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Accord relatif aux Pêches dans le Sud de l'Océan Indien

8th Meeting of the Scientific Committee (SC8)

Tenerife, Spain, 22-31 March 2023

SC-08-01

Australia's Annual Report

Delegation of Australia

Document type	working paper ✔ information paper ☐
Distribution	Public ✔ Restricted [1] ☐ Closed session document [2] ☐

Abstract

This paper updates the SIOFA Scientific Committee on Australia's fishing activities in the SIOFA Area. Australian operators are currently authorised by the Australian Government to target various species with midwater trawl, demersal trawl, demersal line, and potting gears. One trip was undertaken by one vessel using line methods in 2022. The vessel recorded 113,026 demersal longline hooks (20 sets). The majority of catch was comprised of Dissostichus eleginoides. All catch and effort data for fishing operations during 2022 will be submitted to SIOFA in accordance with CMM 2022/02. All data presented in this report comply with Australia's domestic policy associated with the dissemination of fisheries data and this report does not disclose any non-public domain data within the meaning of SIOFA CMM 2016/03. The report will be made publicly available in perpetuity on the SIOFA website.

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SC-08-01

Recommendations
• Notes the national report provided by Australia • Notes that Australia has complied with the annual reporting requirements of the SIOFA Scientific Committee.

Australia's annual report on fishing activities in the Southern Indian Ocean Fisheries Agreement Area

S Blake, Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), Department of Agriculture, Fisheries and Forestry

February 2023

ABARES Technical Report 23.02

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Cataloguing data

This publication (and any material sourced from it) should be attributed as: Blake, S 2023, *Australia's annual report on fishing activities in the Southern Indian Ocean Fisheries Agreement*, ABARES, Canberra, February. DOI: https://doi.org/10.25814/vk2p-pn10. CC BY 4.0.

ISSN 189-3128

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Acknowledgements

The author wishes to thank Trent Timmis (ABARES), Justine Johnston and Danait Ghebrezgabhier (AFMA), and Mat Kertesz and Adam Camilleri (Department of Agriculture, Fisheries and Forestry) for their input.

Acknowledgement of Country

We acknowledge the Traditional Custodians of Australia and their continuing connection to land and sea, waters, environment and community. We pay our respects to the Traditional Custodians of the lands we live and work on, their culture, and their Elders past and present.

Contents

Introduction

This report summarises fishing activity by Australian-flagged vessels in the Southern Indian Ocean Fisheries Agreement (SIOFA) Area. Australian operators are currently authorised by the Australian Government to target various species with midwater trawl, demersal trawl, demersal line, and potting gears. Tuna and tuna-like fisheries, over which the Indian Ocean Tuna Commission has competence, are not reported here. In accordance with CMM 2021/02 (Conservation and Management Measure for the Collection, Reporting, Verification and Exchange of Data related to fishing activities in the Agreement Area) and previous superseded CMMs, Australia's historical logbook data have been provided to the SIOFA Secretariat.

Australian-flagged vessels undertaking high seas fishing in the SIOFA Area do so under High Seas Permits issued by the Australian Fisheries Management Authority (AFMA). The permits are granted for a period of up to 5 years. Consistent with SIOFA CMM 2022/02, Australian high-seas fisheries permits require the implementation of vessel monitoring systems, 100% observer coverage for all trawl operations and a target of 20% observer coverage for longline and pot operations[1].

Australian policy associated with the dissemination of fisheries catch and effort data administered by the Australian Government allows for the public disclosure of:

a) Total fishing season catch and effort statistics for each species 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

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

Australian data that do not meet these criteria are not included in this report. However, these data are submitted to the SIOFA Secretariat in accordance with SIOFA CMM 2022/02. 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.

Scientific and common names for species referred to in this report are provided in Appendix A.

[1] Observer coverage is expressed as the percentage of hauls observed for trawl gears and the percentage of hooks or pot sets observed for line and pot gears.

Description of fisheries

Fishing by Australian vessels targeting demersal fish species in the SIOFA Area is undertaken using midwater trawl, demersal trawl, demersal line, and potting gears. Potting gears were permitted in 2021 following an update to Australia's bottom fishing impact assessment. Line fishing effort was historically a minor component but has increased in recent years. Detailed descriptions of trawl and line gears used by Australian-flagged vessels in SIOFA are provided in Williams et al. (2011).

Reliable data for the fishery has been available for Australian vessels since 1999 (Williams et al. 2011). In 1999, there was a substantial increase in Australian deep-sea trawling in the SIOFA Area after *Hoplostethus atlanticus* stocks were discovered (Japp & James 2005).

Permissible fishing methods have been specified by AFMA since 2008. There are no records of gillnetting by Australian vessels in the area (Williams et al. 2011) and the use of gillnets by Australian-flagged vessels was prohibited by AFMA in 2008.

Fleet composition

Seven Australian-flagged vessels hold permits to fish in the SIOFA Area. This includes one multipurpose vessel (Table 1).

Table 1 The number of Australian vessels that actively fished in the SIOFA Area, 2011–2022

Year	Vessels that actively fished	
	Non-trawl	Trawl (including mid-water and demersal)
2011	0	1
2012	0	1
2013	0	1
2014	0	1
2015	1*	
2016	1*	
2017	0	
2018	1	0
2019	1	0
2020	1	0
2021	3	1**
2022	1	0

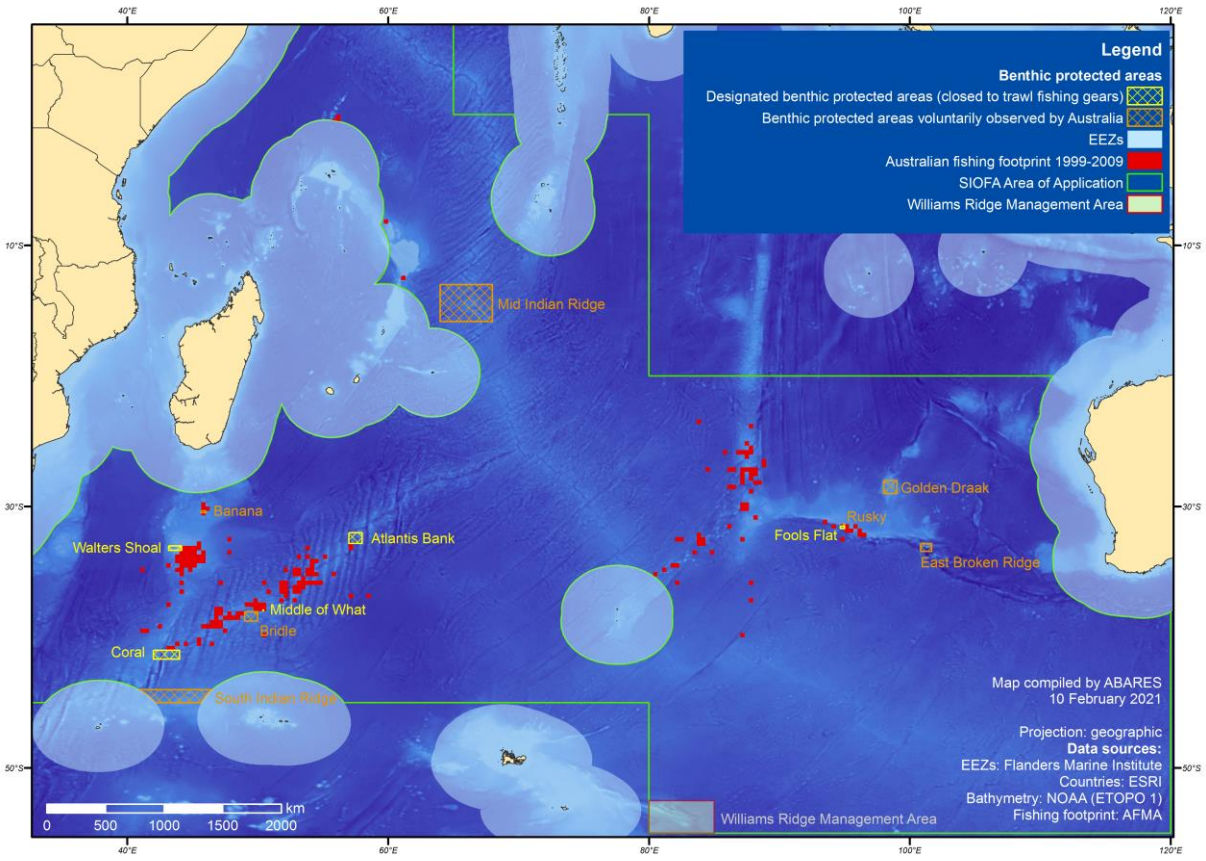
*multipurpose vessel (trawl and line methods) **multipurpose vessel (trawl and pot methods)

Fishing effort and catch

Fishing effort

Since 2012, Australian vessels in the SIOFA Area have been restricted to fishing within the 1999–2009 Australian fishing footprint (Figure 1), and to the average annual level of catch (1100 t) within that same period.

Figure 1 Australia's fishing footprint in the SIOFA Area as defined by the period 1999–2009 and subsequent amendments to include the Williams Ridge

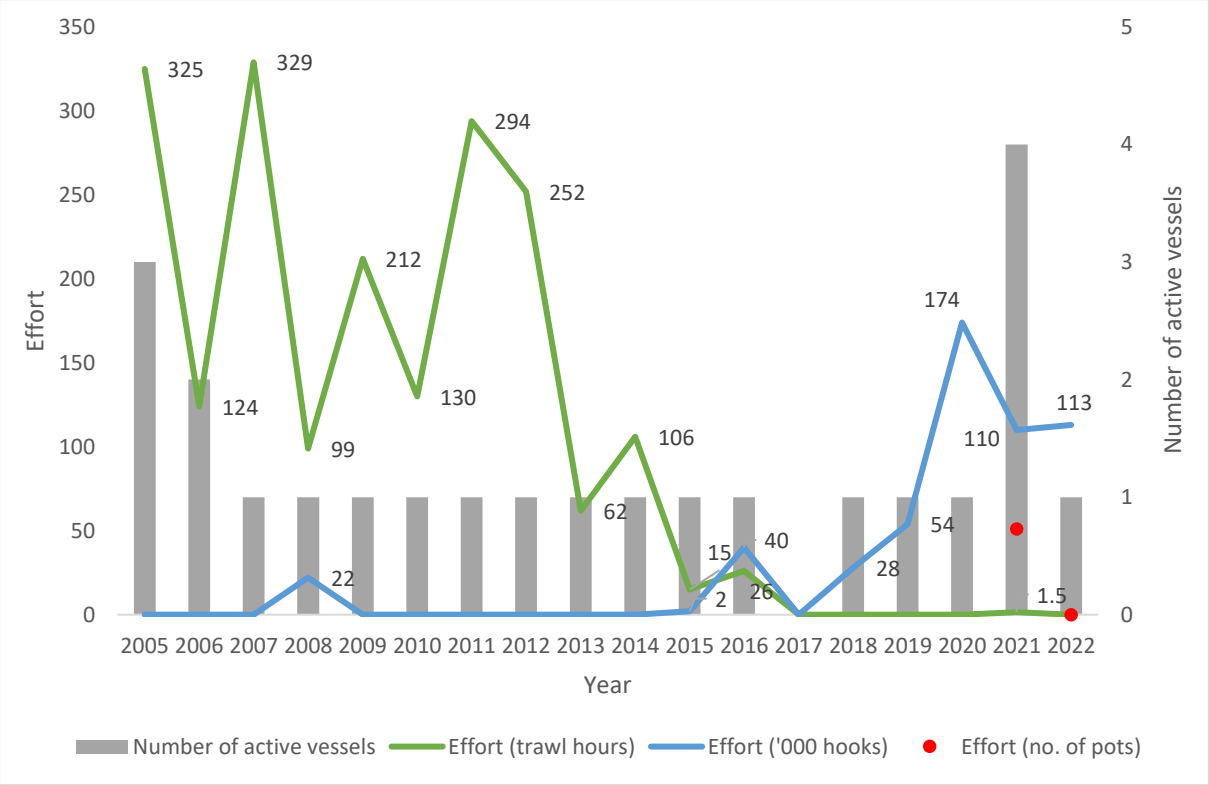


Note: Australia has updated its historical footprint with a small amount of effort data from Williams Ridge that was not included in its original fishing footprint for the period 1999–2009. See relevant paper to SC5: *Bottom Fishing Impact Assessment (BFIA) for proposed fishing activities by Australia in the Southern Indian Ocean Fisheries Agreement (SIOFA) Area – 2020 Update*.

One Australian flagged vessel fished using demersal longlines in the SIOFA Area in 2022. The vessels recorded 113,026 demersal longline hooks (20 sets) (Table 2).

No Australian-flagged vessels used midwater otter trawl or crustacean pots in 2022. The trend in trawl effort and the number of active vessels between 2005 and 2022 is presented in Figure 3. Potting gears were permitted in 2021 following an update to Australia's bottom fishing impact assessment and the number of pots set in 2021 and 2022 is presented in Figure 4.

Figure 2 Effort (trawl hours, number of hooks, number of pots) and number of active vessels in the SIOFA Area, 2005 to 2022



Catch

Australian catch in 2022 was landed in Mauritius. The main species caught and retained by line methods in 2022 as reported in logbooks was *Dissostichus eleginoides*. Other mixed species comprising the remainder of the landed catch. Summary data for catch composition and effort for line fishing methods are shown in Table 2.

Catch per unit effort (CPUE)

Catch rate data (including nominal CPUE) are not presented as they are not considered reliable due to the low and spatio-temporally variable effort in the fishery. CPUE standardisation has not been undertaken by Australia for any species in this fishery.

Table 2 Number of active vessels, fishing effort ('000 hooks) and catch composition of major species reported in logbooks by Australian vessels using line gears in the SIOFA Area, 2018–2022

Year	No. of vessels	Effort ('000 hooks)	Catch of major species (tonnes)				Total catch (tonnes)
			Polyprion oxygeneios	*Polyprion* spp. (undifferentiated)	*Dissostichus eleginoides*	Other species	
2018	1	28	3.083	2.328	0	1.879	7.29
2019	1	54	17.985	7.525	0	8.841	34.351
2020	1	174	37.181	47.615	8	11.003	103.799
2021	3	110	6.5	13.041	28	1.671	49.212
2022	1	113	-	-	27.65	2.49	30.14

a In 2015, 0.554 tonnes of *Squalus megalops* was caught, but discarded.

– Not applicable.

Note: Validation of historical longline catch is ongoing. Catch for 2005-2017 will be presented next year.

Table 3 Number of active trawl vessels, fishing effort (hours) and catch composition of major species reported in logbooks by Australian trawlers in the SIOFA Area, 2005–2022

Year	No. of vessels	Effort (hours)	Catch of major species (tonnes)						Total catch (tonnes)
			Beryx splendens	*Hyperoglyphe antarctica*	*Schedophilus velaini*	*Hoplostethus atlanticus*	*Plagiogeneion* spp.	Other species	
2005	3	325	214.446	6.86	296.839	97.925	21.84	214.797	852.707
2006	2	124	220.243	18.4	0.00	28.04	4.86	56.912	328.455
2007	1	329	286.6	59.145	303.605	0.00	43.118	87.433	779.901
2008	1	99	206.851	0.00	53.511	0.00	0.425	2.692	263.479
2009	1	212	62.275	28.349	65.3	664.405	0.00	119.673	940.002
2010	1	130	47.049	0.00	52.465	755.279	9.49	267.415	1131.698
2011	1	294	589.914	55.644	36.350	308.381	0.00	77.148	1067.437
2012	1	252	281.996	0.00	112.842	30.631	29.576	30.47	485.515
2013	1	62	117.726	0.00	88.559	0.853	0.00	12.812	219.95
2014	1	106	75.764	0.00	133.098	36.514	171.426	59.466	476.268
2015	1	15	57.17	10.354	0.00	0.00	0.00	0.00	67.524
2016	1	26	14.208	NA	24.576 **a**	0.00	8.273	1.483	48.54
2017	0	-	-	-	-	-	-	-	0
2018	0	-	-	-	-	-	-	-	0
2019	0	-	-	-	-	-	-	-	0
2020	0	-	-	-	-	-	-	-	0
2021	1	1.5	0	0	0	0	0	0.414 **b**	0.414
2022	0	-	-	-	-	-	-	-	0

a Due to a probable species reporting error found in the 2016 logbook data, this catch proportion is likely to be comprised predominantly of *Schedophilus velaini* but may contain some *Hyperoglyphe antarctica*. Most of the catch in 2016 was reported by observers to be *Schedophilus velaini*.

b In 2021, 0.323 of trawl catch comprised *Neocyttus rhomboidalis* and 0.091 of *Polyprion oxygeneios.*

NA Not available.

Table 4 Number of active vessels, fishing effort (no. pots) and catch composition of major species reported in logbooks by Australian vessels using potting gears in the SIOFA Area, 2021-2022

Year	No. of vessels	Effort (no. pots)	Catch of major species (tonnes)			Total catch (tonnes)
			Palinuridae (undifferentiated)	*Panulirus spp.* (excluding *P. cygnus)*	Other species	
2021	1	51	0.016	0.008	0	0.024
2022	0	-	-	-	-	0

Vulnerable marine ecosystem indicator thresholds and ecological impacts

Australian-flagged vessels observe the thresholds and move-on rules specified in CMM 2020/01. Australian-flagged vessels are required to record any evidence of a Vulnerable Marine Ecosystem (VME) such as coral or sponges encountered in a fishing shot in logbooks.

No thresholds were triggered by any Australian-flagged vessels in 2022.

Seabird interactions and mitigation measures

In 2022, no interactions with seabirds were recorded by Australian vessels.

In accordance with CMM 2022/13 Mitigation of seabirds bycatch, Australian longline vessels operating in the SIOFA Area are required to deploy tori (streamer) lines to deter seabirds. Australian requirements are equivalent to or exceed those specified in CMM 2022/13 and include that the tori line:

- must be a minimum of 150 metres in length;
- 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 100 metres from the stern of the boat;
- must have streamers attached to it with a maximum interval between the streamers of 5.0 metres; and
    - all streamers must be maintained to ensure their lengths are as close to the water surface as possible.

Source: AFMA High Seas Permit Conditions.

The discharge of offal from longline fishing vessels is prohibited through permit conditions.

Fisheries data collection and data verification

AFMA collects detailed information on fishing trips in accordance with CMM 2022/02.

Some Australian fishing vessels employ electronic monitoring (e-monitoring) systems in addition to human observers. Three vessels that hold permits to fish in the SIOFA Area have such a system installed.

Logbook data

Since 2002, permit conditions have included the requirement to record daily catch and fishing effort data in logbooks on a shot-by-shot basis, including the location of fishing operations. The logbooks have been revised on several occasions. The current longline logbook (LN01B—Line Fishing Daily Fishing Log) and trawl logbooks (EFT01B—Eastern Finfish Trawl Daily Fishing Log; SWT01B—Southern and Western Finfish Trawl Daily Fishing Log) were introduced in 2007. Fishers are also required to record information on discards and interactions with VME indicator taxa and protected species.

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 verified weight by species. Compliance checks are conducted on landings as part of a risk-based compliance program.

Logbook data are provided to SIOFA in accordance with SIOFA CMM 2022/02.

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. 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 activities

Bottom Fishery Impact Assessment

AFMA commissioned a bottom fishing impact assessment of Australian fishing activity in the SIOFA Area, which was published in 2011 (Williams et al. 2011). This report is available at www.afma.gov.au/fisheries/high-seas-permits/ and through the SIOFA website. Australia's bottom fishery impact assessment was submitted to SC3 and accepted.

Australia updated its bottom fishery impact assessment for SIOFA in 2020 (Welsford et al. 2020; see relevant SC paper). The updated assessment considers the impact of Australia's historical and potential future bottom fishing effort around William's Ridge, adjacent to Australia's Heard Island and McDonald Islands toothfish fishery. The updated assessment also considers the potential impact of traps and pots within Australia's historical bottom fishing footprint.

Research

In 2011, Australia commissioned an assessment of 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 *Beryx splendens*, *Hyperoglyphe antarctica*, *Schedophilus velaini*, *Hoplostethus atlanticus*, *Pseudocyttus maculatus* and *Neocyttus rhomboidalis*. The results indicated that Australian operations only access a small proportion of the total assumed available habitat area of the species or stocks that are harvested. No species were assessed as subject to overfishing by Australian vessels, although the fishing mortality status for *Beryx splendens* and *Hoplostethus atlanticus* was assessed to be uncertain. It was not possible to determine fishing mortality status across the entire fishery (i.e. including non-Australian vessels) or biomass status for any stocks.

In 2017, the Australian Government commissioned an independent review (Goldworthy 2017) of the benthic protected areas proposed by the Southern Indian Ocean Deepsea Fishers Association (SIODFA) in SC-01-INF-15. The review found that most of the SIODFA proposed areas met certain rationale and criteria in the SIOFA protocol for protected areas designation (subsequently updated). The review made a number of expert recommendations relating to research and management requirements for individual protected areas in SIOFA. The review was provided as an information paper to the 1st meeting of the SIOFA Protected Areas and Ecosystems Working Group and the 4th SIOFA SC meeting.

As part of the SIOFA Stock and Ecological Risk Assessment Working Group's (SERAWG's) Terms of Reference and the SC's workplan, Australia has undertaken ecological risk assessments for the effects of demersal and midwater trawl, longline and gillnet fishing methods on deepwater chondrichthyans in the SIOFA Area (Georgeson et al. 2020). Australia has updated the previous chondrichthyan ecological risk assessments following the provision of new catch and effort data for the period 2015-2019. This update will be presented at the upcoming 2023 SIOFA Workshop on Deepwater Sharks (WS2023-DWS). Australia has also undertaken ecological risk assessment

for SIOFA teleost species with updates on this assessment provided in 2020 (see relevant papers) and 2022 (SERAWG-04-14).

Australian research has identified a number of inconsistencies in SIOFA species reporting and potential errors in the SIOFA databases. Results of this work, including ongoing data characterisation and the results of the teleosts ecological risk assessment, will help inform categorisation of SIOFA stocks into the assessment framework.

During 2019, Australia characterised its biological data holdings for alfonsino and provided otoliths to Fish Ageing Services Pty. Ltd. for the purposes of estimating ages for the alfonsino stock assessment.

Australia, primarily through the Australian Antarctic Division, has also undertaken extensive research relevant to toothfish stocks that straddle SIOFA and the area of the Convention for the Conservation of Antarctic Marine Living Resources. Some of this work was synthesised in the paper SC-04-21, which demonstrated that based on genetic information, catch composition and tag-recapture data from the French and Australian toothfish fisheries, Patagonian toothfish on the Kerguelen Plateau are continuously distributed and populations are linked (Delegation of Australia, 2019). In response to this research, SC4 agreed that given continuous toothfish habitat across the northern part of the Kerguelen Plateau, the proximity of William's Ridge to the Australian EEZ, and the known fish movement patterns across the plateau, toothfish on William's Ridge in the SIOFA area are part of the same population as those in the Australian EEZ.

Biological sampling and length composition of catches

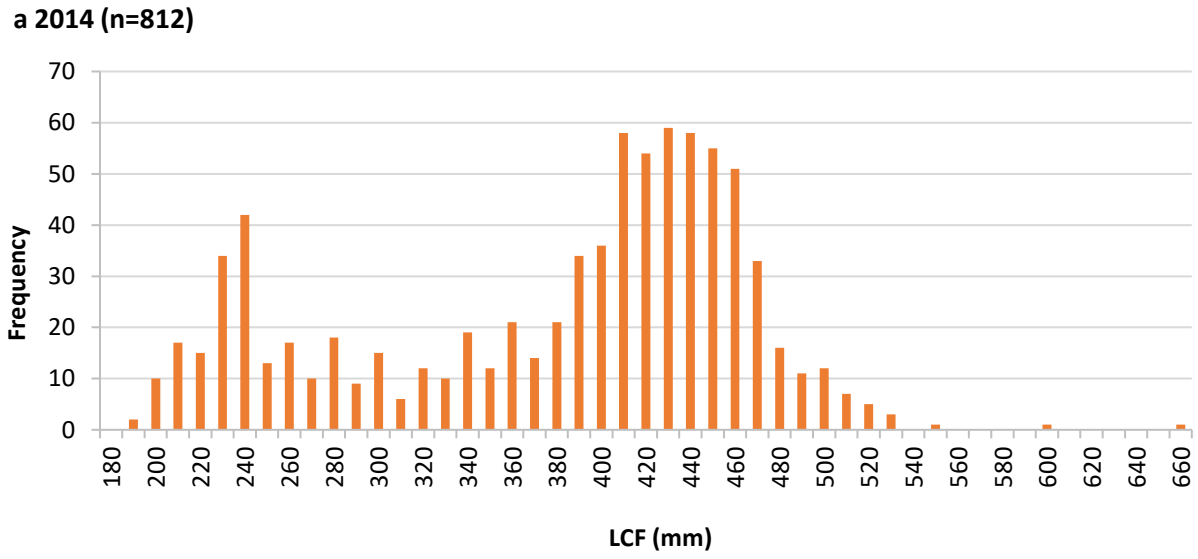
Length–frequency and other biological data are collected by Australian observers in the SIOFA Area.

Length frequencies of *Beryx splendens* caught by trawl in 2014 and 2016 are presented in Figure 3, and length frequencies of *Hoplostethus atlanticus* caught by trawl in 2014 are presented in Figure 4. Due to low catch and effort in recent years, insufficient length frequency data have been collected to enable updates to the figures presented below. *Beryx splendens* length is presented as length to caudal fork (LCF), whereas *Hoplostethus atlanticus* length is presented as standard length. Small amounts of length data for other species has also been collected.

Figure 5 presents length frequency of *Polyprion oxygeneios* measured by observers on Australian non-trawl vessels during 2020. Figure 6 presents length frequency for *Polyprion americanus* measured by observers on Australian non-trawl vessels during 2020. Lengths for other species collected by observers on board non-trawl vessels are available but not presented as the sample sizes for these species are low (typically <100 individual fish sampled).

Dissostichus eleginoides length frequencies were collected in 2022, however are still undergoing quality checks. These length frequencies will be presented in future reports.

Figure 3 Length frequency of *Beryx splendens* measured by observers on Australian trawl vessels in the SIOFA Area, (a) 2014 and (b) 2016



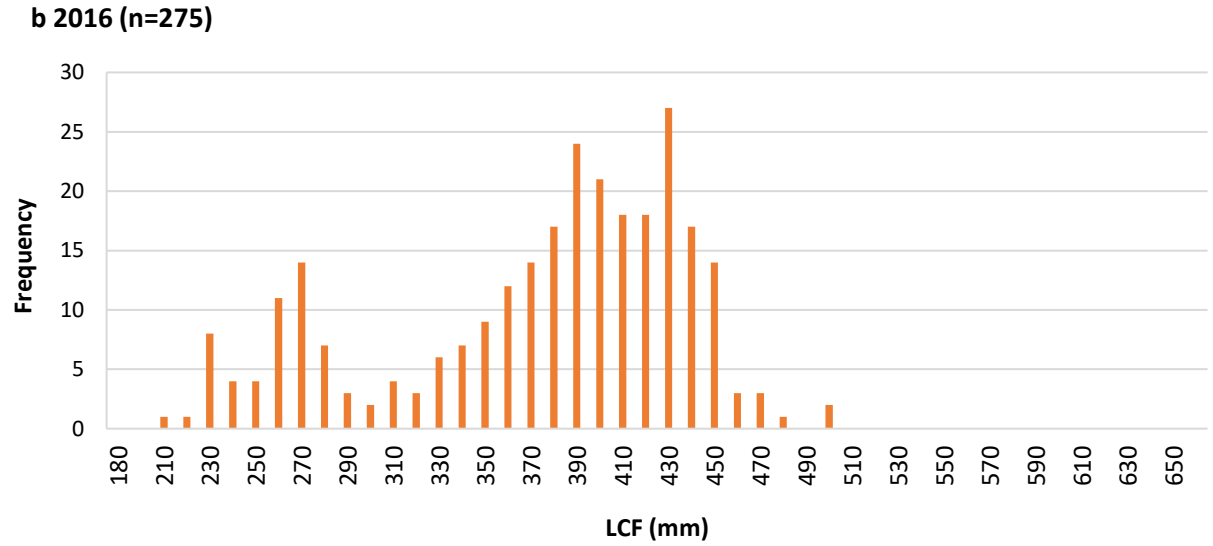


Figure 4 Length frequency of *Hoplostethus atlanticus* measured by observers on Australian trawl vessels in the SIOFA Area, 2014

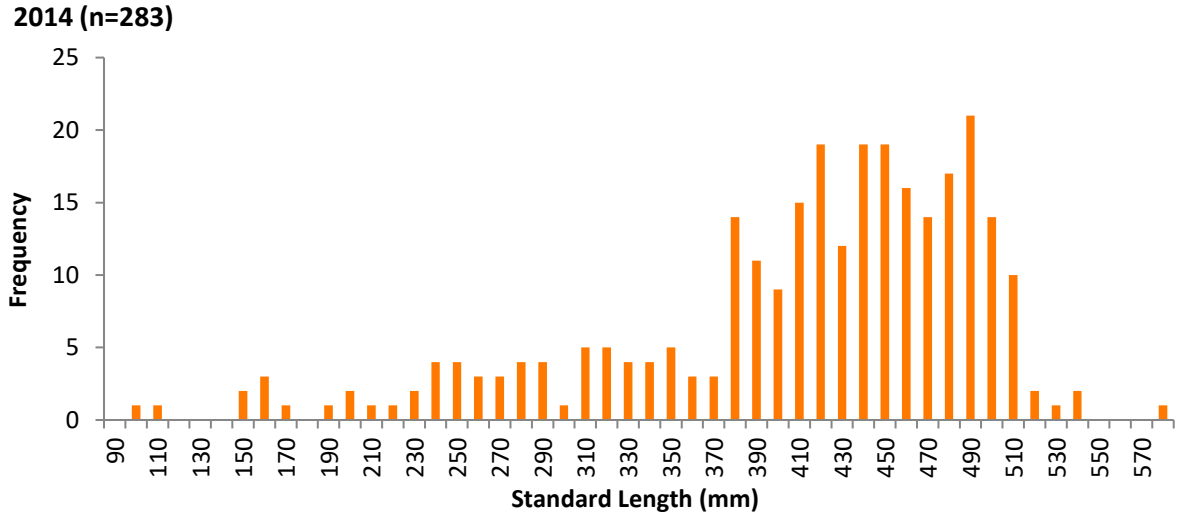


Figure 5 Length frequency for *Polyprion oxygeneios* measured by observers on Australian non-trawl vessels in the SIOFA Area, 2020
(n=205)

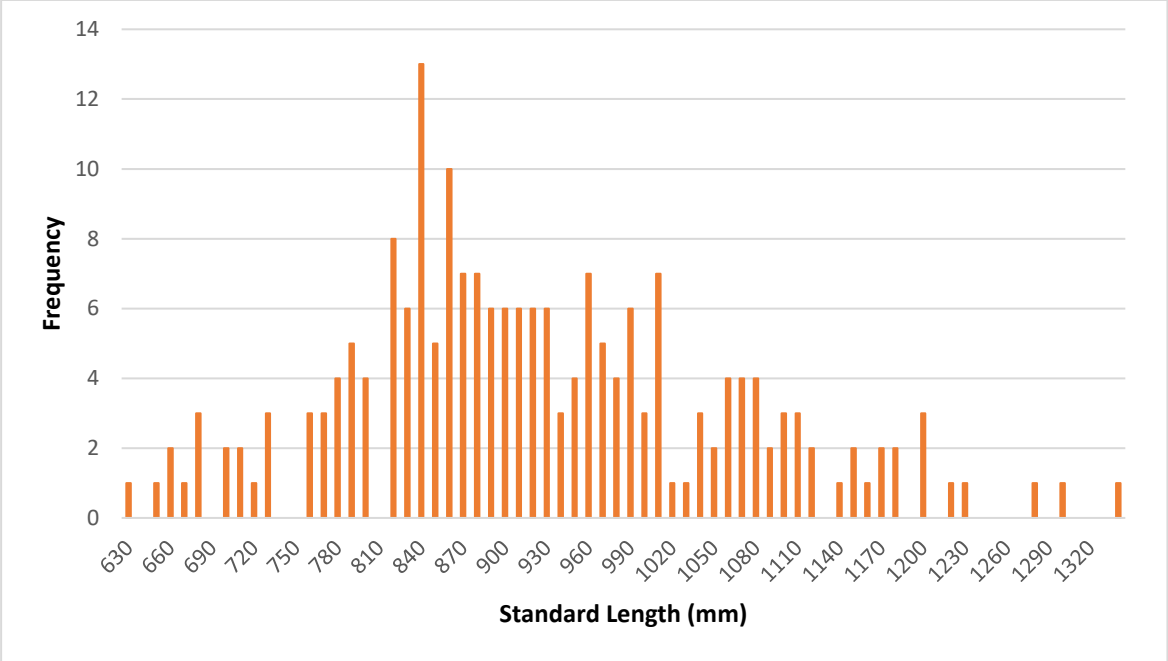
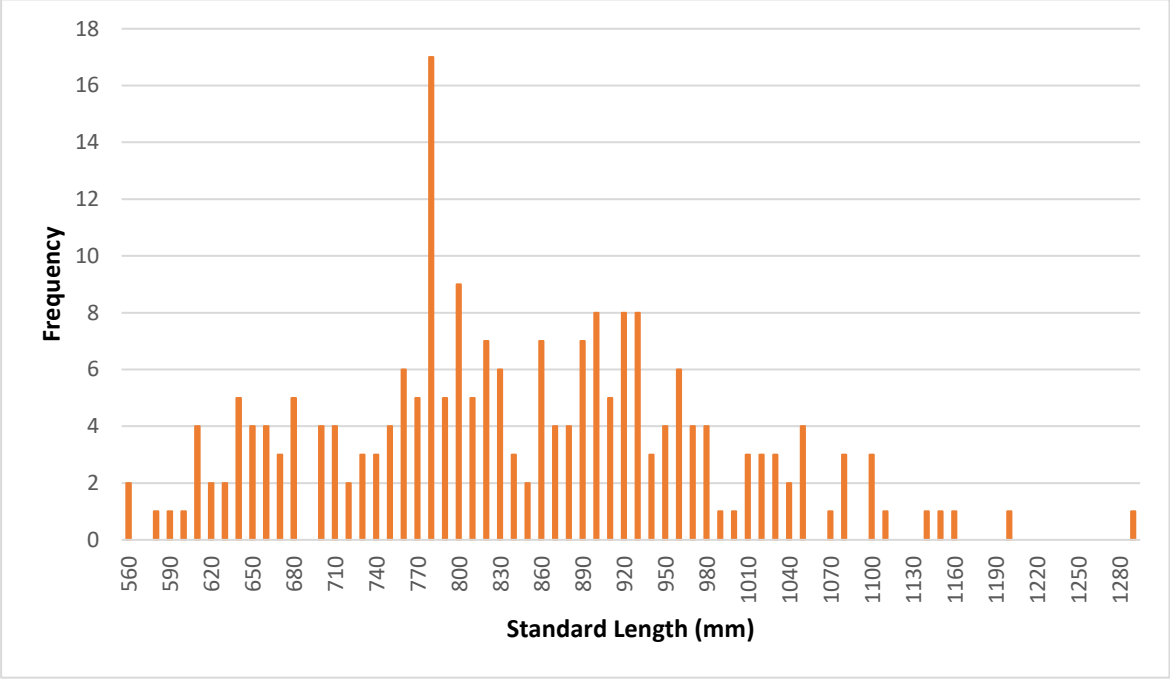


Figure 6 Length frequency for *Polyprion americanus* measured by observers on Australian non-trawl vessels in the SIOFA Area, 2020
(n=221)



Summary of observer and port sampling programs

Observer program

Since 2010, Australian permit conditions for bottom fishing in the SIOFA area have required 100% observer coverage on all vessels permitted to use trawl gear, with this coverage being expressed as the percentage of hauls observed. A target of 20% observer coverage is required for vessels using non-trawl fishing methods, with this coverage being expressed as the number of hooks observed. Observer coverage requirements were met in 2022.

AFMA recruits and trains the observers. Observers have a scientific background and/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. Observer data are provided to the SIOFA Secretariat in accordance with CMM 2022/02.

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.

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Appendix A Common and scientific names of key species

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