Malaysia National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2022

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INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

In accordance with IOTC Resolution 15/02, final scientific data for the previous year was provided to the IOTC Secretariat by 30 June of the current year, **for all fleets other than longline** [e.g. for a National Report submitted to the IOTC Secretariat in 2022, final data for the 2021 calendar year must be provided to the Secretariat by 30 June 2022)	YES 30/06/2022
In accordance with IOTC Resolution 15/02, provisional **longline data** for the previous year was provided to the IOTC Secretariat by 30 June of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2022, preliminary data for the 2021 calendar year was provided to the IOTC Secretariat by 30 June 2022). **REMINDER:** Final longline data for the previous year is due to the IOTC Secretariat by 30 Dec of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2022, final data for the 2021 calendar year must be provided to the Secretariat by 30 December 2022).	YES 30/06/2022 Revised report sent on 30/12/2022
If no, please indicate the reason(s) and intended actions:	

Executive Summary

Total catch of marine fish from Malaysian waters in 2022 were 1.308 million mt, a slight decreased 1.5% compared to 1.328 million in 2021. The total landing in 2022 were attributed to the catch from 48,605 registered vessels with trawlers, purse seines, drift nets contributed large percentage of the catches. In 2022, marine fish production from the west coast of Peninsular Malaysia (Malacca Straits) contributed 728,623 mt (55.7%) out of the total catch.

Neritic tuna contributes 57,992 mt (4.4%) of Malaysia's marine fish landings in 2022. Purse seiners are the main fishing gears in neritic tuna fisheries, especially the 40-69.9 GRT (Zone C) and >70 GRT (Zone C2) vessel size, with longtail tuna dominated the landings followed by kawakawa and frigate tuna. In 2022, neritic tuna landings in west coast Peninsular Malaysia amounted to 15,846 mt; increasing by 37% compared to 9,974 mt in 2021. Meanwhile landings of neritic tuna in Malaysia ranged from 51,472 mt to 74,489 mt (2016-2022). The highest catch was recorded in 2017 with 74,489 mt. Landings of neritic tuna in Malaysia appear to have stabilized from 2016 to 2021.

The catch of oceanic tuna from the Indian Ocean decreased 13.5% from 1965.9 mt in 2021 to 1,701.2 mt in 2022. Albacore landings declined from 1,271.2 mt in 2021 to 1258.5 mt in 2022. Albacore tuna formed nearly 74% of the total catches in the form of whole frozen tuna meanwhile, Yellowfin contributed 20% and Bigeye 6% of total catches in frozen and gutted forms.

Malaysia have updated the national logbook to include all the species as requested in Resolution 19/04. Monitoring of tuna landing and inspection by Port Inspector is ongoing. DOFM monitored and tracked the deep-sea and tuna vessels using National VMS. DOFM have installed CCTV on tuna vessels as a tool for EMS.

Table of Contents

1. BACKGROUND/GENERAL FISHERY INFORMATION

Malaysia as a tropical country consist of multi-species and multi-gears fishery. There are over 100 commercial marine fish species in Malaysian waters and 15 type of fishing gears. Two most efficient fishing gears are trawls and purse seines. The trawlers and purse seiners contributed more than 75% of total marine catch and the rest of the catches are from traditional gears. In tuna fishery, the purse seines and trawlers catch 91% of neritic tuna and the rest by traditional gears such as trolling, hook and lines and gill nets. Tuna species represented nearly 5% of the total marine catch in Malaysian waters. The Malacca Straits and the South China Sea are the two main fishing areas which contribute most to catches and a small portion from the fishing areas in Sulu and Sulawesi Sea, east coast of Sabah (Borneo continent). There are oceanic tuna fishing activities by the traditional hook and lines gear in the Sulawesi Seas. There are oceanic tuna species found in Malaysian waters, the South China Sea and Sulawesi Sea. The main species are yellowfin tuna, bigeye, albacore and skipjack. The oceanic tuna is caught by handline with small traditional inboard boats, 4-5 days per trip.

From 2012-2022, Malaysia continue to develop their tuna fleets. A fleet of 6 tuna longline vessels and 1 carrier vessel from a fishing company started to operate by targeting albacore tuna. Their fishing areas were in the southwest of Indian Ocean and they unload the catches at the Port Louis, Mauritius. After Malaysia open two designated tuna port in February 2016 (Penang Port & Langkawi Port), tuna longline vessels from 2 fishing company were registered 14 tuna longline vessels phase by phase (2016-2022) as Malaysian flag vessels and operate in the East of Indian Ocean area and their catches were landed in Penang port. By the end of 2022, 10 tuna longline vessels license base in Penang Port were revoked in September 2022 by owner's request. DOF Malaysia are committed on managing the fleet and complying with the conservation and management measures (CMM) and manage to get 93% on compliance level in 2022.

2. FLEET STRUCTURE

6 from 20 tuna longline vessels are operating in Southwest Indian Ocean (WIO) and another 14 tuna longline vessels operating in the East of Indian Ocean (EIO). For vessels operating in EIO, their target species are tropical tuna namely yellowfin and bigeye tuna and land their catches in Penang Port monthly. Meanwhile the vessels operating in WIO their target species is albacore. The vessels normally undertake a long fishing trips and all their catches were transported back to the designated port in Port Louis, Mauritius by carrier vessels.

One (1) carrier vessel was registered under Malaysia Flag and operated in area of West Indian Ocean served for the six (6) longline vessels fishing in the area. Under resolution 22/02, Malaysia longliners transhipment at sea monitor by the IOTC observer under ROP. Malaysia participated in the Regional Observer Program in 2022 continue the observer programme after the Covid -19 Pandemic.

The size of fishing vessels operating in the IOTC area of competence varies in LOA and gross tonnage (GT) from 25m-36m and 70GT – 204GT respectively.

Table 1: Number of authorised fishing vessels (AFV) operating in the IOTC area of competence, by gear type and size

Year	< 24m	>24m	Registered vessels	Gear type
2012	-	5	5	Longline (LL)
2013	-	5	5	Longline (LL)
2014	-	10	10	Longline (LL)
2015	-	5	5	Longline (LL)
2016	-	10	10	Longline (LL)
2017	-	19	19	Longline (LL)
2018	-	19	19	Longline (LL)
2019	-	17	17	Longline (LL)
2020	-	19	19	Longline (LL)
2021	-	20	20	Longline (LL)
2022	-	20	20	Longline (LL)

3. CATCH AND EFFORT (BY SPECIES AND GEAR)

Catch of tuna and tuna-like species by Malaysian fishing vessels were based on the fishing operations in the East Indian Ocean (EIO) and West Indian Ocean (WIO). The efforts represented by the number of berthing of the vessels at the fishing port and fishing hooks. In WIO, the vessels berthing at the port were carrier vessel where they pooled the catch from several fishing vessels (6 vessels) at the fishing grounds before they returned to the fishing port in Mauritius. For fishing operation in EIO, the fishing vessels berthing at Penang port every month for tuna landing with the average landing of 60 – 80 metric tonnes monthly. For fishing hooks, based on the logbook records, one vessel used 1800 – 3000 hooks for each fishing operations.

Table 2. Annual catch and effort by gear and primary species in the IOTC area of competence.

Year	YFT	BET	MARL	SWO	SFA	SKJ	SHK	ALB	MISC
2012	119.7	46.8	35.8	30.0	1.1	3.4	6.0	661.8	58.7
2013	107.5	32.3	31.5	22.3	0.0	0.0	0.0	107.5	100.9
2014	77.3	60.1	25.4	93.1	0.0	0.0	0.0	713.9	76.3
2015	161.7	60.0	24.6	116.7	0.0	0.0	0.0	1049.1	126.7
2016	155.9	124.0	33.5	41.6	0.0	0.0	4.7	1330.6	107.2
2017	383.6	172.5	0.0	82.3	1.7	16.2	0.0	1607.2	281.9
2018	446.3	228.6	0.0	112.2	20.7	13.5	0.0	1792.5	247.9
2019	419.6	235.3	72.1	169.7	16.1	14.8	6.1	1618.0	242.9
2020	374.4	250.9	106.2	148.7	9.3	7.4	0.0	1821.4	286.6
2021	390.8	302.5	75.4	240.7	9.1	0.8	0.0	1277.1	226.3
2022	338.7	102.8	45.2	123.7	4.6	1.2	0.5	1258.5	161.6

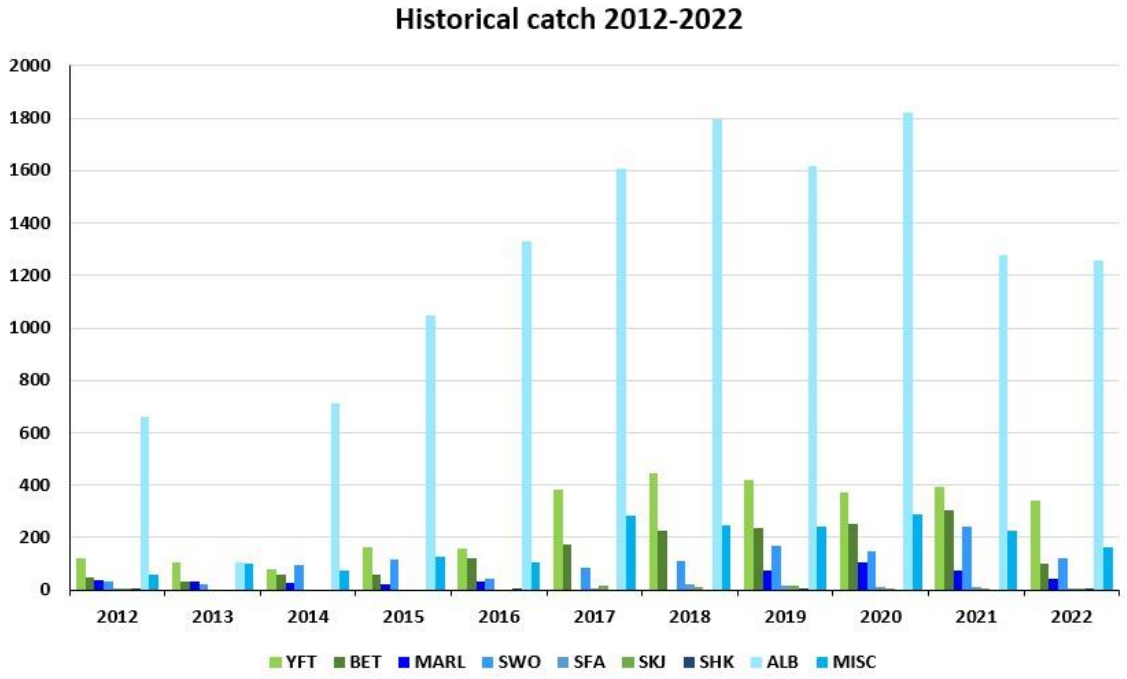


Figure 1. Historical annual catch for the Malaysian tuna fleet, using longline and primary species, for the IOTC area of competence from 2012 – 2022

Figure 2a. Map of the distribution of fishing effort by Tuna Longline for the national fleet in the IOTC area of competence for the year 2022.

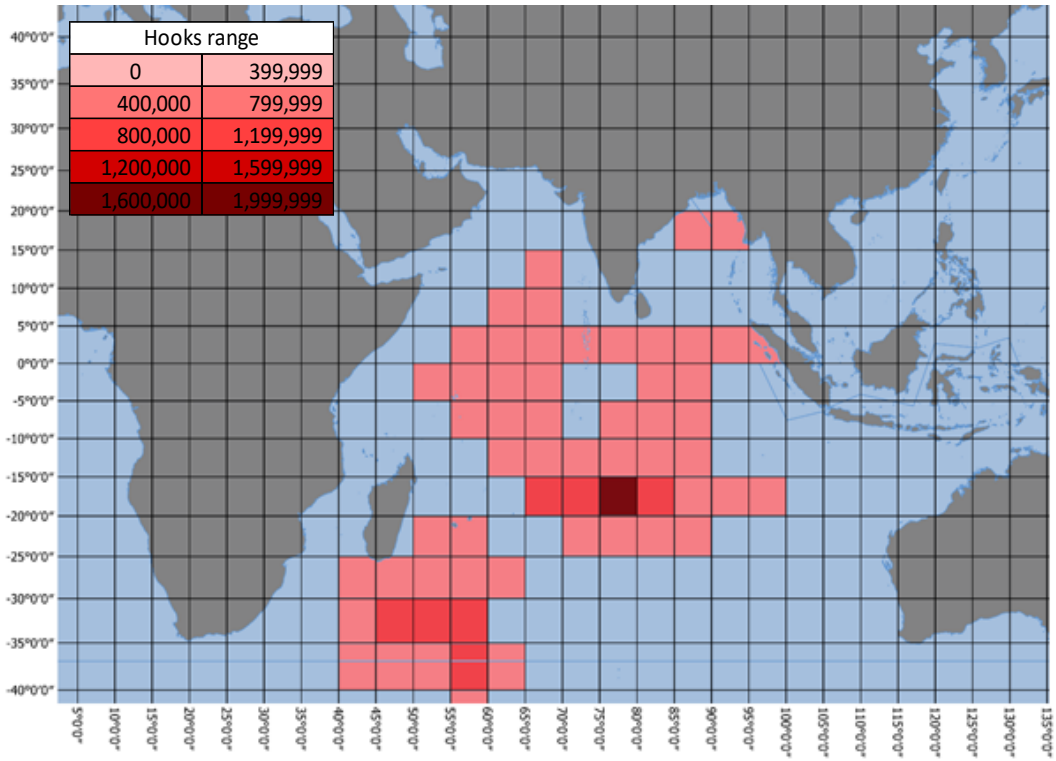


Figure 2b. Map of the distribution of fishing effort by tuna longline for the national fleet in the IOTC area of competence from year average of 5 previous years 2018–2022.

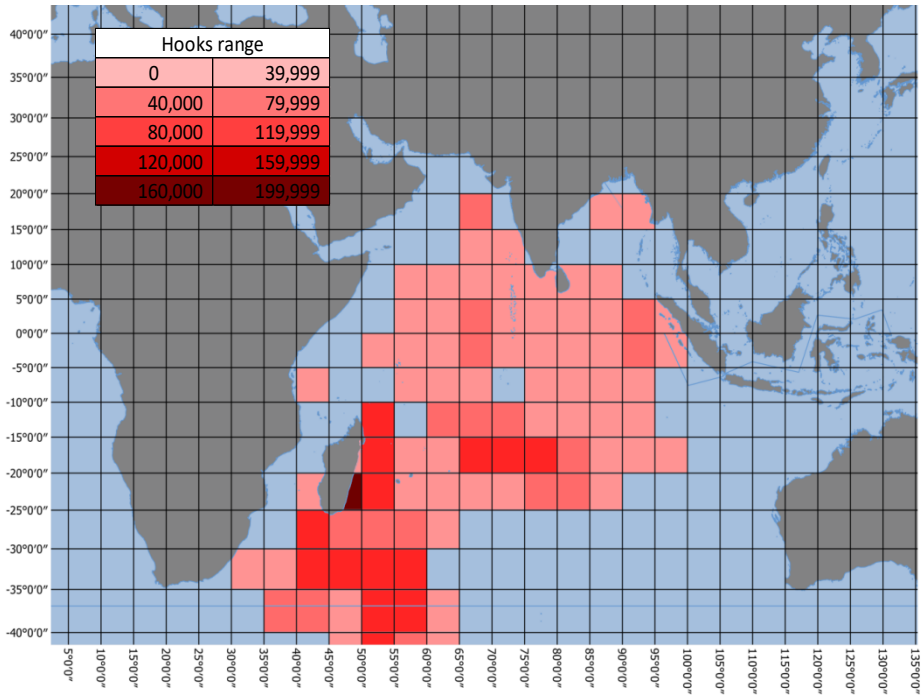
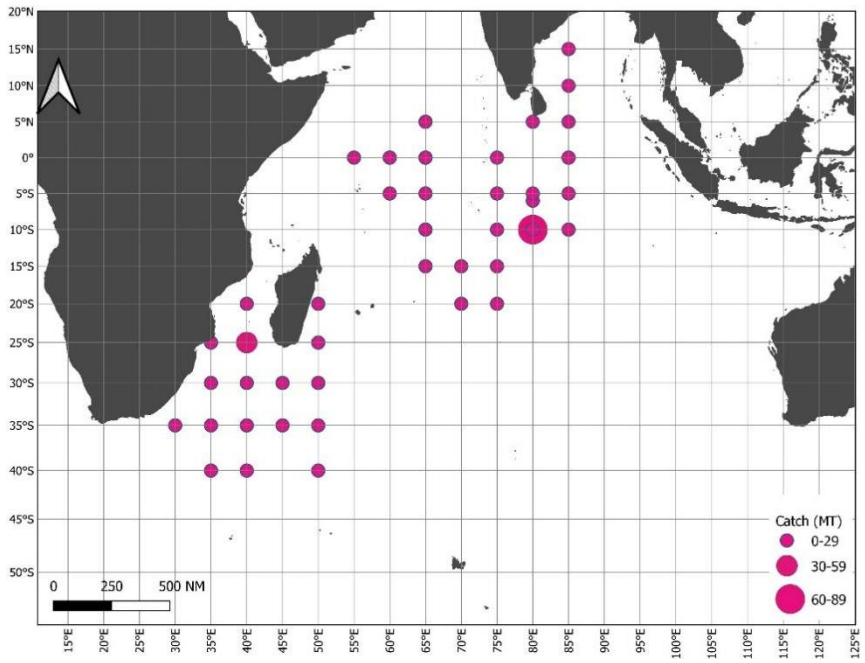
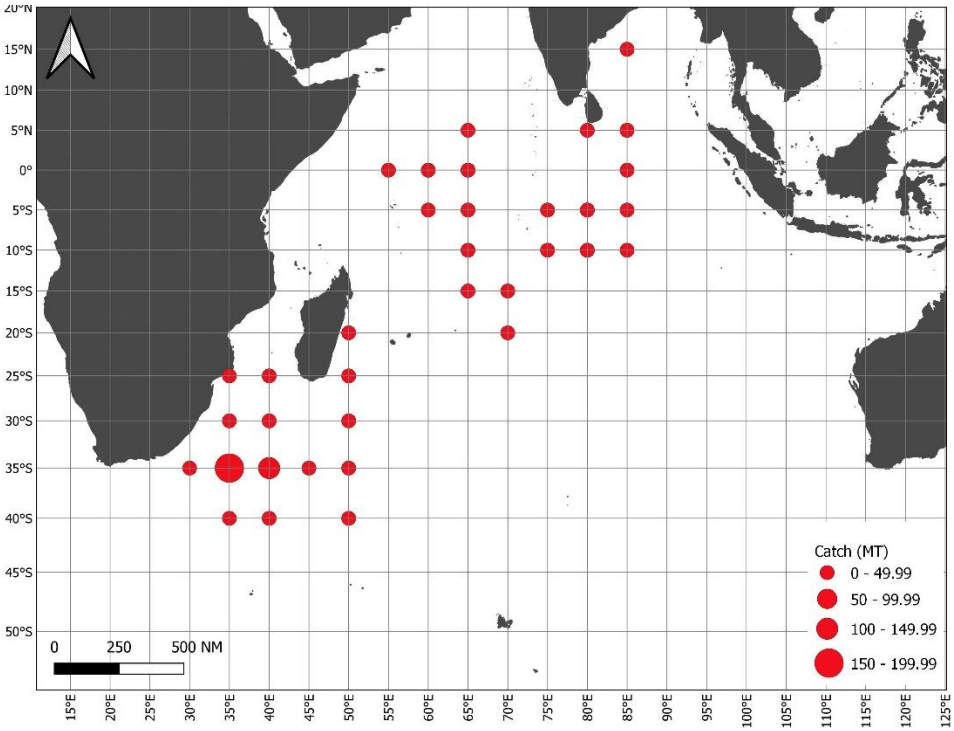


Figure 3a. Map of distribution of fishing catch, by species for the national fleet, in the IOTC area of competence for the year 2022.

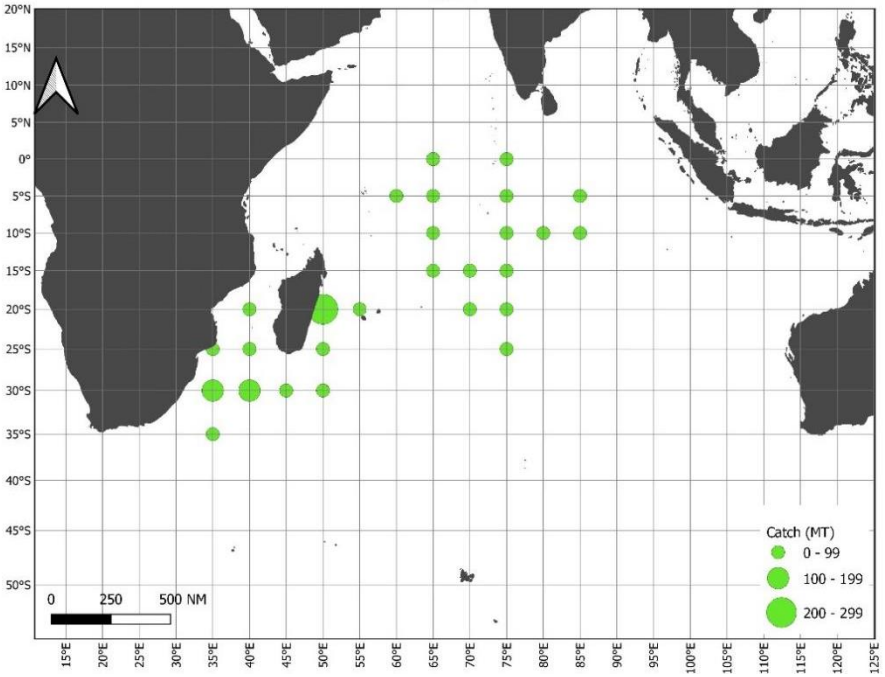
YELLOWFIN CATCH DISTRIBUTION 2022



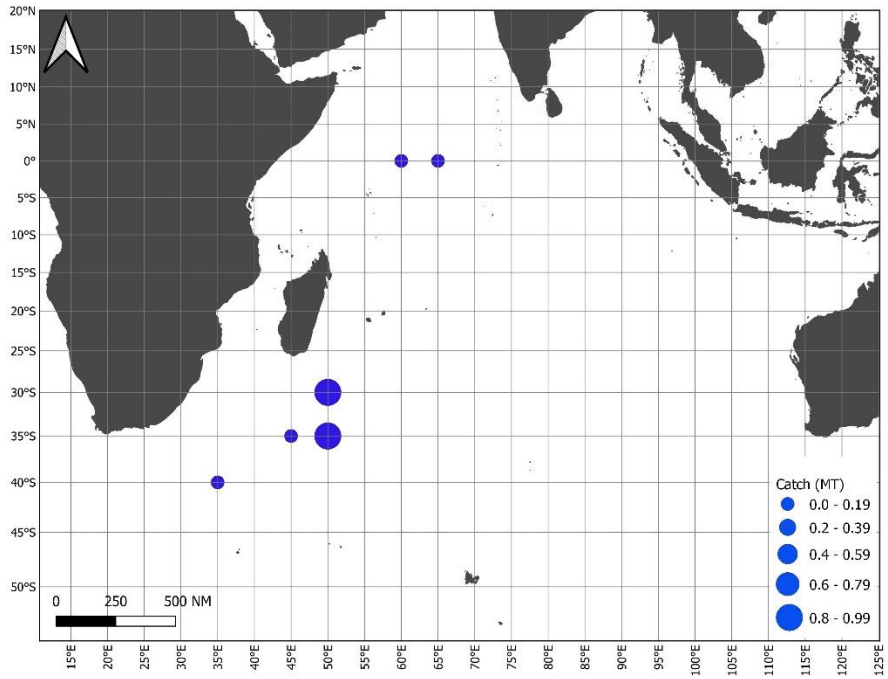
BIGEYE TUNA CATCH DISTRIBUTION 2022



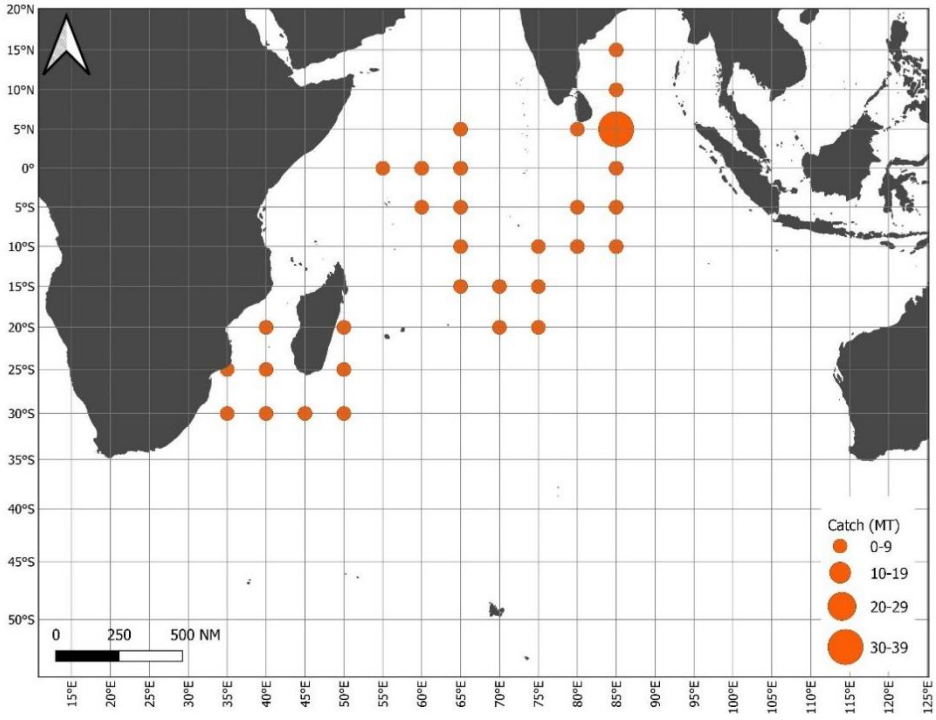
ALBACORE CATCH DISTRIBUTION 2022



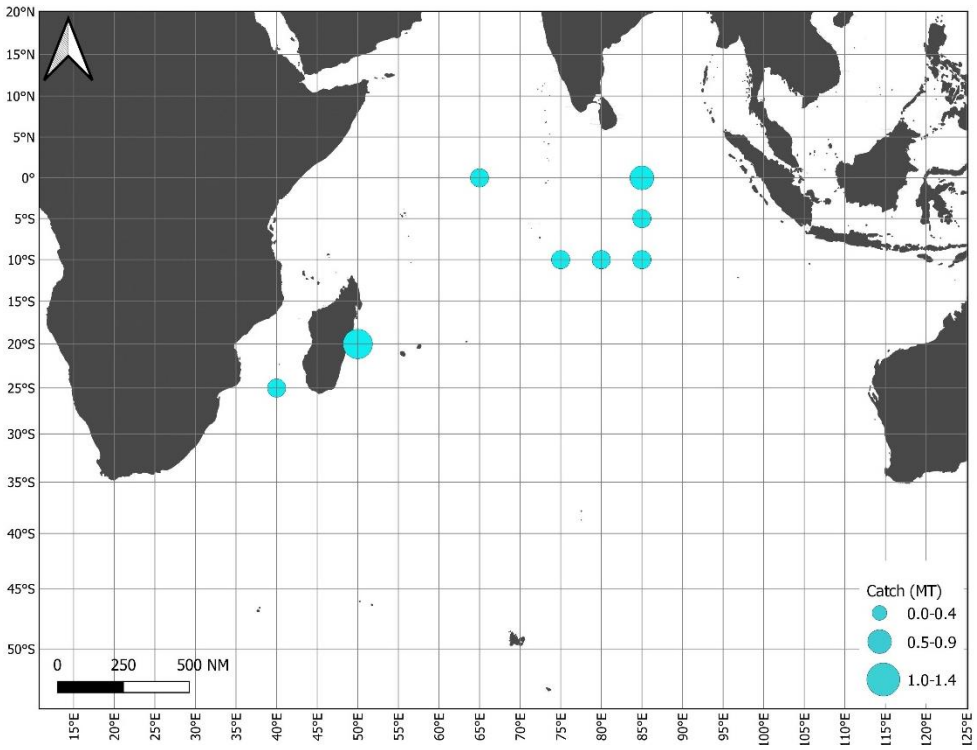
SKIPJACK CATCH DISTRIBUTION 2022



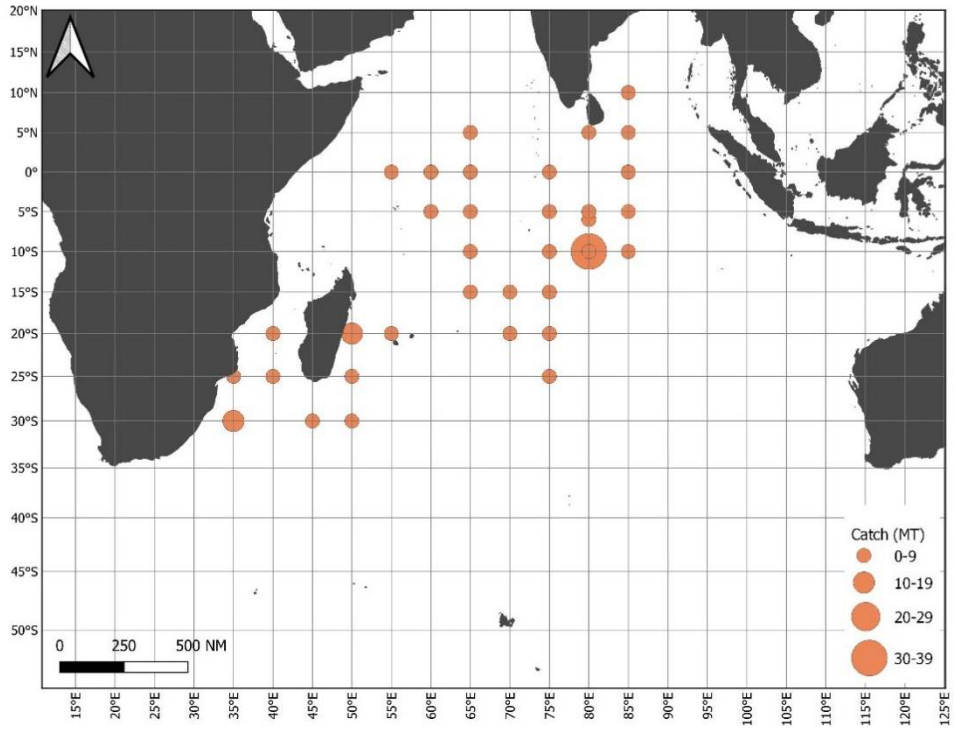
SWORDFISH CATCH DISTRIBUTION 2022



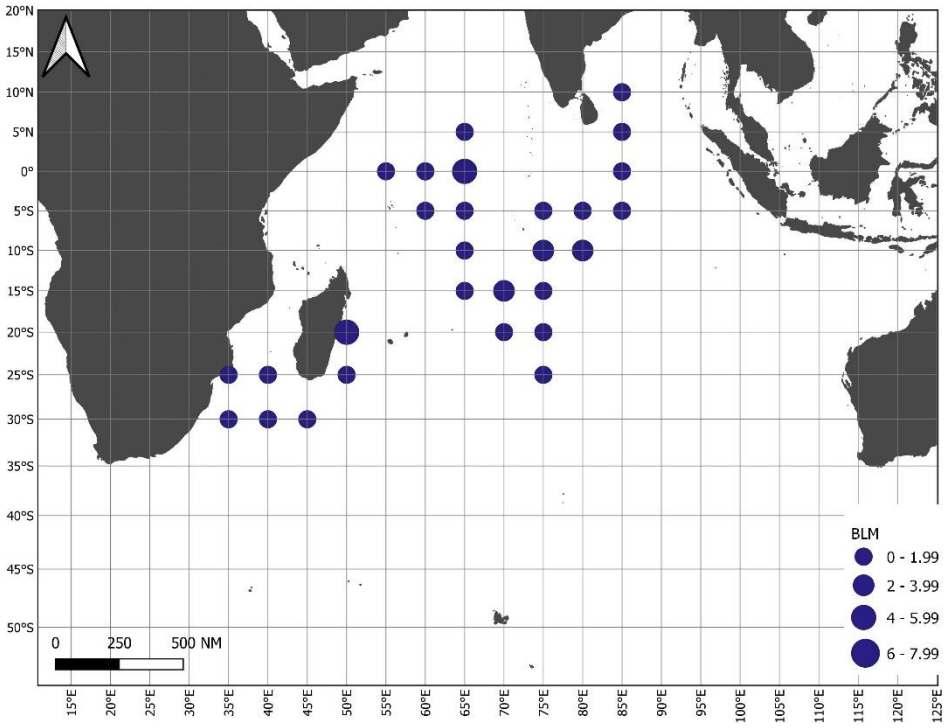
BLUE MARLIN CATCH DISTRIBUTION 2022



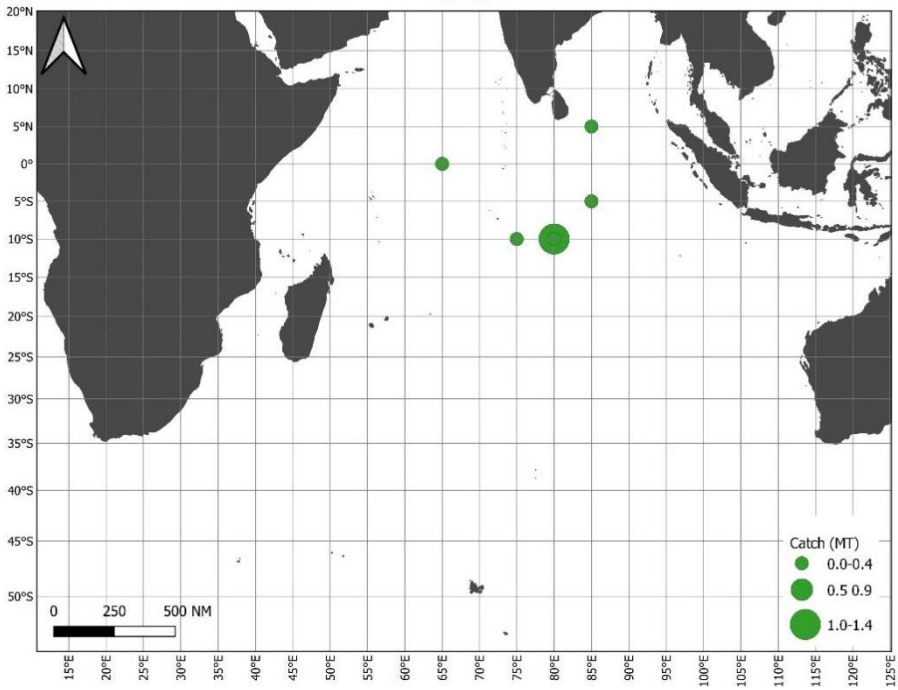
OTHER BONY FISH CATCH DISTRIBUTION 2022



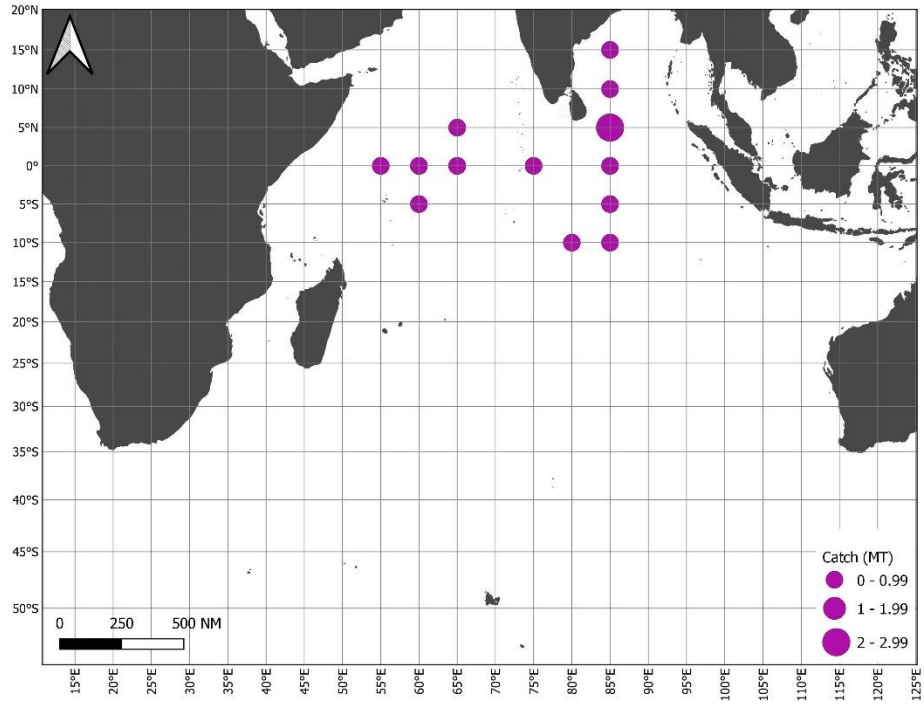
BLACK MARLIN CATCH DISTRIBUTION 2022



STRIPED MARLIN CATCH DISTRIBUTION 2022



INDO-PACIFIC SAILFISH CATCH DISTRIBUTION 2022



SHORTBILL SPEARFISH CATCH DISTRIBUTION 2022

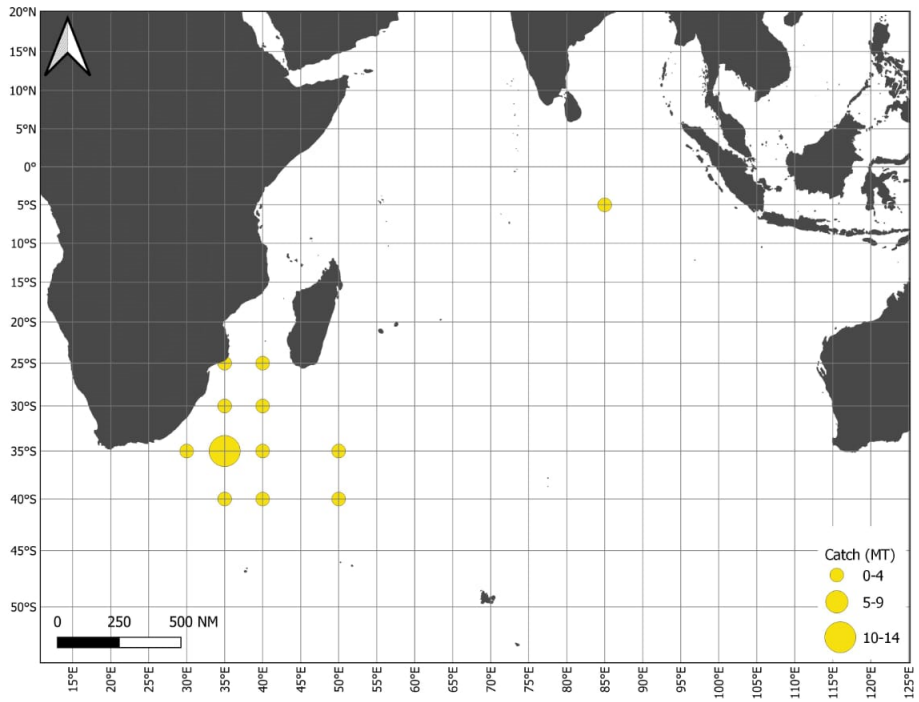
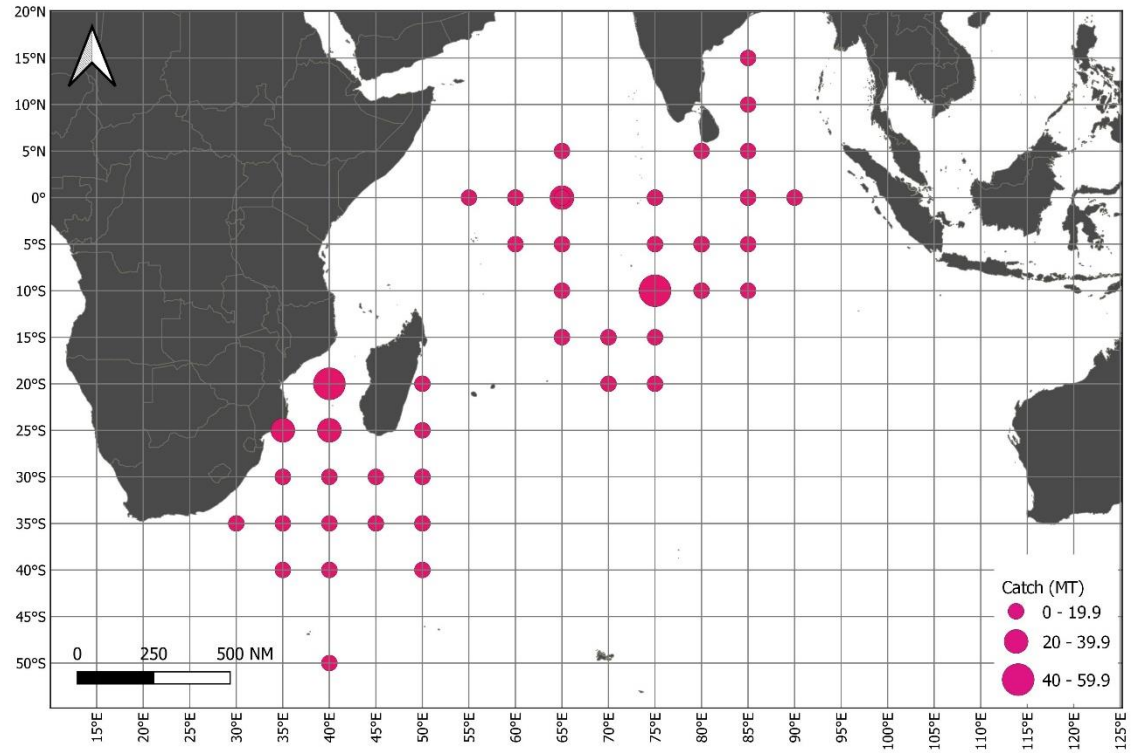
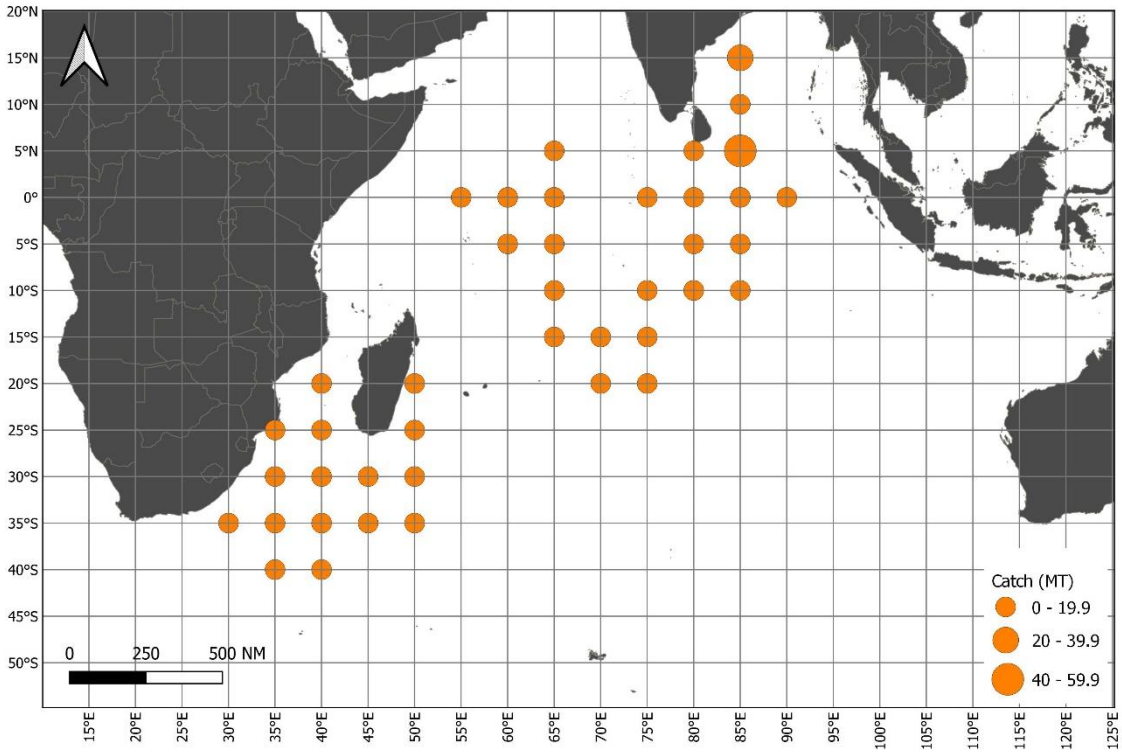


Figure 3b. Map of distribution of fishing catch, by species for the national fleet, in the IOTC area of competence average of the 5 previous year 2018–2022.

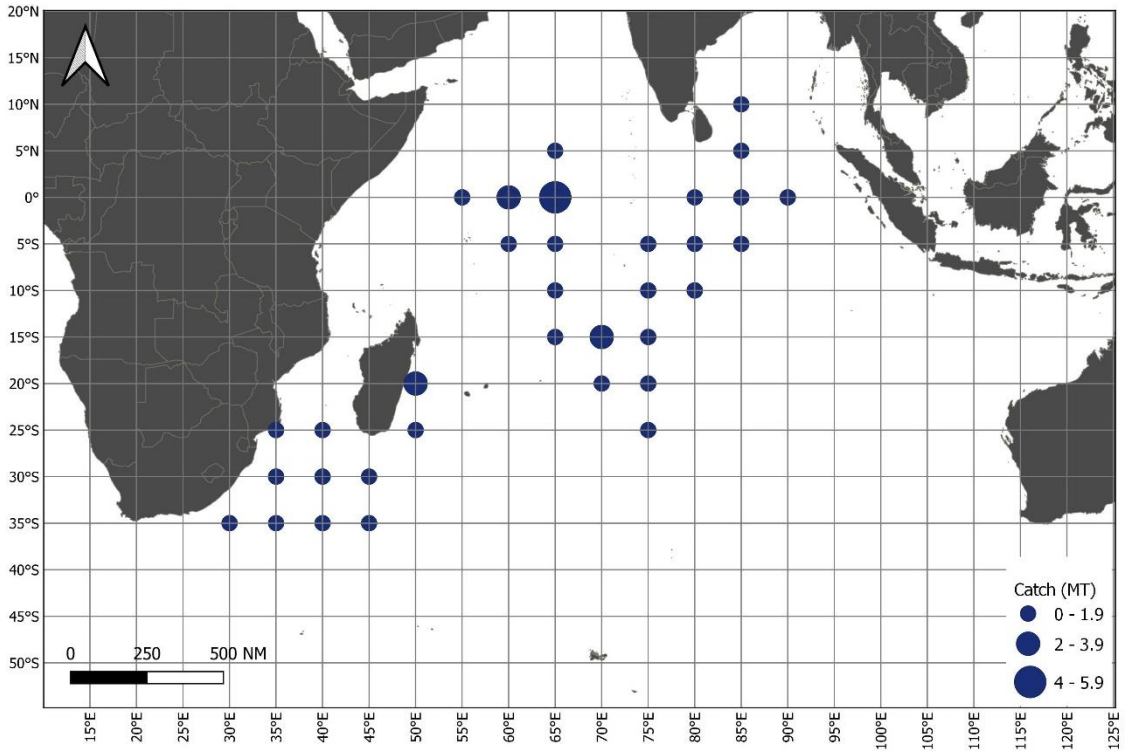
YELLOWFIN AVERAGE CATCH DISTRIBUTION 2018-2022



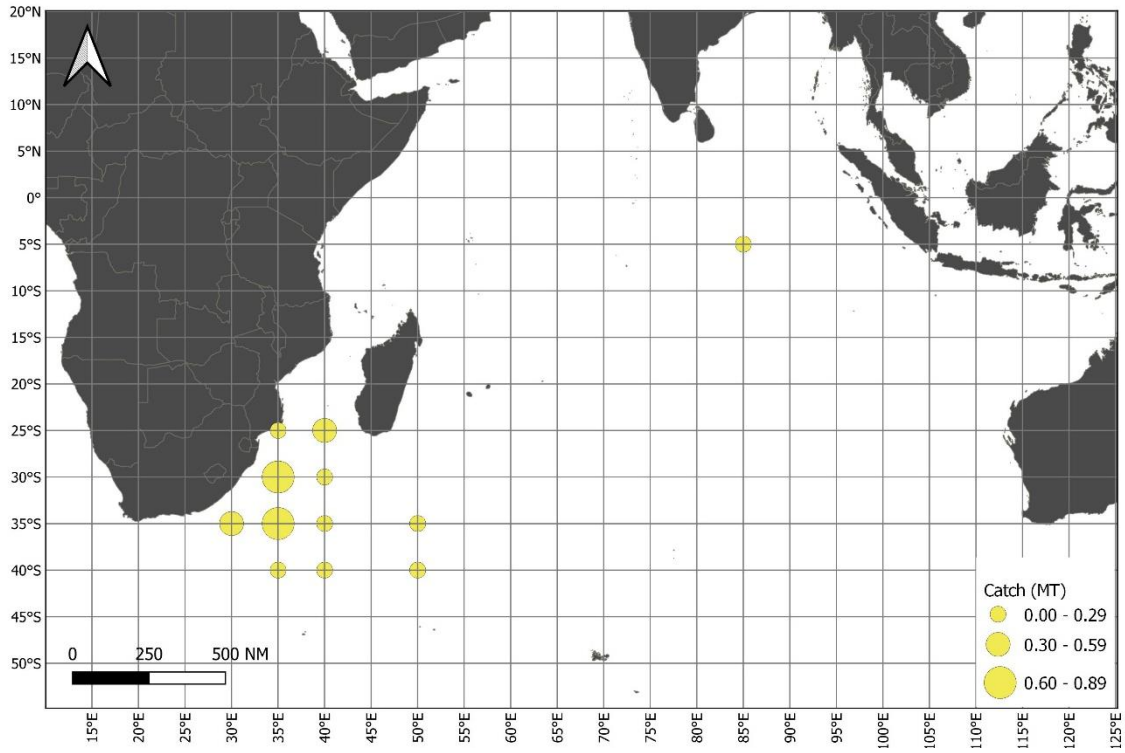
SWORDFISH AVERAGE CATCH DISTRIBUTION 2018-2022



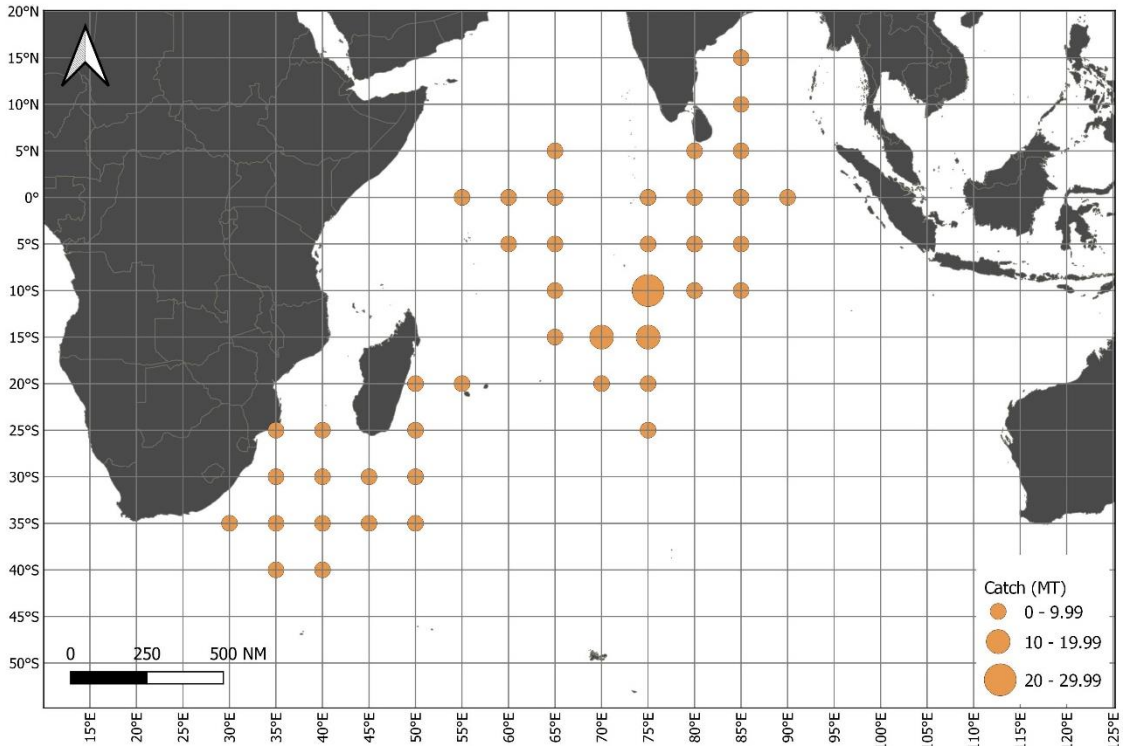
BLUE MARLIN AVERAGE CATCH DISTRIBUTION 2018-2022



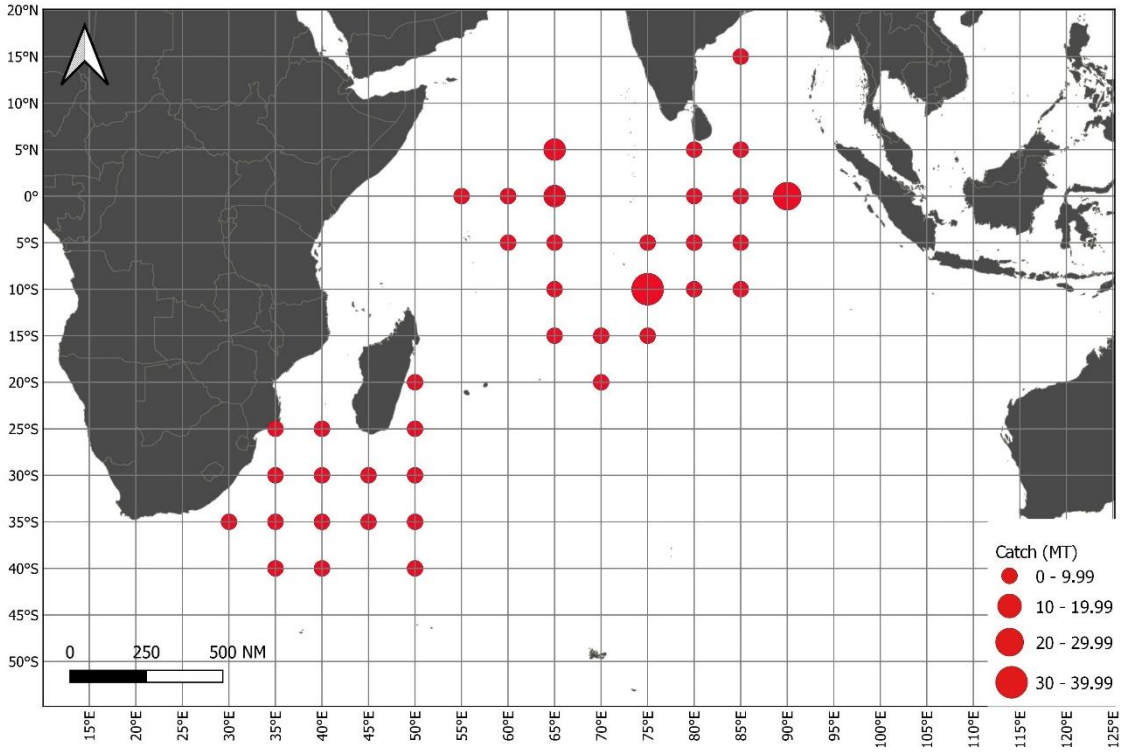
SHORTBILL SPEARFISH AVERAGE CATCH DISTRIBUTION 2018-2022



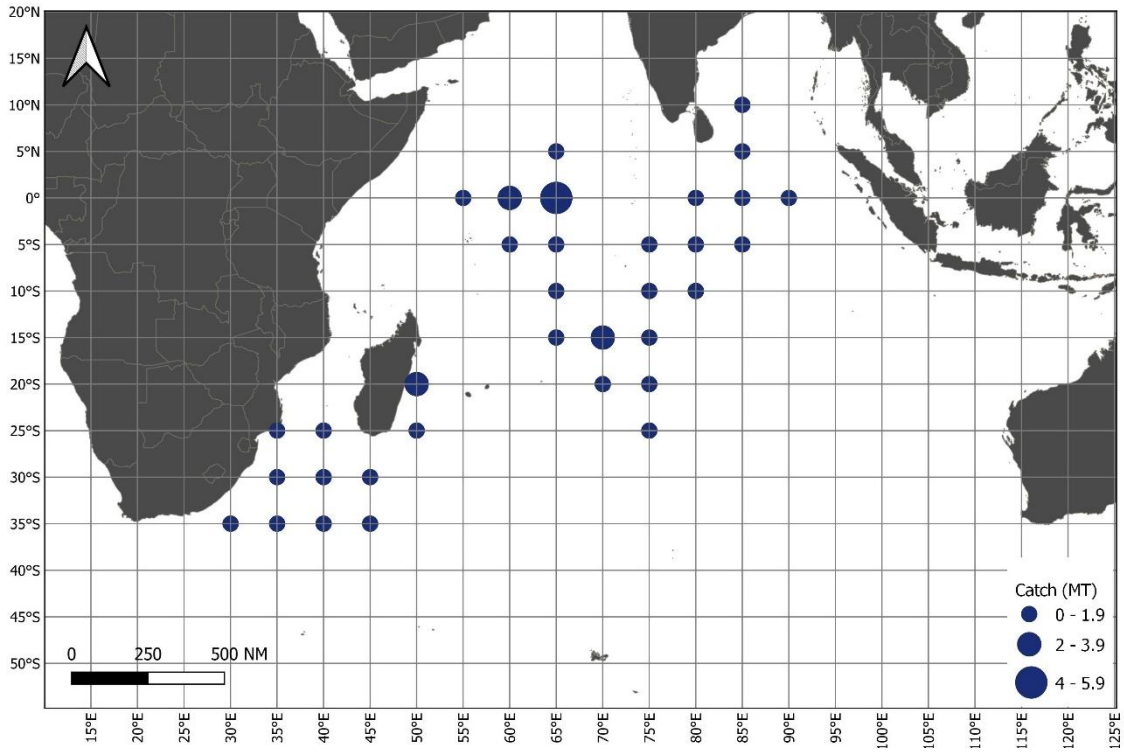
OTHER BONY FISH (MZZ) AVERAGE CATCH DISTRIBUTION 2018-2022



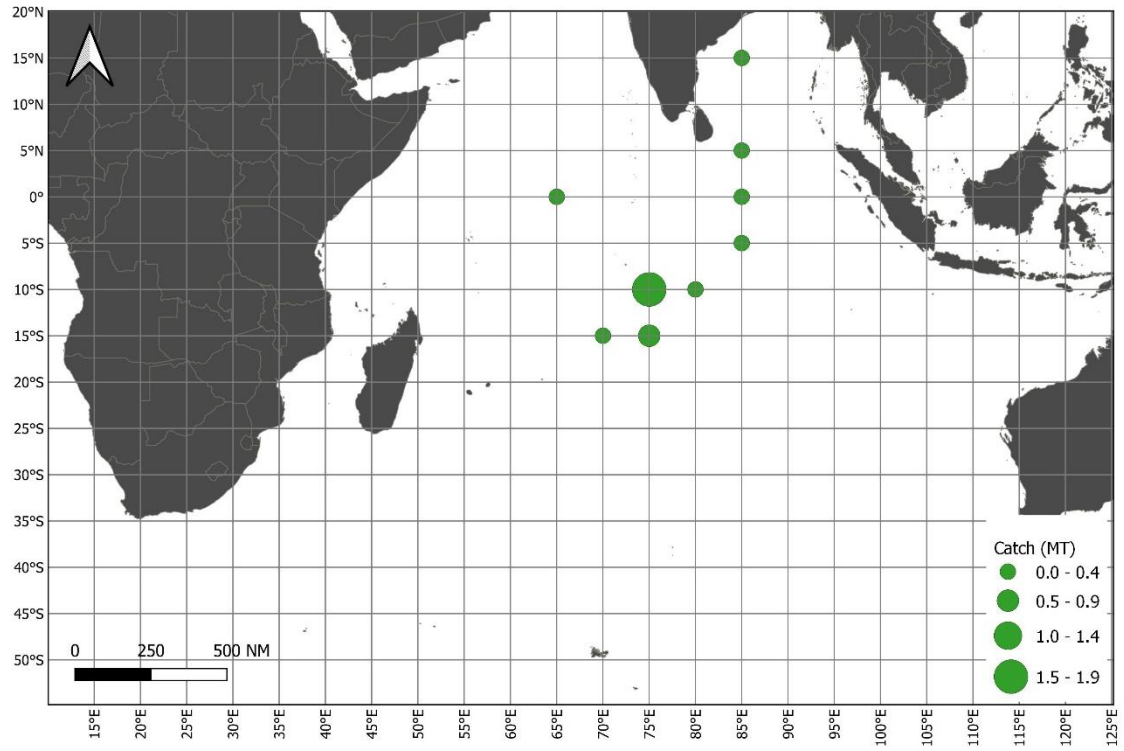
BIGEYE TUNA (BET) AVERAGE CATCH DISTRIBUTION 2018-2022



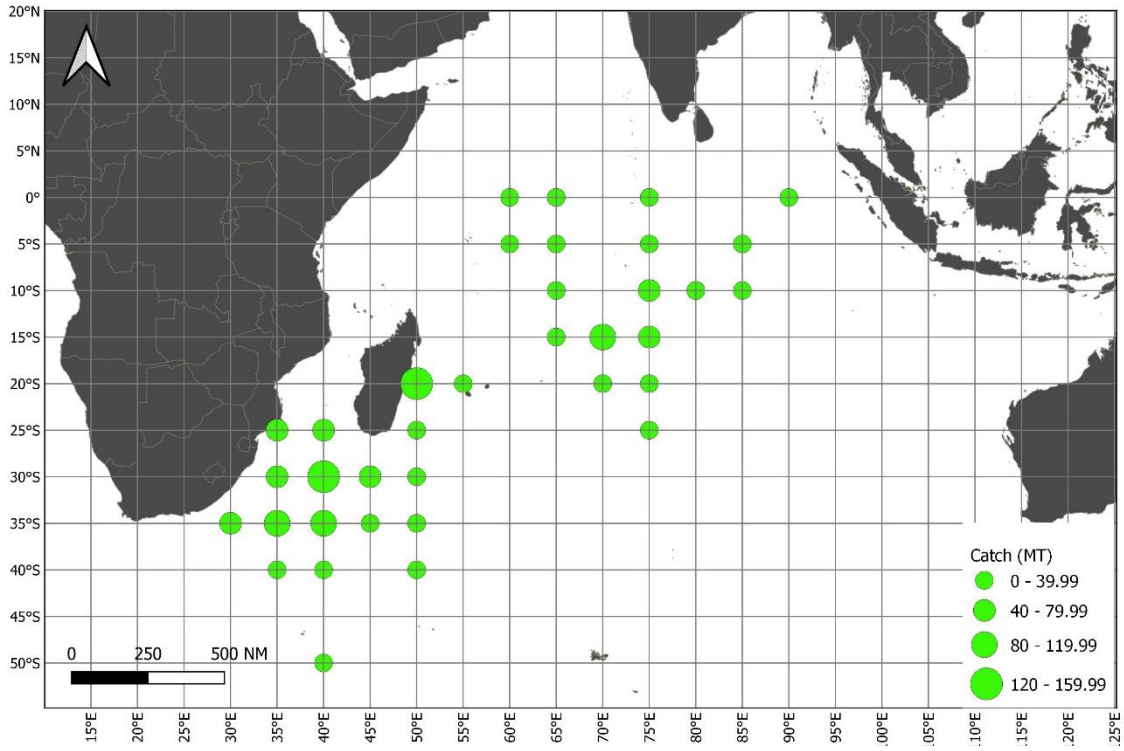
BLACK MARLIN (BLM) AVERAGE CATCH DISTRIBUTION 2018-2022



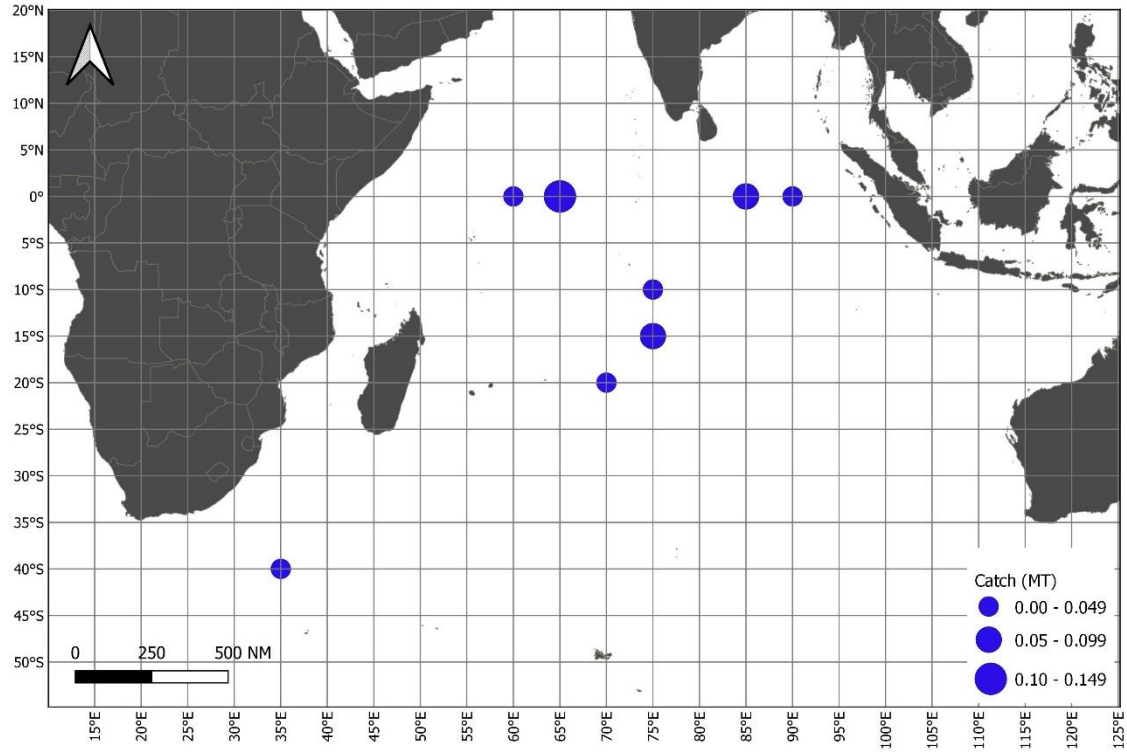
STRIPED MARLIN (MLS) AVERAGE CATC H DISTRIBUTION 2018-2022



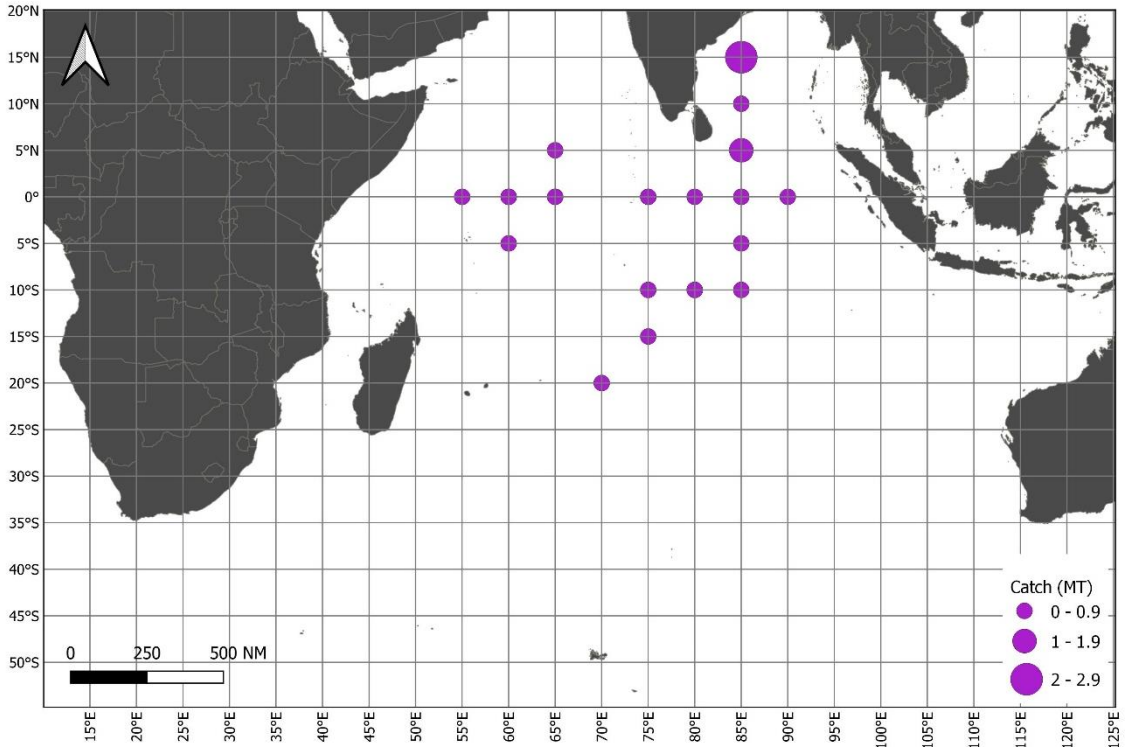
ALBACORE (ALB) AVERAGE CATCH DISTRIBUTION 2018-2022



SKIPJACK (SKJ) AVERAGE CATCH DISTRIBUTION 2018-2022



INDO PACIFIC SAILFISH (SFA) AVERAGE CATCH DISTRIBUTION 2018-2022



4. RECREATIONAL FISHERY

Recreational fishery for tuna and tuna-like species is not a widely fishing games in the Malacca Straits, and they are only occasional and seasonal events. Regulation for recreational fisheries in Malaysia is being drafted and being revised by Legal Advisor. Under this regulation, recreational fishing shall register online via e-Rekreasi Application. 7 species (coral catfish, swordfish, black marlin, striped marlin, indo pacific blue marlin, indo pacific sailfish and humphead wrasse) shall follow catch and release instruction. In recent event, DOF have regulation such as permit for the event, and information on catches should be submitted to the Department of Fisheries which include weight by species.

5. ECOSYSTEM AND BYCATCH ISSUES

Malaysia has taken measures to reduce the impact of fishing activities on marine ecology by promoting and encouraging the use of eco-friendly fishing gears as well as introducing various fishing regulations such as;

- Prohibit commercial fishing gears from fishing below 1 NM (Conservation zone), and 2 NM (Marine Protected Area) from coast line as the areas for aquaculture activities, cockle culture and fisheries communities' activities only.
- Zoning of fishing areas: regulation, at which fishing areas are categorized into 6 fishing zones (Zone A, B, B1, C, C2, C3) in the west coast Peninsular Malaysia, and for each zone only for vessels of certain range GRT and gears are permitted to fish.
- Fisheries Regulations on prohibition of method of fishing, Fisheries Regulations on endangered species, Fisheries Regulations on prohibited areas.
- Implementation on Deep-sea Logbook to report catch operation for deep sea fisheries on fishing operations to help in the management of fisheries resources and stock assessment and pilot project on e-logbook still ongoing.
- To reduce by-catch, especially undersize fish, Juvenile and turtle excluding device (JTED) are promoted to the fishermen.
- Enforcement on mesh size of cod-end for trawl nets of 38mm have been enforced.
- Implementation of NPOA Sharks II, NPOA Turtles, NPOA Dugong

5.1 Sharks

Sharks are not a target species for longliners operating in high seas. In 2022 based on logbook record by the captain, there were shark interactions recorded for releasing alive. During inspection and interview at landing sites the crew had inform that sharks had been trapped during fishing operations but they released the sharks back to sea to reduce the risk of death.

5.1.1. NPOA sharks

Malaysian NPOA-Shark had been adopted and published in 2006. It was based on the guideline set by the FAO international Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks). In 2014, the revised NPOA-Sharks II was officially gazetted and published. The main objective of Malaysian NPOA- Sharks is to ensure the conservation and management of sharks and their long- term sustainable use.

5.1.2. Sharks finning regulation

On legislation, Malaysia as a signatory to Convention on International Trade in Endangered Species of Wild Fauna and Flora in Washington D.C. and on 3rd March 1973, Malaysia introduced a CITES Act 2008 and gazetted it in 2008.

Under the Fisheries (Control of Endangered Species of Fish) Regulation 1999, amendment 2019, all sharks under Appendix I and Appendix II lists the following sharks; Family Cetorhinidae - Basking shark (*Cetorhinus maximus*), Family Lamnidae - Great white shark (*Carcharodon carcharias*), Family Carcharinidae - Oceanic whitetip shark (*Carcharhinus longimanus*), Family Sphyrnidae - Great hammerhead shark (*Sphyrna mokarran*), Smooth hammerhead shark (*Sphyrna zygaena*), Winghead shark (*Eusphyra blochii*), and Family Rhincodontidae - Whale shark (*Rhincodon typus*). As for rays, list of species under Appendix I and Appendix II are as follows; Family Pristidae - Sawfishes (Pristidae spp., 7 species), Family Mobulidae - Reef manta ray (*Manta alfredi*) and Oceanic manta ray (*Manta birostris*).

National Regulation (Licensing Condition) 2014 stated no shark finning is allowed and No Shark Fin Campaign were conducted regularly for public awareness.

5.1.3. Blue shark

As required by the Resolution 18/02 Para 4, Blue sharks catch data are recorded in the logbook under the Bycatch Table. The captain of the vessel will record the bycatch for release alive or discarded dead and send the logbook weekly electronically to DOF. Malaysian Fleet vessel did not target blue sharks and no landing of blue sharks were recorded which are monitored by port inspector at landing port.

In the Terms and Condition of the ATF, no 24. The Master of this vessel is encouraged to release alive all sharks; or shall discard dead or fully utilise their entire catches (blue sharks only) if accidentally caught. Shark finning on board, purchase, offer for sale and sale of shark fins which have been removed onboard, retained onboard, transhipped or landed is prohibited for all Malaysian Tuna Vessel.

Table 3: Total number and weight of sharks, by species, retained by the national fleet in the IOTC area of competence (for the most recent five years at a minimum, e.g. 2018–2022).

Year	SHARKS weight	Numbers
2018	-	-
2019	-	-
2020	-	-
2021	0.33 mt*	-
2022	0.48 mt*	-

*accidental catch of sharks in the Malaysian EEZ waters

YEAR	(BSH)		(MAK)		(POR)		(SPN)		(FAL)		(THR)		(OCS)		Other (SKH)		Seabirds		Marine Mammals (MAM)		Marine turtle (TTX)		Manta (MAN)		Pelagic Stingray (PLS)	
	R	D	R	D	R	D	R	D	R	D	R	D	R	D	R	D	R	D	R	D	R	D	R	D	R	D
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	1054	122	4	0	0	0	0	0	0	0	30	0	0	0	100	60	0	0	0	0	0	0	0	0	0	0
2021	351	31	5	2	5	0	0	0	2	0	106	20	4	0	0	0	0	0	0	0	0	0	3	0	0	0
2022	297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4: Total number of sharks, by species, released/discarded by the national fleet in the IOTC area of competence (for the most recent five years at a minimum, e.g. 2018–2022). Where available, include life status upon released/discard.

5.2 Seabirds

Malaysian longline vessels only started to fish in areas below 25° S in mid of 2012. In 2022, only 6 Malaysian AFV operated south of 25˚S. all 6 vessels have applied 2 types of mitigation measures recommended by the IOTC which are tori lines and fast sinking lines. Nil seabird interaction reported by the Malaysian fishing vessels in the logbook during their fishing operation in the southeast Indian Ocean. However, the fleets owner has been reminded about their responsibility on seabird conservation practice stated in the IOTC resolution. One National Workshop on Seabirds has been conducted in Malaysia on 20th September 2018. To date, Malaysia still does not develop NPOA-Seabird.

In the Terms and Condition of the ATF, no. 18: The Master of this vessel shall ensure the implementation of at least two of three seabird mitigation measures, namely, night setting with minimum deck lighting, bird-scaring lines and line weighting when operating at south of 25°S or in other area, as appropriate, consistent with the scientific advice.

Seabirds mitigation measures	No of Vessels
vessels operated south of 25˚S	6
bird scaring lines	6
line weighting	6
night setting	0

Table 5: Malaysia seabird mitigation measures on tuna longline operating below 25° S

5.3 Marine Turtles

Malaysia is one of the countries that actively involved in the conservation program on turtles. In 2008 the NPOA-Marine Turtle was published and becomes a guideline for the conservation and management of sea turtles. As one of the conservation measures to prevent possible interaction the turtles by the fishing gears especially trawlers, a device known as "Juvenile and Turtle Excluding Device" (JTED) is developed and promoted to the fishermen to use in their trawl nets. The use of circle hook for longline is also been encouraged and promoted to the artisanal fishermen. Several join trails and training were conducted between the government and fishermen for the use of C-hook.

There are a total of 26 Turtle Hatcheries Centres throughout Malaysia and seven (7) turtle conservation and information centres in Malaysia have regularly implementing awareness program for student and fishermen communities. Four (4) centres are located in the west coast of Malaysia; Padang Kemunting (Melaka), Pantai Kerachut (Penang) Port Dickson (N.Sembilan) and Segari (Perak). Main activities of these centres are to protect natural nesting areas of turtles and hatching and release baby turtles back to the sea. Education and awareness programs were conducted for the students and public.

Fisheries Act 1985 section 27 provides legal instrument to protect marine turtle and marine mammals from any type of fishing. However, there is separate legal instrument on state level that cover marine turtles as stated in the Federal Constitution. So far very few interactions were recorded between fishermen and turtles reported by the traditional and commercial fishermen.

In the Terms and Condition of the ATF, no 19. The Master of this vessel is prohibited from using the vessel to target marine turtle, mobulid rays, sharks, and shall ensure that all necessary steps have been taken following the live release handling procedures (prohibition of gaffing of rays, lifting of rays by the gill slits or spiracles, punching of hole through the bodies of rays). And no 20. The Master of this vessel shall ensure that all necessary steps have been taken to guarantee the safe release of unintentionally or accidentally caught of marine turtle, mobulid rays and shark (listed in paragraph (vi) of the IOTC Resolutions) and record and report interactions and incidents including the status of discard and release as required in the Logbook.

From the logbook report and observer transhipment report for vessels operating in the IOTC area of competence, there is nil interaction of marine turtles recorded by the fishing master in 2022. The data collection consists of latitude and longitude started in 2021.

Year	Fishery			Observed (Logbook)				
	Lat* (5x5)	Long	Total effort	Total effort observed	Species	Captures (number)	Mortalities (number)	Live releases (number)
2022	15	085	6500	6500	TTX	0	0	0
2022	00	060	33000	33000	TTX	0	0	0
2022	20	075	6500	6500	TTX	0	0	0

Table 6: Malaysian AFV marine turtles interaction from logbook bycatch release and discard report

5.4 Other ecologically related species (e.g. marine mammals, whale sharks)

Nil interaction reported for 2022 by the Malaysian tuna fishing vessels operated in Indian Ocean. Reported cases in Malaysian Fisheries Waters mostly on marine mammals sighted at sea or stranded by the beach and all reports are handled by Department of Fisheries Malaysia.

Under the Fisheries Regulation on (Control of Endangered Species of Fish) Regulation 1999, 5 group of endangered species listed (30 which are dugong group, whale group, dolphin group, whale shark group and clams group. Whale shark (*Rhincodon typus*) is one out of 30 species listed under Fisheries (Control of Endangered Species of Fish) Regulation 1999.

In the Terms and Condition of the ATF, no 25. The Master of this vessel (purse seiner) shall prohibit their vessels from intentionally setting a fishing gear around a cetacean and whale shark in the IOTC area of competence, if a cetacean or whale shark is unintentionally encircled, the Master of the vessels shall take all reasonable steps to ensure the safe release of the cetacean or whale shark while taking into consideration the safety of the crew; and no 26. Any interactions or sighting with cetaceans, whale shark, marine turtles, and seabirds shall be recorded and reported by the Master of this vessel as required in the National Logbook.

YEAR	Seabirds		Marine Mammals (MAM)		Marine turtle (TTX)	
	R	D	R	D	R	D
2018	0	0	0	0	0	0
2019	0	0	0	0	0	0
2020	0	0	0	0	0	0
2021	0	0	0	0	0	0
2022	0	0	0	0	0	0

Table 7: Observed annual catches of species of special interest by species (seabirds, marine turtles and marine mammals) by tuna longline vessel for the national fleet, in the IOTC area of competence for the previous 5 years 2018–2022.

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

6.1. Logsheet data collection and verification

As the need for conservation of the national marine resources increases, the need for more and better-quality data on how these resources are utilized also increases. One of the most useful types of data is catch per unit effort. To meet these needs, Department of Fisheries Malaysia has started in September 2017 to implemented vessel logbook programs and these programs were initiated for the longline fisheries and in 2022, national logbook is extended to deep-sea fisheries (Zone C2). Malaysia have updated the national logbook to include all the species as requested in Resolution 19/04, and monitor tuna landing and inspection at port by Port Inspector. Fishermen are required to report daily the numbers of each species caught, the numbers of animals retained. release alive or discarded dead (longline gear is non-selective and unwanted or prohibited species such as, marine mammals, sea turtles,

seabirds, must be returned to the water), the location of the set, the types and size of gear, and the duration of the set. DOFM received weekly report from the vessel owner by email for verification.

Malaysia will be implementing the e-logbook by phases to the vessel master. Therefore in 2022 and 2023, road tours and training were done by the Department of Fisheries Malaysia on the introduction of e-logbook.

6.2. Vessel Monitoring System

Department of Fisheries Malaysia has successfully implemented Vessel Monitoring System (VMS) for all deep-sea and tuna fishing vessels. VMS/MTU for deep sea vessel is based on Inmarsat, utilizing Inmarsat C, Mini C and D+/B equipment. Currently, 20 Malaysian tuna longline vessels operating in high seas using Argos and Iridium system for their VMS and monitor on CLS Themis Web. Monitoring and tracking of deep-sea and tuna vessels using National VMS are conducted daily to make sure compliance with the geographical limits contained in their license and to check position data contained in their catch and effort/transhipment reports.

The installation of Mobile Transceiver Units (MTU) is mandatory under vessel licensing regulation since January 2012. Failure to do so, will cause the license of the vessel to be revoked or suspended as provided under the Fisheries Act 1985. To date, all Malaysian longline have the devices installed and active.

In the Terms and Condition of the ATF, no 13. The Owner or Operator of this vessel shall install and maintain a registered National VMS or such other approved MTU and shall ensure that the MTU on board their vessels within the IOTC area of competence are fully operational and active at all times; and no 14. The Masters shall ensure that VMS reports and messages are not tempered and altered in any way, the antennae connected to the satellite monitoring device(s) are not obstructed in any way, the power supply of the satellite monitoring device(s) is not interrupted in any way, the vessel monitoring device(s) are not removed from the vessel, and shall immediately notify any technical failure or non-functioning MTU to DOFM.

6.3. Observer scheme

DOF Malaysia have installed CCTV on 20 fishing vessels as a tool for EMS and as an alternative for observer on board. SOP for monitoring of CCTV has been develop as a guideline for monitoring catch and bycatch.

Until 2022, 14 tuna vessels installed CCTV under the Department of Fisheries Malaysia (DOF) and 6 tuna vessels installed CCTV under the Indian Ocean Longline Tuna FIP (Fishing Improvement Project).

The CCTV monitoring and reporting were done by DOF staff in Penang Fisheries Office for the duration of 3 – 6 months voyage. The hard disc will be taken from the vessels to the office once the vessel coming back to Penang Port, Malaysia for landing purposes and replaced with a new / empty disc for the next voyage.

Although Malaysia has yet to conduct Observer scheme as required by Resolution 11/04, there are 6 fishing vessels involved in a programme for Transhipment by large- scale fishing vessels which indirectly being monitored by observer. Under resolution 22/02, Malaysia longliners transhipped at sea monitor by the IOTC observer under ROP. Malaysia continue the participation in the Regional Observer Program in 2022 for carrier vessel and fishing vessel to monitor transhipment at sea, post Covid 19 Pandemic.

6.4. Port sampling programme

The port sampling program conducted after Malaysia register two designated tuna port in 2016 (Penang Port and Langkawi Port). In 2022, 14 tuna fishing vessels unload their catches at Penang Port. Monitoring of tuna landing and inspection at port by Port Inspector also carried out for Malaysian tuna fishing vessels and foreign tuna fishing vessels unloading in Malaysia designated tuna port.

Sampling for neritic tuna for research purpose have been done monthly (12 month) **since 2015**. Their sampling program covers all landing sites and fishing ports along the west coast of Peninsular Malaysia, only on vessels operating in the Malaysian Fisheries waters. The sampling was taken by researchers and enumerators. The port sampling data at landing site covers 70% of landing and taken by Fisheries officer of DOF Malaysia.

Weight By Species															
No.	Name Of Vessel	Date of Landing	Gears	YFT	BET	ALB	SKJ	SWO	MLS	BUM	BLM	SFA	SPP	OTH	TOTAL (KG)
1	FAJAR 11	13/01/2022	LL	7,046.00	9,036.70	67,976.90	1,397.40	5,899.20	0	1,774.70	1,473.00	1,120.70	0	19,135.40	114,860.00
2	IBU WIRA 2	20/01/2022	LL	95.30	552.70	0	0	51,370.60	305.10	0	2,338.90	440.00	0	2,577.40	57,680.00
3	IBU WIRA 1	14/04/2022	LL	1,511.80	3,160.30	0	0	22,020.00	0	2,890.10	224.70	1,067.00	0	2,006.10	32,880.00
4	IBU WIRA 2	14/04/2022	LL	990.50	3,595.70	0	0	26,740.00	0	2,377.60	0	1,691.20	0	1,105.00	36,500.00
5	FAJAR 1	17/05/2022	LL	16,043.90	4,736.40	12,574	0	1,139.40	0	1,254.00	0	219.30	0	613	36,580.00
6	IBU WIRA3	02/06/2022	LL	30,021.00	117.00	381.00	281.00	30,922.00	1,808.00	0	4,542.00	1,381.00	0	3,347.00	72,800.00
7	FAJAR 2	14/07/2022	LL	27,533.40	6,557.80	12,391.90	282.30	1,490.10	0	0	512.40	255.20	0	5,376.90	54,400.00
8	FAJAR 8	21/07/2022	LL	27,449.30	6,218.50	20,960.00	81.30	1,999.70	802.10	0	966.80	562.70	0	8,019.60	67,060.00
9	FAJAR 13	22/07/2022	LL	26,230.20	7,231.30	15,386.60	103.60	1,338.70	852.8	0	901.90	131.80	0	5,843.10	58,020.00
10	FAJAR 3	03/08/2022	LL	34,906.90	12,558.80	18,720.00	204.20	1,642.90	0	0	789.20	393.40	0	9,824.60	79,040.00
11	FAJAR 11	29/08/2022	LL	36,778.40	15,687.20	6,645.70	1,457.80	3,968.00	0	317.60	3,456.00	140.10	0	15,069.20	83,520.00
12	IBU WIRA 7	10/11/2022 & 01/12/2022	LL	24,736.00	8,277.00	567.00	1,209.60	7,619.70	0	950.00	5,903.00	84.00	0	4,773.70	57,800.00
13	IBU WIRA 1	01/12/2022	LL	1,017.00	193.00	0.00	3,310.00	0	0	0	0	0	0	0	4,520.00
14	IBU WIRA 2	01/12/2022	LL	1,005.00	355.00	0	0	0	0	0	0	0	0	0	1,360.00
															757,020.00

Table 8: Number of vessels landing and vessels active monitored, by species and gear

				Number by Species											
No.	Name Of Vessel	Date of Landing	Gears	YFT	BET	ALB	SKJ	SWO	MLS	BUM	BLM	SFA	SPP	OTH	TOTAL (NO)
1	FAJAR 11	13/01/2022	LL	7	9	68	13	5	0	2	2	1	0	19	126
2	IBU WIRA 2	20/01/2022	LL	1	1	0	0	50	2	0	2	1	0	3	60
3	IBU WIRA 1	14/04/2022	LL	2	3	0	0	22	0	3	1	1	0	3	35
4	IBU WIRA 2	14/04/2022	LL	1	4	0	0	27	0	2	0	2	0	2	38
5	FAJAR 1	17/05/2022	LL	16	5	13	0	2	0	1	0	1	0	3	41
6	IBU WIRA3	02/06/2022	LL	30	1	1	1	3	2	0	4	1	0	3	46
7	FAJAR 2	14/07/2022	LL	27	7	12	1	2	0	0	1	1	0	5	56
8	FAJAR 8	21/07/2022	LL	27	6	20	1	2	2	0	1	1	0	8	68
9	FAJAR 13	22/07/2022	LL	26	7	15	1	1	2	0	1	1	0	6	60
10	FAJAR 3	03/08/2022	LL	34	13	19	1	2	0	0	1	1	0	10	81
11	FAJAR 11	29/08/2022	LL	37	16	7	2	4	0	1	4	1	0	15	87
12	IBU WIRA 7	10/11/2022 & 01/12/2022	LL	24	8	1	1	7	0	1	6	1	0	5	54
13	IBU WIRA 1	01/12/2022	LL	1	1	0	3	0	0	0	0	0	0	0	5
14	IBU WIRA 2	01/12/2022	LL	1	1	0	0	0	0	0	0	0	0	0	2
														Total	759

Table 9: Number of individuals measured, by species and gear

6.5. Unloading/Transhipment of flag vessels

Under resolution 22/02, 6 Malaysian longliners were allowed to do transhipment at sea on the Malaysian Carrier Vessel and monitored by the IOTC observer under ROP since June 2012. Malaysia continue participating in the Regional Observer Program after the pandemic in 2022. The total of transhipment done by the Malaysian LSTLV in 2022 were 59 transhipments with Kha Yang 333 carrier. Data of weight by species and location of transhipment were submitted to the IOTC Secretariat for all transhipment. All transhipment was done in the South WIO and the carrier vessels enter Port Louis, Mauritius for unloading.

14 other Malaysian longliners were not involved in the transhipment activities and unloading their catches at Penang Port, Malaysia every month and monitored by the Port Inspectors**.**

Weight By Species															
No.	Name Of Vessel	Date of Landing	Gears	YFT	BET	ALB	SKJ	SWO	MLS	BUM	BLM	SFA	SPP	OTH	TOTAL (KG)
1	FAJAR 11	13/01/2022	LL	7,046.00	9,036.70	67,976.90	1,397.40	5,899.20	0	1,774.70	1,473.00	1,120.70	0	19,135.40	114,860.00
2	IBU WIRA 2	20/01/2022	LL	95.30	552.70	0	0	51,370.60	305.10	0	2,338.90	440.00	0	2,577.40	57,680.00
3	IBU WIRA 1	14/04/2022	LL	1,511.80	3,160.30	0	0	22,020.00	0	2,890.10	224.70	1,067.00	0	2,006.10	32,880.00
4	IBU WIRA 2	14/04/2022	LL	990.50	3,595.70	0	0	26,740.00	0	2,377.60	0	1,691.20	0	1,105.00	36,500.00
5	FAJAR 1	17/05/2022	LL	16,043.90	4,736.40	12,574	0	1,139.40	0	1,254.00	0	219.30	0	613	36,580.00
6	IBU WIRA3	02/06/2022	LL	30,021.00	117.00	381.00	281.00	30,922.00	1,808.00	0	4,542.00	1,381.00	0	3,347.00	72,800.00
7	FAJAR 2	14/07/2022	LL	27,533.40	6,557.80	12,391.90	282.30	1,490.10	0	0	512.40	255.20	0	5,376.90	54,400.00
8	FAJAR 8	21/07/2022	LL	27,449.30	6,218.50	20,960.00	81.30	1,999.70	802.10	0	966.80	562.70	0	8,019.60	67,060.00
9	FAJAR 13	22/07/2022	LL	26,230.20	7,231.30	15,386.60	103.60	1,338.70	852.8	0	901.90	131.80	0	5,843.10	58,020.00
10	FAJAR 3	03/08/2022	LL	34,906.90	12,558.80	18,720.00	204.20	1,642.90	0	0	789.20	393.40	0	9,824.60	79,040.00
11	FAJAR 11	29/08/2022	LL	36,778.40	15,687.20	6,645.70	1,457.80	3,968.00	0	317.60	3,456.00	140.10	0	15,069.20	83,520.00
12	IBU WIRA 7	10/11/2022 & 01/12/2022	LL	24,736.00	8,277.00	567.00	1,209.60	7,619.70	0	950.00	5,903.00	84.00	0	4,773.70	57,800.00
13	IBU WIRA 1	01/12/2022	LL	1,017.00	193.00	0.00	3,310.00	0	0	0	0	0	0	0	4,520.00
14	IBU WIRA 2	01/12/2022	LL	1,005.00	355.00	0	0	0	0	0	0	0	0	0	1,360.00
															757,020.00

Table 10: Quantities by species and gear landed in ports located in the IOTC area of competence (Penang Port, Malaysia)

Name of Large Scale Tuna Vessel	Start date of transhipment	ALB	BET	BLM	CCL*	BUM	BSH*	SFA	MAK	OIL	SKH*	MLS	SWO	WAH	YFT	TOTAL
Kha Yang 333	07/01/2022	0	60306	84	0	1095	98	0	0	210	0	350	1490	0	50425	114058
Kha Yang 333	28/02/2022	146291	4872	6600	0	500	635	0	91	375	0	0	13493	0	17171	190028
KHA YANG 1	28/02/2022	3970	1450	0	0	0	0	0	0	800	0	0	365	0	2180	8765
KHA YANG 3	28/02/2022	2960	1920	0	0	789	0	0	0	1484	0	0	87	0	2960	10200
KHA YANG 7	28/02/2022	3600	320	0	0	520	0	0	0	500	0	0	200	0	800	5940
KHA YANG 5	28/02/2022	4095	2150	0	0	0	0	0	0	1250	0	0	380	0	4018	11893
KHA YANG 9	28/02/2022	3900	900	90	0	645	0	0	0	1100	0	0	350	0	4000	10985
KHA YANG 35	28/02/2022	4630	1030	270	0	735	0	150	0	340	0	0	120	405	3170	10850
Kha Yang 333	17/05/2022	663110	0	0	0	0	0	0	0	0	0	0	0	0	0	663110
Kha Yang 333	26/06/2022	494094	21902	1640	53	610	0	0	1226	24310	6146	0	25331	0	65002	640314
Kha Yang 333	29/07/2022	540500	16819	695	0	0	1984	0	618	17855	0	0	7555	0	36844	622870
Kha Yang 333	10/09/2022	439957	26092	410	0	135	0	0	1123	58815	3950	0	20732	0	60408	611622
Kha Yang 333	07/11/2022	68525	6842	675	0	760	0	0	594	5749	10204	0	13800	0	62276	169425
Kha Yang 333	10/12/2022	671033	0	0	0	0	0	0	0	0	0	0	0	0	0	671033
															TOTAL	**3741093**

Table 11: Quantities by species and gear transhipped in ports located in the IOTC area of competence (Port Louis, Mauritius)

*Sharks data transhipments were from Taiwan LSTLV with Kha Yang 333 carrier vessel

6.6. Actions taken to monitor catches & manage fisheries for Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish

In the Terms and Condition of the ATF, No 23. The Master of this vessel shall not retain on board, trans-ship, land, any specimen smaller than 60 cm Lower Jaw Fork Length (LJFL) of any of the following species; Striped Marlin, Black Marlin, Blue Marlin and Indo Pacific Sailfish and shall ensure that all necessary steps have been taken to guarantee the safe release of unintentionally or accidentally caught.

DOF Malaysia includes report of Size Frequency (SF) in the logbook for all tuna and tuna like Species. From the logbook SF 2022 record, the average length (LJFL) are between 100 cm – 250 cm.

Table 12: Length (LJFL) by species recorded from report of size frequency

Species	Lower LJFL (cm)	Higher LJFL (cm)
Striped Marlin (MLS)	120	170
	154	251
Black Marlin (BLM)	93	247
	120	271
Blue Marlin (BUM)	122	250
	153	248
Indo Pacific Sailfish (SFA)	81	211
	65	280

6.7. Gillnet observer coverage and monitoring

In the Terms and Condition of the ATF, No 8. The use of large-scale driftnets on the high seas within the IOTC area of competence shall be prohibited.

For small gillnet / driftnet vessel, 50% of field sampling are collected for data analysis.

6.8 Sampling plans for mobulid rays

Mobulid Rays are protected under CITES Act 2008 and Fisheries (Control of Endangered Species of Fish) (Amendment) Regulations 2019.

In the Terms and Condition of the ATF, no 19. The Master of this vessel is prohibited from using the vessel to target marine turtle, mobulid rays, sharks, and shall ensure that all necessary steps have been taken following the live release handling procedures (prohibition of gaffing of rays, lifting of rays by the gill slits or spiracles, punching of hole through the bodies of rays); And no 20. The Master of this vessel shall ensure that all necessary steps have been taken to guarantee the safe release of unintentionally or accidentally caught of marine turtle, mobulid rays and shark (listed in paragraph (vi) of the IOTC Resolutions) and record and report interactions and incidents including the status of discard and release as required in the Logbook.

To date, no national research has been conducted on mobulid rays. No Mobulid rays found in the Malacca Straits.

7. NATIONAL RESEARCH PROGRAMS

From 2015 – 2022, research has been carried out on tuna and tuna-like species in the IOTC area of competent for neritic tuna and scombridae sp. by the Fisheries Research Institute, Kampong Acheh, Perak.

The other study on oceanic tuna involved in area of South China Sea and Sulu Sulawesi Sea.

For additional, the size frequency of oceanic tuna was provided by the fishing vessels in the logbook and some of the oceanic tuna were measured at the landing site by the Port Inspector.

7.1. National research programs on blue shark

No specific national research programs on blue sharks.

7.2. National research programs on Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish

No national research programs on Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish.

7.3. National research programs on sharks

Research collaboration with SEAFDEC to undertake the management issues on sharks in Malaysia. List of research programs that have been conducted are:

- Landing data collection by species at major landing fish sites
- Identification species through DNA barcoding
- Trainings and workshops on taxonomy, biology and data collection of sharks and rays
- Marketing and trade surveys
- Nursery ground of sharks and rays
- Survey and biological study on freshwater stingrays

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7.4. National research programs on oceanic whitetip sharks

No specific national research programs on oceanic whitetip sharks.

7.5. National research programs on marine turtles

As one of the conservation measures to prevent possible interaction the turtles by the fishing gears especially trawlers, a device known as "Juvenile and Turtle Excluding Device" (JTED) is developed and promoted to the fishermen to use in their trawl nets. The use of

circle hook for longline is also been encouraged and promoted to the artisanal fishermen. Several join trails and training were conducted between the government and fishermen for the use of C-hook.

There are a total of 26 Turtle Hatcheries Centres throughout Malaysia and seven (7) turtle conservation and information centres in Malaysia have regularly implementing awareness program for student and fishermen communities.

7.6. National research programs on thresher sharks

No specific national research programs on thresher sharks.

Project title	Period	Countries involved	Budget total*	Funding source	Objectives	Short description
Landing and biology of longtail, kawakawa and Scombridae sp. in the northwest of peninsular Malaysia	2015-2022	Malaysia	RM 1,300,000	National R&D Fund.	Landing trend by Species and spawning season of kawakawa and Scombridae sp.	On going
Landing of Oceanic Tuna in West Malaysia	2015 - 2022	Malaysia	RM 1,300,000	National R&D Fund.	Landing trend by Species of oceanic tuna	On going

*(1 USD = RM 4.60)

Table 13: Summary table of national research programs

8. Implementation of Scientific Committee Recommendations and Resolutions of the IOTC relevant to the SC.

Table 14: Scientific requirements contained in Resolutions of the Commission, adopted between 2012 and 2021.

Res. No.	Resolution	Scientific requirement	CPC progress
~~11/04~~	~~On a regional observer scheme~~	~~Paragraph 9~~	
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	Sea turtle is protected under section 27, Fisheries Act 1985 and Malaysia has published the National Plan of Action (NPOA) for Conservation and Management of Sea Turtles (2008-2012). The NPOA is currently being reviewed for further improvement. Malaysia has sets requirement in the license and ATF terms and condition for all fishing vessels to carry line cutters and de hookers on board. Release and discard table also included in the updated logbook for recording any interaction with the species.
12/06	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	Malaysia requires all vessels operating in the area south of 25°S to take mitigation measures as required under Malaysia ATF terms and condition. All Malaysian flag fishing vessels using weighted branch lines and tori lines as the mitigation measures on seabirds when operating in areas south of 25 °S.
12/09	On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence	Paragraphs 4–8	Any interaction of shark species includes Families Alophiidae to be recorded by the tuna longline operators. Fishing, storing or retaining on board, transhipping or landing in whole or in part, any of the following sharks shall be prohibited: species of the family Alopiidae; and Oceanic whitetip shark. Release and discard table also included in the updated logbook for recording any interaction with the species.
13/04	On the conservation of cetaceans	Paragraphs 7– 9	Under Malaysian Fisheries Act 1985, Fisheries Regulation on (Control of Endangered Species of Fish)

Res. No.	Resolution	Scientific requirement	CPC progress
			Regulation 1999, cetacean under dolphin group were protected. Release and discard table also included in the updated logbook for recording any interaction with the species.
13/05	On the conservation of whale sharks (*Rhincodon typus*)	Paragraphs 7– 9	Under Malaysian Fisheries Act 1985, Fisheries Regulation on (Control of Endangered Species of Fish) Regulation 1999, whale shark (Rhincodon typus) were protected and listed in Malaysia CITES Act 2008. Release and discard table also included in the updated logbook for recording any interaction with the species.
13/06	On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries	Paragraph 5–6	Each Malaysian tuna longline vessels fishing in the Indian Ocean have been provided with booklet on shark species identification for them to records any interaction and to report to the fisheries authority. Sharks and rays listed in CITES also listed in the Malaysia CITES Act 2008. Release and discard table also included in the updated logbook for recording any interaction with the species.
15/01	On the recording of catch and effort by fishing vessels in the IOTC area of competence	Paragraphs 1–10	Malaysia have updated the national logbook to include all the species as requested in Resolution 15/01 and submitted to the Secretariat in 2017 and in 2019 for purse seine. The updated logbook includes mandatory to provide size frequency and interaction with protected species. For deep sea vessels (Zone C2) operating within the EEZ, reporting catch data using manual logbook is mandatory starting 2022, and data collection by researcher enumerator.
15/02	Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)	Paragraphs 1–7	Malaysia has started compiling data on size frequency for coastal fisheries from year 2017 – 2022. Malaysia had submitted the catch and effort data to the Secretariat as

Res. No.	Resolution	Scientific requirement	CPC progress
			required under data to the secretariat as required under resolution 15/02. The size frequency of oceanic tuna and billfish were provided by the fishing vessels in the logbook and also measured at the landing site by the Port Inspector.
17/05	On the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 6, 9, 11	Interaction on shark species by Malaysian tuna longliners were recorded in bycatch logsheet for release/discard. For shark species caught by within EEZ waters, the majority are from demersal species which are not listed under endangered species. The Master vessel shall ensure that all necessary steps have been taken to guarantee the safe release of shark that is unintentionally caught and report all incidents of the shark releases, including the status at time of release.
18/02	On management measures for the conservation of blue shark caught in association with IOTC fisheries	Paragraphs 2-5	National logbook includes reporting on blue shark, released/discarded and size frequency. No specific national research programs on blue sharks.
18/05	On management measures for the conservation of the Billfishes: Striped marlin, black marlin, blue marlin and Indo-Pacific sailfish	Paragraphs 7 – 11	National logbook includes reporting on blue shark, released/discarded and size frequency. No specific national research programs on blue sharks.
18/07	On measures applicable in case of non-fulfilment of reporting obligations in the IOTC	Paragraphs 1, 4	National logbook includes reporting on shark species, released/discarded and size frequency. Malaysia sent full set of data reporting in 2022 including data on zero catches.
19/01	On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence	Paragraph 22	Malaysian tuna longliners catches below 2000 mt (338.7 mt) of yellowfin tuna in the IOTC area of competence and recorded the catch data in the national logbook.
19/03	On the Conservation of Mobulid Rays Caught in Association with Fisheries in the IOTC Area of Competence	Paragraph 11	Mobulid Rays are protected under section 27 Fisheries Act 1985 and Fisheries (Control of Endangered Species of Fish) (Amendment) Regulations 2019. To date, no

Res. No.	Resolution	Scientific requirement	CPC progress
			national research has been conducted on mobulid rays.
21/01	On an interim plan for rebuilding the Indian Ocean Yellowfin tuna stock in the IOTC area of competence (if not provided under Resolution 19/01 above)	Paragraph 23	Malaysian AFV catches below 2000 mt (338.7 mt) of yellowfin tuna in the IOTC area of competence and recorded the catch data in the national logbook.
22/04	On a Regional Observer Scheme	Paragraph 12	DOF Malaysia have installed CCTV on every vessel as a tool for EMS as an alternative for observer on board.

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