STATUS REPORT

Hoplostethus atlanticus

Common Name: Orange roughy - ORY

2017

Updated 20 November 2017

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1. Description of the fishery

1.1 Description of fishing vessels and fishing gear

Exploration for orange roughy first started in South Africa prior to 1994 but emphasis soon shifted to Namibia when an exploratory fishing license was given to a Namibian fishing company to search for commercial deep-water fish species. The fishery expanded, extending their fishing range into SEAFO CA. By 2008, a three year moratorium on orange roughy was enforced in Namibia and the fishery has not been re-opened yet.

Table 1 shows vessels that operated between 1995 and 2005 in the SEAFO CA. These vessels were also involved in the Alfonsino fishery during the same period.

Table 1: Orange roughy: Fleet information, SEAFO Division B1.

Flag	ID	Name	Length	GRT	Built	HP	IRCS
Nam	L737	Southern Aquarius	54		01/01/1974	3000	V5SH
Nam	L913	Emanguluko	31	483.00	01/01/1990	1850	V5SD
Nam	L892	Petersen	43	650.00	01/01/1979		V5RG
Nam	L861	Will Watch	69	1587.00	01/01/1972	2116	ZMWW
Nam	L918	Hurinis	37	784.00	01/01/1987	1680	V5SW
Maur	L1159	Bell Ocean II	57	1899.00	01/01/1990	3342	3BLG
Nam	L830	Seaflower	92	3179.75	01/01/1972	4800	V5HO

Seven Namibian vessels (Table 1) were involved for the period that the fishery occurred in the SEAFO CA. The vessels employed the standard New Zealand “Arrow” rough bottom trawl with cut-away lower wings. Sweep and bridle lengths were 100 meters and 50 meters respectively. A “rock hopper” bobbin rig was used. The net had a 5-6 meter headline height when towed at 3- 3.5 knots and had an estimated wingspread of 15 meters. The cod end had a mesh of 110 mm. Each vessel spends on average 12 days at sea.

1.2 Spatial and temporal distribution of fishing

Fishing mainly occurred on Ewing seamount and Valdivia Bank within the SEAFO CA. These operations started in 1995 and continued until 2005. The fishing season usually extends from January to December and catches peak in winter months (May to July), which coincides with the spawning season of orange roughy.

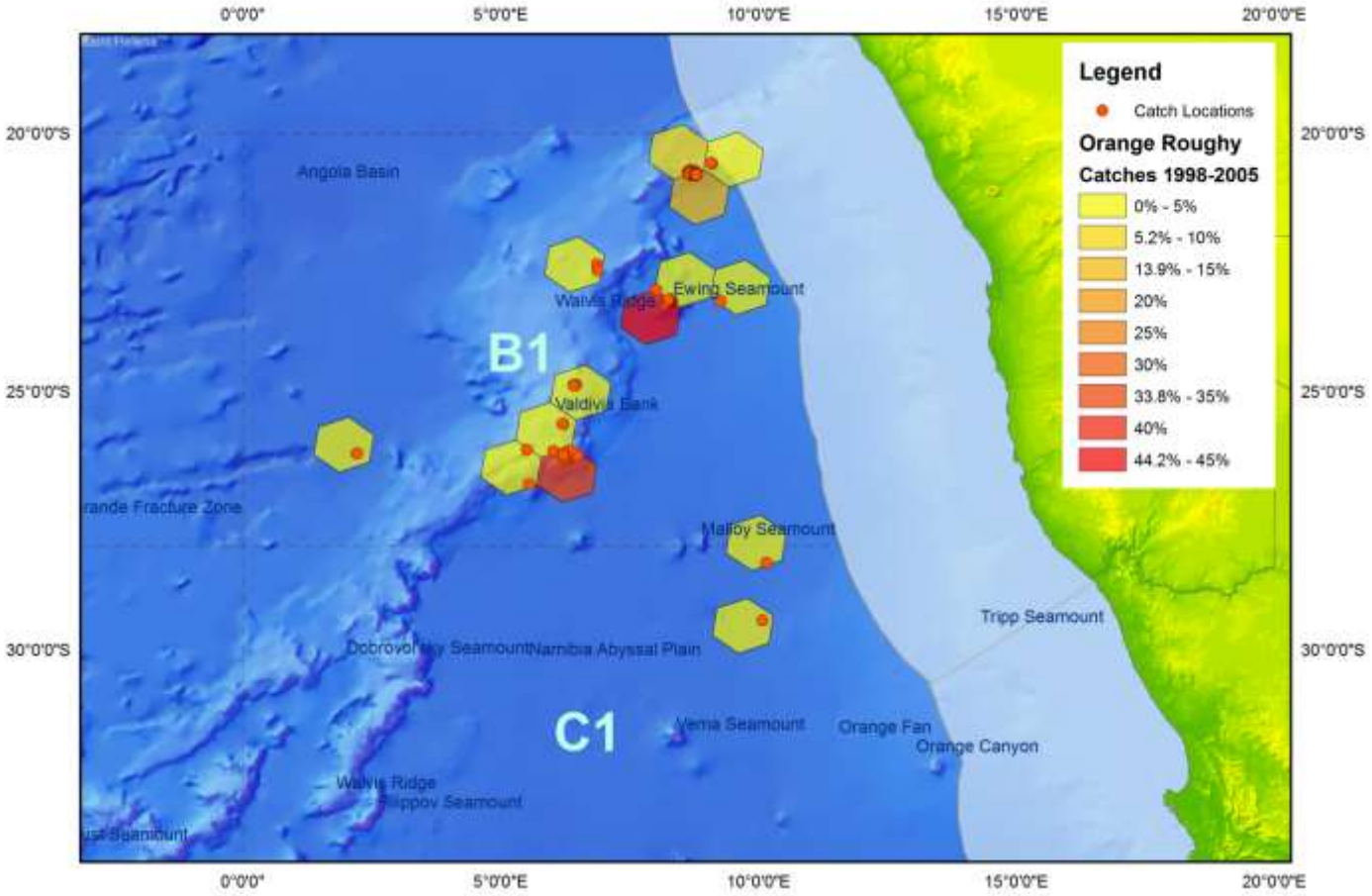

Figure 1: Geographical location of fishing activities in the SEAFO CA.

1.3 Reported retained catches and discards

For all the fishing grounds the home port is the same as the landing port, with Walvis Bay and Lüderitz the most important ports. All available landing information is presented in Table 2. However, the bulk of orange roughy catches were recorded within the Namibian EEZ (Table 3). A total of 1270 trawls were made landing about 290 tonnes of orange roughy.

Table 2: Catches of orange roughy in tonnes made by Namibia, Norway and RSA in the SEAFO CA

Nation	Namibia		Norway		South Africa	
Fishing method	Bottom trawl		Bottom trawl		Bottom trawl	
Management Area	B1		A1		B1	
Year	Retained	Discarded	Retained	Discarded	Retained	Discarded
1995	40		-			
1996	8		-			
1997	5		22		27#**	
1998	-	-	12			
1999	<1		-	-		
2000	75		0			
2001	94		-	-		
2002	9		-	-		

2003	27		-	-		
2004	15		-	-		
2005	18		-	-		
2006	-	-	-	-		
2007	-	-	-	-	-	-
2008	-	-	-	-	-	-
2009	-	-	-	-	-	-
2010	-	-	-	-	-	-
2011	-	-	-	-	-	-
2012	-	-	-	-	-	-
2013	-	-	-	-	-	-
2014	-	-	-	-	-	-
2015	-	-	-	-	-	-
2016	-	-	-	-	-	-
2017*	0	0	-	-	-	-

- = No fishing, Blank fields = No data available.
* Provisional (Aug 2014)
** Sum of Catches from 1993 to 1997.
# Values taken from the Japp (1999).

Table 3: Orange roughy landings (tonnes) in SEAFO CA and Namibian EEZ

Year	SEAFO CA	Namibian EEZ
1994	N/F	1 872
1995	40	6 288
1996	8	17 381
1997	5	14 729
1998	-	10 040
1999	<1	2 699
2000	75	1 344
2001	94	874
2002	9	1 985
2003	27	1 730
2004	15	1 106
2005	18	297
2006	-	429
2007	-	288
2008	-	6
2009	-	5
2010	-	1
2011	-	1
2012	-	2
2013	-	2
2014	-	1
2015	-	6
2016	-	236

2017	-	-

1.4 Illegal, unreported and unregulated (IUU) catch

IUU fishing activity in the SEAFO CA has been reported to the Secretariat in 2012.

2. Stock distribution and identity

Orange roughy (*Hoplostethus atlanticus*) is distributed globally (Fig. 3), but predominantly in the Southern Hemisphere. In the SE Atlantic orange roughy may most probably be regarded as a single stock (management unit). In the BCLME region the species occurs within the economic zones of each of the coastal states as well as in the SEAFO CA.

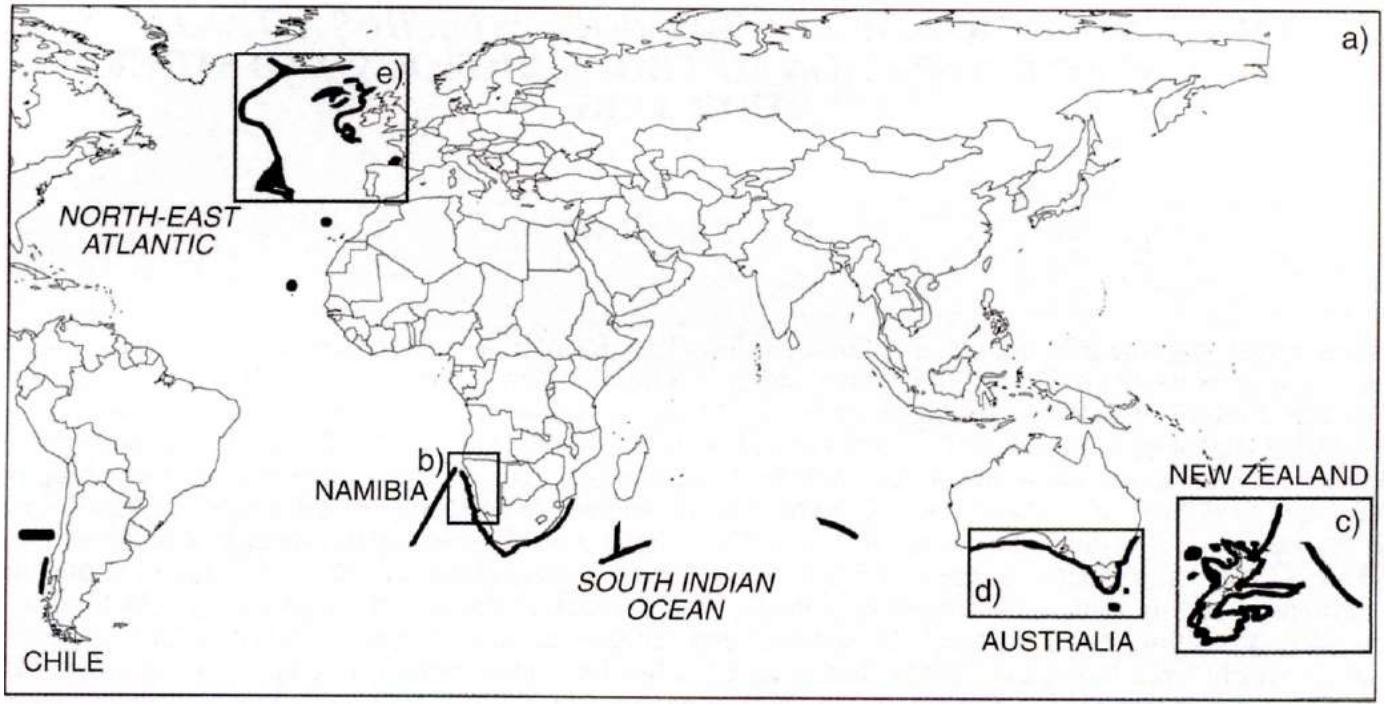

Figure 3: Global orange roughy distribution (Branch 2001).

The aggregating behaviour of orange roughy contributed to its vulnerability to overexploitation globally. Spawning aggregations of orange roughy have been targeted in Namibia during winter. Outside the spawning seasons catches were found to be lower due to a more dispersed resource. Orange roughy are also extremely slow-growing and estimates of maximum age are in excess of 100 years.

Recruitment to the fishery is poorly understood as juveniles are not found in significant quantities. Adults have been caught in small amounts in both Angolan and South African waters, but not in large spawning aggregations as in Namibia. Orange roughy distribution also extends beyond the economic zones of the BCLME countries with good catches reported for example on the Valdivia Bank on the South Atlantic Ridge as well as on the fringes of the Agulhas Bank and Walvis Ridge in the southern Benguela.

3. Data available for assessment, life history parameters and other population information

3.1 Fisheries and survey data

Catch records for the period 1995 to 2005 are available (see Table 2 above). The number of trawls made per year are depicted in table 4 and shows that more hauls were recorded in years when the catches were high.

Deep see fish surveys were conducted in the SEAFO CA by the Norweigan vessel, Dr Fridjof Nansen and by the Spanish vessel.

Table 4: Number of trawls observed per year

Year	Number of trawls
1995	20
1996	223
1997	188
1998	0
1999	16
2000	327
2001	295
2002	40
2003	63
2004	46
2005	61

3.2 Length data and frequencies distribution

No information available for SEAFO CA.

3.3 Length-weight relationships

No information available for SEAFO CA.

3.4 Age data and growth parameters

No information available for SEAFO CA.

3.5 Reproductive parameters

No information available for SEAFO CA.

3.6 Natural mortality

No information available for SEAFO CA.

3.7 Feeding and trophic relationships (including species interaction)

No information available for SEAFO CA.

3.8 Tagging and migration

No information available for SEAFO CA.

4. Stock assessment

4.1 Available abundance indices and estimates of biomass

The annual CPUE (total annual catch divided by number of trawls) are shown in figure 4. The CPUE was the highest in 1995 and thereafter decreased rapidly to reach the lowest CPUE in 1999. Since then the CPUE seems to have stabilized at a low level until 2005 after which there are no data. It has not been confirmed that this CPUE index reflects stock abundance for a highly aggregating species like orange roughy.

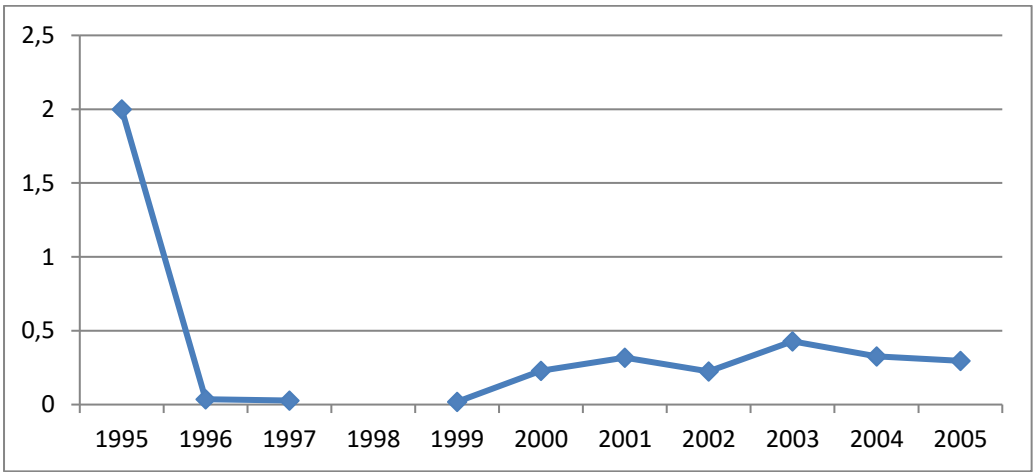

Figure 4: CPUE of orange roughy in tonnes per trawl in Division B1 (SEAFO SC Report 2006).

4.2 Data used

No data since 2005 available.

4.3 Methods used

No data since 2005 available.

4.4 Results

4.5 Discussion

4.6 Conclusion

Since there has been no fishery in recent years or no other fishery independent data available within the SEAFO CA, no assessment can be done at the moment.

4.7 Biological reference points and harvest control rules

No biological reference points and/or harvest control rules have been established for this stock as yet.

5. Incidental mortality and bycatch of fish and invertebrates

5.1 Incidental and bycatch statistics (seabirds, mammals and turtles)

No information available for the SEAFO CA.

5.2 Fish bycatch

Some of the bycatch species recorded are: Alfonsino (*Beryx splendens*), Black Oreo Dory (*Allocyttus niger*), Pelagic armourhead (*Pseudopentaceros richardsoni*), Black Cardinal fish (*Epigonus telescopus*), Smooth Oreo Dory (*Pseudocyttus maculatus*), Warty Oreo Dory (*Allocyttus verrucosus*) and various deep sea shark species.

5.3 Invertebrate bycatch including VME taxa

No information available for the SEAFO CA.

5.4 Incidental mortality and bycatch mitigation methods

No information available for the SEAFO CA.

5.5 Lost and abandoned gear

No lost and abandoned gear data was reported for orange roughy fishery in the SEAFO CA.

5.6 Ecosystem implications and effects

No Information available for the SEAFO CA

6. Current conservation measures and management advice

6.1 Current conservation measures

The 2016 management measure pertaining to orange roughy in the SEAFO CA (CM 31/15) has zero tonnes (moratorium on directed fishery) and a 4 tonnes bycatch allowance in Division B1, and 50 tonnes in the remainder of the SEAFO CA;

Table 5: Conservation measure relevant to orange roughy fishery

Conservation Measure 04/06	On the Conservation of Sharks Caught in Association with Fisheries Managed by SEAFO
Conservation Measure 14/09	To Reduce Sea Turtle Mortality in SEAFO Fishing Operations.
Conservation Measure 25/12	On Reducing Incidental Bycatch of Seabirds in the SEAFO Convention Area
Conservation Measure 30/15	On the Management of Vulnerable Deep Water Habitats and Ecosystems in the SEAFO Convention Area
Conservation Measure 31/15	On Total Allowable Catches and related conditions for Patagonian Toothfish, orange roughy, Alfonsino and Deep-Sea Red Crab in the SEAFO Convention Area in 2014

6.2 Management advice

SC considered available data on orange roughy since the inception of the fisheries in SEAFO CA.

There is no fishery data available since 2005 for orange roughy within the SEAFO CA, as a result SC cannot conduct stock assessment of the orange roughy stock within the Convention Area.

SC recommends a moratorium for 2017 and 2018 on directed fishery in Division B1 and allowance for bycatch limit as proportion (10%) of the average of landings from the last five years with positive catches (i.e. 2001-2005), equivalent to 4 tonnes.

The SC did not consider the allowance of a 50 tonnes TAC in the remainder of the area and cannot review the current status quo, due to a lack of new information.

A harvest control rule shall be developed for orange roughy in the future as data becomes available.

In 2017 the SC reviewed the recommendation on orange roughy but could not advice on the most appropriate harvesting level on this stock due to lack of scientific information. Historically, there were no records of landings higher than 22 tonnes outside B1. SC recommended a precautionary tac or bycatch allowance outside B1.

The annual catch and set TAC outside the B1 are shown in figure 5. There were no landing recorded since 2005.

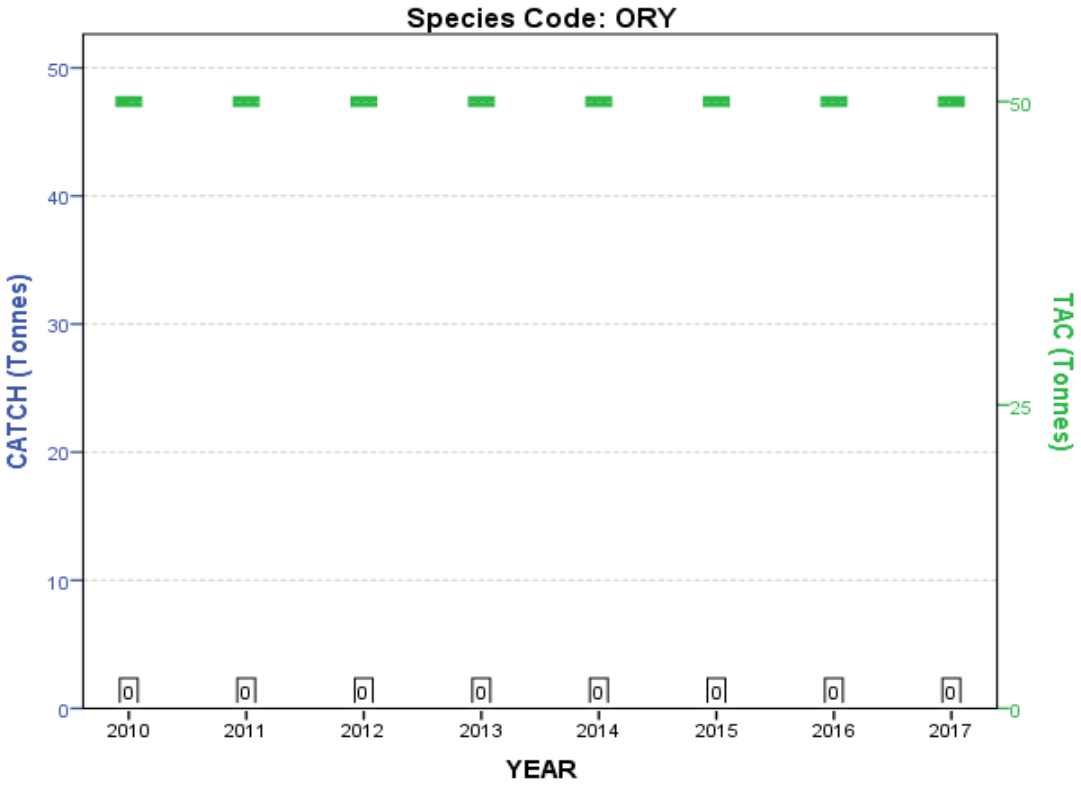

Figure 5: Orange roughy catches and set TAC outside the B1, since 2005.

7. References

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