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Australia's Annual report

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Australian Government
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ABARES

Australia's National Report on 2014 fishing activities to the South Pacific Regional Fisheries Management Organisation's Scientific Committee

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Contents

1 Description of fisheries

This report summarises the fishing activities undertaken by Australian-flagged vessels in 2014 in the South Pacific Regional Fisheries Organisation (SPRFMO) Area of Application. It excludes data from within the Exclusive Economic Zone (EEZ) of Australia and external territories (e.g. Norfolk Island). Data are not reported for tuna and billfish fisheries that operate in the Western and Central Pacific Fisheries Commission (WCPFC) Area. Note that scientific and common names are provided in Appendix A.

Australian operators in the SPRFMO Convention Area are currently authorised by the Australian Government to target various species with mid-water and demersal trawl, traps, dropline, minor line, automatic longline and demersal longline. The vessels undertaking high seas fishing in the SPRFMO Area do so under permits issued by the Australian Fisheries Management Authority (AFMA).

In 2011, AFMA revised the high seas permit conditions for vessels operating in the SPRFMO Area (AFMA 2011). In accordance with the requirements of Conservation and Management Measure (CMM) 2.03, the revised permit conditions restricted vessels to fishing within the 2002–06 Australian fishing footprint as defined by a series of coordinates (Map 1).

Australia is currently investigating a potential breach of paragraph 8(d) of CMM 2.03, in which Australia restricts bottom fishing of Australian vessels to its bottom fishing footprint. It is noted that at all times while fishing in the SPRFMO Convention Area, including at the time of the alleged incident, the vessel operator completed daily fishing logbooks and catch disposal records, had its vessel monitoring system operational and carried an observer on board. The investigation is ongoing and Australia will report the outcome to the SPRFMO Commission once it is finalised.

The VME threshold limits, which trigger Australia's move-on protocols, are 50 kg of corals or sponges in a shot for trawlers and 10 kg of corals or sponges per 1000 hooks for longliners. This threshold was not triggered in 2014.

Fleet composition

Four Australian-flagged vessels fished in the SPRFMO Area in 2014; two trawlers and two non-trawl vessels (Table 1).

Table 1 Fishing effort, catches and the number of Australian vessels that actively fished in the SPRFMO Area, 2012–2014

	Vessels that actively fished pelagically			Vessels that actively bottom fished					
				Non-trawl			Trawl		
Year	2012	2013	2014	2012	2013	2014	2012	2013	2014
Vessels	0	0	0	2	2	2	1	1	2
Catch (t)	0	0	0	110	133	99	287	139	104
Effort	0	0	0	349	594	379	139	115	79

Note: Fishing effort is presented in hours for trawl and as thousands of hooks for non-trawl.

2 Catch, fishing effort and CPUE

Australia's vessels landed a total catch of 204 tonnes of fish caught in the SPRFMO Area in 2014. Orange roughy, blue-eye trevalla, jackass morwong, and yellowtail kingfish were again among the top five species caught by weight (scientific names corresponding to these common are provided in Appendix A). Australia's vessels did not target alfonsino in 2014 and caught smaller quantities of this species than in previous years (<1 t in 2014, a decline from 73 t in 2013). These five species collectively comprised 78 per cent of the total non-trawl catch in 2014. Orange roughy comprised 97 per cent of the 2014 trawl catch. There was no fishing effort directed at, or catch of, jack mackerel (*Trachurus* spp.) by Australian vessels operating in the SPRFMO Area in 2014.

Logbook estimates of catch, nominal fishing effort and catch per unit effort (CPUE) are shown for key species in Table 2 (trawl) and Table 3 (non-trawl). Total effort for the trawl fishery declined from 104 trawl hours in 2006 to zero in 2008–10. Trawl effort then increased to 92 hours in 2011, and 139 hours in 2012 before a declining to 115 in 2013 and 79 hours in 2014. The total number of active vessels in the trawl fishery declined from twelve in 1998 and 2000, to two in 2007 and none in 2008–10. Two Australian trawlers were active in the SPRFMO Area in 2014. The nominal CPUE for orange roughy in the trawl fishery shows substantial variation over time, with no clear trend. Other species caught by trawl, including smooth oreodory, spiky oreodory, alfonsino and cardinal fish, also show fluctuations in CPUE over time.

Fishing effort of non-trawl vessels has not been reported prior to 2008 due to confidentiality restrictions. Effort has fluctuated over time, declining from >750 000 hooks in 2008, to 333 000 hooks in 2010. Effort was 379 000 hooks in 2014, below the 419 000 hook five-year average. This five-year average is largely driven by the high 594 000 hook effort in 2013. The total number of vessels active in the non-trawl fishery declined from a peak of five in 2006, to one vessel in 2011. There have been two active non-trawl vessels in the SPRFMO Area since 2012. The nominal CPUE for morwong in the non-trawl fishery shows minor variations over time, averaging 9 t per 1000 hooks in 2011–14. Other major target species show similarly low variations in CPUE. Yellowtail kingfish varies the most, from 0.15 t per 1000 hooks in 2012, to 0.07 t per 1000 hooks in 2014.

Map 1 Australia's fishing footprint and identified fishing grounds in the SPRFMO Area

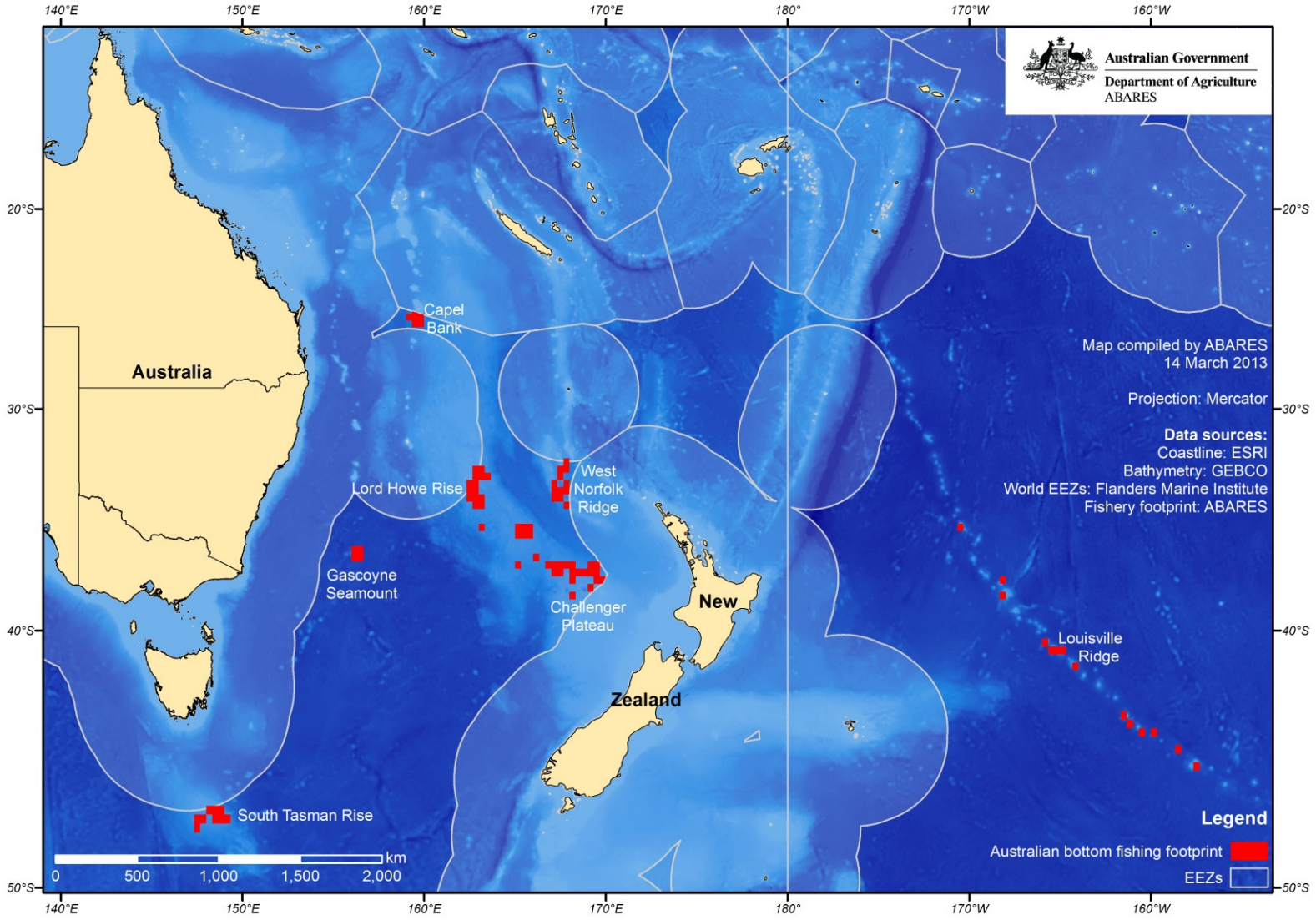


Table 2 Number of active vessels, fishing effort (hours), annual catch (t) and nominal CPUE (t/trawling hour, in parentheses) of major species reported in logbooks by Australian trawlers in the SPRFMO Area, 1987–2014.

Year	No. of vessels	Effort (hours)	Catch of major species (t) and CPUE					Total catch (t)
			Orange roughy	Smooth oreo	Spiky oreo	Alfonsino	Other species	
1987–1990 a	6	105	9 (0.08)	0 (0.00)	0 (0.00)	0 (0.00)	8	17
1991–1993 a	6	85	367 (4.31)	1 (0.01)	107 (1.26)	0 (0.00)	4	479
1994	7	257	192 (0.74)	0 (0.00)	6 (0.02)	0 (0.00)	5	203
1995–1996 a	6	62	21 (0.34)	12 (0.19)	10 (0.16)	0 (0.00)	54	98
1997	10	396	1 458 (3.68)	505 (1.27)	448 (1.13)	1 (0.00)	56	2 468
1998	12	916	3 098 (3.38)	420 (0.46)	620 (0.68)	1 (0.00)	5	4 143
1999	10	777	2 514 (3.23)	106 (0.14)	89 (0.11)	8 (0.01)	5	2 720
2000	12	752	948 (1.26)	123 (0.16)	86 (0.11)	4 (0.00)	8	1 170
2001	9	307	751(2.45)	13 (0.04)	31 (0.10)	1 (0.00)	3	799
2002	8	196	376 (1.91)	6 (0.03)	67 (0.34)	3 (0.01)	3	453
2003	9	102	166 (1.62)	6 (0.06)	63 (0.61)	2 (0.02)	1	238
2004	5	48	369 (7.72)	22 (0.46)	12 (0.26)	1 (0.02)	1	406
2005	3	29	207 (7.19)	74 (2.58)	1 (0.02)	81 (2.81)	14	377
2006	3	104	166 (1.60)	0 (0.00)	0 (0.00)	209 (2.02)	75	451
2007	2	71	148 (2.09)	0 (0.00)	1 (0.01)	86 (1.21)	18	253
2008	0	–	–	–	–	–	–	–
2009	0	–	–	–	–	–	–	–
2010	0	–	–	–	–	–	–	–
2011	1	92	2 (0.02)	0 (0.00)	0 (0.00)	47 (0.51)	14	63
2012	1	139	56 (0.40)	<1(0.01)	<1(0.01)	167 (1.20)	119	264
2013	1	115	49 (0.43)	<1 (0.01)	0 (0.00)	72 (0.63)	17	138
2014	2	79	102 (1.29)	0 (0.00)	<1 (0.01)	<1 (0.01)	2	104

a In earlier years, data were combined over several years to meet a policy on not reporting data for fewer than five vessels.
Note: Logbook weights are based on visual estimates by skippers of retained catch weights. They do not always exactly match subsequent landings.

Table 3 Number of active vessels, fishing effort ('000s of hooks), annual catch and nominal CPUE (t/1000 hooks, in parentheses) of major species reported in logbooks by Australian vessels using non-trawl gear in the SPRFMO Area, 1997–2014.

Year	No. of vessels	Effort ('000 hooks) a	Catch of major species (t) and CPUE					Total catch (t)
			Morwong b	Blue-eye trevalla	Ocean blue-eye trevalla	Yellowtail kingfish c	Other species c	
1997	1	-	1	6	0	0	3	9
1998	3	-	31	26	0	15	34	106
1999	4	-	29	22	0	13	26	90
2000	1	-	79	6	0	14	19	117
2001	3	-	43	21	35	5	53	157
2002	3	-	81	27	66	32	38	244
2003	3	-	16	30	13	1	24	84
2004	3	-	0	2	7	0	8	18
2005	2	-	1	4	0	0	4	9
2006	5	-	10	8	0	22	20	59
2007	2	-	7	16	0	1	24	48
2008	3	751	24 (0.03)	3 (<0.01)	0 (0.00)	25 (0.03)	125	177
2009	3	507	13 (0.03)	4 (<0.01)	0 (0.00)	11 (0.02)	79	106
2010	3	333	23 (0.07)	6 (0.02)	0 (0.00)	17 (0.05)	49	95
2011	1	443	45 (0.10)	17 (0.04)	0 (0.00)	24 (0.05)	5	91
2012	2	349	40 (0.11)	10 (0.03)	0 (0.00)	54 (0.15)	6	110
2013	2	594	39 (0.07)	37 (0.06)	<1 (<0.01)	23 (0.04)	33	133
2014	2	379	30 (0.08)	21 (0.06)	0 (0.00)	26 (0.07)	22	99

a Historical effort not reported due to data handling issues and/or confidentially concerns. **b** Morwong catch from 1997 to 2009 is combined *Nemadactylus macropterus* and *Nemadactylus* spp. Morwong catches in subsequent years were *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 corrected and now match the data submission for 2010.

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.

3 Fisheries data collection and research activities

Australian vessels require a permit from AFMA to fish in the SPRFMO Area. The permits are issued for a period of up to 12 months. As part of the permit requirements, AFMA collects detailed information on fishing trips in accordance with the SPRFMO Data Standards.

From September 2014, auto-longline boats fishing in the SPFRFMO area had electronic monitoring (e-monitoring) systems installed to monitor fishing activity and support verification of logbook reports. The e-monitoring systems include multiple cameras and sensors (GPS, hydraulic and drum rotation sensors) that are set up to record all catches and fishing activities. A random sample of video data is analysed by AFMA when the boat returns to port and used to verify logbook catch reports, including discards and protected species interactions. Through e-monitoring all fishing activity is independently monitored and ensures that AFMA has an accurate and reliable record of all catch, discards and interactions with protected species. E-monitoring included trips where observers were active, in accordance with SPRFMO requirements.

Logbooks and landings

Since 2002, permit conditions have included the requirement 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. The logbooks have been revised on several occasions. The current longline logbook (LN01A—Line Fishing Daily Fishing Log) and trawl logbook (EFT01B—Eastern Finfish Trawl Daily Fishing Log) were introduced in 2007. Fishers are also required to record bycatch and discards in the logbooks.

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. Skippers tend to under-estimate the weights reported in logbooks for most species, so the catch disposal record data have been reported in domestic official statistics since 2007. Compliance checks are conducted on landings as part of a risk-based compliance program. Weight estimates are also derived from the size-monitoring program, and are likely to be more accurate than logbook data for that part of the time series.

The logbook and catch disposal record data have been submitted to the SPRFMO Secretariat, as required by the SPRFMO Data Standards (CMM 2.02).

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. For 2014, there was a 97.9 per cent compliance rate of all Commonwealth nominated vessels that had a fully operational and functioning unit. Compliance with ICVMS requirements has increased markedly since mid 2008. 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 closed areas.

Research

AFMA commissioned a bottom fishing impact assessment of Australian fishing activity in the SPRFMO Area and this was submitted to the SPRFMO Science Working Group in 2011 (CSIRO 2011).

In 2011, AFMA commissioned ABARES to assess the sustainability of the harvest of key commercial species in the SPRFMO Area by Australian vessels (Woodhams et al. 2012). Results indicated that:

1) The main data that could be used for sustainability assessments for deepwater species in the SPRFMO Area are the catch and effort data of fishery participants. For the assessment, Australia had to rely primarily on data for the Australian fleet, with some data on catches by other participants. It will be necessary to obtain catch and effort data from all participants, at adequate spatial scales (at least 0.1 degree square, but preferably shot-by-shot) to evaluate alternative assessment approaches, and conduct deepwater sustainability assessments for the SPRFMO Area.

2) Even if data can be obtained from all participants, catch and effort data for deepwater fisheries are typically limited, and may not provide reliable indices of abundance for use in standard stock assessment approaches. Assessments of this nature are likely to remain difficult for any high seas demersal fishery.

3) Alternative assessment approaches will therefore need to be considered for these deepwater fisheries. Options include:

    - Application of meta-analysis or similar approaches such as those identified by Clark et al. (2010), to estimate carrying capacity for seabed features or fishing areas. These could be used to provide estimates of sustainable yields by feature or fishing area.

    - The development of spatial habitat prediction models for demersal fish species, analogous to the global habitat prediction models developed by Davies & Guinotte (2011) for coldwater corals. These could be used to develop spatial protection approaches for proportions of fish species populations, using suitable habitat as a proxy for biomass.

In 2013, Australia, in collaboration with New Zealand, undertook research and literature reviews that informed the SPRFMO Scientific Committee discussions on bottom fishing. Specific tasks included:

- Identification of vulnerable benthic taxa in the SPRFMO Area and review of move-on rules for different gear types (Hansen et al. 2013).

- Mapping of bottom fished areas and consideration of fishing reference periods in the SPRFMO Area (Penney 2013).

4 Biological sampling and length/age composition of catches

Length–frequency data are collected by Australian observers in the SPRFMO Area and submitted annually to the SPFRFMO Secretariat. Length frequencies of orange roughy caught by trawl are presented in Figure 1, and jackass morwong caught by demersal longline are presented in Figure 2. A revised version of the national report will be submitted to SPRRMO once observer data are available. Orange roughy length is presented as standard length and jackass morwong length is reported as length to caudal fork (LCF).

Figure 1 Length frequency of orange roughy measured by observers on Australian trawl vessels in the SPRFMO Area

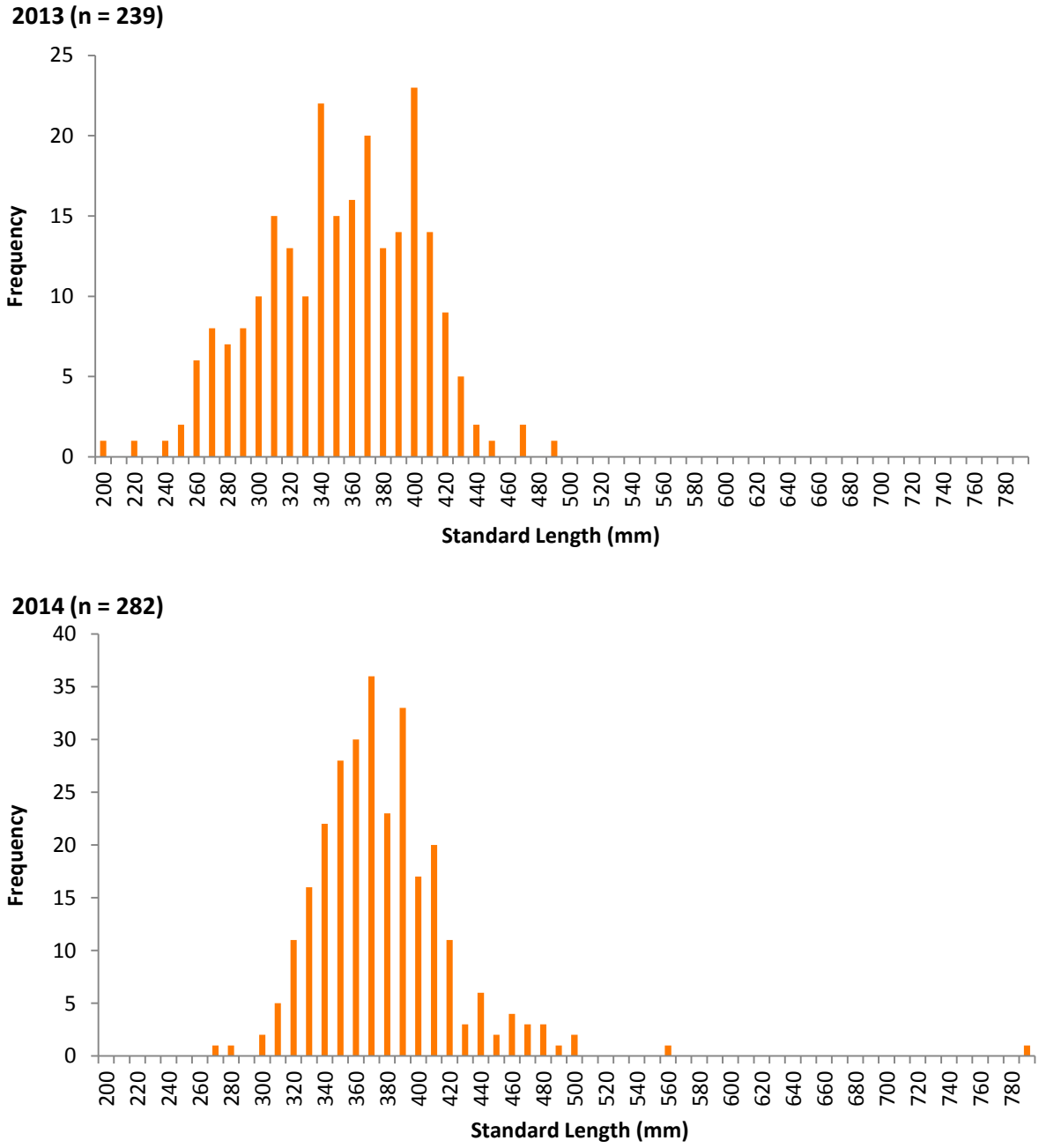
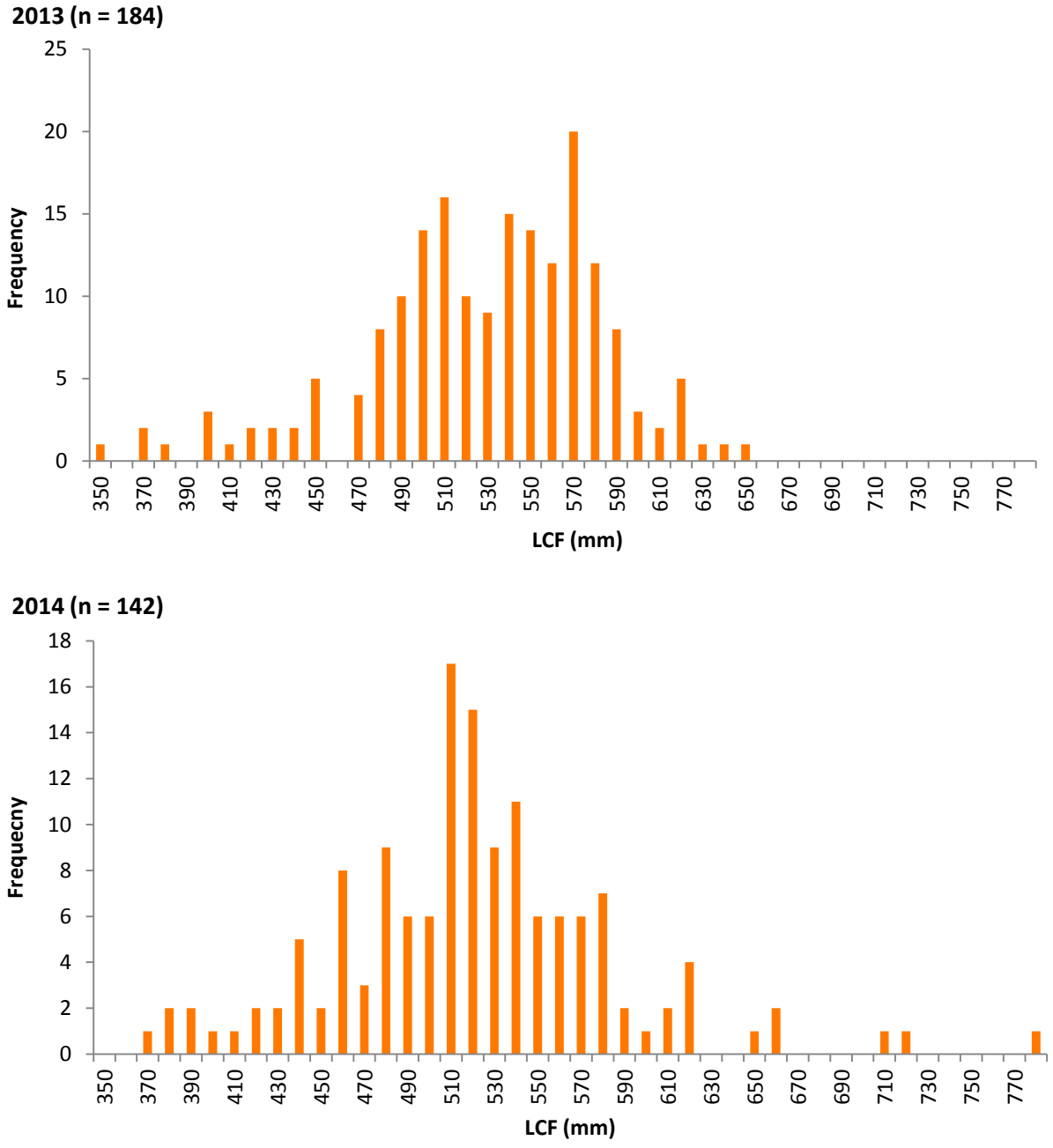


Figure 2 Length frequency of jackass morwong measured by observers on Australian longline vessels in the SPRFMO Area



5 Summary of observer and port sampling programs

Observer program

Since 2010, Australian permit conditions for bottom fishing in the SPRFMO Area have required 100 per cent observer coverage on all vessels permitted to use trawl gear. This was not achieved for 2014. As reported to the Commission in July 2014, an Australian flagged and authorised sterntrawler operated in the SPRFMO Convention Area without an observer between 2 and 11 July 2014 because the nominated observer, duly authorised and trained under Australia's national observer program, was unable to leave Australia due to a problem with his passport. Noting the mitigating circumstances and taking into account the history of the operator, Australia authorised the vessel to operate without an observer, but imposed the following conditions: the trip length was limited to no longer than 18 days, the vessel was required to notify port authorities 48 hours before landing and the vessel was subject to a port inspection which provided no evidence to suggest that the vessel contravened any SPRFMO Conservation and Management Measures.

Ten per cent observer coverage is required for vessels using other demersal fishing methods. Observers monitored two of the seven trips of the two non-trawl vessels in the SPRFMO Area in 2014, amounting to about 22 per cent observer coverage of all reported hooks.

AFMA recruits and trains the observers. About sixteen observers are currently employed in the AFMA observer 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 2014.

Observers did not record any bycatch of marine mammals, seabirds or marine reptiles in trawl or non-trawl operations in the SPRFMO Area in 2014.

Table 4 Summary of demersal fishing effort, observer coverage and sampling in the SPRFMO Area in 2014

Gear	Logbook			Observer		
	No. of trips	No. of tows/hooks [a]	Reported catch (t)	No. of trips	No. of tows/ hooks [b]	No. of fish measured
Trawl	7	121	104	4 [c]	87	282
Non-trawl	7	379 000	99	2	84 000	254

a Tows or sets with a zero catch are not reported in the logbook. **b** Observer data include tows or sets with a zero catch in addition to those where a catch was taken. Slight discrepancies may occur due to delays in data being added to the database. **c** In 2014 there were seven trawl trips reported in logbooks by Australian trawl vessels. The apparent discrepancy between these seven trips and the four trips reported by observers is due to a single trip that did not have an observer on board plus two occasions when observers did not disembark from the vessel and continued observations under the preceding voyage ID.

Seabird interactions and mitigation measures

Australia is compliant with CMM 2.04 regarding the minimisation of seabird catch. Australian vessels have recorded low seabird interaction and mortality rates in the SPRFMO area and observer coverage levels have exceeded the minimum requirement (10 per cent coverage for non-trawl, and 100 per cent coverage for trawl trips) over the past five years or more.

Australian longline vessels operating in high seas areas, including the SPRFMO Area, are required to deploy tori (streamer) lines of at least 100 m in length. More specific seabird mitigation measure regulations are outlined in Appendix B. The discharge of offal from longline fishing vessels is regulated by Division 3 of the *Fisheries Management Regulations 1992*, prohibiting the discharge of offal in setting and hauling of pelagic and demersal longlines. These measures are consistent with CMM 2.04.

Australian trawl vessels have recorded observed seabird mortality of less than one mortality per vessel per year, which is below the trigger threshold. There is therefore no requirement under CMM 2.04 to implement further mitigation measures.

Port sampling program

Australia does not 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.

Appendix A Common and scientific names

Common Name	Scientific Name
Alfonsino	*Beryx splendens*
Blue-eye trevalla	*Hyperoglyphe antarctica*
Cardinal fish	Family Apogonidae
Jackass morwong	*Nemadactylus macropterus*
Jack mackerel	*Trachurus* spp.
Orange roughy	*Hoplostethus atlanticus*
Smooth oreodory	*Pseudocyttus maculatus*
Spiky oreodory	*Neocyttus rhomboidalis*
Yellowtail kingfish	*Seriola lalandi*

Appendix B Seabird mitigation measures in Australian high seas fisheries

Source: AFMA 2012, 'High seas permits: Management arrangements booklet', Australian Fisheries Management Authority, Canberra.

Where longlines are authorised, tori (streamer) lines of at least 100 metres in length and meeting the requirements set out in permit conditions, must be deployed to deter seabirds. Requirements include that the tori line:

i. must be a minimum of 100 metres in length;

ii. must be deployed from a position on board the boat and utilise a drogue so that it remains above the water surface for a minimum of 90 metres from the stern of the boat;

iii. must have streamers attached to it with a maximum interval between the streamers of 3.5 metres; and

iv. in addition to part i. above, all streamers must be maintained to ensure their lengths are as close to the water surface as possible.

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