



Malaysia National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2024

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INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

<p>In accordance with IOTC Resolution 15/02 (and other data related CMMs as noted below), final scientific data for the previous year were 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 2024, final data for the 2023 calendar year must be provided to the Secretariat by 30 June 2024)</p>	<p>YES 30/06/2024</p>
<p>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 2024, preliminary data for the 2023 calendar year were provided to the IOTC Secretariat by 30 June 2024).</p> <p>REMINDER: Final longline data for the previous year are due to the IOTC Secretariat by 30 Dec of the current year [e.g., for a National Report submitted to the IOTC Secretariat in 2024, final data for the 2023 calendar year must be provided to the Secretariat by 30 December 2024).</p>	<p>YES 30/06/2024 Revised report sent on 30/12/2024</p>
<p>If no, please indicate the reason(s) and intended actions:</p>	



Executive Summary

Total catch of marine fish from Malaysian waters in 2023 were 1.270 million mt, a slight decreased 2.9% compared to 1.308 million in 2022. The total landing in 2023 were attributed to the catch from 49,173 registered vessels with trawlers, purse seines, drift nets contributed large percentage of the catches. In 2023, marine fish production from the west coast of Peninsular Malaysia (Malacca Straits) contributed 670,137 mt (52.8%) out of the total catch.

Tuna fisheries contributes 69,924 mt (5.5%) of Malaysia's marine fish landings in 2023. 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 2023, neritic tuna landings in west coast Peninsular Malaysia amounted to 12,513 mt; increasing by 37% compared to 12,336 mt in 2022. Meanwhile landings of neritic tuna in the whole Malaysia ranged from 56,736 mt to 74,489 mt (2016-2023) where 55,233 mt neritic tuna catch recorded in 2023. The highest catch was recorded in 2017 with 74,489 mt. Landings of neritic tuna in Malaysia appear to have stabilized from 2016 to 2023.

The catch of oceanic tuna from the Indian Ocean increased 39.5% from 1,701.20 mt in 2022 to 2,816.02 mt in 2023. Albacore landings increased from 1,258.50 mt in 2022 to 1,970.65 mt in 2023. Albacore tuna formed nearly 70% of the total catches in the form of whole frozen tuna meanwhile, Yellowfin contributed 25% and Bigeye 5% 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.



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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 99% of neritic tuna and the rest by traditional gears such as, hook and lines and gill nets. The traditional gears however caught more tuna-like species (Scombridae) 55% then trawls and purse-seine. 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 2012-2023, Malaysia continue to develop their tuna fleets. Malaysia open two designated tuna port in February 2016 (Penang Port & Langkawi Port). A total of 16 vessel have been licensed as authorized fishing vessel (AFV) by the Department of Fisheries Malaysia to operates in Indian Ocean. A company based in Penang operates 4 tuna vessels in the East Indian Ocean targeting yellowfin tuna. A fleet of 12 tuna longline vessels and 1 carrier vessel from a fishing company operates in the West Indian Ocean targeting albacore tuna and they unload the catches at the Port Louis, Mauritius. DOF Malaysia are committed on managing the fleet and complying withthe conservation and management measures (CMM), but due to the recent revised compliance assessment criteria, Malaysia manage to get 49.3% on compliance level in 2023.

2. FLEET STRUCTURE

12 from 16 tuna longline vessels are operating in Southwest Indian Ocean (WIO) and another 4 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 12 longline vessels fishing in the area. Under Resolution 23/05, Malaysia longliners transshipment at sea monitor by the IOTC observer under ROP.

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)
2023	-	16	16	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 2a. Annual catch and effort by gear and primary species in the IOTC area of competence (High Seas).

Year	ALB	YFT	BET	MARL	SWO	SFA	SKJ	SHK	MISC
2013	107.5	107.5	32.3	31.5	22.3	0.0	0.0	0.0	100.9
2014	713.9	77.3	60.1	25.4	93.1	0.0	0.0	0.0	76.3
2015	1049.1	161.7	60.0	24.6	116.7	0.0	0.0	0.0	126.7
2016	1330.6	155.9	124.0	33.5	41.6	0.0	0.0	4.7	107.2
2017	1607.2	383.6	172.5	0.0	82.3	1.7	16.2	0.0	281.9
2018	1792.5	446.3	228.6	0.0	112.2	20.7	13.5	0.0	247.9
2019	1618.0	419.6	235.3	72.1	169.7	16.1	14.8	6.1	242.9
2020	1821.4	374.4	250.9	106.2	148.7	9.3	7.4	0.0	286.6
2021	1277.1	390.8	302.5	75.4	240.7	9.1	0.8	0.0	226.3
2022	1258.5	338.7	102.8	45.2	123.7	4.6	1.2	0.5	161.6
2023	1,970.65	716.01	128.61	42.02	135.59	10.91	0.76	0.0	183.15

Table 2b. Annual catch and effort by gear and primary species in the IOTC area of competence (Malaysia EEZ).

LOT	KAW	FRI	BLT	SKJ	COM	GUT
5180.58	6657.26	675.64	0.13	3.83	4707.36	828.77

Figure 1a. Historical annual catch for the Malaysian tuna fleet, using longline and primary species, for the IOTC area of competence (High Seas) from 2013 – 2023

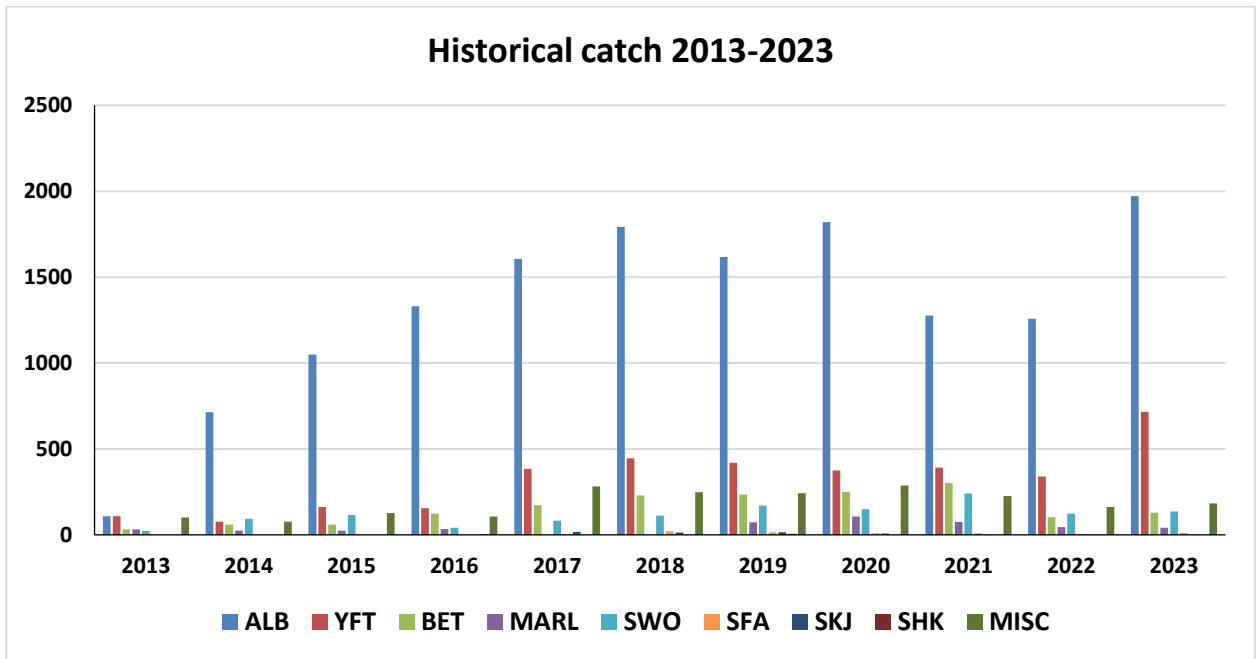


Figure 1b. Historical annual catch for the Malaysian tuna fleet, using purse-seine and trawls and primary species, for the IOTC area of competence (Malaysia EEZ) from 2013 – 2023

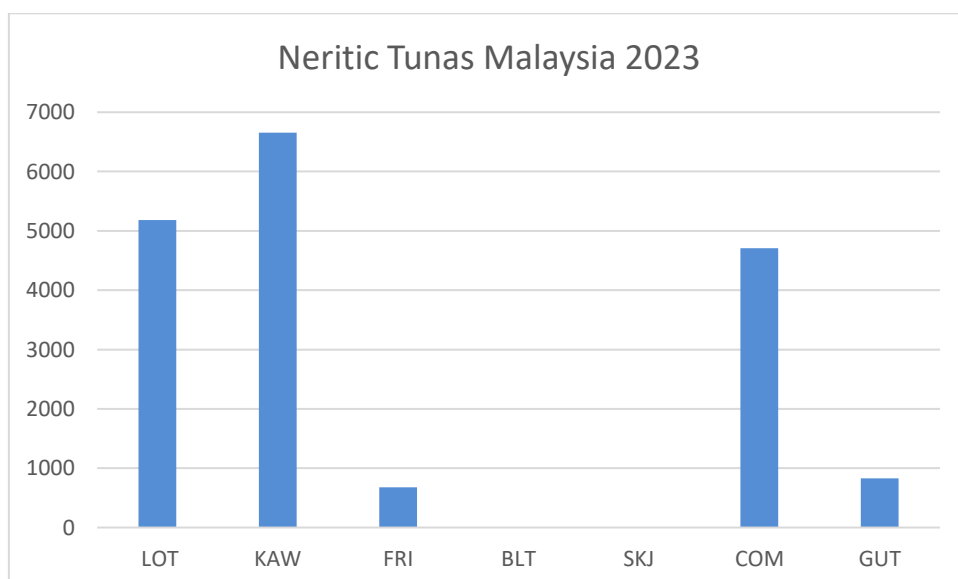


Figure 2a(i). Map of the distribution of 2023 fishing effort by LONGLINE (DL.DF[IN]MS) for the national fleet in the IOTC area of competence for the year 2023.

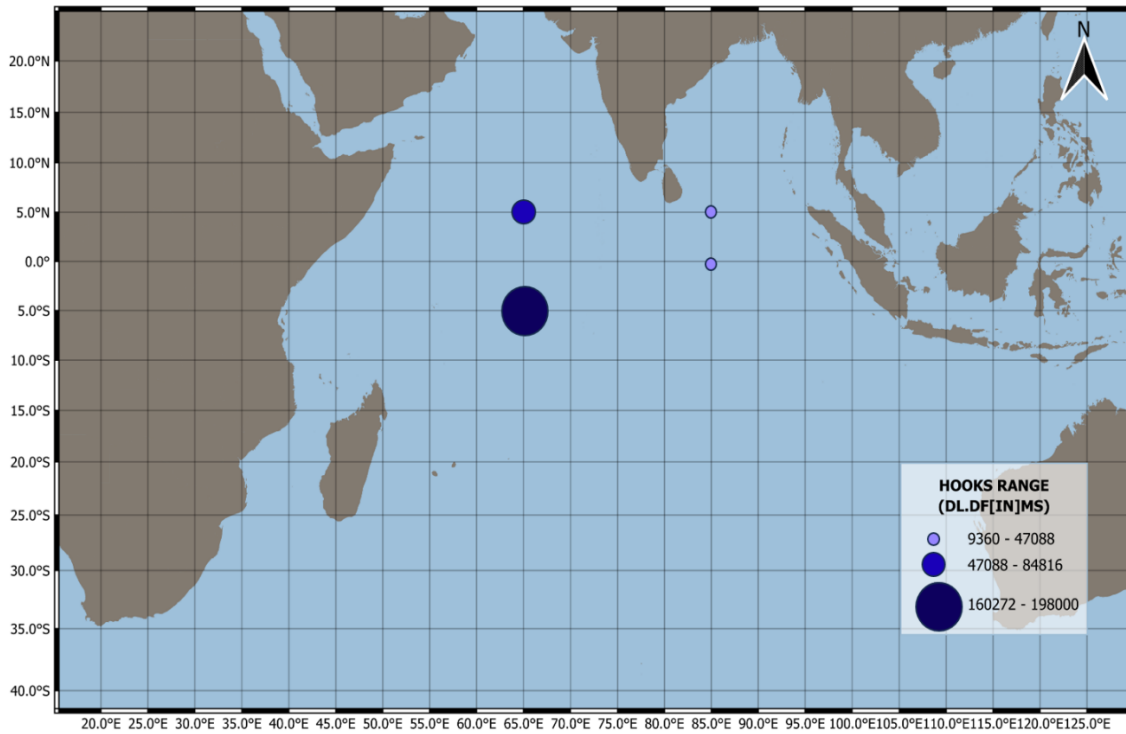


Figure 2a(ii). Map of the distribution of 2023 fishing effort by LONGLINE (DL.DF[IN]SW) for the national fleet in the IOTC area of competence for the year 2023

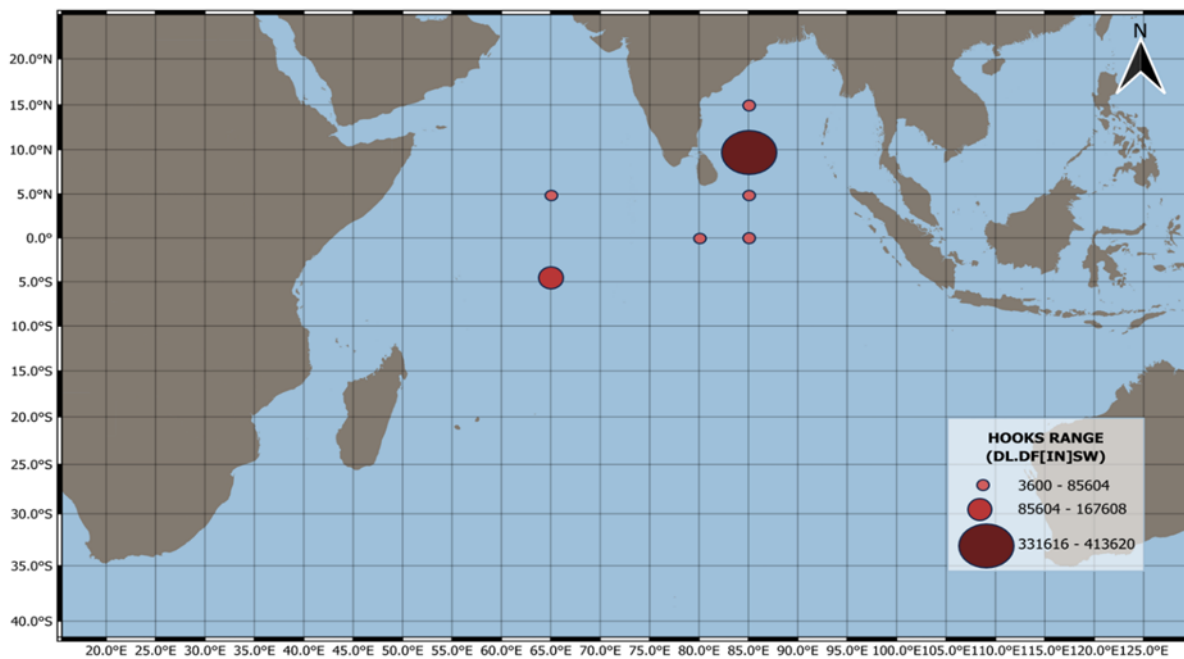


Figure 2a(iii). Map of the distribution of 2023 fishing effort by LONGLINE (DL.DF[IN]TM) for the national fleet in the IOTC area of competence for the year 2023

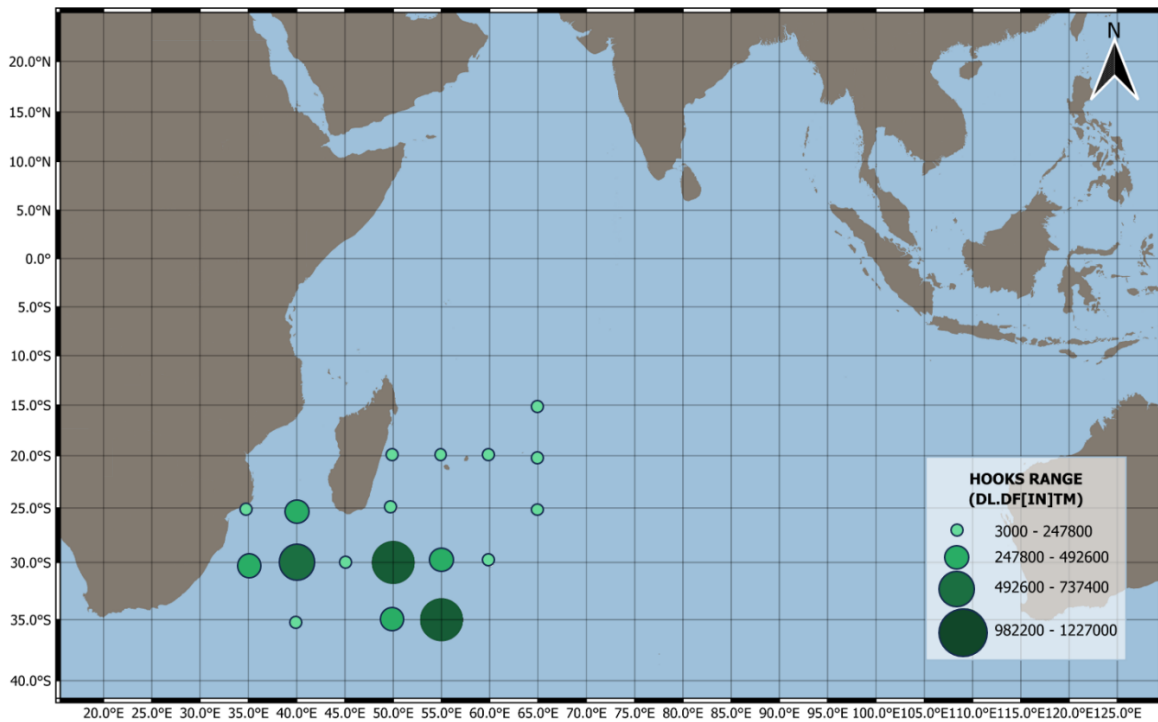


Figure 2a(iv). Map of the distribution of 2023 fishing effort by LONGLINE (DL.DF[IN]TR) for the national fleet in the IOTC area of competence for the year 2023

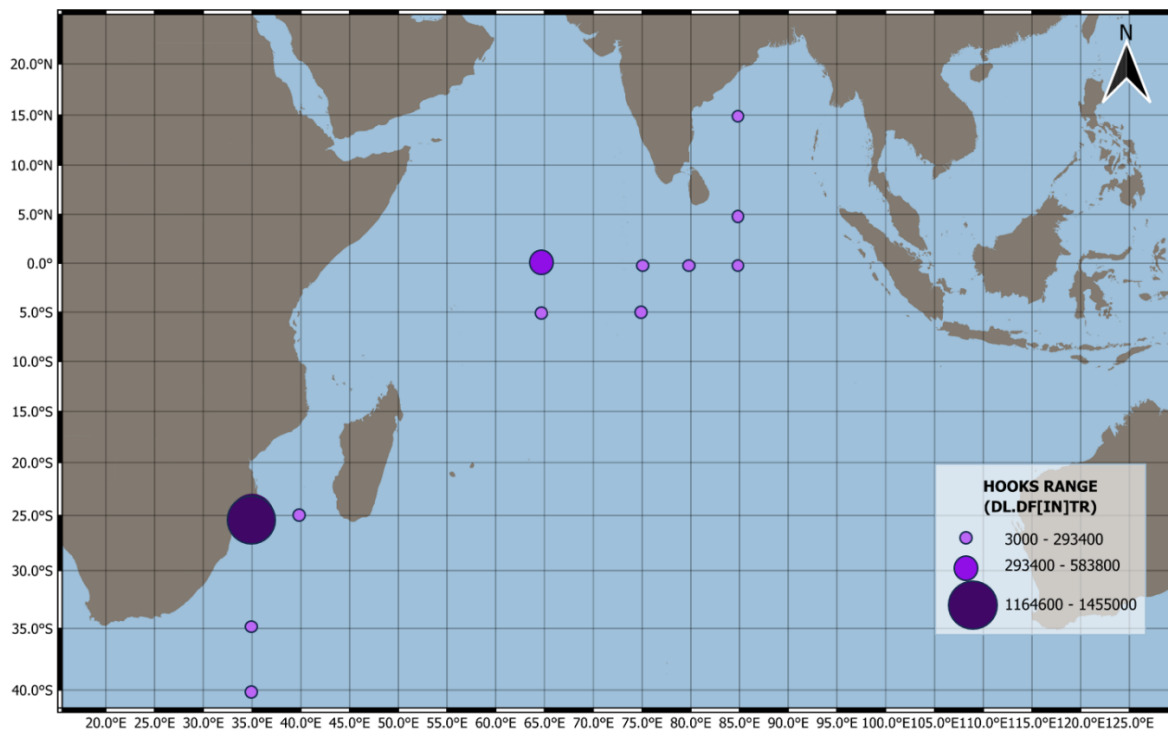


Figure 2b(i). Map of the distribution fishing effort by LONGLINE (DL.DF[IN]MS) for the national fleet in the IOTC area of competence from year average of 5 previous years 2019–2023.

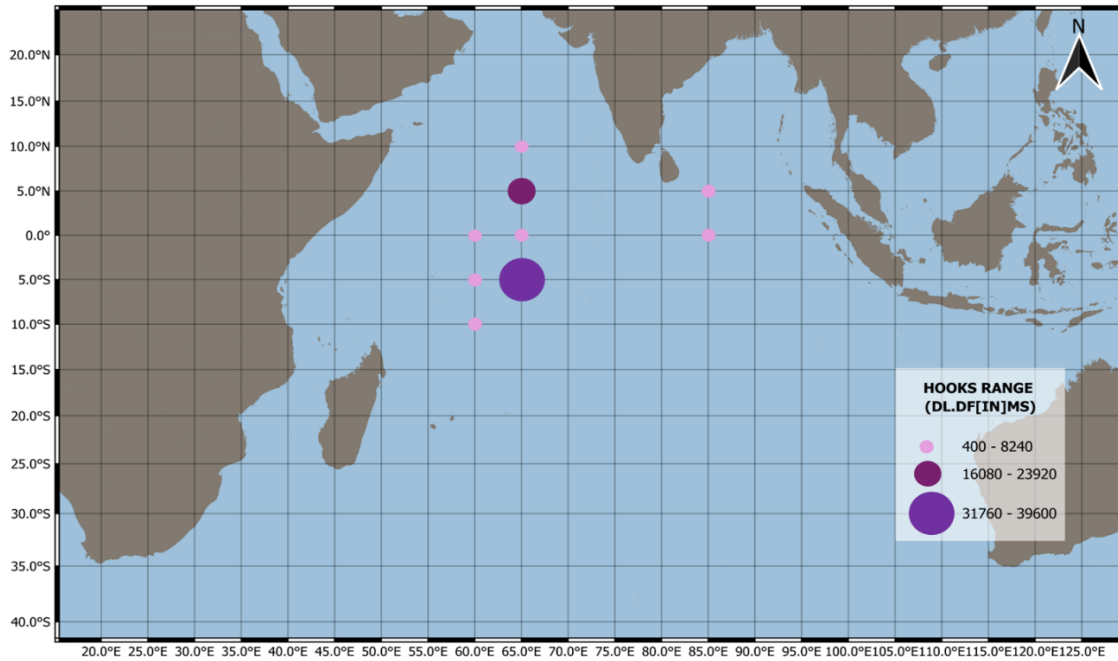


Figure 2b(ii). Map of the distribution fishing effort by LONGLINE (DL.DF[IN]SW) for the national fleet in the IOTC area of competence from year average of 5 previous years 2019–2023.

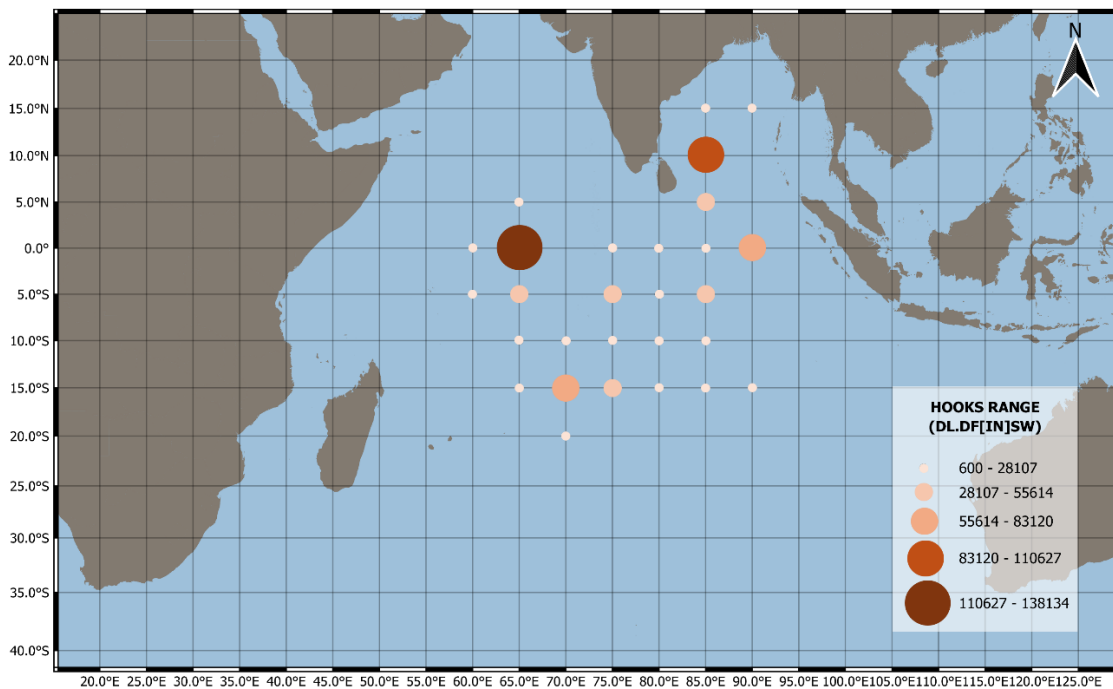


Figure 2b(iii). Map of the distribution fishing effort by LONGLINE (DL.DF[IN]TM) for the national fleet in the IOTC area of competence from year average of 5 previous years 2019–2023.

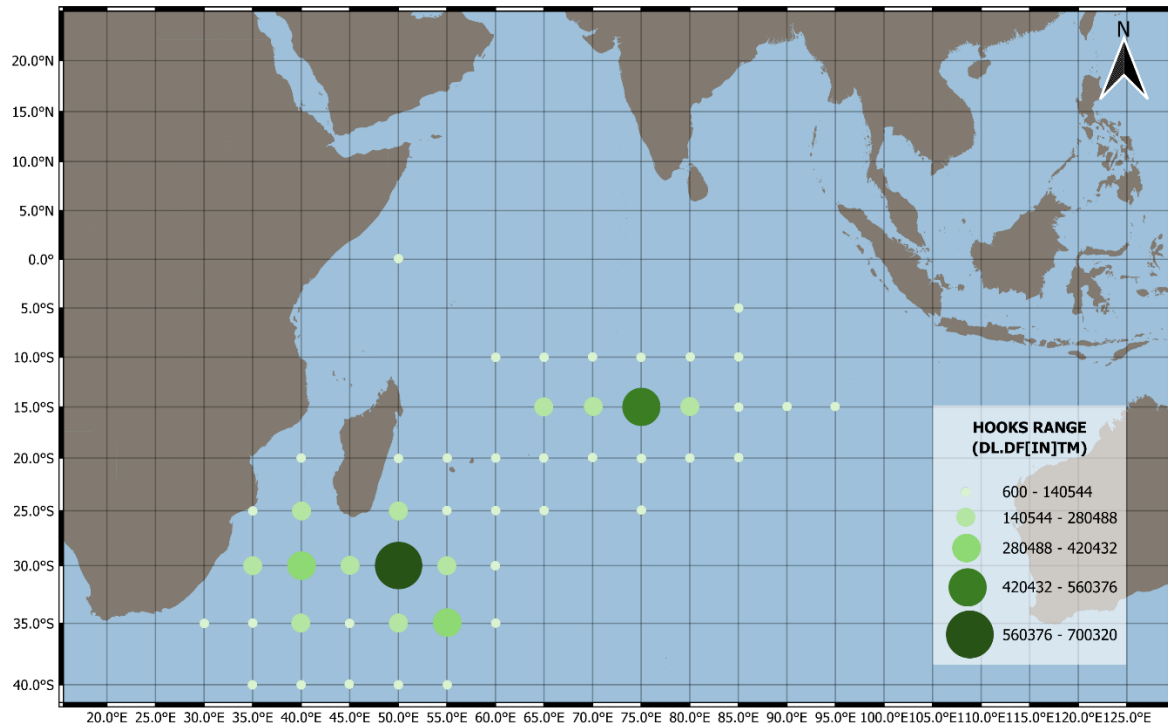


Figure 2b(iv). Map of the distribution fishing effort by LONGLINE (DL.DF[IN]TR) for the national fleet in the IOTC area of competence from year average of 5 previous years 2019–2023.

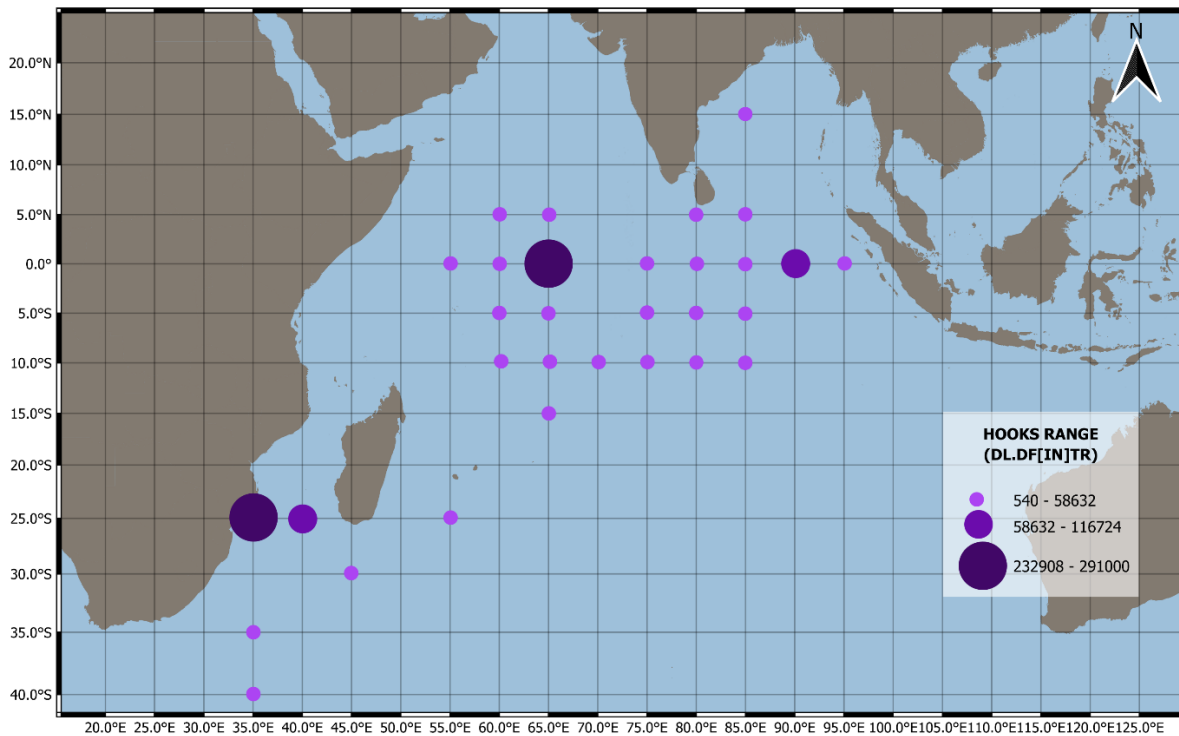
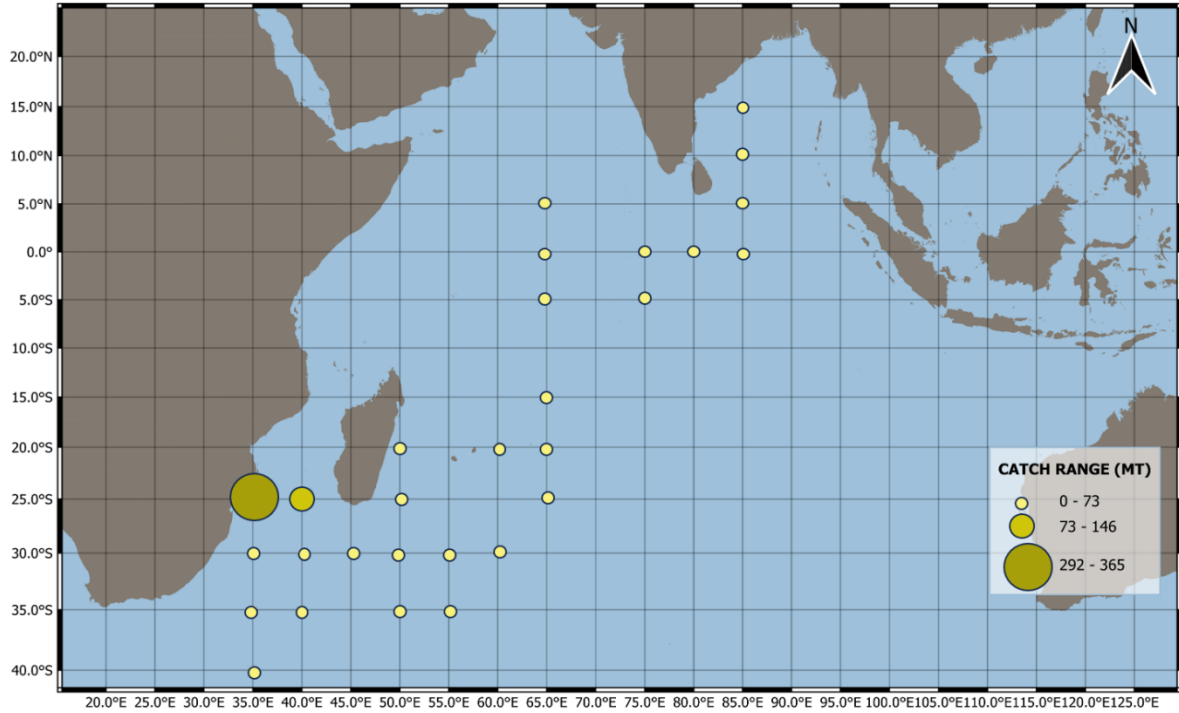
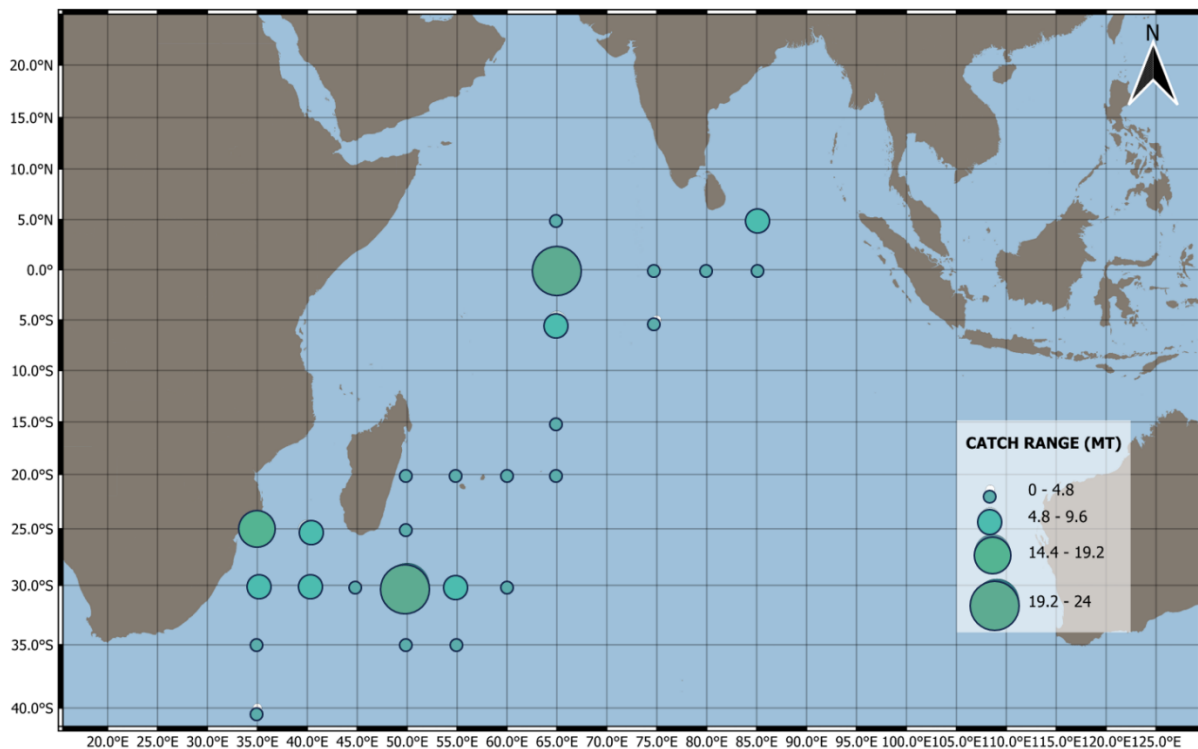


Figure 3a. Map of distribution of fishing catch, by species for the national fleet, in the IOTC area of competence for the year 2023.

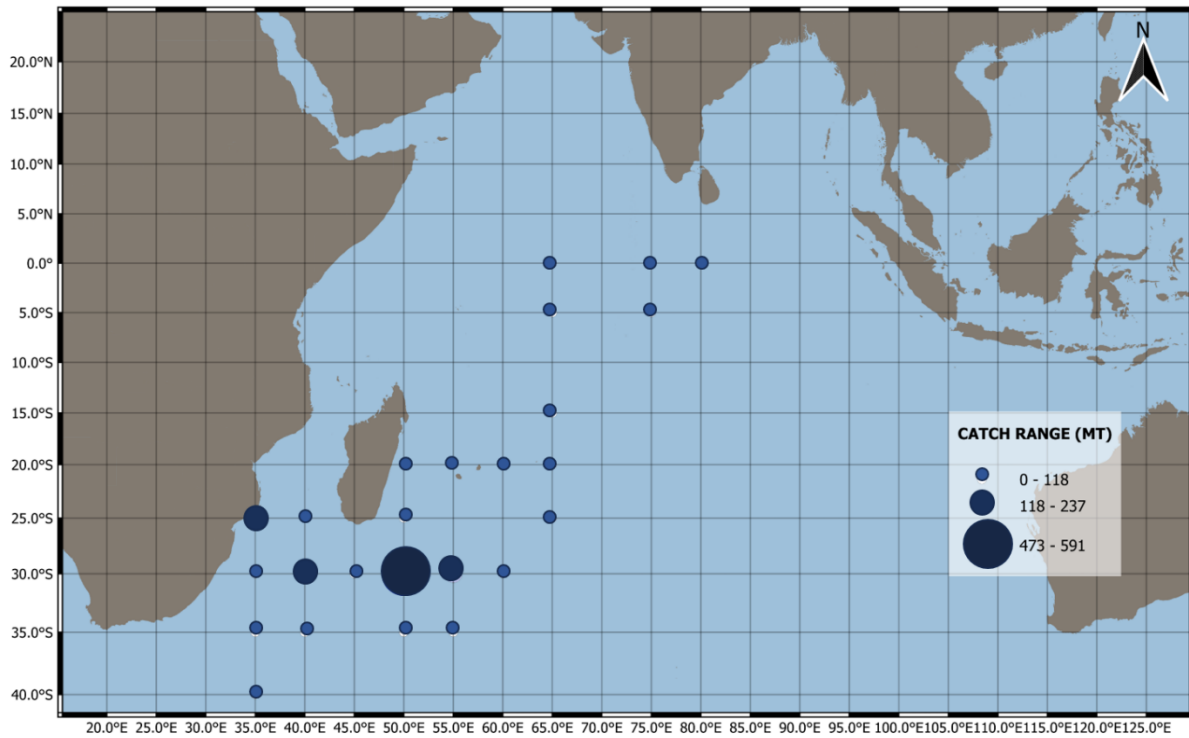
YELLOWFIN TUNA CATCH DISTRIBUTION 2023



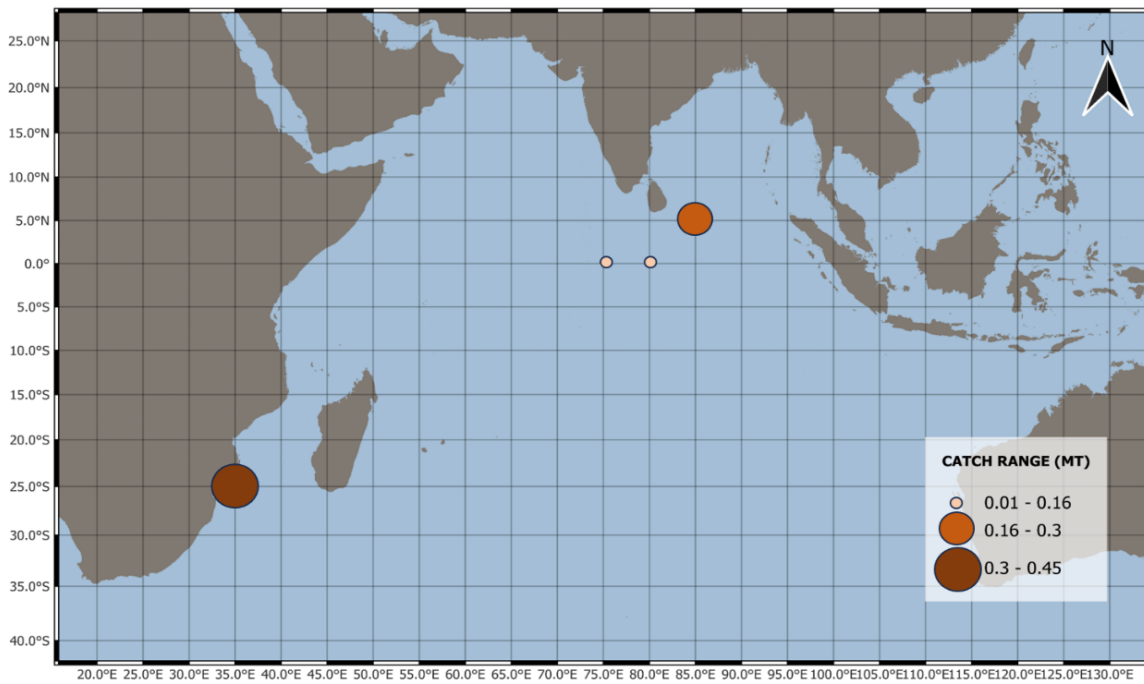
BIGEYE TUNA CATCH DISTRIBUTION 2023



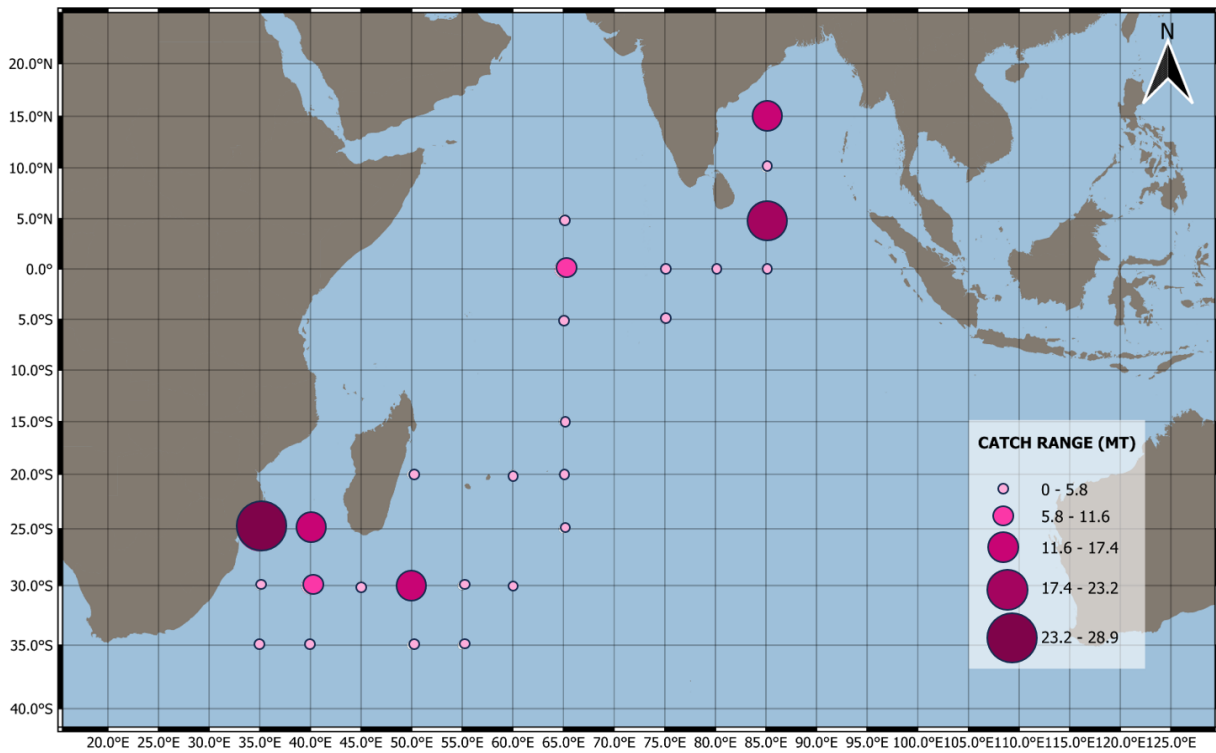
ALBACORE CATCH DISTRIBUTION 2023



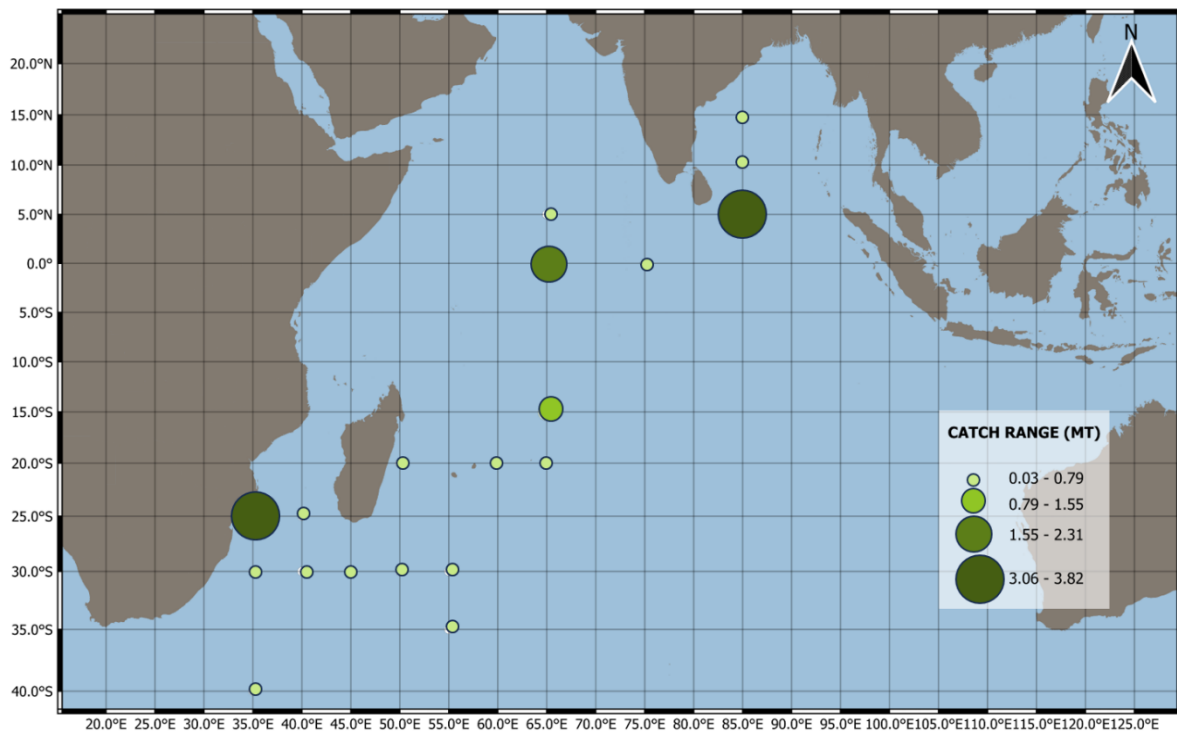
SKIPJACK CATCH DISTRIBUTION 2023



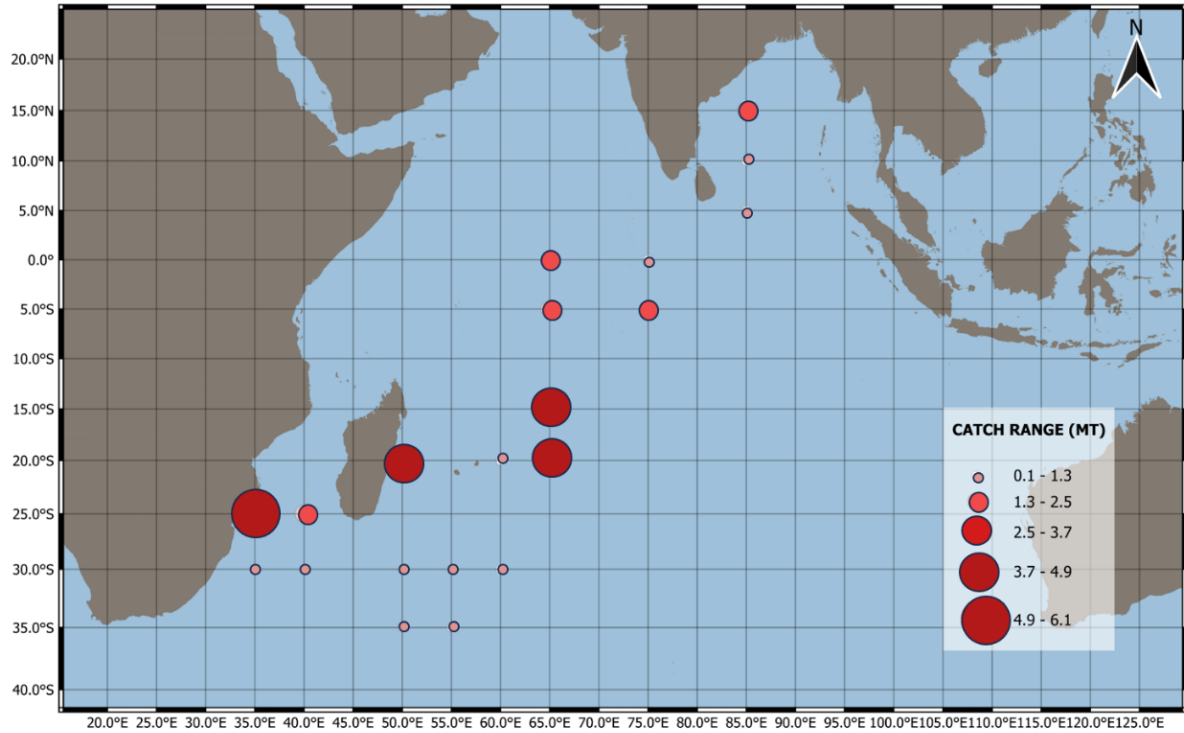
SWORDFISH CATCH DISTRIBUTION 2023



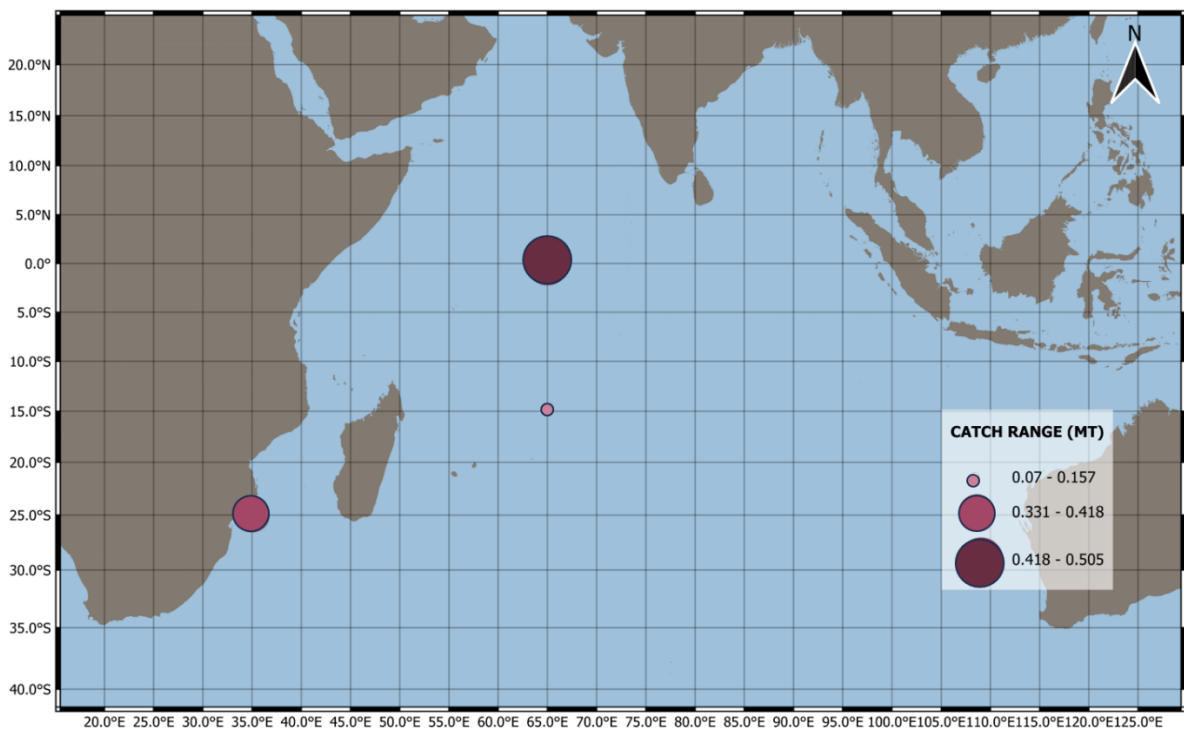
BLUE MARLIN CATCH DISTRIBUTION 2023



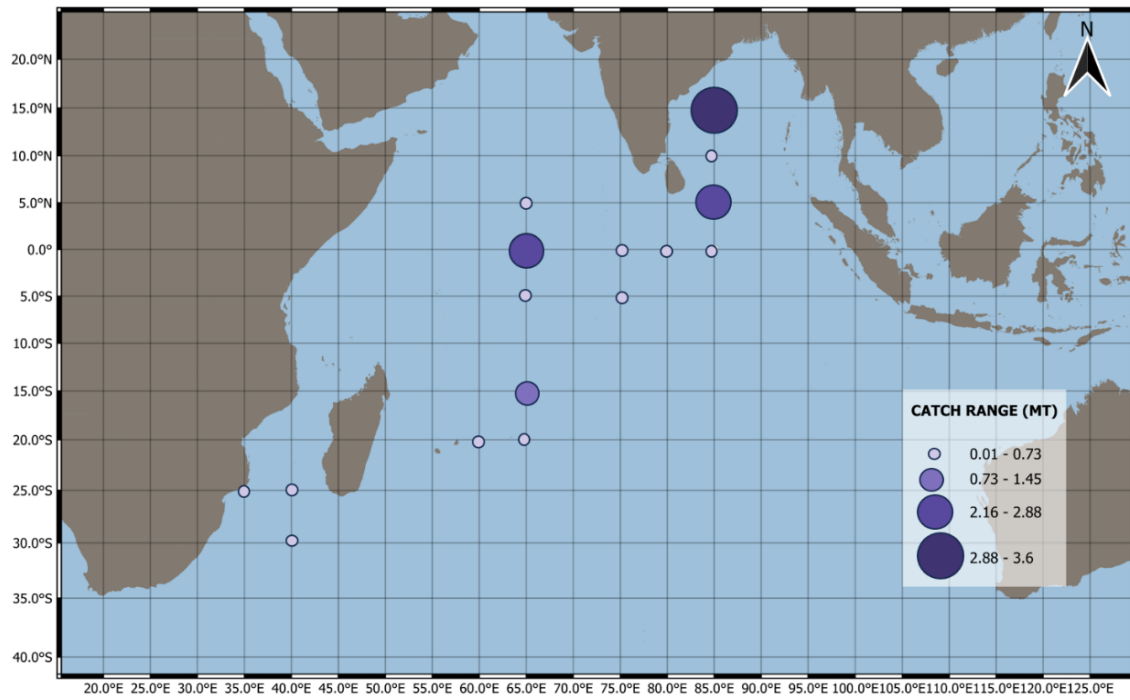
BLACK MARLIN CATCH DISTRIBUTION 2023



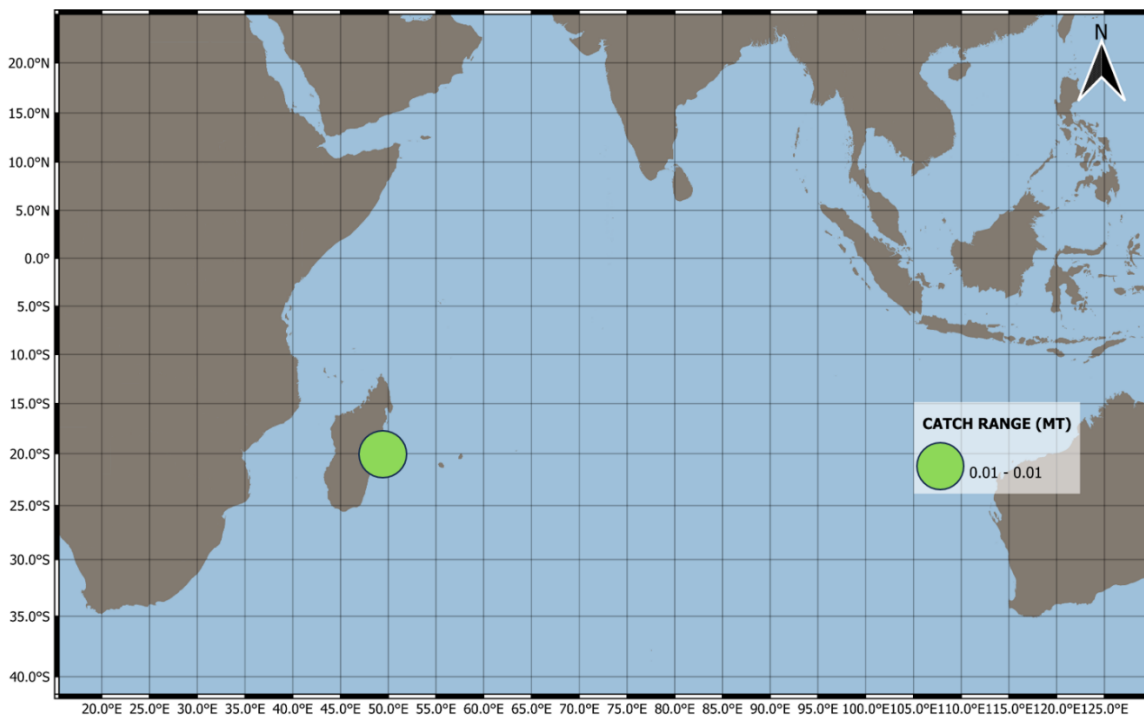
STRIPED MARLIN CATCH DISTRIBUTION 2023



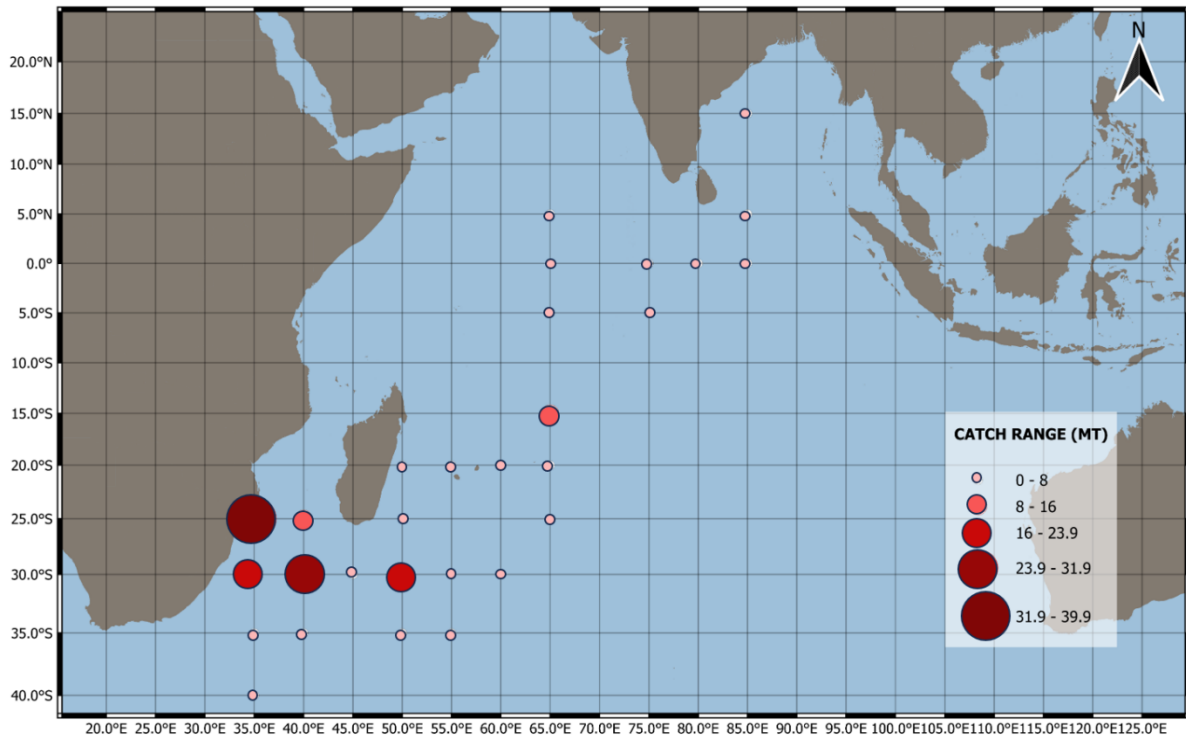
INDO-PACIFIC SAILFISH CATCH DISTRIBUTION 2023



SHORTBILL SPEARFISH CATCH DISTRIBUTION 2023



OTHER BONY FISH CATCH DISTRIBUTION 2023



NERITIC TUNA CATCH DISTRIBUTION 2023

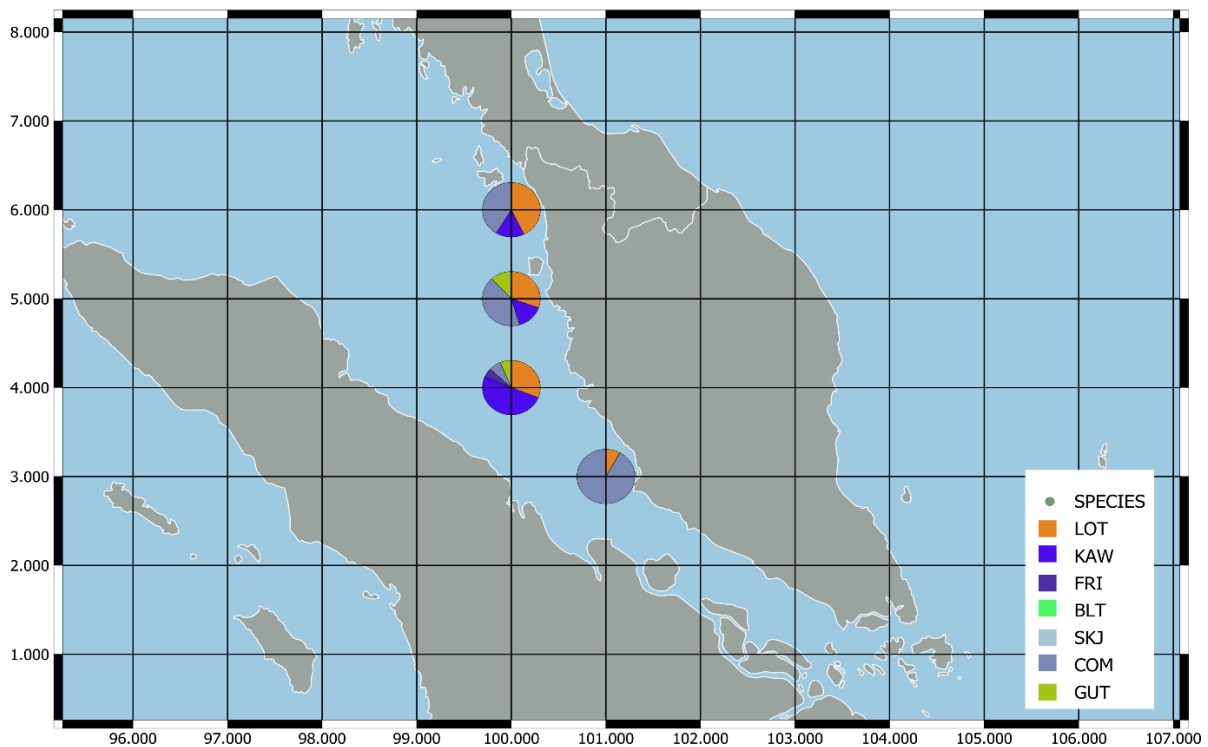
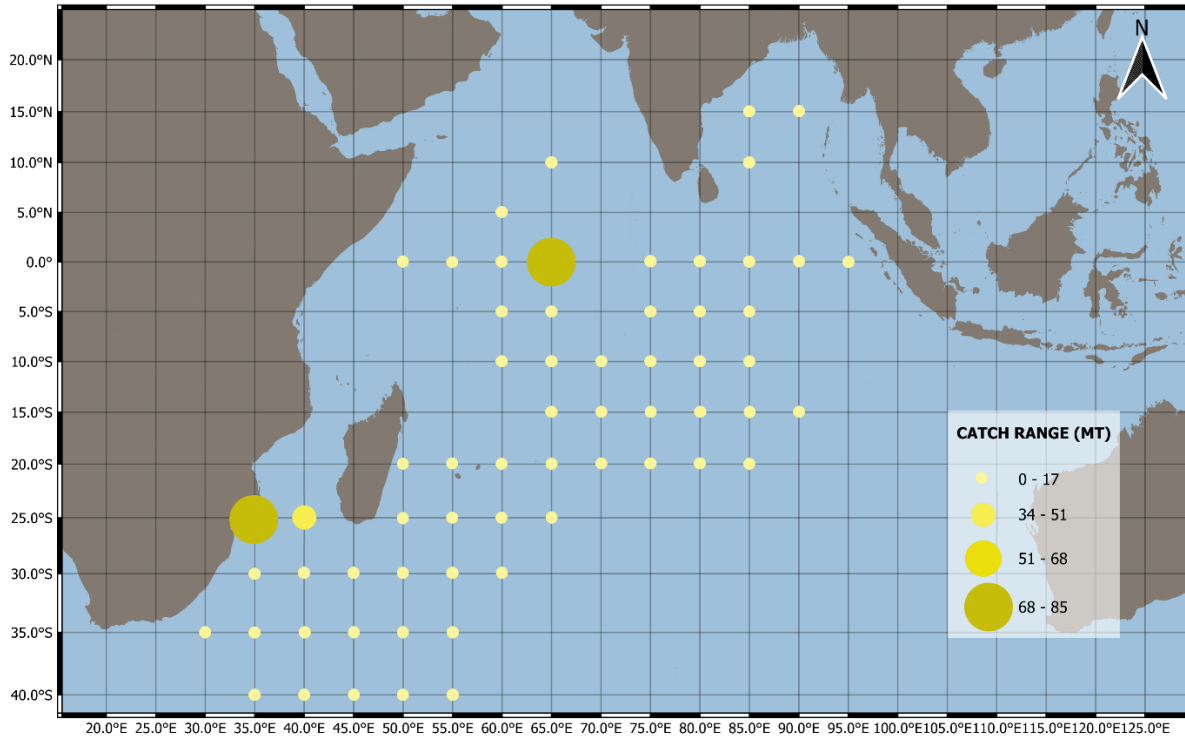
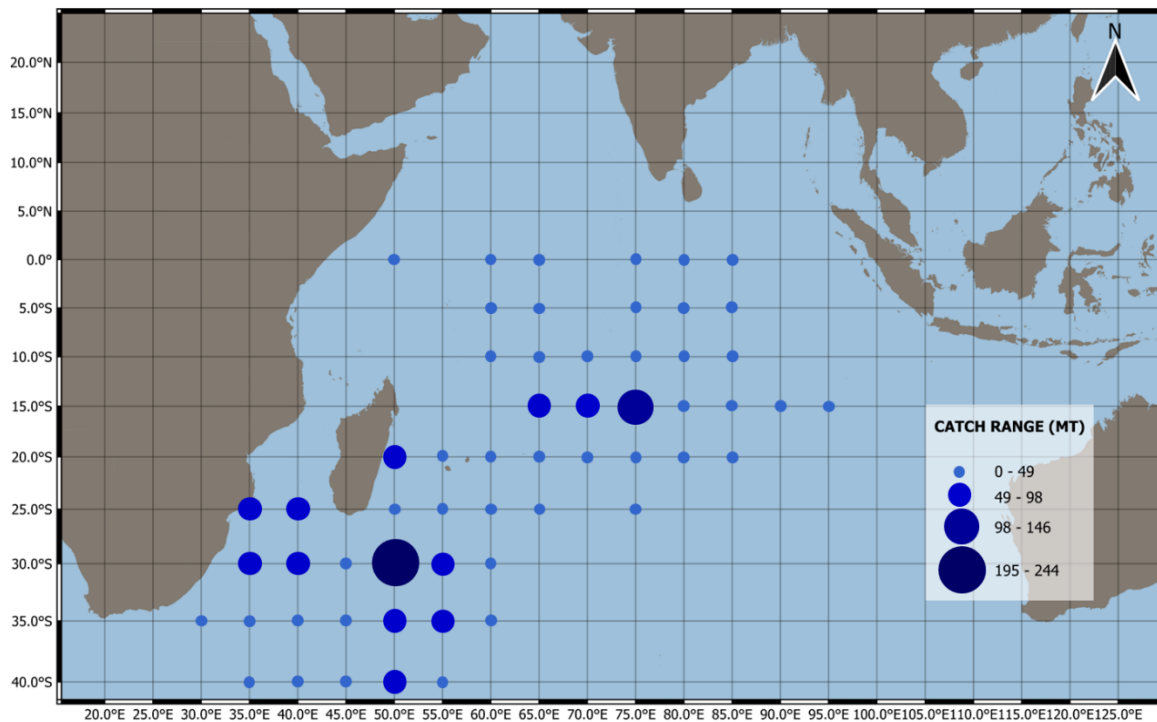


Figure 3b. Map of distribution of fishing catch, by species for the national fleet, in the IOTC area of competence average of the 5 previous year 2019–2023.

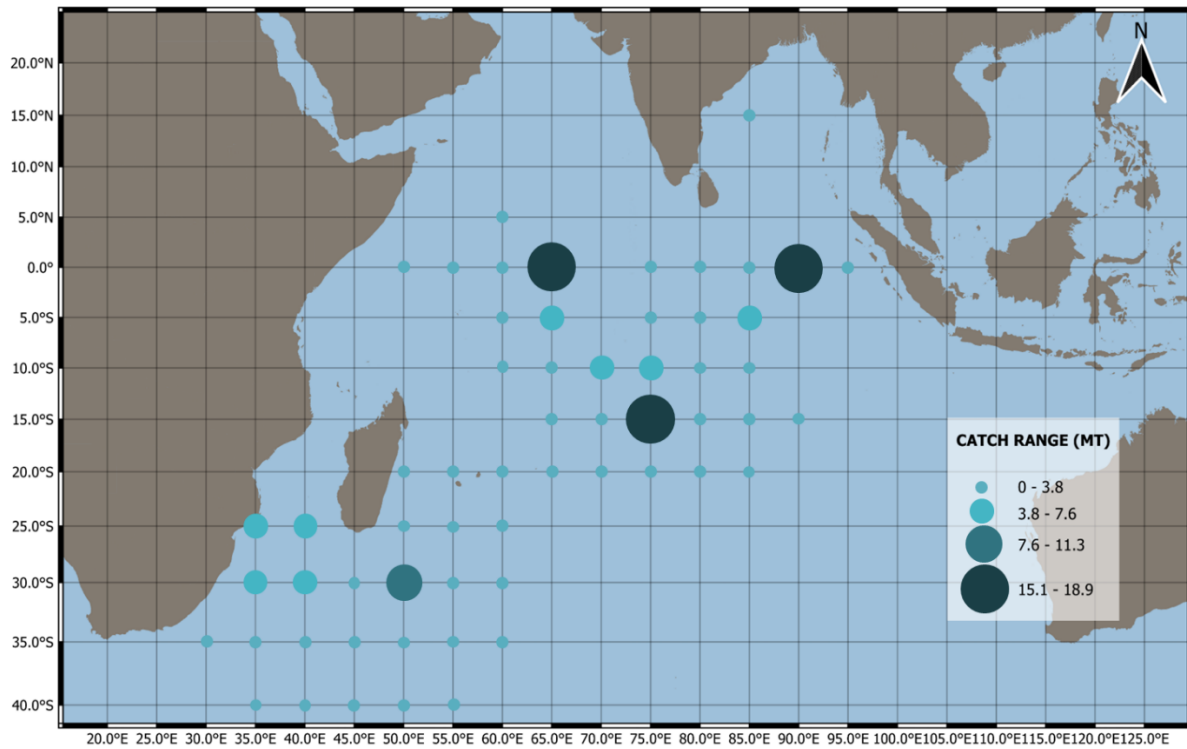
YELLOWFIN TUNA AVERAGE CATCH DISTRIBUTION 2019-2023



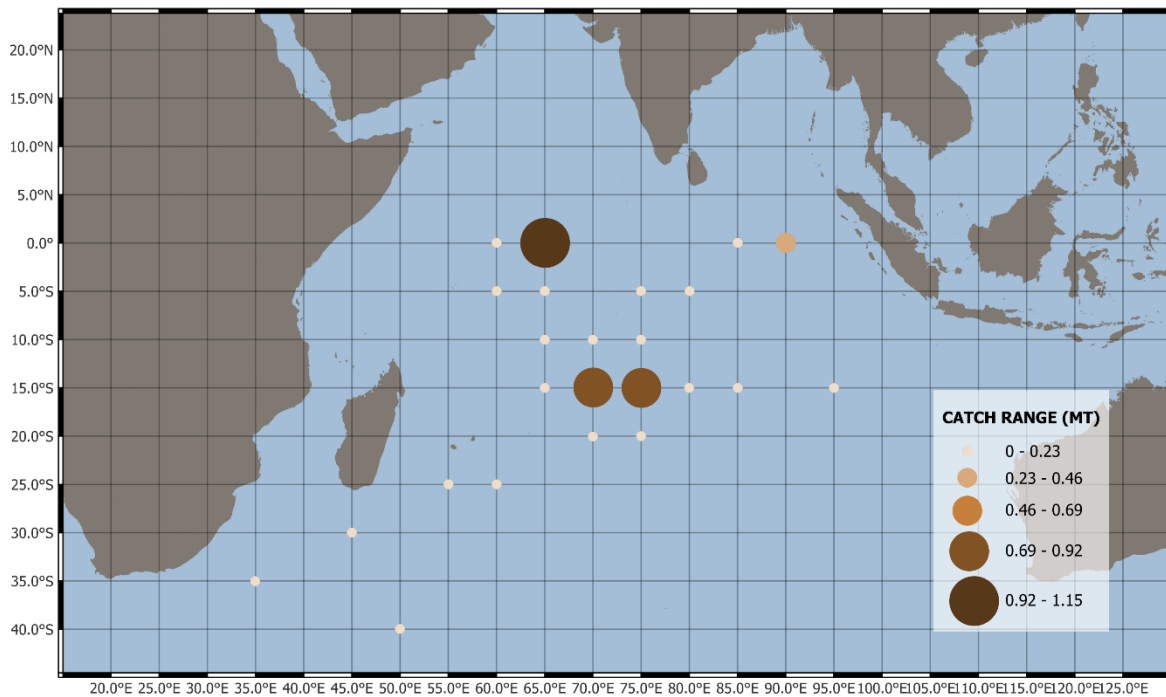
ALBACORE (ALB) AVERAGE CATCH DISTRIBUTION 2019-2023



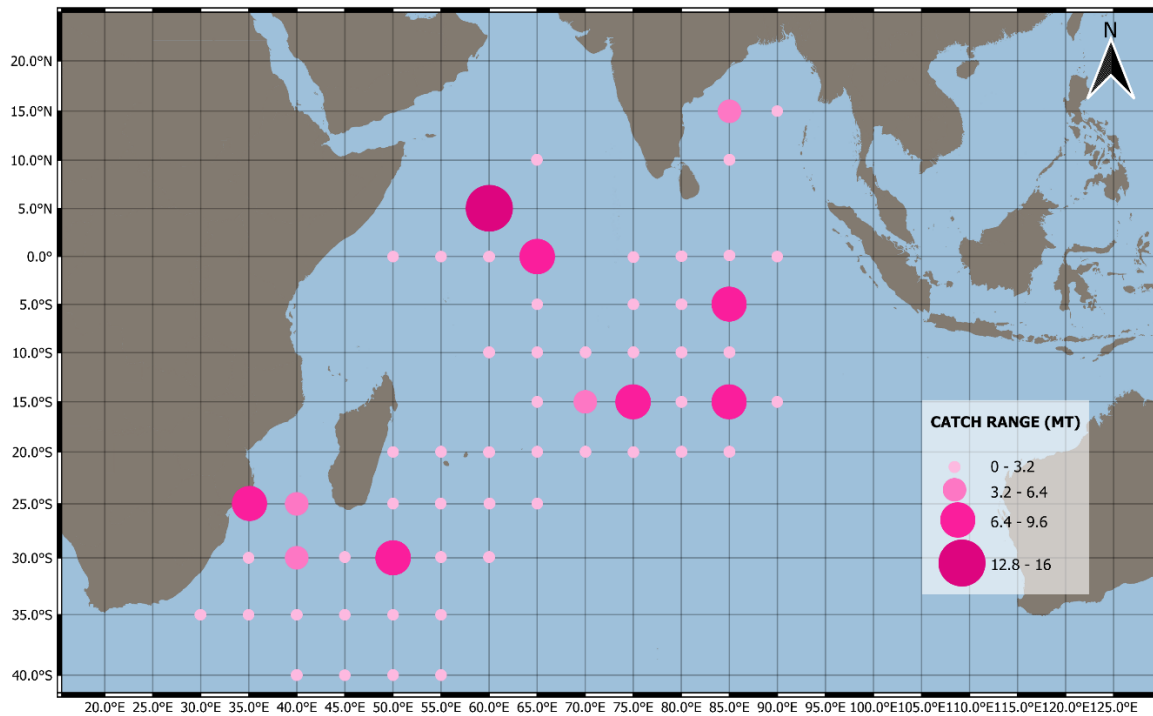
BIGEYE TUNA (BET) AVERAGE CATCH DISTRIBUTION 2019-2023



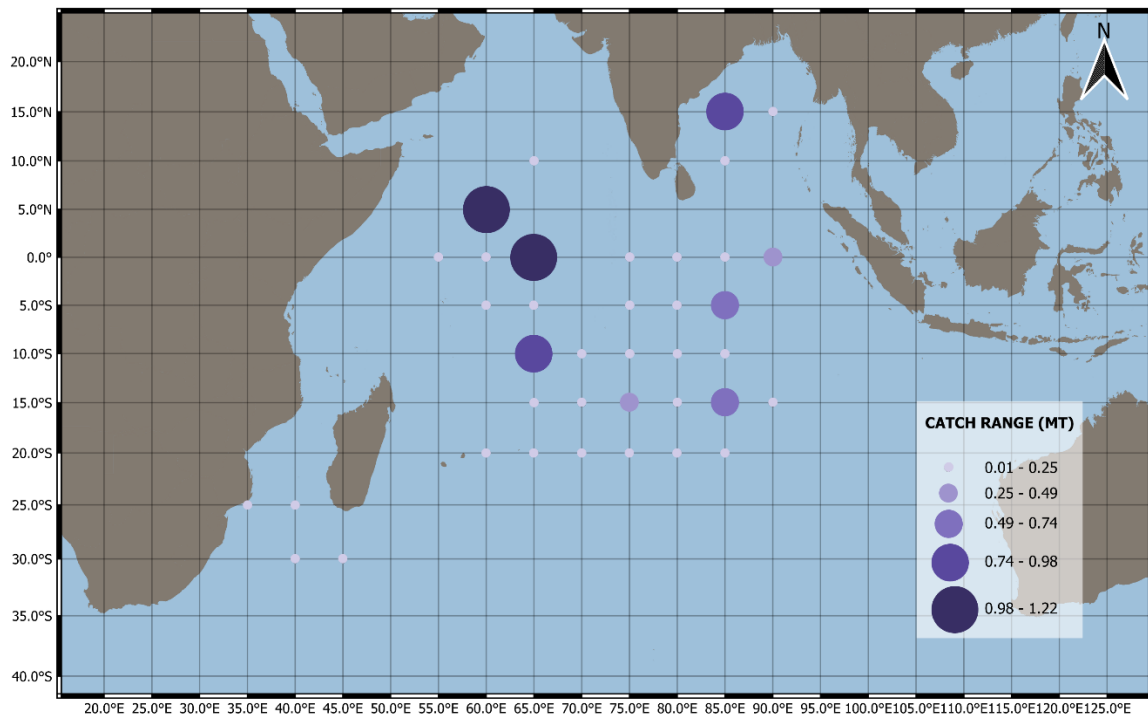
SKIPJACK (SKJ) AVERAGE CATCH DISTRIBUTION 2019-2023



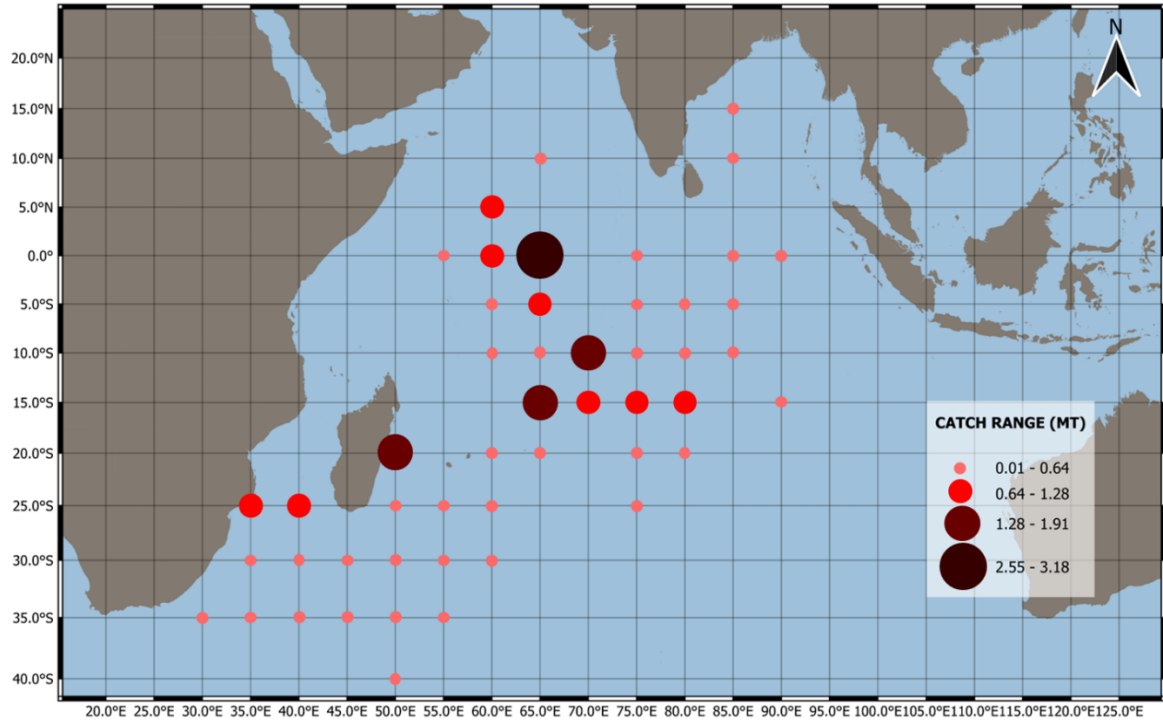
SWORDFISH AVERAGE CATCH DISTRIBUTION 2019-2023



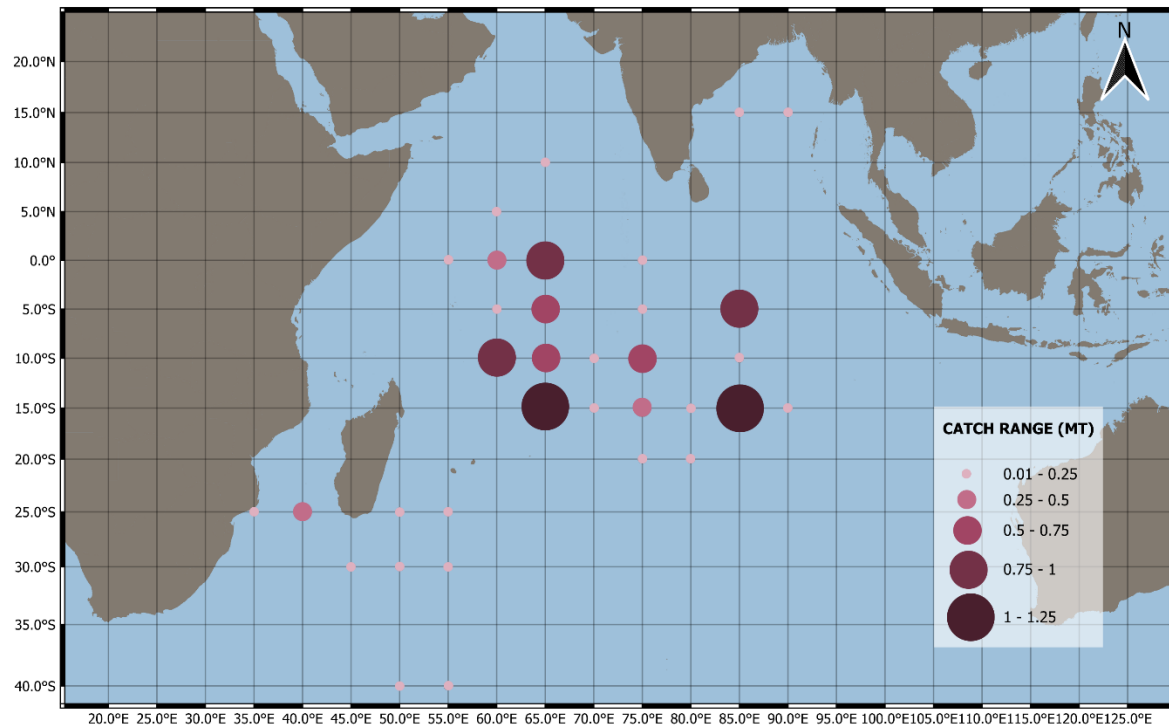
INDO PACIFIC SAILFISH (SFA) AVERAGE CATCH DISTRIBUTION 2019-2023



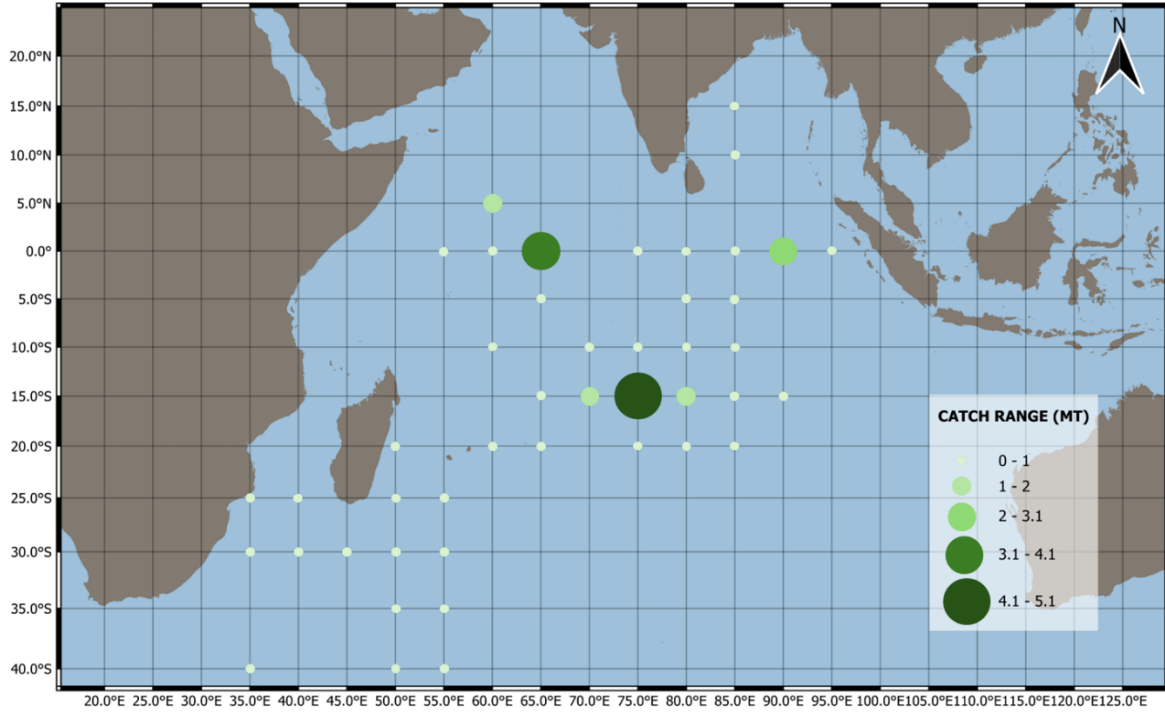
BLACK MARLIN (BLM) AVERAGE CATCH DISTRIBUTION 2019-2023



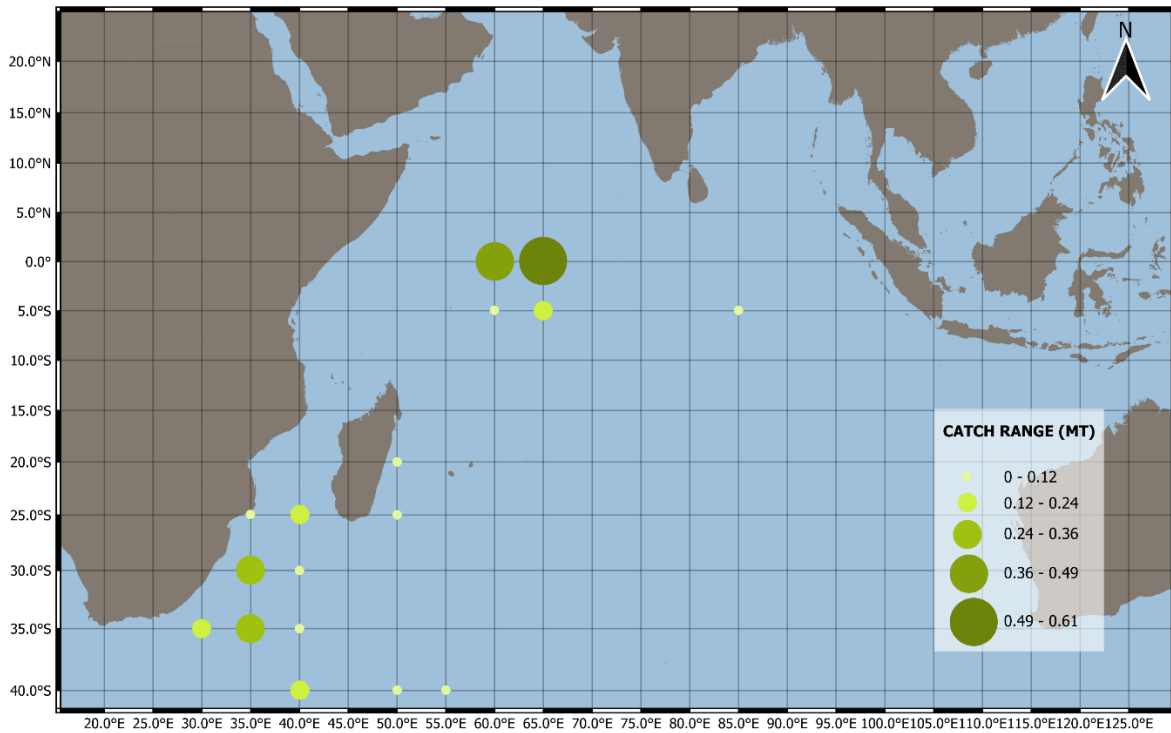
STRIPED MARLIN (MLS) AVERAGE CATCH DISTRIBUTION 2018-2022



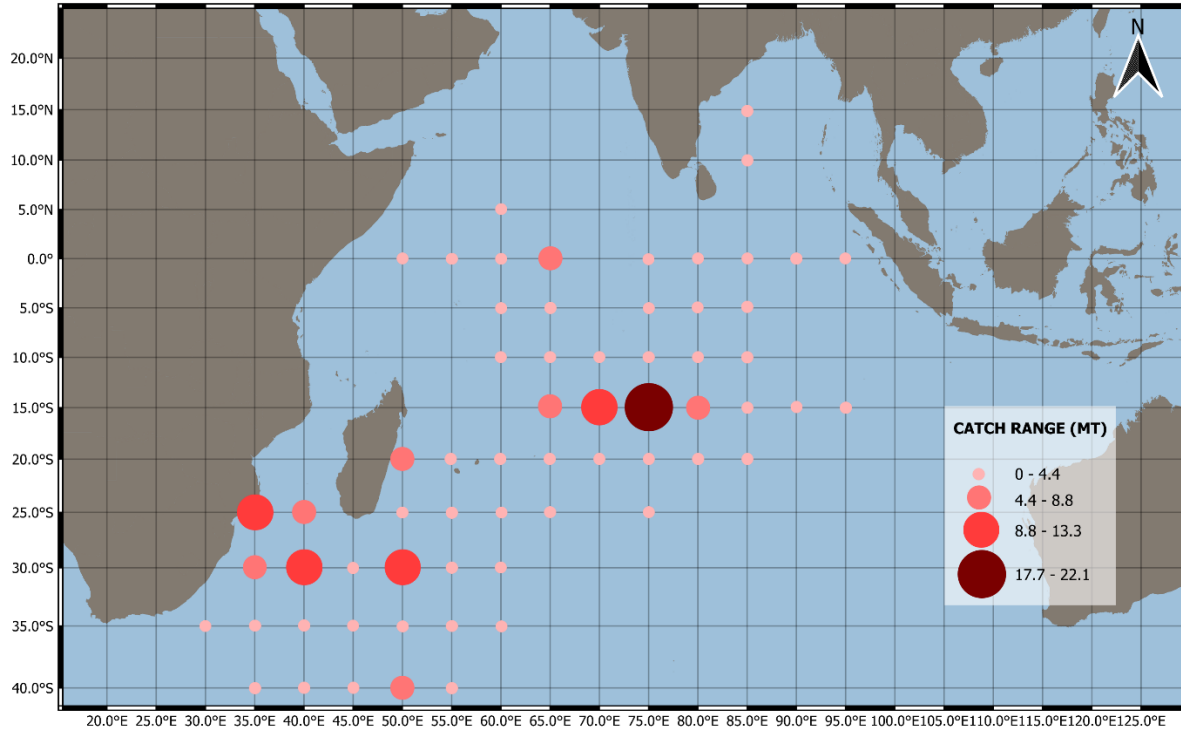
BLUE MARLIN AVERAGE CATCH DISTRIBUTION 2019-2023



SHORTBILL SPEARFISH AVERAGE CATCH DISTRIBUTION 2019-2023



OTHER BONY FISH (MZZ) AVERAGE CATCH DISTRIBUTION 2019-2023



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 5 fishing zones (Zone A, B, C, C2, C3) in the west coast Peninsular Malaysia, and foreach 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 2023 based on logbook record by the captain, there were shark interactions recorded for releasing alive and discarded dead. 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 (*Eusphyrna 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*	-
2023	44.74 mt*	-

*accidental catch of sharks in the Malaysian EEZ waters

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.

YEAR	(BSH)		(MAK)		(POR)		(SPN)		(FAL)		(THR)		(OCS)		(PSK)		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	R	D	R	D
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	1054	122	4	0	0	0	0	0	0	0	30	0	0	0	0	0	100	60	0	0	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	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	0	0	0	
2023	71	13	0	0	0	0	0	0	45	8	3	0	23	5	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	

5.2 Seabirds

Malaysian longline vessels only started to fish in areas below 25° S in mid of 2012. In 2023, 12 Malaysian AFV operated south of 25°S. all 12 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.

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

Seabirds mitigation measures	No of Vessels
vessels operated south of 25°S	12
bird scaring lines	12
line weighting	12
night setting	0

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 transshipment report for vessels operating in the IOTC area of competence, there is nil interaction of marine turtles recorded by the fishing master in 2023.

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

Nil interaction reported for 2023 by the Malaysian tuna fishing vessels operated in Indian Ocean for cetacean, marine mammals and whale sharks as the Malaysian AFV are longline vessels. 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.

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 must be returned to the water such as, marine mammals, sea turtles, seabirds and cetacean), 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. Observer scheme

DOF Malaysia have installed CCTV on 10 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 2023, 4 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 Transshipment 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 2023 for carrier vessel and fishing vessel to monitor transshipment at sea.

6.3. Port sampling programme

The port sampling program conducted after Malaysia register two designated tuna port in 2016 (Penang Port and Langkawi Port). In 2023, 4 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.

Table 6: Number of vessels monitored, weight by species and gears for oceanic tuna

NO	VESSEL	LANDING	WEIGHT BY SPECIES											TOTAL
			YFT	BET	ALB	SKJ	SWO	MLS	BUM	BLM	SFA	SPP	OTH	
1	IBU WIRA 1	30/03/2023	4,345.50	5,554.50	0.00	0.00	12,280.00	0	0.00	3,476.00	1,553.00	0	1,751.00	28,960.00
2	IBU WIRA 2	30/03/2023	2,465.00	3,775.00	0	0	11,455.00	0	0	1,253.00	1,020.00	0	852.00	20,820.00
3	IBU WIRA 7	22/06/2023	31,245.10	19,926.00	231.5	2,417.50	10,016.20	0	3,884.00	3483.00	1,113.50	0	5,383.20	77,700.00
4	IBU WIRA 1	14/09/2023	6,970.00	6,165.00	714	0.00	4,567.00	0	0.00	1448.5	183.00	0	2,292.50	22,340.00
5	IBU WIRA 2	14/09/2023	10,623.00	4,172.20	688	550	6,402.50	0	0.00	2101.5	238.50	0	2,724.30	27,500.00
													177,320.00	

Table 7: Number of individuals measured, by species and gear for oceanic tuna

No.	Name Of Vessel	Date of Landing	Gears	YFT	BET	ALB	SKJ	SWO	MLS	BUM	BLM	SFA	SPP	OTH	TOTAL (NO)
1	IBU WIRA 1	30/3/2023	LL	6	5	0	0	14	0	0	3	2	0	0	30
2	IBU WIRA 2	30/3/2023	LL	3	4	0	0	15	0	0	0	0	0	0	22
3	IBU WIRA 7	22/6/2023	LL	36	18	0	0	9	0	6	8	1	0	0	78
4	IBU WIRA 1	14/9/2023	LL	13	3	2	0	5	0	0	0	0	0	0	23
5	IBU WIRA 2	14/9/2023	LL	12	4	1	1	8	0	0	2	0	0	0	28
Total															181

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

MONTH 2023	NO. OF VESSELS	SPECIES	WEIGHT (KG)
JAN	17	KAW	103
		LOT	0
		BLT	0
FEB	7	KAW	39
		LOT	0
		BLT	0
MAR	16	KAW	243
		LOT	0
		BLT	0
APR	16	KAW	163
		LOT	0
		BLT	1
MAY	14	KAW	177
		LOT	0
		BLT	0
JUN	17	KAW	139
		LOT	51
		BLT	48
JUL	8	KAW	63
		LOT	28
		BLT	29
AUG	11	KAW	168
		LOT	0
		BLT	0
SEP	9	KAW	78
		LOT	43
		BLT	4
OCT	16	KAW	551
		LOT	81
		BLT	0
NOV	11	KAW	279
		LOT	30
		BLT	0
DEC	4	KAW	37
		LOT	55
		BLT	0

6.4. 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 2023 record, the average length (LJFL) are between 100 cm – 250 cm.

Table 11: Length (LJFL) by species recorded from report of size frequency

Species	Lower LJFL (cm)	Higher LJFL (cm)
Striped Marlin (MLS)	166	176
	175	222
Black Marlin (BLM)	115	211
	118	231
Blue Marlin (BUM)	120	211
	121	286
Indo Pacific Sailfish (SFA)	90	211
	92	271

6.5. 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 in the Malaysia EEZ, 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 marineturtle, 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 (Malaysia EEZ).

7. NATIONAL RESEARCH PROGRAMS

From 2015 – 2023, 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

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 joint trails and training were conducted between the government and fishermen for the use of C-hook.

Another research related to marine turtles is bycatch study. A bycatch study of marine turtles in Malaysia focuses on understanding the unintentional capture of these animals in various fishing operations.

Besides that, Department of Fisheries Malaysia also emphasized about nesting study of marine turtles. Our focuses are to understanding the reproductive behavior, nesting patterns, and conservation needs of these species on the country’s beaches. There are a total of 26 Turtle Hatcheries Centres throughout Malaysia and seven (7) turtle conservation and information centres which is have regularly implementing standard operation procedure by Fisheries Research Institute of Rantau Abang (IPPRA).

IPPRA also implemented turtle health and disease study in Malaysia focuses on assessing the physical condition, health status, and diseases affecting marine turtles in the region. Understanding these factors is crucial for effective conservation, as diseases and poor health can significantly impact turtle populations, especially for endangered species like the green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*), leatherback turtle (*Dermochelys coriacea*), and olive ridley turtle (*Lepidochelys olivacea*).

Department of Fisheries Malaysia also doing research programmes on turtle migration study. It is involves attaching a satellite transmitter to the turtle's shell, which then sends location data to satellites, allowing researchers to monitor the turtle's journey in real-time. This technology has revolutionized our understanding of marine turtle behavior and has proven essential in guiding conservation efforts.

Department of Fisheries Malaysia also focus on stranding and necropsy studies in turtles which is focus on understanding the causes of turtle strandings (when turtles wash up on shore, often in distress or dead) and conducting detailed examinations of deceased turtles to determine the underlying reasons for their deaths. These studies conducted by IPPRA are crucial needs for Department of Fisheries Malaysia for identifying threats to marine turtle populations and guiding conservation strategies to mitigate these risks.

7.6. National research programs on thresher sharks

No specific national research programs on thresher sharks.

Table 12: Summary table of national research programs

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	2015-2023	Malaysia	RM 1,500,000	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 - 2023	Malaysia	RM 1,500,000	National R&D Fund.	Landing trend by Species of oceanic tuna	On going

*(1 USD = RM 4.40)

8. IMPLEMENTATION OF SCIENTIFIC COMMITTEE RECOMMENDATIONS AND RESOLUTIONS OF THE IOTC RELEVANT TO THE SC.

Table 13. Scientific requirements contained in Resolutions of the Commission, adopted between 2012 and 2023.

Res. No.	Resolution	Scientific requirement	CPC progress
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.
12/09	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 Alopiidae to be recorded by the tuna longline operators. Fishing, storing or retaining on board, transshipping 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) 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 (<i>Rhincodon typus</i>)	Paragraphs 7– 9	Under Malaysian Fisheries Act 1985, Fisheries Regulation on (Control of Endangered Species of Fish) Regulation 1999, whale shark (<i>Rhincodon typus</i>) 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.

Res. No.	Resolution	Scientific requirement	CPC progress
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 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. 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.
18/05	On management measures for the conservation of the Billfishes: Striped marlin, black marlin, blue marlin and Indo-Pacific sailfish	Paragraphs 7 – 11	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. 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

Res. No.	Resolution	Scientific requirement	CPC progress
			tuna like Species. From the logbook SF 2023 record, the average length (LJFL) are between 100 cm – 250 cm.
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 2023 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 (<i>If not provided under Res 21/01 below</i>)	Paragraph 22	Malaysian tuna longliners catches below 2000 mt (716 mt) of yellowfin tuna in the IOTC area of competence in 2023 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
21/01	On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence (<i>If not provided under Res 19/01 above</i>)	Paragraph 23	Malaysian tuna longliners catches below 2000 mt (716 mt) of yellowfin tuna in the IOTC area of competence in 2023 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.
23/07	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.

9. LITERATURE CITED

Ahmad A.N, Sallehudin J, Effarina M.F, Samsudin B 2015. Neritic Tuna Fishery and Some Biological Aspect in West Coast of Peninsular Malaysia.

Ahmad A.N, Samsudin B , Sallehudin J, Mohammad Faisal M.S 2015 Catch of billfishes by Malaysian tuna longliners n the southwestern Indian Ocean.

Annual Fisheries Statistic, Department of Fisheries, Malaysia.

Department of Fisheries Malaysian, 2006. Malaysia National Plan of Action for the Conservation and Management of Shark. Ministry of Agriculture and Agro-based Industry Malaysia, Putrajaya.

Samsudin, B., Sallehudin J., Mohd_Noor, N. and M., NorAzlin. 2016. Malaysia national Report to the Scientific Committee of the Indian Ocean Tuna Commission for 2015

Samsudin, B., Sallehudin J., Mohd_Noor, N. and M., NorAzlin. 2017. Malaysia national Report to the Scientific Committee of the Indian Ocean Tuna Commission for 2016

Samsudin, B¹. Sallehudin, J.¹ Tengku. Balkis, T.S² and Nor Azlin.M². Malaysia National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2018.

Effarina M.F.A¹, Sallehudin, J.¹, Arthur Besther, S.² and Nor Azlin. M². MALAYSIA National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2019

Effarina M.F.A¹, Sallehudin. J. ¹, Arthur Besther. S. ², Nor Azlin. M. ², Muhammad Safwan. O, Nor Hamizah Nadia. A. ³, Nazuki. S. ⁴, and Muhammad Amirul Siddiq. A.R. ⁴. Malaysia National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2020

Effarina M.F.A.¹, Mohd Hariz. A.H¹, Sallehudin. J. ¹, Arthur Besther. S. ², Nor Azlin. M. ², Muhammad Shakirin. S.² Hamizah Nadia. A. ³ and Abd Haris Hilmi, A.A. ³ Abd Halim, N.⁴, Hakiemi, A.K.⁴ Malaysia National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2021

Effarina M.F.A., Nur Hidayah A., Mohd Hariz A.H., Sallehudin J., Arthur Besther S. Nor Azlin M., Muhammad Shakirin S., Bahrinah, B, Haszilan, A.L,Zarina Z,Abd Halim N., Hakiemi, A.K.2023. Malaysia National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2022.

Effarina M.F.A., Nur Hidayah A., Mohd Hariz A.H., Sallehudin J., Arthur Besther S. Nor Azlin M., Muhammad Shakirin S., Bahrinah, B, Haszilan, A.L, Zarina Z, Abd Halim N., Hakiemi A.K. 2023. Malaysia National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2023



