SC-05-10

5th Meeting of the Southern Indian Ocean Fisheries Agreement (SIOFA) Scientific Committee
30 March – 03 April 2020, Saint Gilles, Réunion

National Report of Chinese Taipei to the SIOFA Scientific Committee, 2020

Please note that National Reports and SC Working Group reports shall be classified as working papers

Relates to agenda item: 3 Working paper ☒ Info paper ☐

Delegation of Chinese Taipei

Abstract

Oilfish, including *Ruvettus pretiosus* and *Lepidocybium flavobrunneum*, was bycatch species of large-scale Chinese Taipei tuna longline fleet prior to 2005. Some tuna longliners started shifting to the south-west Indian Ocean fishing for oilfish seasonally after 2005 to obtain extra earnings. The numbers of longliners fished for oilfish seasonally were between 9 to 45 from 2000 to 2018, and there were 42 authorized ones fishing for oilfish within SIOFA area in 2019. The average catch in recent 5 years (2015 to 2019) by this fleet was at around 6,100 mt.

Recommendations *(working papers only)*

1. That the Scientific Committee considers the National Report provided by Chinese Taipei

National Report of Chinese Taipei to the SIOFA Scientific Committee, 2020

1. Description of fishery

Oilfish, including *Ruvettus pretiosus* and *Lepidocybium flavobrunneum*, was bycatch species of large-scale (larger than 100GRT) Chinese Taipei tuna longline fleet prior to 2005, which was mainly harvested by longliners targeting albacore in the south-west Indian Ocean, area of south of 25°S and west of 60°E. Due to the decrease of profit margins, some tuna longliners started shifting to the south-west Indian Ocean fishing for oilfish seasonally after 2005 to obtain extra earnings. The numbers of longliners fished for oilfish seasonally were between 9 to 45 between 2000 and 2018, and there were 42 authorized ones fishing for oilfish within SIOFA area in 2019.

Oilfish has biological characteristics of daily migrating vertically from mesopelagic zone to epipelagic zone at night for foraging, so the fishing vessels start casting hooks to waters of 100 m to 150 m deep to fish oilfish after sunset. The gear configurations of oilfish and tropical tuna fisheries are similar with few differences, which include shorten float lines deployed, only finfish bait used and the usage of wire leader of oilfish longline fishery.

1.1. Fleet composition

Oilfish longline fishery is the only one Chinese Taipei fishery operating in the SIOFA area, and the fishing fleet comprises of some large-scale tuna longliners seasonally shifting fishing ground to the southwest Indian Ocean to target oilfish. Table 1 shows the number of annual active fishing vessels fishing for oilfish from 2015 to 2019, and the number ranged between 21 in 2015 to 45 in 2017.

Table 1. Number of Chinese Taipei oilfish longline fishing vessels operating in the SIOFA area in 2015-2019

GRT	2015	2016	2017	2018	2019
100-200	4	3	3	2	2
200-500	14	22	29	23	28
500-1000	3	15	13	10	12

2. Catch, effort and CPUE

2.1 Catch and effort

Table 2 and Table 3 show the effort and catch of Chinese Taipei oilfish longline fishery respectively from 2015 to 2019. From Table 3, it is observed that sub-area 1, 2 and 3.b are the oilfish major fishing grounds for Chinese Taipei oilfish longline fishing fleet, and the oilfish catch of 2015 was the lowest in recent 5 years for only 20 longliners participating in the oilfish

longline fishing operation. It should be noted that the numbers of effort and catch of 2019 should be deemed as preliminary figures for not being verified yet.

Although there were substantial efforts deployed in sub-area 3.a, 6, 7 and 8 but with lower oilfish catch, this is because that sub-area 8 is the fishing ground of tropical tuna and albacore, 3.a is the fishing ground of albacore, and sub-area 6, and 7 are the fishing grounds of albacore and southern bluefin tuna. While the Chinese Taipei longliners operating in sub-area 3.a, 6, 7 and 8, tropical tuna, albacore and southern bluefin tuna become the target species with few oilfish bycatch.

Table 2. Summary table of Chinese Taipei oilfish longline fishery effort

	Sub-areas for reporting effort data (unit: hook)								
Year	1	2	3.a	3.b	4	5	6	7	8
2015	797,480	167,880	581,602	3,773,026	504,322	0	1,547,478	180,500	1,204,510
2016	6,489,736	1,413,745	158,790	10,834,929	39,600	0	430,060	0	2,716,546
2017	12,487,195	521,534	67,408	8,565,508	205,000	0	486,960	0	4,223,586
2018	9,016,755	1,679,604	308,557	5,912,673	0	0	964,025	0	2,891,500
2019	6,533,928	1,877,959	906,370	6,264,052	104,500	187,250	3,356,748	127,300	3,787,688

Table 3. Summary table of Chinese Taipei oilfish longline fishery catch

	Sub-areas for reporting catch data (unit: mt)								
Year	1	2	3.a	3.b	4	5	6	7	8
2015	450	23	11	2,799	6	0	31	2	6
2016	2,081	214	2	5,563	4	0	13	0	16
2017	4,352	61	1	3,909	11	0	18	0	38
2018	3,477	222	2	2,964	0	0	28	0	23
2019	1,726	178	16	2,351	1	1	62	0	103

2.2 Catch by species

Table 4 shows the catch for main target, bycatch, associated and depend species of Chinese Taipei oilfish longline fishery from 2015 to 2019. The category of TUN includes Albacore, Bigeye tuna, Yellowfin tuna, Southern bluefin tuna, Skipjack and other tuna; BIL includes Swordfish, Striped marlin, Blue marlin, Black marlin, Sailfish, Shortbill spearfish and other marlins; SKX is mainly blue shark.

Table 4. Catch by species for main target, bycatch, associated and depend species (mt)

	TUN		BIL		SKX		Others	
YEAR	R	D	R	D	R	D	R	D
2015	1,448	5	265	1	384	0	180	0
2016	1,956	1	928	0	916	0	229	0
2017	2,665	27	1,157	0	879	1	306	0
2018	2,178	6	933	0	655	0	189	0
2019	4,629	37	963	0	763	1	297	0

2.3 CPUE

Figure 1 shows the nominal CPUE (kg/1000 hooks) trend between 2015 and 2019, and It should be noted that the data of 2019 is still in preliminary and probably will be revised after data verification. The CPUE kept at a relative stable level and ranged between 315 kgs/1000 hooks and 375 kgs/1000 hooks with average of 336 kgs/1000 hooks in the period of 2015 to 2018.

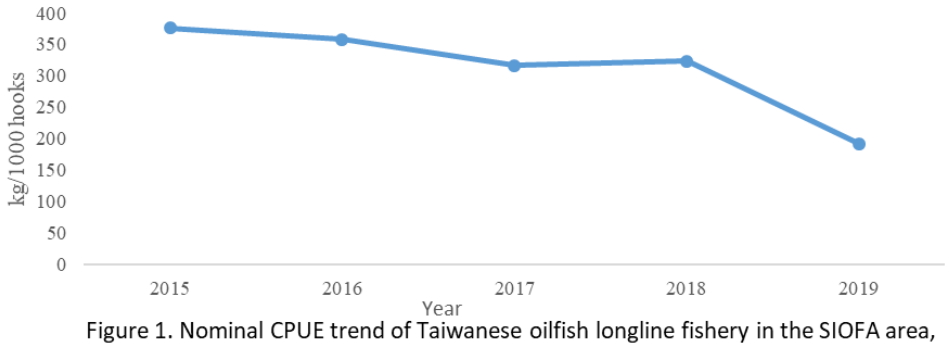

Figure 1. Nominal CPUE trend of Taiwanese oilfish longline fishery in the SIOFA area, 2015-2019

3. Fishery data collection and research activities

3.1 Fishery data collection

To collect fishery data complete and in a real time manner, Chinese Taipei implemented electronic logbook reporting on large scale longline fleet in 2014, and on small scale longline fleet in 2015, and now all fishing vessels operating outside the EEZ of Chinese Taipei are required to report their fishing data via e-logbook daily with size measurements of the first 30 fish caught.

Because the oilfish longline fishing vessels are some our tuna longliners seasonally shifting operations, they use the same e-logbook to report their fishery data. The data fields in our electronic logbook are fully conformed to IOTC Res. 15-01 and WCPFC CMM 2013-05 on the recording of catch and effort data by fishing vessels. Table 5 shows the details on the scales and resolutions of the fishery data collection in electronic logbook of Chinese Taipei tuna longline fishery.

Table 5: Details on the scales and resolutions of the fishery data collection

	Oil longline fishery data collection items on logbook			
Year	tow / set (*individual or some aggregation*)	time scale (*set-tow hauling time, daily, etc.*)	spatial scale (*tow/set exact position or grid, please provide grid resolution*)	species details (*any aggregation or species grouping*)
2015-2019	Set	daily	Exact position to minute of hauling start position	Albacore, Bigeye tuna, Yellowfin tuna, Southern bluefin tuna, Skipjack,

				Swordfish, Striped marlin, Blue marlin, Black marlin, Sailfish, Shortbill spearfish, Blue shark, Silky shark, Oceanic whitetip shark, Shortfin mako shark, Longfin mako shark, Thresher shark, Bigeye thresher shark, Pelagic thresher shark, Winghead hammerhead shark, Smooth hammerhead shark, Scalloped hammerhead shark, Crocodile shark, Tiger shark, Great white shark, Kawakawa, Frigate tuna, Bullet tuna, Longtail tuna, Indo-Pacific king mackerel, Narrow-barred Spanish mackerel, Mahi mahi, Castor (oilfish), Escolar (oilfish), Wahoo, Moonfish, Promfret, Mola mola, Other tuna, Other marlins, Other shark, Other fish, Sea turtle, Sea bird, Whales and dolphin

The operator or the captain of any fishing vessel intending to land or tranship are mandatory to fill in the Landing/Transhipment Notice and submit it to the competent authority for approval. Moreover, after the completion of landing or transhipment, the operator or the captain are mandatory to submit the Landing/Transhipment Declaration to the competent authority.

3.2 Research activities

For the purpose of improving stock assessment of highly migratory species in the Indian Ocean, government of Chinese Taipei has commissioned scientists to conduct a series of researches in recent years as follows：

-Study on population dynamics of tunas, billfishes and sharks in the Indian Ocean.
-Analysis on bycatch of Chinese Taipei distant water tuna longline fisheries.
-Feasibility analysis on the fishing condition forecast of tunas for the Chinese Taipei tuna longline fishery in Indian Sea.
-Pilot study on the biological data collection of oilfish through observer program.

4. Biological sampling and length/age composition of catches

Figure 2 shows the oilfish size data collected by oilfish longline fishing vessels from 2015 to 2019, and the observer coverage rates were all above 8% in these 5 years. It is observed that the mode shifted leftward after 2017, but this should be further crosschecked with size data collected by observer.

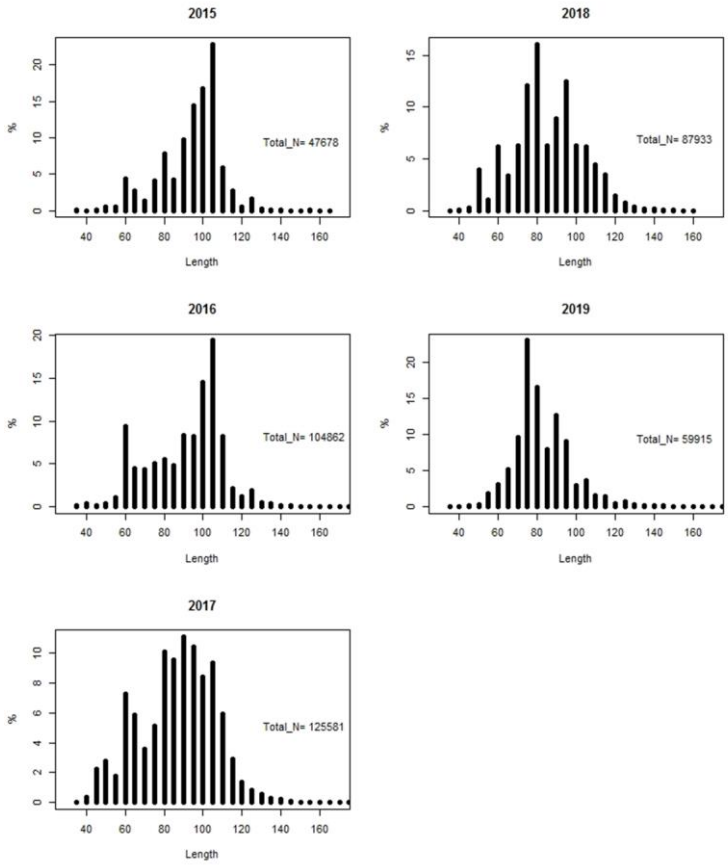

Figure 2. The FK length distributions of oilfish from 2015 to 2019

5. Description of data verification mechanisms

All of Chinese Taipei fishing vessels operating in the Indian Ocean are required to install VMS. The data from VMS have also been used to verify the logbook data to improve the data quality.

The competent authority verifies the catches with e-logbook data, Landing/Transhipment Notice and Landing/Transhipment Declaration of individual fishing vessel so as to ensure the catches are legal and traceable.

6. Summary of observer and port sampling program

6.1 Observer program

For purposes of collecting fisheries data and bycatch data, Chinese Taipei launched the pilot observer program in 2001 and deployed observers on vessels fishing in the Indian Ocean commenced in 2002. Our observer program had received interim authorization in 2009 and received full authorization after auditing in November 2011 and October 2017, respectively. The forms used in our observer program are fully conformed to the standards set by WCPFC which include the fishing activities, catch number and weight, species identification, bycatch species and status. In addition, length frequency of major species and the sighting and incidental catch of ecological species were recorded, and biological samplings were collected for biological research. To fulfill the obligation of distant waters fishing state, the observer data has been provided to t-RFMOs, including CCSBT, IATTC, ICCAT and WCPFC, per their requirements, and the trip reports of individual observer of the Indian Ocean has been submitted to IOTC per its resolution on regional observer program. In 2019, there were 1,935 fishing day observed by 17 observers dispatched to the large-scale tuna longline vessels in the Indian Ocean. Table 6 summarises the observer coverage rate of Chinese Taipei oilfish longline fishery from 2015 to 2019 which ranges from 8.19% to 15.49% between 2015 and 2018, and it should be noted that the observer coverage rate of 2019 is still in preliminary.

Table 6. Observer program coverage summary table

Year	2015	2016	2017	2018	2019*
Coverage rate by fishing day	9.63%	8.19%	10.78%	15.49%	5.73%

* in preliminary

Table 7 summarizes the bycatch information compiled from observer data in the SIOFA area from 2015 to 2019, and it should be noted that the information of 2019 is still in preliminary. It is noted that there's no marine mammal bycatch observed in the period of 2015 to 2019.

Table 7. Reporting of observed bycatch

Year	2015	2016	2017	2018	2019*
Sharks	87	189	1202	915	587
Seabird	2	9	20	25	16

* in preliminary

6.2 Port sampling program

A port sampling program has conducted in domestic ports aims at collecting the size data of tuna and tuna-like species.