiji during the last twelve months. Some of these programmes have now turned paperless and only use ER for their observer data reporting.

9. 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 handling the data collected through OLLO. This module was released toward the end of 2024 and is now ready to use. Programmes already using OLLO are expected to start using this new module later this year. Trainings on how to use the new module have been delivered to several programmes across the region. French translations for New Caledonia's and French Polynesia's observer programmes were recently implemented. These two programmes undertook a PIRFO 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.

10. Remote (and some direct) 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).

11. In 2022, several SPC data experts began developing the JSON formatted DCC Longline EM Minimum Data Fields Standard[3]. 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.

12. Several countries (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 countries (up to five times faster). 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. As at the time of writing this paper, all the recent observer data submissions have now been loaded. 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.

13. "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 in preparation of the WCPFC annual reports Part 1 and 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.

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

14. In 2023 and 2024, SPC received observer transshipment reports covering the period from 2017 to 2024. To effectively manage these data, SPC developed a data entry module within Tufman2. 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 Tufman2. The details can be found in Table 9 of this document.

15. SPC has been generating many extracts to support the requirements of the routine MSCs audits. To optimize and facilitate access to the data, SPC has developed reports available through TufmanReports, 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.

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

16. Table 1 shows the status of observer data received and entered by SPC as of July 2025. 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 2024, 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 the data provided; this allows a comparison to the coverage as 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.

17. Pacific Island observers and programmes generate most of the observer data used by the Commission and Table 7 provides an indication of the extent of data generated in recent years. There has also been a significant amount of data generated from EM, and an attempt to quantify these data has been made in Table 8.

18. 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 each factor], 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

19. Provisions of purse seine observer data from 2012–2023 have been described in previous versions of this paper.

20. Observer data for an estimated 68% (1653 trips out of 2439 trips according to VMS data) of observer purse seine trips conducted during 2024 have been received at SPC at the time of writing this paper. The 2024 observer data received represents 95% of the trips with known observer placements (1732 trips).

21. A total of 58% (955 trips) of the observer data received at SPC for 2024 observer activities have now been entered. SPC employs a strategy of processing the most recent observer data (in this case 2024 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 2024 (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 2024 data entry has been achieved (i.e., resolving the outstanding issues in trip data already received and working with observer programmes in regard to the submission of trips not yet received). For the 2024 purse seine trips received at SPC, only 2 of the trips have problems awaiting to be resolved, which is, so far, a significant improvement on previous years.

22. The breakdown of processed purse-seine observer data by fleet (Table 2) shows that the coverage of 2024 observer data submitted to SPC is generally high, with respect to known observer placements.

23. 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 2023 and 2024, 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.

24. 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 2024 and received by SPC so far, showed minimal problems.

25. 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 "without observer coverage" 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.

26. 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.

27. Figure 2 provides an indication of the spatial coverage of the purse seine observer data for 2024, 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

28. 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 2023 and 2024, respectively.

29. 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.

30. Tables 5 and 6 provide a breakdown of all longline observer data (ROP and non-ROP) provided to the WCPFC Science Service Provider for Commission work, covering 2023 and 2024, respectively. These tables use the common longline effort metric (hooks) and indicate that overall coverage was 7.1% and 6.1% (respectively for 2023 and 2024) according to data provisions to date. Due to the impacts of COVID-19, it is unlikely that the longline observer coverage for 2022 will exceed the required 5%.

31. Figures 3 and 4 provide an indication of the spatial coverage of all longline observer data (ROP and non-ROP) provided for 2023 and 2024, respectively. Spatial coverage of longline observer data has improved in recent years.

32. Table 9 provides a breakdown of the transhipment observer data processed at SPC. These data were received and processed in 2024 and include transhipments for the period 2017-2024.

3.3 Contribution of Pacific Island observer programmes

33. Table 7 provides a breakdown of observer data collected by each Pacific Island country (PIC) observer programme for 2023 and 2024. For purse seine, the PIC observer data currently cover 55.6% of the tropical WCPFC fishery (based on total tuna catch estimates for the tropical fishery) for 2023, and 55.7% for 2024. For longline, the PIC observer data currently covers 2.61% and 2.01% of the fishery, respectively for 2023 and 2024, based on total WCPFC tuna catch estimates.

4. References

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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.

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Williams, P.G, I. Tuiloma & A. Panizza. 2017. Status of ROP Data Management. SC13 ST-IP-02. Thirteenth Regular Session of the Scientific Committee of the WCPFC (SC13). Rarotonga, Cook Islands. 7–19 August 2017.

Williams, P.G. 2023. Scientific Data to be provided to the Commission. SC19 ST-WP-01. Nineteenth Regular Session of the Scientific Committee of the WCPFC (SC19). Koror, Palau 16–24 August 2023.

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 2023 to December 2023, most of the data entry was from trips conducted in 2022 and 2023. Data entry for early 2023 is lower than usual due to a lack of available observer workbooks. Following the implementation of 100% observer coverage in January 2023, SPC only began receiving observer workbooks for that year around the end of the second quarter.

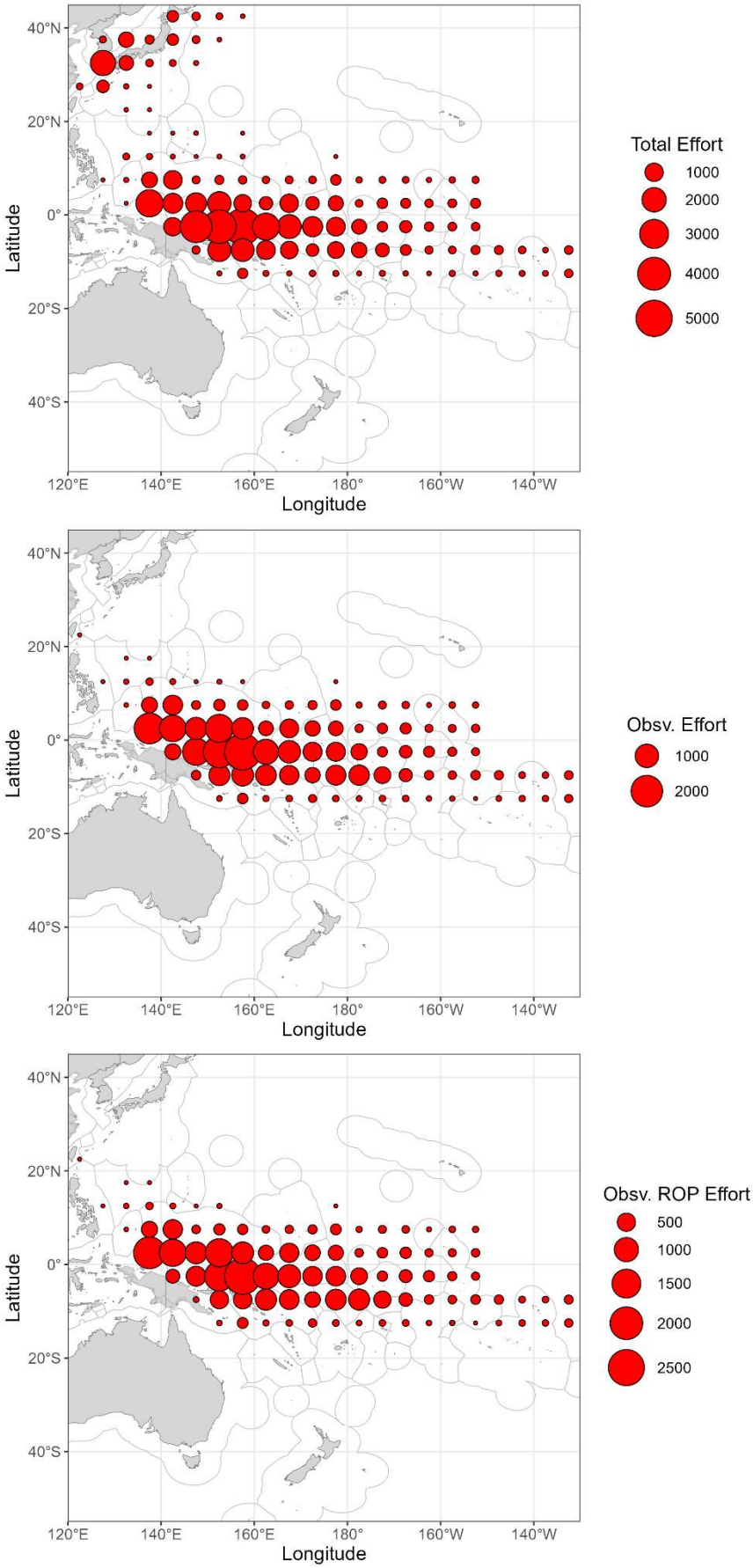


Figure 2. Distribution of purse seine effort (days; top), observed effort (days; middle) and observer ROP effort (days; bottom) in the WCPFC Area for 2024. A day of effort includes fishing and searching. (These data exclude Indonesia, Philippines and Vietnam domestic fisheries)

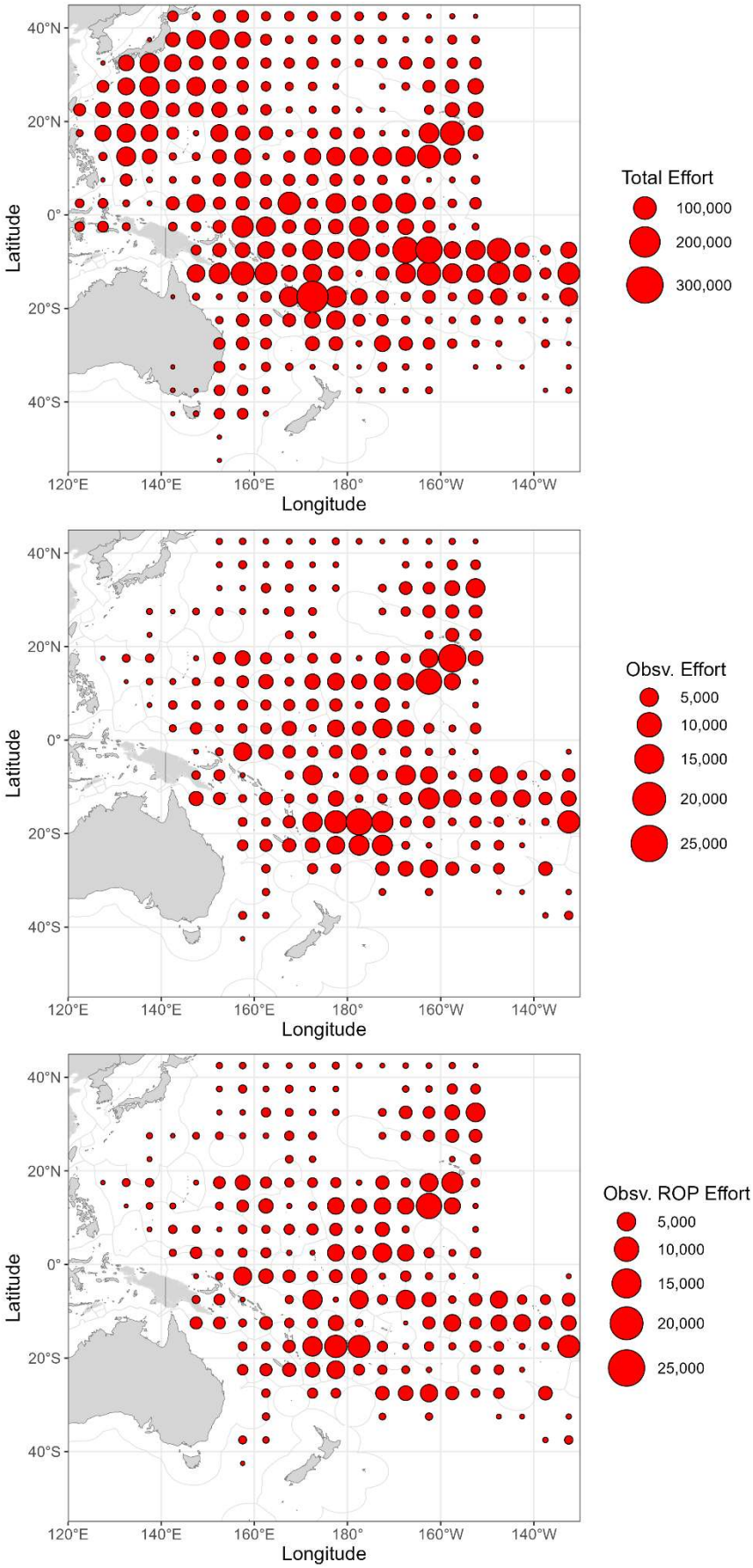


Figure 3. Distribution of longline effort (100 hooks; top), observer effort (100 hooks; middle) and observed ROP effort (100 hooks; bottom) in the WCPFC Area for 2024.

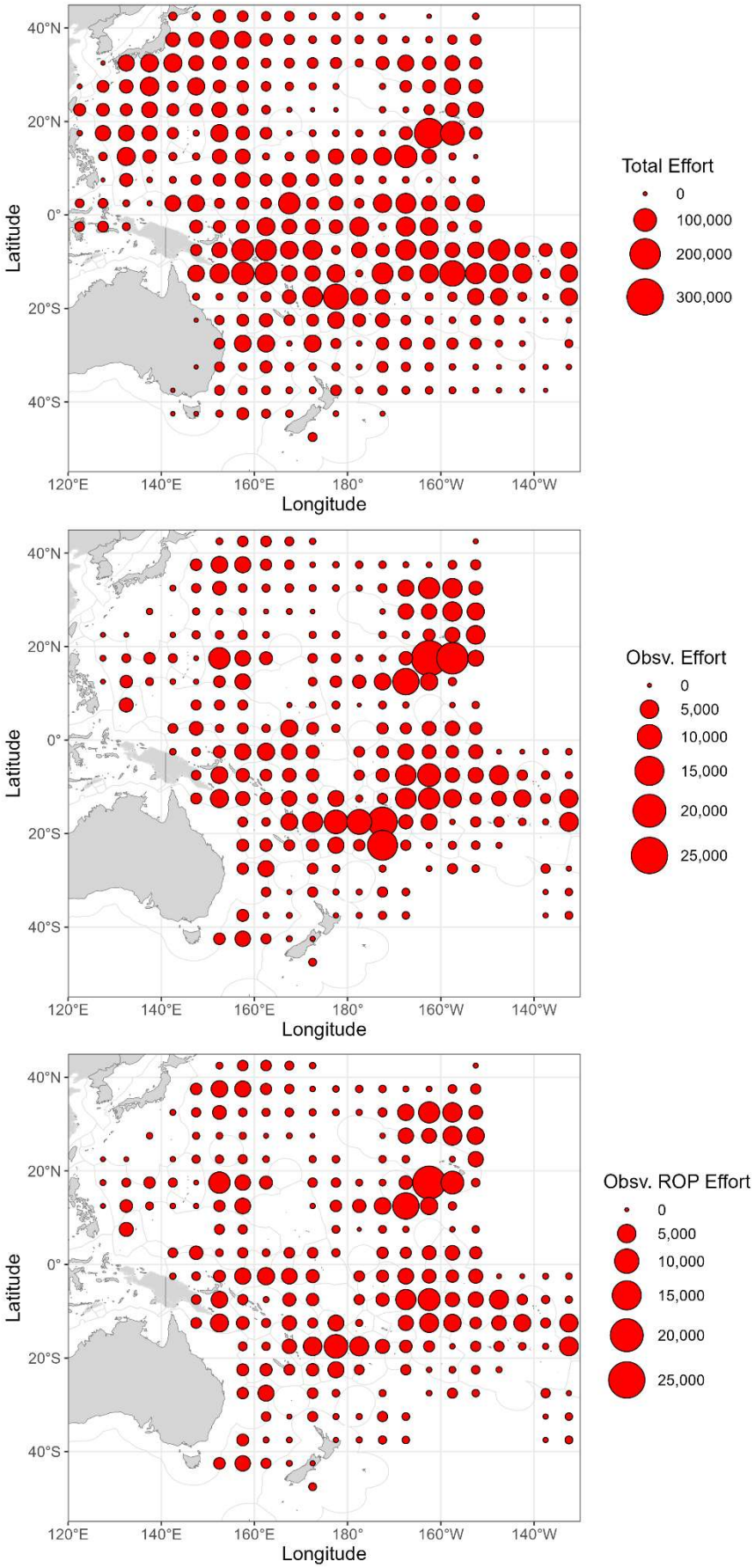


Figure 4. Distribution of longline effort (100 hooks; top), observer effort (100 hooks; middle) and observed ROP effort (100 hooks; bottom) in the WCPFC Area for 2023.

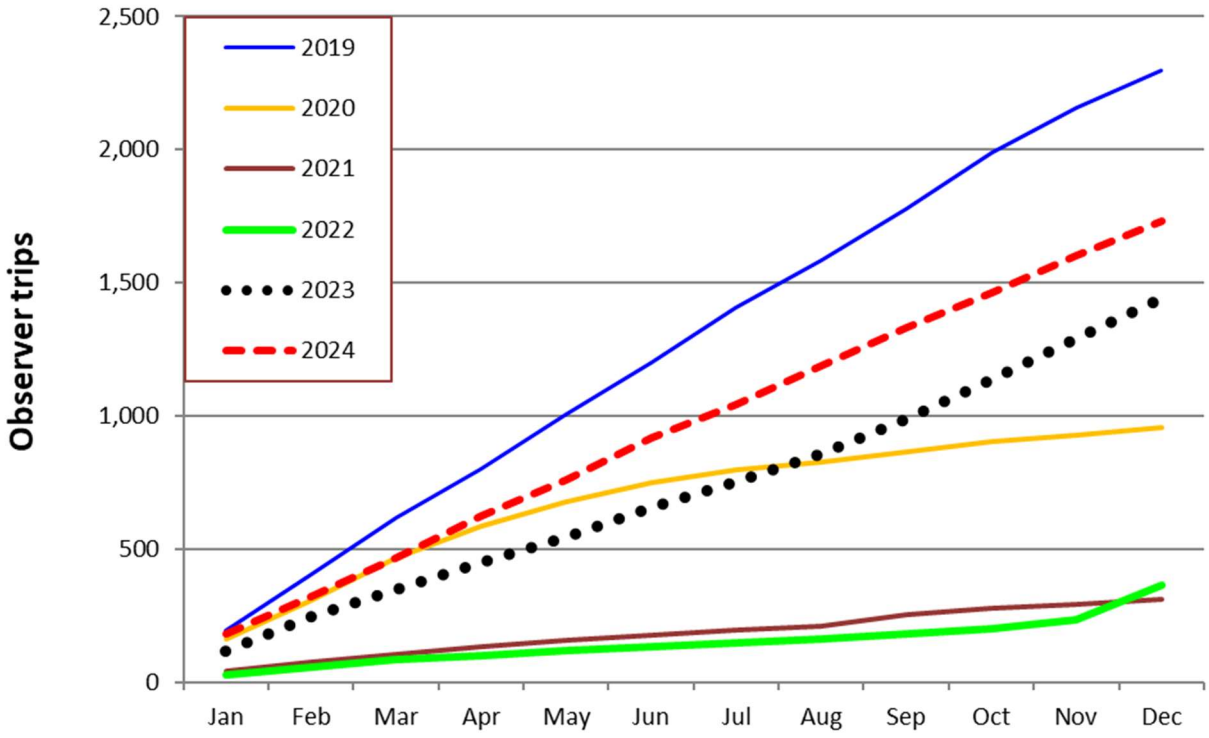


Figure 5. Cumulative monthly purse seine observer trips conducted in the WCPFC Area for 2019–2024 (based on data received and advice on observer placements).

TABLES

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

As at July 2025																		
YEAR	1. Estimated Purse seine TRIPS	2. TRIPS without observer coverage	3. TRIPS with known placements		4. TRIP data submitted		5. TRIP data processed				6. Problems awaiting resolution			7. TRIPS not yet sent by Obsv. Progs.		8. TRIP data provided to WCPFC	
			Trips	%	Trips	%	Trips	% of Estimated trips	% of total available trips	% of trips received without problems	Trips	% of total available trips	% of received	Trips	% of total	Trips	% of data processed
2020	2,077	1,120	957	46%	859	90%	855	41%	100%	100%	3	0%	0%	98	10%	610	71%
2021	2,085	1,776	309	15%	309	100%	309	15%	100%	100%	0	0%	0%	0	0%	106	34%
2022	2,172	1,806	366	17%	347	95%	345	16%	99%	99%	0	0%	0%	19	5%	177	51%
2023	2,119	679	1,440	68%	1,372	95%	1,348	64%	98%	99%	4	0%	0%	68	5%	1162	86%
2024	2,439	707	1,732	71%	1,653	95%	955	39%	58%	58%	2	0%	0%	79	5%	816	85%

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 year – 2023).
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. 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 problems**" in **CATEGORY 5** whereby the outstanding data entry for 2024/2023 has higher priority than outstanding trips data entry in 2021/2022, for example. Every effort has been made to resolve the backlog from previous years.
5. **CATEGORY 7** is essentially the difference between **CATEGORY 3** and **CATEGORY 4**.
6. **CATEGORY 8** represents the number of trips included in the WCPFC subset's database.
7. 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.

2020										
FLEET	1. Estimated Purse seine TRIPS	2. TRIPS without observer coverage	3. TRIPS with known placements	4. TRIP data submitted		5. TRIP data processed			6. TRIP data provided to WCPFC	
				Trips	%	Trips	% of total available trips	% of total trips recvd	Trips	% of data processed
Cook Islands	2	1	1	1	100%	1	100%	100%	1	100%
China	1	1	0	0	0%	0	0%	0%	0	0%
Ecuador	33	24	9	9	100%	9	100%	100%	9	100%
European Union	10	8	2	2	100%	2	100%	100%	2	100%
FSM	238	148	90	76	84%	76	84%	100%	72	95%
Japan	200	158	42	41	98%	41	98%	100%	41	100%
Kiribati	215	130	85	84	99%	82	96%	98%	77	94%
Korea	175	68	107	96	90%	96	90%	100%	93	97%
Marshall Is.	106	76	30	23	77%	23	77%	100%	23	100%
Nauru	111	67	44	39	89%	39	89%	100%	39	100%
New Zealand	8	8	0	0	0%	0	0%	0%	0	0%
PNG	398	177	221	214	97%	214	97%	100%	46	21%
Philippines	55	0	55	55	100%	55	100%	100%	49	89%
Solomon Islands	81	13	68	64	94%	63	93%	98%	7	11%
El Salvador	10	4	6	0	0%	0	0%	0%	0	0%
Tuvalu	11	5	6	6	100%	5	83%	83%	5	100%
Chinese Taipei	237	131	106	65	61%	65	61%	100%	62	95%
USA	139	80	59	59	100%	59	100%	100%	59	100%
Vanuatu	47	21	26	25	96%	25	96%	100%	25	100%
	2077	1,120	957	859	90%	855	89%	100%	610	71%

2021										
FLEET	1. Estimated Purse seine TRIPS	2. TRIPS without observer coverage	3. TRIPS with known placements	4. TRIP data submitted		5. TRIP data processed			6. TRIP data provided to WCPFC	
				Trips	%	Trips	% of total available trips	% of total trips recvd	Trips	% of data processed
Cook Islands	3	3	0	0	0%	0	0%	0%	0	0%
China	0	0	0	0	0%	0	0%	0%	0	0%
Ecuador	27	27	0	0	0%	0	0%	0%	0	0%
European Union	16	14	2	2	100%	2	100%	100%	2	100%
FSM	224	224	0	0	0%	0	0%	0%	0	0%
Japan	201	201	0	0	0%	0	0%	0%	0	0%
Kiribati	227	227	0	0	0%	0	0%	0%	0	0%
Korea	184	184	0	0	0%	0	0%	0%	0	0%
Marshall Is.	110	110	0	0	0%	0	0%	0%	0	0%
Nauru	151	151	0	0	0%	0	0%	0%	0	0%
New Zealand	5	5	0	0	0%	0	0%	0%	0	0%
PNG	367	172	195	195	100%	195	100%	100%	54	28%
Philippines	50	0	50	50	100%	50	100%	100%	50	100%
Solomon Islands	80	18	62	62	100%	62	100%	100%	0	0%
El Salvador	11	11	0	0	0%	0	0%	0%	0	0%
Tuvalu	31	31	0	0	0%	0	0%	0%	0	0%
Chinese Taipei	281	281	0	0	0%	0	0%	0%	0	0%
USA	62	62	0	0	0%	0	0%	0%	0	0%
Vanuatu	55	55	0	0	0%	0	0%	0%	0	0%
	2085	1,776	309	309	100%	309	100%	100%	106	34%

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

2022										
FLEET	1. Estimated Purse seine TRIPS	2. TRIPS without observer coverage	3. TRIPS with known placements	4. TRIP data submitted		5. TRIP data processed			6. TRIP data provided to WCPFC	
				Trips	%	Trips	% of total available trips	% of total trips recvd	Trips	% of data processed
Cook Islands	6	6	0	0	0%	0	0%	0%	0	0%
China	11	11	0	0	0%	0	0%	0%	0	0%
Ecuador	29	27	2	2	100%	2	100%	100%	2	100%
European Union	26	26	0	0	0%	0	0%	0%	0	0%
FSM	218	199	19	18	95%	17	89%	94%	16	94%
Japan	182	163	19	19	100%	19	100%	100%	19	100%
Kiribati	262	245	17	17	100%	17	100%	100%	17	100%
Korea	223	211	12	12	100%	12	100%	100%	12	100%
Marshall Is.	107	99	8	8	100%	8	100%	100%	8	100%
Nauru	140	125	15	15	100%	14	93%	93%	14	100%
New Zealand	2	2	0	0	0%	0	0%	0%	0	0%
PNG	352	223	129	128	99%	128	99%	100%	17	13%
Philippines	44	0	44	43	98%	43	98%	100%	43	100%
Solomon Islands	95	26	69	61	88%	61	88%	100%	6	10%
El Salvador	12	11	1	1	100%	1	100%	100%	1	100%
Tuvalu	54	50	4	4	100%	4	100%	100%	3	75%
Chinese Taipei	257	242	15	7	47%	7	47%	100%	7	100%
USA	73	63	10	10	100%	10	100%	100%	10	100%
Vanuatu	79	77	2	2	100%	2	100%	100%	2	100%
	2172	1,806	366	347	95%	345	94%	99%	177	51%

2023										
FLEET	1. Estimated Purse seine TRIPS	2. TRIPS without observer coverage	3. TRIPS with known placements	4. TRIP data submitted		5. TRIP data processed			6. TRIP data provided to WCPFC	
				Trips	%	Trips	% of total available trips	% of total trips recvd	Trips	% of data processed
Cook Islands	4	0	4	4	100%	4	100%	100%	4	100%
China	20	15	5	5	100%	5	100%	100%	5	100%
Ecuador	30	24	6	6	100%	6	100%	100%	6	100%
European Union	26	15	11	11	100%	11	100%	100%	11	100%
FSM	212	1	211	211	100%	211	100%	100%	204	97%
Japan	180	135	45	45	100%	43	96%	96%	43	100%
Kiribati	300	88	212	212	100%	208	98%	98%	186	89%
Korea	240	37	203	187	92%	187	92%	100%	157	84%
Marshall Is.	99	1	98	96	98%	96	98%	100%	94	98%
Nauru	121	8	113	110	97%	110	97%	100%	109	99%
New Zealand	0	0	0	0	0%	0	0%	0%	0	0%
PNG	321	221	100	97	97%	87	87%	90%	7	8%
Philippines	34	0	34	34	100%	34	100%	100%	34	100%
Solomon Islands	95	21	74	68	92%	66	89%	97%	27	41%
El Salvador	10	6	4	4	100%	4	100%	100%	4	100%
Tuvalu	64	1	63	62	98%	62	98%	100%	60	97%
Chinese Taipei	227	73	154	119	77%	113	73%	95%	111	98%
USA	73	2	71	70	99%	70	99%	100%	70	100%
Vanuatu	63	31	32	31	97%	31	97%	100%	30	97%
	2119	679	1,440	1,372	95%	1,348	94%	98%	1162	86%

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

2024										
FLEET	1. Estimated Purse seine TRIPS	2. TRIPS without observer coverage	3. TRIPS with known placements	4. TRIP data submitted		5. TRIP data processed			6. TRIP data provided to WCPFC	
				Trips	%	Trips	% of total available trips	% of total trips recvd	Trips	% of data processed
Cook Islands	8	1	7	7	100%	7	100%	100%	7	100%
China	0	0	0	0	0%	0	0%	0%	0	0%
Ecuador	42	38	4	4	100%	2	50%	50%	2	100%
European Union	42	38	4	4	100%	4	100%	100%	4	100%
FSM	242	0	242	240	99%	141	58%	59%	134	95%
Japan	182	78	104	100	96%	66	63%	66%	64	97%
Kiribati	333	137	196	195	99%	111	57%	57%	109	98%
Korea	264	58	206	197	96%	100	49%	51%	95	95%
Marshall Is.	111	0	111	109	98%	64	58%	59%	61	95%
Nauru	113	0	113	112	99%	66	58%	59%	60	91%
New Zealand	0	0	0	0	0%	0	0%	0%	0	0%
PNG	448	218	230	221	96%	130	57%	59%	59	45%
Philippines	85	0	85	85	100%	66	78%	78%	50	76%
Solomon Islands	107	34	73	61	84%	32	44%	52%	11	34%
El Salvador	15	15	0	0	0%	0	0%	0%	0	0%
Tuvalu	58	0	58	58	100%	24	41%	41%	24	100%
Chinese Taipei	278	71	207	171	83%	101	49%	59%	95	94%
USA	87	16	71	69	97%	33	46%	48%	33	100%
Vanuatu	24	3	21	20	95%	8	38%	40%	8	100%
	2439	707	1,732	1,653	95%	955	55%	58%	816	85%

Table 3. Provisional 2023 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	No. of Hooks	85,367,312	8,967,442	10.5%	85,367,312	8,231,956	9.6%	3, 10, 11, 22
	Frozen								
COOK ISLANDS	Pacific Islands	Days at Sea	447	90	20.1%	447	90	20.1%	8
EUROPEAN UNION	Distant-water	No. of Trips	17	4	23.5%	17	4	23.5%	4, 10, 19
FSM	Pacific Islands	No. of Trips	–	–	–	–	–	–	26, 27
FIJI	Pacific Islands	No. of Trips	419	83	19.8%	419	83	19.8%	7
FRENCH POLYNESIA	Pacific Islands	Days at Sea	–	–	–	–	–	–	2
INDONESIA	Domestic	No. of Trips	–	–	–	–	–	–	2, 19, 21
JAPAN	Ice/Fresh, short-trip	Days fished	16,296	1,041	6.4%	16,296	1,041	6.4%	10, 18
	Frozen, long-trip	Days fished	7,182	446	6.2%	7,182	446	6.2%	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	23,044	2,431	10.5%	23,044	2,236	9.7%	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	Small longline – STLL	Days at Sea	67,059	5,928	8.8%	67,059	3,815	5.7%	10, 14
	Distant-water – DWLL	Days at Sea	14,722	2,685	18.2%	14,722	1,835	12.5%	10
USA	HAWAII/California-based	No. of Trips	1,303	277	21.3%	1,303	277	21.3%	6
	AMERICAN SAMOA	No. of Trips	–	–	–	–	–	–	2, 6
VANUATU	Pacific Islands and DW	No. of Trips	161	1	0.6%	161	1	0.6%	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-at-sea". 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 2023.
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 2023 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. 2023 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 2023 is DAYS AT SEA. Coverage of data submitted represents only activity in the WCPFC Area.
24. No activity in 20221by this CCM's longline fleet.
25. Represents the chartered vessels in this fleet; no vessels were flagged to RMI in 2023.
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 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%	42,024	3,013	7.2%	3, 10, 11, 22
	Frozen								
COOK ISLANDS	Pacific Islands	Days at Sea	434	56	12.9%	434	56	12.9%	8
EUROPEAN UNION	Distant-water	No. of Trips							
FSM	Pacific Islands	No. of Trips	–	–	–	–	–	–	26, 27
FIJI	Pacific Islands	No. of Trips	581	118	20.3%	539	114	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	18,726	878	4.7%	18,726	0	0.0%	10, 18
	Frozen, long-trip	Days fished	6,470	556	8.6%	6,470	0	0.0%	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	21,819	3,074	14.1%	21,819	3,187	14.6%	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	5,908	7.2%	10, 14
USA	HAWAII/California-based	No. of Trips	1,364	225	16.5%	1,364	243	17.8%	6
	AMERICAN SAMOA	No. of Trips	–	–	–	–	–	–	2, 6
VANUATU	Pacific Islands and DW	No. of Trips	48	6	12.5%	48	4	8.3%	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-at-sea". 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 2024.
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. 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. 2023 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. No activity in 2024 by this CCM's longline fleet.
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 5. Coverage of Longline Observer data in the WCPFC Area, for 2023 (all observer data available to the WCPFC Science Service Provider; includes both ROP and non-ROP data.

	Hooks		
CCM Fleet	Total Effort	Observer	
AUSTRALIA	7,846,941	0	
CHINA	84,623,545	8,231,956	
COOK ISLANDS	991,945	142,966	
EUROPEAN UNION	1,913,559	0	
FIJI	34,183,524	3,905,755	
FRENCH POLYNESIA	21,140,479	1,088,099	
FSM	16,329,750	1,046,367	
INDONESIA	4,441,200	0	
JAPAN	35,930,986	3,385,945	
KIRIBATI	26,154,717	1,640,234	
MARSHALL ISLANDS	11,996,648	349,567	
NEW CALEDONIA	5,875,216	511,087	
NEW ZEALAND	2,912,730	50,883	
PALAU	52,604	0	
PAPUA NEW GUINEA	5,577,119	0	
REPUBLIC OF KOREA	59,912,701	2,496,212	
SAMOA	10,417,334	0	
SOLOMON ISLANDS	31,300,467	455,248	
TONGA	1,223,294	52,932	
TUVALU		0	
CHINESE TAIPEI	149,330,606	7,743,385	
USA	72,567,858	11,457,175	
VANUATU	14,611,451	143,219	
Total	**599,334,674**	**42,701,030**	**7.1%**

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 6. 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	7,685,291	0	
CHINA	146,481,686	8,738,947	
COOK ISLANDS	787,135	100,590	
EUROPEAN UNION			
FIJI	35,059,479	3,974,135	
FRENCH POLYNESIA	19,603,649	1,112,733	
FSM	23,052,631	1,078,361	
INDONESIA	4,441,200	0	
JAPAN	33,697,104	225,776	
KIRIBATI	45,311,206	2,500,083	
MARSHALL ISLANDS	13,953,459	592,894	
NEW CALEDONIA	5,043,711	462,111	
NEW ZEALAND	355,040	0	
PALAU	512,746	0	
PAPUA NEW GUINEA		0	
REPUBLIC OF KOREA	45,490,645	3,592,820	
SAMOA	1,968,340	23,744	
SOLOMON ISLANDS	19,308,480	0	
TONGA	804,177	106,958	
TUVALU		0	
CHINESE TAIPEI	147,076,727	6,361,842	
USA	62,319,386	8,627,246	
VANUATU	11,612,233	852,873	
Total	**624,564,325**	**38,351,113**	**6.1%**

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 2023 (top) and 2024 (bottom).

2023				
Observer Provider/Programme	PURSE SEINE		LONGLINE	
	Trips	Cov% [1]	Trips	Cov% [2]
COOK ISLANDS	8	0.4%	8	0.16%
FEDERATED STATES OF MICRONESIA	5	0.0%	3	0.03%
FIJI	1	0.1%	65	0.40%
FRENCH POLYNESIA	0	0.0%	56	0.25%
KIRIBATI	117	5.2%	0	0.00%
MARSHALL ISLANDS	73	2.9%	24	0.09%
NAURU	2	0.0%	0	0.00%
NEW CALEDONIA	0	0.0%	27	0.14%
PALAU	0	0.0%	0	0.00%
PAPUA NEW GUINEA	197	6.3%	2	0.01%
PHILIPPINES	34	1.3%	0	0.00%
PNA Observer Programme	720	28.1%	0	0.00%
SAMOA	55	1.1%	6	0.08%
SOLOMON ISLANDS	0	0.0%	52	1.13%
TONGA, KINGDOM OF	0	0.0%	0	0.00%
TUVALU	228	11.5%	1	0.00%
US MLT Observer Programme	0	0.0%	0	0.00%
VANUATU	0	0.0%	9	0.32%
Total	1440	55.6%	253	2.61%

2024				
Observer Provider/Programme	PURSE SEINE		LONGLINE	
	Trips	Cov% [1]	Trips	Cov% [2]
COOK ISLANDS	7	0.2%	11	0.25%
FEDERATED STATES OF MICRONESIA	59	1.9%	3	0.05%
FIJI	4	0.3%	95	0.44%
FRENCH POLYNESIA	0	0.0%	57	0.19%
KIRIBATI	90	3.2%	0	0.00%
MARSHALL ISLANDS	95	3.5%	43	0.14%
NAURU	0	0.0%	0	0.00%
NEW CALEDONIA	0	0.0%	29	0.13%
PALAU	0	0.0%	0	0.00%
PAPUA NEW GUINEA	317	8.8%	3	0.09%
PHILIPPINES	48	1.2%	0	0.00%
PNA Observer Programme	858	28.1%	0	0.00%
SAMOA	0	0.0%	2	0.00%
SOLOMON ISLANDS	46	0.8%	0	0.00%
TONGA, KINGDOM OF	0	0.0%	45	0.42%
TUVALU	210	8.9%	0	0.00%
US MLT Observer Programme	0	0.0%	0	0.00%
VANUATU	0	0.0%	4	0.29%
Total	1734	55.7%	292	2.01%

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 2023 and 2024 are estimated to be around 64% and 49% respectively of the total trips (cf. Table1).

Table 8. Annual longline E-Monitoring (EM) data reviews (sets), by national EM programme, 2015–2024.

	E-MONITORING DATA (Sets reviewed)									
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
AUSTRALIA	56	420	528	489	525	418	403	344	294	435
FIJI	222	621	2,170	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					
TOTAL	**278**	**1,454**	**4,096**	**2,773**	**1,372**	**628**	**506**	**629**	**358**	**435**

NOTES

1. According to data submitted to SPC.

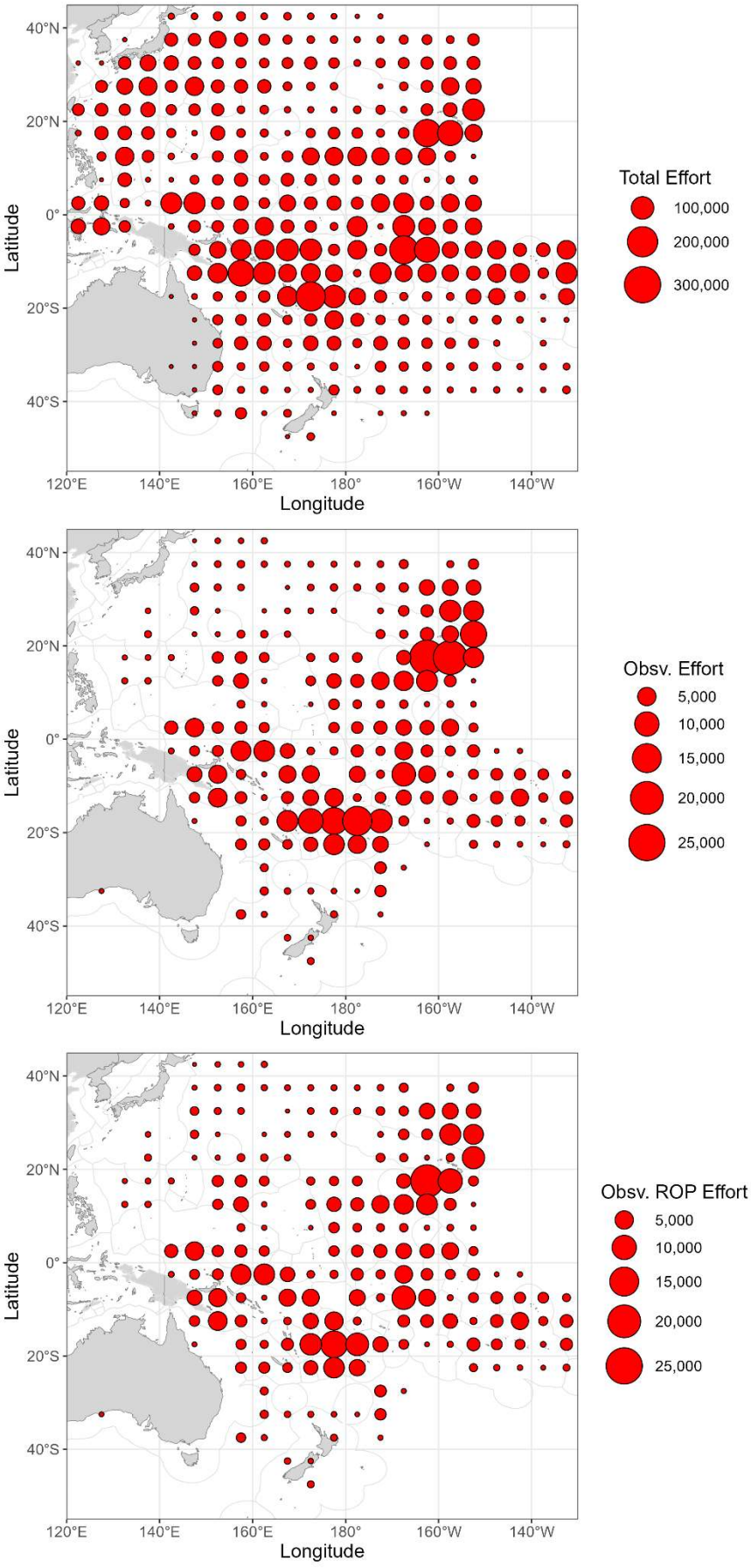
Table 9. Number of transshipments from the observer forms, for the period 2017-2024.

				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**

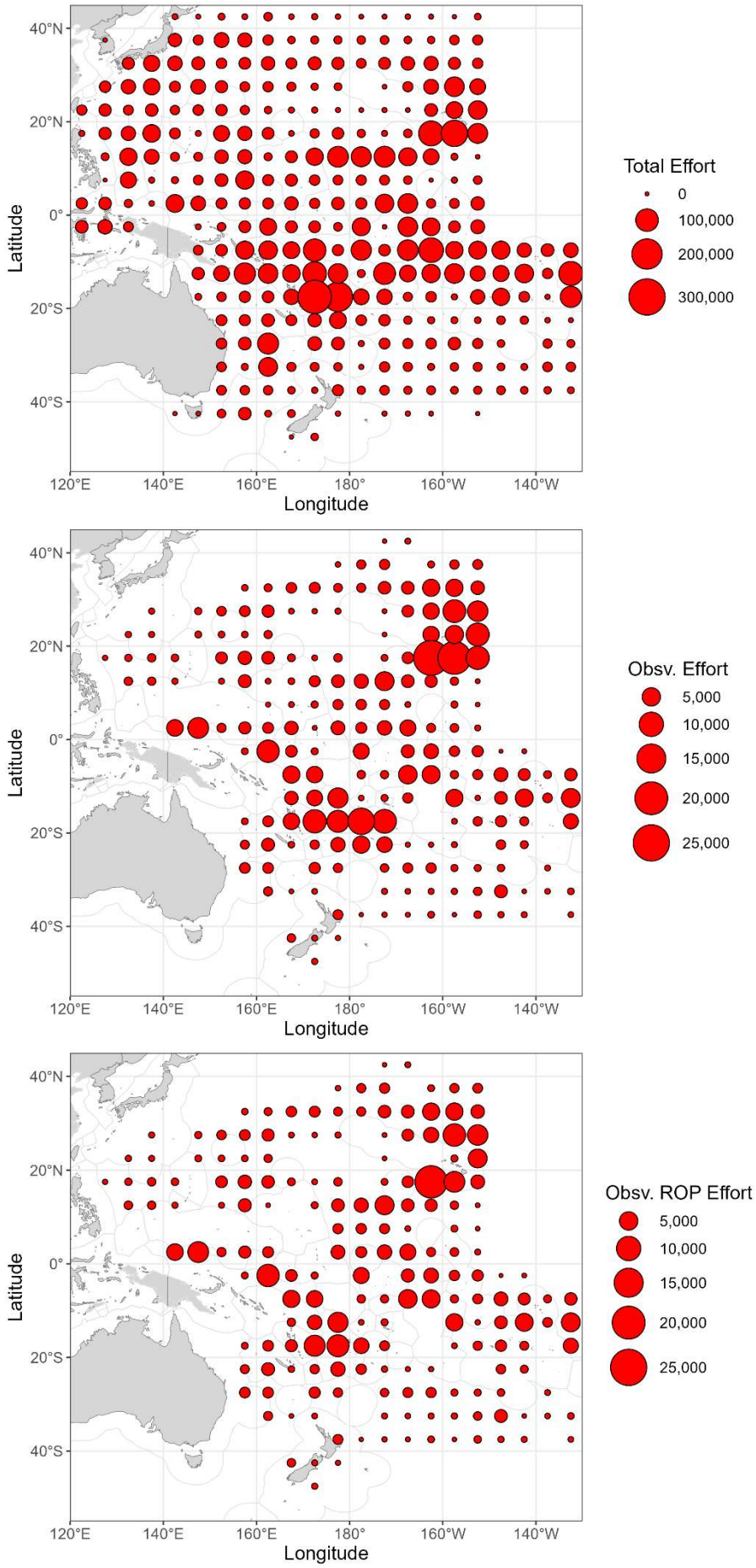
NOTES

1. Only includes processed data
2. "Obsv Trips" represents the total number of individual observer trips for the corresponding observer programme and carrier flag.

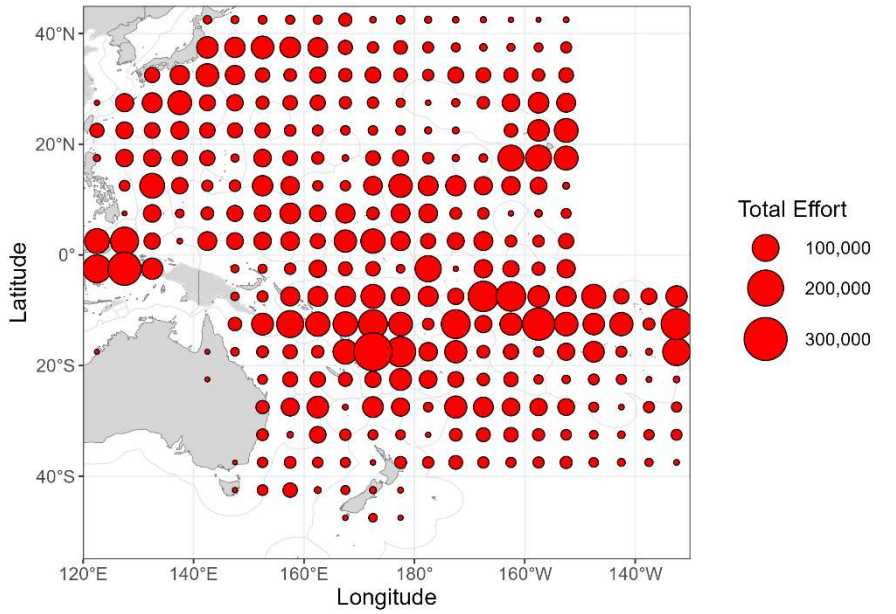
ANNEX 1 – Maps showing the distribution of Longline and Purse seine Observer effort

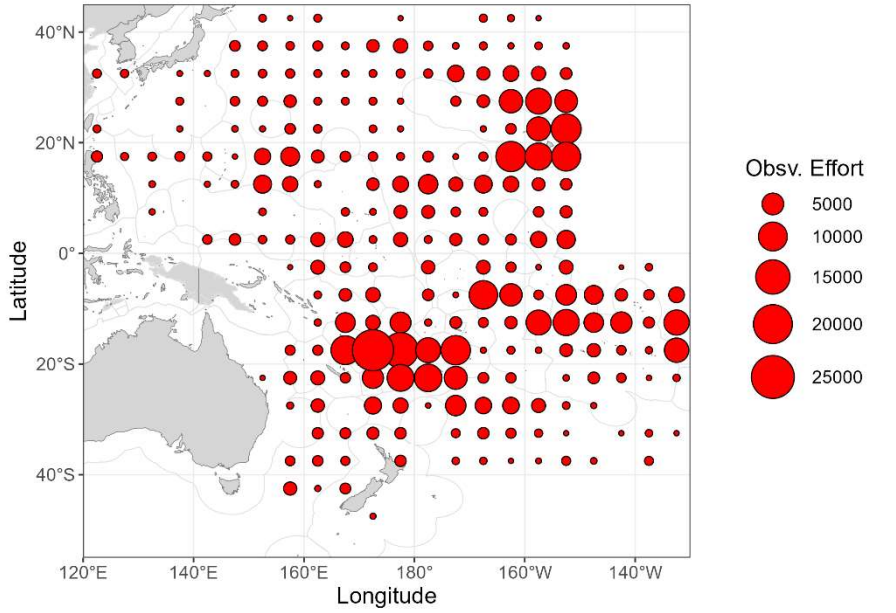


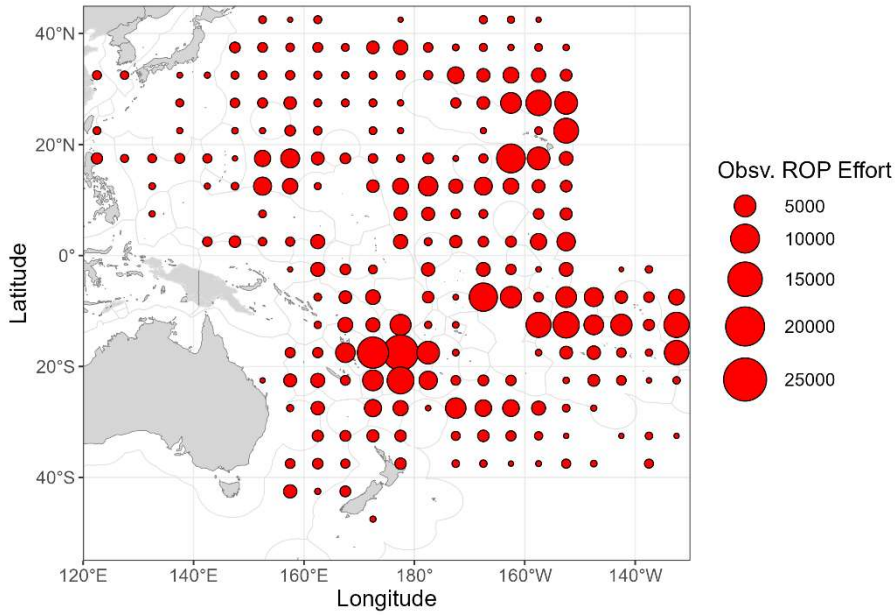
2022 – Longline effort



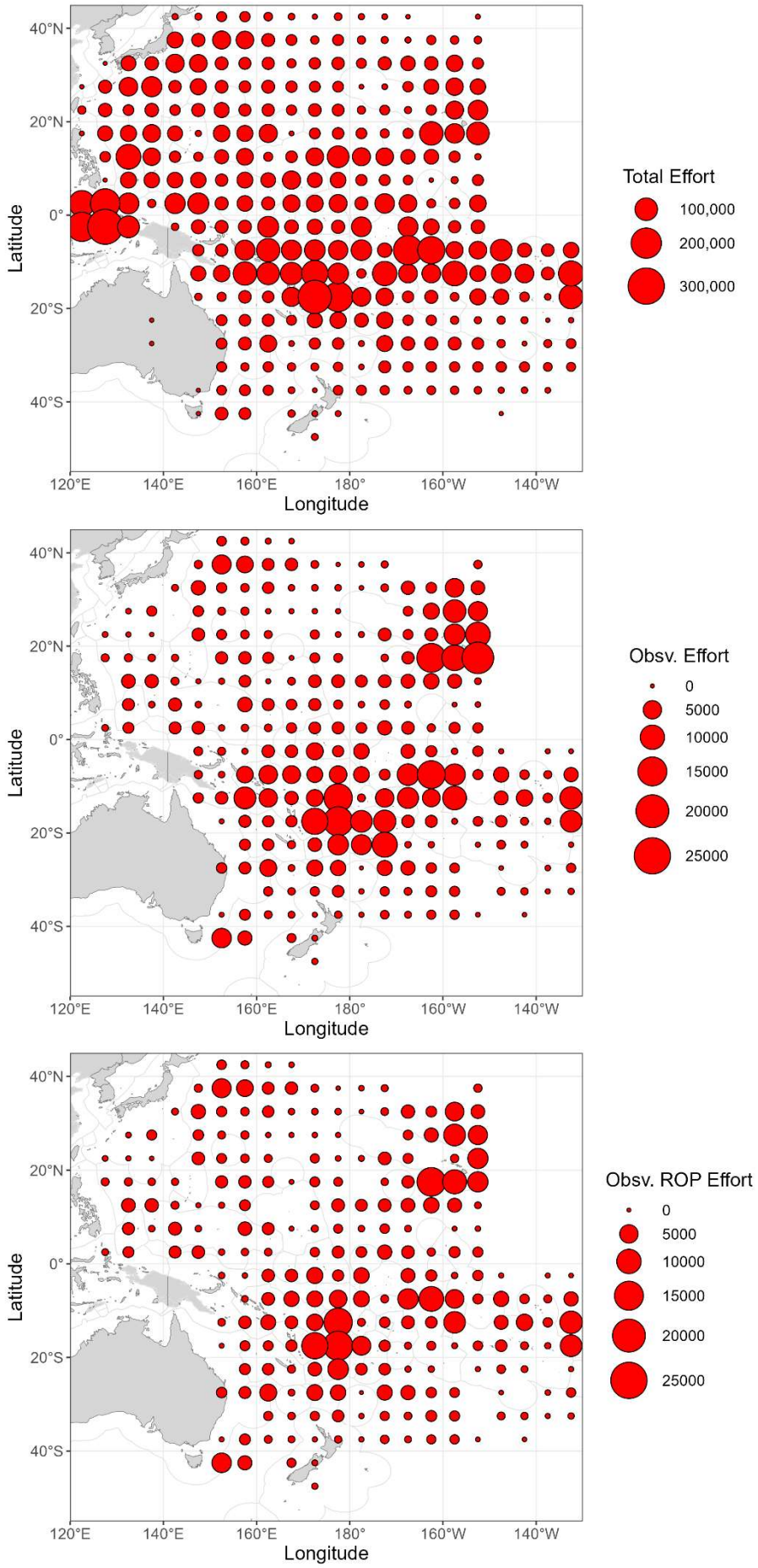
2021 – Longline effort



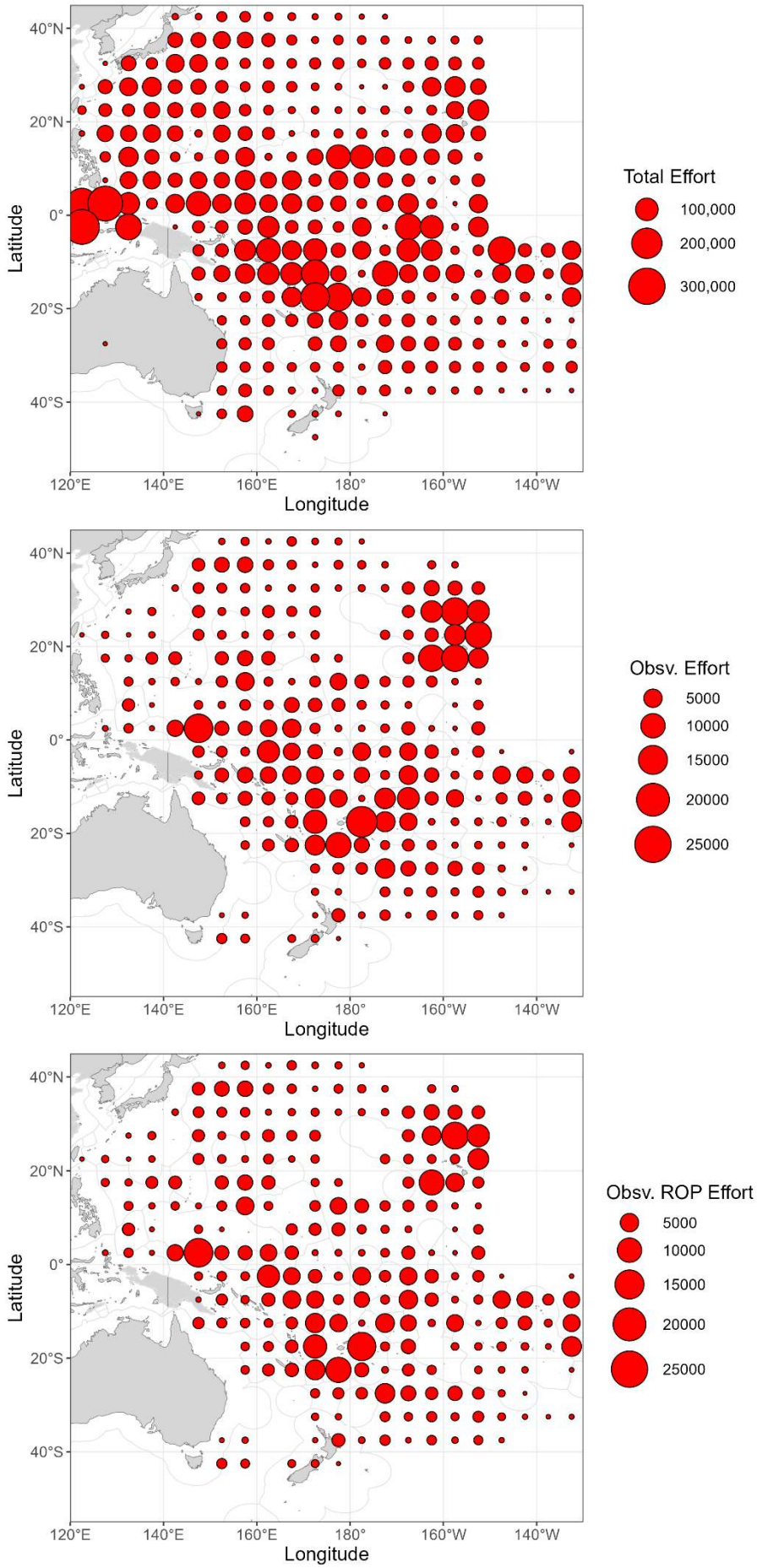




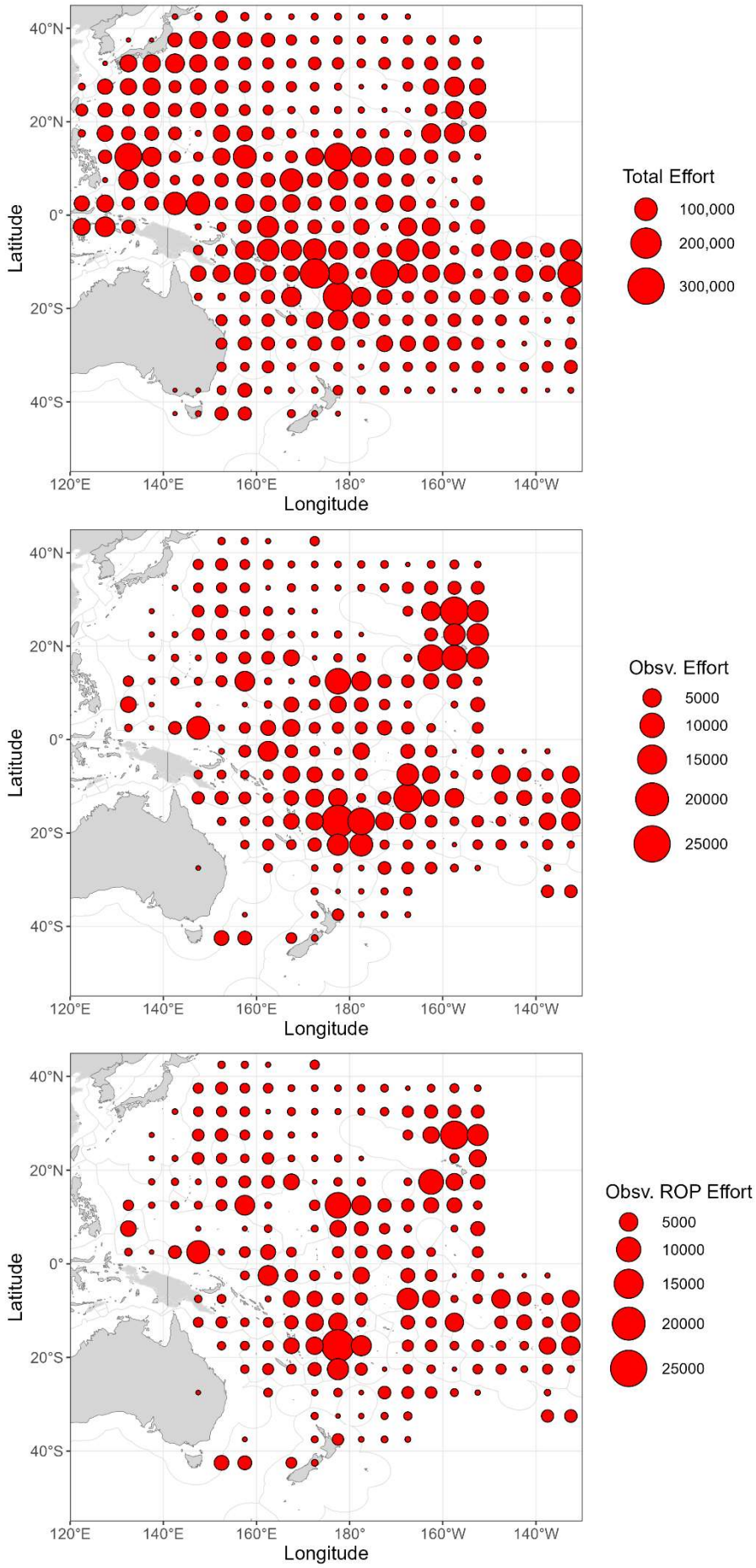
2020 – Longline effort



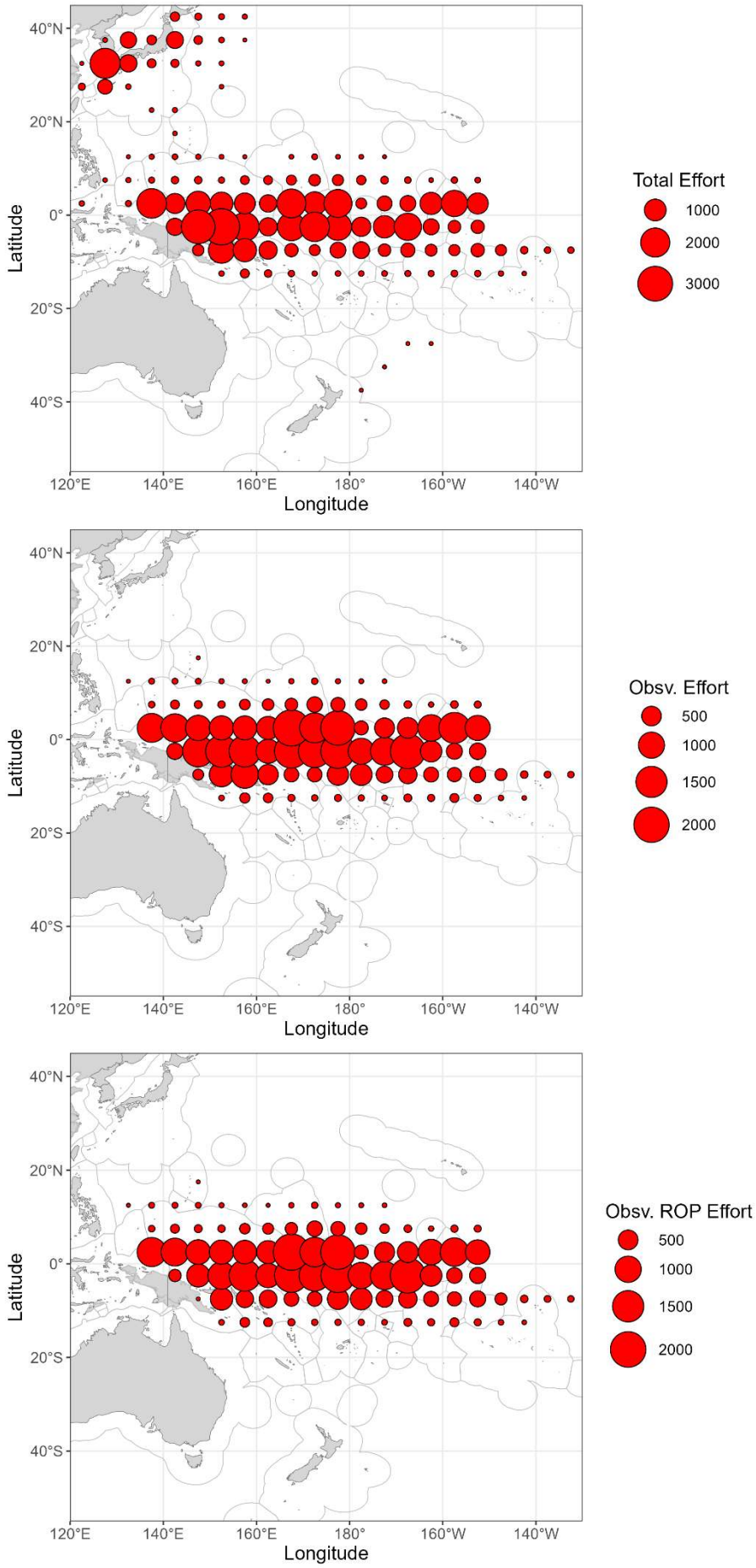
2019 – Longline effort



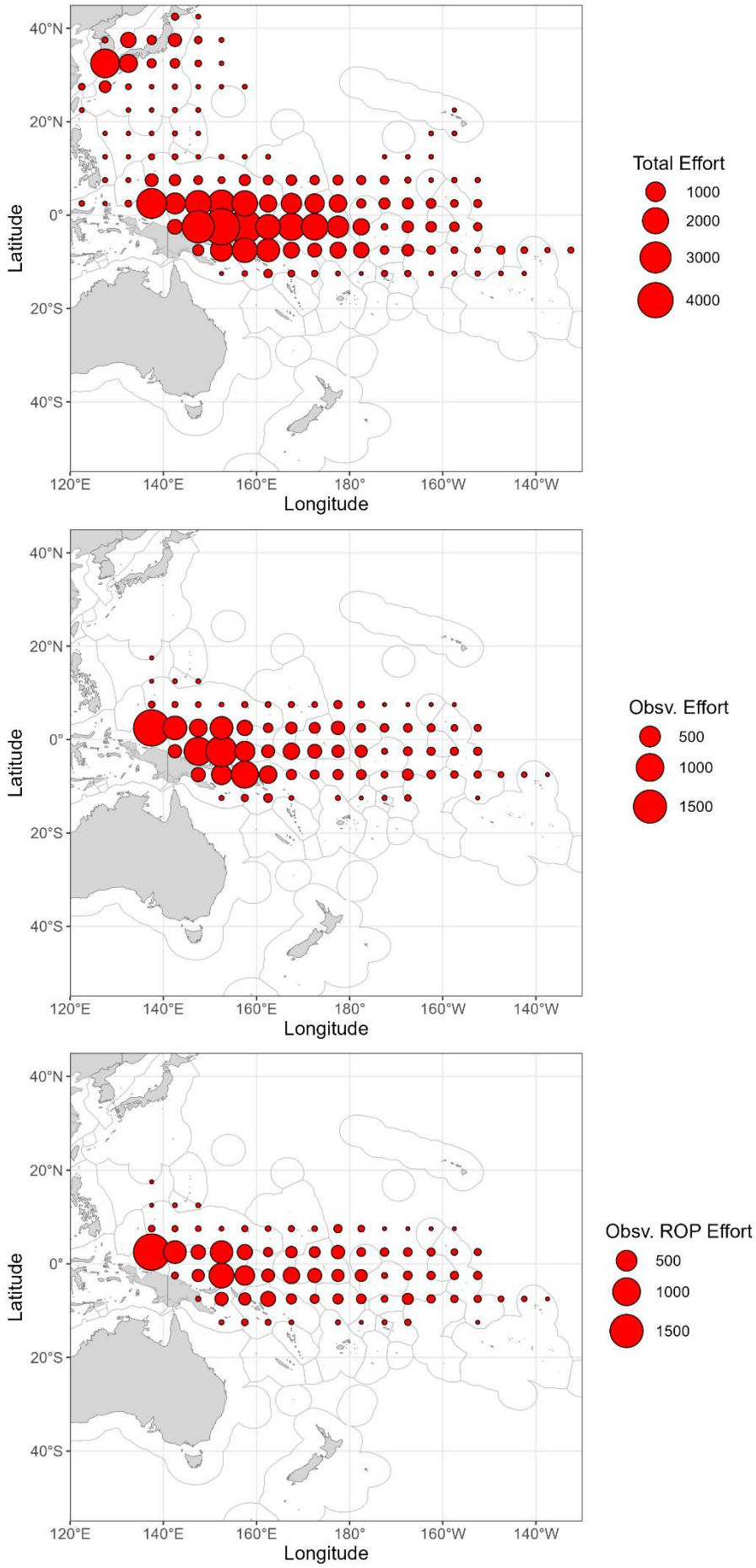
2018 – Longline effort



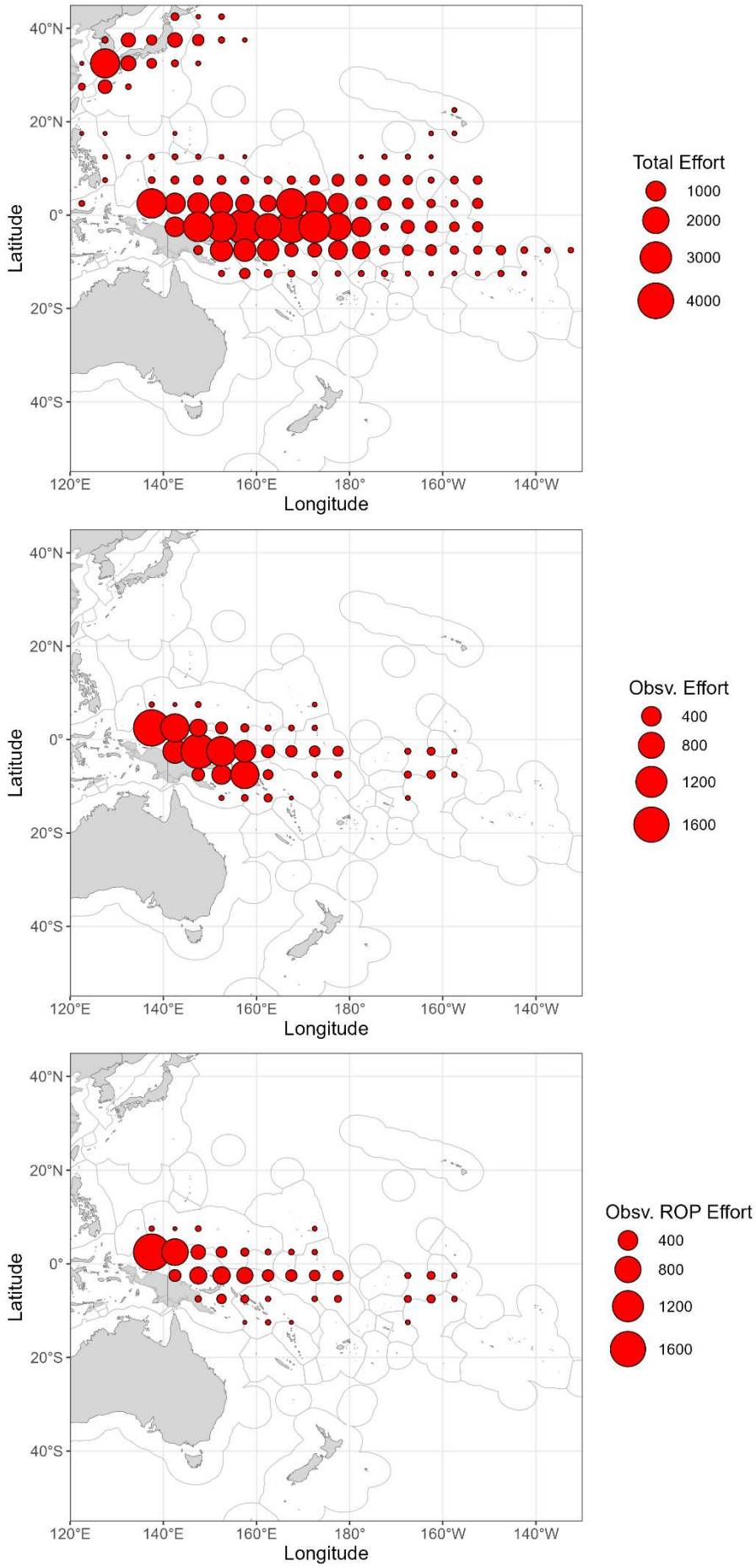
2017 – Longline effort



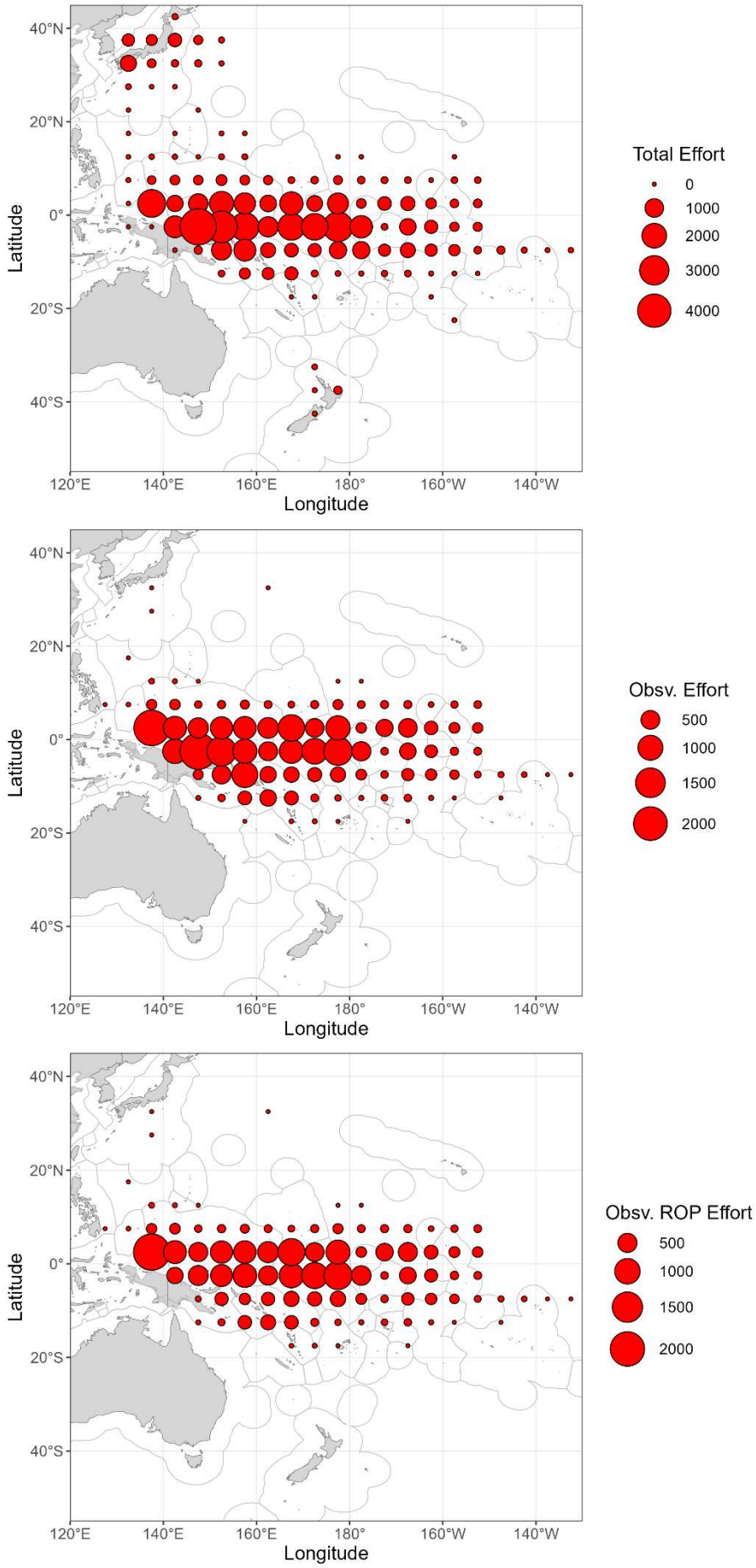
2023 – Purse seine effort



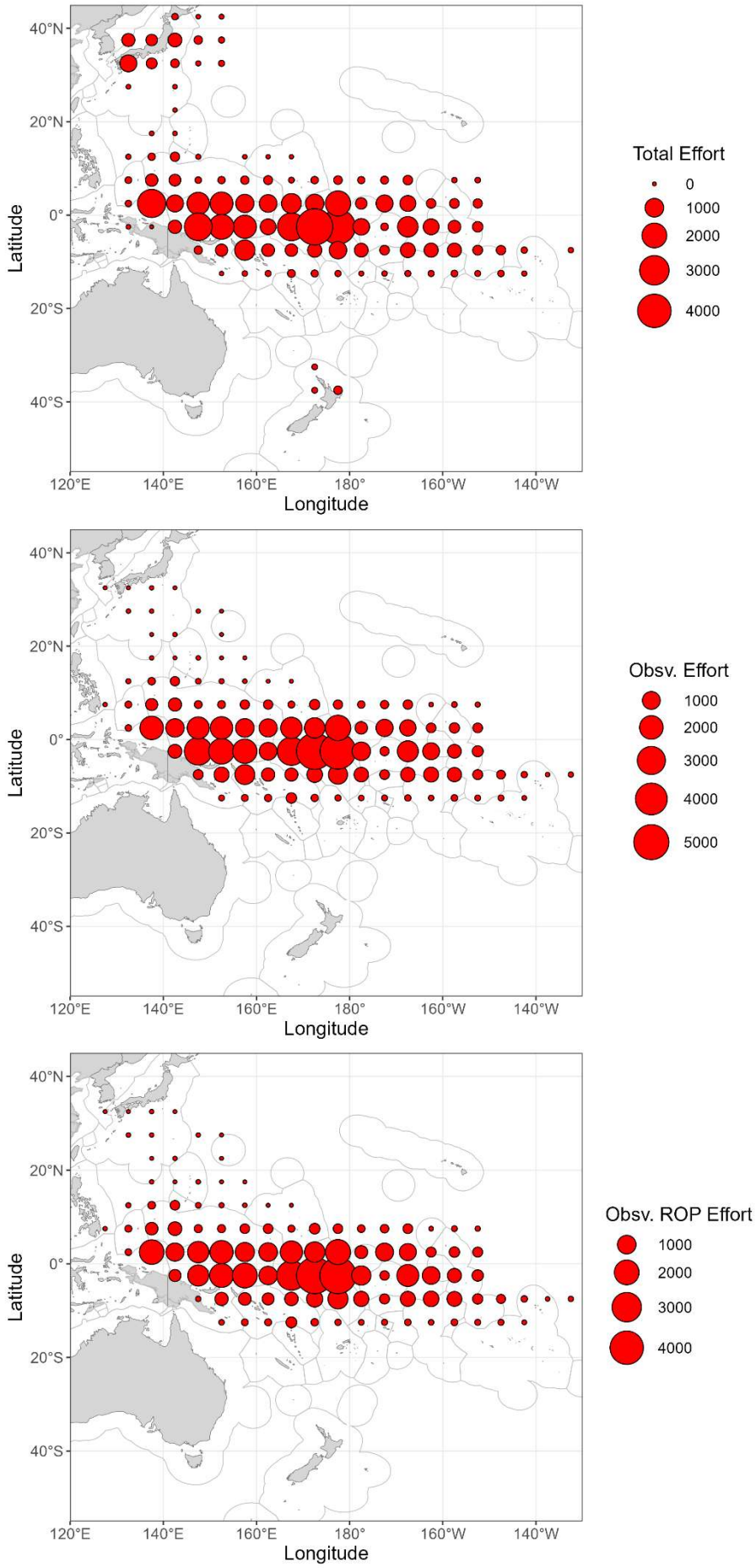
2022 – Purse seine effort



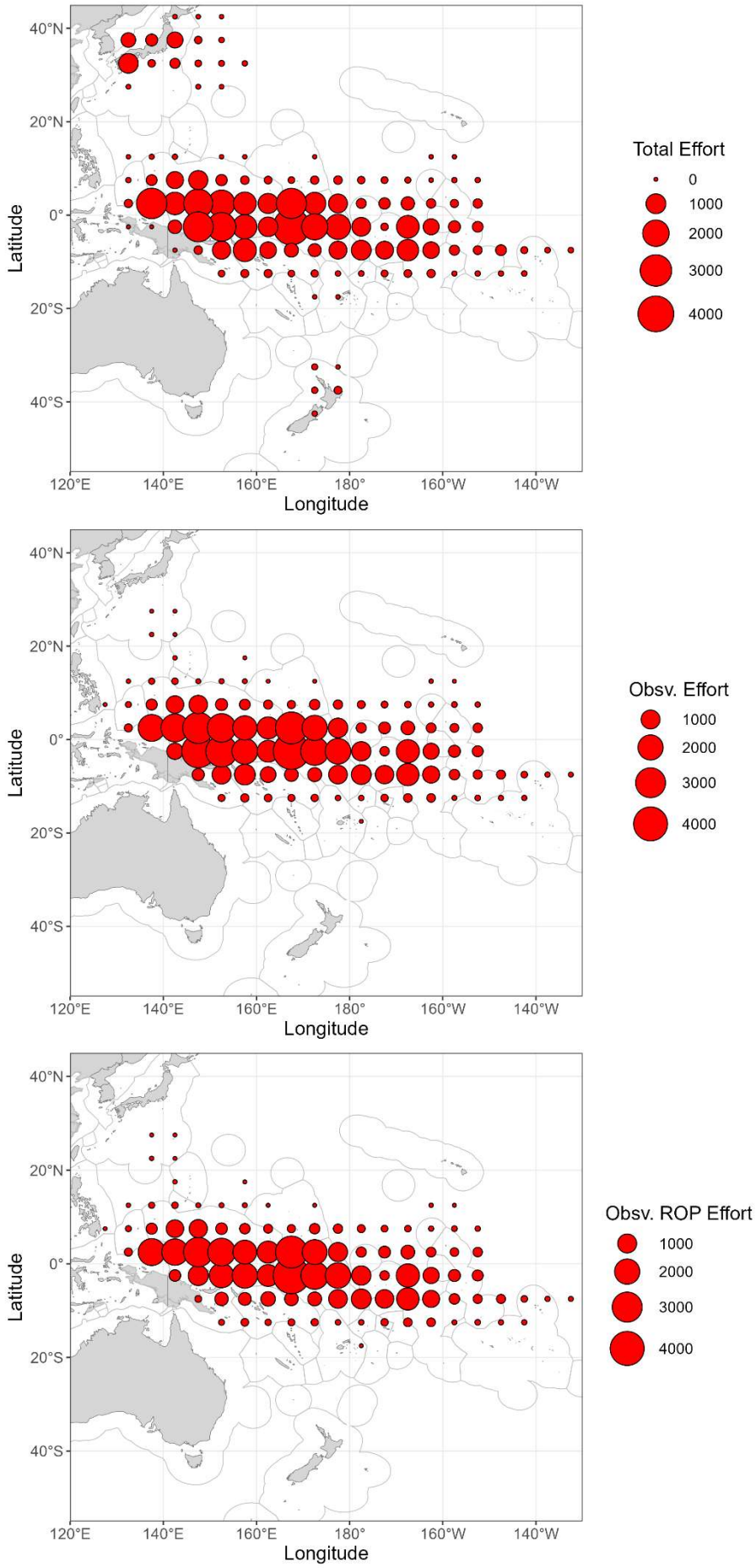
2021 – Purse seine effort



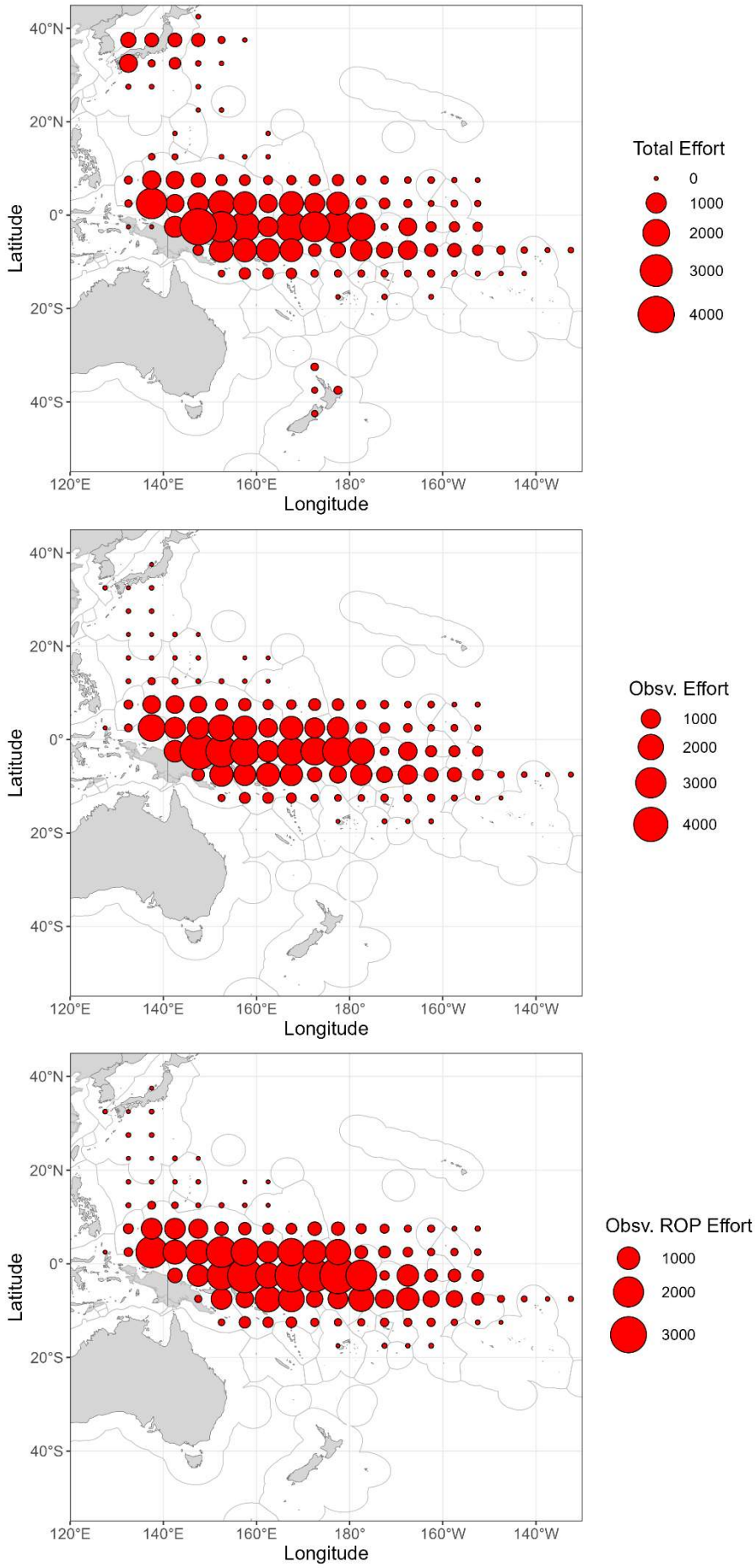
2020 – Purse seine effort



2019 – Purse seine effort



2018 – Purse seine effort



2017 – Purse seine effort

ANNEX 2 – Tables showing Longline and Purse seine Observer coverage

LL Effort 2024

Location	Total effort hooks	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. LL subtropical north of 20N	1,058,917	30,259	30,259
2. Longline tropical 20N - 10S	2,691,117	154,616	143,199
3. Longline 10S to 25S	2,593,583	111,595	84,218
4. Longline 25S to 30S	222,264	17,044	17,044
5. Longline south of 30S	305,931	2,023	2,023
Total	**6,871,812**	**315,537**	**276,743**

LL Effort 2023

Location	Total effort hooks	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. LL subtropical north of 20N	1,078,437	69,578	69,578
2. Longline tropical 20N - 10S	2,479,956	191,804	182,115
3. Longline 10S to 25S	2,308,236	139,158	95,086
4. Longline 25S to 30S	211,953	8,285	8,285
5. Longline south of 30S	439,395	12,213	12,213
Total	**6,517,977**	**421,038**	**367,277**

LL Effort 2022

Location	Total effort hooks	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. LL subtropical north of 20N	897,510	53,092	53,092
2. Longline tropical 20N - 10S	2,666,985	184,638	184,638
3. Longline 10S to 25S	2,633,740	119,315	92,131
4. Longline 25S to 30S	196,408	1,725	1,725
5. Longline south of 30S	381,974	3,946	3,946
Total	**6,776,617**	**362,716**	**335,532**

LL Effort 2021

Location	Total effort hooks	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. LL subtropical north of 20N	875,960	64,766	64,766
2. Longline tropical 20N - 10S	2,458,413	156,861	153,049
3. Longline 10S to 25S	2,640,422	93,577	63,647
4. Longline 25S to 30S	189,118	7,405	7,405
5. Longline south of 30S	545,438	6,640	6,640
Total	**6,709,351**	**329,249**	**295,507**

LL Effort 2020

Location	Total effort hooks	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. LL subtropical north of 20N	1,063,094	60,448	60,448
2. Longline tropical 20N - 10S	2,505,967	120,602	117,245
3. Longline 10S to 25S	2,877,033	154,966	110,745
4. Longline 25S to 30S	256,916	16,920	16,920
5. Longline south of 30S	702,622	10,759	10,759
Total	**7,405,632**	**363,695**	**316,117**

LL Effort 2019

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

LL Effort 2018

Location	Total effort hooks	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. LL subtropical north of 20N	1,084,417	89,673	89,673
2. Longline tropical 20N - 10S	4,820,606	191,130	173,541
3. Longline 10S to 25S	2,697,047	150,735	136,581
4. Longline 25S to 30S	238,405	18,149	18,149
5. Longline south of 30S	629,056	12,216	12,216
Total	**9,469,531**	**461,903**	**430,160**

LL Effort 2017

Location	Total effort hooks	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. LL subtropical north of 20N	1,118,115	72,526	72,526
2. Longline tropical 20N - 10S	3,371,938	179,349	168,209
3. Longline 10S to 25S	2,912,619	141,970	115,353
4. Longline 25S to 30S	307,695	6,549	6,479
5. Longline south of 30S	578,371	12,863	12,863
Total	**8,288,738**	**413,257**	**375,430**

LL Effort 2016

Location	Total effort hooks	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. LL subtropical north of 20N	1,276,157	58,363	58,363
2. Longline tropical 20N - 10S	4,715,275	127,644	105,573
3. Longline 10S to 25S	2,813,019	135,604	94,543
4. Longline 25S to 30S	219,051	2,363	2,363
5. Longline south of 30S	444,419	15,685	15,685
Total	**9,467,921**	**339,659**	**276,527**

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

PS - Effort 2024

Location	Total effort days	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. Purse Seine N of 20N	1031.2	1	1
2. Purse Seine 20N - 20S	41195.13	23516	21231
3. Purse Seine S of 20S	0	0	0
Total	**42226.33**	**23517**	**21232**

PS - Effort 2023

Location	Total effort days	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. Purse Seine N of 20N	1103.52	0	0
2. Purse Seine 20N - 20S	34850.73	34574	31179
3. Purse Seine S of 20S	0	0	0
Total	**35954.25**	**34574**	**31179**

PS - Effort 2022

Location	Total effort days	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. Purse Seine N of 20N	936.8	0	0
2. Purse Seine 20N - 20S	41498.91	11071	8219
3. Purse Seine S of 20S	0	0	0
Total	**42435.71**	**11071**	**8219**

PS - Effort 2021

Location	Total effort days	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. Purse Seine N of 20N	1176	0	0
2. Purse Seine 20N - 20S	41079.43	10003	6041
3. Purse Seine S of 20S	0	0	0
Total	**42255.43**	**10003**	**6041**

PS - Effort 2020

Location	Total effort days	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. Purse Seine N of 20N	1058	3	3
2. Purse Seine 20N - 20S	48507.95	23615	18906
3. Purse Seine S of 20S	120.16	0	0
Total	**49686.11**	**23618**	**18909**

PS - Effort 2019

Location	Total effort days	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. Purse Seine N of 20N	1211.6	12	12
2. Purse Seine 20N - 20S	49210.05	48477	43078
3. Purse Seine S of 20S	127.72	0	0
Total	**50549.37**	**48489**	**43090**

PS - Effort 2018

Location	Total effort days	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. Purse Seine N of 20N	1155.3	5	5
2. Purse Seine 20N - 20S	47689.22	47533	40994
3. Purse Seine S of 20S	112.16	0	0
Total	**48956.68**	**47538**	**40999**

PS - Effort 2017

Location	Total effort days	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. Purse Seine N of 20N	1449	14	14
2. Purse Seine 20N - 20S	50280.4	49100	41141
3. Purse Seine S of 20S	152	0	0
Total	**51881.4**	**49114**	**41155**

PS - Effort 2016

Location	Total effort days	Total observed effort (SPC data)	Total ROP observed effort (WCPFC data)
1. Purse Seine N of 20N	1438.2	13	13
2. Purse Seine 20N - 20S	47767.4	47433	41187
3. Purse Seine S of 20S	197	0	0
Total	**49402.6**	**47446**	**41200**

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