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National Report – Cook Islands

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

Delegation of the Cook Islands

Abstract

This paper provides a broad overview of the trawl fishing activities within the high seas of the Southern Indian Ocean undertaken by Cook Island flagged vessels. It highlights activities during the most recent calendar year (2015) and covering activities of the flag-state vessels back until 2001.

Aggregate catch and effort data for mid and bottom-water trawl activities are presented here.

Recommendation

The meeting is invited to consider the national report provided by the Cook Islands.

Ministry *of* Marine Resources

GOVERNMENT OF THE COOK ISLANDS

SOUTHERN INDIAN OCEAN FISHERIES AGREEMENT
First Meeting of the Scientific Committee

March 21 – 24, 2016

Fremantle, Western Australia

COOK ISLANDS

National Report

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1. Description of Fisheries

This report provides a broad overview of the trawl fishing activities within the high seas of the Southern Indian Ocean undertaken by Cook Island flagged vessels. It highlights activities during the most recent calendar year (2015) and covering activities of the flag state dated back to 2001.

The Cook Islands has had up to five flagged vessels operating in the SIOFA Area since 2001 permitted under High Seas fishing authorisations issued by the Ministry of Marine Resources (MMR), Government of the Cook Islands. Most recently the Cook Islands have licensed only two vessels to operate in the SIOFA fishery. These vessels target deep-water finfish species, primarily alfonsino *(Beryx splendens)* and orange roughy *(Hoplosthethus atlanticus)* using both bottom and mid water trawl fishing methods. A full list of species names is given in Appendix 1.

These Cook Island flagged vessels are not permitted to fish within the Benthic Protected Areas as defined in Appendix 2, in accordance with conservation efforts of the Southern Indian Ocean Deepsea Fishers Association (SIODFA) under the licensing terms and conditions administered by the MMR. All vessel catch is unloaded in Mauritius and South Africa: alfonsino are exported mainly to Japan and orange roughy to China or Asia for reprocessing and preparation for the USA markets. Some catch is sold in the local market in Mauritius and South Africa.

Fleet Composition

In 2015, the Cook Islands licensed two vessels to operate in the SIOFA area. Both vessels actively fished and conducted four trips each. These two vessels have been the only Cook Island flagged vessels in the fishery since 2012. Prior to this an additional three flagged vessels were licensed to operate however limited data are available for these vessels.

Table 1. Number of active Cook Island flagged vessels fishing in the SIOFA Area, 2001 – 2015.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
# vessels	1	2	2	2	3	3	4	3	3	3	3	2	2	2	2

2. Catch, effort and CPUE summaries

The three top species captured by weight in 2015 were; alfonsino (59%), orange roughy (22%), and cardinal fish (7%) (Table 2). These species comprised 88% of the total catch. Alfonsino has been the most commonly caught species in this fishery since 2006 (Figure 1). Fishing effort peaked in 2015 at 562 days fished. Effort has generally increased through time, even though the number of vessels in the fishery has remained relatively stable.

Table 2. Summary table of catch composition and fishing effort from 2011 – 2015.

Year	Days Fished	BYX	BNS	BOE	SSO	SOR	ORH	CDL	BBF	BOR	OTH
2011	373	60%	0%	0%	0%	2%	21%	6%	6%	3%	0%
2012	316	90%	1%	0%	0%	0%	5%	2%	1%	1%	0%
2013	305	63%	2%	0%	0%	1%	14%	4%	2%	7%	7%
2014	417	62%	2%	0%	0%	2%	17%	10%	2%	1%	4%
2015	562	59%	0%	0%	0%	0%	22%	7%	3%	2%	6%

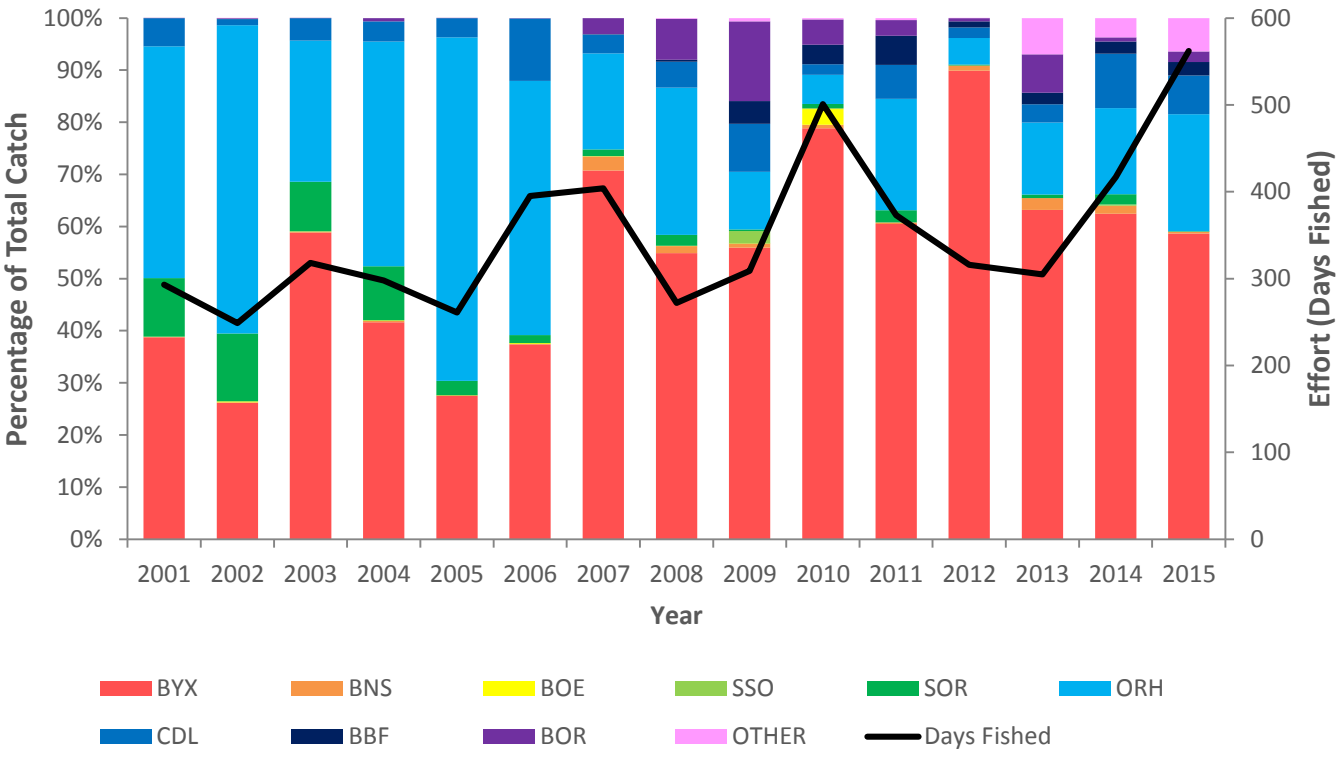

Figure 1. Trawl catch by species and effort in the SIOFA Area from 2001 – 2015.

3. Fisheries data collection and research activities

Data Collection

Cook Islands flagged vessels possess High Seas fishing authorisations licenses which are valid for one year. These authorisation licenses are issued in accordance with section 35 of the Marine Resources Act, 2005. Vessels also possess an access agreement, issued by the Ministry of Marine Resources, valid for five years, which allows them to fish in areas beyond national jurisdiction.

Cook Islands legislation requires vessels carrying High Seas authorisations to record daily information on catch and effort which includes position information. Original logsheets are sent to the MMR where they are entered into a database. We note that flag states would benefit from the development of a standardised database in which to archive relevant trawl data. The MMR does not monitor landings in port as all flagged vessels unload to either Mauritius or South Africa, and are monitored by the port state Fisheries agencies.

All vessels are required to carry automatic location communicators. Trawl vessels are prohibited from targeting sharks, however where sharks are caught in the normal operations of the vessel, they are required to be handled in a manner that affords them the best chance of survival. In 2014 and 2015, Cook Island staff and vessel crews were heavily involved in FAO Shark workshops convened in Mauritius to develop identification guides for the SIOFA region, and in developing live release techniques for deepwater sharks under the US Assembling the Tree of Life program.

Research

All Cook Island flagged vessels follow the scientific data guidelines developed by the Southern Indian Ocean Deepsea Fisher's Association (SIODFA), as described in 2006 FAO Fisheries Circular 1020 (Management of Demersal Fisheries Resources of the Southern Indian Ocean – Shotton 2006), as updated in 2012 (FAO 2012). The 2012 update includes sampling methods for alfonsino and recommendations on how to conduct acoustic surveys. This FAO report will be provided by Cook Islands, with the aim of providing information to build the repository of scientific and technical papers for the Scientific Committee.

A number of research programmes were carried out in 2014 and 2015 by vessels under the Cook Island flag. Over recent years, acoustics methods have become the standard approach to evaluate orange roughy and alfonsino biomass in more developed fisheries as found in New Zealand, Australia and Chile. In these countries, industry vessels have played an important role, from passive acoustic data logging to taking full responsibility for yearly evaluations (Boyer & Hampton 2001, Honkalehto & Ryan 2003, Hampton *et al*. 2014, Niklitschek *et al*. 2007b, Cordue 2014). Catch per unit effort analyses, or meta-analysis techniques are no longer acceptable for stock assessments by scientific working groups in both New Zealand and Australia.

All Cook Island flagged vessels are required to undertake commercial fishing vessel surveys with calibrated echo-sounders, as recommended by the FAO Expert Consultations (FAO 2012) and the FAO Deepsea Guidelines (FAO 2009).

In 2014 several multi-frequency acoustic surveys using a towed body were carried out by *FV Will Watch* using the Acoustic Optical System (Sealord AOS Mk II) developed by the Australian Commonwealth Science and Industrial Research Organisation (CSIRO). This enables verification of the species composition in mixed species aggregations (Ryan and Kloser 2016, in press). In addition, biological and acoustic surveys were carried out to provide information on meso-pelagic communities across the SIOFA region for the Australian Integrated Observing System (IMOS) (Downie *et al*., in review).

In 2015 further acoustic surveys on alfonsino and orange roughy were carried out by Cook Island vessels to build up the historical time series of surveys to 12 years of data. Many of the surveys have been worked up to provide preliminary biomass estimates that can be used in stock assessments for the SIOFA region (**Table** 3).

Seafood companies with vessels operating under the Cook Island's flag have also undertaken habitat mapping over most of the SIOFA region using the University of Hawaii Mapping Research Group MRI swath mapping technology, prior to the high seas fishery commencing in 1997. This provided sidescan imagery and bathymetry at 16 m resolution for over 160,000 km^2.

Table 3. Stock and status summary data for Southwest Indian Ocean

	No. of surveys undertaken or date analyses
Orange Roughy Spawning Aggregations	54
Features with catch data >100 kg	99
Number of stocks heavily fished	20
Acoustic survey biomass estimates available	24
Stocks with Biological data available	54

Acoustic surveys have also been carried out on alfonsino stocks (Figure 2), and in 2014 fish target strength (TS) measurements were made with the AOS system. These data have yet to be analysed to establish the appropriate TS for Indian Ocean alfonsino. There are a large number of alfonsino stocks across the SIOFA region and the length distribution of one spawning stock is shown in Figure 4. **Length frequency of orange roughy on the Southwest Indian Ocean Ridge (*Scud* feature)**

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Figure 2. Alfonsino acoustic survey, SIOFA

Sanitary Export Certification

Sanitary/health certificates are issued by MMR's Competent Authority. Certificates are issued on completion of test results from accredited SGS laboratories for all concerned hazards. Both flagged vessels are inspected annually for handling limited processing of fish at sea.

4. Biological Sampling and length/age composition of catches

A large set of biological data on the target species has been collected by Cook Island flagged vessels since 2004. Most of the data have been collected by vessel crews and some by either Cook Island Observers or scientists taken on specific voyages. Length frequency distributions vary by area within SIOFA, e.g. the mean size of fish on Walter's Shoal (Figure 3) is smaller than on the Southwest Indian Ridge (Figure 4) and North Walter's Shoal (Figure 5).

In total, 50,369 orange roughy were sampled for length, weight, sex and maturation, from 522 target trawls shots between 2004 and 2015.

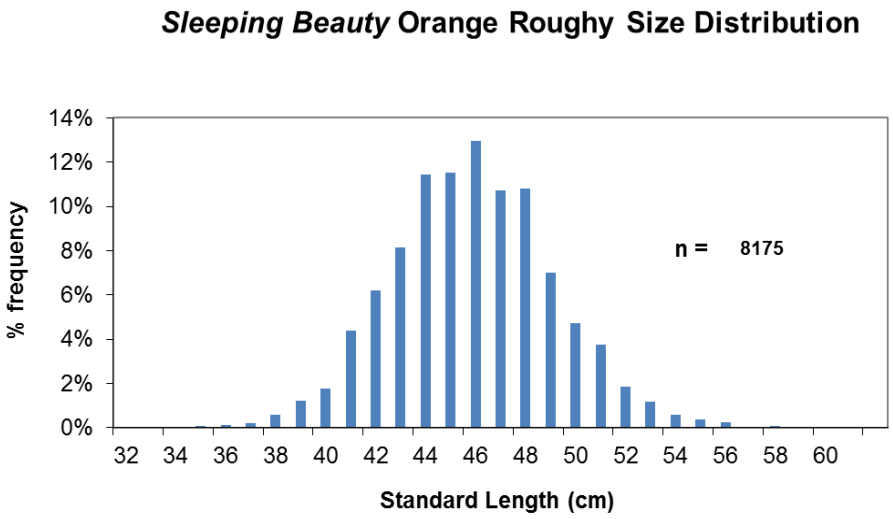


Figure 3. Length frequencies of orange roughy in a Walter's Shoal stock (Sleeping Beauty feature)

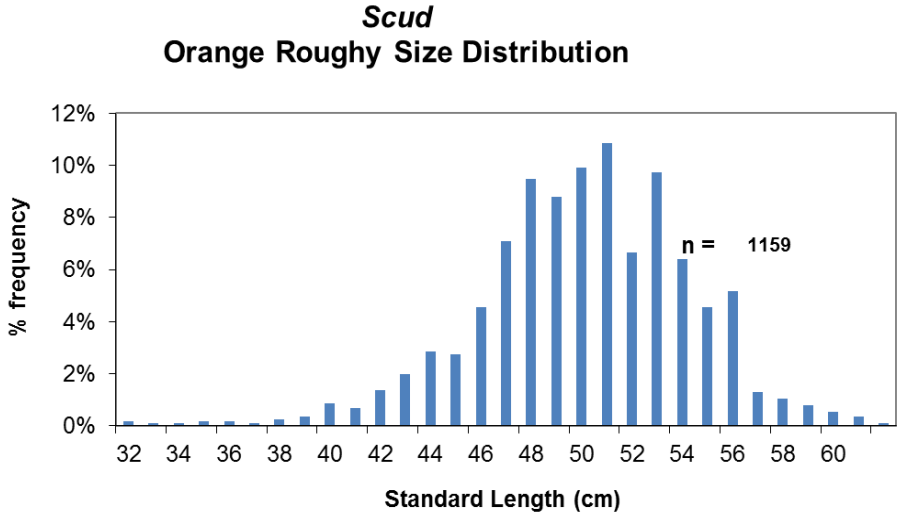
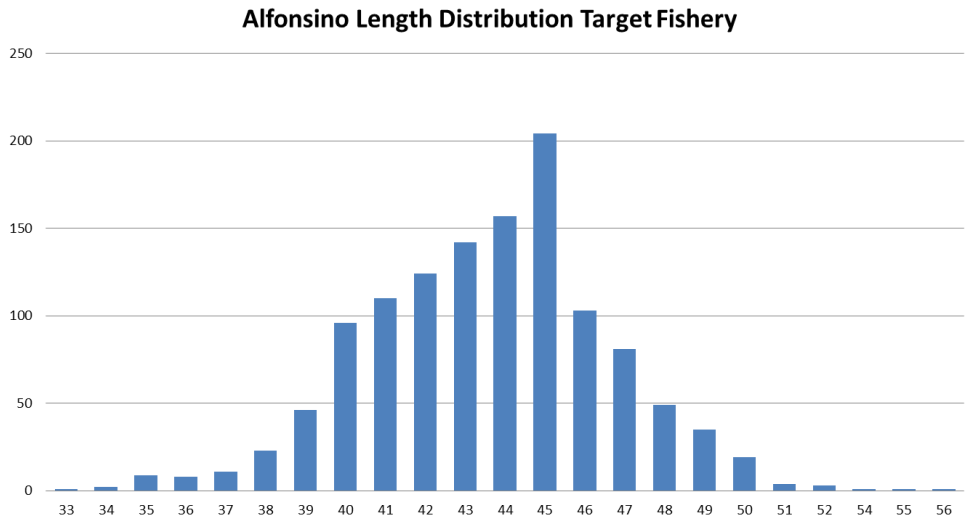


Figure 4. Length frequency of orange roughy on the Southwest Indian Ocean Ridge (*Scud* feature)

Figure 5. Alfonsino mid-water trawl target fishery length distribution from one spawning stock in North Walter's Shoal.



5. Summary of observer and port sampling programs

Observer program

The Cook Islands observer program for SIOFA vessels began in 2015. Placements were made in 2012/2013, two in 2013 and 2015. Data for these trips are not yet available. Prior to 2015, an arrangement existed between FAO, the companies and MMR where some coverage was established but no data or reports are available for this.

The Cook Islands is currently seeking trawl observer training for our national observers from the New Zealand Ministry of Primary Industries (MPI).

Port sampling program

The Cook Islands do not have a port sampling program for trawl vessels operating in the SIOFA area.

Appendix 1

List of common and scientific names.

FAO Code	Common Name	Scientific Name
BYX	Alfonsino	*Beryx splendens*
BOE	Black Oreo	*Allocyttus niger*
BBF	Black Butter Fish	*Hyperoglyphe moselii*
BNS	Blue nose	*Hyperoglyphe antarctica*
BOR	Boarfish	*Pentaceros richardsoni*
CDL	Cardinal fish	Family Apogonidae
ORH	Orange roughy	*Hoplostethus atlanticus*
SSO	Smooth Oreo Dory	*Pseudocyttus maculatus*
SOR	Spiky Oreo Dory	*Neocyttus rhomboidalis*

Appendix 2

South Indian Ocean Deepsea Fishers Association Benthic Protected Areas.

	Area	Coordinates			
		Lat (S)	Long (E)	Lat (S)	Long (E)
1	*Gulden Draak*	28° 00'	98° 00'	29° 00'	99° 00'
2	*Rusky*	31° 20'	94° 55'	31° 30'	95° 00'
3	*Fools · Flat*	31° 30'	94° 40'	31° 40'	95° 00'
4	*East Broken Ridge*	32° 50'	100° 50'	33° 25'	101° 40'
5	*Mid-Indian Ridge*	13° 00'	64° 00'	15° 50'	68° 00'
6	*Atlantis Bank*	32° 00'	57° 00'	32° 50'	58° 00'
7	*Bridle*	38° 03'	49° 00'	38° 45'	50° 00'
8	*Walters Shoal*	33° 00'	43° 10'	33° 20'	44° 10'
9	*Coral*	41° 00'	42° 00'	41° 40'	44° 00'
10	*South Indian Ridge* (North/South) *this region abuts the CCAMLR-managed one to the south and lies between the South African EEZ around Prince Edward and Marion Islands to the west and the French EEZ surrounding Crozet Island to the east. The estimated points of contact wi1h the EEZ areas are: 44°S. 40.878° E: 44°S. 46.544° E: 45°S, 42.124° E: 45°S, 45.711°E.*	44° 00' 45° 00'	40.878° 00' 42.124° 00'	44° 00' 45° 00'	46.544° 00' 45.711° 00'
11	*Banana*	30° 20'	45° 40'	30° 30'	46° 00'
12	*Middle of What (MoW)*	37° 54'	50° 23'	37° 56.5. 5'	50° 27'

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