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SC-01-05 (01)

Australia's National Report on 2015 fishing activities to the Southern Indian Ocean Fisheries Agreement's Scientific Committee

Relates to agenda item: 5 Working paper ☒ info paper ☐

Delegation of Australia

Abstract

This paper updates the SIOFA Scientific Committee on Australia's fishing activities in the SIOFA Area.

Australian operators in the SIOFA 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. In 2015 one Australian multipurpose trawler-longliner conducted a single trip. Catch and effort data for 2015 are not yet available.

Effort and catch composition of Australian trawl vessels (2005-2014) and non-trawl vessels (2005-2014) are presented.

Recommendation

That the Scientific Committee consider the national report provided by Australia.

Australian Government
Department of Agriculture and Water Resources
ABARES

Australia's National Report on 2015 fishing activities to the Southern Indian Ocean Fisheries Agreement's Scientific Committee

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Research by the Australian Bureau of Agricultural and Resource Economics and Sciences

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Contents

1 Description of fisheries

This report summarises the fishing activities undertaken by Australian-flagged vessels in 2014 and 2015 in the Southern Indian Ocean Fisheries Agreement (SIOFA) Area. It excludes data from within the Exclusive Economic Zone (EEZ) of Australia. Data are not reported for tuna and tuna-like fisheries because SIOFA does not have competence over these species. Note that scientific and common names are provided in Appendix A.

Australian operators in the SIOFA 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 SIOFA Area do so under High Seas Permits issued by the Australian Fisheries Management Authority (AFMA).

Since 2012 Australian vessels in the SIOFA Area have been restricted to fishing within the 1999-2009 Australian fishing footprint (Map 1).

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 or 1200 metre section of line (whichever is shorter) for longliners. This threshold was not triggered in 2014 or 2015.

Fleet composition

Six Australian-flagged vessels hold permits to fish in the SIOFA Area. One Australian flagged vessel actively fished in the SIOFA Area in 2015 (Table 1). The multipurpose trawler-longliner vessel conducted a single trip. Catch and effort data for 2015 are not yet available.

Table 1 Fishing effort, catches and the number of Australian vessels that actively fished in the SIOFA Area, 2013–2015

	Non-trawl vessels that actively fished			Vessels that actively trawled					
				Mid-water trawls **a**			Benthic trawl		
Year	2013	2014	2015 **b**	2013	2014	2015 **b**	2013	2014	2015 **b**
Vessels	0	0	1	1	1	1	1	1	1
Catch **c**	-	-	NA	*	*	NA	*	*	NA
Effort **d**	-	-	NA	59	91	NA	3	14	NA

a 'Midwater trawl' is defined as fishing with a pelagic net designed for off-bottom fishing. There may however be some occasional bottom contact. **b** Catch and effort data for 2015 are not yet available. **c** In line with confidentiality restrictions that prevent the disclosure of fishing activity by fewer than five vessels, catch data cannot be presented for Australian operations in the SIOFA Area. **d** Fishing effort is presented in hours for trawl and as thousands of hooks for non-trawl. Notes: **NA** Not available. **–** Not applicable. * Confidential.

2 Catch, fishing effort and CPUE

In line with confidentiality restrictions that prevent the disclosure of fishing activity by fewer than five vessels, catch data cannot be presented for Australian operations in the SIOFA Area.

One Australian flagged vessel was active in the SIOFA Area in 2015. The multipurpose trawler-longliner vessel conducted a single trip. Catch and effort data for 2015 are not yet available.

Australian catch is landed in Port Louis, Mauritius. In 2014 rubyfish, ocean blue-eye trevalla, alfonsino, orange roughy and cardinalfish were the top five species caught by weight (scientific names corresponding to these common are provided in Appendix A). These five species collectively comprised 95 per cent of the total catch in 2014. Rubyfish comprised 36 per cent of the 2014 catch (Table 2; Figure 1).

Nominal fishing effort and catch compositions are shown for key species in Table 2 (trawl) and Table 3 (non-trawl). Total effort for the trawl fishery fluctuates between years but has largely declined from 325 and 329 trawl hours in 2005 and 2007 respectively, to 62 trawl hours in 2013 and a single trip in 2015 (further effort data for 2015 are not yet available). The total number of active vessels in the trawl fishery declined from three in 2005, to two in 2006 and one in 2007–15. The proportion of orange roughy catch in the trawl fishery shows a clear peak around 2009-2010 before declining to constitute a minor component of catch in 2014. Other species caught by trawl, including rubyfish, ocean blue-eye trevalla and alfonsino also show fluctuations in catch composition over time.

There was no non-trawl effort by Australian-flagged vessels in the SIOFA Area between 2009 and 2014.

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

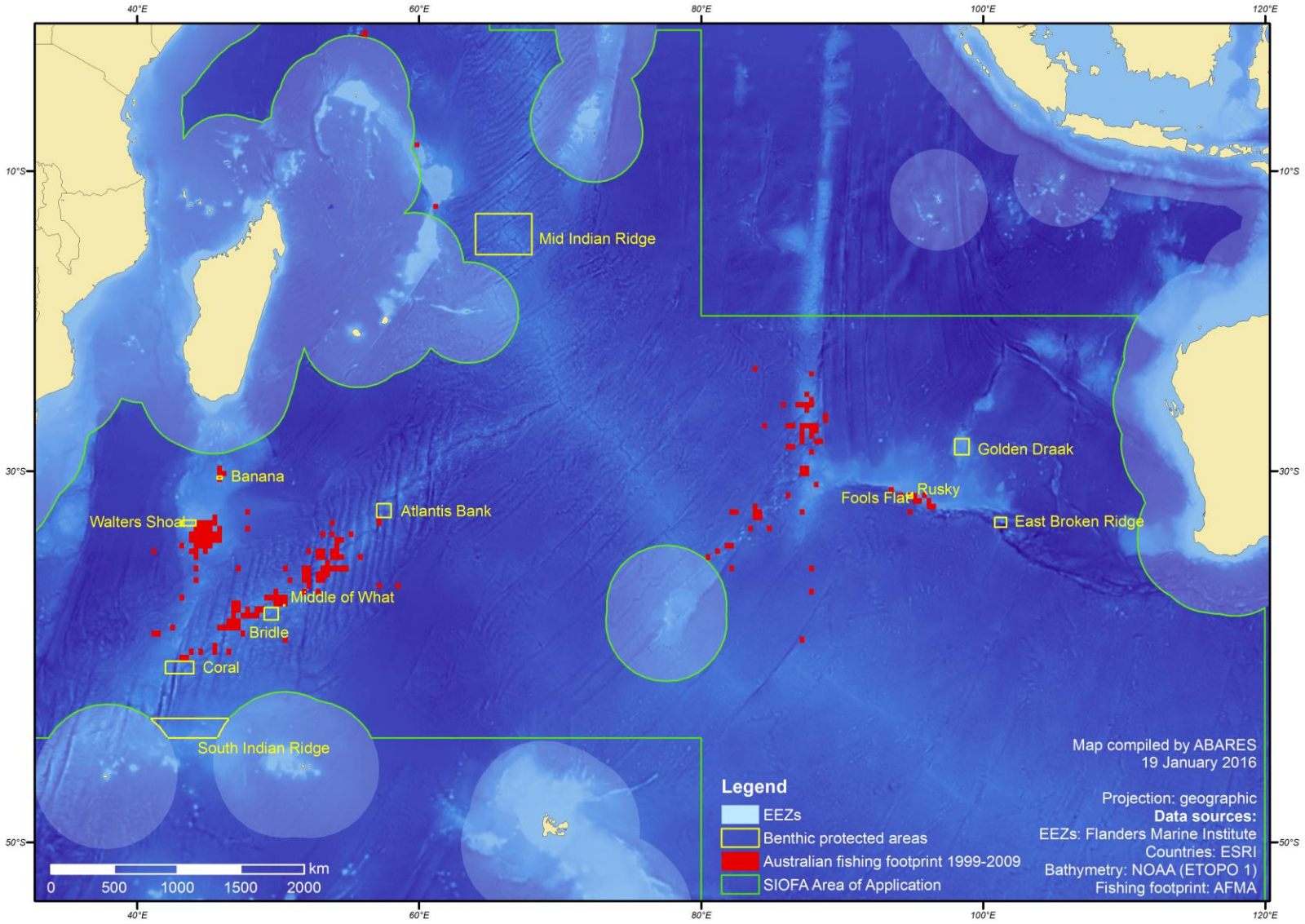


Table 2 Number of active vessels, fishing effort (hours) and catch composition of major species reported in logbooks by Australian trawlers in the SIOFA Area, 2005–2015.

Year	No. of vessels	Effort (hours)	Catch of major species (per cent of total catch)						Total catch a
			Alfonsino	Blue-eye Trevalla	Ocean Blue-eye Trevalla	Orange Roughy	Rubyfish (mixed)	Other species	
2005	3	325	0.25	0.01	0.35	0.11	0.03	0.25	Confidential
2006	2	124	0.67	0.06	0.00	0.09	0.01	0.17	Confidential
2007	1	329	0.37	0.08	0.39	0.00	0.06	0.11	Confidential
2008	1	99	0.79	0.00	0.20	0.00	0.00	0.01	Confidential
2009	1	212	0.07	0.03	0.07	0.71	0.00	0.13	Confidential
2010	1	130	0.04	0.00	0.05	0.67	0.01	0.24	Confidential
2011	1	294	0.55	0.05	0.03	0.29	0.00	0.07	Confidential
2012	1	252	0.58	0.00	0.23	0.06	0.06	0.06	Confidential
2013	1	62	0.54	0.00	0.40	0.00	0.00	0.06	Confidential
2014	1	106	0.16	0.00	0.28	0.08	0.36	0.12	Confidential
2015 **a**	1	NA	NA	NA	NA	NA	NA	NA	NA

a In line with confidentiality restrictions that prevent the disclosure of fishing activity by fewer than five vessels, catch data cannot be presented for Australian operations in the SIOFA Area.
b Catch and effort data for 2015 are not yet available.
Notes: Catch composition is estimated using logbook weights which are based on visual estimates by skippers of retained and discarded catch weights. They do not always exactly match subsequent landings. **NA** Not available.

Figure 1 Trawl catch by species, and trawl effort in the SIOFA Area, 2005 to 2014

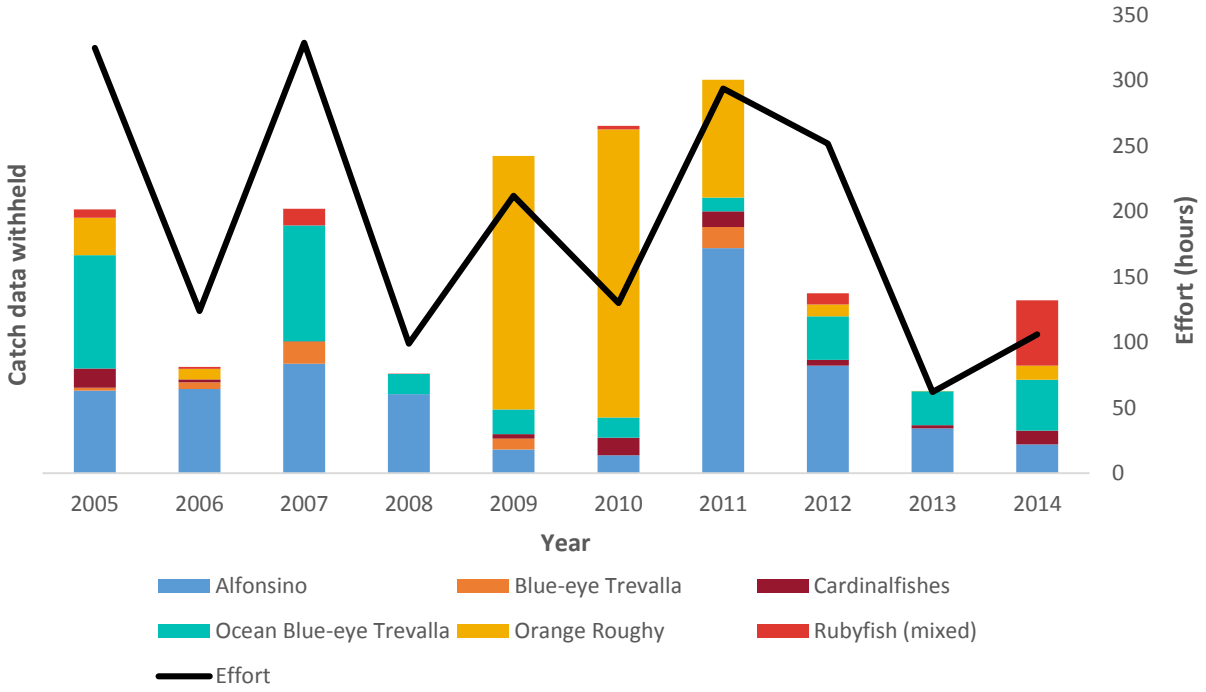


Table 3 Number of active vessels, fishing effort ('000s of hooks), annual catch and nominal CPUE (t/1000 hooks, in parentheses) of major species reported in logbooks by Australian vessels using non-trawl gear in the SIOFA Area, 2005–2015.

Year	No. of vessels	Effort ('000 hooks)	Catch of major species (per cent of total catch)			Total catch a
			Hapuku	Reef ocean perch	Other species c	
2005	0	0	-	-	-	0
2006	0	0	-	-	-	0
2007	0	0	-	-	-	0
2008	1	22	0.43	0.29	0.29	Withheld
2009	0	0	-	-	-	0
2010	0	0	-	-	-	0
2011	0	0	-	-	-	0
2012	0	0	-	-	-	0
2013	0	0	-	-	-	0
2014	0	0	-	-	-	0
2015 b	1	NA	NA	NA	NA	NA

a In line with confidentiality restrictions that prevent the disclosure of fishing activity by fewer than five vessels, catch data cannot be presented for Australian operations in the SIOFA Area. **b** Catch and effort data for 2015 are not yet available. Note: Catch composition is estimated using logbook weights which are based on visual estimates by skippers of retained and discarded catch weights. They do not always exactly match subsequent landings. **NA** Not available. **-** Not applicable.

3 Fisheries data collection and research activities

Australian vessels require a High Seas Permit from AFMA to fish in the SIOFA Area. The permits are granted for a period of up to 12 months. As the permit requirements regarding data collection are the same for vessels fishing in the SIOFA and SPRFMO Areas, AFMA collects detailed information on fishing trips in accordance with the SPRFMO Conservation and Management Measure 3.02 (Data Standards).

Some Australian fishing vessels employ electronic monitoring (e-monitoring) systems. One vessel that holds a permit to fish in the SIOFA Area has such a system installed (although this vessel was not active in the SIOFA Area in 2015). These e-monitoring systems have been installed to monitor fishing activity and support verification of logbook reports and 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 when the boat returns to port and is used to verify logbook catch reports, including discards and protected species interactions. Through e-monitoring fishing activity can be independently monitored and ensures that AFMA has an accurate and reliable record of all catch, discards and interactions with protected species. E-monitoring includes trips where observers were also present on the vessel.

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 logbooks (EFT01B—Eastern Finfish Trawl Daily Fishing Log; SWT01A—Southern and Western 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 may be made available as required pending the finalisation of SIOFA data collection standards.

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. In the 2014-15 financial year, there was a 97.8 per cent compliance rate for all Commonwealth nominated vessels across all fisheries 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 SIOFA Area which was published in 2011 (CSIRO 2011). This report is available at www.afma.gov.au/fisheries/high-seas-permits/.

In 2011, AFMA commissioned ABARES to assess the sustainability of the harvest of key commercial species in the SIOFA Area by Australian vessels (Woodhams et al. 2012). There was limited stock assessment information for the species targeted within the SIOFA Area. A weight of evidence process was used to determine status of stocks by considering the spatial and temporal extent of Australian fishing activity in the context of potential habitat area and what is known about similar fisheries for the same, or similar, species in other oceans. The study assessed alfonsino, blue-eye trevalla, ocean blue-eye, orange roughy, smooth oreodory and spikey oreodory. The results indicated that:

1) Most species or stocks accessed by Australian operations are only accessed in a small proportion of the total assumed available habitat area. No species in the Australian fishery were assessed as subject to overfishing. The determination for alfonsino and orange roughy were uncertain. The determination for all species for the whole SIOFA area was uncertain. On the assumption that deepwater stocks in the whole SIOFA Area are not overfished or experiencing overfishing the catches by the Australian fleet are likely to be sustainable when compared with the sustainable catches of similar demersal species in other oceans.

2) To determine the fishing mortality attributable to the Australian fleet for stocks of deepwater species shared between Australia and other fishing nations requires the catch and effort data of all participants fishing these stocks. For assessment of stocks only fished by the Australian fleet then Australian only catch and effort data could be used. In both cases the maximum spatial aggregation of the catch and effort data is 0.1 degree square for the assessment(s) to be feasible. It would be preferable to use operational data (ie. shot-by-shot).

3) 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.

4) 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.

4 Biological sampling and length/age composition of catches

Length–frequency data are collected by Australian observers in the SIOFA Area. Length frequencies of alfonsino caught by trawl are presented in Figure 1, and length frequencies of orange roughy caught by trawl are presented in Figure 2. Alfonsino length is presented as length to caudal fork (LCF), whereas orange roughy length is presented as standard length.

Figure 2 Length frequency of alfonsino measured by observers on Australian trawl vessels in the SIOFA Area

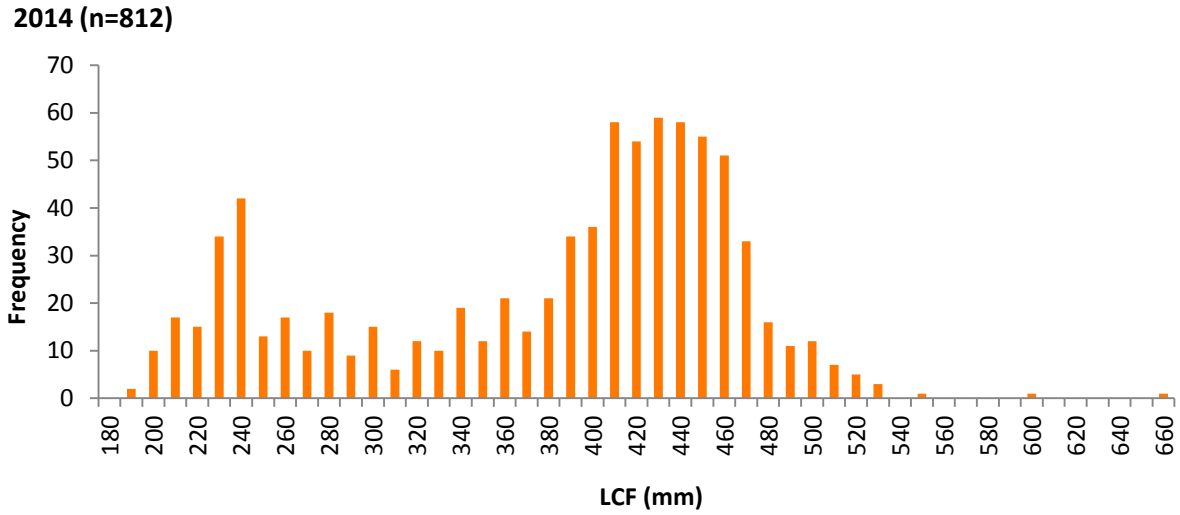
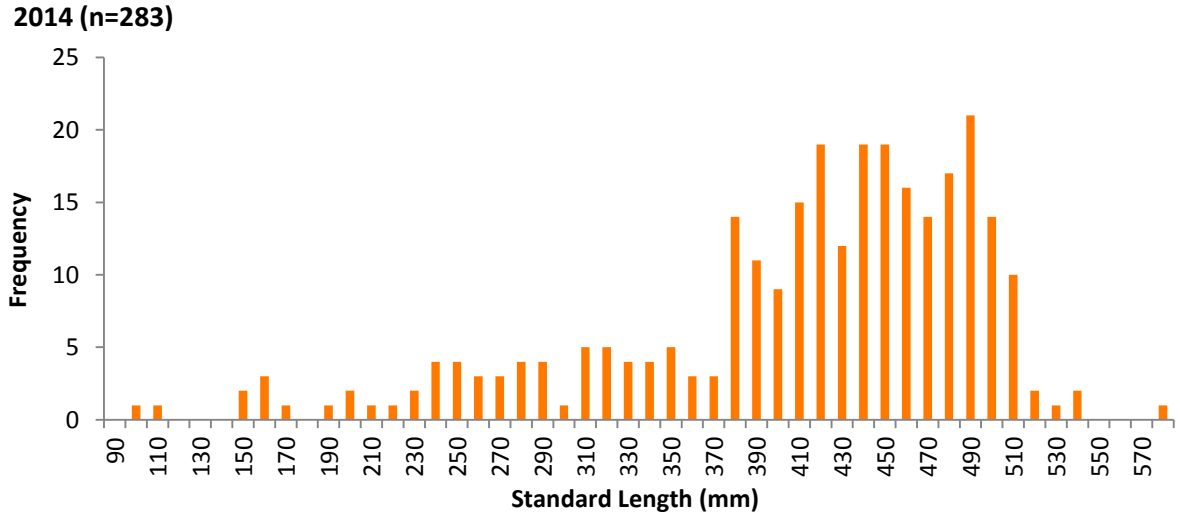


Figure 3 Length frequency of orange roughy measured by observers on Australian trawl vessels in the SIOFA Area



5 Summary of observer and port sampling programs

Observer program

Since 2010, Australian permit conditions for bottom fishing in the SIOFA Area have required 100 per cent observer coverage on all vessels permitted to use trawl gear. This was achieved for 2014. Observer data for 2015 are not yet available.

Ten per cent observer coverage is targeted for vessels using other demersal fishing methods. There was no non-trawl effort by Australian-flagged vessels in the SIOFA Area between 2009 and 2014. Observer data for 2015 are not yet available.

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 sea safety certificate and medical certificate, and have completed an AFMA observer training course. Some observers hold a marine radio operators certificate of proficiency (or similar qualifications).

Observers collect a range of data on vessel characteristics, fishing activity, catch composition, discarding and bycatch. There were no changes to observer requirements in 2015.

Observers did not record any bycatch of marine mammals, seabirds or marine reptiles in trawl or non-trawl operations in the SIOFA Area in 2014 or 2015.

Table 4 Summary of demersal fishing effort, observer coverage and sampling in the SIOFA Area in 2015

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	1	NA	NA	1	NA	NA
Non-trawl	1	NA	NA	1	NA	NA

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.
Notes: Catch, effort and observer data for 2015 are not yet available. **NA** Not available.

Seabird interactions and mitigation measures

Australian longline vessels operating in high seas areas, including the SIOFA 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.

Port sampling program

Australia does not have a port sampling program for vessels that fish in the SIOFA Area. The landings are monitored through catch disposal records where the catch is verified by an AFMA-approved fish receiver. These data are expected to be submitted to the SIOFA Secretariat pending the finalisation of SIOFA data collection standards and confirmation of confidentiality agreements.

Appendix A Common and scientific names

Common Name	**Scientific Name**
Alfonsino	*Beryx splendens*
Blue-eye trevalla	*Hyperoglyphe antarctica*
Cardinal fish	Family Apogonidae
Hapuku	*Polyprion oxygeneios*
Orange roughy	*Hoplostethus atlanticus*
Ocean blue-eye trevalla	*Schedophilus labyrinthicus*
Reef ocean perch	*Helicolenus percoides*
Rubyfish	*Plagiogeneion* spp.
Smooth oreodory	*Pseudocyttus maculatus*
Spikey oreodory	*Neocyttus rhomboidalis*

Appendix B Seabird mitigation measures in Australian high seas fisheries

Source: High Seas General Condition – 2015; Conditions applying to High Seas Fishing Permits.

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.

References

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