8th Meeting of the Scientific Committee (SC8)

Tenerife, Spain, 22-31 March 2023

SC-08-11

Annual National Report: Thailand Reports to the SIOFA Scientific Committee

Delegation of Thailand

Document type	working paper ✔ information paper ☐
Distribution	Public ✔ Restricted [1] ☐ Closed session document [2] ☐

Abstract

This report summarizes and updates Thai oversea fisheries operating in the SIOFA competence area in 2022. There are 4 vessels operating in the area, in Saya de Malha bank, between latitude 9.50 to 11.00o S and longitude 60.50 to 62.00o E, using the same fishing ground as the previous year. Otter board trawl are the main fishing gear used, with handline being an alternative gear. The fishing effort for both trawl and handline techniques slightly decreased from 2021, resulting in a decreased trawl catch. However, the handline catch, which comprises of high value fish sharply increased due to the increasing of domestic demand after relaxation of COVID-19 restrictions. Lizardfish, round scads and threadfin breams were the dominant species in the trawl catch, while trevallies were prominent in the handline catch.

[1] Restricted documents may contain confidential information. Please do not distribute restricted documents in any form without the explicit permission of the SIOFA Secretariat and the data owner(s)/provider(s).
[2] Documents available only to members invited to closed sessions.

The monitoring, control and surveillance system for Thai overseas vessels was actively operated through the year, with zero illegal events reported. Onboard observers were deployed on every fishing trip in 2022. The annual observer coverage of both trawl and handline techniques was 100%. In 2022, a total of 1,305.5 kg and 450.84 kg of VMEs and incidental bycatch were reported, respectively. No VMEs threshold was triggered during the year. The average VMEs reported was 17 kg/haul. In addition, no seabirds, sea turtles or marine mammals were interacted with or caught during fishing operations.

SIOFA | APSOI
Southern Indian Ocean Fisheries Agreement
Accord relatif aux Pêches dans le Sud de l'Océan Indien

SC-08-11

Recommendations

Contents

1. Description of fisheries

During 2015 - 2017, Thailand operated 62 fishing vessels in the SIOFA competent area, using fishing gears such as pair trawl, otter board trawl and fish trap. After Thai fisheries reform in 2015, which aimed to combat IUU fishing and promote sustainable management of marine fisheries, the oversea management regime was reorganized. As part of this reform, during 2016 to early 2017, all Thai oversea fishing vessels were required to return to ports to install control and surveillance systems monitoring activities at sea. Currently only fishing vessels, authorized by the Thai government, are permitted to operate in the SIOFA area.

Thai fishing fleet operating in the SIOFA competent area mainly targets demersal fish. In the past, there are multi fishing gears authorized by Thailand, i.e. pair trawl, otter board trawl, fish traps and handline; trawls are the main gears used by Thai vessels. However, there have been no record of pair trawl and trap vessels operating in SIOFA area since 2017. As a result, since 2019, Thai vessels have only been using otter board trawl and handline. The fishing ground is located in the Saya de Malha Bank at the depth of approximately 50-120 m for trawls and 20-30 m for handline. Fishing trips typically last two to three months before returning to Thai ports for landing.

Fleet Structure

Since 2017 Thai fishing fleet in SIOFA area has been drastically reduced, with only 4 authorized oversea fishing vessels operating in the SIOFA competent area in 2022. All of these vessels primarily use otter board trawl as the main fishing gear, with handline as an alternate gear. The number of fishing fleets is shown in Table 1 and the catch and effort data by gear are presented in Table 2-5.

Table 1 Fleet composition in the last five years

Year	Otter board trawl		Pair trawl		Trap	
	Number	Size (GT)	Number	Size (GT)	Number	Size (GT)
2018	-	-	-	-	-	-
2019	2	230.22-312.73	-	-	-	-
2020	3	230.22-312.73	-	-	-	-
2021	3	230.22-312.73	-	-	-	-
2022	4	230.22-312.73	-	-	-	-

Table 2 Summary table of otter board trawl effort in the last five years

Year	Sub-areas for reporting effort data								
	1	2	3.a	3.b	4	5	6	7	8
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	176 hauls
2020	-	-	-	-	-	-	-	-	464 hauls
2021	-	-	-	-	-	-	-	-	1,003 hauls
2022	-	-	-	-	-	-	-	-	984 hauls

Table 3 Summary table of otter board trawl catches (tons) in the last five years

Year	Sub-areas for reporting catch data								
	1	2	3.a	3.b	4	5	6	7	8
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	358.12
2020	-	-	-	-	-	-	-	-	924.51
2021	-	-	-	-	-	-	-	-	2,922.31
2022	-	-	-	-	-	-	-	-	2,525.87

Table 4 Summary table of handline effort in the last five years

Year	Sub-areas for reporting effort data								
	1	2	3.a	3.b	4	5	6	7	8
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	110 days
2020	-	-	-	-	-	-	-	-	133 days
2021	-	-	-	-	-	-	-	-	52 days
2022	-	-	-	-	-	-	-	-	49 days

Table 5 Summary table of handline catches (tons) in the last five years

Year	Sub-areas for reporting catch data								
	1	2	3.a	3.b	4	5	6	7	8
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	304.80
2020	-	-	-	-	-	-	-	-	379.39
2021	-	-	-	-	-	-	-	-	38.34
2022	-	-	-	-	-	-	-	-	193.00

2. Catch, effort and CPUE summaries

In 2022, the same 4 Thai fishing vessels that operated in 2021 fished in Saya de Malha Bank at latitude of 9° - 11° S and longitude of 60° - 62° E. Fishing operations were conducted throughout the year were limited to the Saya de Malha Bank (Figure 1).

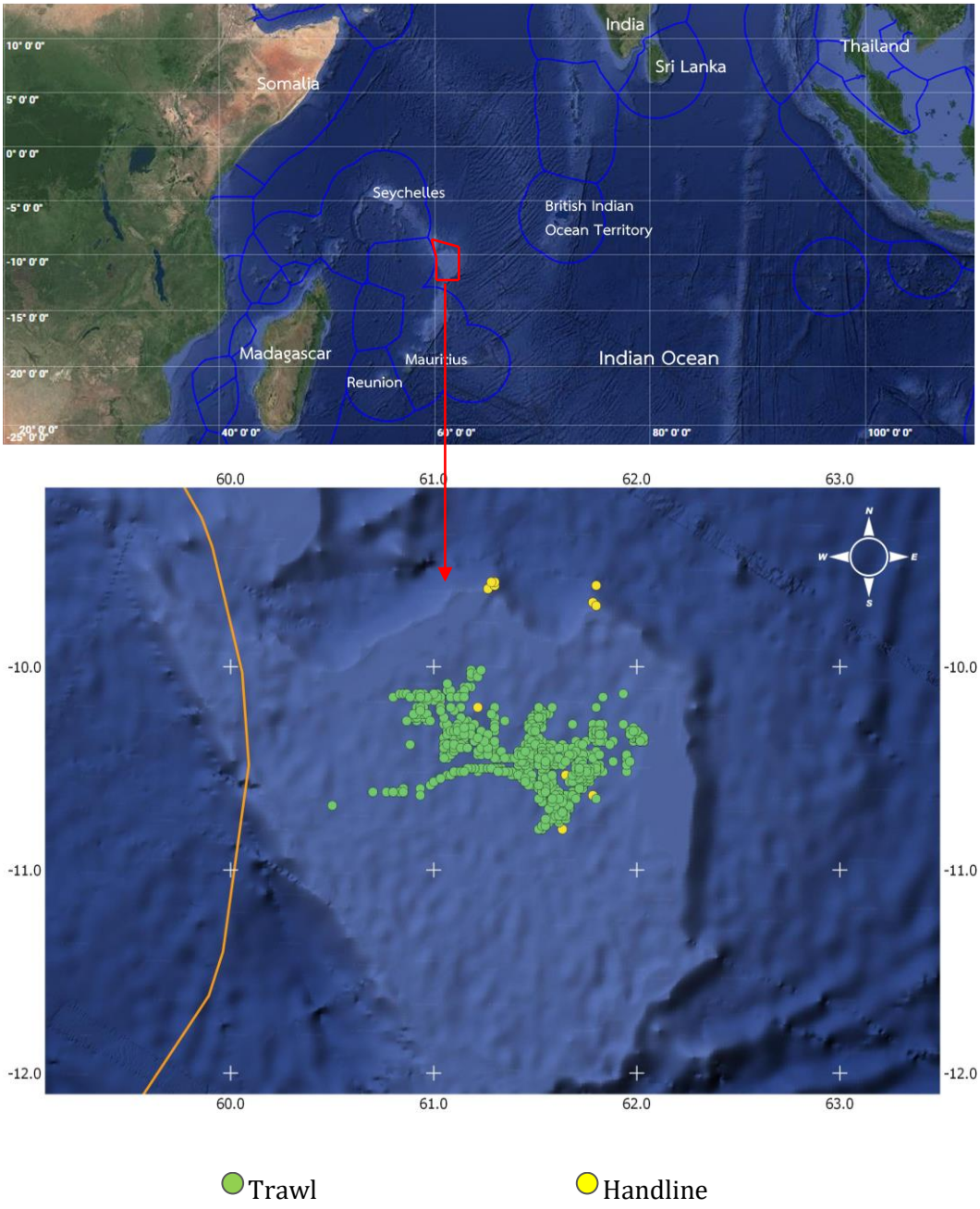

Figure 1 Fishing ground of Thai fishing vessels by gear type in the Saya de Malha Bank in 2022

2.1 Otter board trawl

The catch from Thai otter board trawlers in 2022 was 2,525.87 tons, with a catch rate of 623.25 kg/hr. The average fishing effort per haul slightly increased from 3.99 hr/haul in 2021 to 4.12 hr/haul in 2022.

The catch composition was similar to 2021, with Brushtooth lizardfish (*Saurida undosquamis*) and round scads (*Decapterus* spp.) accounting for 33.80% and 30.40% respectively. Delagoa threadfin bream (*Nemipterus bipunctatus*) accounted for 13.17%, followed by Bigeyes (*Priacanthus* spp.) at 5.38%, Goldband goatfish (*Upeneus moluccensis*) at 5.29% and other demersal species at 11.96% (Figure 2).

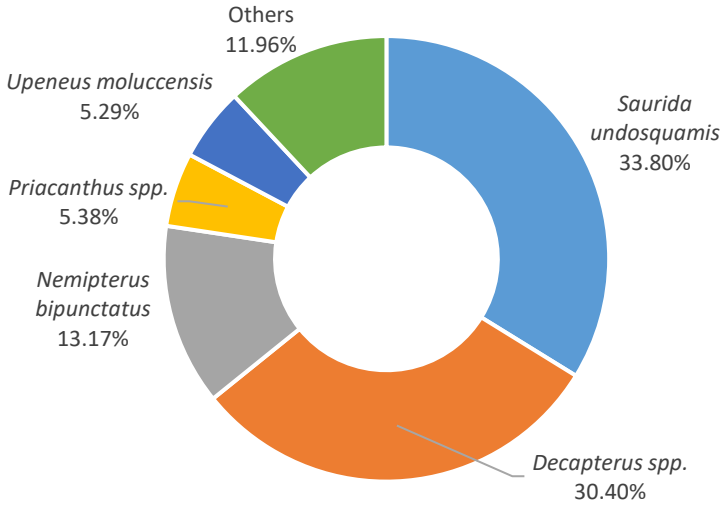

Figure 2 Catch composition of otter board trawl in the Saya de Malha Bank in 2022

Round scad, lizardfish and threadfin bream are the majority catch in trawling, and their proportions remain consistent each year, although their numbers may be fluctuate (Table 6).

Table 6 Catch (tons) by main target species from otter board trawl in 2022 (R-retained and D-discarded) excluded incidental bycatch

Year	*Decapterus* spp.		*Saurida* spp.		*Nemipterus* spp.		*Upeneus* spp.		*Sphyraena* spp.		Others		Total	
	R	D	R	D	R	D	R	D	R	D	R	D	R	D
2019	111.17	0.40	98.49	0	50.62	0	28.22	0	19.61	0	50.02	19.75	358.12	20.15
2020	236.53	6.35	132.73	0	117.55	0	89.10	0	67.29	0	281.33	24.19	924.51	30.54
2021	871.06	0.84	712.56	0	367.90	0	356.97	0.43	124.55	0	489.27	61.21	2,922.31	62.48
2022	767.87	4.38*	853.74	0	332.67	0	140.28	0.12*	88.12	0	343.20	73.89	2,525.87	78.39

Note *Fishes are kept as bait fish for handline

2.2 Handline

The handline catch of Thai fishing vessels in 2022 was 193.00 tons, which increased fourfold from the previous year, while the effort was slightly decreased by 3 fishing days. The handline catch rate was increased drastically to 3,938.73 kg/day in 2022, compared to 737.31 kg/day in 2021. The catch composition was dominated by trevallies (Carangoides spp.) accounting for 91%, followed by groupers (Serranidae) at 2.01%, Two-spotted red snapper (Lutjanus bohar) at 2.01%, Green jobfish (Aprion virescens) at 1.48%, red snappers (Lutjanus spp.) at 1.35% and others accounting for the remaing portion (Figure 3).

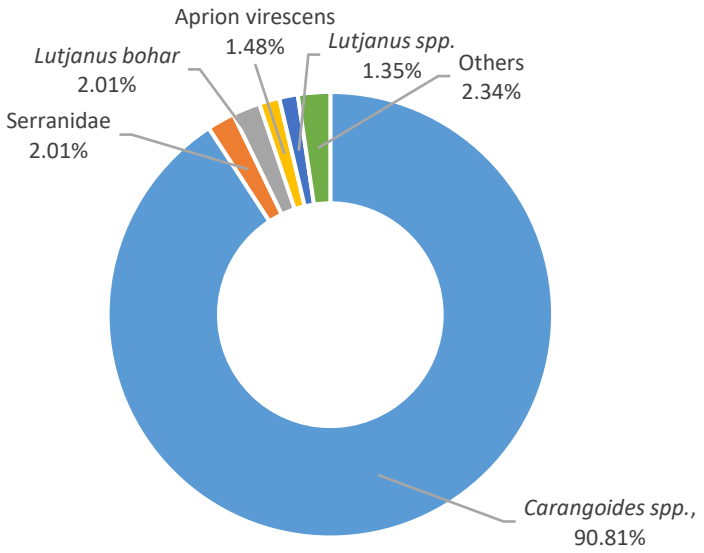

Figure 3 Catch composition of handline fishing in the Saya de Malha Bank in 2022

The majority of the handline catch consisted of trevallies and high-value demersal fish, such as groupers and emperor fish. Trevallies catch increased sharply from 23 tons in 2021 to 175 tons in 2022 (Table 7) due to market demand. In 2022, the fishing behavior of the handline fishermen changed as they tended to target travellies and large-high value fishes for fillet, due to growing demand after the COVID-19 situation lifted.

Table 7 Catch (kg) by main target species from handline in 2022 (R-retained and D-discarded)

Year	*Carangoides* spp.		*Gnathanodon speciosus*		Serranidae*		*Aprion virescens*		*Lutjanus* spp.		Others		Total	
	R	D	R	D	R	D	R	D	R	D	R	D	R	D
2019	228.66	0	25.13	0	18.39	0	9.55	0	8.60	0	14.46	0.16	304.80	0.16
2020	341.91	0	0	0	5.81	0	2.92	0	17.29	0	11.46	0.01	379.39	0.01
2021	22.96	0	0	0	3.84	0	1.08	0	3.12	0	7.35	0.02	38.34	0.02
2022	175.26	0	0	0	3.87	0	2.86	0	6.48	0	4.52	0	193.00	0

Note * main species are *Plectropomus* spp. and *Epinephelus* spp.

3. Biological sampling and length of catches

Scientific sampling was implemented for both trawl and handline fishing, and was carried out by scientific onboard observers. The fish were sorted and identified to the highest taxonomic level possible, usually at the species level, and then size of some economic species were measured with a 0.5 cm interval and weighted. The length frequency of some economic species is presented in Table 8.

Table 8 Length of some economic species caught in 2022

Species	Gear	Length type	Minimum	Maximum	Mean ± SD	n
Saurida undosquamis	Trawl	TL	8	50	30.36 ± 9.21	9,601
Nemipterus bipunctatus	Trawl	TL	5	31	19.63 ± 3.68	12,408
Decapterus russelli	Trawl	TL	12	29	20.48 ± 1.82	14,582
Decapterus macrosoma	Trawl	TL	12	29	20.40 ± 2.30	5,449
Carangoides fulvoguttatus	Handline	FL	30	92	75.20 ± 8.75	751
Lutjanus bohar	Handline	TL	40	76	59.88 ± 8.34	93
Aprion virescens	Handline	TL	56	100	80.39 ± 9.29	59
Plectropomus punctatus	Handline	TL	48	76	61.15 ± 7.44	65

Note: TL = Total length, FL = Fork length

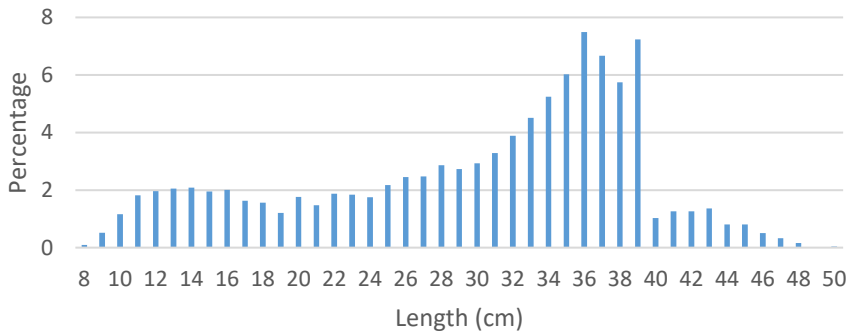

Figure 4 Size distribution of *Saurida undosquamis* caught by otter board trawl in 2022

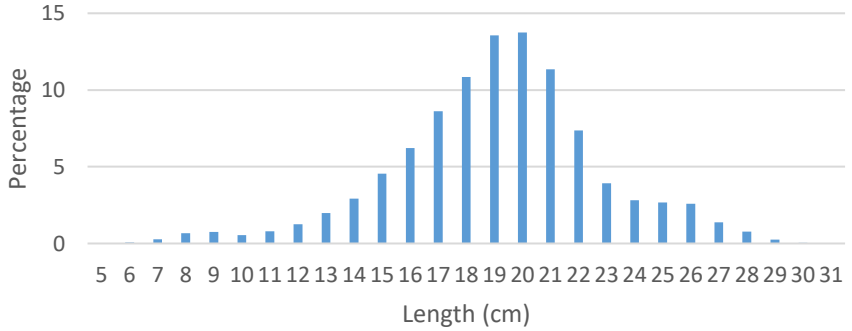

Figure 5 Size distribution of *Nemipterus bipunctatus* caught by otter board trawl in 2022

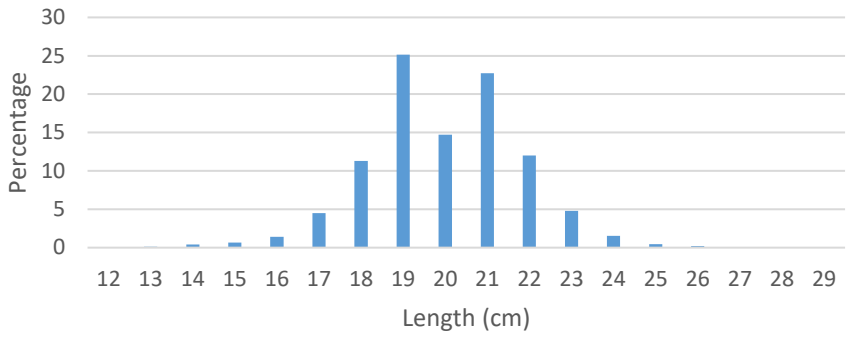

Figure 6 Size distribution of *Decapterus russelli* caught by otter board trawl in 2022

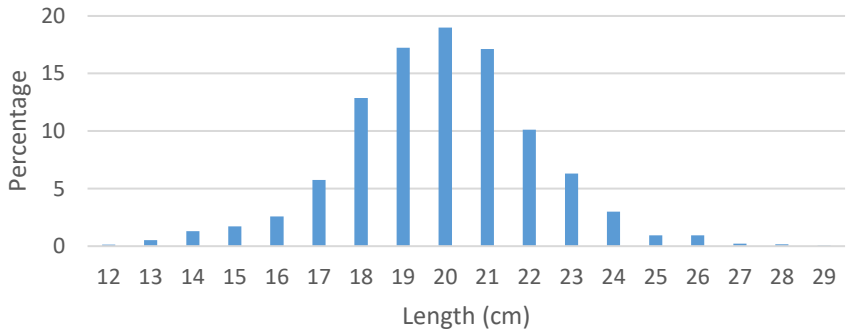

Figure 7 Size distribution of *Decapterus macrosoma* caught by otter board trawl in 2022

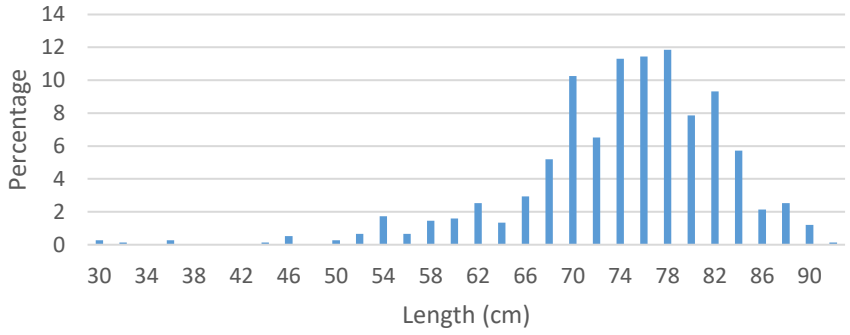

Figure 9 Size distribution of *Carangoides fulvoguttatus* caught by handline in 2022

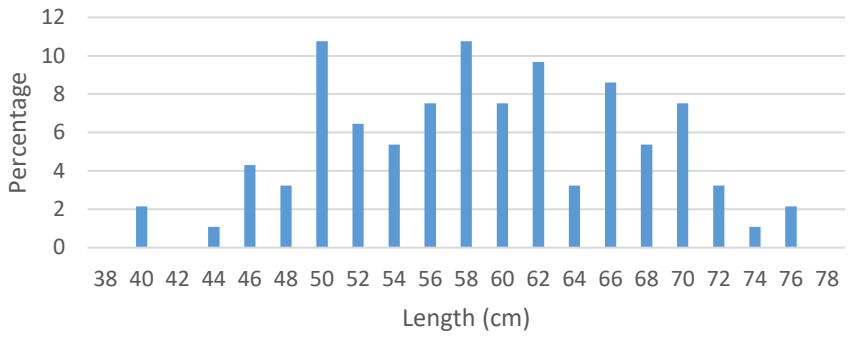

Figure 10 Size distribution of *Lutjanus bohar* caught by handline in 2022

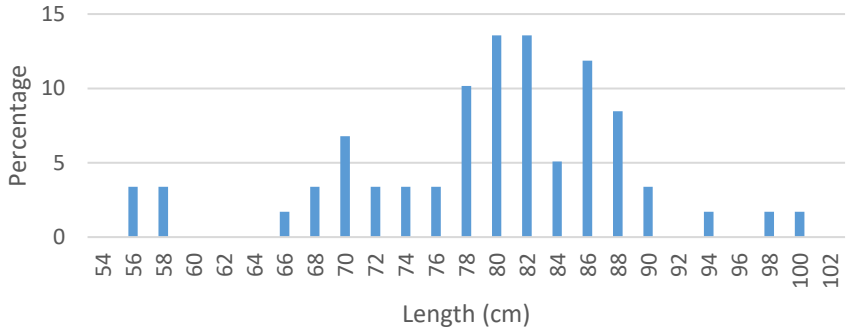

Figure 12 Size distribution of *Aprion virescens* caught by handline in 2022

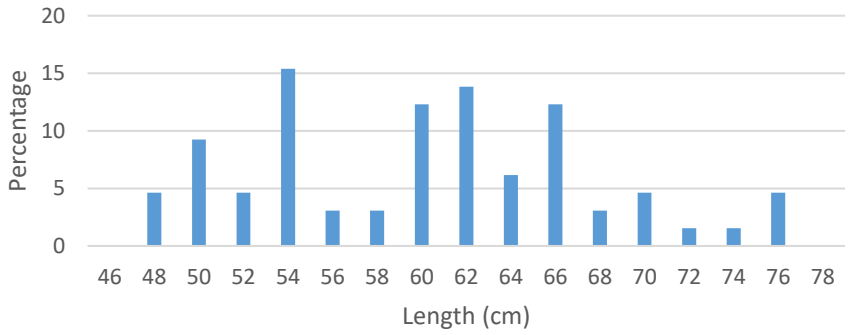

Figure 13 Size distribution of *Plectropomus punctatus* caught by handline in 2022

4. VME Thresholds

Thailand has the regulation for Thai oversea fishing vessels in case of encountering VMEs in the SIOFA area. Under the regulation, limit thresholds for specific fishing gears have been set, and if living corals, sponges or other VMEs are accidentally caught, vessels must stop fishing and move away from the current position. The threshold and move-on protocol are presented in Table 9.

Onboard observers are required to record and report species and quantities of VMEs found during fishing to Department of Fisheries, in addition to the fishing logbook recorded by vessels.

Table 9 Threshold levels for encounters with VMEs and move-on protocols

Gear	Threshold (kg)	Move-on protocols
Trawls	corals > 60 kg sponges > 300 kg	move at least 2 nautical miles
Longlines	corals or sponges > 10 units* per 1,000 hooks or per mainline of 1,200 meters, whichever is the shorter	move at least 1 nautical mile
Traps	corals or sponges > more than thresholds to be assigned by SIOFA secretariat	move at least 1 nautical mile from the radius or midpoint of mainline**
Other bottom fishing gears	corals or sponges > more than thresholds to be assigned by SIOFA secretariat	move at least 1 nautical mile

Remarks: *unit of corals and sponge means either one liter of those VME indicator organisms that can be placed in a 10-litre container, or one kilogram of those VME indicator organisms that do not fit into a 10-litre container
**mainline length of 1,200 meters

Following the move-on rule specified in CMM 2021/01, there was no threshold triggered in 2022. The average VMEs reported was 17 kg/haul.

Table 14 Recorded VME bycatch quantities from logbooks, 2019-2022

Gear	VME group	Year			
		2019	2020	2021	2022
Trawl	Sponges	590	308	710.7	1,251.4
	Corals + other VMEs	6.5	0.02	21	54.1
handline	Sponges	0	0	0	0
	Corals + other VMEs	27.5	10	0	0

5. Fisheries data collection and research activities

5.1 Fishing/transshipment activities reporting by fishing vessels

The fishing information obtained from the fishing logbook and Electronic Reporting System (ERS) includes details related to fishing trips such as departure and return dates and ports, as well as operational data that describes fishing dates, catch, effort, and fishing locations. Vessel masters are required to record every fishing operation in fishing logbooks and submit copies upon landing at Thai ports. Vessel masters are also required by law to report every fishing operation on a daily basis via ERS, which is currently available only for trawl fishery.

Any transshipment activities by oversea fishing vessels have been monitored by the Department of Fisheries. Vessels that wish to transship catch or any materials must request

permission via ERS before performing the activities. However, there were no transshipment activities reported in 2022.

In parallelly with vessel reports, onboard observers are assigned to report fishing activities on daily basis via Observer Reporting System (ORS), to validate recorded data in logbooks. The observer report includes information about fishing gear and support equipment details, fishing operations, catch, observation of incidental bycatch, details of fish released and discarded.

5.2 Onboard data collection

Onboard observers are also responsible for collecting scientific data, including fishing effort, catch, biological data of target species, and observations of incidental bycatch and VMEs. Data collection methods differ for each type of gear. For trawling, the random sampling method is used to determine catch composition and the length of some target species is measured in 0.5 cm class intervals. For handline fishing, caught fish are randomly sampled to measure length and weight individually.

5.3 Data collection from landing site

Port inspectors will inspect the documentation and perform physical checks for port in –port out permission. Thai authorities will perform catch landing inspections when porting in, which is done for reliability and accuracy of information on landed catch before it enters the supply chain. During this process, catch weight is verified with landing declaration documents, such as fishing logbook, fishing gears and Marine Catch Transshipment Document (MCTD) in the case of transshipments. The recorded videos by the Electronic Monitoring (EM) will also be inspected before authorizing unloading.

6. Description of data verification mechanisms

Fisheries data and activities related to fishing are verified through 4 mechanisms as following.

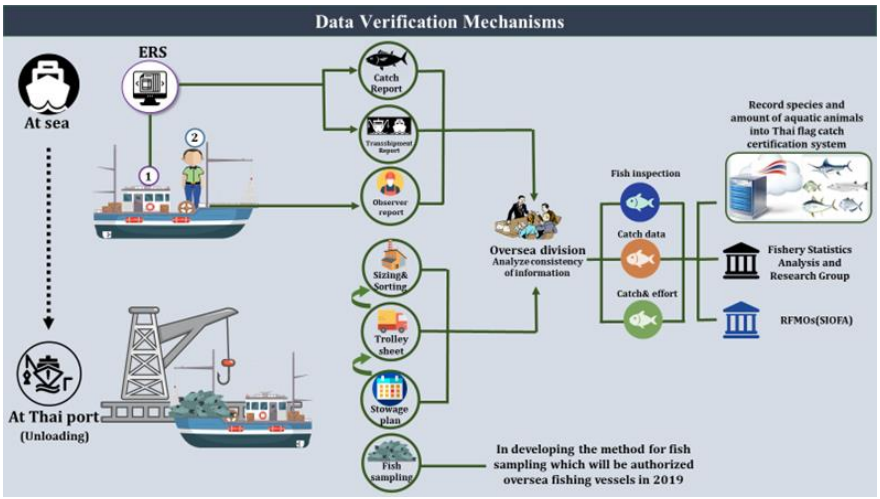

Figure 14 Data verification mechanism for Thai-flagged oversea fishing vessel

6.1 Port Out Controls

It is important to note that the Thai authorities have set clear targets for port in and port out inspections. This is carried out by Port in – Port out Control Centers (PIPOs) officers and the inspectors of relevant competent authorities. Port inspectors inspect fishing-related documents and perform physical checks on vessels for port in –port out permission in collaboration with Thai authorities that perform catch landing inspection when porting in. These processes are for reliability and accuracy of information on landed catch before it enters the supply chain. During this process, catch weight is verified with landing declaration documents, such as fishing logbook, fishing gears and Marine Catch Transshipment Document (MCTD) in the case of transshipments.

6.2 Vessel Monitoring System (VMS)

The VMS on fishing vessels must be active at all times and transmit signals every one hour. The real-time system can be monitored through an online application, and the navigation data of fishing vessel can be traced back to analyze the behavior of fishing vessel. For overseas fishing vessels, a spare VMS set is available in case the main VMS signal is lost.

6.3 Electronic Reporting System (ERS) and Electronic Monitoring System (EM) installation.

An electronic surveillance system comprises two main components: the Electronic Reporting System (ERS) and the Electronic Monitoring System (EM). The authorities verify the accuracy of the fishing reports from ERS to be consistent with the fishing activities through sensors installed with a winch and hatch from EM. The recorded videos from the Electronic Monitoring (EM) System will be inspected before authorizing unloading.

6.4 Activities observation by onboard observer

Recorded data from onboard observers, including fishing activities, catch, fishing locations, incidental bycatch, details of fish releases and discards, and transshipment activities, are verified by the authorities to ensure consistency with the data recorded by vessel masters/captains. As of 2022, there are onboard observers with 100% coverage in every fishing trip.

7. Summary of observer program

Thailand has a total of 98 observers derived from 4 batches of onboard observer training, which consisted of 11 modules based on the FAO Guidelines for Developing an at-Sea Fisheries Observer Program. These modules included Basic Training of Seaman, Fisheries Management, Legal and Policy Framework, Health and Safety, Code of Conduct for Observers, Fishing Vessels and Gears, Data Collection, Recording Forms and Documents, Navigation, Radio Communication and Shipboard Training. The following outlines the responsibilities and requirements of oversea vessels with regard to onboard observers.

Responsibilities of onboard observers

- Collect scientific data, including catch composition, length of target species, biological information of marine organisms, and other scientific data requested by the Department of Fisheries.
- Collect fishing data including fishing gear details, support equipment details, fishing operations, catch, incidental bycatch, details of fish released and discarded, and VMEs, transshipment activities, and observe behaviour of oversea fishing vessels for verifying the data recorded by fishing vessels.

Requirement of oversea vessels related to onboard observer

- Under the Thai oversea fishing regulation, vessels using trawls must have onboard observer coverage for the entire duration of the trip, providing 100% coverage.
- Vessels using any other bottom fishing gear types must have onboard observer for 20% of operation in any calendar year, including handline fishing.
- Every transshipment activity must be observed with onboard observers, providing 100% coverage.

Table 15 Observer program design and coverage summary in 2022

	Trawl	Handline
Trip coverage (%)	100%	100%
Total number of sets/hauls	984 hauls	49 days
Number of sets/hauls covered	Covered 984 hauls, 328 samplings	52 fishing days, 41 samplings
Observing coverage (%)	100% observed, 33.33% sampling	100% observed, 97.95% sampling
Incidental bycatch observation coverage (seabirds and mammals) (%)	100%	100%

Table 16 Reporting of observed bycatch from otter board trawl in 2021

Bycatch species	**Trawl**		**Handline**	
	Weight (kg)	Amount (fish)	Weight (kg)	Amount (fish)
Mammals	-	-	-	-
Seabirds	-	-	-	-
Turtles (Dermochelys coriacea)	700*	2*	-	-
Alopias pelagicus	51	5	-	-
Euthynnus affinis	11	2	26 13*	6 3*
Galeocerdo cuvier	22	5	-	-
Hexanchus nakamurai	7.64	7	-	-
Mola Mola	6	1	-	-

Bycatch species	Trawl		Handline	
	Weight (kg)	Amount (fish)	Weight (kg)	Amount (fish)
Rhina ancylostoma	2 30*	2 1*	-	-
Sphyrna lewini	286.6	99	-	-
Sphyrna mokarran	17	2	-	-
Sphyrna zygaena	1.6	1	-	-
Thunnus albacares	-	-	20	1
Total	1,134.84	127	59	10

Note: * fish/turtles were released alive

8. Relevant social and economic information

Under normal circumstances, Thai vessels target demersal fishes and small pelagic fish using trawls for domestic use, and a small proportion of high-value demersal fish are caught using handlines. Targeted demersal fishes, e.g., lizardfish and goatfish are utilized by Thai factories for surimi products, while small pelagic fishes such as round scads are processed for canned products. Large high-value fishes caught using handlines are typically sold to restaurants for domestic consumption.

During the COVID-19 pandemic, vessels owners shifted their target proportion to catch more demersal fishes to compensate for the reduced demand for high-value fishes from domestic restaurants. As a result, trawl catch increased sharply in 2021. Although, the COVID-19 situation has relaxed and returned to normal in 2022, but the sharp increase in oil prices in global and domestic markets in mid-2022 has affected domestic commercial fishing vessels, and they are barely able to sustain their fishing operations. If the situation continues, vessel owners might have to pause or stop fishing until the situation improves.