SC-05-13

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Annual National Report:

Thailand Reports to the SIOFA Scientific Committee

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

Relates to agenda item: 03 Working paper ☒ Info paper ☐

Delegation of Thailand

Abstract

Thailand is in launch authorizing Thai-flagged overseas fishing vessels operated in SIOFA competence area. The 1st Thai oversea fishing vessel was porting out to fishing in May 2019 and the 2nd Thai oversea fishing vessel was porting out to fishing in October 2019. The main fishing grounds were distributed around Saya de Malha Bank, between latitude 9 to 11 S° and longitude 60 to 62 E° .The fishing gear were otter board trawl and handline.

The fishing information were recorded during May 2019 – January 2020. There were 358.12 tons caught by otter board trawl and 304.80 tons caught by handline. For otter board trawler, there were 176 hauls and the average CPUE was 494.08 kg/hr. The dominant species comprised of *Decapterus* spp., *Saurida* spp., *Nemipterus* spp., *Upeneus* spp., and *Sphyraena* spp. For handline, there were 110 fishing days and the average CPUE was 2,770.90 kg/day. The major species consisted of *Carangoides* spp., *Gnathanodon speciosus*., *Epinephelus spp.*, *Aprion virescens.*, and *Lutjanus* spp.

Contents

1. Description of fisheries

After Thailand became a member of SIOFA, Department of Fisheries has issued measures and regulations for Thai oversea fishing vessels to comply with the SIOFA CMMs. Thai oversea vessels are required to install vessel monitoring system (VMS), electronic reporting system (ERS) and electronic monitoring system (EM). Traceability system for catches from Thai-flagged vessels are also developed.

Since May 2019. There are two otter board trawlers with handline. These fishing vessels operate in the *Saya de Malha* Bank at the depth of approximately 20-80 m. Fishing trips lasted three months and went back to Thai port for fish landing. For control and surveillance of the vessels, the process includes inspection of vessels before authorizing them to fish as well as continuously monitoring their fishing activities at sea until getting back to Thai port.

Fleet Structure

In the SIOFA competent area, Thailand had 62 fishing vessels operated during 2015 – 2017. There are six fishing vessels licensed in 2019 and only two fishing vessels operated in 2019. Other four vessels are preparing to meet the SIOFA requirements. The number of fishing fleets was shown in Table 1 and catch and effort data by gear were presented in Table 2-9.

Table 1 Fleet composition

Year	Otter board trawl		Pair trawl		Trap	
	Number	Size (GT)	Number	Size (GT)	Number	Size (GT)
2015	56	158-1,125	-	-	1	199.8
2016	58	158-1,125	1	164-397.51	1	199.8
2017	11	182-721	1	164-397.51	1	199.8
2018	-	-	-	-	-	-
2019	2	230.22-312.73	-	-	-	-

Table 2 Summary table of otter board trawl effort

Year	Sub-areas for reporting effort data								
	1	2	3.a	3.b	4	5	6	7	8
2015	-	-	-	-	-	-	-	-	N/A
2016	-	-	-	-	-	-	-	-	3,971 hauls
2017	-	-	-	-	-	-	-	-	719 hauls
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	176 hauls

Table 3 Summary table of otter board trawl catches (tons)

Year	Sub-areas for reporting catch data								
	1	2	3.a	3.b	4	5	6	7	8
2015	-	-	-	-	-	-	-	-	22,729.05
2016	-	-	-	-	-	-	-	-	8,435.24
2017	-	-	-	-	-	-	-	-	1,617.84
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	358.12

Table 4 Summary table of handline effort

Year	Sub-areas for reporting effort data								
	1	2	3.a	3.b	4	5	6	7	8
2015	-	-	-	-	-	-	-	-	N/A
2016	-	-	-	-	-	-	-	-	N/A
2017	-	-	-	-	-	-	-	-	N/A
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	110 days

Table 5 Summary table of handline catches (tons)

Year	Sub-areas for reporting catch data								
	1	2	3.a	3.b	4	5	6	7	8
2015	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	304.80

Table 6 Summary table of pair trawl effort

Year	Sub-areas for reporting effort data								
	1	2	3.a	3.b	4	5	6	7	8
2015	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	544 hauls
2017	-	-	-	-	-	-	-	-	75 hauls
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-

Table 7 Summary table of pair trawl catches (tons)

Year	Sub-areas for reporting catch data								
	1	2	3.a	3.b	4	5	6	7	8
2015	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	2,318.39
2017	-	-	-	-	-	-	-	-	416.18
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-

Table 8 Summary table of trap effort

Year	Sub-areas for reporting effort data								
	1	2	3.a	3.b	4	5	6	7	8
2015	-	-	-	-	-	-	-	-	68 sets
2016	-	-	-	-	-	-	-	-	8 sets
2017	-	-	-	-	-	-	-	-	10 sets
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-

Table 9 Summary table of trap catches (tons)

Year	Sub-areas for reporting catch data								
	1	2	3.a	3.b	4	5	6	7	8
2015	-	-	-	-	-	-	-	-	389.00
2016	-	-	-	-	-	-	-	-	2.53
2017	-	-	-	-	-	-	-	-	8.32
2018	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-

2. Catch, effort and CPUE summaries

In 2019, the main fishing ground was around in the *Saya de Malha* Bank of the west Indian Ocean between latitude 9 to 11° S and longitude 60 to 62° E. (Figure 1). Fishing operations were done between May 2019 and January 2020. There were 358.12 tons of catch from otter board trawl and 304.80 tons from handline.

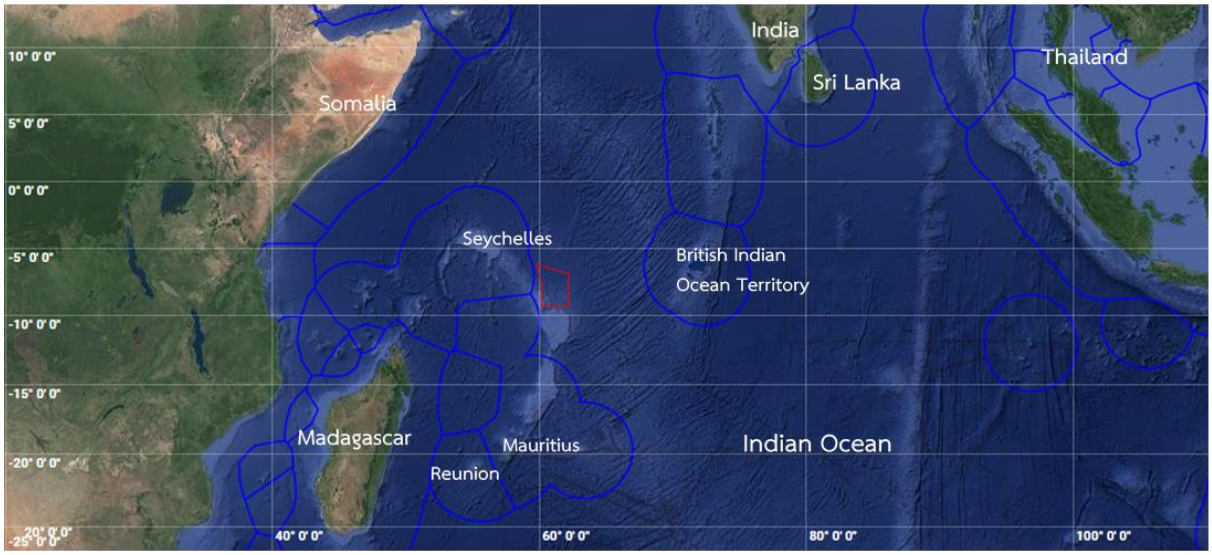

Figure 1 Fishing ground of Thai otter board trawlers in the Saya de Malha Bank in 2019

Otter board trawl

In 2019, the average CPUE was 494.08 kg/hr. The major species consisted of *Decapterus* spp., *Saurida* spp., *Nemipterus* spp., *Upeneus* spp., and *Sphyraena* spp.. The CPUE were 153.37, 135.88, 69.83, 38.93, and 27.05 kg/hr respectively; while, the composition by weight was 31.04%, 27.50%, 14.13%, 7.88%, and 5.48% respectively (Figure 2).

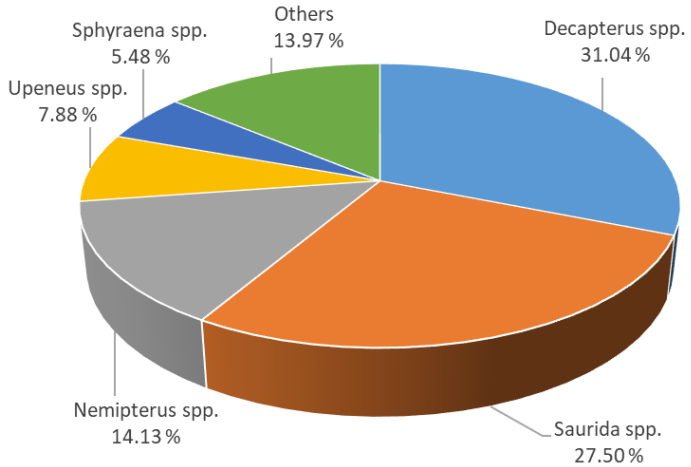

Figure 2 Catch composition of otter board trawl in the Saya de Malha Bank in 2019

Hand line

In 2019, the average CPUE was 2,770.90 kg/day. The major species consisted of *Carangoides* spp., *Gnathanodon* speciosus., *Epinephelus* spp, *Aprion virescens*., and *Lutjanus* spp.. The CPUE was 2,078.73, 228.45, 167.22, 86.84, and 78.20 kg/day respectively; while, composition by weight was 75.02%, 8.25%, 6.04%, 3.13%, and 2.82% respectively (Figure 3).

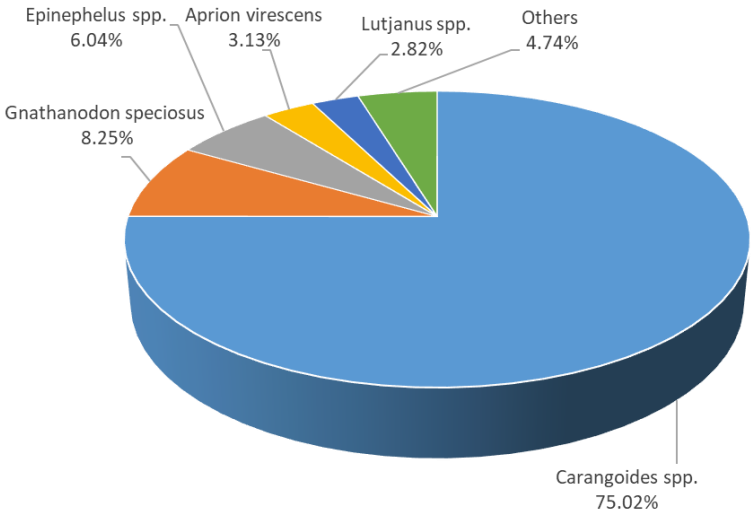

Figure 3 Catch composition of fish in the Saya de Malha Bank caught by handline in 2019

3. Fisheries data collection and research activities

3.1 Data report during their fishing / transshipment activity outside Thai waters

Fishing information from logbook and e-logbook

Fisheries data are collected from logbook and e-logbook which provided by DOF, Thailand. The data include information related to fishing trips and fishing operation. The trip data include details about the vessel to the dates and ports of departure and return, number and weight of catch and effort, and position (latitude and longitude). The operational data include the date and time of the operation, location, retained of target species and other information relating to the operation. The master of fishing vessel shall record every fishing operations in the fishing logbook and send a copy during transshipment at sea or back to Thai port. The master must report the e-fishing logbook to the authority via an application on a daily basis as required by law. Data from logbook are used to estimate annual catches, nominal catch by species and effort which are analyzed by Excel. Currently, e-logbook system is available only bottom trawl.

Transshipment activities

The oversea fishing vessel must request and report transshipment activity with designated timeframe via ERS. With the request function in the application, the fishing master can request for transshipment and landing activities. The responses from the authorities, whether authorize or not authorize, will be electronically sent to the vessel via the application. With the report function, the fishing master can declare their activities following those of authorizations which include transshipment declaration and landing declaration. However, there was no transshipment activity in 2019

Daily report from observer onboard

Observer onboard must report daily to DOF via application. The report includes information about fishing operations, the amount of fish caught, the amount of fish released and discarded, as well as the details of fishing gears and fishing support equipment.

3.2 Data collection from landing site

Port inspector will inspect the documentation and physical checks on board for port in –port out permission and the video recorded by the EM will be inspected by port inspector prior to authorize to unloading. Besides, the Thai authorities will also carry out the catch landing inspection when porting in for reliability and accuracy of information on landed fish before entering 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.

4. *VME Thresholds*

Thailand has set the regulations for Thai fishing vessels when detect corals or sponges in the area which are likely to be a vulnerable ecosystem. These include stop fishing when catching living corals or sponges more than the defined benchmarks and take actions following the rules which classified by gear type as follows;

Trawler

Stop fishing when catching living corals more than 60 kg of corals or 300 kg of sponges per one time of operation and move at least 2 nautical miles from that area.

Longliner

Stop fishing when catching living corals or sponges more than 10 kg per 1,000 hooks or per 1,200 meters of longline and move at least 1 nautical mile from the center of the line segment.

Fish trap vessel

Stop fishing when catching living corals or sponges more than 10 kg and move at least 1 nautical mile from that area .

In addition, observers onboard are required to record and report species and quantities of coral and other marine organisms derived from each fishery and area. The data will be used to analyse the abundance and diversity of benthic marine organisms. This for further define VMEs in the SIOFA area.

Table 10 Threshold levels for encounters with VMEs and move-on protocols

Gear/fishery	Threshold (kgs)	Move-on protocols
Trawl	corals > 60 kg sponges > 300 kg	move at least 2 nautical miles
Longline	corals or sponges > 10 kg per 1,000 hooks or per 1,200 meters	move at least 1 nautical mile
Trap	corals or sponges > 10 kg	move at least 1 nautical mile

Table 11 VME taxa bycatch quantities per gear from logbooks data

Year			Trawler	Handline
2019		Total effort	176 hauls	110 days
	taxa	sponges	590 kg	-
		corals	6.5 kg	27.5 kg

5. Biological sampling and length of catches

The data of fish size was derived from observers on board of otter board trawler in May - July 2019 .The data collection was designed including measuring the total length of major economic fish which is classified to species level .For this assessment, length of four major species (*Saurida undosquamis, Nemipterus bipunctatus, Decapterus russelli* and *Decapterus macrosoma*) were analysed as representatives of demersal fish and pelagic fish species.

The average length of *Saurida undosquamis, Nemipterus bipunctatus, Decapterus russelli* and *Decapterus macrosoma* were 25.72, 18.29, 17.57 and 18.57 cm respectively (Table 12). Size distribution of these four major species were presented in Figure4-7.

Table 12 Length of some major economic fishes

Species	Min (cm)	Max (cm)	Mean±SD
Saurida undosquamis	5.25	50.25	25.72±0.29
Nemipterus bipunctatus	4.75	30.75	18.29±0.14
Decapterus russelli	7.25	26.25	17.57±0.06
Decapterus macrosoma	13.25	25.75	18.57±0.09

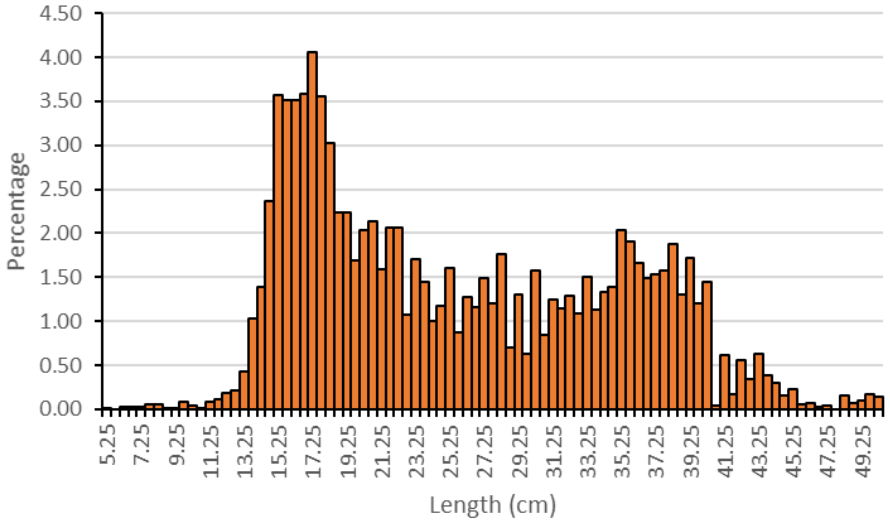

Figure 4 Size distribution of *Saurida undosquamis* caught by otter board trawl in 2019

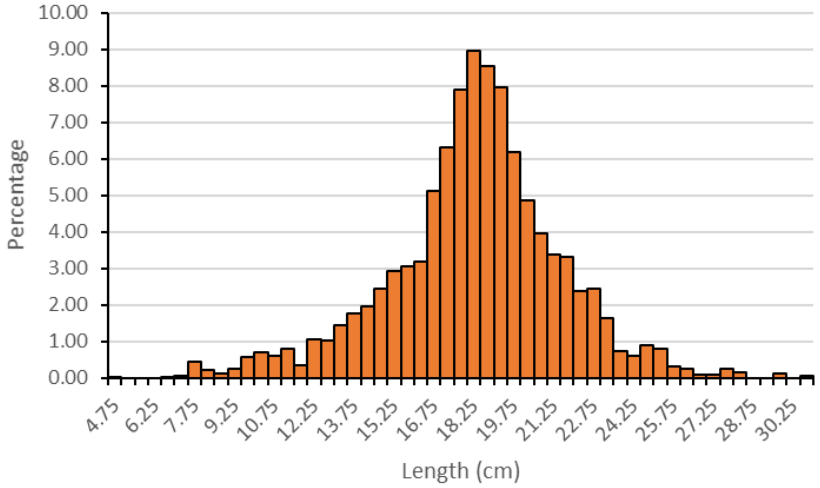

Figure 5 Size distribution of *Nemipterus bipunctatus* caught by otter board trawl in 2019

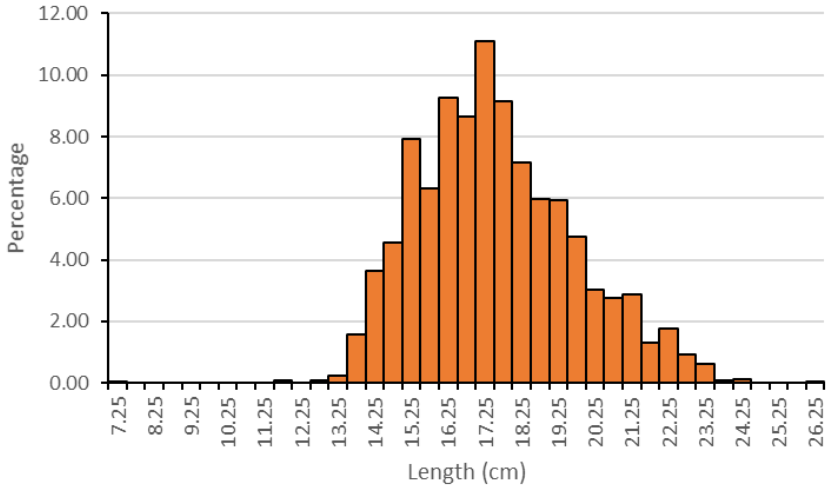

Figure 6 Size distribution of *Decapterus russelli* caught by otter board trawl in 2019

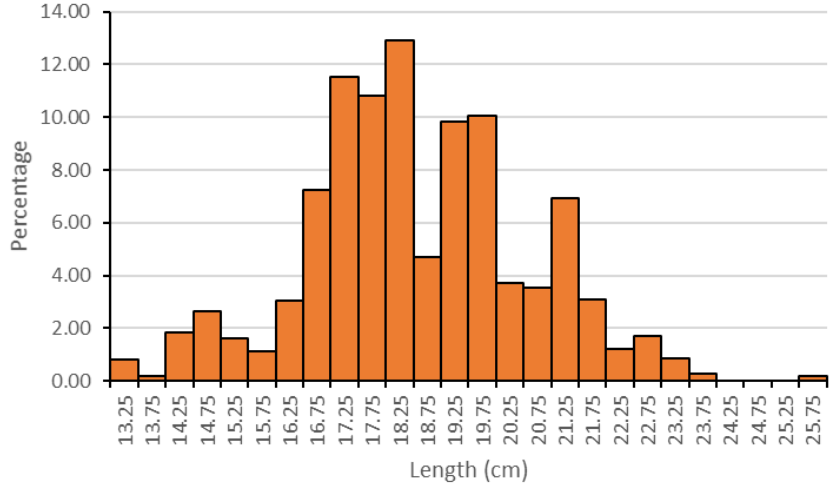

Figure 7 Size distribution of *Decapterus macrosoma* caught by otter board trawl in 2019

6. Description of data verification mechanisms

Data collection on Thai oversea fisheries has been categorized into two themes. The first theme is collecting information from daily report while the vessels are fishing / transshipment activity outside Thai waters transmitted these data via satellite system. Second one is collecting data from landing sites. These data have been in consistent with the data recorded in Thai-flagged database system. Furthermore, these data are submitted to SIOFA secretariat to monitor and analyze the status of marine resources for sustainable management in long term.

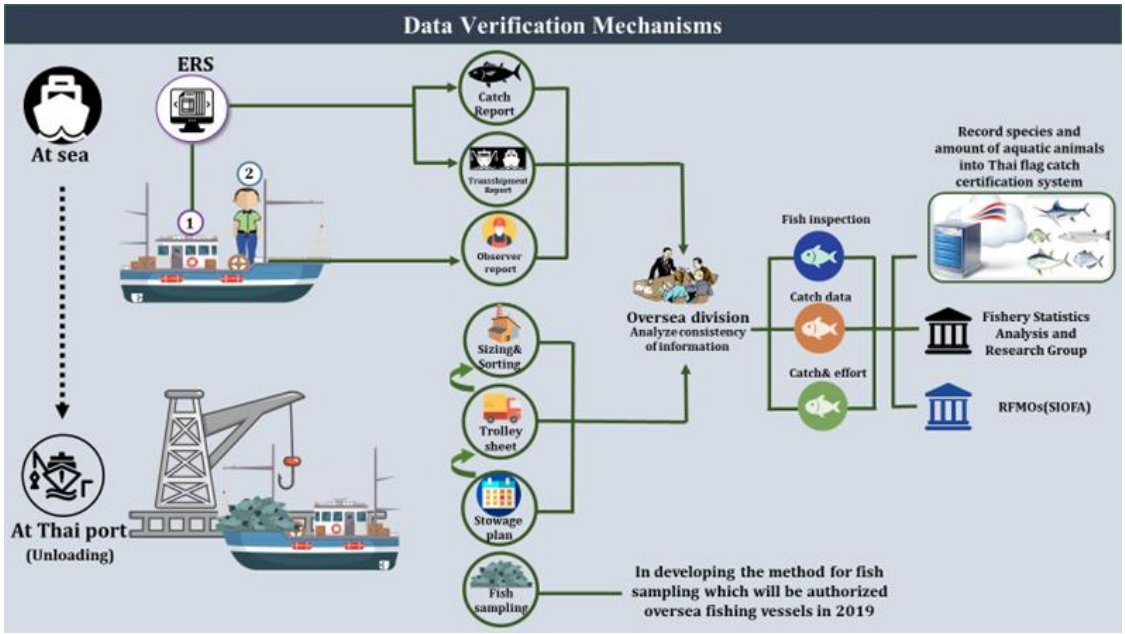

Figure 8 Data verification mechanism for Thai-flagged oversea fishing vessel

The improved activities related to achieve the effective MCS and data verification mechanism

1. Port Out Controls

At Port in – Port out Control Centers (PIPO), it is important to note that the Thai authorities have set clear targets for port in and port out inspections, i.e. documentation and physical checks of vessels and labor. This is carried out by PIPO officers and inspectors of relevant competent authorities.

2. Vessel Monitoring System (VMS)

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

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

A new electronic surveillance system has been developed, comprising of two main components: Electronic Reporting System (ERS) and Electronic Monitoring System (EM).

4. Onboard observer coverage for fishing vessel

- Vessels using trawl gear must have onboard observer coverage for the entire duration of the trip (100% coverage).
- Vessels using any other bottom fishing gear types must have onboard observer for 20% of operation in any calendar year.
- 100% transhipment observer coverage.

7. Summary of observer programs

Thailand has 4th batch of observers. There are totally 98 observers. The training course for observer contained 11 modules of essential fisheries observer principle based on the FAO Guidelines for Developing an at-Sea Fisheries Observer Program. These included the 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.

Notification of the Department of Fisheries related to observer onboard

- Vessels using trawl gear must have onboard observer coverage for the entire duration of the trip (100% coverage).
- Vessels using any other bottom fishing gear types must have onboard observer for 20% of operation in any calendar year.
- 100% transhipment observer coverage.

Duties of observer

- Observe and collect biological information, including catch composition sampling of the transhipped aquatic animal, and other activities such as sorting, processing, or observe several parts onboard the vessel, fish hold, wheel house and technology of fishing gears.
- Record biological information or data related to the conduct of the conservation and management measures in the format defined by the Department of Fisheries, composition, number of by-catch or discard, type of fishing gear, mesh size, fishing logbook, transshipment, etc. as well as co-signing in the transshipment report by observer, fishing vessel and transhipment vessel

Table 13 Observer program design and coverage summary table

Fishing gears	trips coverage (%)	total no of sets/hauls	no of sets/hauls covered	within set/haul coverage (%)	incidental bycatch (bird, mammal) observation coverage (% set/haul)
Trawler	100%	176 hauls	69 sampling	100 % observed 39.20% sampling	100%
Handline	20%	110 days	71 sampling	64.55% observed and sampling	64.55%

Table 14 Reporting of observed bycatch

bycatch	Trawl	Handline
seabird	None	None
mammal	None	None
Porifera (PFR)	590 kg	None
Antipatharia (AQZ)	1.3 kg	None
Alcyonacea (AJZ)	0.2 kg	None
Cnidaria (CNI)	5.1 kg	0.3 kg
Acropora Formosa (KQM)	None	22.2 kg
Heliopora coerulea (HKQ)	None	5 kg
Antipathes dichotoma (ADQ)	0.02 kg	None
Mobula eregoodootenkee	1 individual	None
Rhina ancylostoma	2 individuals	None
Euthynnus affinis	1 individual	9 individuals
Thunnus albacares	None	1 individual

8. Relevant social and economic information

8.1 Overview

Marine fisheries are important both socially and economically for Thailand. Fish are very important to the food security and self-sufficiency of Thailand. Based on the recent survey in 2019, a total number of 10,530 Thai commercial fishing vessels was licensed. In 2018, the total catch in Thai waters was 1.50 million tonnes. This catch supports the livelihoods, incomes and employment for fishers and employed in supporting industries (e.g. fish processing industry, ship building industry, canned and frozen fisheries product factories, fish meal factories). For rural Thailand, fish constitutes a generally affordable source of protein, contributing significantly to dietary health and food security, particularly the more than 2,500 villages of artisanal fishing communities along the coasts. Thailand is also a major seafood producer and exporter. In 2017, the total quantity of exports of fisheries products was 1.52 million tonnes, valued around USD 7,000 million and total quantity of imports was 1.94 million tonnes, valued around USD 4,000 million.

8.2 Cost and Benefit on Observer Onboard

Thai oversea fishing fleet are mainly trawlers of the sizes between 100 and 400 GT. These overseas vessels are required by national regulation to be equipped with the VMS and electronic observer. However, this equipment is costly. Apart from the first payment for equipping between 20,000 and 27,000 USD, it also needs monthly payment for the airtime operation of between 170 and 1,600 USD, depending on the package size of data chosen by fishers. Moreover, to comply with **SIOFA CMM 2017/02**, the vessels authorized to operate in the SIOFA area of competent are required to place observer onboard for 100% coverage for trawler. It is another additional cost for fisheries in SIOFA area. Before became a member of SIOFA, Thailand required all overseas vessels to place observer for only 5% of operations which was comply to the **IOTC Resolution 11/04** *on a Regional Observer Scheme*. The payment for observer was approximately 125 USD/days. It is a very high rate when applied to SIOFA vessels

as the values of multispecies of demersal fish caught by bottom trawling nets are much lower than tunas. Previously, it was not too difficult for fishers to afford on the additional cost for placing observers for 5% coverage. However, when the 100% coverage has been required, this

cost factor has affected fishers to decide whether they continue their trawling fishery. The negotiation between fishers and group of observers took place many times with the Department of Fisheries as the meditator, but there were no agreed the rate of payment. Lastly, by the end of February 2018, the Department of Fisheries decided to seek for only the qualified observers who are willing to work with the payment of approximately 70 USD/day with the intention to reduce the cost of the vessel and maintain fishing operation in SIOFA area accordingly.

With the long term perspective, after effective and stability of an electronic observer, the Department of Fisheries, Thailand, proposes to complement the human observer with the electronic observer, based on the SIOFA CMM 2017/01 Para. 33 (a), 33 (b) and 33 (c). Thus, this might reduce the cost for fishers in a long term basis.