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Australia

Australia's national report on 2018 fishing activities to the South Pacific Regional Fisheries Management Organisation's Scientific Committee

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1 Introduction

This report provides an update on fishing activity by Australian-flagged vessels in the South Pacific Regional Fisheries Management Organisation (SPRFMO) Convention Area. This report excludes data from within the Exclusive Economic Zone (EEZ) of Australia and its external territories (e.g. Norfolk Island). Tuna and billfish fisheries, over which the Western and Central Pacific Fisheries Commission has competence, are not reported here. Common names for species mentioned in this report are provided in Appendix A.

Australian operators in the SPRFMO Convention Area are authorised under permits granted by the Australian Fisheries Management Authority (AFMA) to target various species with mid-water and demersal trawl, dropline, minor line, automatic longline and demersal longline. Permits to fish in the SPRFMO Convention Area are granted for a period of up to five years. Australian high-seas fisheries permits require the implementation of vessel monitoring systems, 100% observer coverage¹ on all trawl vessels and for the first trip of the season (for all methods) and a minimum of 10% observer coverage² annually on all non-trawl vessels.

AFMA's high seas permit conditions restrict vessels to fishing within the areas specified in SPRFMO Conservation and Management Measures (CMMs) for the Management of Bottom Fishing in the SPRFMO Convention Area (CMMs 03-2018 and 03-2019) (Maps 1 and 2). In accordance with CMM for Deepwater Species in the SPRFMO Convention Area (CMM 03a-2019), catches for all species other than *Hoplostethus atlanticus* are limited to the average annual level between 2002–06. All fishing operations and catches in 2018 were within the historical fishing footprint (Map 1) and below the catch limit specified in CMM 03-2018, which was superseded by CMM 03-2019 in April 2019.

AFMA's permit conditions require stringent seabird mitigation measures and reporting of interactions with all species protected under the *Environmental Protection and Biodiversity Conservation Act 1999*. The vulnerable marine ecosystems (VME) indicator taxa list and associated thresholds that trigger the move-on protocols observed by Australian vessels are specified in annexes 5, 6A and 6B of CMM 03-2019. The thresholds specified by Australia in relation to CMM 03-2018, which preceded CMM 03-2019, were not triggered in 2018.

To provide accountability to the fishing industry and Australian community in AFMA's management of fisheries resources, AFMA may publicly disclose the following information for all fisheries, so far as it is consistent with Australia's obligations under international law:

- a) total fishing season catch and effort statistics for each species³ aggregated by fishing method, sector and/or fishery;
- b) the total area of waters fished within a season by fishery, sector and/or method, reported at a minimum spatial resolution of one degree square. This does not include catch or effort information where the data represents less than five vessels; or

¹ Observer coverage for trawl gears is expressed as the percentage of the total number of hauls observed

² Observer coverage for non-trawl gears is expressed as the percentage of the total number of hooks (line gears)

³ Includes: target, byproduct, bycatch and threatened, endangered or protected species

- c) any other catch and effort information, including spatial information, where the information represents data from five or more vessels.

AFMA may publicly disclose more detailed fishing information than that outlined above where:

- a) the information has or will be used to guide fishery management decisions (for example; research or information supporting the implementation of harvest strategies, Stock Recovery Plans, stock-based management measures); or
- b) it is used to ensure that Australia meets its obligations under international law (for example, disclosure to Regional Fishery Management Organisations).

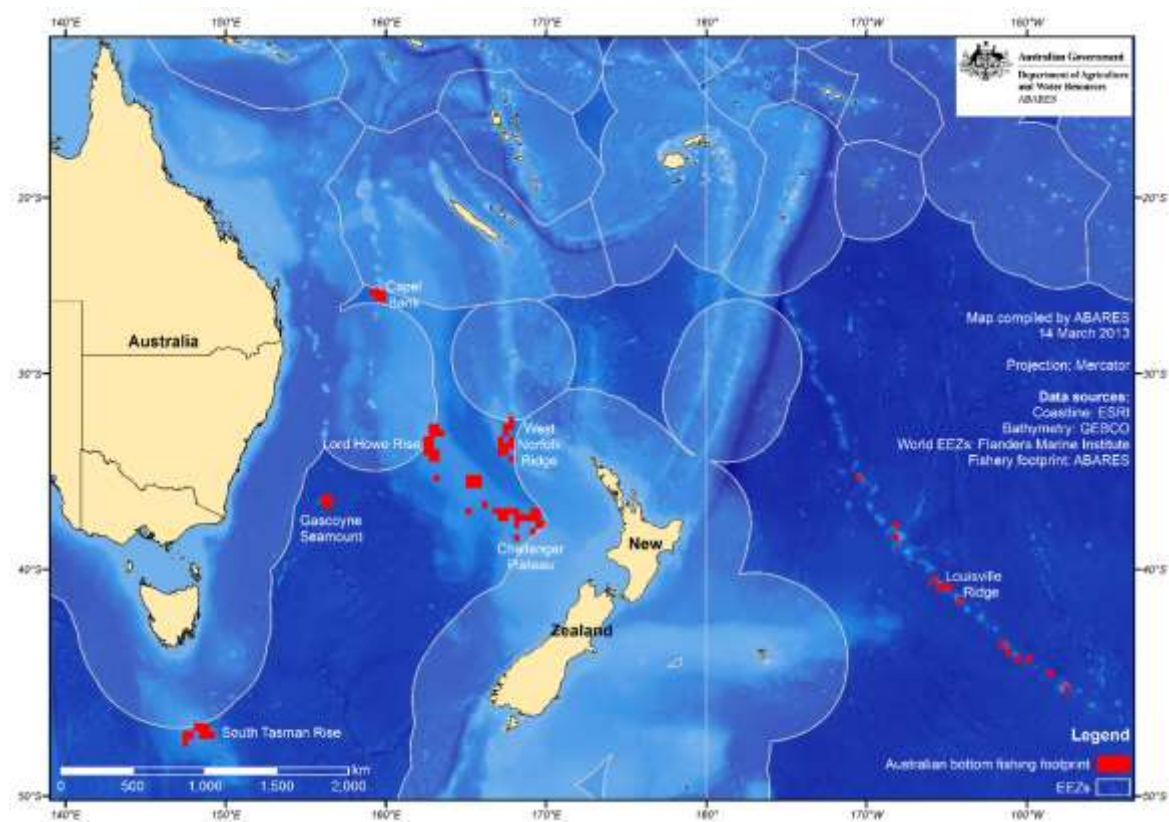
Australian data that do not meet these criteria are not included in this report. However, these data are submitted to the SPRFMO Secretariat in accordance with CMM on Standards for the Collection, Reporting, Verification and Exchange of Data (CMM 02-2018). The same data confidentiality applies to the Secretariat's use and handling of the data unless the disclosure and use of data is authorised by Australia.

2 Description of fisheries

A small number of Australian fishing vessels target demersal fish species in association with seamounts, ridges and other features in the South Pacific Ocean. Trawling targeted at *Hoplostethus atlanticus* has comprised the majority of Australian catches in the SPRFMO area, although from the mid-2000s until 2013, catch of *Beryx splendens* increased to comprise a significant proportion of the trawl catch in some years. Much of the historical catch of *Hoplostethus atlanticus* was taken on the South Tasman Rise, with *Pseudocyttus maculatus* and *Neocyttus rhomboidalis* also being caught in relatively large volumes in association with the main target species. The South Tasman Rise trawl fishery has been closed to Australian fishing—both within and outside Australia’s EEZ—since 2007. There was no trawl effort in 2008, 2009, 2010 and 2018. From 2011 to 2017, trawl catch was relatively low and sporadic, with the catch mostly comprised of *Hoplostethus atlanticus* and *Beryx splendens*.

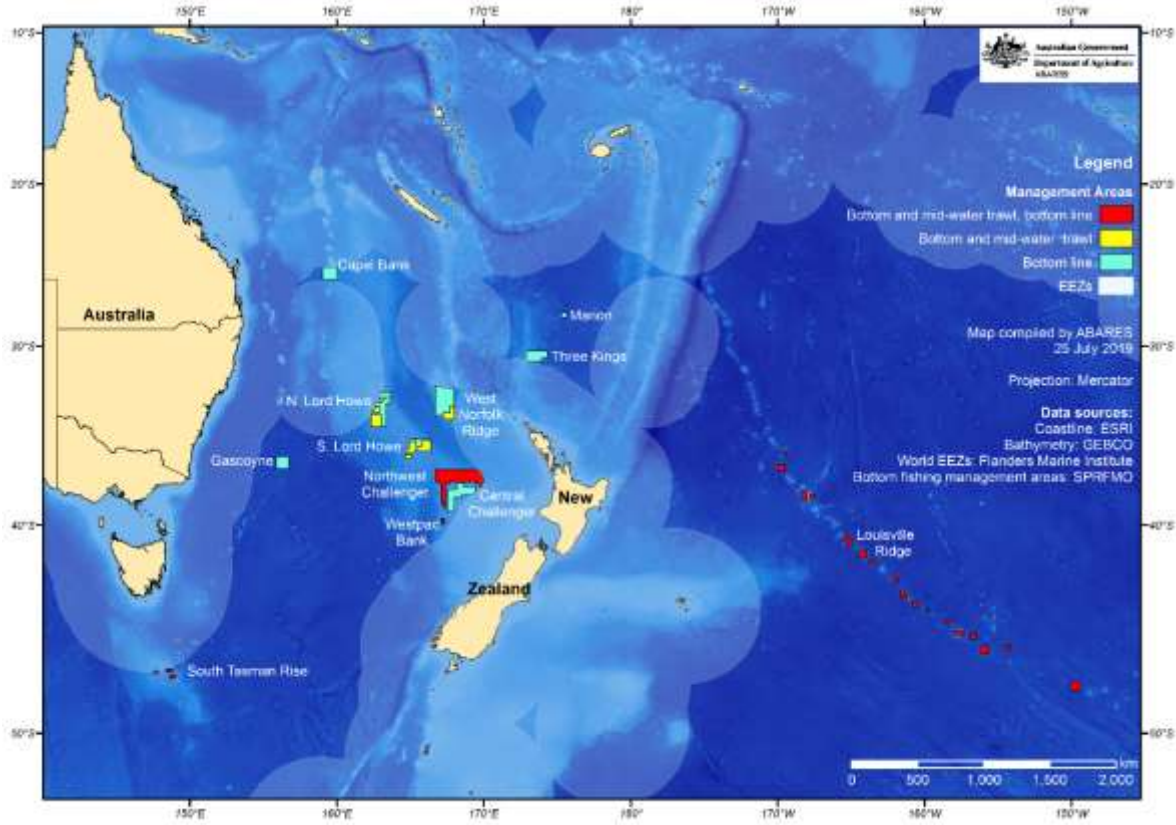
Non-trawl effort has historically been low and variable, targeting *Nemadactylus* spp., *Hyperoglyphe antarctica*, *Seriola lalandi* and *Schedophilus velaini* (formerly *Schedophilus labrynthicus*). Since around 2016, a change in the composition of landed catches towards Lethrinidae and Etelinae species (as well as other sub-tropical species) reflects a change in the main fishing grounds used by Australian non-trawl vessels. The non-trawl catch in 2016, 2017 and 2018 exceeded the trawl catch. In recent years, all of the non-trawl component has been taken by bottom longline gears.

Map 1 Australia’s fishing footprint (based on historical bottom fishing effort in the 2002–2006 reference period) and identified fishing grounds in the SPRFMO area



Note: This historical footprint was relevant to Australian fishing operations until April 2019 but has since been superseded by the areas outlined in CMM 03-2019 (see Map 2).

Map 2 Bottom trawl, midwater trawl and bottom line Management Areas specified in CMM 03-2019 in the SPRFMO area



Fleet composition

Two Australian-flagged vessels fished in the SPRFMO area in 2018 using demersal longline gears (Table 1).

Table 1 Fishing effort, retained catches and the number of Australian vessels that actively bottom fished in the SPRFMO area under relevant high-seas permits, 2013–2018

Year	Non-trawl						Trawl					
	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018
Vessels	2	2	2	2	2	2	1	2	1	1	1	0
Retained catch (t)	133	99	177	156	145	116	138	104	25	84	98	0
Effort	594	379	745	710	841	753	101	52	16	12	52	0

Note: Fishing effort is presented as thousands of hooks for non-trawl and hours for trawl. Retained catch volumes are based on logbook estimates.

3 Catch and effort

The total retained catch reported in logbooks by Australian vessels in the SPRFMO area was 116 t in 2018 (Table 1). Logbook estimates of catch and fishing effort for key species are shown in

Table 2 (trawl) and Table 3 (non-trawl).

Trawl catches by Australian vessels in SPRFMO peaked at 4,143 t in 1998 (Table 2). Trawl catches over the last decade have been relatively low, averaging 111 t per annum. Trawl catch in 2018 was zero, reflecting zero effort. The nominal catch per unit effort (CPUE) for *Hoplostethus atlanticus* and other species caught in the trawl fishery shows variation over time, with no clear trend. As catch and effort are low and vary over space and time, nominal CPUE indices for trawl gears are not presented herein as they are uninformative.

Non-trawl catches by Australian vessels in SPRFMO peaked at 277 t in 2002 (Table 3). Non-trawl catches over the last decade have averaged 123 t per annum. Total non-trawl catch retained by Australian vessels in the SPRFMO Convention area was 116 t in 2018. Bottom longline was the only non-trawl method used in 2018. *Seriola lalandi* accounted for 21% (24 t) of the 2018 longline catch; the remainder comprised *Nemadactylus macropterus* (15%; 18 t), *Lethrinus rubrioperculatus* (12%; 14 t), *Dentex spariformis* (12%; 14 t), *Etelis coruscans* (11%; 13 t) and other species (28%; 32 t). Logbook reported discards in 2018 in the longline fishery were 15 t.

Effort in the Australian non-trawl fishery has fluctuated over time. Effort was 753,400 hooks in 2018. Nominal CPUE indices for species caught in the non-trawl fishery are not presented herein as it is difficult to determine target species. Catch and effort are also low and spatio-temporally variable. Nominal CPUE data would need to be standardised to be of use as a potential index of abundance.

There was no fishing effort directed at, or catch of, *Trachurus* spp. or *Dosidicus gigas* by Australian vessels operating in the SPRFMO area in 2018.

Table 2 Number of active vessels, fishing effort (hours) and annual catch (t) of major species reported in logbooks by Australian trawlers in the SPRFMO area, 1987–2018

Year	No. of vessels	Effort (hours)	Catch of major species (t)					Total catch (t)
			Orange roughy	Smooth oreo	Spiky oreo	Alfonsino	Other species	
1987–1990 ^a	6	105	9	0	0	0	8	17
1991–1993 ^a	6	85	367	1	107	0	4	479
1994	7	257	192	0	6	0	5	203
1995–1996 ^a	6	62	21	12	10	0	54	98
1997	10	396	1 458	505	448	1	56	2 468
1998	12	916	3 098	420	620	1	5	4 143
1999	10	777	2 514	106	89	8	5	2 720
2000	12	752	948	123	86	4	8	1 170
2001	9	307	751	13	31	1	3	799
2002	8	196	376	6	67	3	3	453
2003	9	102	166	6	63	2	1	238
2004	5	48	369	22	12	1	1	406
2005	3	29	207	74	1	81	14	377
2006	3	104	166	0	0	209	75	451
2007	2	71	148	0	1	86	18	253
2008	0	-	-	-	-	-	-	-
2009	0	-	-	-	-	-	-	-
2010	0	-	-	-	-	-	-	-
2011	1	72	2	0	0	47	14	63
2012	1	123	56	<1	<1	167	119	264
2013	1	101	49	<1	0	72	17	138
2014	2	52	102	0	<1	<1	2	104
2015	1	16	20	0	0	3	1	25
2016	1	12	83	<1	<1	<1	<1	84
2017	1	52	93	b	b	0	<1	98
2018	0	-	-	-	-	-	-	-

a In earlier years, data were combined over several years to comply with domestic data confidentiality policy. **b** Catch volumes for individual species are not available due to aggregation of reported catch of oreodories in 2017 (5 t).

Note: Logbook weights are based on visual estimates by skippers of retained catch weights. They do not always exactly match subsequent landings. Effort data from 2011 to 2014 was revised in 2016. Data rounding may mean that totals do not match exactly with summed tonnages of individual species.

Table 3 Number of active vessels, fishing effort ('000s of hooks) and annual catch of major species reported in logbooks by Australian vessels using non-trawl gear in the SPRFMO area, 1997–2018

Year	No. of vessels	Effort ('000 hooks) a	Catch of major species (t)					Total catch (t)	
			Morwong b	Blue-eye trevalla	Ocean blue-eye trevalla	Yellowtail kingfish c	Redthroat emperor		Other species d
1997	1	-	1	6	0	0	d	3	9
1998	3	-	31	26	0	15	d	34	106
1999	4	-	29	22	0	13	d	26	90
2000	1	-	79	6	0	14	d	19	117
2001	3	-	43	21	35	5	d	53	157
2002	3	-	81	27	66	32	d	38	244
2003	3	-	16	30	13	1	d	24	84
2004	3	-	0	2	7	0	d	8	18
2005	2	-	1	4	0	0	d	4	9
2006	5	-	10	8	0	22	d	20	59
2007	2	-	7	16	0	1	d	24	48
2008	3	751	24	3	0	25	d	125	177
2009	3	507	13	4	0	11	d	79	106
2010	3	333	23	6	0	17	d	49	95
2011	1	443	45	17	0	24	d	5	91
2012	2	349	40	10	0	54	d	6	110
2013	2	594	39	37	<1	23	d	33	133
2014	2	379	30	21	0	26	d	22	99
2015	2	745	46	16	<1	33	d	81	177
2016	2	710	6	5	<1	28	44	78	156
2017	2	841	23	2	<1	35	22	62	145
2018	2	753	18	2	<1	24	5	66	116

a Historical effort not reported due to data handling issues and/or confidentiality restrictions. **b** Morwong catch from 1997 to 2009 is combined *Nemadactylus macropterus* and *Nemadactylus* spp. Morwong catches in subsequent years are *Nemadactylus macropterus*. **c** Some of the yellowtail kingfish and 'other species' catches presented in previous reports for 2010 were found to have occurred outside the SPRFMO area. Those catches have been removed and reported catches now match the data submission for 2010. **d** Prior to 2016, any catches of redthroat emperor (*Lethrinus miniatus*) are included in 'Other species'.

Note: The logbook weights are based on visual estimates by skippers of retained and discarded catch weights. They do not always exactly match subsequent landings. Data rounding may mean that totals do not match exactly with summed weight of individual species.

4 Fisheries data collection and research activities

Logbooks and landings

High seas permit conditions require operators to record daily catch and fishing effort data in logbooks on a set-by-set or tow-by-tow basis, including the location of fishing operations, and any bycatch and discards. Landings are monitored by AFMA through formal catch disposal records. Catch disposal records are completed by both the fisher and licensed fish receiver at the point of unloading to obtain accurate data on fish numbers and verified weight by species. Compliance checks are conducted on landings as part of a risk-based compliance program.

The logbook and catch disposal record data are submitted to the SPRFMO Secretariat in accordance with SPRFMO CMM 02-2018. The data are submitted by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), which maintains rigorous data quality assurance processes.

Vessel Monitoring System

AFMA introduced a compulsory requirement for all Commonwealth-endorsed fishing vessels to be fitted with Integrated Computer Vessel Monitoring Systems (ICVMS) in 2007. All VMS data for Australian vessels operating in the SPRFMO area in 2018 has been provided to the Secretariat. AFMA uses the ICVMS to assist in planning inspections and operations, to assist the observer program in deploying scientific observers and to actively monitor compliance with area restrictions.

Research

Australia hosted a deepwater working group workshop in Hobart, Tasmania in May 2017, at which progress was made towards *Hoplostethus atlanticus* assessment, assessing the impacts of fishing on VMEs and an assessment framework for SPRFMO deepwater fisheries (subsequently adopted during SC5). In accordance with the assessment framework, Australia has continued development of a SPRFMO demersal fisheries species list and undertaken preliminary data characterisation to inform potential assessment options, which will inform categorisation of SPRFMO demersal species into appropriate tiers within the SPRFMO assessment framework⁴. Australia has also led development of a list of potential candidate species for stock structure delineation studies (SC7-DW09) and undertaken ecological risk assessments for deepwater chondrichthyans (SC7-DW10) and demersal teleosts (SC7-DW11) that may interact with bottom fishing gears in the SPRFMO area.

In 2018 and 2019, Australia commissioned CSIRO to review the VME habitat models developed by NIWA that underpin the spatial management approach adopted in CMM 03-2019, as well as to provide advice on the appropriateness of the VME encounter thresholds and the implementation of an appropriate monitoring program that is responsive to potential errors in the modelling approach. This work is ongoing.

⁴ Papers SC7-DW09 and SC7-DW10 are relevant to these tasks.

In 2018 and 2019, Australia, in collaboration with New Zealand and other SPRFMO members and observers, led a review and revision of the SPRFMO Bottom Fishery Impact Assessment Standard (BFIAS), with the revised BFIAS to be presented to SC7 (SC7-DW19).

5 Biological sampling and length composition of catches

Length frequency and other biological data are collected by Australian observers in the SPRFMO area and submitted annually to the SPRFMO Secretariat. A subset of biological and length frequency data collected by observers on Australian trawl and longline vessels during 2017 is provided in Table 4. Length frequency histograms of *Hoplostethus atlanticus* caught by trawl (Figure 1), and *Nemadactylus macropterus* (Figure 2), *Seriola lalandi* (Figure 3) and *Hyperoglyphe antarctica* (Figure 4) caught by demersal longline are presented as a subset of the most recently available (2017) data.

Table 4 Subset of biological records collected by observers on Australian trawl and longline vessels in the SPRFMO area, 2017

Trawl	Species code	Scientific name	No. lengths	No. sexed fish	No. maturity stage	No. otoliths
	ORY	<i>Hoplostethus atlanticus</i>	398	398	398	0
Non-trawl	Species	Scientific name	No. lengths	No. sexed fish	No. maturity stage	No. otoliths
	BWA	<i>Hyperoglyphe antarctica</i>	185	39	35	0
	GEM	<i>Rexea solandri</i>	67	33	33	0
	TAK	<i>Nemadactylus macropterus</i>	901	235	235	0
	YTC	<i>Seriola lalandi</i>	228	0	0	0

Note: Additional data for other species were collected by observers and have been submitted to the SPRFMO Secretariat but are not presented here due to the low number of records. Data in Table 4 may differ from official records.

Figure 1 Length frequency of *Hoplostethus atlanticus* measured by observers on Australian trawl vessels in the SPRFMO area, 2017

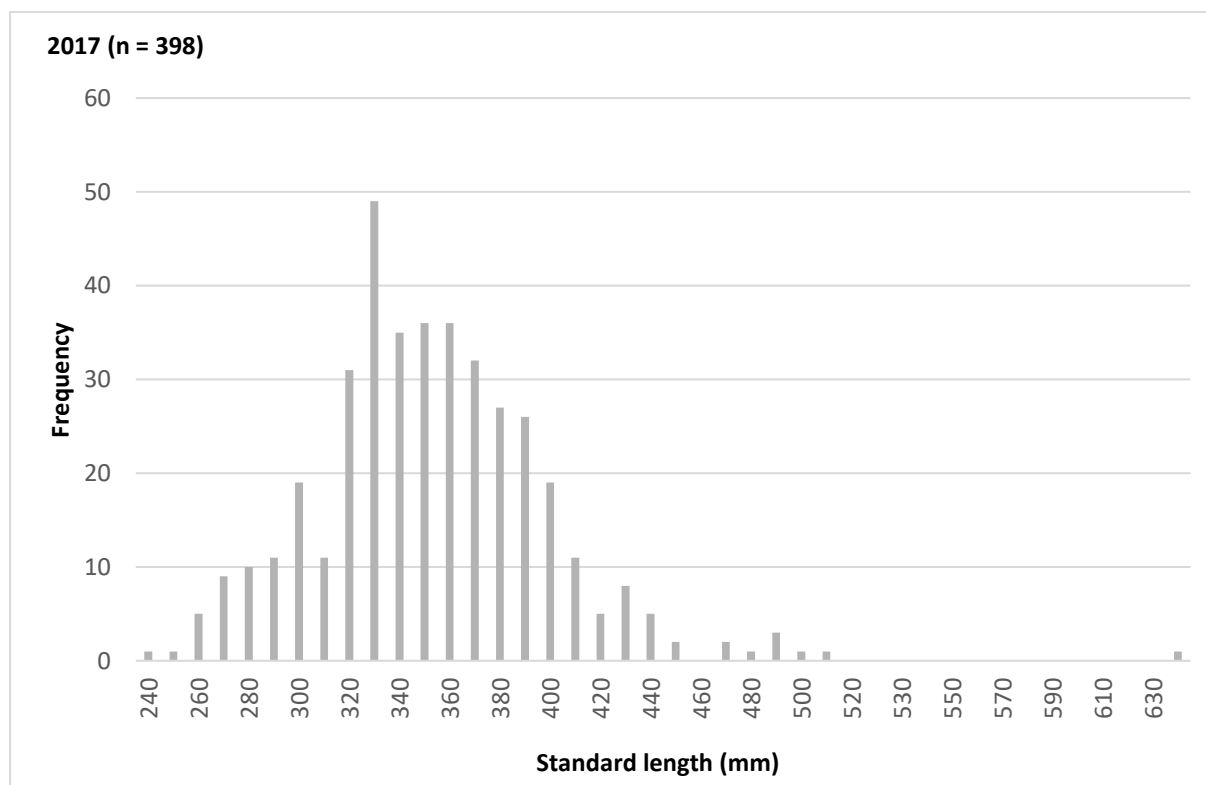


Figure 2 Length frequency of *Nemadactylus macropterus* measured by observers on Australian longline vessels in the SPRFMO area, 2017

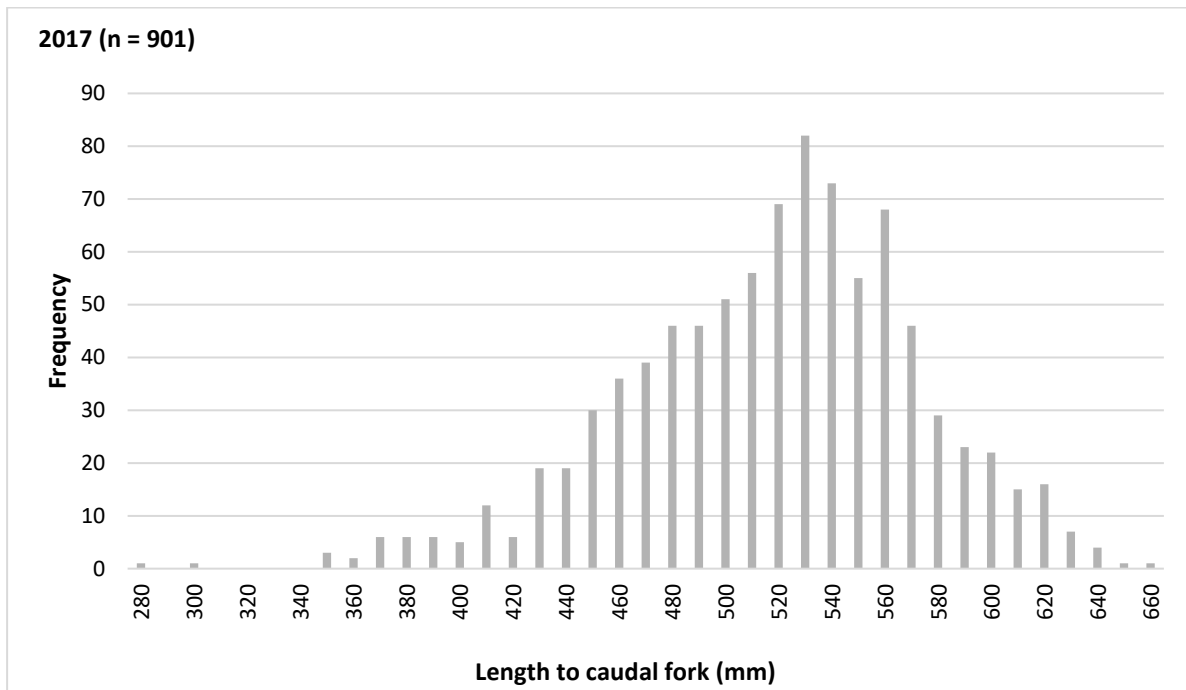


Figure 3 Length frequency of *Seriola lalandi* measured by observers on Australian longline vessels in the SPRFMO area, 2017

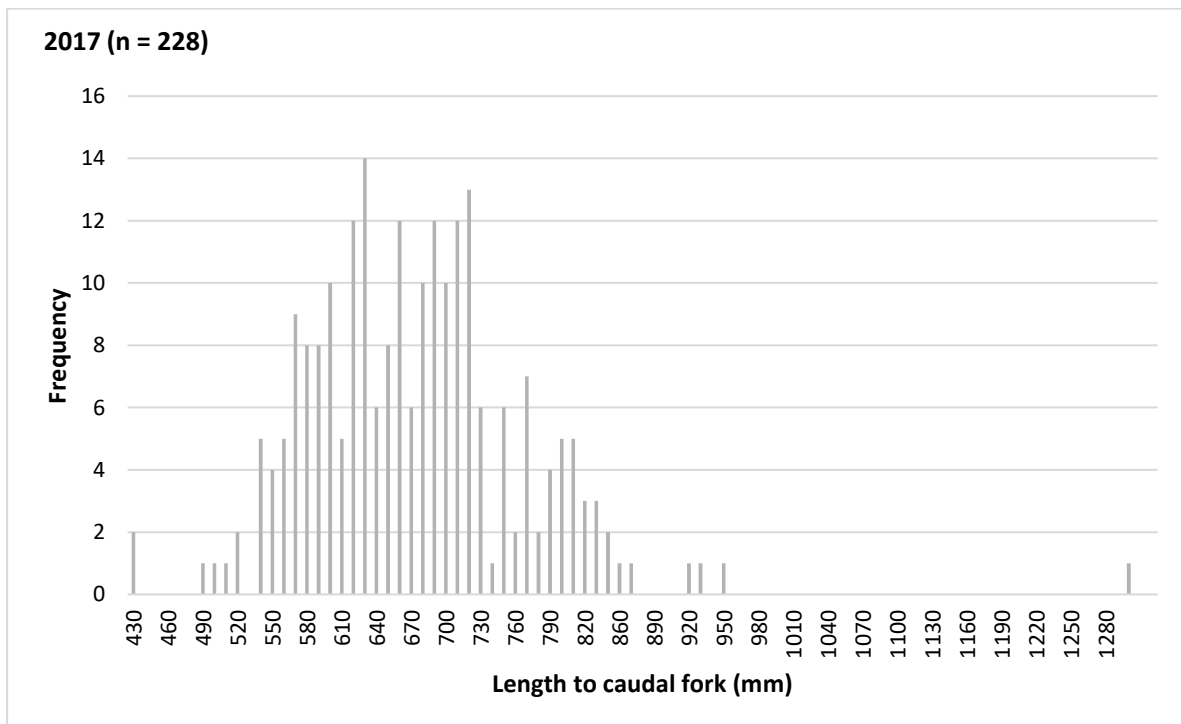
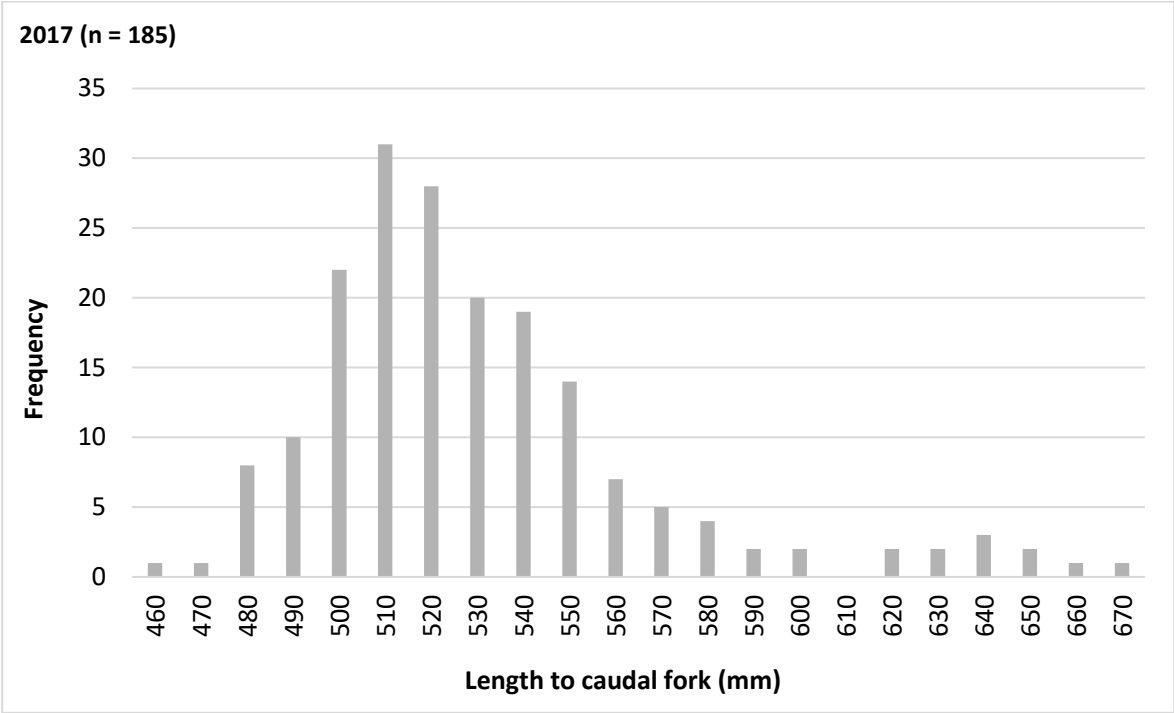


Figure 4 Length frequency of *Hyperglyphe antarctica* measured by observers on Australian longline vessels in the SPRFMO area, 2017



6 Ecosystem approach considerations

Seabird interactions and mitigation measures

Australian vessels have recorded low seabird interaction and mortality rates in the SPRFMO area. Australian longline vessels operating in high seas areas, including the SPRFMO area, are required to deploy tori (streamer) lines to deter seabirds. All trawl vessels must deploy bird bafflers on both warps while fishing gear is in the water.

Longline vessels must not discharge any biological material during shooting and hauling, where possible, to avoid attracting seabirds to the vessel. Where it is necessary to discharge biological waste due to operational safety concerns, vessels should batch waste for two hours or longer.

In 2018, Australia was compliant with CMM 09-2017 regarding the minimisation of seabird interactions.

Bycatch of seabirds, marine mammals, marine reptiles and other species of concern

Observers did not report any bycatch of marine mammals, seabirds or marine reptiles in trawl or non-trawl operations in the SPRFMO area in 2018. Full observer data for 2018 were not available at the date of submission. A small number of interactions with Oceanic whitetip shark (*Carcharhinus longimanus*), which are protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), were reported in logbooks in 2018.

Benthic bycatch

Full observer data are not yet available for 2018. In the trawl fishery in 2017, observers reported 13kg of Echinodermata, 6kg of Scleractinia and <1kg of Crinoidea and Pennatulacea. In the non-trawl fishery in 2017, observers reported 9kg of Crinoidea, 2kg of Hydrozoa and <1kg of Spongiidae.

Abandoned, lost, discarded or retrieved fishing gear

A small amount of lost gear was reported in logbooks during 2018 (Table 5).

Table 5 Logbook data of abandoned, lost, discarded or retrieved fishing gear from Australian flagged vessels operating within the SPRFMO Convention area during 2018

Year	Floats (lost)	Anchor (lost)	Hooks (lost)	Rope (lost)
2018	3	2	980	Y

7 Summary of observer and port sampling programs

Observer program

During 2018, observer coverage levels met or exceeded the minimum requirement (10% coverage for non-trawl, not applicable for trawl) as required under CMM 03-2018 (superseded by CMM 03-2019). Observer coverage is expressed as the percentage of the number of hooks or trawls observed. Observers are deployed on an as-needs basis to ensure appropriate coverage. For non-trawl gears, observer coverage will often exceed the minimum observer coverage requirement due to the low number of trips. Additionally, all Australian-flagged auto-longline boats fishing in the SPRFMO area have electronic monitoring (e-monitoring) systems installed to monitor fishing activity and support verification of logbook reports when fishing in the Australian Fishing Zone. Footage collected on the high seas is not currently reviewed, but it could be used in future to supplement human observer coverage if the data need arises.

AFMA recruits and trains observers through its national Independent Scientific Monitoring Program. Observers have a scientific background or experience in the fishing industry or other maritime industries and must demonstrate skills in collecting biological data at sea, fisheries research methodologies and collection of associated scientific data. Observers also hold a marine radio operators certificate of proficiency (or similar qualifications), a sea safety certificate and medical certificate, and have completed an AFMA observer training course.

Observers collect a range of data on vessel characteristics, fishing activity, catch composition, discarding and bycatch. There were no changes to observer requirements in 2018.

Port sampling program

Australia does not currently have a port sampling program for vessels that fish in the SPRFMO area. The landings are monitored through catch disposal records where the catch is verified by an AFMA-registered fish receiver. These data have been submitted to the SPRFMO Secretariat.

Relevant publications

[High Seas Management Arrangements Booklet 2017 \(PDF, 1MB\)](#)

[High Seas Sustainability Assessment Report \(PDF, 4 MB\)](#)

[Bottom Fishery Impacts Assessment – Australian report for the South Pacific Regional Fisheries Management Organisation \(PDF, 4 MB\)](#)

Appendix A Common and scientific names

Common name	Scientific name
Alfonsino	<i>Beryx splendens</i>
Blue-eye trevalla	<i>Hyperoglyphe antarctica</i>
Cardinal fish	Family Apogonidae
Flame snapper	<i>Etelis coruscans</i>
Jackass morwong	<i>Nemadactylus macropterus</i>
Jack mackerel	<i>Trachurus</i> spp.
Jumbo flying squid	<i>Dosidicus gigas</i>
Ocean blue-eye trevalla	<i>Schedophilus velaini</i>
Oceanic whitetip shark	<i>Carcharhinus longimanus</i>
Orange roughy	<i>Hoplostethus atlanticus</i>
Redthroat emperor	<i>Lethrinus miniatus</i>
Robinson's seabream	<i>Gymnocranius grandoculis</i>
Smooth oreodory	<i>Pseudocyttus maculatus</i>
Spiky oreodory	<i>Neocyttus rhomboidalis</i>
Spotcheek emperor	<i>Lethrinus rubrioperculatus</i>
Yellowback bream	<i>Dentex spariformis</i>
Yellowtail kingfish	<i>Seriola lalandi</i>
