4th Meeting of the Southern Indian Ocean Fisheries Agreement (SIOFA) Scientific Committee
24-29 March 2019, Yokohama, Japan

SC-04-29

National Report – Cook Islands

Relates to agenda item: *03* Working paper ☒ info paper ☐

Delegation of the Cook Islands

Abstract

This paper provides an overview of the trawl fishing activities in the Southern Indian Ocean Fisheries Agreement area undertaken by Cook Islands vessels. It highlights activities during 2018 and takes the form of the Cook Islands National Report.

Recommendation

The meeting is invited to consider the Cook Islands National Report

Ministry *of* Marine Resources

GOVERNMENT OF THE COOK ISLANDS

SOUTHERN INDIAN OCEAN FISHERIES AGREEMENT

Cook Islands National Report

2018

Prepared by Offshore Division

This report provides an overview of the trawl fishing activities in the Southern Indian Ocean Fisheries Agreement (SIOFA) area by Cook Islands vessels, and highlights activities during 2018.

In 2018 the Cook Islands authorised two vessels to operate in the SIOFA area, pursuant to High Seas fishing authorisations issued by the Ministry of Marine Resources (MMR). These vessels target deep-water finfish species, primarily alfonsino *(Beryx splendens)* and orange roughy *(Hoplosthethus atlanticus)* using bottom and midwater trawl fishing methods. A list of species is given in Appendix 1.

Cook Islands vessels are not permitted to fish within the Benthic Protected Areas listed in Appendix 2 of this national report, and additionally do not fish on the Del Cano Rise.

Catch is unloaded in Mauritius and South Africa. Alfonsino are generally exported to Japan and orange roughy to China. Some catch is sold in the local markets in Mauritius and South Africa.

1. CATCH DATA

In line with confidentiality restrictions that prevent the disclosure of fishing activity where only two vessels are active, fine scale catch data is not presented for Cook Islands operations in the SIOFA area, as these data would form part of the public record of SIOFA.

The three top species captured by weight in 2018 were: alfonsino (57%) orange roughy (33%); and boarfish and cardinal (4%) (Table **1**). These species comprised 94% of the total catch. Alfonsino is the species most commonly caught in this fishery since 2006. Fishing effort peaked in 2010 at 900 days fished by three Cook Islands vessels in the fishery. Overall effort has remained steady over recent years but there was a notable drop in 2018 due to one vessel not fishing for half the year.

Table 1 Summary table of catch composition and fishing effort from 2011 – 2018

Year	No. Shots	Days Fished	BYX	BNS	BOE	SSO	SOR	ORH	CDL	BBF	BOR	OTHER	Total Catch (mt)
1997	215	42	89	0	0	0	0	1	0	0	16	0	106
1998	525	169	2,769	0	0	0	0	0	0	0	0	0	2,769
1999	723	246	556	5	0	101	187	2,242	41	0	4	0	3,135
2000	1,084	237	1,758	33	0	76	282	589	157	0	120	0	3,016
2001	1,231	272	1,424	1	4	98	514	1,593	185	0	1	0	3,821
2002	1,377	293	1,230	4	6	50	466	1,613	49	0	4	0	3,422
2003	1,254	292	927	5	0	41	269	619	79	0	1	0	1,941
2004	1,284	276	921	7	3	11	290	947	81	0	13	0	2,272
2005	1,175	256	1,165	4	2	76	133	2,355	305	0	1	0	4,041
2006	1,480	468	3,203	25	5	17	69	1,288	324	190	56	33	5,209
2007	1,262	537	2,813	132	2	11	88	2,402	167	5	309	0	5,928
2008	1,296	553	3,710	57	3	30	122	2,430	290	0	557	3	7,203
2009	1,890	673	6,017	50	1	170	67	1,999	844	347	866	20	10,382
2010	3,092	900	5,730	65	97	23	157	1,531	191	321	454	17	8,585
2011	1,816	599	3,193	15	7	10	140	1,676	372	281	217	25	5,936
2012	1,781	490	3,999	33	5	5	83	955	191	47	31	0	5,350
2013	1,601	524	3,914	92	3	1	75	1,484	266	280	286	23	6,424
2014	1,971	523	3,731	73	6	27	118	1,077	383	180	45	24	5,664
2015	2,729	501	3,901	23	2	2	0	1,444	464	161	123	173	6,293
2016	1,985	455	2,895	10	4	10	0	1,034	855	60	127	61	5,056
2017	2,230	495	3,882	23	6	8	184	1,978	467	30	54	166	6,797
2018	1,627	375	1,416	8	4	25	21	862	110	7	92	76	2,622

2. EFFORT DATA

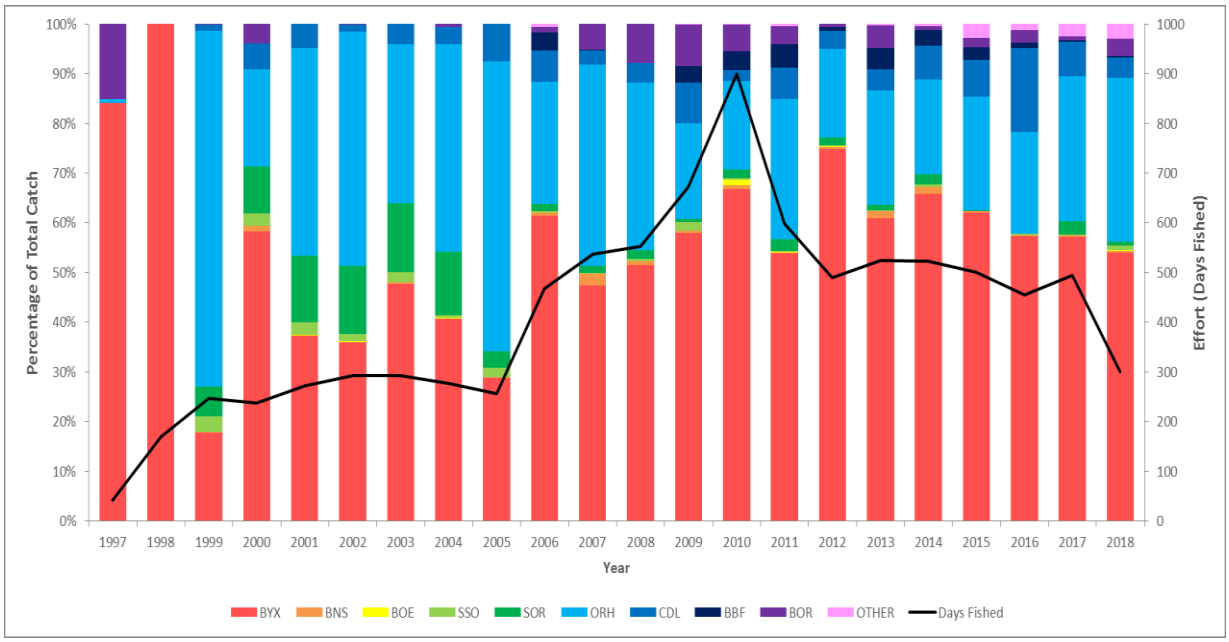
The split in effort between bottom trawl and midwater trawls (Table 2) varies between years, and is driven by changing markets and exchange rates. One vessel actively fished throughout 2018, however one vessel only fished for half the year. The number of midwater trawl shots for alfonsino has significantly increased from 2011 to 2017 but dropped in 2018 due reduction in fishing effort for this gear type. Bottom trawl shots have experienced a gradual decrease in bottom trawl shots from 2011-2017, however 2018 effort increased due to preferred gear selectivity.

Table 2 Cook Islands Vessel Effort 2011-2018

Year	Total trawls	Midwater	Bottom	Days Fished	Days at sea
2011	1899	1088	728	590	664
2012	1781	1357	424	490	602
2013	1601	1118	483	524	636
2014	1971	1406	565	523	645
2015	2729	2050	679	501	604
2016	1999	1909	590	455	544
2017	1985	1534	451	495	627
2018	1569	897	672	317	387

'Midwater trawl' is defined as fishing with a pelagic net designed for off-bottom fishing, but may include occasional contact with the sea floor.

Figure 1: Trawl catch by species and effort in the SIOFA Area from 2001 – 2018.



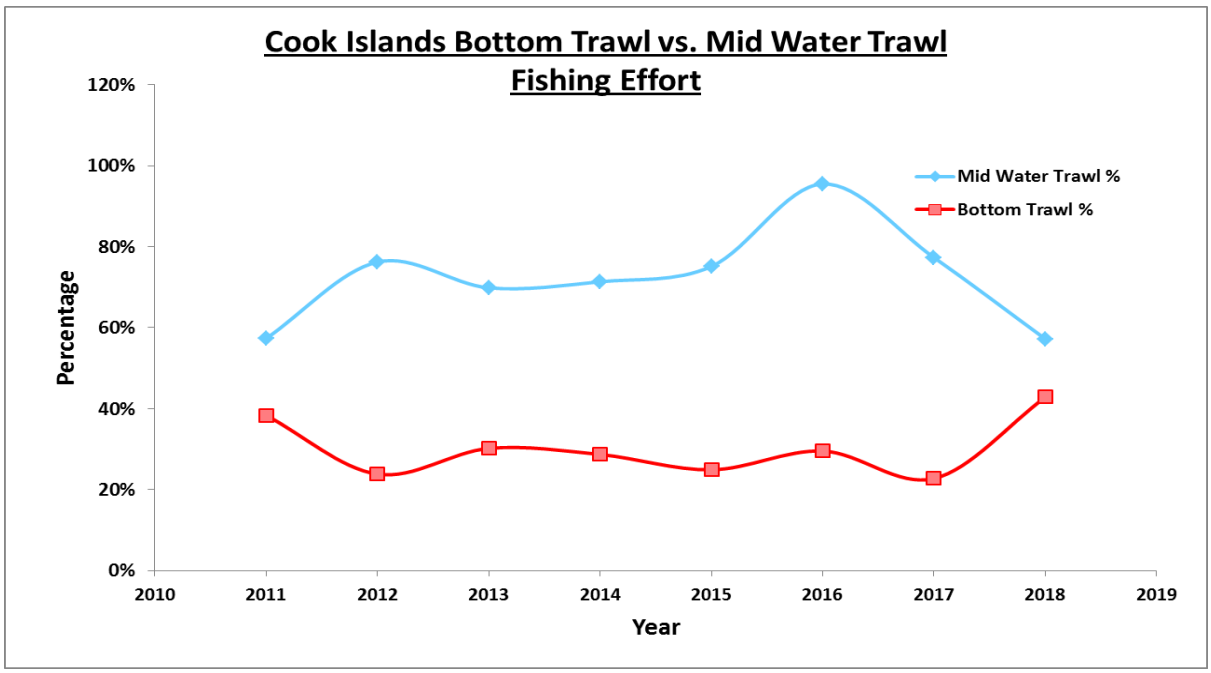
3. DESCRIPTION OF FISHERIES

In 2018, the Cook Islands authorised two vessels to operate in the SIOFA area. The two vessels have been the only Cook Islands vessels in the fishery since 2012. Prior to 2012 three additional vessels were authorised to operate in various years. The two current vessels are the FV Will Watch and the FV Nikko Maru No.1.

4. CATCH PER UNIT EFFORT (CPUE) SUMMARIES

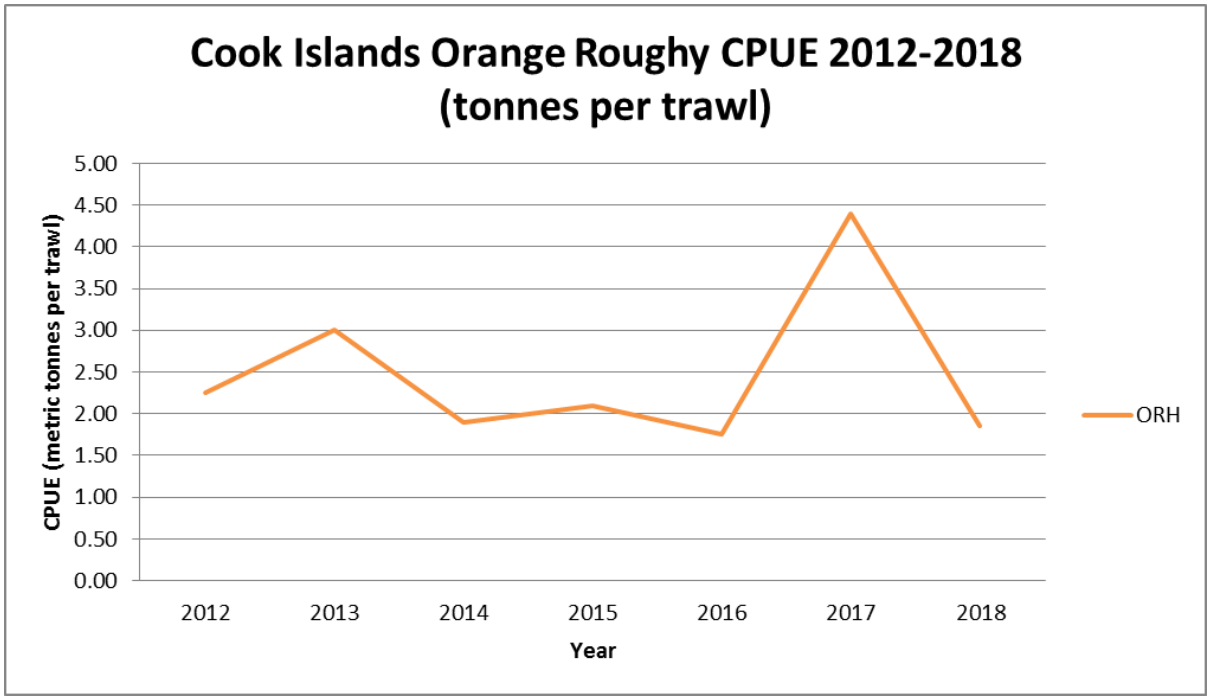
Bottom trawling comprised about 43% of the Cook Islands fishing footprint in the SIOFA area in 2018 (Figure 2). Midwater Trawling for alfonsino remained the major target species in the fishery.

Figure 2: Cook Islands Bottom Trawl Effort 2011-2018



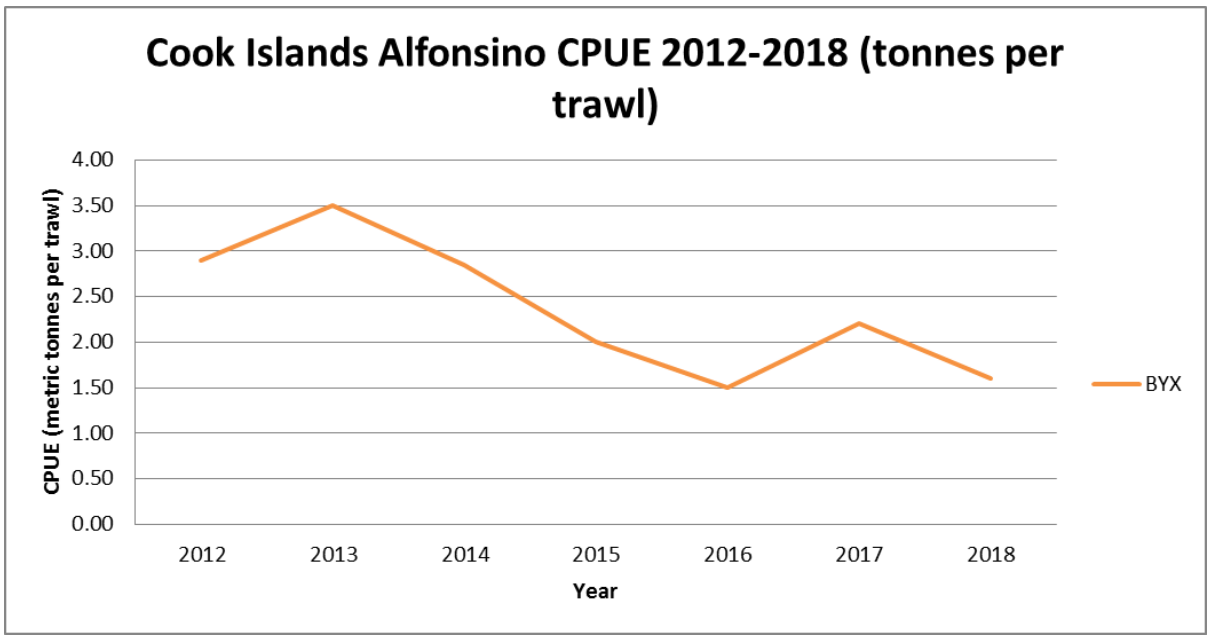
Orange roughy CPUE (tonnes per trawl) remained relatively constant in 2017 (Figure 3). The Cook Islands position is that CPUE, by itself, is not an appropriate index to establish the status of orange roughy fish stocks. Interpreting catch per unit effort in targeted fisheries is complex and if not done correctly can result in errors of interpretation. It is informative to see how CPUE changes on an annual basis and, in the absence of other data, trends in CPUE then provide the only indicator as to the state of a stock. However, in any fishery where there is a decline in CPUE due to increased fishing effort, this not considered precautionary practice and is not supported by MMR. Decline in CPUE indicates that further management steps should be taken to assess the state of the fishery.

Figure 3: Orange roughy Catch per unit Effort (tonnes per trawl) 2011-2018



Alfonsino catch per unit effort (tonnes per trawl) for Cook Islands vessels has steadily reduced over recent years (Figure 4).

Figure 4: Alfonsino Catch per Unit Effort (tonnes per trawl) 2011-2017



5. FISHERIES DATA COLLECTION

Cook Islands vessels enter into access agreements with the Ministry of Marine Resources (MMR), allowing them to fish in areas beyond national jurisdiction, and are issued annual High Seas fishing authorisations, in accordance with Section 21 and Section 35 of the Marine Resources Act 2005.

Cook Islands regulations require vessels carrying High Seas authorisations to record daily information on catch and effort, including position information. Original log sheets are sent to MMR and entered into a national database. Cook Islands vessels unload in Mauritius or South Africa and are monitored by Cook Islands Observers, Fisheries Officers and officers from port state fisheries agencies. Landing information is sent to MMR in Rarotonga for oversight, verification and certification.

All vessels are required to carry automatic location communicators. Trawl vessels are prohibited from targeting sharks, but 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.

6. RESEARCH ACTIVITIES

All Cook Islands vessels follow the scientific data guidelines as described in 2012 updated FAO Fisheries Circular 1020. The 2012 document includes sampling methods for alfonsino and recommendations on how to conduct acoustic surveys.

All Cook Islands 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). A number of acoustic surveys on orange roughy were carried out in 2017 to overcome a quadrant failure in some data collected in 2016. In January 2017, FAO convened a workshop under the ABNJ program to review the acoustic studies in the Indian Ocean presented at SC-01, for review by the Meeting of the Parties at SIOFA III. The workshop provided an opportunity for experts to review and recommend further work going forward and this was considered in 2018.

7. VME THRESHOLDS FOR BOTTOM FISHING ACTIVITY

Cook Islands policy calls for protection of biodiversity, taking into account UNGA Resolution 61/105 and subsequent resolutions, which call on states to implement measures for the High Seas in accordance with the precautionary principle and ecosystem approaches to fisheries management.
The Cook Islands notes that other RFMOs have progressed to spatial management as a standardised conservation and management measure to minimise bottom fishing impacts as being more effective than move-on rules, and supports the use of Benthic Protected Area (BPA) conservation closures to meet the requirements of Resolution 61/105.

Many areas in SIOFA are already identified and closed to Cook Islands vessels due to the potential for significant adverse impact on known VMEs by bottom trawling activity. Others are closed to Cook Islands vessels as a precautionary measure to maintain and protect biodiversity.

Findings by FAO and Cook Islands Fisheries Observers on board who monitor benthic encounters indicate that there have been low encounter rates by Cook Islands vessels. MMR and Industry have together developed an advanced encounter protocol over a number of years to include holistic management approaches, either by moving off encounter areas, or more significantly by BPA fishing closures. Five BPA closures were implemented for all SIOFA parties by the Meeting of the Parties in 2018. The Cook Islands maintains that a further seven areas should also be closed and these areas remain closed to Cook Islands vessels.

MMR renewed the directive to vessels in January 2018 as follows:

"…vessels are hereby directed pursuant to paragraph 6 of SIOFA CMM2017-01:

The Cook Islands fully supports the use of Benthic Protected Areas (BPA) conservation closures to meet the requirements of UNGA Resolution 61/105. Many areas in SIOFA are already identified and closed to Cook Islands vessels due to the potential for significant adverse impact on known VMEs by bottom impact activity, and these are well known to Cook Islands vessels.

Move on Rule
In areas other than BPAs, the Cook Island VME encounter protocol requires that for a trawl tow, the presence of more than 60 kg of live coral and/or 400 kg of live sponge indicates a VME encounter that must be reported to the Director Offshore, Ministry of Marine Resources within 24 hours. The Fisheries Observer on board must also be immediately informed. If any subsequent trawl within 1nm of the encounter trawl contains more than 30 kg of live coral/and or 200 kg of live sponge the vessel must not fish within 5nm of that area until the Ministry of Marine Resources has completed an investigation. However, if the vessel deploys an underwater camera system on the trawl net, and the Cook Islands Observer on board verifies that no substantial VME structures (such as a cold water reef community) are present, fishing can continue, pending final outcome of the investigation."

Due to the complex ridge and rocky benthic habitat and variable ocean currents in the Indian Ocean, the species targeted in SIOFA are often only accessible to fishing for short periods. The protocol is designed to avoid a fishery being closed unnecessarily because of a trawl net being pushed significantly away from a known trawl lane by currents and causing an accidental encounter.

The transit rule imposed on vessels, as reported in the 2017 national report, remains in place. In 2018 a total of 627 bottom trawl shots were carried out by Cook Islands vessels, and the threshold was not breached.

8. BIOLOGICAL SAMPLING AND LENGTH/AGE COMPOSITION OF CATCHES

Biological data has been collected from Cook Islands vessels since 2004. Data has been collected by vessel crews, Cook Islands Observers, or scientists on specific voyages. Length frequency distributions of orange roughy vary significantly within the SIOFA area, as reported in 2016 (SC-01-INFO- 15). In total 50,369 orange roughy were sampled for length, weight, sex and maturation from 522 target trawls shots between 2004 and 2015. This database has now increased to 66,400 samples following a major increase in sampling during 2017. A major new otolith sampling protocol was adopted in 2017, with sample sizes of 100 fish per trawl from the SB aggregation, and other samples of 40 fish per trawl. This was to provide data for age composition for the planned stock assessment. These fish

were aged, and provide the first ever age composition data for a high seas orange roughy stock anywhere in the world.

9. OBSERVER PROGRAMME

In 2018 The Cook Islands National Observer Programme (CINOP) maintained 100% Observer Coverage, with Cook Islands vessels in the SIOFA area completing a total of seven trips. MMR trained four additional experienced Pacific Islands Regional Programme (PIRFO) Observers from Fiji, American Samoa and Vanuatu. The 2nd Cross-Endorsement Training for Pacific Islands Fisheries Observers was held in Rarotonga from 21 -23 May 2018.

An issue encountered by MMR Observers was the current visa restrictions to enter South Africa, making it impractical to easily deploy staff who do not hold Seafarers Books to vessels berthed in South Africa. MMR has issued Cook Islands Seafarers Books, and this should alleviate the issue in relation to the deployment of Observers to the one vessel based in Cape Town.

10. PORT SAMPLING AND INSPECTION PROGRAMME

Cook Islands vessels unload in either Cape Town or Port Louis. Entry and unloading at port is governed by the relevant Port State authorities under their domestic legislation.

In 2018 MMR commenced a port sampling verification program of Cook Islands trawlers, staffed by MMR Officers. Cook Islands Observers also monitor unloads. Port sampling by MMR Fisheries Officers in conjunction with port inspections is now occurring on a managed basis.

11. VESSEL MONITORING SYSTEM (VMS)

Cook Islands vessels are required by law to carry and operate VMS systems. The installed systems poll once an hour via Inmarsat-C systems to the service provider, with the vessels monitored on a large screen at the National Oceans Monitoring Centre, MMR Rarotonga. FV Nikko Maru No. 1 uses a Blue Finger AZUR TRAC- SC (TT30220) and FV Will Watch operates a Sailor H16622D. The system is accurate to a few meters in normal operating conditions.

12. SOCIAL AND ECONOMIC INFORMATION

Cook Islands vessels in SIOFA are based in Port Louis, Mauritius and Cape Town, South Africa. Services obtained from operational bases in the two countries are:

- Support for the vessels, victualling, bunkering and supply of other vessel operations;
- Support for vessel maintenance including dry-dock, vessel repairs and maintenance;
- Service facilities for shore movements for crews, officers and management;
- Stevedoring for product discharge and cold store services;

- Product export services, including health and sanitation certifications, and;
- Local vessel agents

Vessel crews are mostly contracted from either Indonesia or the Philippines. Officers and Engineers are generally from New Zealand or Japan. Around 85% of crew are from developing countries. Data collected shows that for many crew the fishery has afforded long-term stable continuity of employment, which is a strong indication of the social conditions of employment. Table 3 shows the distribution of length of employment in the fishery.

Table 3: Distribution of Periods of Number of Years of Employment

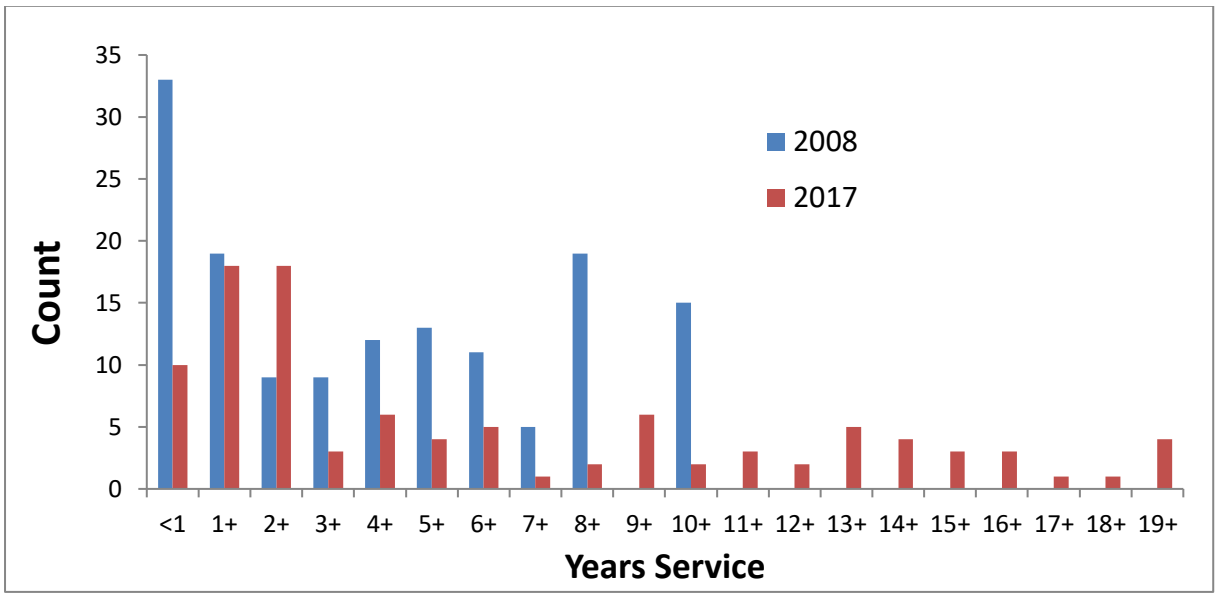


Table 4 below shows the total number of dependents of crew. Direct dependents here are defined as those living in the same residence as the crew member. Indirect dependents are those not living at home but receiving regular financial assistance on which they are dependent.

Table 4: Characteristics of Dependents of Crew Members

Vessel	Total Number of Dependents	Survey and estimate	
		direct dependents	indirect dependents
2007 – 146 staff	409	199	210
2017 – 122 staff	619	333	286

In 2017, 741 employees and dependents were directly supported by the operation of these two Cook Islands vessels. In addition there are socio-economic benefits created in the region by the vessel support and product handling services in Port Louis and Cape Town. Length of service and ability to provide for dependents both indicate a positive workplace environment aboard Cook Islands vessels.

Appendix 1

List of common and scientific names for main species caught by Cook Islands vessels.

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

Appendix 2

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'