

NATIONAL REPORT: China

AGENDA ITEM: (WORKING PAPER)

FEBRUARY, 2018

ABSTRACT

This document describes following eight items requested by the National Report Template, i.e., “Fisheries”, “Catch, effort and CPUE”, “Fisheries data collection and research activities”, “VME Thresholds”, “Biological sampling and length/age composition of catches”, “Data verification mechanisms” and “Observer program”.

In the SIOFA convention area, China has been operating three different types of fisheries discontinuously in 2000-2017. Light seining fishery is targeting mackerel and Brama genus (such as *Brama japonica*), bottom longline fishery is targeting ruby snapper, etc. Demersal trawl is targeting dories and orange roughy.

Based on accumulated information, this report summarizes fishing activity by China-flagged vessels in the Southern Indian Ocean Fisheries Agreement (SIOFA) area.

It's also worth mentioning that China has authorized the squid jigging fishery since 2003 on the high seas of the Indian Ocean, but it has not operated in the SIOFA agreement area (actually sometime near the SIOFA agreement area). Hence, this report has not involved the jigging fishery in the Indian Ocean.

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1. Description of fisheries

Chinese operators in the SIOFA Area are authorized by the Chinese Government to target various species with demersal trawl, bottom longline and light seining fishery. In the SIOFA convention area, China has been operating three different types of fisheries discontinuously in 2000-2017 (Figure 1). i.e. light seining fishery, bottom longline fishery and demersal trawl. The number of Chinese vessels operated in the SIOFA area ranged from 1 to 20 vessels in 2000-2017. Before 2000, China has no fishery under the competence of SIOFA in the SIOFA area (Table 1).

1.1 Demersal trawl fishery

Only 3 years of demersal trawl fishery has operated in the SIOFA convention area during 2000~2002 (Fig.1). One or two demersal trawl vessels in each year had catch 179~931 tons in the adjacent waters of the Northern SW Indian Ridge (Fig.2). In 2000 and 2001, two vessels operated in the SIOFA Area 3a and 3b (Southwestern Indian Ridge); in 2002, there was only one vessel operating in the SIOFA area. After 2002, there was no demersal trawl fishery in the SIOFA area (Table 1).

1.2 Bottom longline fishery

As for bottom longline fisheries, there were one time series (2004~2013) operated in the SIOFA convention area. In 2004~2006, 2~4 vessels each year operated in SIOFA area 1, 4 and 8. In 2007~2013, 3~20 vessels each year operated in the SIOFA area 1 and 4 (Fig.2, Table 1). The total catch of this fishery ranged from 126 to 2290 tons. Since 2014, there has been no bottom longline fishery of China in the SIOFA area.

1.3 Light seining fishery

In 2014, 6 vessels began to operate Light seining fishery in the SIOFA Area, near the border between areas 4, 5 and 7 (Fig.2, Table 1). 6 vessels in 2015 and 8 vessels in 2016 caught 4672 and 1877 tons, respectively. In 2017, 5 vessels operated in the SIOFA Area with their average effort being only 6 days per vessel, so the catch also was 150 tons.

However, China has authorized more than 50 light seining vessels (55 in 2017) to operate on the high seas of Indian Ocean¹, it is quite likely that more vessels may operate in SIOFA area in the future.

¹ Most of such vessels operate in the area near to the northern boundary of SIOFA Area, i.e. 12° ~20° N, 56° ~65° E.

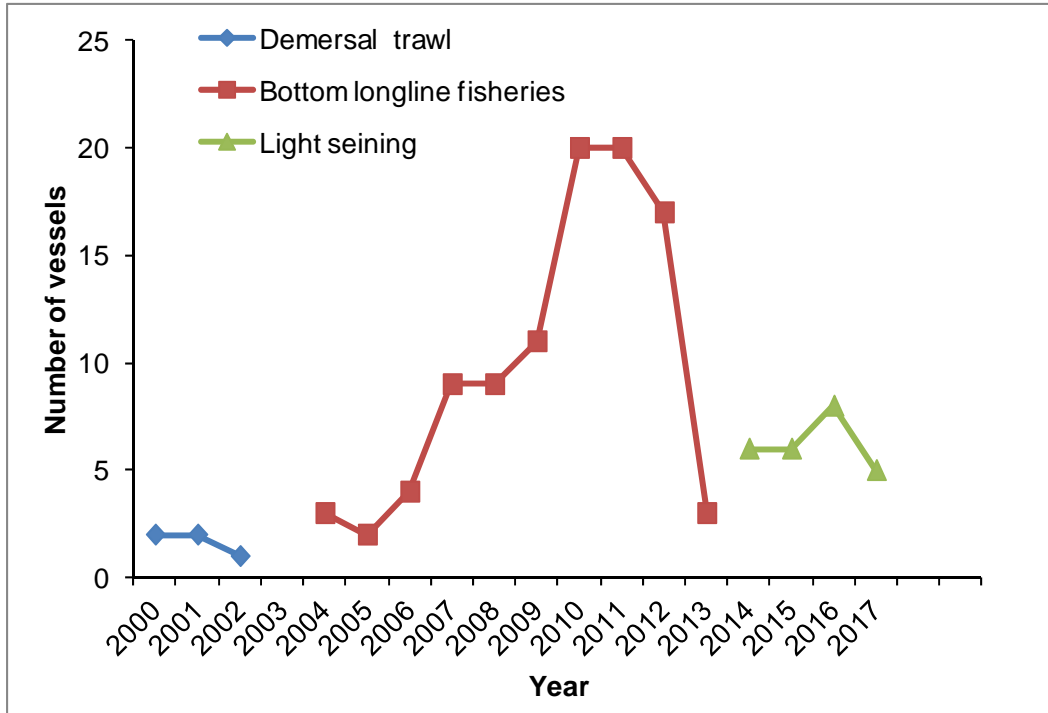


Fig.1 Number of Chinese vessels operated in the SIOFA area in 2000-2017

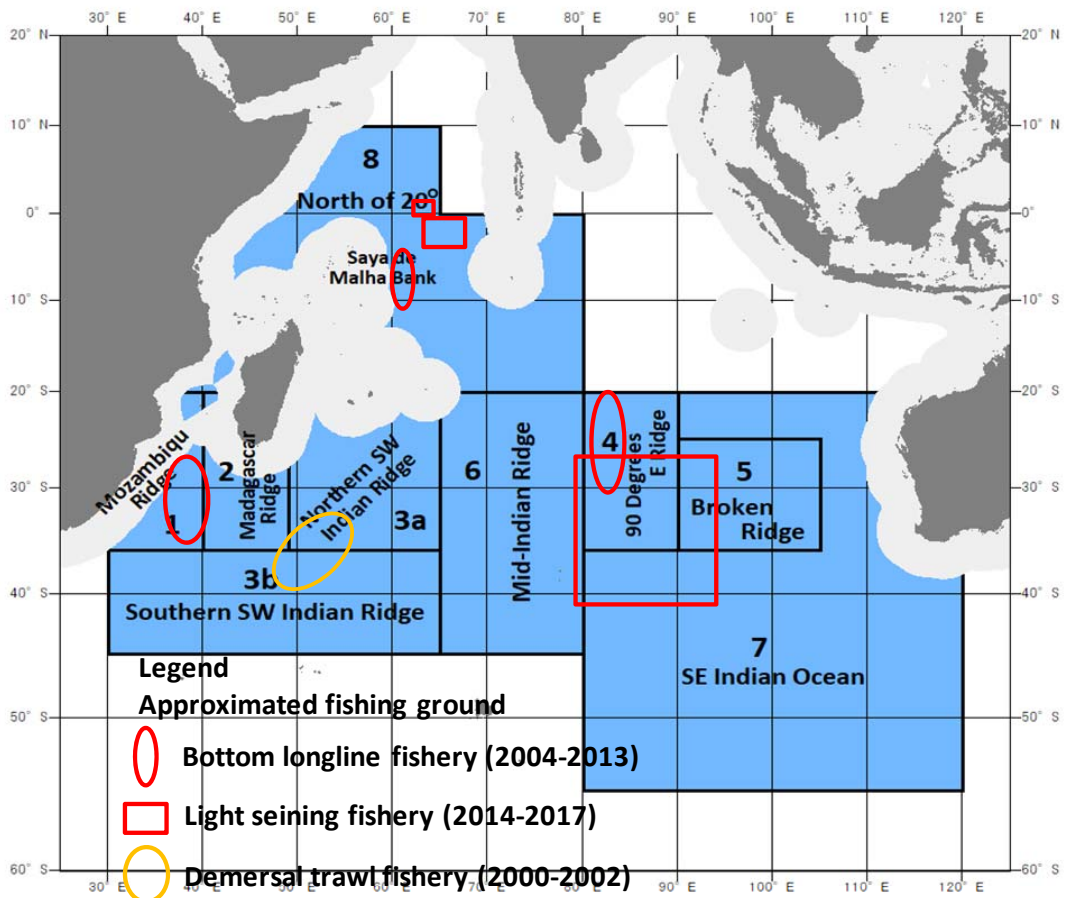


Fig.2 Map of the 3 types fishery in the SIOFA area in 2000-2017

Table 1 Number of vessels and total catch of three type's fisheries in the SIOFA area in 2000-2017

Year	Light seining fishery		Bottom longline fishery		Demersal trawl fishery	
	Number of vessels	Total catch (tons)	Number of vessels	Total catch (tons)	Number of vessels	Total catch (tons)
2000					2	788
2001					2	931
2002					1	179
2003						
2004			3	360		
2005			2	126		
2006			4	615		
2007			9	1202		
2008			9	1100		
2009			11	1420		
2010			20	2290		
2011			20	1680		
2012			17	974		
2013			3	370		
2014	6	2125				
2015	6	4672				
2016	8	1877				
2017	5	150				

2. CATCH, EFFORT AND CPUE SUMMARIES

2.1 Demersal trawl fishery

The total effort of the Chinese demersal trawl fishery has sharply decreasing from 600 hours to 120 hours in 2000~2003 (Fig.3). The CPUE of this demersal trawl fishery in 2000 was 1.3 ton/hour, then increased to 1.7 ton/hour and decreased to 1.5 ton/hour (Fig.3).

In 2000~2002, the total catch ranged from 179 tons to 931 tons (Table 2). The total catch of orange roughy was the most in the fish species composition, which its catch was 623 tons in 2000 and 710 tons in 2001. But in 2002, the total catch of orange roughy was decreased to 72 tons. The CPUE of orange roughy ranged from 0.6~1.3 ton/hour. In 2002, the CPUE of orange roughy decreased to 0.6 ton/hour (Fig.4).

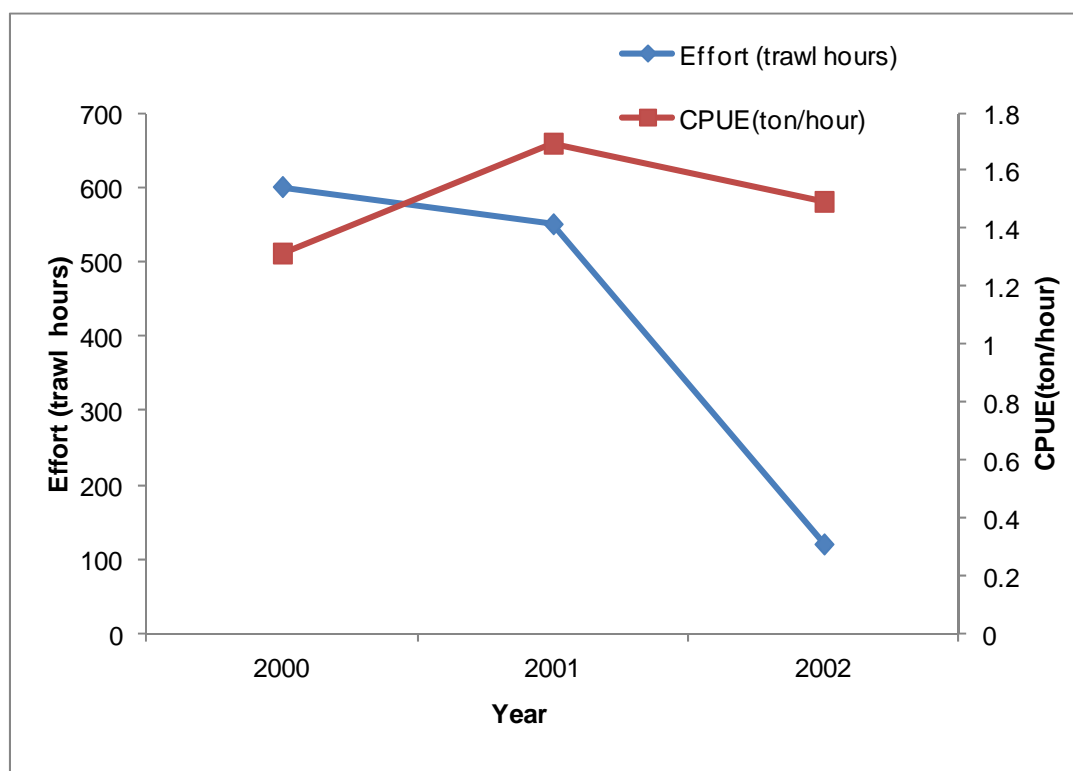


Fig.3 the effort and CPUE of demersal trawl fishery in the SIOFA area in 2000-2002

Table 2 Annual catch of demersal trawl fishery in the SIOFA area in 2000-2002

Year	Total catch (tons)	Chinese name	大西洋胸棘鲷	红金眼鲷	新(异)海鲂属	少耙后竺鲷	大洋拟五棘鲷	其它
		English name	Orange roughy	Alfonsino	Dories	Cardinal Fish	Boarfish	others
		Scientific name	<i>Hoplostethus atlanticus</i>	<i>Beryx splendens</i>	Genus <i>Neocyttus</i> and Genus <i>Alloctytus</i>	<i>Epigonus telescopus</i>	<i>Pentaceros richardsoni</i>	
2000	788		623	8	148	5	2	2
2001	931		710	7	180	18	9	7
2002	179		72	6.678	96.5	2.84		1

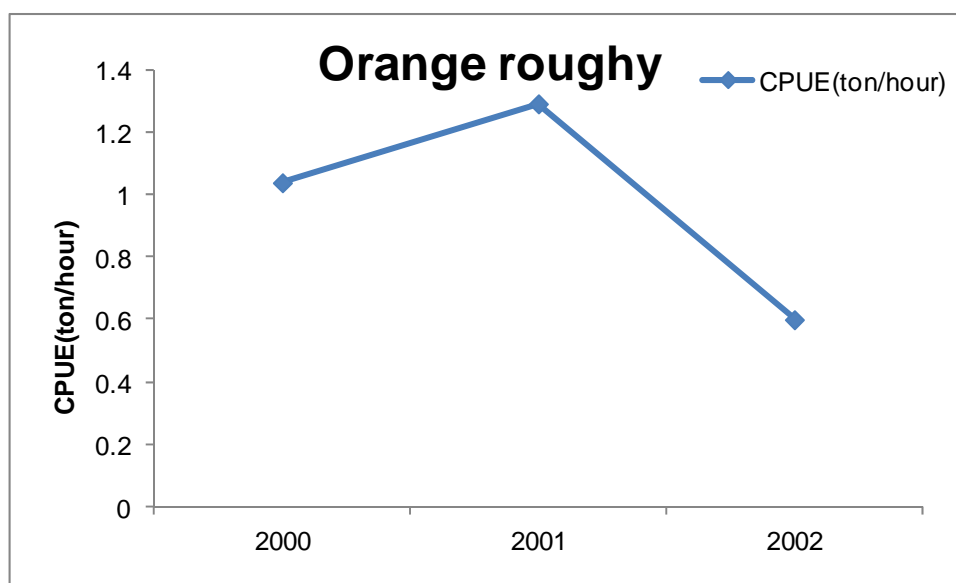


Fig.4 the CPUE change of Orange roughy in demersal trawl fishery in the SIOFA area in 2000-2002

2.2 Bottom longline fishery

The number of Chinese bottom longline fishery vessels operated in the SIOFA area ranged from 2 to 20 in 2004~2013. In the fish species composition, the catch of Snapper was dominated in the bottom longline fishery. The total catch ranged from 126 to 2290 tons in table 3. The effort change of the bottom longline fishery in the SIOFA area in 2004-2013 was from 995×1000 hooks (lowest in 2005) to 12375×1000 hooks (highest in 2011) (Fig.5).

The bottom longline fishery also caught 2.3~38.7 tons of orange roughy. Regarding the bottom line fishery data, kindly note that: 1) The historical total catch data of orange roughy from 2004 to 2013 indicated in Table 3 were estimated according to calculating the proportion of orange roughy catch in the total catch which were recorded in the logbooks of the sampling vessels; 2) The identification of orange roughy was mainly done by the crew, which may result in the uncertainties on the catch data for this species.

As for Ruby snapper *Etelis coruscans*, the CPUE changes of this fish in the bottom longline fishery in the SIOFA area in 2004-2013 was from 4.1 kg/1000 hooks to 10.7 kg/1000 hooks (Fig.6).

Table 3 the fish species composition and catch of bottom longline fishery in the SIOFA area in 2004-2013

Year	No. of vessels	Chinese name	胸棘鲷	阿拉伯小鲷	丝尾红钻鱼	笛鲷类	紫鱼	石斑鱼属	红金眼雕	海鲂类	鲹科	鲷科	其它	
		English name	Orange roughy	Arabian pandora	Ruby snapper	Snapper	Sharptooth jobfish	Grouper	Alfosino	Dories	Family Carangidae	Family Serranidae	others	Total tons
		Scientific name	<i>Hoplostethus atlanticus</i>	<i>Pagillus affinis</i>	<i>Etelis coruscans</i>	Lutjanidae family	<i>Microcanthus strigatus</i>	<i>Epinephelus</i>	<i>Beryx splendens</i>	Genus <i>Neocyttus</i> and Genus <i>Alloctytus</i>	Carangidae	Serranidae		
2004	3		7.2	10	18	240	5	2	11	16	18	16	16	360
2005	2		2.3	6	8	64	4	0.4	1.6	5	24	2	8	126
2006	4		13.5	1	16	485	6	1	18	18	25	10	22	615
2007	9		21.4	3	33	994	9	2	25	12	56	15	32	1202
2008	9		22.8	9	40	890	15	2	28	18	25	20	31	1100
2009	11		19.2	18	20	1050	15	3	25	30	43	42	42	1420
2010	20		35	16	50	1560	18	4	32.1	200	88	68	68	2290
2011	20		38.7	26	65	1232	21	5	30	36	95	78	54	1680
2012	17		29.3	2	42	672	11	5	36	16	70	58	33	974
2013	3		7	4	22	210	3	2	11.1	20	60	10	21	370

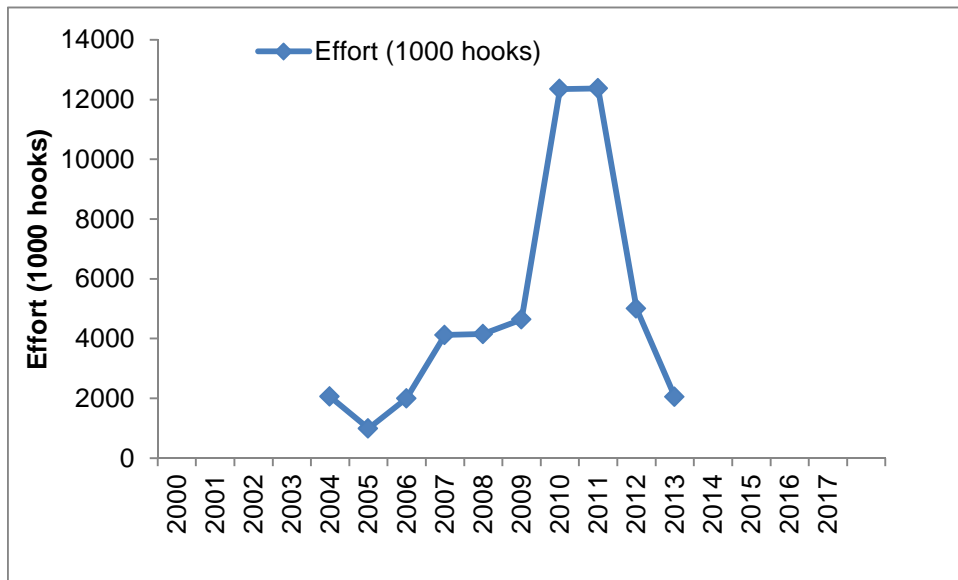


Fig.5 the effort change of the bottom longline fishery in the SIOFA area in 2004-2013

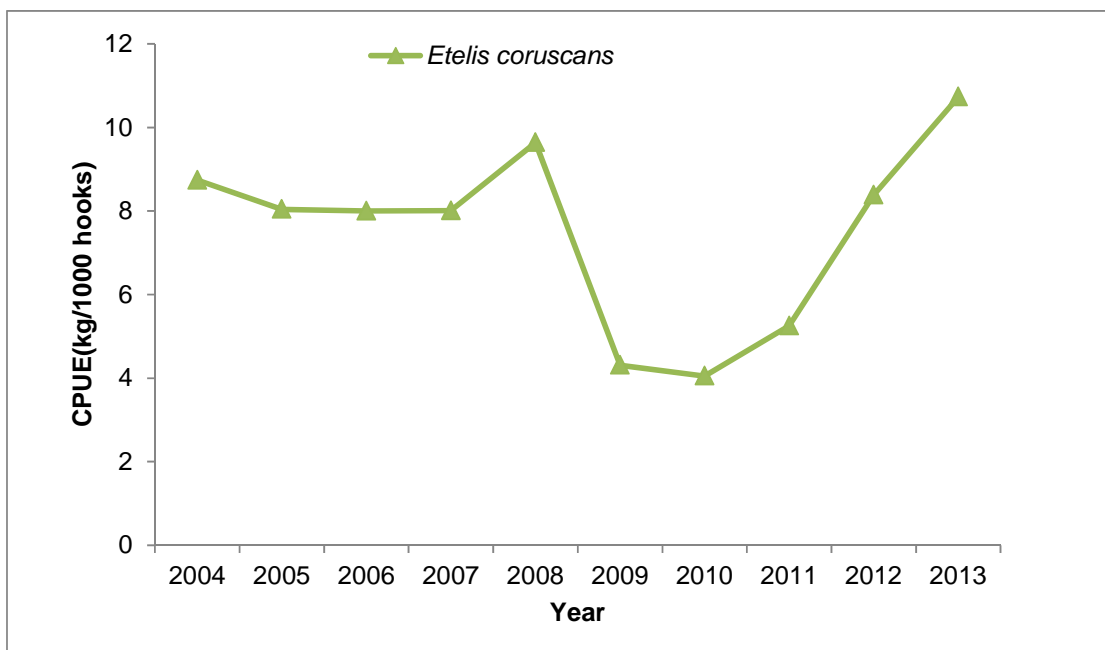


Fig.6 the CPUE changes of Ruby snapper *Etelis coruscans* of the bottom longline fishery in the SIOFA area in 2004-2013

2.3 Light seining fishery

The mainly distribution of Light seining fishery in the SIOFA area in 2014-2017 see Fig.7.

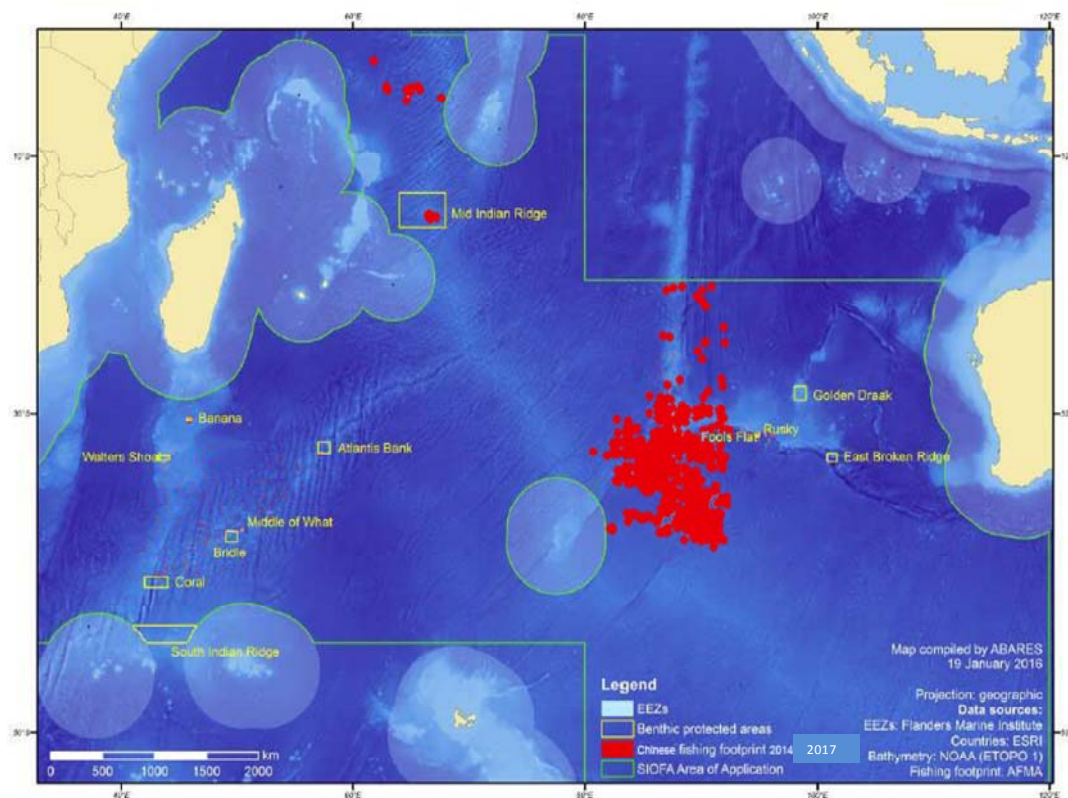


Fig.7 the mainly distribution (red circle ●) of Light seining fishery in the SIOFA area in 2014-2017

The total effort change of the Light seining fishery in the SIOFA area in 2014-2017 ranged from 300 to 9,583 fishing hours (Fig.8). But because Light seining vessels only operated in the SIOFA area almost 6 days in 2017, the effort was 300 hours. The CPUE (tons/net) has increased from 4.6 to 7.6 in 2014~2016, and decreased to 4.8 tons/net in 2017(Fig.9). In all these catches, the Pomfret *Brama japonica* is the dominated fish species. The Australia mackerel species also have higher yield in 2014~2017 (Table 4). The CPUE change of Pomfret *Brama japonica* ranged from 209 kg/hour to 451 kg/hour in the Light seining fishery in the SIOFA area in 2014-2016 (Fig.10). In 2017, because of the change of fishing location, the CPUE of Pomfret was 40 kg/hour (Fig.10).

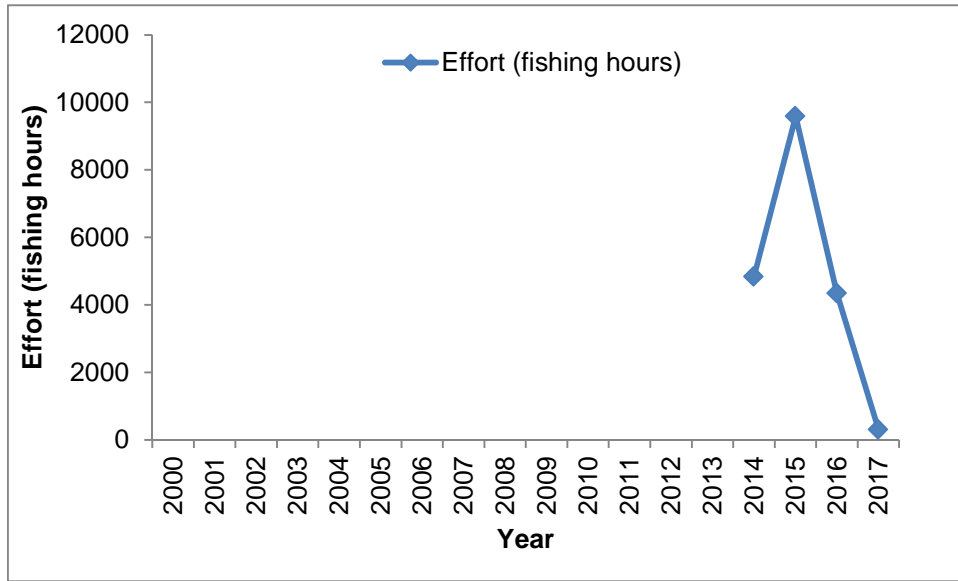


Fig.8 the total effort change of the Light seining fishery in the SIOFA area in 2014-2017

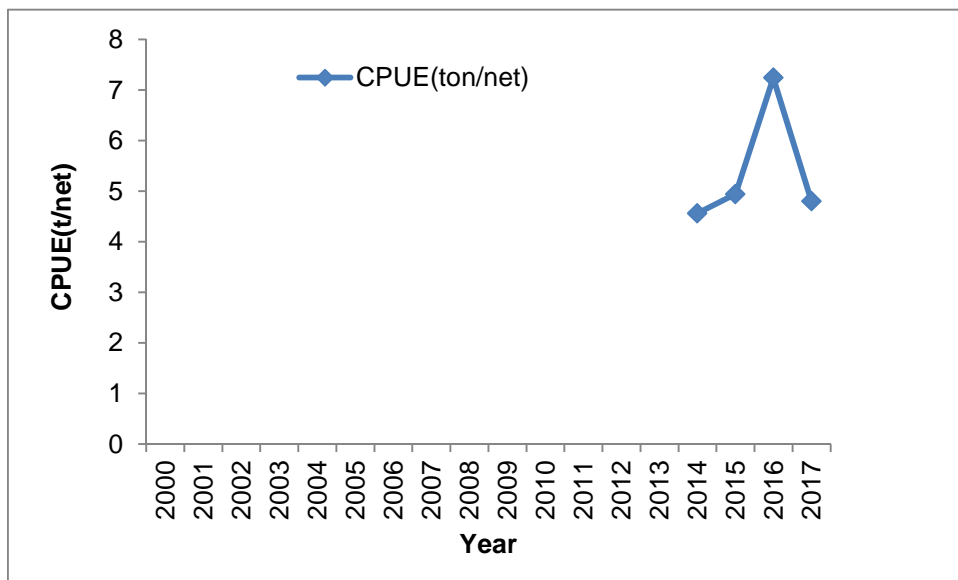


Fig.9 the CPUE (ton/net) change of the Light seining fishery in the SIOFA area in 2014-2017

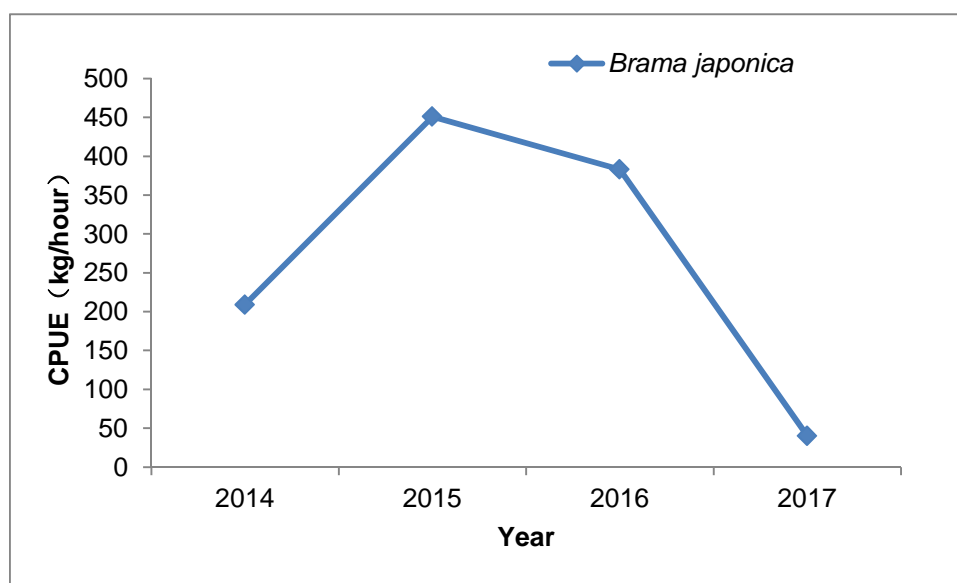


Fig.10 the CPUE (kg/hour) change of *Brama japonica* in the Light seining fishery in the SIOFA area in 2014-2017

Table4 the fish species and catch of the Light seining fishery in the SIOFA area in 2014-2017

Year	Total catch (tons)	Chinese name	澳洲鲈	日本鲈	鳶乌贼	乌鲂	沙丁鱼	鰺属	竹筴鱼	鯷鱼	
		English name	Australia mackerel	Japanese mackerel	Squid	Pomfret	Sardine	Amberjack	Jack and Horse Mackerel	Anchovy	others
		Scientific name	<i>Scomber australasicus</i>	<i>Scomber japonicus</i>	<i>Sthenoteuthis oualaniensis</i>	<i>Brama japonica</i>	<i>Sardinella</i> and <i>Sardina</i> genus	<i>Seriola</i>	<i>Trachurus</i>	Engraulidae family	
2014	2125		500	18	0	1008	0	76	482	0	41
2015	4671		174	48	8	4321	8	40	0	0	72
2016	1877		153	12	0	1659	0	18	0	3	32
2017	150		132	2	6	12	0	0	1	0	7

3. Fisheries data collection and research activities

3.1 Fisheries data collection

China has established a scientific data collection system that East China Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences (ECSFRI, CAFS) and Shanghai Ocean University (SHOU) are responsible for scientific researching analysis, and fisheries data collection. ECSFRI is responsible for collecting the related data for Light seining fishery and Bottom longline fishery in the SIOFA waters, while SHOU is responsible for collecting the related data for Bottom longline fishery and demersal trawl fishery.

Since 2000, Bureau of Fisheries of China has required the fishery practitioners to record the daily catch and fishing effort data in logbooks, including the location of fishing operations. In Light seining fishery since 2014, the logbooks are required to record the working time and number of the lights, the time on pick and place a net, catch of every net, and catch of by-catch, etc. Every fish logbook shall be submitted to ECSFRI and SHOU to analyze the fishery dynamics for this fishery. Every light seining fishing vessel is required to submit its monthly fishing/non-fishing activity, catch data and relevant information to China Overseas Fisheries Association (COFA) since 2016.

3.2 Vessel Monitoring System

Every fishing vessel is compulsory to be equipped with a satellite position monitoring system (mostly the INMAST-C system, partly the Argos system). Every fishing vessel is obligatory to report its position at least four hours once, six times a day through the satellite position monitoring system (commonly known as the VMS). Every year, ECSFRI and SHOU researchers check the accuracy of vessel position of logbooks through the VMS system.

3.3 Research activities

Chinese Government has authorized East China Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences (ECSFRI, CAFS) and Shanghai Ocean University (SHOU) to conduct researches for the commercial fisheries in the SIOFA area since 2000. ECSFRI and SHOU are also in charge of collecting all the logbooks

and other available information for those fisheries in the Convention Area. In 2016~2017, China implements one study fleet for Light seining fishery to collect more detailed information. ECSFRI made a research for Light seining fishery which covered CPUE standardization, the relationships between environmental factors and the abundance, etc. SHOU made a fishing ground study on the Bottom longline fishery in the SIOFA waters in 2005.

4. VME Thresholds and ecological impacts

No significant adverse impact by Chinese bottom fisheries on VMEs were found, and no interactions with threatened, endangered and protected species were reported for the past bottom fisheries.

Currently, the fishing operation by China in SIOFA Area is not applicable to the VME Thresholds.

5. Biological sampling and length/age composition of catches

Length frequencies of Australia mackerel caught by Light seining fishery are presented in Fig. 11. Length frequencies of Ruby snapper caught by bottom longline fishery are presented in Fig. 12.

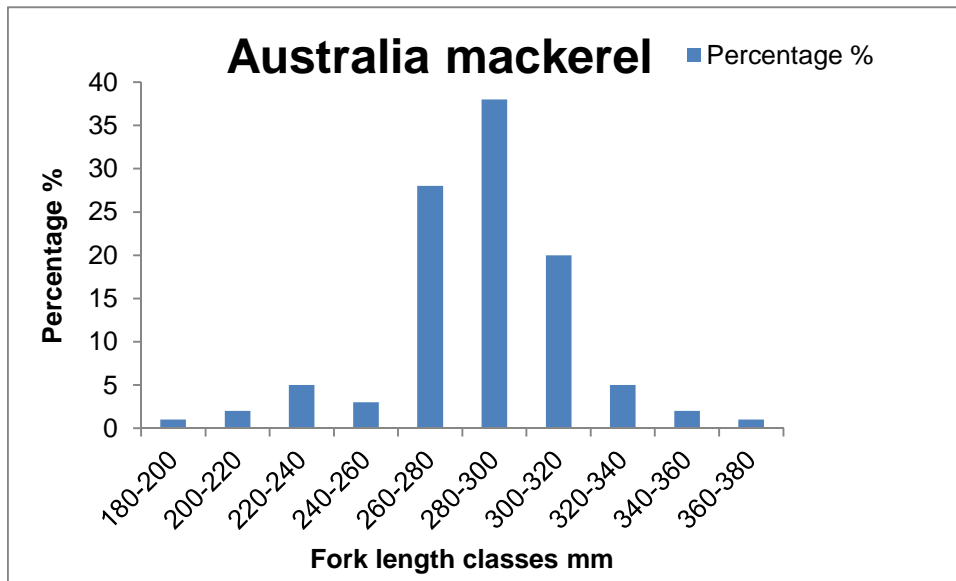


Fig.11 Length frequency (%) of Australia mackerel measured by researcher on Chinese Light seining fishery vessels in the SIOFA Area

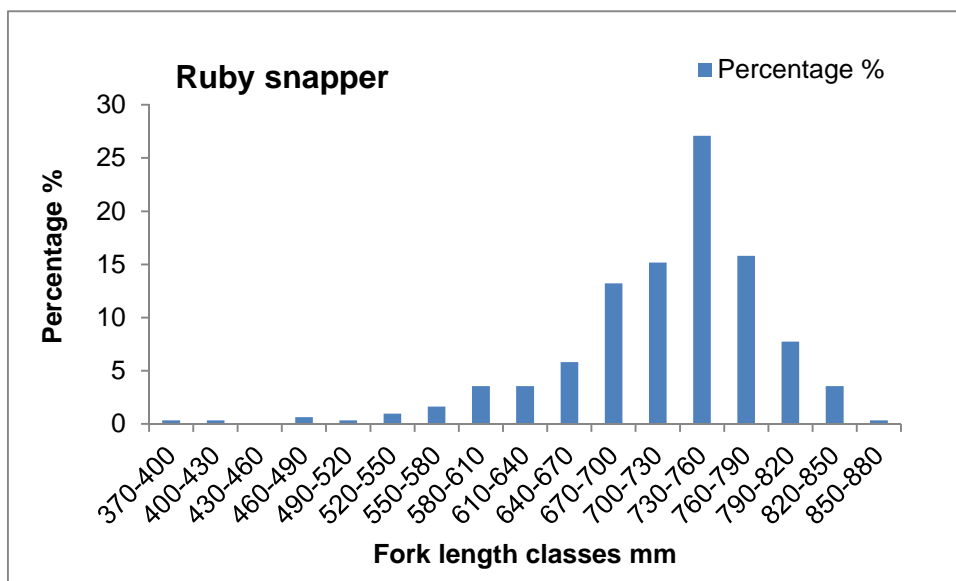


Fig.12 Length frequency (%) of Ruby snapper measured by observers on Chinese bottom longline fishery vessels in the SIOFA Area

6. Description of data verification mechanisms

6.1 Trawl fisheries data

Commercial fisheries data (logbook) have been verified by technical team and the Government. Monthly catch report of every vessel including total catch, location and net times should be sent to COFA.

6.2 Bottom longline fisheries data

Both fisheries logbook and observer data have been verified by the technical team and the Government. Monthly catch report of every vessel including total catch, location and hooks should be sent to COFA.

6.3 Light seining fishery data

Commercial fisheries data (logbook) in the Light seining fishery have been verified by China Overseas Fisheries Association (COFA) and ECSFRI. Monthly catch report of every vessel including total catch, location and hooks should be sent to COFA. Every logbook should include the net time, catch, fish species and location, etc. ECSFRI also verifies locations of vessels through the Vessel Monitoring System (VMS).

7. Summary of observer and port sampling programs

7.1 Observer program

China does not have an observer program for demersal trawl in 2000~2002 in the SIOFA area. There are no observer program for Light seining fishery in 2014~2016 in the SIOFA area. However, in 2005, China has an observer program for bottom longline fishery.

7.2 Port sampling program

China does not have a port sampling program for vessels that fish every year in the SIOFA Area. In 2015~2016, China has sampled the fish samples for light seining fishery.

8. Relevant social and economic information (optional)

No particular information is reported.

9. Fishery management of China

The fishery in the SIOFA area is one of the major elements of China distant sea fishing, and serious measures have been taken for the fishery to promote compliance. These measures include but not limited to: fishing permit, vessel monitoring system, data reporting, logbook, and annual review on the performance of the fishing company in the previous year, etc.

9.1 Fishing permit

Each fishing vessel intending to operate in water outside the jurisdiction of China must be approved by the Ministry of Agriculture, and such vessels, after being approved, is issued a high-seas fishing permit if they operate on the high seas, including SIOFA area.

9.2 Data reporting

Bureau of Fisheries, Ministry of Agriculture of China has been very much concerning the quality of data collection. National-wide meeting on data collection had been organized at least once a year during past years. Participants are managers of

fishing companies and related fishery enterprises.

In addition, each vessel of all the companies engaged in SIOFA area fisheries has been required to submit their fishery data (such as catch and fishing effort by species, month, gear, area etc.) to China Overseas Fisheries Association (COFA), a nongovernmental organization, before the deadline every year. Data coverage of catch and effort is 100%.

For each deep sea fishery, China has set up technical team responsible for the data collection and verification, sampling, fishery research activity, etc. The technical team also verifies locations of vessels through Vessel Monitoring System (VMS).

9.3 Logbook

Each fishing vessel is required to fill in logbook precisely and the fishing logbook should be handed to the institutes designated by Bureau of Fisheries China. The monthly catch for mainly catch species of every fishing vessel should report to the China Overseas Fisheries Association (COFA).

9.4 VMS

Each fishing vessel is obliged to be equipped with a tracking terminal. The vessel is polled everyday by the China Overseas Fisheries Association. The technical team also verifies locations of vessels through the Vessel Monitoring System (VMS). China established the offshore fishing service (Webgis version) platform to monitoring the locations of vessels on real time for fishery management.

9.5 National observer program

China has established observers program for many fisheries. The observers are trained and dispatched by Shanghai Ocean University and East China Sea Fisheries Research Institute each year. The observers collect catch data on board, and each vessel accepting observer is obliged to provide necessary assistance.

9.6 Communication and Distribution

Measures adopted by RFMOs and/or required by the Bureau of Fisheries are communicated to each fishing company and, where appropriate, processing plant in due course either by official order by the Government or through the communication by the China Overseas Fisheries Association. Any information relating to compliance and safety is communicated from time to time by China Overseas Fisheries Association by email and/or written documents.

9.7 Annual review by the Government

According to the regulation on Distant Water Fisheries issued by the Ministry of Agriculture of China issued in 2003, annual review on the performance by deep sea fishing companies in the previous year is conducted by the central government, Ministry of Agriculture, at the beginning of each year.

The performance is evaluated mainly based on the compliance by the fishing company, *inter alia*, data reporting, VMS, acceptance of national observer, logbook submission and data quality, and compliance of other requirement as stipulated in conservation measures.

Failure to pass the performance review will lead to penalty by the government, such as suspension of fishing permit.

Appendix 1 Common, scientific and Chinese names of fishes

Common Name	Scientific Name	Chinese Name
Australia mackerel	<i>Scomber australasicus</i>	澳洲鲈
Japanese mackerel	<i>Scomber japonicus</i>	日本鲭
Pomfret	<i>Brama japonica</i>	日本乌鲂
Splendid alfonsino	<i>Beryx splendens</i>	红金眼鲷
Orange roughy	<i>Hoplostethus atlanticus</i>	大西洋胸棘鲷
Patagonian toothfish	<i>Dissostichus eleginoides</i>	小鳞犬牙南极鱼
Ruby snapper	<i>Etelis coruscan</i>	丝尾红钻鱼, 又叫长尾滨鲷