SC-06-20

6th Meeting of the Southern Indian Ocean Fisheries Agreement (SIOFA) Scientific Committee

22–26 March 2021, Mix of correspondence and videoconference

National Report of Chinese Taipei to the SIOFA Scientific Committee, 2021

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 identified as bycatch of large-scale Chinese Taipei tuna longline fleet prior to 2005. Some tuna longliners started shifting to the south-west Indian Ocean for fishing oilfish seasonally after 2005 to obtain extra earnings. The numbers of longliners fished for oilfish seasonally were between 9 to 45 from 2000 to 2019, and there were 51 authorized ones fishing for oilfish within SIOFA area in 2020. The averaged catch in recent 5 years (2016 to 2020) was at around 6,690 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, 2021

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 for fishing oilfish seasonally after 2005 to obtain extra earnings. The numbers of longliners fishing for oilfish seasonally were between 9 to 45 between 2000 and 2019, and there were 51 tuna longliners authorized to fish for oilfish within SIOFA area in 2020.

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

The fishing fleet in past comprises of some large-scale tuna longliners seasonally shifting fishing ground to the southwest Indian Ocean to target oilfish. In 2020, a few small-scale tuna longliners has been authorized to catch oilfish. Table 1 shows the number of annual authorized fishing vessels targeting oilfish from 2016 to 2020, and the total number of fishing vessels was 51 in 2020.

Table 1. The number of authorized oilfish fishing vessels in various scales from 2016 to 2020

GRT	2016	2017	2018	2019	2020
<100	0	0	0	0	7
100-200	3	3	2	2	2
200-500	22	29	23	28	31
500-1000	15	13	10	12	11

2. Catch, effort and CPUE

2.1 Catch and effort

The effort and catch of Chinese Taipei oilfish longline fishery from 2016 to 2020 were shown in the Table 2 and Table 3, respectively. It is observed that sub-area 1, 2 and 3.b are the oilfish core fishing grounds for Chinese Taipei oilfish longline fishing fleet with higher effort and

catch. It should be noted that the numbers of effort and catch of 2020 should be deemed as preliminary values and are subject to be further verified.

Although there were substantial efforts deployed in sub-area 3.a, 6, 7 and 8, the oilfish catches of these sub-areas were lower. Because these sub-areas were not the oilfish fishing ground and oilfish was identified as bycatch of Chinese Taipei longliners operations. For the target species in these regions, sub-area 8 is the fishing ground for tropical tuna and albacore; sub-area 3.a is the fishing ground for albacore; sub-area 6, and 7 are the fishing grounds for albacore and southern bluefin tuna.

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	Total
2016	6,489,736	1,413,745	158,790	10,834,929	39,600	0	430,060	0	2,716,546	22,083,406
2017	12,487,195	521,534	67,408	8,565,508	205,000	0	486,960	0	4,223,586	26,557,191
2018	9,016,755	1,679,604	308,557	5,912,673	0	0	964,025	0	2,891,500	20,773,114
2019	6,533,928	1,877,959	906,370	6,264,052	104,500	187,250	3,356,748	127,300	3,787,688	23,145,795
2020	12,248,058	1,732,180	802,145	4,067,159	162,820	106,600	1,316,486	0	1,395,090	21,830,538

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	Total
2016	2,081	214	2	5,563	4	0	13	0	16	7,894
2017	4,352	61	1	3,909	11	0	18	0	38	8,391
2018	3,477	222	2	2,964	0	0	28	0	23	6,716
2019	1,726	178	16	2,351	1	1	62	0	103	4,437
2020	5,196	77	11	1,478	6	1	35	0	28	6,833

2.2 Catch by species

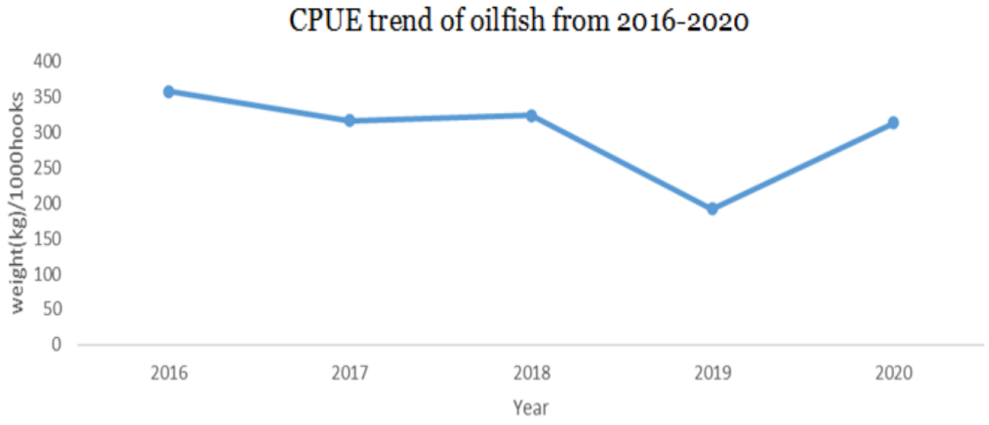
The catch for main target, bycatch, associated and dependent species of Chinese Taipei oilfish longline fishery from 2016 to 2020 were shown in Table 4. The category of TUN includes albacore, bigeye tuna, yellowfin tuna, Southern bluefin tuna, skipjack and other tunas. The category of BIL includes swordfish, striped marlin, blue marlin, black marlin, sailfish, shortbill spearfish and other marlins. Blue shark is the main species in the SKX category.

Table4. Catch by species for main target, bycatch, associated and depend species (mt)

Year	TUN		BIL		SKX		Others	
	R	D	R	D	R	D	R	D
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
2020	3,480	17	863	0	526	0	183	0

2.3 CPUE

The nominal CPUE (kg/1000 hooks) trend between 2016 and 2020 was shown in Figure 1, and it should be noted that the data of 2020 is still in preliminary and probably would be revised after data verification. The CPUE trend revealed relative stable level and ranged between 315 kgs/1000 hooks and 357 kgs/1000 hooks in the period of 2016 to 2018. In 2019 the CPUE decreased to 191 kgs/1000 hooks and increased to 313 kgs/1000 hooks in 2020.



3. Fishery data collection and research activities

3.1 Fishery data collection

For the purpose of collecting fishery data in a real time manner completely, 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 fleet are tuna longliners seasonally shifting operations, they use the same e-logbook to report fishery data. The data fields in 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. The details on the scales and resolutions of the fishery data collection in electronic logbook of Chinese Taipei tuna longline fishery were listed in Table 5.

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

	Oilfish 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*)
2016-2020	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 improving stock assessment of highly migratory species in the Indian Ocean, government of Chinese Taipei has commissioned scientists to conduct researches in recent years as follows :

-Studies on population dynamics of tunas, billfishes and sharks in the Indian Ocean.
-Analyses on bycatch of Chinese Taipei distant water tuna longline fisheries.
-Feasibility analyses on the fishing condition forecast of tunas for the Chinese Taipei tuna longline fishery in Indian Ocean.
-The studies related stock status and productive biology of southern bluefin tuna, oilfsh and escolar.

4. Biological sampling and length/age composition of catches

The oilfish size data collected by oilfish longline fishing vessels from 2016 to 2020 annually was shown in Figure 2, and the sampling rates ranged between 6% to 9% 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 observers.

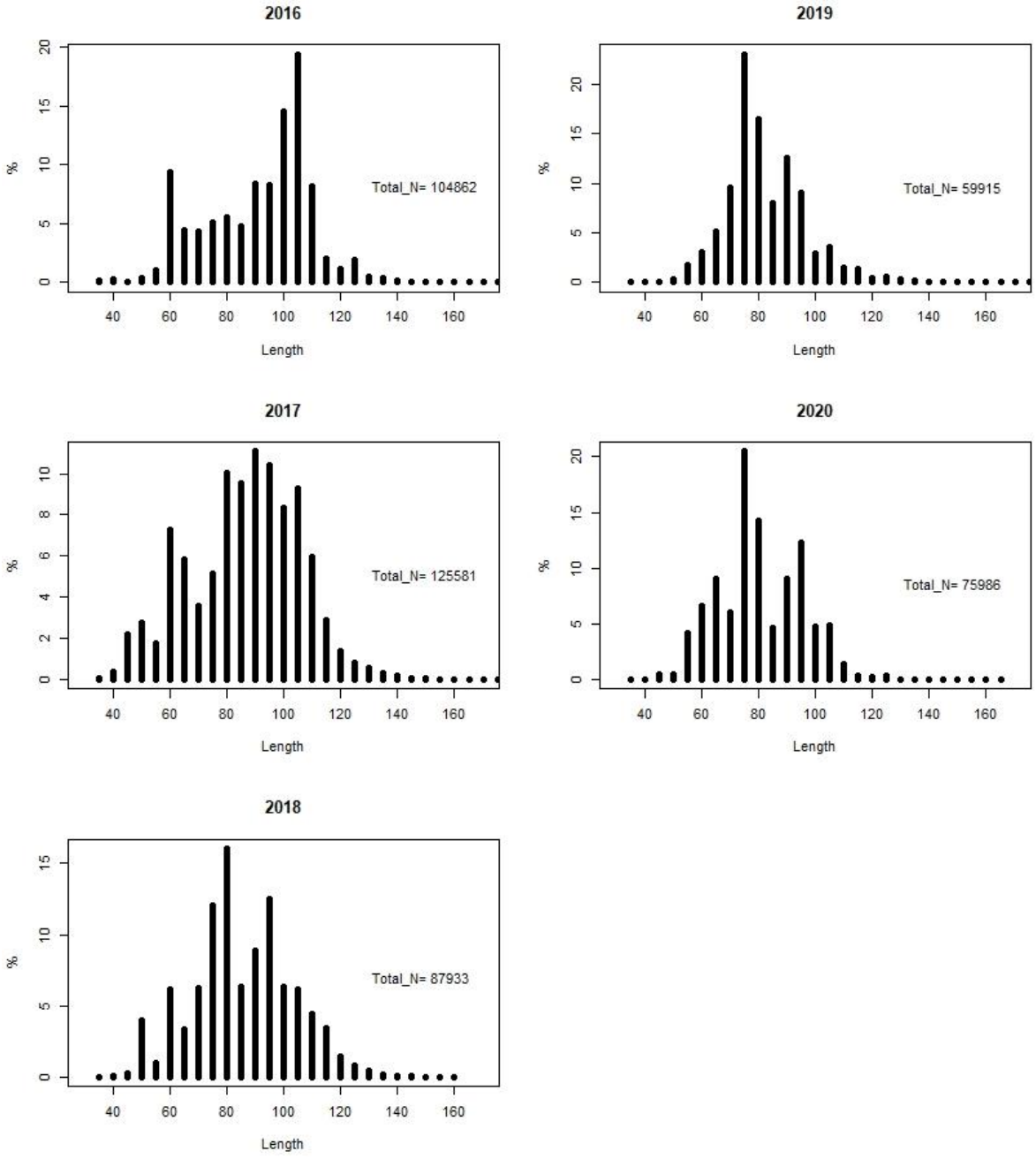


Figure 2. The FK length distributions of oilfish from 2016 to 2020

5. Description of data verification mechanisms

All 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 2020, there were 3,241 fishing day observed by 38 observers dispatched to Chinese Taipei tuna longline vessels operating in the Indian Ocean. The observer coverage rate of Chinese Taipei oilfish longline fishery from 2016 to 2020 were summarised in Table 6 which ranges between 4.71% to 15.49% and it should be noted that the observer coverage rate of 2020 is still in preliminary.

Table 6. The observer coverage rate of Chinese Taipei oilfish longline fishery from 2016 to 2020

Year	2016	2017	2018	2019	2020*
Coverage rate by fishing day	8.19%	10.78%	15.49%	5.94%	4.71%

* in preliminary

The bycatch information compiled from observer data in the SIOFA area from 2016 to 2020. The data of 2020 is still preliminary and there is no marine mammal bycatch observed in the period from 2016 to 2020.

Table 7. The bycatch information compiled from observer data in the SIOFA area from 2016 to 2020

Year	2016	2017	2018	2019	2020*
Sharks	189	1202	915	587	42
Seabird	9	20	25	18	0

* in preliminary

6.2 Port sampling program

A port sampling program has conducted in domestic ports to collect the size data of tuna and tuna-like species.