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Committee

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Australia's Annual Report

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Delegation of Australia

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 and demersal line gears. One trip was undertaken by a single vessel using line fishing methods in 2019. The vessel recorded 48,300 demersal longline hooks (54 sets) and 5900 dropline hooks (11 sets), with the majority of catches being comprised of *Polyprion* species. All catch and effort data for fishing operations during 2019 will be submitted to SIOFA in accordance with CMM 2019/02. 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.

Recommendations *(working papers only)*

It is recommended that the SC:

- Notes the national report provided by Australia
 - Notes that Australia has complied with the annual reporting requirements of the SIOFA Scientific Committee.
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Australia’s annual report on fishing activities in the Southern Indian Ocean Fisheries Agreement Area

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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 and demersal line gears. Tuna and tuna-like fisheries, over which the Indian Ocean Tuna Commission has competence, are not reported here. In accordance with CMM 2019/02 (Conservation and Management Measure for the Collection, Reporting, Verification and Exchange of Data related to fishing activities in the Agreement Area), Australia's historical logbook data have been provided to the SIOFA Secretariat¹.

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 2019/02, Australian high-seas fisheries permits require the implementation of vessel monitoring systems, 100% observer coverage on all trawl vessels and a target of 20 per cent observer coverage on all non-trawl vessels².

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 2019/02. 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 Ongoing efforts are being made to characterise and submit Australia's historical observer data for SIOFA to the Secretariat.

² Observer coverage is expressed as the percentage of hauls observed for trawl gears and the percentage of hooks observed for line gears.

Description of fisheries

Fishing by Australian vessels targeting demersal fish species in the SIOFA Area is undertaken using midwater trawl, demersal trawl and demersal line gears. Line fishing has historically been a minor component but has increased in recent years. There has been no trawl effort since 2016. Detailed descriptions of gears used 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

Six 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, 2011–2019

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

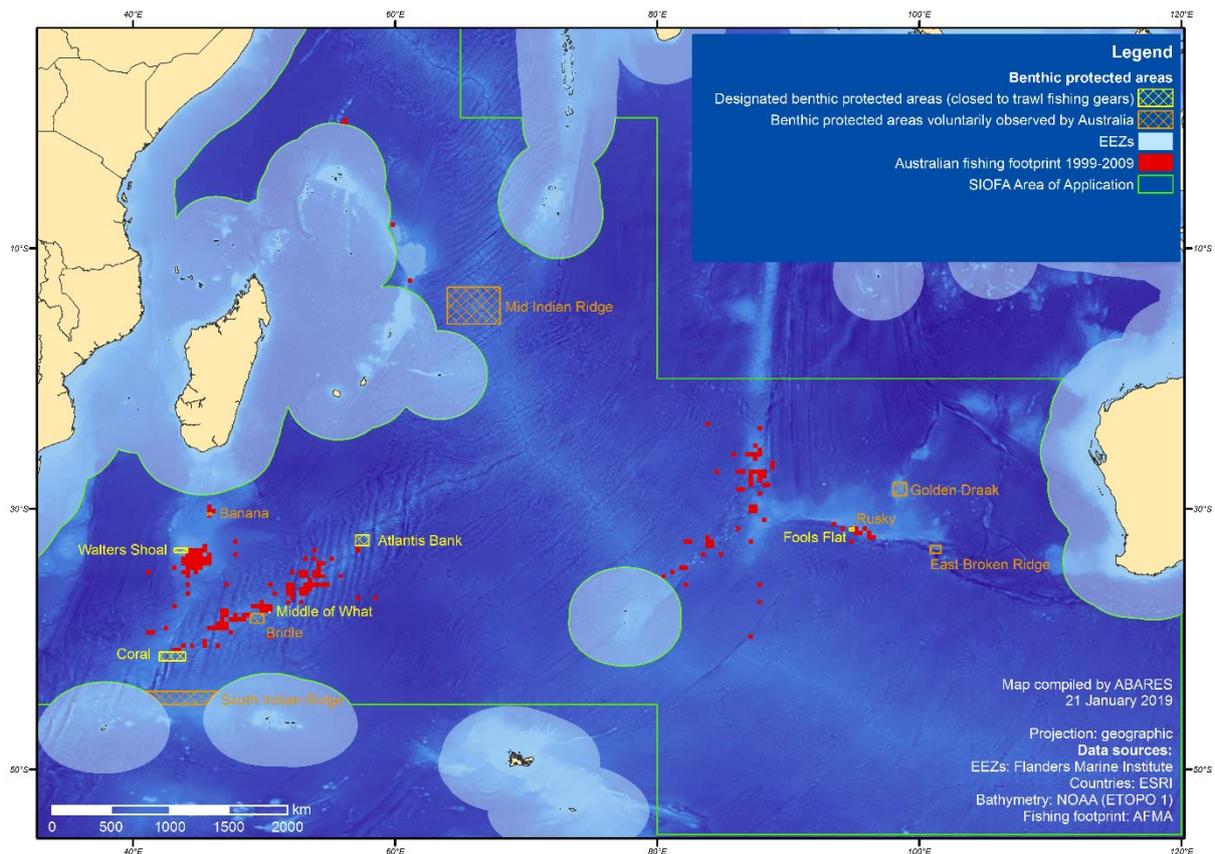
*multipurpose vessel (trawl and line methods)

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 defined by the period 1999–2009 in the SIOFA Area

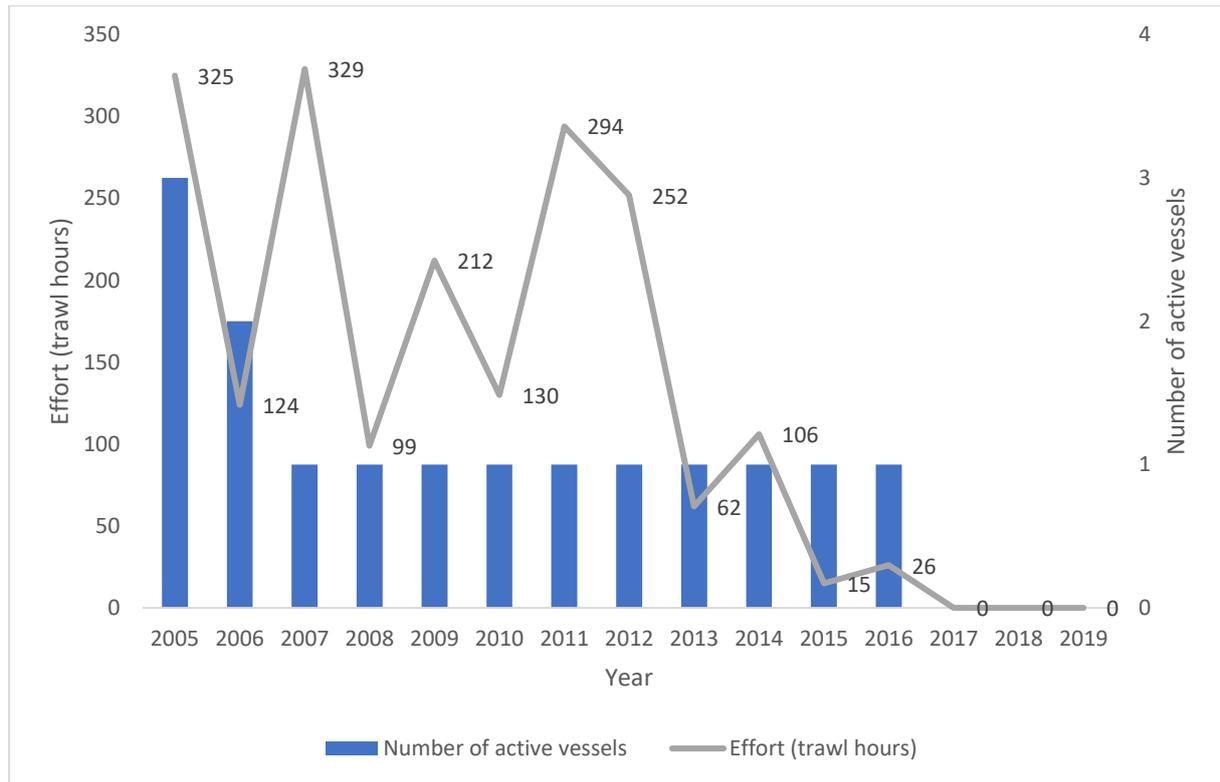


Note: Australia has updated its historical footprint with a small amount of effort data that was not included in its original fishing footprint for the period 1999–2009. See relevant paper to SC5: *Bottom Fishing Impact Assessment (BFIA) for proposed fishing activities by Australia in the Southern Indian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

One Australian flagged vessel fished using demersal longlines and droplines in the SIOFA Area in 2019. The vessel recorded 48,300 demersal longline hooks (54 sets) and 5900 dropline hooks (11 sets) (Table 2).

There was no trawl effort by Australian-flagged vessels in 2019. The trend in trawl effort and the number of active vessels between 2005 and 2019 is presented in Figure 2.

Figure 2 Effort (trawl hours) and number of active vessels in the SIOFA Area, 2005 to 2019



Catch

In line with Australia’s confidentiality requirements, annual catch volume data are not presented for Australian operations in the SIOFA Area due to fewer than five vessels operating during the reporting period. Data on catch composition is provided.

Australian catch in 2019 was landed in Port Louis, Mauritius. The main species caught and retained by non-trawl methods in 2019 as reported in logbooks were *Polyprion oxygeneios* and unspecified *Polyprion* spp., with *Seriola lalandi*, *Nemadactylus macropterus* and other mixed species comprising the remainder of the landed catch.

Summary data for catch composition and effort for non-trawl fishing methods are shown in Table 2.

Summary data for catch composition and effort for trawl fishing methods are shown in Table 3.

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 non-trawl (hook) gears in the SIOFA Area, 2005–2019

Year	No. of vessels	Effort ('000 hooks)	Catch of major species (% of total catch)			Total catch ^a
			<i>Polyprion oxygeneios</i>	<i>Polyprion</i> spp. (undifferentiated)	Other species	
2005	-	-	-	-	-	0
2006	-	-	-	-	-	0
2007	-	-	-	-	-	0
2008	1	22	0.43	0	0.57	Confidential
2009	-	-	-	-	-	0
2010	-	-	-	-	-	0
2011	-	-	-	-	-	0
2012	-	-	-	-	-	0
2013	-	-	-	-	-	0
2014	-	-	-	-	-	0
2015	1	2	0	0	1 ^b	Confidential
2016	1	40	0.60	0.22	0.18	Confidential
2017	0	0	-	-	-	0
2018	1	28	0.39	0.29	0.32	Confidential
2019	1	54	0.51	0.21	0.28	Confidential

a No catch data are presented as Australian confidentiality restrictions prevent the disclosure of fishing activity by fewer than five vessels.

b In 2015, ~98% of the 'other species' was reported to be *Squalus megalops* and was discarded.

- Not applicable.

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, 2005–2019

Year	No. of vessels	Effort (hours)	Catch of major species (proportion of total catch)						Total catch a
			<i>Beryx splendens</i>	<i>Hyperoglyphe antarctica</i>	<i>Schedophilus velaini</i>	<i>Hoplostethus atlanticus</i>	<i>Plagiogeneion</i> spp.	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	1	15	0.81	0.15	0.00	0.00	0.00	0.04	Confidential
2016	1	26	0.29	NA	0.51 b	0.00	0.17	0.03	Confidential
2017	0	-	-	-	-	-	-	-	0
2018	0	-	-	-	-	-	-	-	0
2019	0	-	-	-	-	-	-	-	0

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

b 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*.

NA Not available.

Vulnerable marine ecosystem indicator thresholds and ecological impacts

Australian-flagged vessels observe the thresholds and move-on rules specified in CMM 2019/01. 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 2019.

Seabird interactions and mitigation measures

In accordance with CMM 2019/13 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 2019/13 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 regulated by Division 3 of the *Fisheries Management Regulations 1992*, prohibiting the discharge of offal in setting and hauling of pelagic and demersal longlines.

Fisheries data collection and data verification

AFMA collects detailed information on fishing trips in accordance with CMM 2019/02.

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 has not fished in the SIOFA Area.

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 2019/02.

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, which has recently been accepted for publication (Georgeson et al. in press). Australia is also undertaking an ecological risk assessment for SIOFA teleost species and an update on this assessment is provided to the SERAWG2 and SC5 in 2020 (see relevant papers).

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 alfonso and provided otoliths to Fish Ageing Services Pty. Ltd. for the purposes of estimating ages for the alfonso 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.

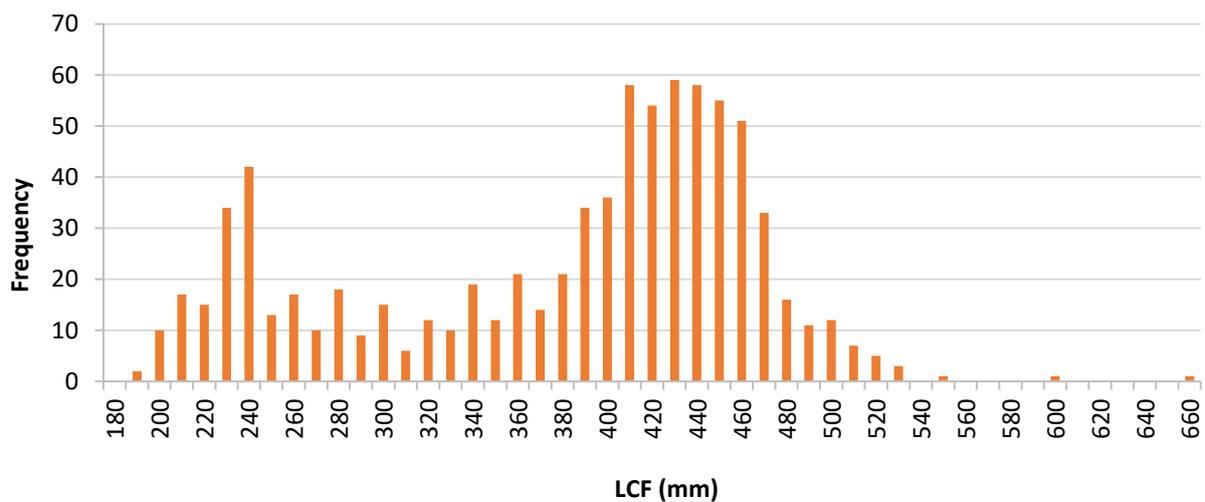
Biological sampling and length composition of catches

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. Figure 5 presents length frequency of *Ppolyprion oxygeneios* measured by observers on Australian non-trawl vessels during 2016. Figure 6 presents length frequency for *Polyprion americanus* measured by observers on Australian non-trawl vessels during 2016. 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).

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

a 2014 (n=812)



b 2016 (n=275)

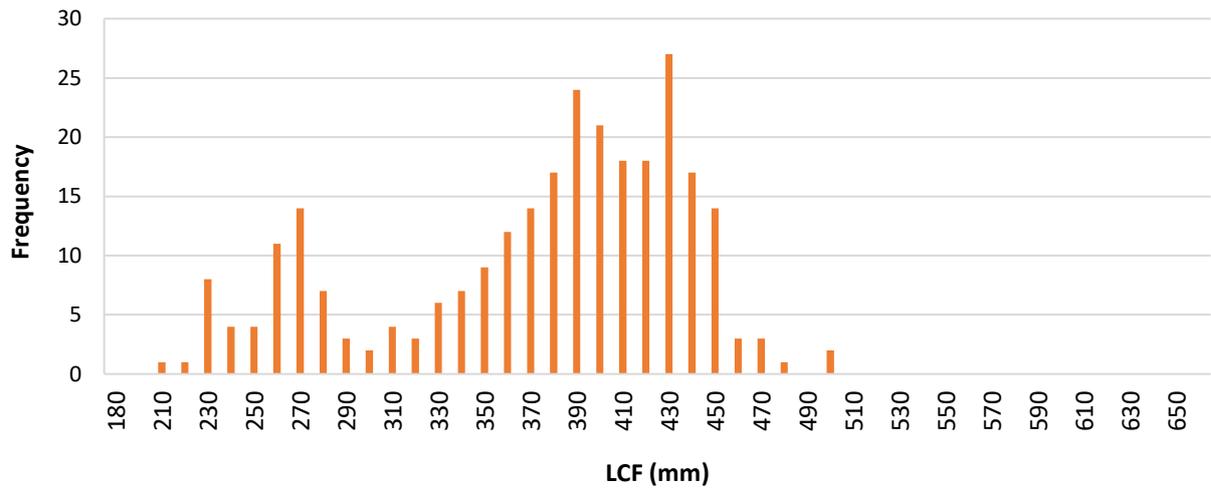


Figure 4 Length frequency of *Hoplostethus atlanticus* measured by observers on Australian trawl vessels in the SIOFA Area, 2014

2014 (n=283)

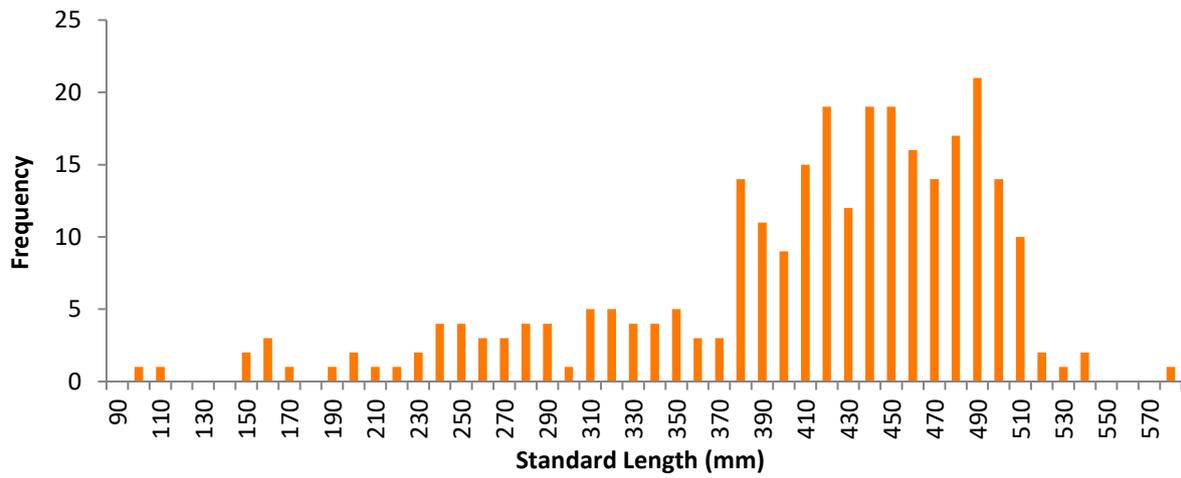
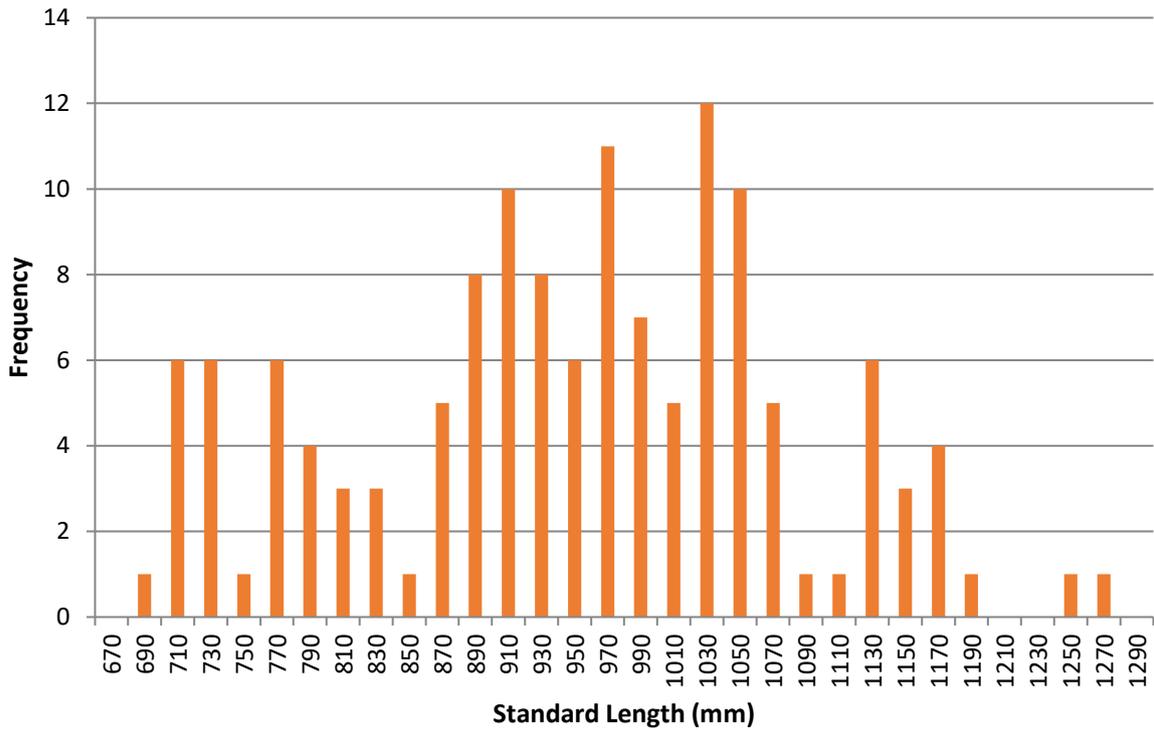
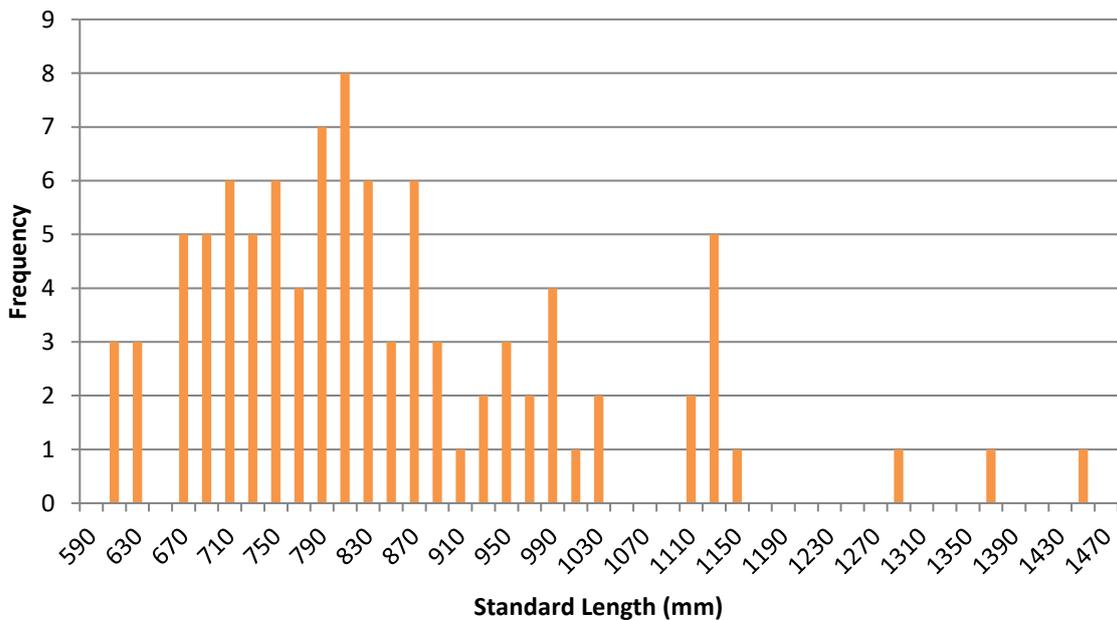


Figure 5 Length frequency for *Polyprion oxygeneios* measured by observers on Australian non-trawl vessels in the SIOFA Area, 2016
 2016 (n=136)



Note: Some length data includes specimens measured using the Length to Caudal Fork (LCF) method

Figure 6 Length frequency for *Polyprion americanus* measured by observers on Australian non-trawl vessels in the SIOFA Area, 2016
 2016 (n=96)



Note: Some length data includes specimens measured using the Length to Caudal Fork (LCF) method

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, with this coverage being expressed as the percentage of hauls observed. A target of 20 per cent observer coverage is required for vessels using non-trawl fishing methods, with this coverage being expressed as the number of hooks observed. All observer coverage requirements were met during 2019.

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 2019/02.

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	<i>Beryx splendens</i>
Blue-eye trevalla	<i>Hyperoglyphe antarctica</i>
Bass groper	<i>Polyprion americanus</i>
Cardinal fish	Family Apogonidae
Hapuku	<i>Polyprion oxygeneios</i>
Orange roughy	<i>Hoplostethus atlanticus</i>
Ocean blue-eye trevalla	<i>Schedophilus velaini</i>
Reef ocean perch	<i>Helicolenus percoides</i>
Rubyfish	<i>Plagiogeneion</i> spp.
Smooth oreodory	<i>Pseudocyttus maculatus</i>
Spikey oreodory	<i>Neocyttus rhomboidalis</i>
