STATUS REPORT

Hoplostethus atlanticus

Common Name: Orange roughy

FAO-ASFIS Code: ORY

2024

Updated November 2024

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1. Description of the fishery

Exploration for orange roughy in the South Eastern Atlantic Ocean first started in South Africa prior to 1994 but the focus 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 its fishing range into SEAFO CA from 1995 to 2005. By 2009, a three-year moratorium on orange roughy was enforced in Namibia and the fishery has not been re-opened yet.

1.3 *Description of fishing vessels and fishing gear*

Seven Namibian vessels (Table 1) were involved in the period the fishery occurred in the SEAFO CA, between 1995 and 2005. These vessels were also involved in the Alfonsino fishery during the same period. 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.

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

1.2 Spatial and temporal distribution of fishing

Fishing mainly occurred on Ewing seamount and Valdivia Bank within the SEAFO CA (Fig. 1). These operations started in 1995 and continued until 2005. The fishing season usually extends from January to December and catches peaks in winter months (May to July), which coincides with the spawning season of orange roughy.

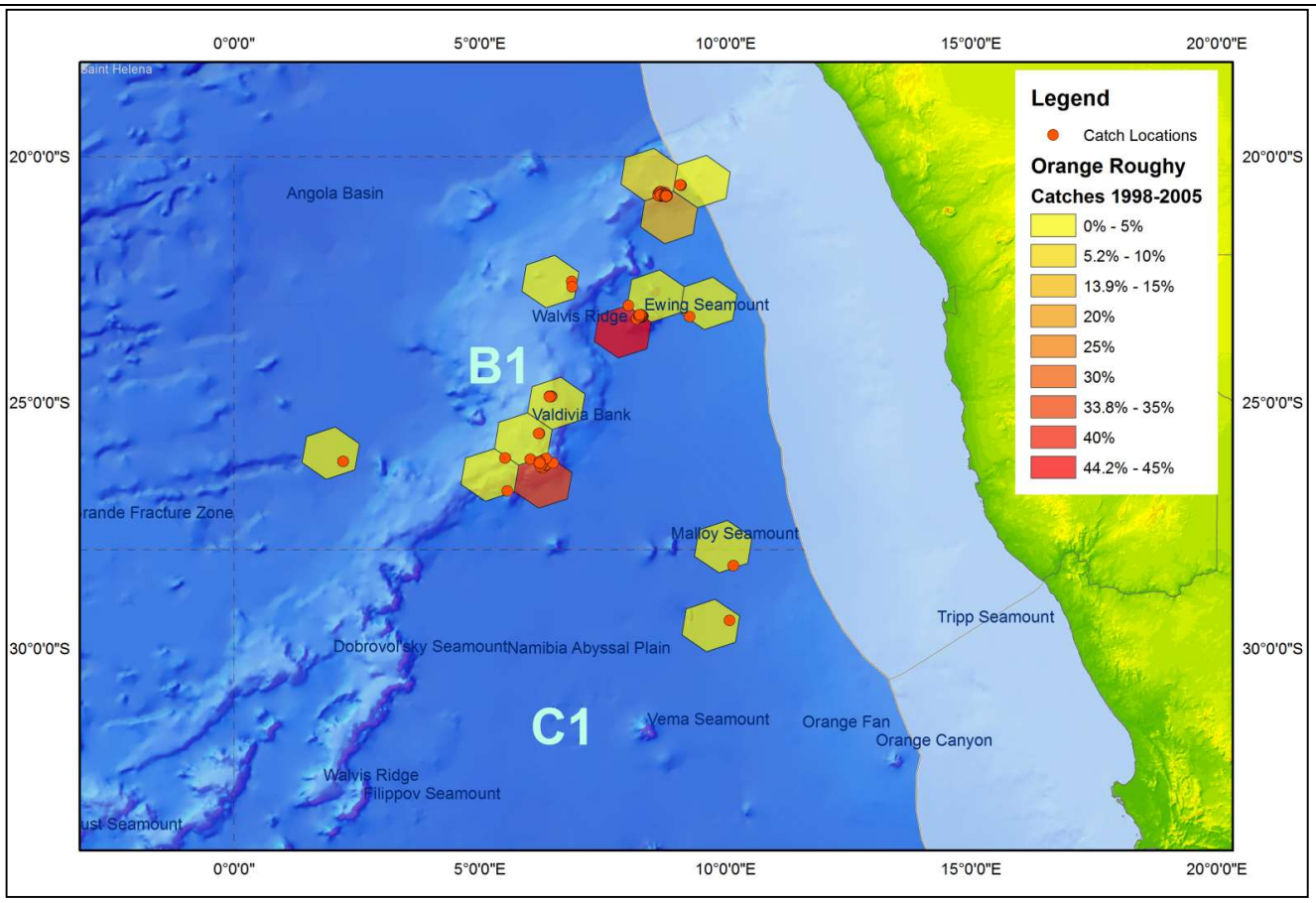

Figure 1: Location of fishing activities in the SEAFO CA.

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 being the most important ports. All available landing information is presented in Table 2. However, the bulk of orange roughy catches was 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

Flag State	Namibia		Norway		South Africa		Research Survey	
Fishing method	Bottom trawl		Bottom trawl		Bottom trawl		Bottom Trawl	
Management Area	B1		A1		B1		B1	
Year	Retain	Discard	Retain	Discard	Retain	Discard	Retain	TOTAL
1995	40		-					**40**
1996	8		-					**8**
1997	5		22		27#**			**54**
1998	-	-	12					**12**
1999	<1		-	-				**<1**
2000	75		0					**75**
2001	94		-	-				**94**
2002	9		-	-				**9**
2003	27		-	-				**27**
2004	15		-	-				**15**
2005	18		-	-				**18**
2017	0	0	-	-	-	-		**0**
2022	-	-	-	-	-	-	<1	**<1**
TOTAL	**291**	**0**	**34**	**0**	**27**	**0**	**<1**	**352**

- and missing years= No fishing,
Blank fields = No data available.
* = Provisional (up until 31 August 2022)
** = 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 (the bulk of the catch from 2016 is part of the research quota for the vessel that conducts a scientific survey).

Year	SEAFO CA	Namibian EEZ
1994	-	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	-	1
2013	-	2
2014	-	2
2015	-	6
2016	-	308
2017	0	153
2018	-	534
2019	-	343
2020	-	3
2021	-	64
2022	-	NA
2023	-	NA
2024*	-	18

* = Provisional (up until 31 August), - and missing years = No fishing, NA= Not available. Catches from 2009 to 2015 are bycatch from demersal trawl fisheries and from 2016 catches from orange roughy biomass survey combined with bycatch from demersal trawl fisheries.

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. 2), predominantly in the Southern Hemisphere, but appear to be absent from the northern Indian Ocean and the North Pacific (Tingley and Dunn 2018)). In the SE Atlantic, preliminary results of a genetic study indicated that there are different orange roughy populations within the SEAFO CA, Namibia and South Africa (DOC/SC/10/2024). These variations were also observed between the five Namibian grounds (Hotspot, Rix, Flats, Three Sisters and Johnies. In the BCLME region the species occurs within the economic zones of each of the coastal states as well as in the SEAFO CA.

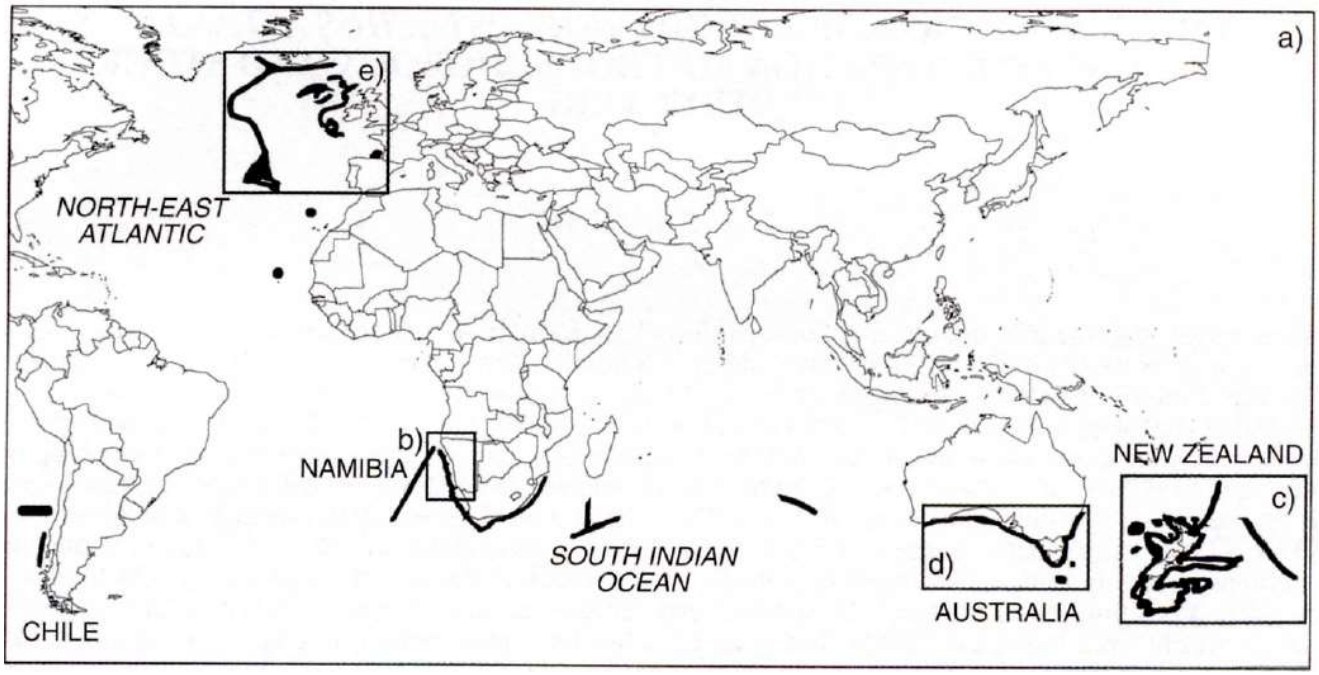

Figure 2: Global orange roughy distribution (Branch 2001).

The aggregating behaviour combined with biological characteristics (i.e. long lived (approx. up to 100 years), slow growing, late maturation and low fecundity) 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.

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 numbers of trawls made per year are depicted in Table 4 and show that more hauls were recorded in years when the catches were high.

Deep-sea fish surveys were conducted in the SEAFO CA by the Spanish research vessel, Vizconde de Eza (2008 -2010) (Vizconde) and the Norwegian research vessel, Dr Fridtjof Nansen (2015 and 2019) (Nansen), under the FAO's EAF-Nansen Programme.

During 2015, the Nansen surveyed some seamounts but only at Ewing and Valdivia seamounts where evidence of orange roughy presence was discovered (Bergstad et al 2019). A trawl deployed on Valdivia north caught some orange roughy (22 specimens) and camera dives at Ewing also detected orange roughy. During the 2019 Nansen survey, no orange roughy was detected in the surveyed area (Division D1).

The findings of the 2015 survey could only determine the presence or spatial distribution but not the abundance of orange roughy in the surveyed areas. Orange roughy survey was conducted in the SEAFO CA by the RV Dr Fridtjof Nansen in June/July 2022 in (Division B1 and C1). A total of 82 kg orange roughy were recorded.

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 status

4.1 Available abundance indices and estimates of biomass

The annual nominal CPUE (total annual catch divided by a number of tows) are shown in figure 3. Catch per tow was used as a proxy for CPUE estimations due to a lack of duration information. 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.

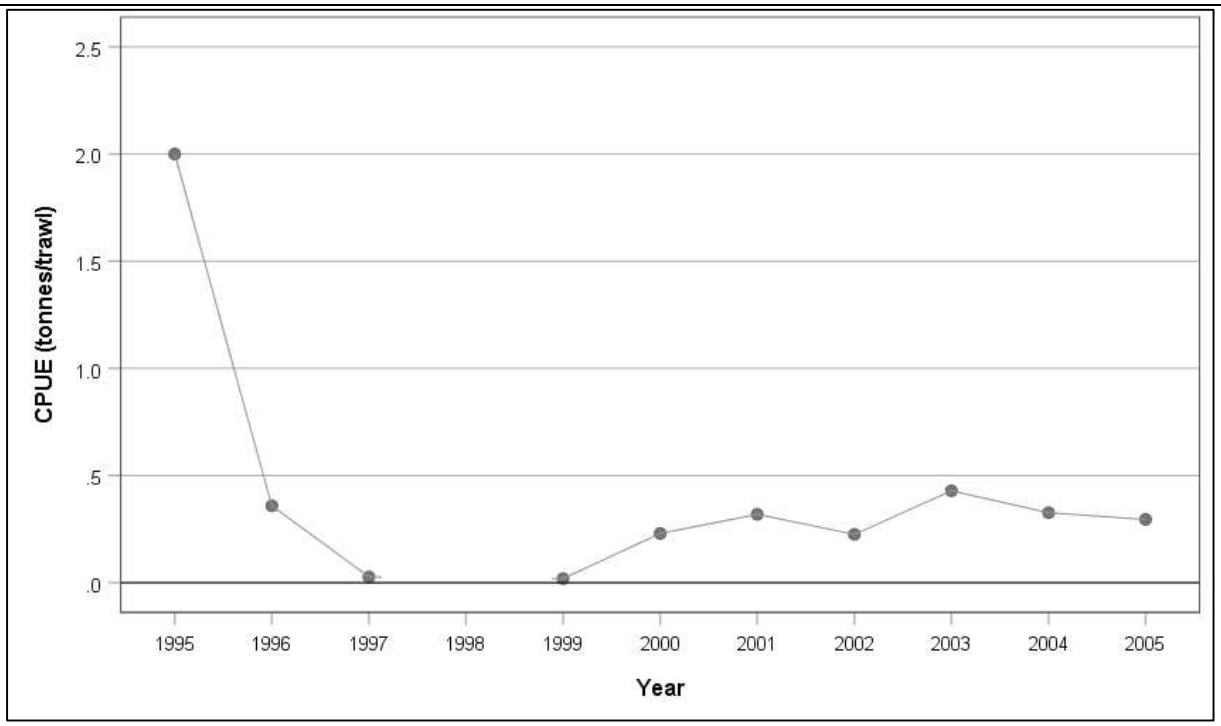

Figure 3: Mean CPUE of orange roughy in tonnes per number of trawls in Division B1 (SEAFO SC Report 2006).

4.2 Data used

No data since 2005 available.

4.3 Methods used

No data since 2005 available.

4.4 Results

No results

4.5 Discussion

No 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 is 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 (*Pentaceros 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 2018 management measure pertaining to orange roughy in the SEAFO CA, CM-TAC-01 (2018), entered into force 01 January 2019, 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, subject to exploratory fishing protocols. In 2024 SC recommended a rollover for the fishing season 2025-2026 (CM-TAC-01 (2024)).

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 CM-TAC-01 (2023)	On Total Allowable Catches and related conditions for Patagonian Toothfish, Deep-Sea Red Crab, Alfonsino, Orange Roughy, and Pelagic Armourhead for 2024 in the SEAFO Convention Area.

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. The conservation measure 32/16 on the moratorium of a directed fishery for orange roughy was discussed in detail during the 2018 SC meeting. Historically, most of the catches were made in Division B1. There is currently zero tonnes allocation (moratorium) with a 4 tonnes bycatch allowance in Division B1, 50 tonnes in the remainder of the SEAFO CA, subject to exploratory fishing protocols. In 2024 SC recommended a rollover for the fishing season 2025-2026.

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

The annual catch and set TAC outside the B1 are shown in figure 4. There was no landing recorded since 2005.

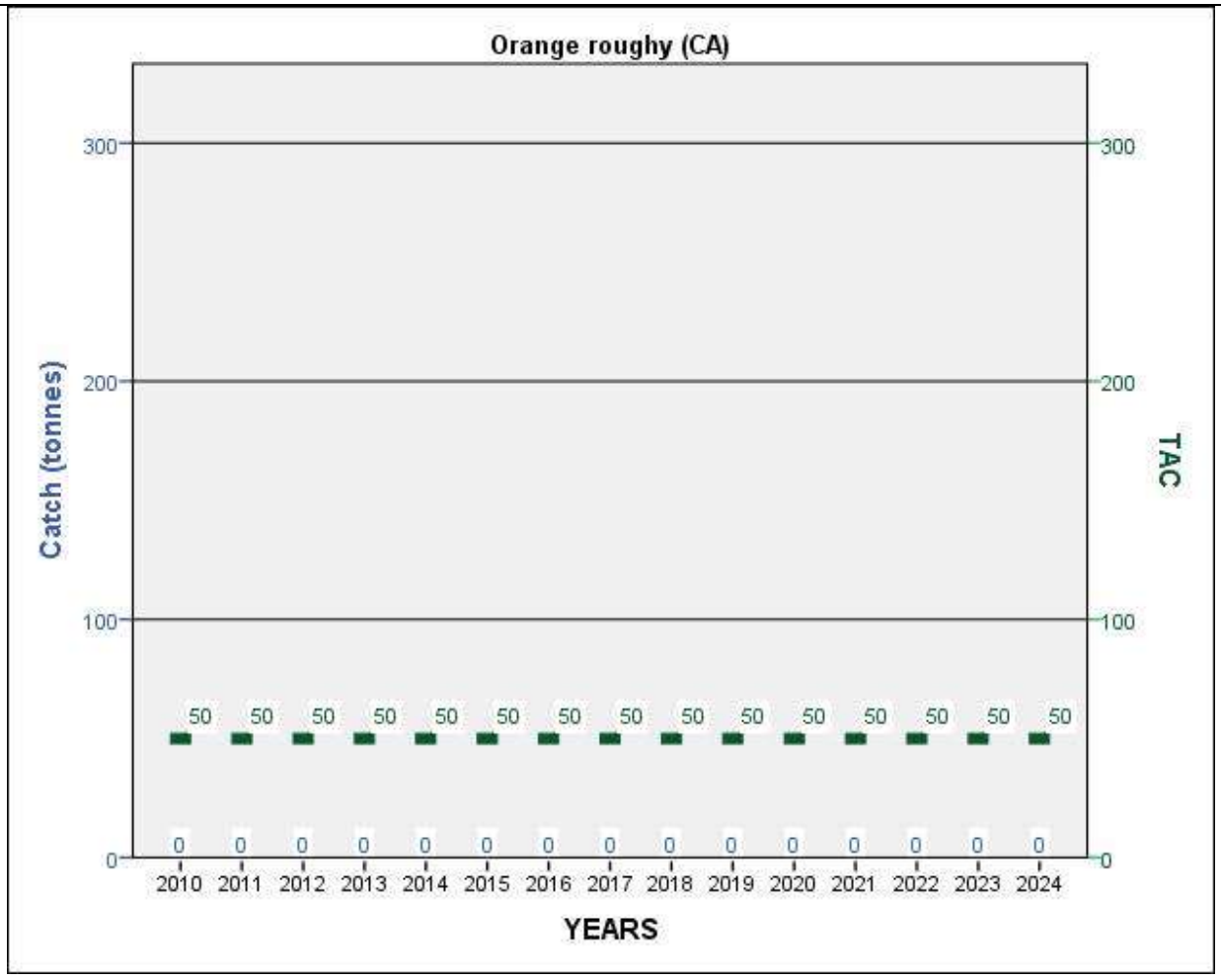

Figure 4: Orange roughy catches and set TAC outside the B1, since 2010.

7. References

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