Sri Lanka National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2020

Authors

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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 2020, final data for the 2019 calendar year must be provided to the Secretariat by 30 June 2020)	YES 30/06M/2021
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 2020, preliminary data for the 2019 calendar year was provided to the IOTC Secretariat by 30 June 2020). **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 2020, final data for the 2019 calendar year must be provided to the Secretariat by 30 December 2020).	YES 30/06/2021
If no, please indicate the reason(s) and intended actions:	

Executive Summary

The total production of tuna and tuna like species of Sri Lanka in year 2020 was 114,638t. 84 % of the catch was from the EEZ. 36% of the total catch was Yellow fin tuna, 38% Skipjack tuna and 5% was bigeye tuna. 13% of the catch was bill fish while Sword fish dominate in the catch. The total shark catch was 721t. The YFT catch reductions adhered as per 19/01. Large scale Gill net are being surveyed and reduced in number and length as per resolution 17/07.

Over 5000 multi day boats engaged in large pelagic fishing in both high seas and within EEZ. 1118 vessels were authorized to fish in high seas and only 927 vessels were active. 99% of the high seas operating vessels are less than 24m. VMS is mandatory for high seas operating vessels. Major fishing gears used were long line and gill net. The gill nets are being discouraged and transformed to selective gears. 34% , 20% and 19% of vessels were exclusively operated for longline, gill net and ring net respectively. 27% of the vessels used multi-gear of more or less combinations of the above gears in seasonal or incidental manner.

Multi-gear vessels are being promoted to long line by introducing mechanized line haulers and the upgrading of vessel conditions to accommodate better cooling systems to improve the fish quality and reduce the post economic loss. High fuel cost has restricted the year round vessel operations and most vessels are being kept anchored. Electronic catch data collection system is being implemented and carried out parallel to the paper log books. On board observers were deployed in all vessels >24m and pilot project on EMS is ongoing. Port State Measures are being implemented through e-PSM application. Coastal data collection is being improved by introducing better sampling techniques and to achieve the length frequency data in required proportions.

Contents [Desirable]

- **Background/General fishery information [Mandatory]**

  Tuna fishery in Sri Lanka occurs mainly within the EEZ and in high-seas. The traditional coastal fishing remain operating mainly targeting neritic tuna and associated fish such as carangids, scades, barracuda and rainbow runner within continental shelf and slope areas of coastal waters. The offshore fisheries are confined to the area beyond the 40km up to the 200nm and in high seas. Majority of offshore and high seas operating vessels target for Tuna and tuna like species. The tuna fishing fleet consists in array of size but as a whole all are small in size. only 23 vessels are >24m in length 99% boats are below 15m and majority do not have mechanized line hauls. Limited deck space and the manual operation of fishing gears limit the fishing capacity of most boats. About 900 boats were engaged in one day fishing and about 2800 boats conducted multiday fishing within the EEZ of Sri Lanka

  Boats > 10.3m are eligible to operate in high seas. All high seas operating boats have operational VMS on board. 1118 boats were authorized for high-seas fishing in year 2020 and only 927 vessels were active**.**

38% vessels are dedicated long liners. Around 200 -1200 hooks are used in longlines depending on the vessel size. The exclusive longliners fish with a larger number of hooks per set (1000/1200 hooks), and hauled by mechanized winch. 8% of the vessels engage in large pelagic fisheries used large-mesh drift gillnets(GN), targeting skipjack tuna. The High seas gill nets are restricted to maximum 2.5km in length and made of 20-25 pieces and 5" or 6" stretched mesh**.** Gillnets are being discouraged**.**
Ring net is become popular for catching of mackerel scads (Decapterus ruselli) and trigger fish etc. The other fishing gears being used in lesser extent for tuna were hand-line and trolling. Beach seine is a traditional method of near coastal fishery in Sri Lanka. The target species are near coastal small pelagic and demersal fish. It has proper management practices from the history and those has been regularized and number of license is freeze. Beach seine catch data is included to the coastal catch data submission of IOTC.

The use of fishing gear in multipurpose vessels is determined based on the availability of fish, climate condition, the availability of the bait, skill of the crew etc. The Indian mackerel, flying fish and milkfish are generally used as the bait in long lines. Offshore and the high Seas catch dominated by yellowfin tuna (Thunnus albacores), skipjack tuna (Katsuwonuspelamis) and neritic tuna species and followed by billfish and other bony fish.

Fishing activities within EEZ are seasonal depending on the monsoon pattern. Fishing in coastal and offshore area are more success in just before and after monsoon. Coastal fishing is conducts mainly with 6-7 meters length FRP boats/ out board motor boats and 7-10 meters 3.5GT in board motor boats. The trip length of offshore fishing multiday boats varies from 10 days or more. If successful long line operations took place, the catch landed early targeting the export market. The boats those use gillnets under take long trips sometimes more than 30 days and preserve the early catch by salting and sun drying and the late catch on ice. The weather conditions, small size of the boat and inadequate safety measures on board also influence the trip duration.

Improving of on board fish quality to reduce the post economic loss, is the main fishery policy in the recent past. To achieve this target offshore and high seas fishing vessels are being upgraded with advanced cooling systems such as chilled seawater (CSW) or refrigerated sea water (RSW). The legal frame work has been strengthen to conduct tuna fisheries in complying with the conservation and management measures of IOTC.

There is no tuna fishing grounds close to Sri Lanka and the small size boats travel far away to find fish. Hence, there is an issue of unbearable operating cost due to the high fuel price, and the poor catch. As a

result substantial number of vessels did make limited trips and most of the time the boats are being anchored in harbours although they have obtained an operation license in high sea. According to the fishers the fuel cost represent more than 40% of the operational costs fishing in the offshore and high seas.

- **Fleet structure [Mandatory]**

Table 1(a) National fleet structure, by gear type, including vessel size and duration of fishing operations

Boat Type	Vessels operated within EEZ	Vessels operated High seas +EEZ		Gears used	Trip length
		Number Authorized at IOTC	Active		
8m-10.3m	2073	No	No	34% LL only 20% GI only 19% PSRN 27% Multi gear (more or less combination of all above gears)	- About 49% of the EEZ boats within the 8m-10.3m length category operates for 1-10 days while rest operates 10-30 days. - High seas operating multiday boats operates average 30-60 days.
10.3m -15m	2118	1073	882		
15m-24m	37	22	22		
>24m	0	23	23		
	4228	1118	927		
Total vessels engaged in tuna and tuna like fisheries EEZ& HS = 4228+ 927=5155					

Only the vessels >10.3m in length were permitted to engage in high-seas fishing combined with offshore limits of the EEZ. Although 1118 number of vessels obtained the high-seas fishing operation license for year 2020 only 927 vessels operated in high seas.

Table 1: Number of vessels operating in the IOTC area of competence, by gear type and size – most recent five years: 2015–2020.

Table 1(b): Number of vessels operating in the IOTC area of competence, [minimum – most recent five years: 2015–2020;

Year	Total Number of vessels operated		
	Total (EEZ+HS)	Authorised (HS)	Active
2015	**4294**	2470	**1615**
2016	**4485**	1603	**1577**
2017	**4572**	1536	**1461**
2018	**4601**	**1337**	**1164**
2019	**4878**	**1449**	**1182**
2020	**5155**	**1118**	**927**

- **Catch and effort (by species and gear) [Mandatory]**
  General description of fishing activities by national fleets (by gear type) in the IOTC area of competence, including changes in fishing patterns, fleet operations and target species.]

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

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Figure 1. Historical annual catch for the national fleet, by gear and primary species, for the IOTC area of competence for the entire history of the fishery/fleet. **[Mandatory]**

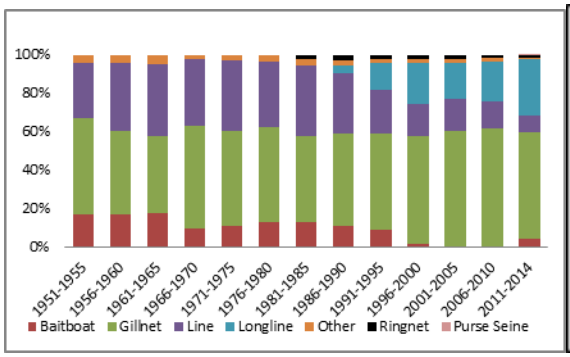


Figure 1a: Relative contribution of fishing gear in Tuna fish production in Sri Lanka 1950-2014

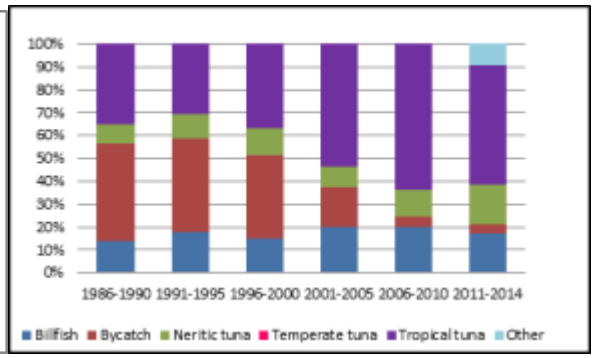


Figure 1b: Catch composition long line and gill net fishery production in Sri Lanka 1950-2014

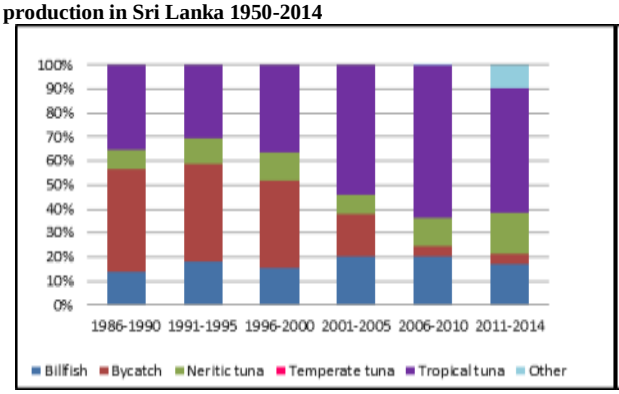


Figure 1c: Catch proportions gill net cum Long line Sri Lanka 1950-2014

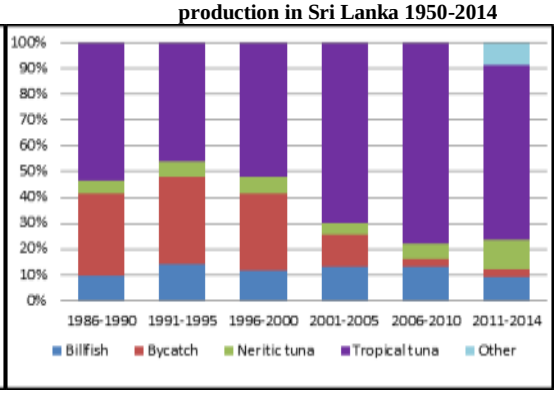


Figure 1d: Catch proportions long line fishery *(including Long line attached to gill net)*In Sri Lanka 1950-2014

Source: IOTC data base

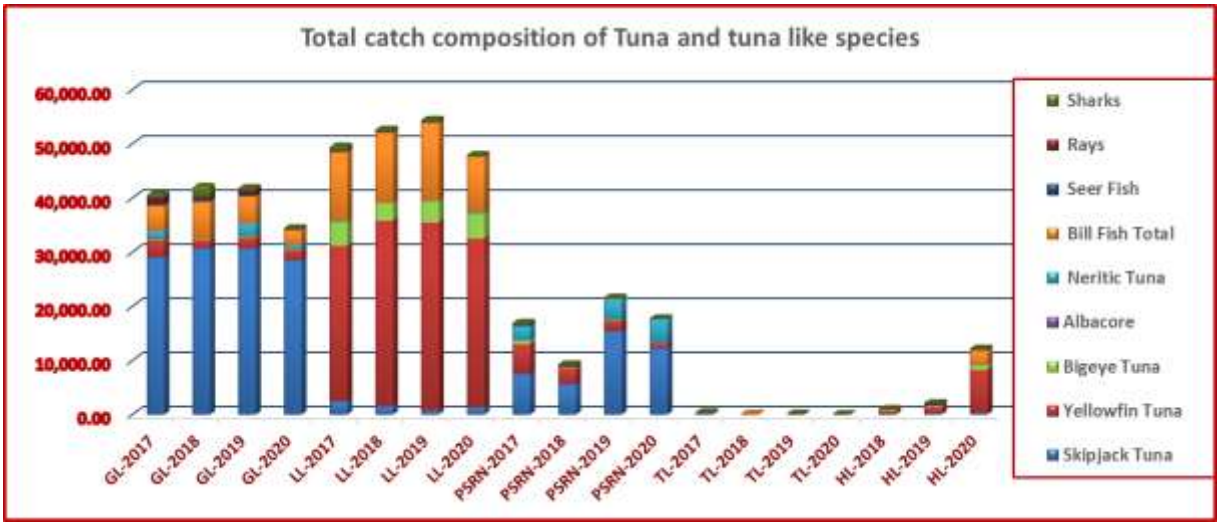
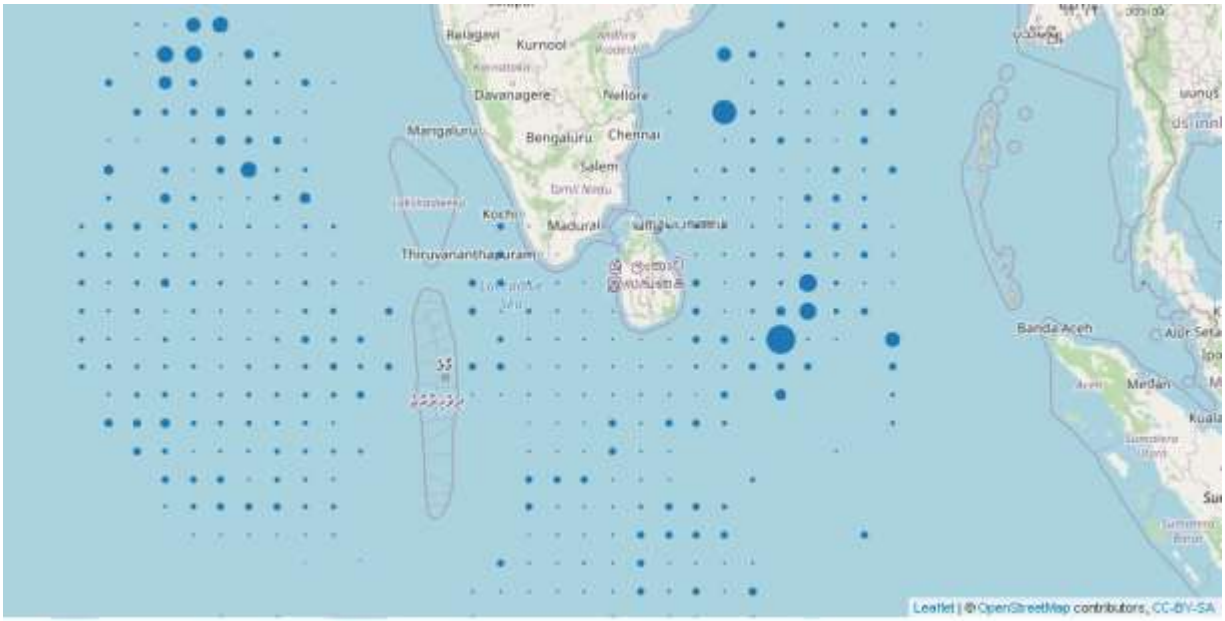
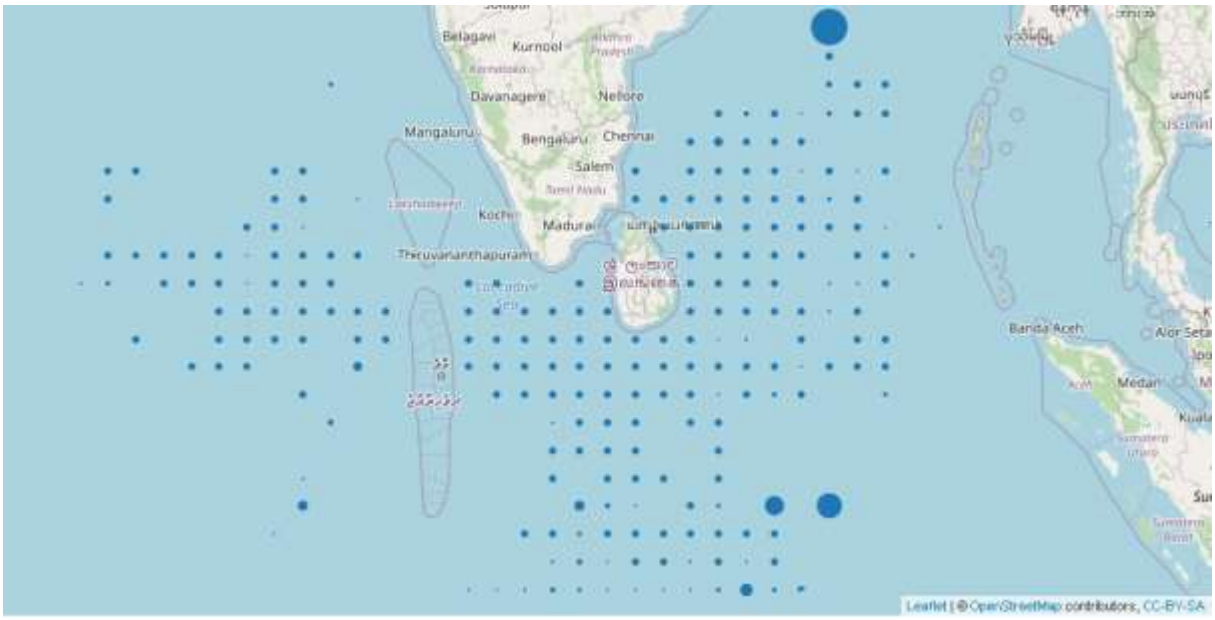


Figure 1e: Total Catch composition of Tuna and tuna like species by gear for the years 2015 To 2020
Source: PELAGOS database(NARA),log book database-(DFAR) & land based sampling database (DFAR/MFARD)

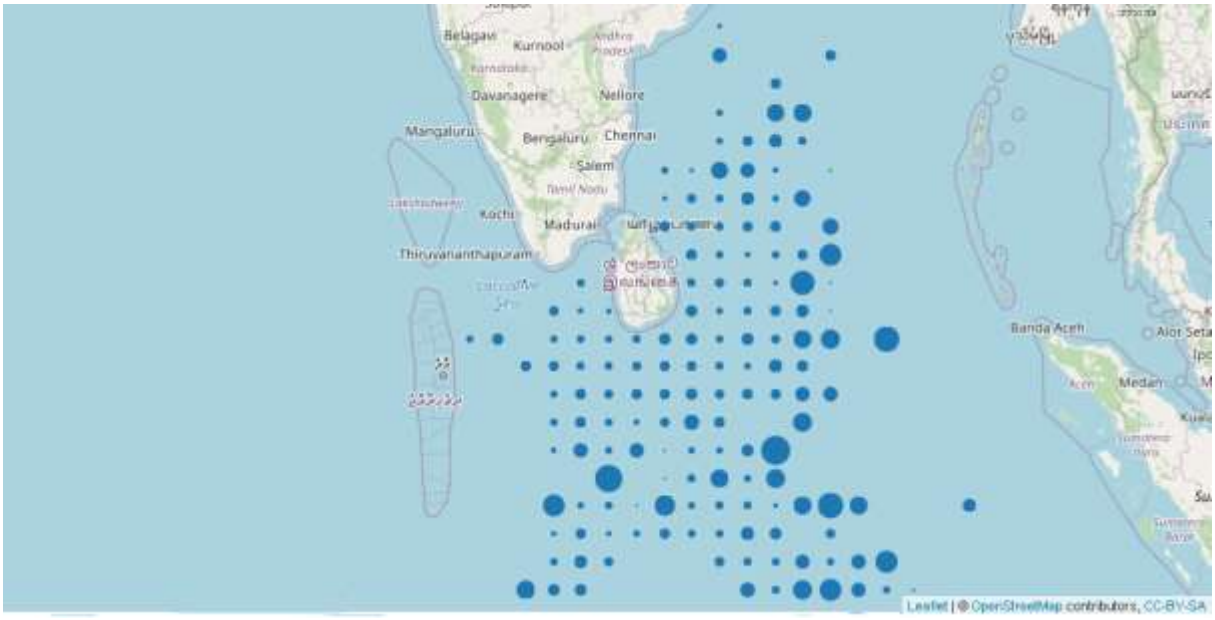
Figure 2a. Map of the distribution of <u>fishing effort</u>, by gear type for the national fleet in the IOTC area of competence (most recent year e.g. 2020). *[may require a separate map for each gear type]* **[Mandatory]**



2a.(i) Long Line

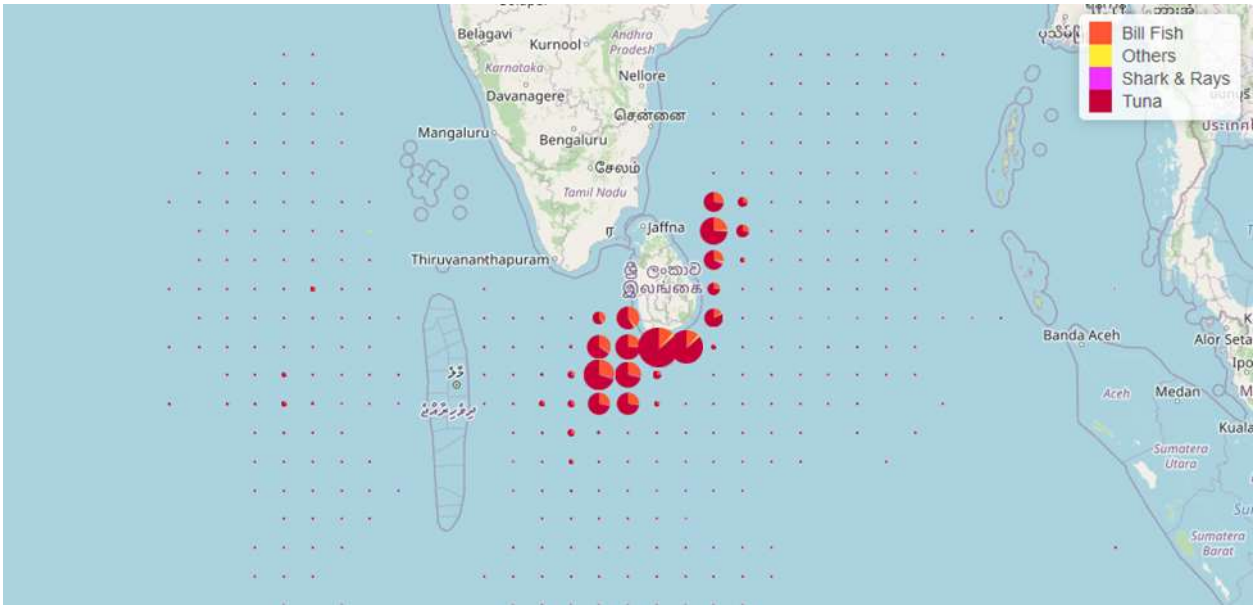


2a.(ii) Gill Net

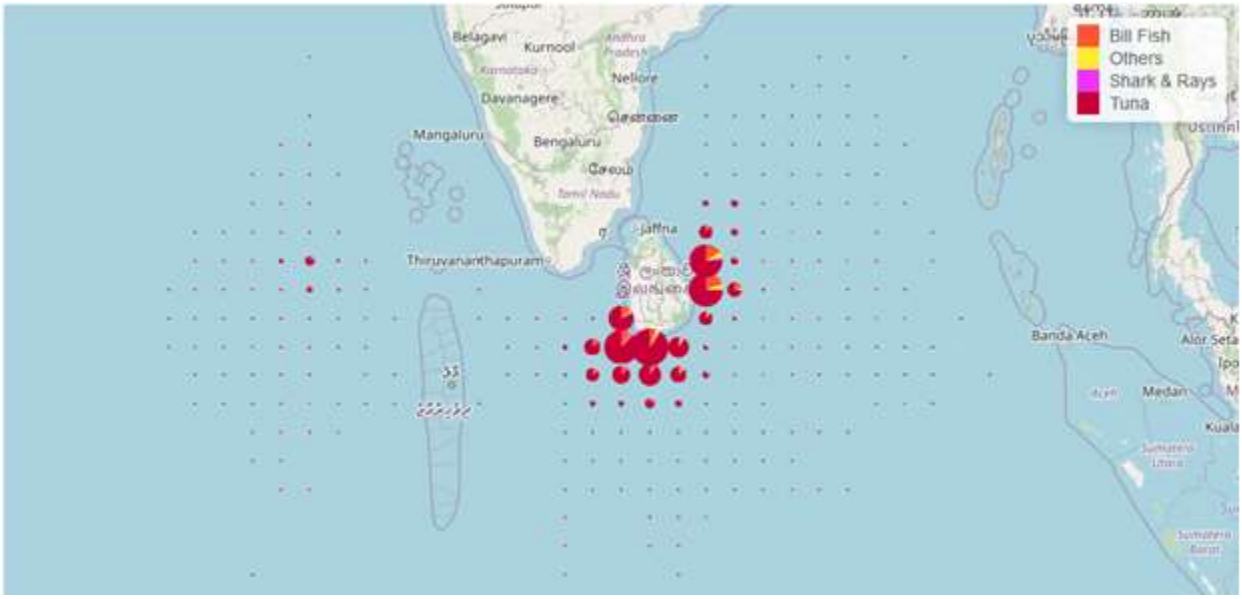


2a.(iii) Ring Net

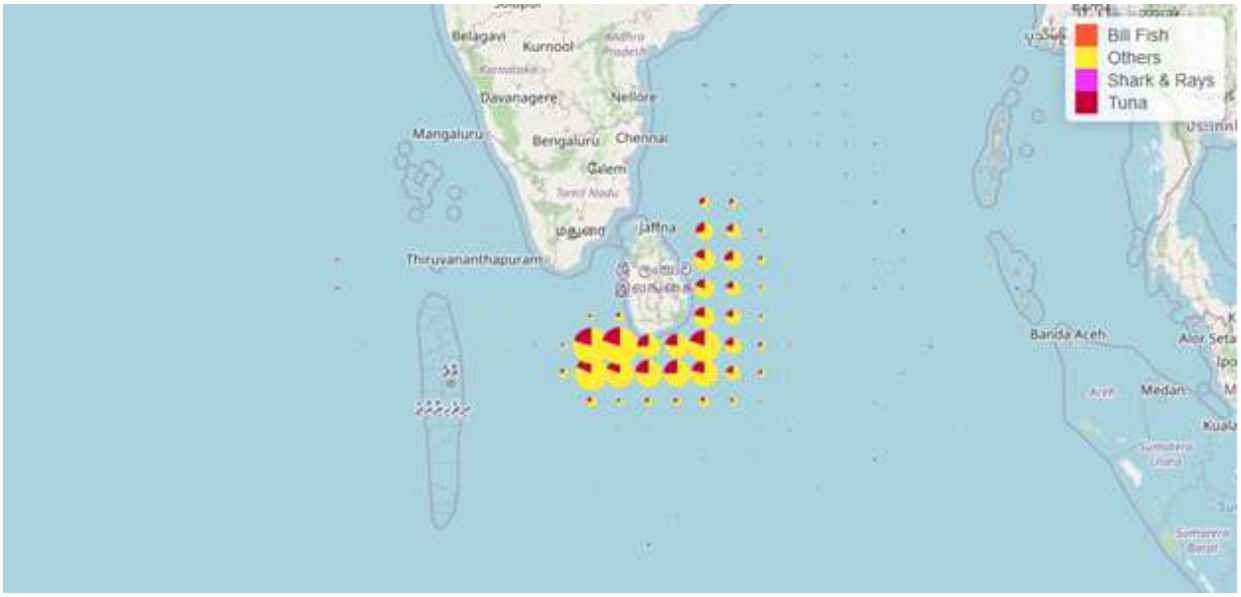
Figure 2b. Map of the distribution of fishing effort, by gear type for the national fleet in the IOTC area of competence (average of the 5 previous years e.g. 2015–2020). *[may require a separate map for each gear type]* **[Mandatory]**



2b.(i) Map of distribution of fishing effort for Long Lines (average effort for last 04 years)

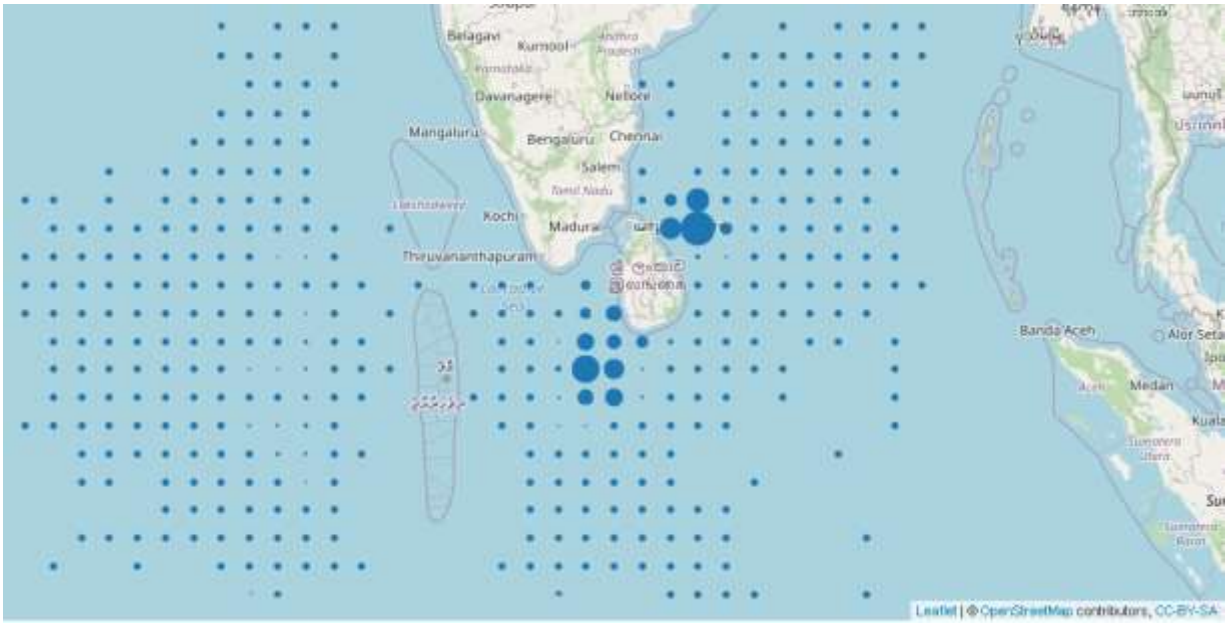


2b.(ii) Map of distribution of fishing effort for Gillnets (average effort for last 04 years)

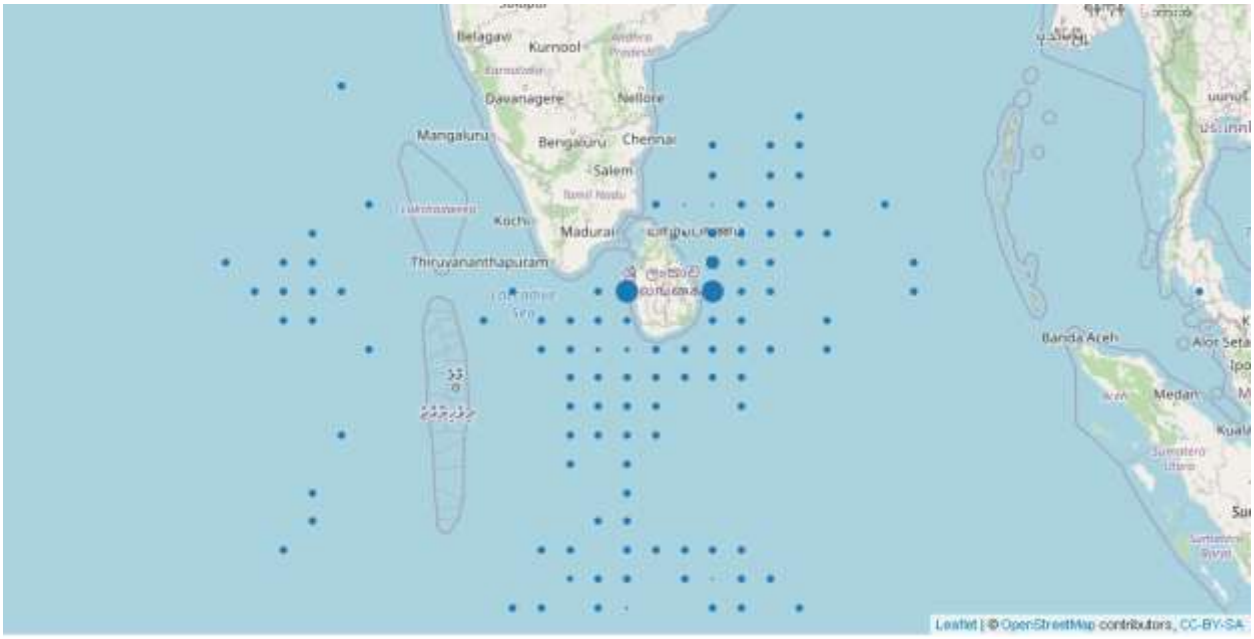


2b.(iii) Map of distribution of fishing effort for ring nets (average effort for last 04 years)

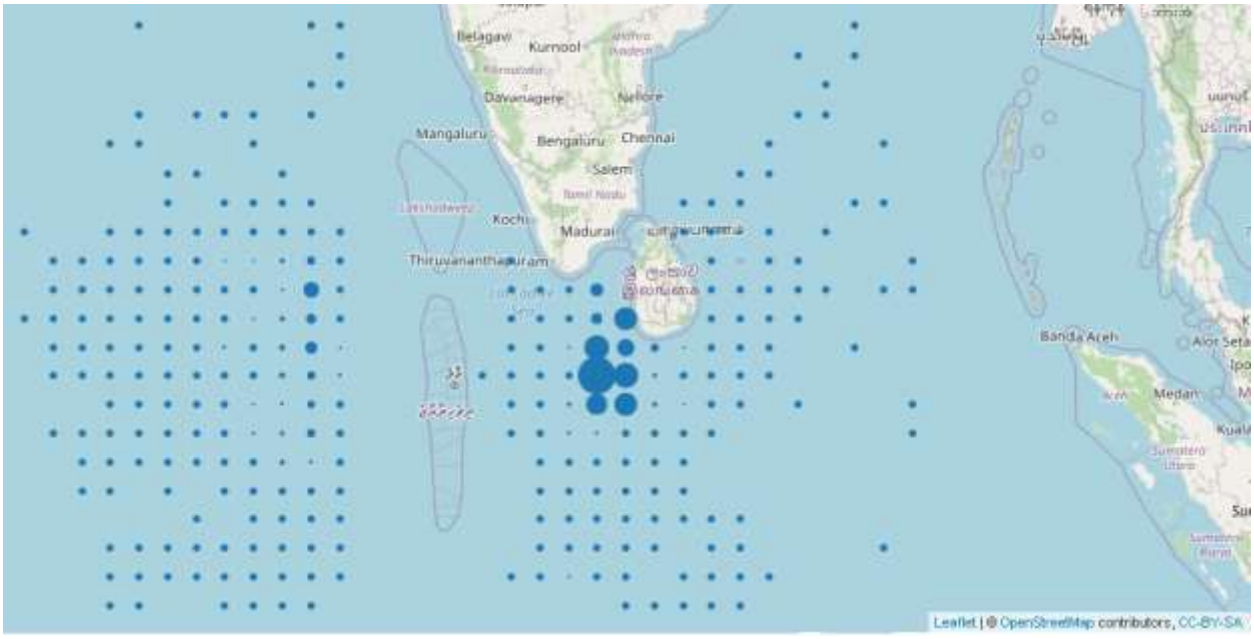
Figure 3a. Map of distribution of fishing catch, by species for the national fleet, in the IOTC area of competence (most recent year e.g. 2020 **[Mandatory]**



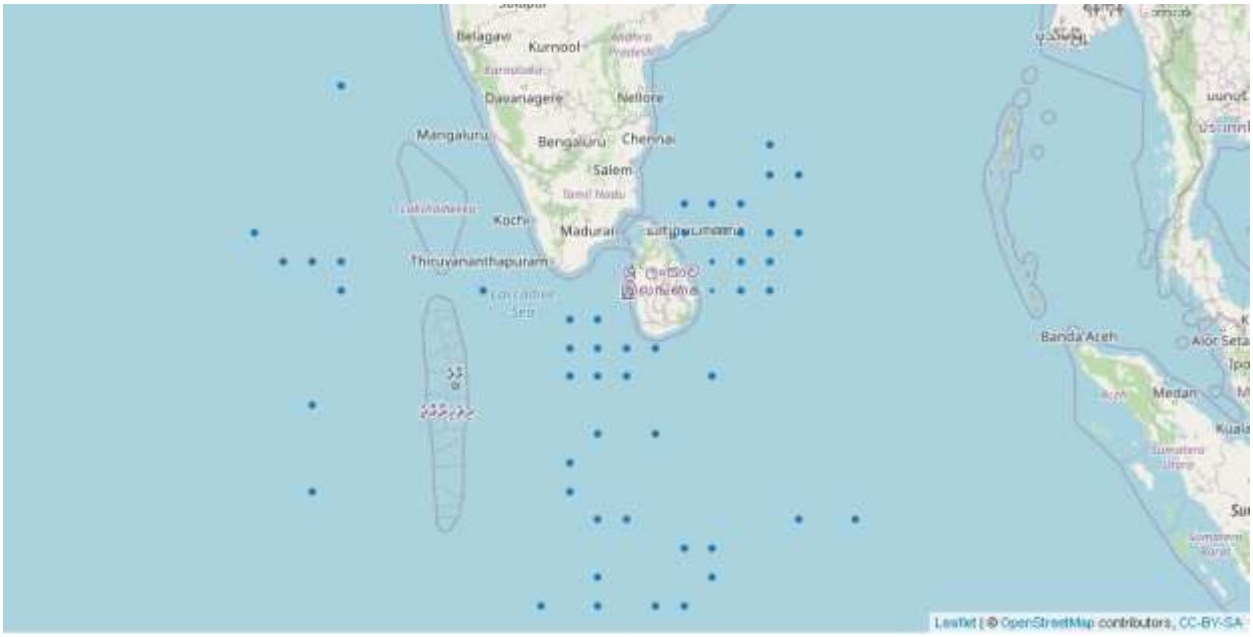
3.a (i) Map of distribution of fishing catch; Yellow Fin Tuna in Long line



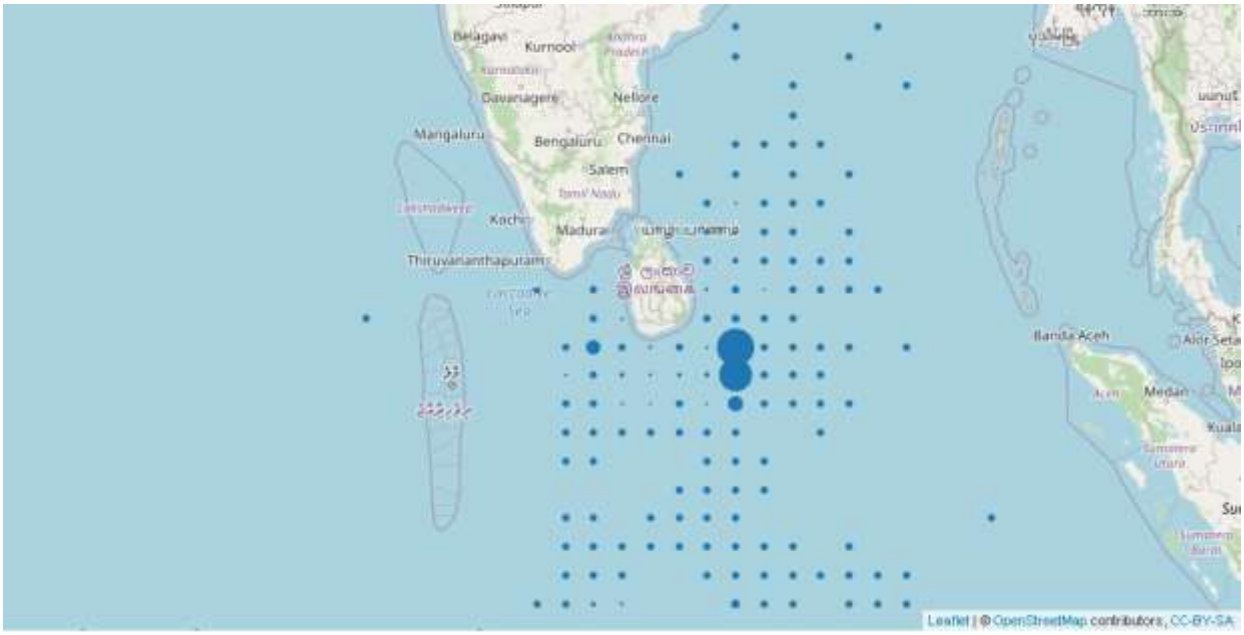
3.a (ii) Map of distribution of fishing catch; Yellow Tuna in Gillnets



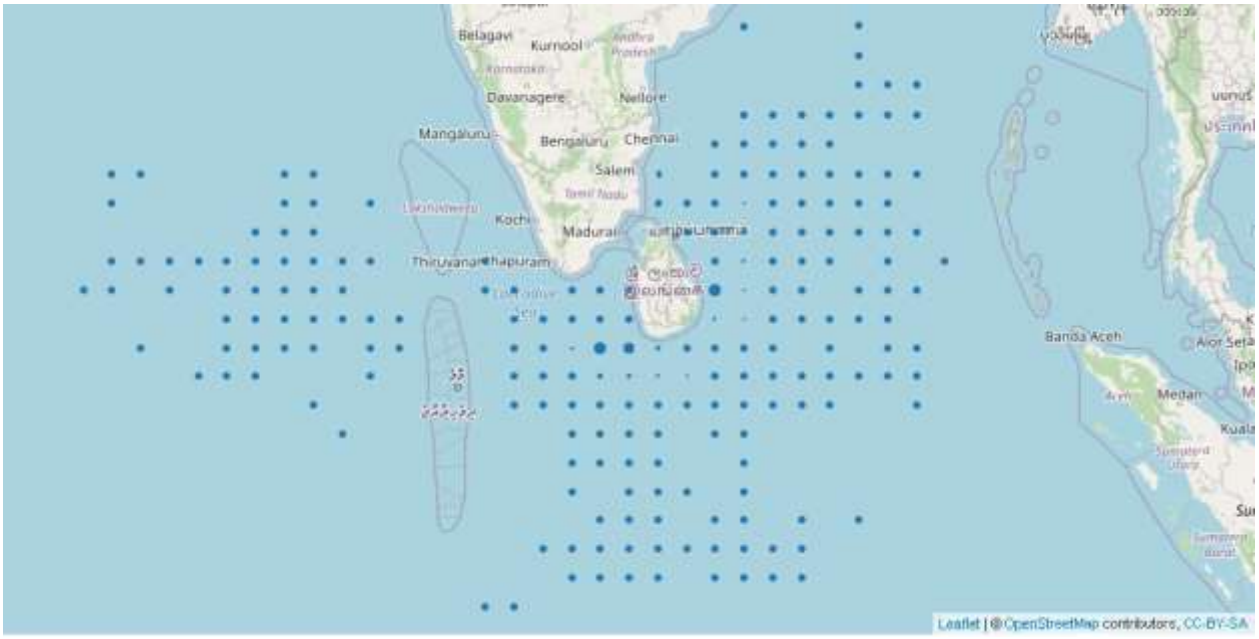
3.a (iii) Map of distribution of fishing catch; Bigeye Tuna in Long Lines



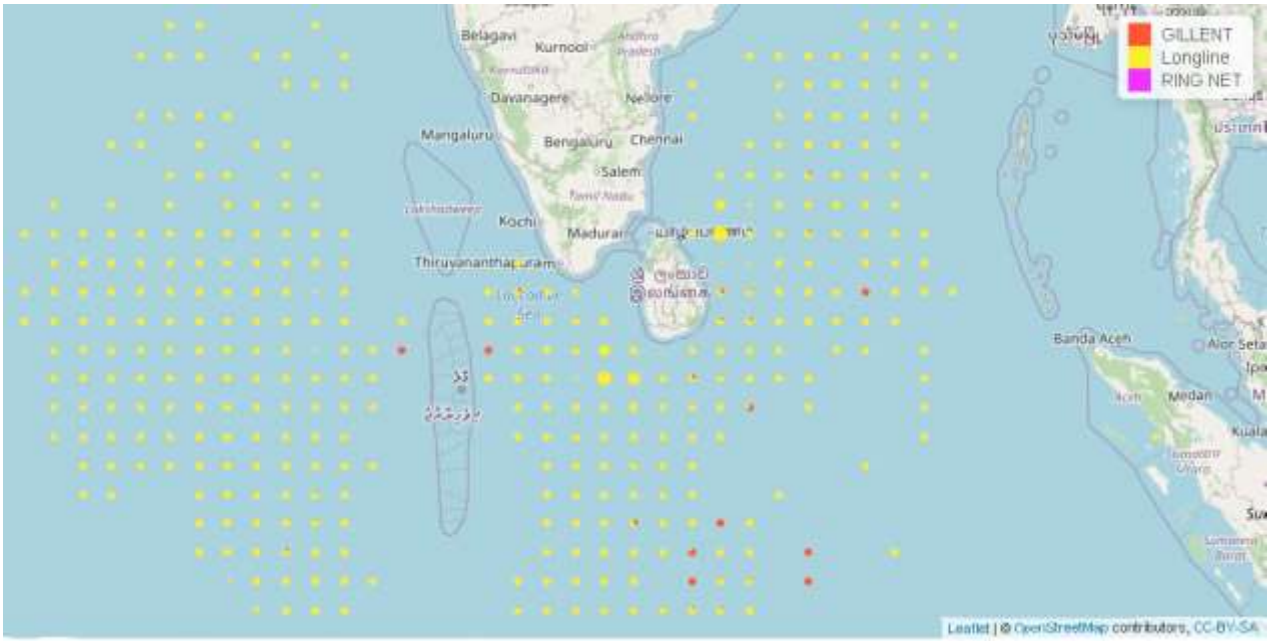
3.a (iv) Map of distribution of fishing catch; Bigeye Tuna in Gillnets



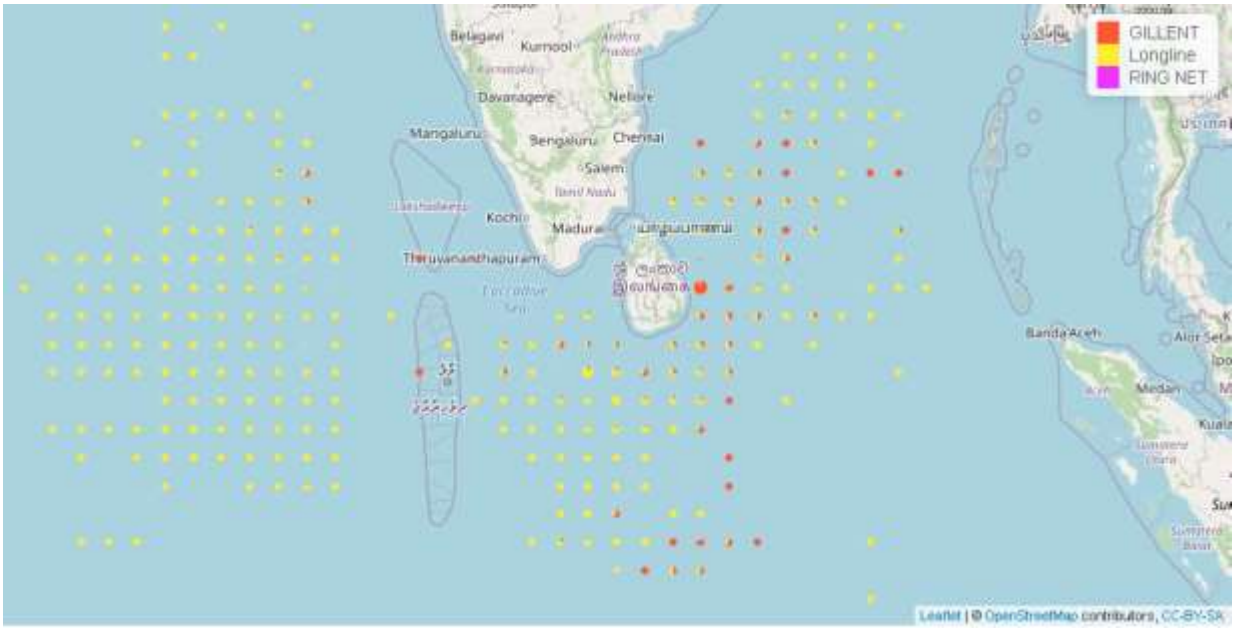
3.a (v) Map of distribution of fishing catch; Skipjack Tuna in Longlines



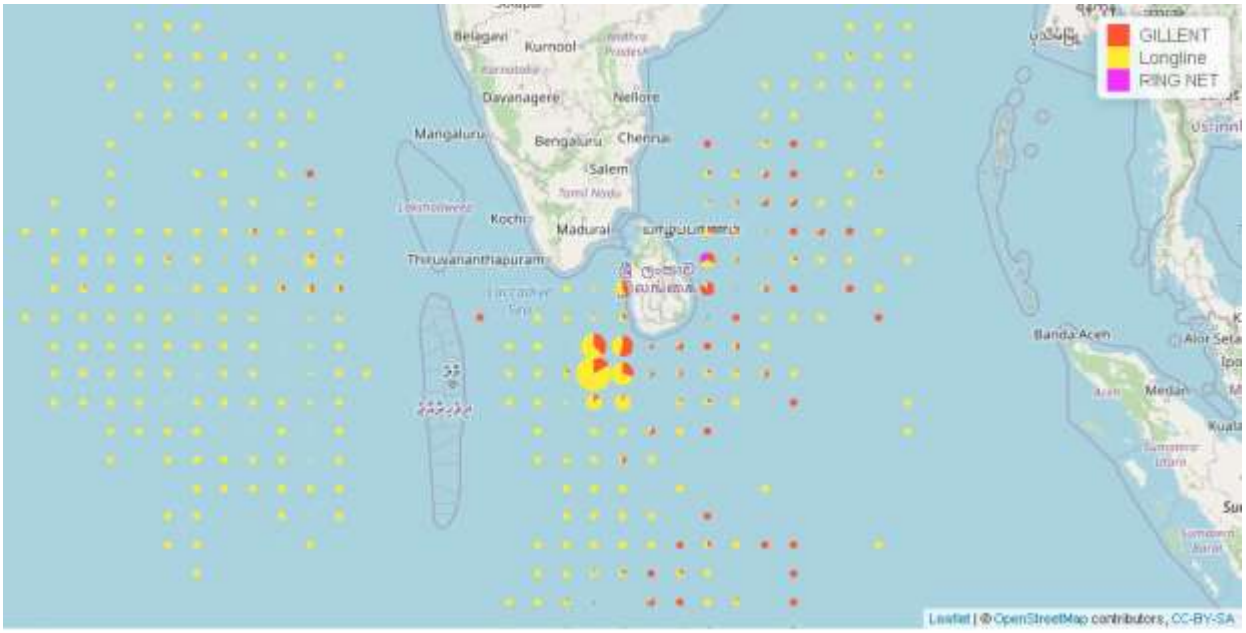
3.a (vi) Map of distribution of fishing catch; Skipjack Tuna in Gillnets



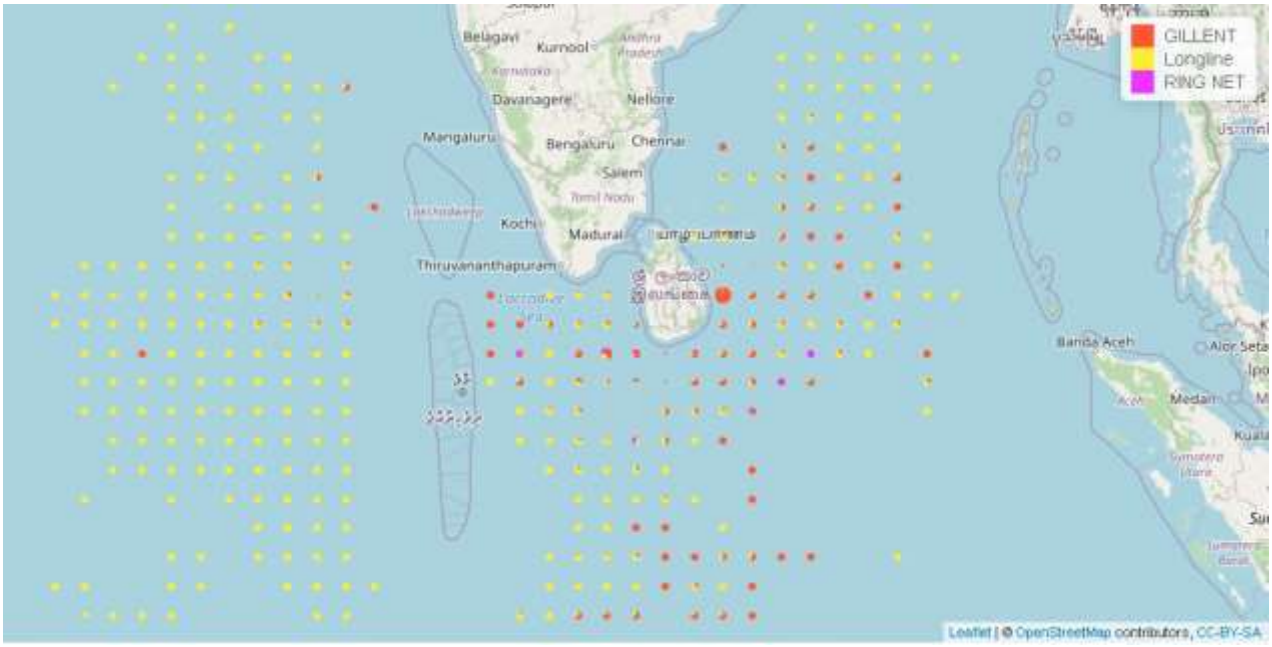
3.a (vii) Map of distribution of fishing catch; Swordfish



3.a (viii) Map of distribution of fishing catch; Black Marlin



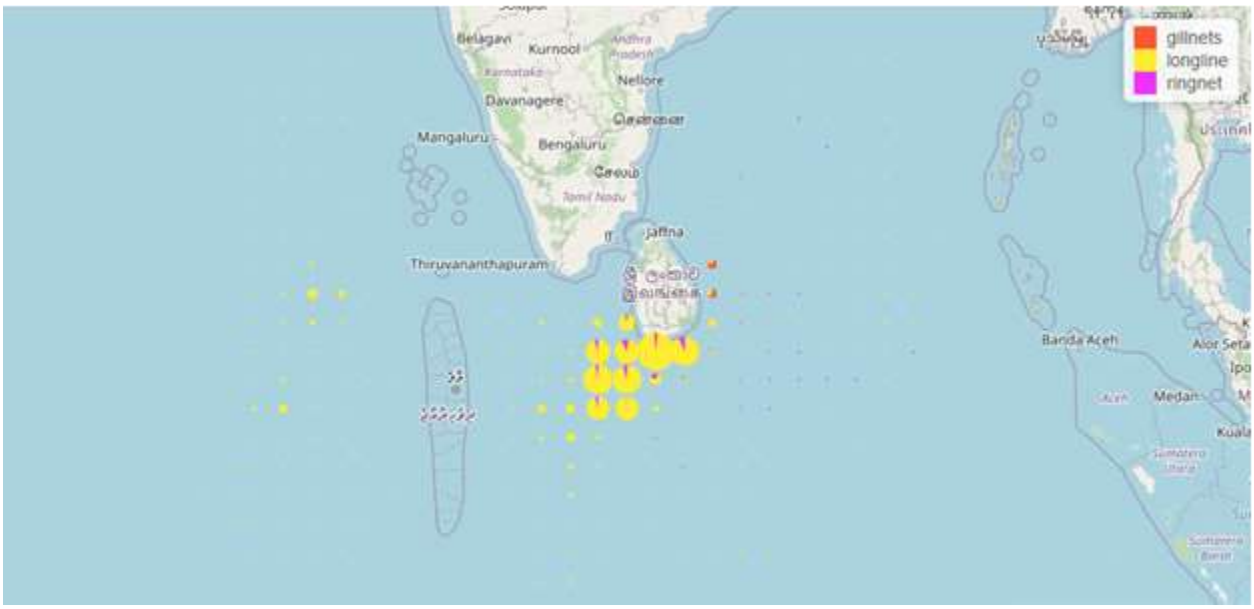
3.a (ix) Map of distribution of fishing catch; Blue Marlin



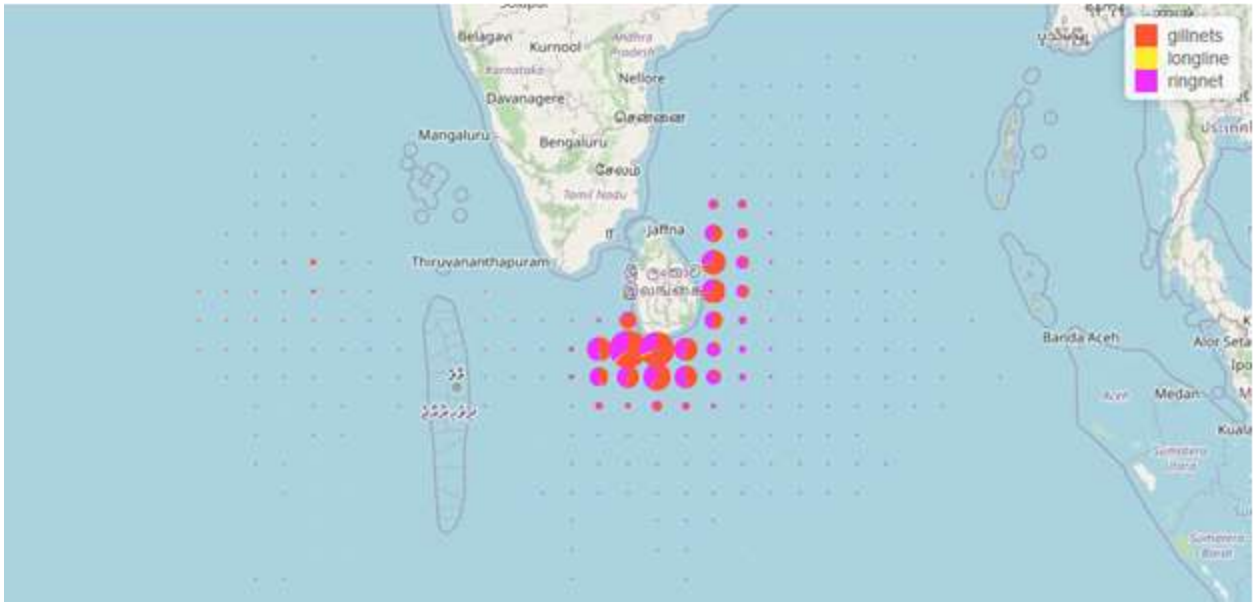
3.a (x) Map of distribution of fishing catch; Sailfish

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 years e.g. 2016–2020). *[may require a separate map for each species]* **[Mandatory]**

3.b (i) Map of distribution of fish catch Yellow fin tuna (average effort for last 04 years)



3.b (ii) Map of distribution of fish catch Big eye tuna (average effort for last 04 years)



3.b (iii) Map of distribution of fish catch Skip jack tuna (average effort for last 04 years)

Recreational fishery [Mandatory]

Recreational fishery for tuna and tuna like species is not a popular or the widely spread event in Sri Lanka, However sport fishing take place sporadic manner in associated with tourist industry mostly for coral associated fish. In recent, Department of Fisheries drafted a regulation for recreational fishery consultation with relevant stake holders and processing at Legal Draftsman Department. Prohibited species and recommended gear types , for recreational fishery was identified and listed as a schedule in the draft regulation. The safe release of the fish caught by recreational fishery is ensured under this regulation and a catch data recording sheet is incorporated to record the position and fish species caught.

- **Ecosystem and bycatch issues [Mandatory]**

5.1 Sharks [Mandatory]

(A)High Seas Fishing Operations Regulations 2014 (Fisheries and Aquatic Resources Act /FARA)

(i) The masters/skippers of the vessels have been legally ordered to prompt release of all mammals, turtles and seabirds and prohibited and unwanted sharks in live form at minimum harm caused to them if caught incidentally.
(ii) It is mandatory to carry and use of the line cutters and de-hookers on board to release sharks/turtles.
(iii) Departure and arrival boat inspections at port.
(iv) Prohibition of intentional surrounding of whale sharks by purse seiners. Mandatory to carry dip nets on board for purse seines to release whale sharks in live form.
(v) Deployment of onboard observer for Scientific data collection in the vessels>24m.
(vi) Prohibition of use of drift gill nets> 2.5km in high seas.FARA

(B) Shark Fisheries Management Regulation, 2015 (Gazette No. 1938/2 of 26 October 2015)

(i) Prohibition of finning on board and prohibition of , catching, retaining , transshipment , and sale of Thresher sharks(i.e.Alopius vulpinus, A. superciliosus and A. pelagicus) ,Ocean white tip shark (Carcharhinus Iongimanus) and whale shak(Rhincodon typus). .
(ii) Provisions to collect biological samples for research studies.

(C) Fish Catch data recording regulations 2014 (Log book)

(i) Keeping the records of any incidental catches, release/discard in live or dead ones of sharks, mammals, turtles and sea birds is legally mandatory

- Regulation on prohibition of use of poisonous, explosives or stupefying substances in fishing (FARA amendment 2004)
- Prohibition of monofilament net. 2006, FARA
- Mesh size restrictions for specified fisheries. FARA

- Prohibition of fishing dredging and bottom trawling damaging the sea bottoms and breeding and nursery grounds FARA
- Sri Lanka is a signatory to Convention on International Trade in Endangered Species(CITES) The hammer head ,white tip and porbeagal sharks are subjected to CITES and Sri Lanka has proposed Thresher shark for listing.
- Declaration of endangered marine species as protected species under Fauna & Flora Protection Act.
- Prohibition of coral mining removal and transport by the regulations under Coast conservation Act.
- Promoting the use of circle hooks to the longlines rather than "J hooks.
- *Marine Pollution Prevention Act No 59* of 1981(amended 2008) has legal provisions against pollutions affecting to marine animals and ecosystems such as actions on Sea accidents leading to oil pollution and cause harm to the environment and fauna and flora any to Sea.
- National Environment Act, has published "The National Red List 2012" of Sri Lanka revealing the National and Global conservation status of the fauna and flora of Sri Lanka. Special attention has been drawn to corals and marine fish species mammals and holoturians
- Species identification guides and posters for shark identification has been prepared and published in 2015.
- Improve the onsite sampling program to cover all species of shark as per the IOTC resolution 12/03 to collect required catch and size data and data submitted to IOTC on June 2020.
- Awareness programs are being conducted on the banning of thresher sharks, white tip sharks and whale sharks and recording of the incidental catches and prompt release in an unharmed condition.
- The sanction on violations has been increased to a adequate severity up to Rupees one million under the provisions of the Amended Act for High Seas Fishing in 2013.
- Shark fin sample has to be identified to species level obtain CITES clearance from Department of Wildlife to get the clearance for export of the fins of the sharks that are not prohibited to catch in Sri Lanka. The identifications are done both physically and genetically by the National Research Agency (NARA).

5.1.1. NPOA sharks [Desirable]

- Sri Lanka's National Plan of Action for the Conservation and Management of Sharks (SLNPOA-Sharks published in 2013 and subject to revise in four years period.
- The Steering committee on implementation of NPOA Sharks meets once in six months.
  NPOA Sharks is revised in 2018 using the comments and observations made by the members of the National Steering Committee.
- A new action plan is prepared to further improve the conservation and management of Sharks.
- Banning of the use /carry on-board the wire trace/shark lines in High Seas fishing is to be regulated under the amendments.
- NPOA-Sharks is published in www.fisheries.gov.lk website

5.1.2. Sharks finning regulation [Mandatory]

Shark Fisheries Management Regulation, 2015 (Gazette No. 1938/2 of 26 October 2015**)**

(i) Prohibition of finning on board and prohibition of , catching, retaining , transshipment , and sale of Thresher sharks(i.e.Alopius vulpinus, A. superciliosus and A. pelagicus) ,Ocean white tip shark (Carcharhinus Iongimanus) and whale shak(Rhincodon typus). .

There is no practice of finning onboard by the Sri Lanka fishermen. The fins are cut and removed by the buyers who engage in shark fin exports in the shore/ harbor after landing as per their interest. Sri Lanka do not have target fishery for Sharks for fin exportation as in the past.

5.1.3. Blue shark [Mandatory]

- Maintenance of updated log book (as per Res. 15/01) on board is legally mandatory.
- Skippers have trained on species identification and catch data recording.
- There is a separate column in the log book to report Blue shark catches for all gears.
- Log book data base is maintained at DFAR.
- Catch by small boats is collected by port sampling by the data collector assigned to the landing sites.
- Annual catch and effort data and size frequency data is submitted to IOTC as per the resolution 15/02.

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. 2015–2020

Species		FAO codes	Total weight (t)				
	Common name		2016	2017	2018	2019	2020
Carcharhinusfalciformis	Silky Shark	FAL	647	622.6	704.4	732	284
Prionaceglauca	Blue Shark	BSH	568	740	1028	711.8	230
Carcharhinuslongimanus	Oceanic Whitetip shark	OCS	0	0	5.2	0	0.40
Isuruspaucus	Longfinmacko	LAM+SMA	69	83.7	14.1	6.5	8.7
Isurusoxyrinchus	Short fin macko					6.6	2.00
Alopiassupercilliosus	Big eye thresher	BTH	00	00	0	0	0
Alopiaspelagicus	Pelagic thresher	PTH	00	00	0	0	0
Sphyrnalewini	Scallop hammerhead	SPL	75	117.6	16	24.6	8.5
Carcharhinussorrah	Spot tail	-	00	02		-	-
Sphyrnazygaena	Smooth hammerhead	SPZ	22	11.4	1.4	7.3	3,3
Spyrnamokarran	Great hammerhead	GRH	00	00	01	0	0
	Whale Shark	RHN	00	00	0	0	0
-	Other sharks	SKA	126	187	32.1	19.9	180.5
Total shark			1507	1764.3	1802.2	1,508.6	717.4

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. 2015–2020). Where available, include life status upon released/discard.

Year	status	Thresher Shark			Whale Shark			Oceanic whitetip			Silky Shark		
		GN	LL	PSRN	GN	LL	PSRN	GN	LL	PSRN	GN	LL	PSRN
2016	Live	7	2	0	2	0	0	4	10	0	0	0	0
	Dead	0	0	0	0	0	0	0	0	0	0	0	0
2017	Live	0	29	0	1	0	0	1	23	1	0	0	0
	Dead	0	0	0	0	0	0	0	0	0	0	0	0

2018	Live	0	174	115	3	0	0	0	53	0	0	1	0
	Dead	5	0	0	12	0	0	9	10	0	0	4	0
2019	Live	3	332	0	0	0	0	0	64	0	0	14	0
	Dead	7	62	0	0	0	0	0	4	0	0	2	0
2020	Live	12	164	0	0	0	0	0	19	0	0	6	0
	Dead	2	28	0	0	0	0	0	0	0	0	1	0

5.2

Seabirds [Mandatory]

Sea bird catches are not reported in Sri Lanka due to the nature of the fishery and less availability of sea birds species in the high seas around Sri Lanka. Seabirds are not interacting with long liners either line is setting or line hauling mostly due to the low height of the small boats without sophisticated super structure. The National Aquatic Resources and Research Development Agency (NARA) has done two short-term studies on sea birds through comprehensive port sampling and onboard observation study made in research vessels in the high seas of Bay of Bengal. The findings were present at the WPEB in 2014. Thus there is no mitigation measures in applied to prevent seabird interactions and Sri Lanka and has not developed the NPOA-Sea birds. Observers are not deployed in the small vessels due to space and safety restrictions . No vessels operated south of 25˚S.

Observer seabird interaction data sheet for the IOTC longline fleet [Desirable]
Name of member state: _____;
Reporting period* or calendar year_____
Species _____

Fishery		Observed					Estimate
Area[1]	Total effort[2]	Total observed effort[2]	Observer coverage[3]	Captures (number)	Mortalities (number)	Live releases (number)	Mortality estimate (number)
Total							

*This field can be used to specify a temporal stratification to the data e.g. season
[1]Spatial stratification (5x5, 10x10 or other – to be determined)
[2]Number of hooks observed hauled
[3]Percentage of all hooks set that were observed hauled

- How many vessels operated south of 25˚S in the period covered by this report?
- How many of those vessels used bird scaring lines (as a proportion of total effort)?

- How many of those vessels used line weighting (as a proportion of total effort)?
- How many of those vessels used night setting (as a proportion of total effort)?

5.3 Marine Turtles [Mandatory]

Data requested as per the given table is being prepared. However Sri Lanka needs more clarification to fill this table. Therefore data is given as per the previous year. The data as per the following table will send in due course after get clarify how to fill column with the heading of "Fishery".

	Fishery			Observed **				
Year	Lat*	Lon	Total effort	Total effort observed	Species	Captures (number)	Mortalities (number)	Live releases (number)

NB: Effort units should be appropriate for the gear type, i.e., hooks or sets for LL and sets of fishing days for purse seine or gillnet fleets and fishing days for pole and line fleets.

*The resolution should be consistent with the standard data requirements (i.e. 5°x5° for longline and 1°x1° for surface fisheries)**Indicate data source (e.g. logbooks or observer data)

Marine turtles are legally protected under Fauna and Flora Protection Act (FFPA) and Fisheries and Aquatic Resources Act no.2 of 1996. In 1979, Sri Lanka has signed the CITES agreement and therefore trading of turtles and their parts and products are completely prohibited. The sanctions have been increased in amended FFPA,2008 and FARA, 2013for the violation of laws. Further, large-scale drift net fishing in the high seas is restricted to maximum 2.5km in length reducing the entangling of turtles and other non-target species. In the longline fishery most of the vessels use the circle hook s. ("J" hooks are not in use).Trawling is completely prohibited in Sri Lanka.

The logbook data collection system allows the fisherman to report the interaction of turtles to the fishing gear. Out of the completed log sheets received following data is extracted but the position data has not clearly mentioned. By-catch data recording is being improved through regular awareness programs.

Discard levels monitored by the skipper of the vessel/ fishing master (Log book records) L – Live, D-Dead. There are two major NGOs working on turtle conservation in south coast of Sri Lanka. In addition NARA and Department of Wild Life Conservation (DWLC) working on turtle conservation. DWLC is running in-situ conservation activities at Bundala while NARA is running hatchery and refuge center at Kalpitiya. The conservation mostly in-situ conditions, Mainly nest protection, hatching rearing and safe releasing. Eco tourism is one of the main advantage of these projects. This has provided alternative livelihood for the people those engaged in poaching of turtle eggs previously. These projects conduct turtle rescue programs with fisher community.

2	status	Olive ridley turtle			Green turtle			Log head turtle			Howkbil turtle			Leatherback Turtle		
		GN	LL	RN	GN	LL	RN	GN	LL	PSRN	GN	LL	RN	GN	LL	PSRN
2016	Live	0	0	0	99	93	92	0	0	0	0	0	0	0	0	0
	Dead	0	0	0	18	6	0	0	0	0	0	0	0	0	0	0
2017	Live	316	30	0	533	40	33	34	0	2	96	5	8	12	8	1
	Dead	13	4	0	16	5	0	5	0	0	8	2	2	3	2	0
2018	Live	326	5	26	735	82	3	8	0	3	178	0	151	16	28	8
	Dead	48	0	0	119	6	0	4	0	0	34	0	0	6	14	0
2019	Live	329	39	0	469	45	0	5	6	0	209	13	2	87	24	0
	Dead	33	0	0	114	8	0	3	0	0	18	0	0	8	3	0
2020	Live	215	11	0	533	85	11	14	0	0	158	18	0	6	18	0
	Dead	34	0	0	32	6	0	2	0	0	7	0	0	0	0	0

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

Catching of marine mammals is legally prohibited Under the Fisheries and Aquatic Resources Act No.2 of 1996 and the Fauna and Flora protection (amendment) Act 1937 ,(amended 1993 and 2008). Sri Lanka do not operate large purse seines However regulation is formulated prohibiting catching of whale shark by intestinally set gears. . The fishermen are made aware to releasing dolphins, turtles and whale sharks if incidentally caught to a fishing gear by conducting regular awareness programs by NARA and DFAR. The Log books facilitate reporting of incidental catches of marine mammals. Deployment of an observer in small boats is not practical due to space , facilities and safety aspects.

Table 5. Observed annual catches of species of special interest by species (seabirds, marine turtles and marine mammals) by gear for the national fleet, in the IOTC area of competence (for the most recent five years at a minimum, e.g. 2015–2019 or to the extent available). **[Mandatory]**

Refer table under point 5.3 of this report for turtle by-catch data. Sea bird catches are not reported in Sri Lanka fish catch data. The incidental marine mammal catches from 2015-2019 are as follows.

Year	status	Blue Whale			Dolphin		
		GN	LL	PSRN	GN	LL	PSRN
2016	Live	0	0	0	17	3	1
	Dead	1	1	0	0	0	0
2017	Live	25	8	0	0	0	0
	Dead	0	0	0	0	0	0
2018	Live	0	0	0	124	1	0
	Dead	0	0	0	24	0	0
2019	Live	0	0	0	18	4	0
	Dead	0	0	0	12	2	0
2020	Live	0	0	0	26	7	0
	Dead	0	0	0	0	0	0

Discard levels monitored by the skipper of the vessel/ fishing master (Log book records) L – Live, D- Dead

National data collection and processing systems [Mandatory]

6.1. Log sheet data collection and verification (including date commenced and status of implementation)
The log book data recording system is legally mandatory by Fish Catch Data Collection Regulations, 2012 (Gazette, No. 1878/11 amended in 01 September 2014)for multiday fishing vessels > 34 feet (10.3m) in length operate basically in catching large pelagic fish within EEZ and high seas. It has been mandated to submit log sheet after every fishing trip. They provide detail data on the spatial and temporal distribution of catch and effort by individual gear, which satisfy the need of rectifying the shortcomings of obtaining special information on catch and effort by individual gear through port sampling programme**.**

Data received in logbooks has been utilized for verification and also to overcome inherent inefficiencies of port sampling data as per the IOTC requirement. Procedures for comparing logbook data with data on fish landings obtained from the Large Pelagic fishery survey has been completed and pre-tested with a sample of boats**.**

The vessels that were sampled at ports and the same vessels submitted log sheets were sorted by month referencing to their registration number. The landed catch records were separated by gear and area based on the catch and effort reported as in log sheets since submission of log sheets is a mandatory requirement for multiday fleet of >10.3m. Majority of sampled boats at ports have been regularly submitted the log sheet after every fishing trip. The assumption made during the multi-gear separation process was that each boat made two fishing trips instead of one; longline and gillnet separately. Around 15% landings are sampled jointly by NARA and DFAR officials at 18 major landing sites (fishery harbours) and 14 minor landing centres. Total of 32 data collectors (27 from DFAR and 15 from NARA) are involved in this field data collection**.**

6.2. Vessel Monitoring System (including date commenced and status of implementation)

Legislation; Implementation of Satellite based Vessel Monitoring System (VMS) for Fishing Boats Operation in High seas Regulations 2015, Date of published - 03.26.2015

- All multiday boats > 10.3m operating in high seas (1500 vessels) were equipped with operational VMS on board January 2016. This

- Vessels are being monitored under the provisions of the regulation on "Implementation of Satellite based Vessel Monitoring System (VMS) for fishing boats operating in High Seas 2015" .

- The annual report on VMS for year 2019 was submitted to IOTC on June 2019.

- The vessel monitoring center is established in a separate building in the Fisheries Department Head office Colombo. The Fisheries Management Centre (FMC) is well equipped. Officials have been trained and function 24/7 basis monitoring the vessels with real time data. The following reports and alarms are now being generated at FMC.
  - **o** Position data once 4 hrs intervals
  - o Any incident of tampering, power off or crossing of MBLs.
  - o Indicate the entry to buffer zone before arrive to the harbor.
  - o Final report of the cruise track (map) of the vessel

- The cruise tracks data of VMS are being manually cross checked with the Log sheet data submitted on the arrival and results of reconciliation is reported in a standard format. This helps to validate the information submitted in the logbooks.

- VMS data is being accepted as electronic evidence for prosecution at the Courts.

6.3. Observer scheme (including date commenced and status; number of observer, include percentage coverage by gear type)

Sri Lanka is being implementing National observer program in Sri Lanka as per the resolution 11/04 of IOTC since 2014. Currently there are 28 observers in the pool. The observers were given one week a preliminary training at the initial stage. In 2018 a training program on onboard observer is conducted under the technical corporation of FAO. DFAR conduct once in six months period a knowledge sharing workshop with the participation of all observers to discuss the issues and measures to overcome the difficulties of conduction of on board observer program.

IOTC has agreed to provide technical assistance to conduct comprehensive training program to the observers, observer coordinators and top management of the Department of Fisheries (DFAR) on the Regional Observer Scheme in Sri Lanka . The LoU has signed by the DFAR and the IOTC on 23-10-2018. The training programme consists in three stages. The 1st stage is scoping visit to plan and organize for the implementation of project activities (SV1). This has been already completed by the IOTC appointed expert, Mr.Chris Heinecken of CapMarine from 19 to 26 January 2020 in Sri Lanka. The SV2 training was planned to commence from end of April to May 2020 in the Colombo International Nautical and Engineering College (CINEC). This has been postpone with Covid pandemic.In the meantime DFAR conducted trained some scientist from National Aquatic Research

Agency (NARA), Ocean University and Ex-officials of Sri Lanka Navy for the Observer programme to increase the observer coverage in Sri Lanka large vessels. 35 officers and two Scientist from NARA have been given a basic training on 03-09-2019 by the current Observer team who have trained in the trainers trainee program by FAO in 2018 . Sri Lanka applying the IOTC ROS – E Collection interface to enter observer data in trial basis.

Table -1 progress of Implementation of resolution 11/04 from 2014 to 2020

Year	Number of Vessel – 24m<	Number of fishing operations	Number of observer coverage	% of Observer coverage
2014	Purse Seine - 08	10	02	20
2015	Long line - 02	02	02	100
2016	0	0	0	0
2017	Long Line -02	15	02	13.33
2018	Long Line - 02	09	02	22.22
2019	Long Liners - 18	86	05	5.81
2020	Long Liners - 20	63	07	11.11

2. Pilot Project on Electronic Monitoring Systems (EMS) in small vessels (<24m) of SL Lanka under the technical assistance of IOTC.

Majority of fishing fleet of Sri Lanka are small vessels < 24m and it is impractical to deploy on board human observers due to lack of space, facilities and safety. This has been continuously reported at the IOTC Scientific Committee and Compliance Committee. As a solution it is recommended to introduce EMS to the small vessels to collect the fish catch data and scientific data. Sri Lanka has been selected to implement the pilot project of EMS in small vessels.

The LoU signed between IOTC and DFAR in 2018. 6 fishing vessels (4 Long liners and two Gill nets vessels) have been selected to install EMS equipment initiate the project. Four sets of EMS equipment and three Desktop computers received to DFAR to conduct the project. Marine Instrument and the local Agent SG Holdings Pvt (Ltd) were work together on installation of EMS onboard of the fishing vessels.

Three days Training Programme is conducted by IOTC technical officer and the representative from Marine Instrument to introduce the EMS System and on the installation of the EMS Equipment on 24-26, September 2019. From the 4 long line vessels those installed the EMS, the data cassettes have been send to Marine Instruments in Spain. There was a compliant from the skipper of the vessel that the SSB radio communication system of the vessel is get disturbed when the EMS is operating. As such the data recording in the cassettes were not as expected.

Two gill nets fishing vessels to be installed EMS equipment and the equipment has been delivered but the installation could not completed due to the situation of Covid-19 pandemic.

The visit Marine instruments to continue the second stage of the EMS project to train dry based observers and evaluate the current process was scheduled to hold in February 2020. This has not happen due to Covid-19 pandemic. As such the DFAR, Marine Instrument, SG Holdings and IOTC had a zoom meeting in September 2020 to discuss on the future developments of the EMS project.

3. Note on crew based/ National Observer programme

Currently, **crew based national observer program is being conducted at pilot scale** to collect scientific data and fish catch data of small boats (<24) of Sri Lanka as an alternative for human observers on board. This pilot project was started in 2018 and the Information Technology Unit of DFAR work in collaboration with the multiday fishing boats organization and the District Fisheries Offices in Negombo and Chilaw on this project.

The reason for proposing crew based observer to the small size vessels of Sri Lanka is that, The cost of EMS is not economically not feasible for the Sri Lanka fishermen.

33 boat owners / skippers from Negombo and Chilaw have been selected for the pilot phase (Annex I). Skippers and or one or more members of the crew were trained to collect fish catch and scientific data using a tablets (18) and or a digital cameras (02). The training programmes started in September and e completed in November 2018. The project conducted for 3 months and the Information and data was analyzed.

The crew based national observer program enabled the DFAR to collect and recording / data requirements for fisheries for tuna and tuna-like species in the IOTC area relating to the trip, the gear, set, catch and scientific data pertaining to individual fish and other capture species caught and discards. Progress of the pilot project was presented to 14th Working Party on Data Collection and Statistics (WPDCS14) of IOTC. Links to the papers published were mention below.

https://www.iotc.org/documents/WPDCS/14/16-LKA

Response from IOTC WPDS chair are as follows.

Paragraph 74 of the 14th WPDS report

The WPDCS ACKNOWLEDGED the efforts of Sri Lanka to set up a data collection system based on digital photography, electronic logbook and crew as observers on small, multi-day fishing vessels (9.7 m to 28.6 m / average 12.4 m) on the high seas given numerous logistical difficulties such as limited space.

Paragraph 75

The WPDCS NOTED that the use of photographs in the data collection system based on digital photography, electronic logbook and crew as observers allowed the data to be independently verifiable and that metadata such as date, time and location could be extracted from the photographs, implementing – de facto – a manual form of EMS.

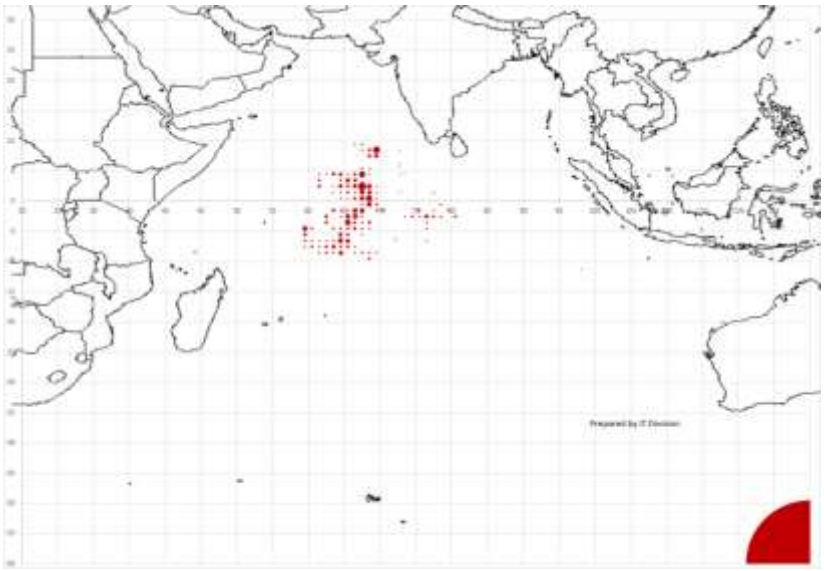


Figure 4. Map showing the spatial distribution of observer coverage 2020. [Mandatory] [Recommended spatial resolution = 1 x 1 degree grid]

6.4. Port sampling programme [Mandatory]

Table 8. Number of individuals measured, by species and gear 2020] [Mandatory]

Zone	Group	Species code	GI	LL	RN	HL
within EEZ	Neritic tuna	BLT	52	20	1242	16
		FRI	252	111	1955	43
		KAW	501	141	900	69
		COM	163	59		145
	Tropical Tuna	YFT		20140	1087	7070
		SKJ	31213	1613	6482	1601
		BET	149	1936		941
	Bill Fish	SWO		706		
		SFA	350	139		
		BLM	127			
		BUM				
	Sharks	BSH	35	137		32
		FAL	101	29	19	124
High Seas	Neritic tuna	BLT			306	
		FRI	34	52		
		KAW			36	
		COM				
	Tropical Tuna	YFT	115	8965		
		SKJ	3102	68	985	
		BET	93	3227		
	Bill Fish	SWO	55	1864		
		SFA	126	365		
		BLM	149	666	126	
		BUM	118	1114		
	Sharks	BSH		142		
		FAL		37		

6.5. Unloading/Transhipment of flag vessels [including date commenced and status of implementation] **[Mandatory]**

Unloading or transhipment of fish in other states ports is prohibited for Sri Lanka flagged vessels by law. .

Table 9. Quantities by species and gear landed in ports located in the IOTC area of competence

Quantities by species and gear landed by flag vessels in all fishery harbours and landing sites of Sri Lanka (domestic) is reported as a total in table 2(a) of this report .
No landings done in other states ports since it is prohibited.

Table 10. Quantities by species and gear transshipped in ports located in the IOTC area of competence 2020 **[Mandatory]**

No transshipments allowed for the Sri Lanka flagged vessels.

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

- Maintenance of updated log book (as per Res. 15/01) on board is legally mandatory.
- Skippers have trained on species identification and catch data recording.
- There is a separate column in the log book to report Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish.]catches for all gears.
- Log book data base is maintained at DFAR.
- Catch by small boats is collected by port sampling by the data collector assigned to the landing sites.
- Annual catch and effort data and size frequency data is submitted to IOTC as per the resolution 15/02.
- Catch, retain on board, trans-ship, land, any bill fish (Striped Marlin, Black Marlin, Blue Marlin, Indo Pacific Sailfish smaller than 60 cm Lower Jaw Fork Length is prohibited in High Seas, and has been included to the High seas fishing operation license.

6.7. Gillnet observer coverage and monitoring [Desirable]

Majority of Sri Lanka fishing vessels are small in size (<24m) and therefore deploying of human observer on board is impractical. Significant gillnet operating vessels are being sampled under the existing port sampling program. The pilot project of Electronic Monitoring system for catch data monitoring at seas is being implemented under the technical assistance IOTC including the gill net operating vessels.

6.8 Sampling plans for mobulid rays [Mandatory]

No intentional catch of mobulid rays in Sri Lanka . The incidental catches are already monitored by the existing port sampling program and catch and effort data submitted to IOTC in the annual submission as per the resolution 15/02**.**

- **National research programs [Desirable]**

7.1. National research programs on blue shark. NARA

Refer project C in Table 8 below.

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

Currently not available**.**

7.3. National research programs on sharks

Revised National Plan of Sharks Sri Lanka has an activity plan addressing some of the issues . Activities are to be implemented. Refer project C in Table 8 for on going research work on sharks.

7.4. National research programs on oceanic whitetip sharks NARA

Revised National Plan of Sharks Sri Lanka has an activity plan addressing some of the issues . Activities are to be implemented. Refer project C in Table 8 for on going research work on sharks.

7.5. National research programs on marine turtles NARA

Currently not available.

7.6. National research programs on thresher sharks NARA

Revised National Plan of Sharks Sri Lanka has an activity plan addressing some of the issues . Activities are to be implemented. Refer project C in Table 8 for on going research work on sharks.

Table 8. Summary table of national research programs, including dates.

Project title	Period	Budget total	Funding source	Objectives	Short description
A) small & lar ge pelagic port sampling program	Ongoing	4.28 LKR million	LKA Govt.	i. Update databases for commercially important species ii. Analyse stock status of the resources iii. Biological studies for selected species iv. Annual catch and effort data Submission to IOTC,FAO data sharing. **v.** make recommendations for sustainable resource use..	Information provided to FAO, IOTC and also utilized for domestic fisheries management..
B) Fishery associated marine mammal interactions and	Ongoing	1.8 LKR Million (for 2020)	LKA Govt.	i. Keep records on individual species . ii. Study the seasonal migration pattern iii. Interaction of marine mammals fisheries in fisheries	Stranding are also recorded. Information are also being used to address US fisheries export issue.

population estimate of blue whale (*B. musculus*				iv. Study on mitigation actions minimize the impacts	Scientific papers are being prepared
C) Biological, fisheries and other aspects in shark fishery with a special reference to shark fin trade	Ongoing	0.525 LKR Million	LKA Govt.	i. Study fisheries aspects of sharks. ii. Study on biology and stock structure of Blue shark (*Prionaceglauca*) iii. Study the emerging trends in shark fishery and local & international trade iv. interactions of protected sharks with commercial fishing	Tissue samples are being collected to study the genetic stock structure of blue sharks around Sri Lanka Locally and internationally trends in the shark fishery is being analysed by using import-export statistics and literature.
Norway-Sri Lanka bilateral project to improve coastal data collection	On going (up to 2022)	10 LKR million (for 2020)	LKA Govt. and Norway	i. Upgrade port sampling in marine fishery of Sri Lanka via establishing a proper sampling strategy. ii.report findings from fisheries independent surveys according to scientifically recognised norms. Iii. prepare management plans for selected fisheries in Sri Lanka	Development and establishment of a robust fisheries information system.

- **Implementation of Scientific Committee Recommendations and Resolutions of the IOTC relevant to the SC. [Mandatory]**

Table 9.Scientific requirements contained in resolution of the Commission adopted between 2012-2019 .

Res. No.	Resolution	Scientific requirement	CPC progress
11/04	On a regional observer scheme	Paragraph 9	Sri Lanka deployed on-board observers for the vessels >24m (100%) - Sri Lanka is selected for the pilot project on introduction of Electronic Monitoring system in the small vessels operating at high seas by IOTC. The project is being implemented and Sri Lanka fully support for this project.- Sri Lanka seeks a cost effective solution for on-board scientific data collection and therefore conducted crew based on-board observer program at trial basis and presented to WPDCS 2018. Refer 6.3 for more information
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	Refer 5.3 above. Carry the line cutters and de-hookers on board by long liners and dip nets by purse seiners has made legally mandatory for the high seas operating vessels under high seas fishing regulation 2014
12/06	On reducing the incidental bycatch of	Paragraphs 3–7	There is a separate box in the log book to report

	seabirds in longline fisheries.		incidental catches in the logbook. - Currentlly there is are no recordes of Sri Lanka vessels fish in the area of south of 25 degrees South latitude -Sri Lanka will apply , mitigation measures with the development of fishing activities in this area.
12/09	On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence	Paragraphs 4–8	Refer 5.1.1 National initiatives on conservation and management of sharks Refer 5.1.1 National initiatives on conservation and management of shark
13/04	On the conservation of cetaceans	Paragraphs 7– 9	Marine mammals (cetaceans) and turtles are protected under Fauna and Flora Protection (amendment) Act 1937(FFPA) (amended 1993 and 2008); Fisheries and Aquatic Resources Act No. 2 of 1996 (FARA)(amended 2004, 2013 •Vessels >24m are deployed with observers and data reported . •There is a separate box in the log book to report incidental catches of cetaceans (if any) and release of them dead/alive form. This has been incorporated to the e-log book/tab by giving pictures and drop down selection
13/05	On the conservation of whale sharks (*Rhincodon typus*)	Paragraphs 7– 9	Catch of whale shark is prohibited by the amended shark fishery management regulation 2015 •Fishers are being aware recording of the incidental catches and prompt release in an unharmed condition. -There is a separate box in the log book to report incidental catches •The sanction on violations has been increased up to Rupees one million under the provisions of the Amended Act for High Seas Fishing in 2013. Prohibition of intentional surrounding of whale sharks by purse seiners. Mandatory to carry dip nets on board for purse seines to release whale sharks in live form.(High Seas Fishing Operations Regulations 2014)
13/06	On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries	Paragraph 5–6	Catch, retain onboard, tranship, land,store or sell of thresher sharks species, oceanic white tip shark, whale shark and shark finning on board and landing sharks fins detached both within EEZ and high seas areas is prohibited in the consolidated A regulation. published in March 2015 -submitted data for sharks, as required by IOTC data reporting procedures.
15/01	On the recording of catch and effort by fishing vessels in the IOTC area of competence	Paragraphs 1–10	Paper Log book onboard is made legally mandatory (catch data collection regulation 2012 (amended 2014) -The log books for year 2019 are printed as per resolution 15/01 and distributed -The Log book templates are provided to Secretariat to display on IOTC website.
15/02	Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)	Paragraphs 1–7	Data collection sheets have been introduced and the port samplers were trained, sampling procedures introduced, Log book has been improved in a way that enabling the calculation of total catch as per the resolution...Marine mammals and turtles are protected under Fauna and Flora Protection (amendment) Act 1937(FFPA) (amended 1993 and 2008); Fisheries and Aquatic Resources Act No. 2 of 1996 (FARA)(amended 2004, 2013).□ Sea bird catches are not reported in Sri

			Lanka due to the nature of the fishery. There is a separate cage to report incidental catchesof sea birds if any and release of them dead/alive from.. Electronic software for catch and effort data recording (Elogbook/tab) with autonomy geo- positions is being developed and a tested for better data collection and generation of reports.
17/05	On the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 6, 9, 11	he removal of shark fins on board, landing, retention onboard, transhipment and carrying of detached shark fins.and Landing of carcasses of sharks which are not having fins naturally attached to the body at the point of landing is prohibited by law published in March 2015 . Release of live sharks, especially juveniles and pregnant sharks that are caught incidentally is made lagally mandatory by the above regulation. Fishers and the data collectors law enforcement officers have made aware and the species identification guides are provided. Data recorded as per IOTC data reporting requirements and procedures in Resolution 15/02.The NPOA-Sharks is being amended to ban use /carry onboard the wire trace/shark lines in High Seas fishing vessels and to be published.
18/02	On management measures for the conservation of blue shark caught in association with IOTC fisheries	Paragraphs 2-5	record Blue shark catch in accordance with the requirements set out in the Resolution 15/01.The data collection programme has been improved to report accurate blue shark catch, effort, size and discard data to IOTC in accordance with the Resolution 15/02. The domestic catch data to collection and monitor system is given under point (6) this report..
18/05	On management measures for the conservation of the Billfishes: Striped marlin, black marlin, blue marlin and Indo-Pacific sailfish	Paragraphs 7 – 11	Data recording of catch and effort data is practiced by using a log book prepared as per the standards given in the resolution 15/02 in the IOTC area. Use of species identification cards for proper identification of fish species specially to ensure accurate reporting of Striped Marlin, Black Marlin, Blue Marlin and Indopacific Sailfish
18/07	On measures applicable in case of non-fulfilment of reporting obligations in the IOTC	Paragraphs 1, 4	Nominal catches were submitted to IOTC as per the IOTC 1RC electronic form covering the most commonly caught elasmobranch species according to records of catches and incidents as established in Resolution 15/01 including zero (0) catches.
19/01	On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence	Paragraph 22	Refer 6.7 above.
19/03	On the Conservation of Mobulid Rays Caught in Association with Fisheries in the IOTC Area of Competence	Paragraph 11	No intentional catch of mobulid rays in Sri Lanka . The incidental catches are already monitored by the existing port sampling program and catch and effort data submitted to IOTC in the annual submission as per the resolution 15/02**.**

- **Literature cited [Mandatory]**