Sri Lanka National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2018

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 2017, final data for the 2016 calendar year must be provided to the Secretariat by 30 June 2017)	YES 30/06/2018
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 2017, preliminary data for the 2016 calendar year was provided to the IOTC Secretariat by 30 June 2017). **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 2017, final data for the 2016 calendar year must be provided to the Secretariat by 30 December 2017).	YES 30/06/2018
If no, please indicate the reason(s) and intended actions:	

Executive Summary [Mandatory]

The total production of tuna and tuna like species of Sri Lanka in year 2017 was 110, 721t. 85% of the catch was from the EEZ. Skipjack tuna dominated the catch amounting to 39,556t. 34% of the catch is Yellow fin tuna (37,972t) and 5% was bigeye tuna. The bill fish were the second most group which contributed 16% to the catch where sword fish dominate in the catch. The shark catch was 1764t. Legal ban on catching of certain species of sharks has reduced shark catches. Over 4000 multi day boats engaged in large pelagic fishing. Out of the authorized vessels 1374 were active at high seas however most of the catch is from the EEZ. Almost all high seas vessels are within the range of 10- 15m in length. 1461 numbers of vessels fitted with VMS and monitored by land based FMC. VMS is mandatory for high seas fishing.Long line and gill net are the major fishing gears used. 34%of vessel operated for tuna are dedicated long liners and 28% are gillnetters. Measures are underway to restrict the use of large gill nets within EEZ. 100 multi purpose mechanised boats were made exclusively deep sea long liners by installing winch and better cooling systems. High fuel cost has restricted the vessel operations and mostly kept anchored. The VMS data are being used to crosscheck the accuracy of position data provided in the logbooks. Electronic catch data recording is being carried out at pilot scale. On board observers were deployed in all possible vessels. Port State Measures legalized and*E-PSM* application is followed. The coverage of coastal data collection expanded.

Contents [Desirable]

1. BACKGROUND/GENERAL FISHERY INFORMATION [MANDATORY]

Tuna fishery in Sri Lanka occurs mainly within the EEZ and limited in high-seas. The traditional coastal fishing remain operating mainly targeting neritic tuna and associated fish such as carangids within continental shelf and slope areas. The offshore fisheries are confined to the area beyond the 40km up to the 200nm and beyond in high seas fishing. 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 scale fishing boats of 5-15m length and few are 15-24m. More than 99% crafts are below 15m and do not have mechanized haul. 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 3500 boats conducted multiday fishing within the EEZ of Sri Lanka. Two long line vessels > 24m operated only in high seas. Only the Vessels > 10.3m, fitted with VMS were permitted to engage high-seas fishing combined with offshore areas of EEZ. Thereby 1390 boats were authorized for high-seas fishing in year 2017 and only 1374 boats were active.

34% are dedicated long liners mainly targeting yellow fin tuna and 28% of the total effort in large pelagic fisheries is large-mesh drift gillnets(GN), targeting skipjack tuna. The High seas gill nets are made of 20-25 pieces and 5" or 6" stretched mesh. Around 200 -1200 hooks are used in longlines. About 10 % of the exclusive longliners fish with a larger number of hooks per set (1000 hooks), and reach the depth of 70m-100m hauled by mechanized winch. In 2017 hundred Multiday boats using multiple gear were made exclusively for longline by providing mechanized line haulers encouraging deep sea fishing. Gillnets are being discouraged. Ring net is recently developed for catching of mackerel scads *(Decapterusruselli)*and trigger fish etc. Ring nets gained popularity among coastal fishermen in south, southwest areas and east and sometimes among offshore fishermen to catch the bait. The other fishing gears being used in lesser extent were handline 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 licence is freeze. Beach seine catch data is included to the coastal data submission from 2017 onwards.

The use of fishing gear 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, milkfish and frozen squid are generally used as the bait in long lines. Offshore and the high-seas catch dominated by skipjack tuna (*Katsuwonuspelamis*), yellowfin tuna (*Thunnus albacores*), 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 6-7meterslength 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 5-30 days or sometimes more. If successful long line operations took place, the catch landed early targeting the export market. The boats use gillnets under take long trips sometimes up to 30 days or more and preserve the early catch by salting and sun drying and the late catch in ice. The weather conditions, small size of the boat and inadequate safety measures on board also influence the trip duration.

Development of offshore and high seas fishing and improve the on board fish handling practice to reduce the post harvest loss, is the main fishery policy in the recent past. The legal frame work has been strengthen to expand the high seas fisheries as per the international conventions and regional obligations. As such large vessels with advanced cooling systems such as chilled seawater (CSW) or refrigerated sea water (RSW) is encouraged.

However, there is an issue in the industry regarding the high operating cost due to the 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.

2. FLEET STRUCTURE [MANDATORY]

Table 1 (a) National Tuna fleet structure by gear type , including vessel size and Trip length for year 2017

Boat Type	Vessels operated within EEZ	Vessels operated High seas +EEZ		Gears used	Trip length
		Number Authorized at IOTC	Active		
5m-10.3m	2280	No	No	34% - LL only 28%- GI only 16% - PSRN 22%- Multi gear eg.(LL & GI), (LL& PSRN), (LL,GI & PSRN) ,HL, TS)	About 18% of the 5-10.3m length boats operates one day while rest operates 5-30 or more days
10.3m -15m	876	1374	1358		
15m-24m	26	14	14		
>24m	-	2	02		
	3182	**1390**	**1374**		
Total registered for tuna and tuna like fisheries = 4572					

Source: Vessel Registry- DFAR

Out of the registered 4572 number of large pelagic fishing boats around 900 boats engaged in one day fishing operations and the rest conducted multiday fishing within the EEZ and high seas. Only the vessels >10.3m in length were permitted to engage in high-seas fishing combined with offshore limits of the EEZ.Although1390 number of boats obtained the high-seas fishing operation license for year 2017 only 1374 boats >10.3m operated at high seas.

Table 1(b) Number of vessels operating in the IOTC area of competence, by gear type and size

Boat Type	2012		2013		2014		2015		2016		2017	
	Total	Active in high seas	Total	Active in high seas	Total	Active in high seas	Total	Active in high seas	Total	Active in high seas	Total	Active in high seas
5-15m	4234	2460	4271	2218	4273	1594	4466	1558	4497	1447	4530	1358
15m-24m	23	23	14	14	14	14	18	18	14	14	40	14
>24m	00	00	09	09	07	07	01	01	00	00	02	02
Total	4257	2483	4294	2241	4294	1615	4485	1577	4511	1461	**4572**	**1374**

Source: Vessel Registry- DFAR

(i) Until 2012 there was no system to identify the actively operating boats for tuna fishery in high seas . All vessels those renew the annual registration was taken as active. With the commencement of logbook system in 2012 it is enable to identify the active boats correctly.

(ii) From year 2013 Sri Lanka restricted the vessels authorized for tuna fishing in high seas only for the vessels >10.3m (34 feet). As a result from the total 4294 multiday vessels operated in Sri Lanka, 2463 vessels obtained authorization or licence to operate in high seas and only 2241 vessels were detected fish in high seas from Log book returns .

(iii)With the enforcement of High seas fishing operation regulations only 1615 boats were active in Year 2014 out of the total 2470 boats obtained high sea operation licence.

(iv)In 2015 out of the 1603 authorized to operate in high seas and only 1557 vessels were active. Active

(v) In 2016 out of the 1536 authorized to operate in high seas and only 1461 vessels were active.

(vi) In 2017 out of the 1390 authorized vessels only 1374vessels were active

3. CATCH AND EFFORT (BY SPECIES AND GEAR) [Mandatory]

Table 2. Annual catch and effort by gear and primary species in the IOTC area of competenceInclude a 'not elsewhere indicated – NEI' category for all other catches combined. [Note: Multiple tables may be required e.g. **Table2a, 2b, 2c).[Mandatory]**

Table 2(a) Annual catch and effort by gear and primary species in the IOTC area of competence for 2012-2013.

Species	**FAO codes**	**2012**	**2013**	**GEARS**
Thunnus albacores	YFT	28,376	23,993	*GI,LLGI,LLTS,HL,PSRN,PSFS,TL*
Katsuwonuspelamis	SKJ	47,449	54,430	*GI,LLGI,LLTS,HL,PSRN,PSFS,TL*
Euthynnusaffinis	KAW	2,919	2,012	*GI,LLGI,LLTS,HL,PSRN,TL GN,HL*
Auxisthazard	FRI	5,096	4,630	*GI,LLGI,LLTS,HL,PSRN,TLGN,H*
Auxisrochei	BLT	4,538	4,434	*GI,LLGI,HL,PSRN,TL GN,HL GN*
Thunnusobesus	BET	1,691	1,573	GI, LLGI, LLTS,
Other tuna	TUX		-	GN
Total tuna		**90,069**	**91,072**	
Scomberomoruscommers	COM	235	529	GI, LLGI, LLTS, HL, PSRN, TL

on				
Acanthocybiumsolandri	WAH	872	499	GI, LLGI, LLTS, HL, PSRN, TL
Scomberomorusguttatus	GUT	14	19	GI, LLTS,HL,TL
Total seer		**1121**	**1,047**	
Blue marlin	MAR	1,818	653	GI, LLGI, LLTS
Black marlin	MAR	3,052	2,288	GI, LLGI, LLTS, TL
Tetrapturusaudax	-	-	54	**GI, LLGI, LLTS,**
Sail fish	SFA	3,078	4,152	GI, LLGI, LLTS, HL, PSRN, TL
Sword fish	SWO	3,843	5,534	GI,LLGI, LLTS, HL, PSRN
Bill fish unidentified	-	-	120	
Total Billfish		**11,791**	**12,800**	
Carcharhinusfalciformis	FAL	1,138	1247	GI, LLGI, LLTS, PSRN
Prionaceglauca	BSH	284	183	GI, LLGI, LLTS, HL, PSRN
Carcharhinuslongimanus	OCS	149	41	GI, LLGI, LLTS
Isuruspaucus	LAM	52	70	GI, LLGI, LLTS
Isurusoxyrinchus		63	56	GI, LLGI, LLTS
Alopiassupercilliosus		465	00	-
Alopiaspelagicus	ALO	328	00	-
Sphyrnalewini	HAM	71	119	GI, LLGI, LLTS, PSRN
Other sharks	SKA	31	00	GI, LLGI, LLTS,
Carcharhinussorrah	-	-	19	GI, LLGI, LLTS,
Sphyrnazygaena	-	-	61	GI, LLGI, LLTS,
Spyrnamokarran	-	-	8	GI, LLGI, LLTS,
Total shark		**2581**	**1804**	
Manta birosrtis	MNT	744	669	GI, LLGI, LLTS, HL,
Devil ray	RMM	-	759	GI, LLGI, LLTS, HL
Eagle ray	EGR	-	3	GI, LLGI, LLTS
Total rays		**744**	**1431**	
Other bony fish(NEI)		28,8974	00	*GI,LLGI,LLTS,HL,PSRN,TL*
Common dolphin fish	DOX	Included to other fish	1,204	
Carangids (NEI)	CGX		292	
Trigger fish (NEI)			13,917	
Indian mackerel (NEI)			24	PSRN
Total NEI*		**00**	**15,436**	
Total Catch		**135,203**	**123,896**	

Source: PELAGOS database(NARA), land based sampling database (DFAR/MFARD) and the Log book data.
Note: No proper log book data returns up to 2013 therefore the catch area and effort data was not able to separate.

After the year2014 onwards it was able to provide the fishing information separately by gear analyzing the methodical field sampling data and log book data.

Refer attached excel sheets for data
Table 2(b) CATCH**BEYOND EEZ (High seas)**BY SPECIES AND GEAR FOR YEAR 2014 to 2017(MT)
Table 2(c)CATCH**WITHIN EEZ** BY SPECIES AND GEAR FOR YEAR 2014 to2017(MT)
Table 2 (d)TOTAL CATCH DATA SUMMARY (EEZ+High seas) BY SPECIES AND GEAR FOR YEAR 2017 (MT)

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]**

The catch trends by the main fishing gears (Figure 1) and the species compositions (**Figure 1a-1e**).

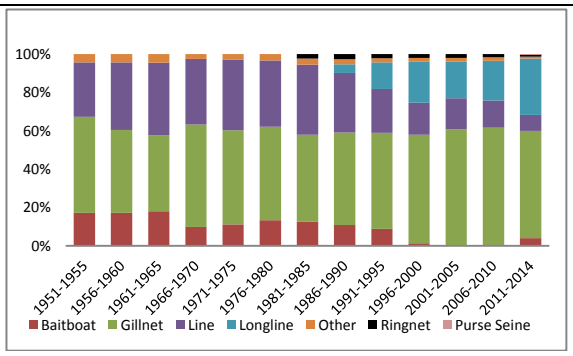


Figure 1a: Relative contribution of fishing gear in Tuna fish production in Sri Lanka 1950-2014

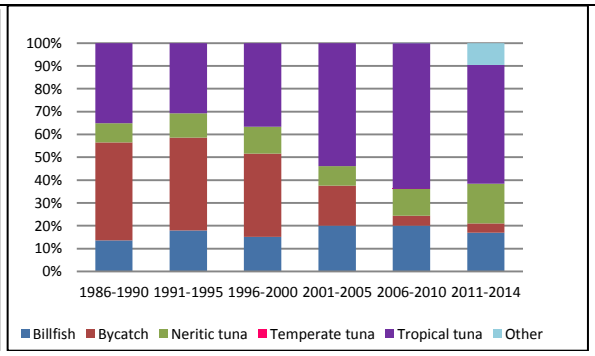


Figure 1b: Catch composition long lineand gill net fishery Sri Lanka 1950-2014

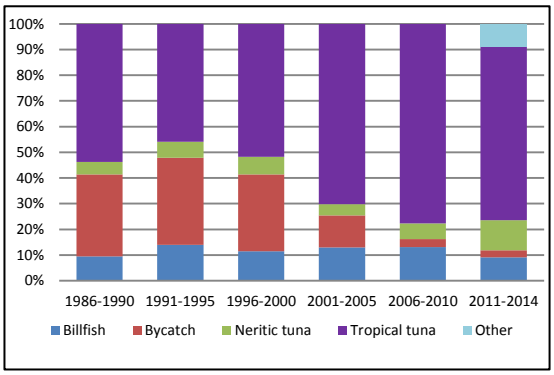


Figure 1c: Catch proportions gill net cum Long line Sri Lanka 1950-2014

Source: IOTC data base

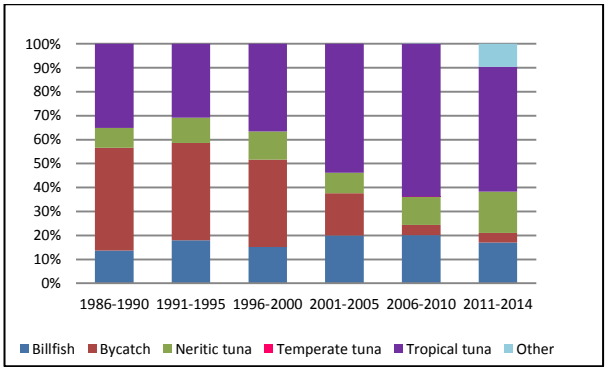


Figure 1d: Catch proportions long line fishery *(including Long line attached to gill net)*In Sri Lanka 1950-2014

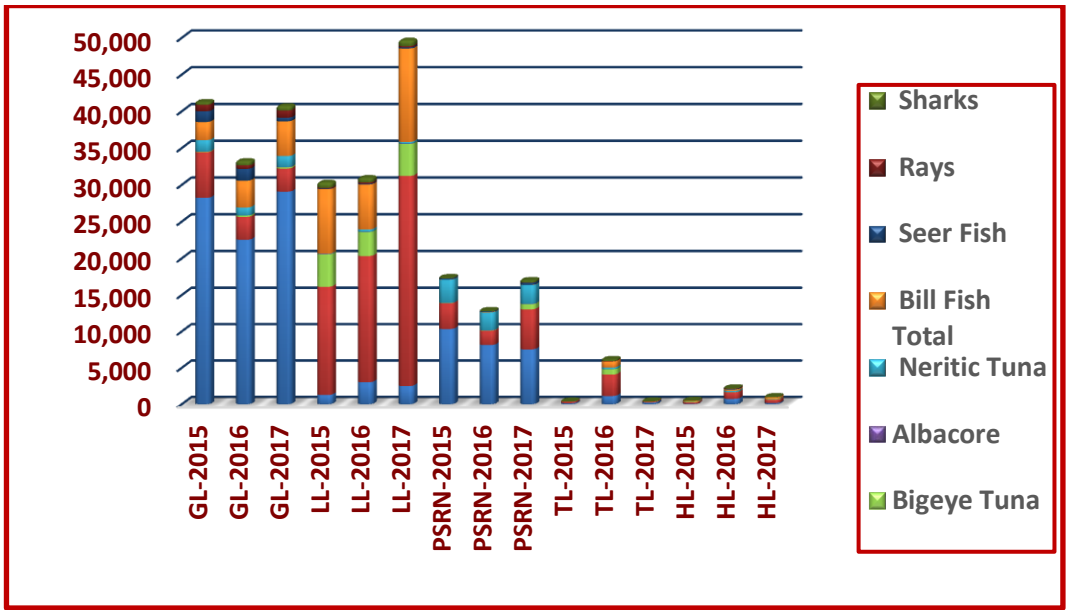
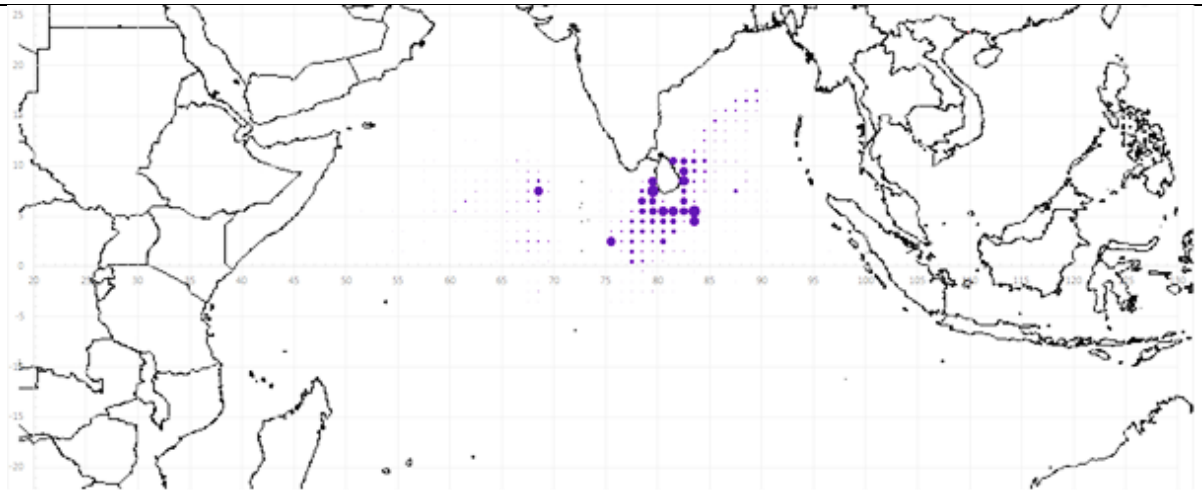


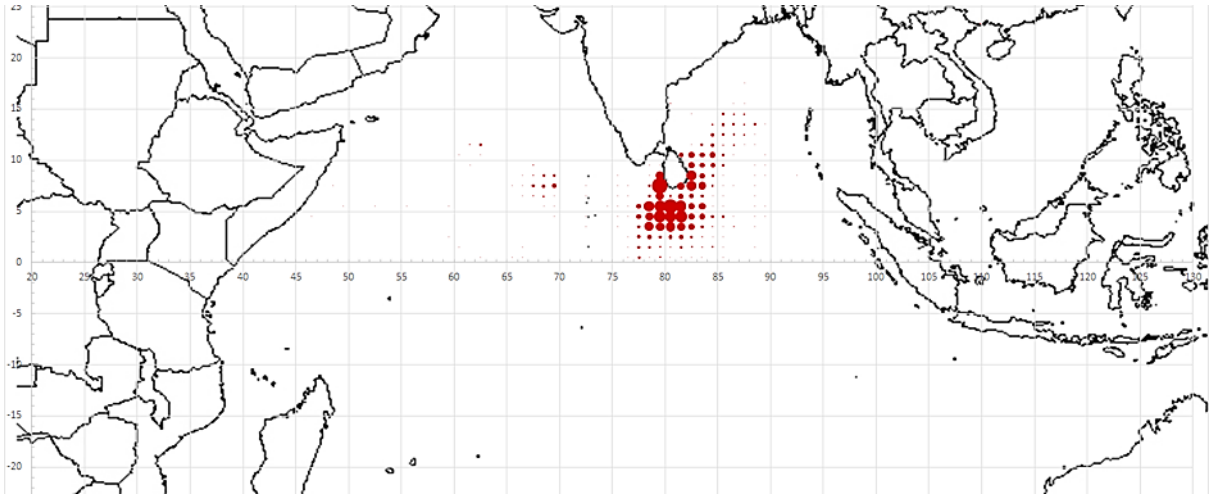
Figure 1e: Total Catch composition of Tuna and tuna like species by gear for the years 2015 to 2017.
Source: PELAGOS database(NARA), log book database-(DFAR) & land based sampling database (DFAR/MFARD)

Figure 2a. Map of the distribution of fishing effort, by gear type for the national fleet in the IOTC area of competence (most recent year e.g. 2017)**[Mandatory]**

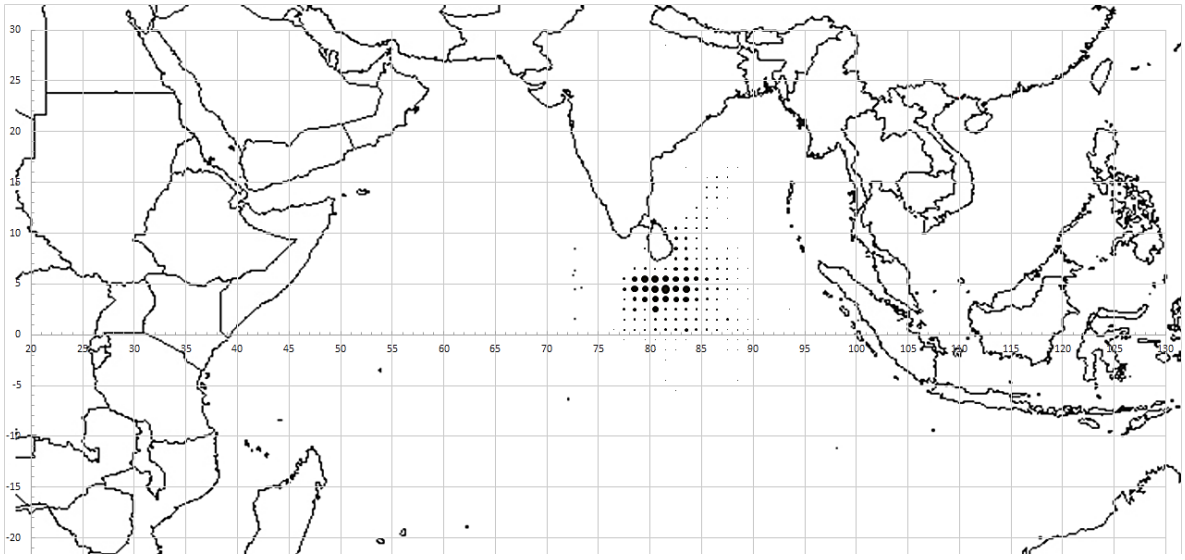
Note: *Maximum recorded catch is scaled in to a full size of one-degree squire and other catches were proportionally reduced*



(i) long line -2017



2a (ii) Gillnets- 2017



2a (iii) Ring Nets-2017

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. 2012–2017 **[Mandatory]**

There were not properly recorded log sheet returns until 2015. Therefore no data to produce a map to show the distribution of fishing effort by gear type for the national fleets for five 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. 2017 **[Mandatory]**

Note: *Maximum recorded catch is scaled in to a full size of one-degree squire and other catches were proportionally reduced*

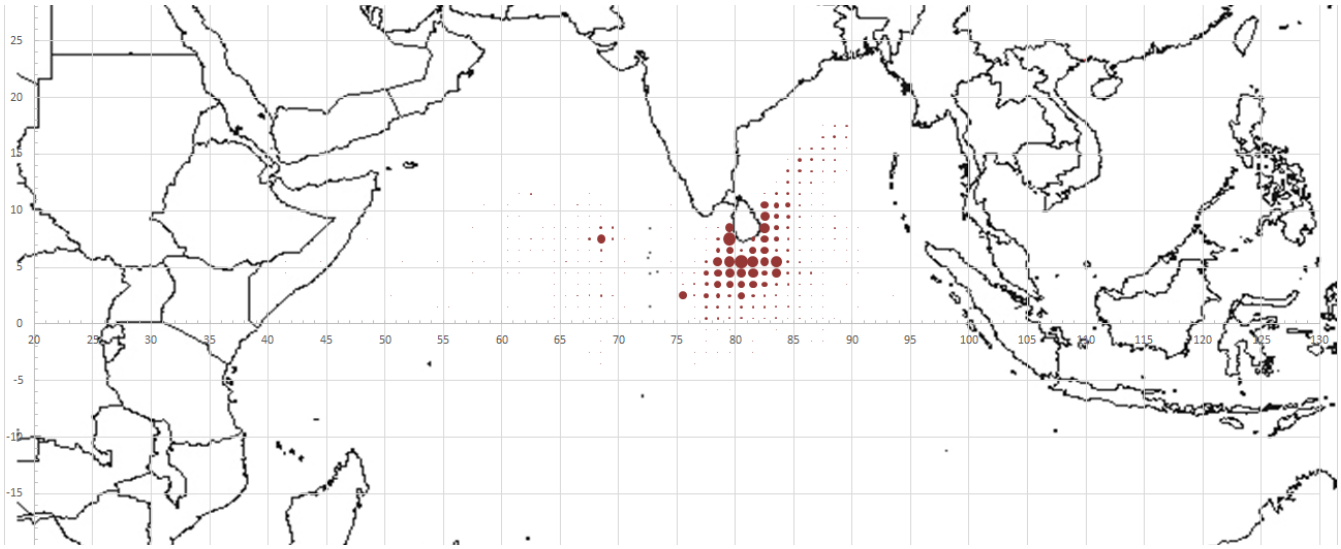


Figure 3a.(i) Tuna-2017

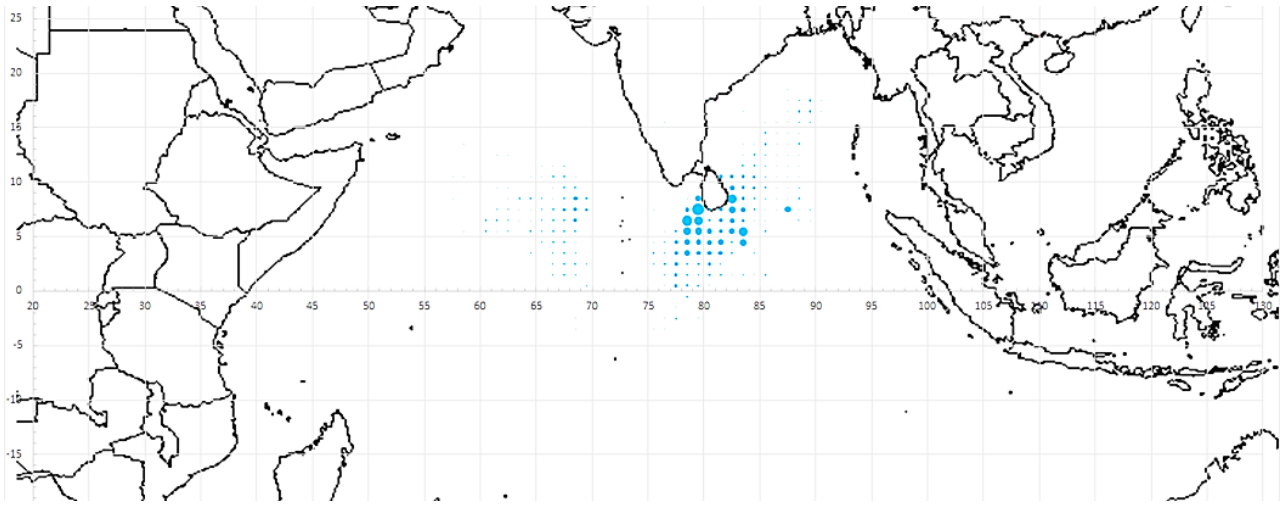


Figure 3a.(ii) Bill Fish-2017

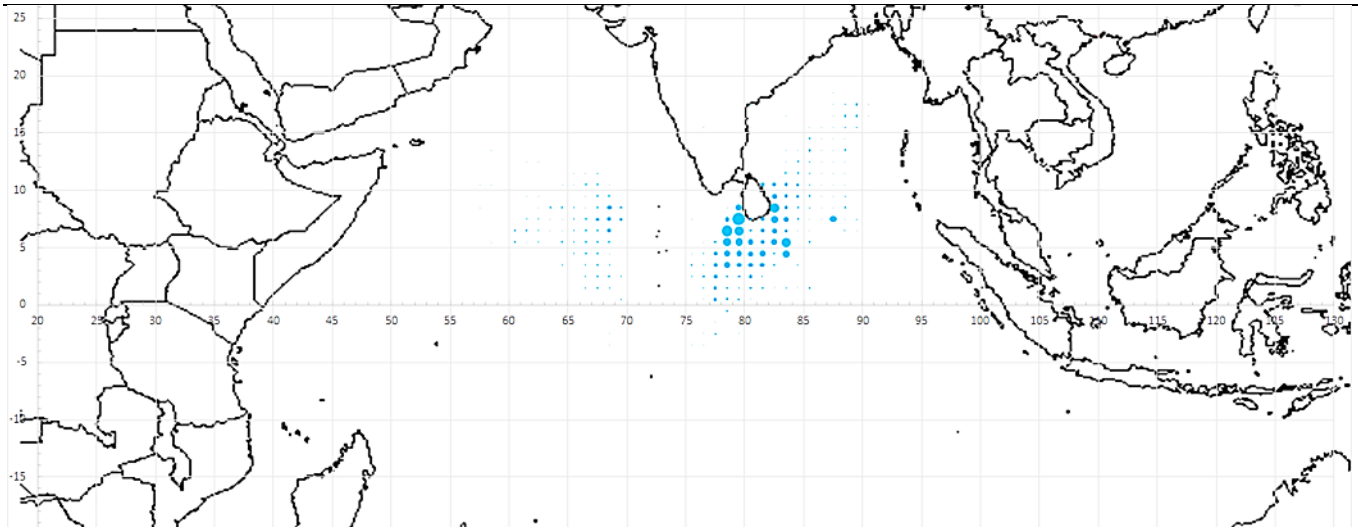


Figure 3a.(iii) Shark - 2017

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. 2012–2017 **[Mandatory]**

There were not properly recorded log sheet returns until 2015. Therefore no data to produce a map to show the distribution of catch by species for the national fleets for five years.

4. 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. A data reporting sheet is formulated to record the position and fish species caught.

5. ECOSYSTEM AND BYCATCH ISSUES [Mandatory]

5.1 Sharks [Mandatory]

- 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

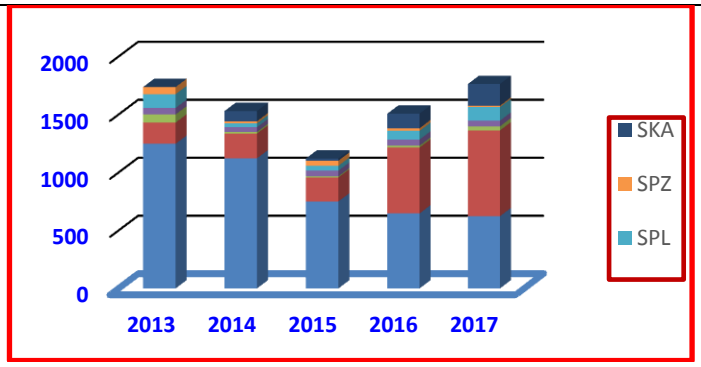
- Shark Fisheries Management Regulation 2015 (FARA)
  (i) Prohobition of finning onoard and prohibition of , catching,retaining , transshipment , and sale of Thresher shark,Ocean white tip shark and whale shak.
  (ii) Provisions to collect biological samples for research studies.
- Fish Catch data recording 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 trawlingdamaging the sea bottoms and breeding and nursery groundsFARA
- 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 holoturiansetc .
- The National Plan of Actions for Sharks- Sri Lanka(NPOA-Sharks) is under implementation from October 2014 being amended to publish amendment in 2019. Banning of the use /carry on-board the wire trace/shark lines in High Seas fishing is to be inclluded to the amendments.
- 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 2016.
- 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).

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. 2012–2017). **[Mandatory]**

Species		FAO codes	Total weight (t)					
	Common name		2012	2013	2014	2015	2016	2017
Carcharhinusfalciformis	Silky Shark	FAL	1,138	1,247	1122	750	647	622.6
Prionaceglauca	Blue Shark	BSH	284	183	213	207	568	740
Carcharhinuslongimanus	Oceanic Whitetip shark	OCS	149	41	78	87	0	0
Isuruspaucus	Longfinmacko	LAM	52	70	14	9.6	16	35.3
Isurusoxyrinchus	Short fin macko	SMA	63	56	41	49	53	48.4
Alopiassupercilliosus	Big eye thresher	BTH	465	00	00	00	00	00
Alopiaspelagicus	Pelagic thresher	PTH	328	00	00	00	00	00
Sphyrnalewini	Scallop hammerhead	SPL	71	119	33	42	75	117.6
Carcharhinussorrah	Spot tail	-	Included in other sharks	19	00	00	00	02
Sphyrnazygaena	Smooth hammerhead	SPZ		61	18	44	22	11.4
Spyrnamokarran	Great hammerhead	GRH		8	04	04	00	00
	Whale Shark	RHN		00	00	2	00	00
-	Other sharks	SKA	31	00	88	19	126	187
Total shark			4382.3	2581	1612	1214	1507	1764.3

Source : PELAGOS-NARA/MFARD



The shark catch weight by species from 2013 to 2017 (Mt)

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. 2012–2017). Where available, include life status upon released/discard.**[Desirable]**

Species	2014				2015						2016						2017					
	GN		LL		GN		LL		PSRN		GN		LL		PSRN		GN		LL		PSRN	
	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D
Thresher shark	2	2	10	6	02	-	18	14	37	08	07	-	02	-	-	-			29			
Whale shark	-	-	-	-	-	04	-	-	-	-	02	-	-	-	-	-	01					
Oceanic whitetip	-	-	-	-	-	-	-	-	-	-	4	-	10	-	-	-	01		23		01	

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

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.

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

1. How many vessels operated south of 25˚S in the period covered by this report?
2. How many of those vessels used bird scaring lines (as a proportion of total effort)?
3. How many of those vessels used line weighting (as a proportion of total effort)?
4. How many of those vessels used night setting (as a proportion of total effort)?

5.3 Marine Turtles [Mandatory]

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 has been improved towards 2017 as a result of regular awareness programs.

Species	2014				2015						2016						2017					
	GN		LL		GN		LL		PSRN		GN		LL		PSRN		GN		LL		PSRN	
	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D	L	D
1. Olive ridley turtle	3	-	01-	-	-	-	- -	-	-	-	-	-	-	-	-	-	316	13	30	04	-	-
2. Green turtle	-	-	01	-	16	9	5	3	45	0	99	18	93	06	92	0	533	16	40	05	33	-
3,log head turtle																	34	05	-	-	2	-
4 Howkbil turtle																	96	8	5	2	8	2
Leather back																	12	03	08	02	01	-

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 centre 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 and there of protected the turtles. These projects conduct turtle rescue programs with fisher community.

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 operatelarge purse seines at present. The fishermen are made aware by conducting regular awareness programs by NARA and DFAR to releasing dolphins, turtles and whale sharks if incidentally caught to a fishing gear. The Log books facilitate reporting of incidental catches of marine mammals. The log book data recordings is not satisfactory and unbelievable on this regard. Deployment of an observer in small boats is also has an issue in space 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. 2012–2017 or to the extent available).**[Mandatory]**

Sri Lanka commenced reporting of by-catch in 2014. 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 are as follows.

Species	2015						2016						2017					
	GN		LL		PSRN		GN		LL		PSRN		GN		LL		PSRN	
	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead	Live	Dead
1. Bottle nose dolphin	09	07-	- -	-	-	-	17	-	03	-	01	-	-	-	-	-	-	-
2. Blue whale	06	01	-	-	-	-	-	01	-	01	-	-	25	-	08	-	-	--

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

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS [Mandatory]

6.1. Logsheet 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.

Thereby information received in 2015 through logbooks has been utilized for the first time in 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.15% to 18% landings is sampled jointly by NARA and DFAR officials at 18 major landing sites (fishery harbours) and 14 minor landing centers. 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)

Installation of Vessel Monitoring devices commenced on November 2013 and thefirst batch completed in March 2015. In the second phase another 1500 Vessel Monitoring devices installed for multiday boats > 10.3m.. All high seas operating boats are equipped with VMS since January 2016.

The annual report on VMS for year 2017 was submitted to IOTC on June 2018. The regulation on "Implementation of Satellite based Vessel Monitoring System (VMS) for fishing boats operating in High Seas 2015" is being under implementation.

The vessel monitoring centre 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. The (FMC) is fully functioning and the monitoring is initiated.The following reports and alarms are now being generated at FMC.

- Position data once 4 hrs intervals
- Any incident of tampering, power off or crossing of MBLs.
- Indicate the entry to buffer zone before arrive to the harbor.
- 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. Sri Lanka developed a software of electronic catch data recording (E-logbook) and the pilot project run in 2016 and 2017. It was successful and facilitate the data collection with accurate position data and leads towards better monitoring.

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

Sri Lankan fishing fleet consists of vessels in the ranges from 10-18 m in length without the minimum requirements viz: safety, accommodation and space for deploying the observers. Therefore Sri Lanka could not implement the national observer program in terms of Indian Ocean Tuna Commission (IOTC) Resolution 11/04 On a Regional Observer Scheme. However Sri Lanka initiated implementing the national observer programme (NOP) in September 2014 on a pilot basis. This programme was implemented with the support from Fisheries Improvement Project of Sri Lanka.

Twenty fisheries officers of DFAR with experience and capability for the duty were selected and trained for days. A Memorandum of Understating (MOU) was signed between DFAR and Fisheries improvement Project to carried out the programme.

- Basic Training on Safety at Sea
- Scientific data collection
- IOTC Observer Manual and its application
- Documentation – forms, agreements, Appointment, Insurance
- Practical training on species identification, sampling methods, scientific data collection and reporting
- Pilot observer trips (7 pilot trips) to get practical experience by observers

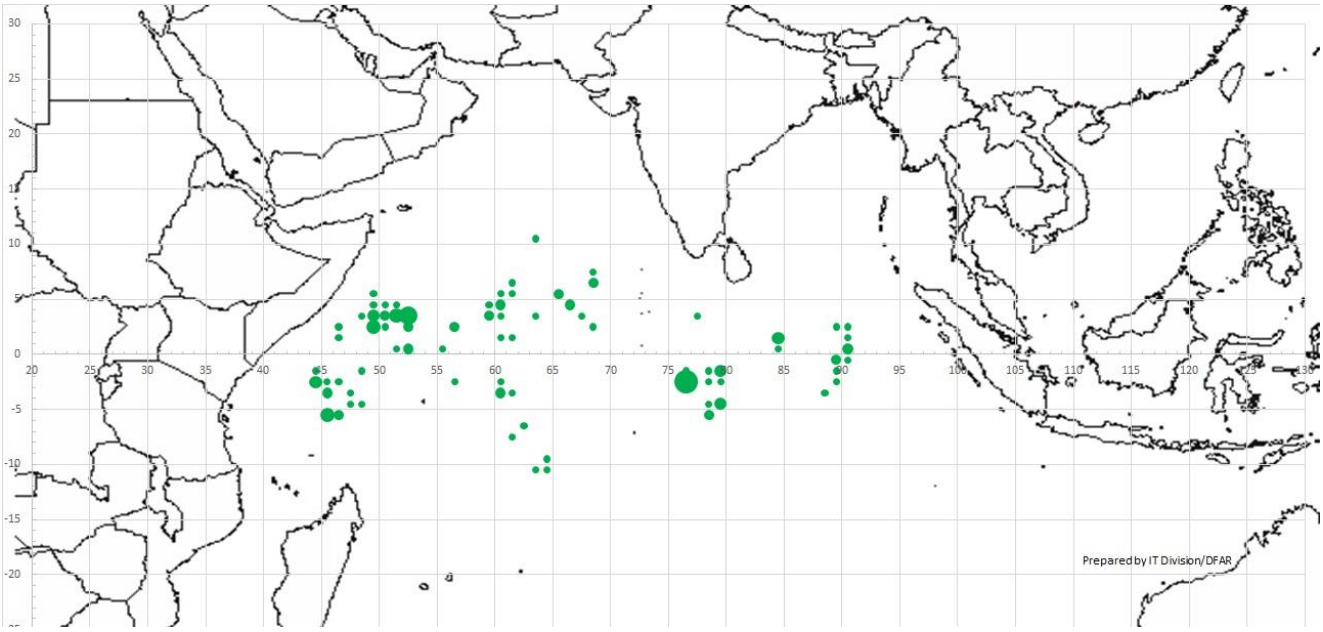
The observer manual provides reference material along with instructions detailing observer tasks, observational requirements, sampling protocols, log book entry protocols and reporting procedures in the long line, purse seine and other artisanal fisheries in the Indian Ocean. Two training programme were conducted on handling of GPS, Communication and Navigation at CINEC Maritime University and Species Identification at NARA.

Three pilot trips were covered under the Pilot Observer Programme. A team of IOTC experts carried out an assessment of the pilot observer programme during the mission in Sri Lanka 2015. The team of experts interviewed the observers to identify key gaps on data reporting, collecting information and for other matters. Special trainings were conducted for identification of fish species and the way of collecting best scientific information during the observer trips. Many gaps on data recording were identified and the mission findings are given in the back to office report on "capacity building mission in support of the Regional Observer Scheme. Sri Lanka's Observer Programme needs much more assistance and training . Only one long line vessel >24m operated at high seas in 2015. The observer reports for the all fishing trips of this vessel were submitted to IOTC. The Final observer report for this vessel is submitted in 2016.Renewal of the observer contract with Observers and other administrative work carried out under the pilot observer programme even though there were no vessels over 24m operated in 2016.

Table 6. Annual observer coverage by operation, e.g. longline hooks, purse seine sets (for the most recent five years at a minimum, e.g. 2014–2017 or to the extent available).**[Mandatory]**

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	02	15	02	13

Figure 4. Map showing the spatial distribution of observer coverage for-2014 to 2017. **[Mandatory]**



6.4. Port sampling programme [including date commenced and status of implementation]

Large pelagic fisheries statistics in Sri Lanka mainly collect through comprehensive Port Sampling Programme, which has been initially put in place by the National Aquatic Resources Research and Development Agency (NARA) in 1987. Although over the past decades, the methodology of fisheries monitoring, sampling strategy, data collection, data storage, data handling and also reporting has been improved and updated in number of occasions with broader institutional participation with the technical supporting of IOTC. Over 40 enumerators both from the Department of Fisheries and NARA are currently engaged in collecting large pelagic fisheries data covering all major fish landing centers. The present coverage is exceeding 15% - 18% of the total landings. Information of catch, effort by gear or gear combination and length by species are recorded through port sampling programme.

Design of the survey

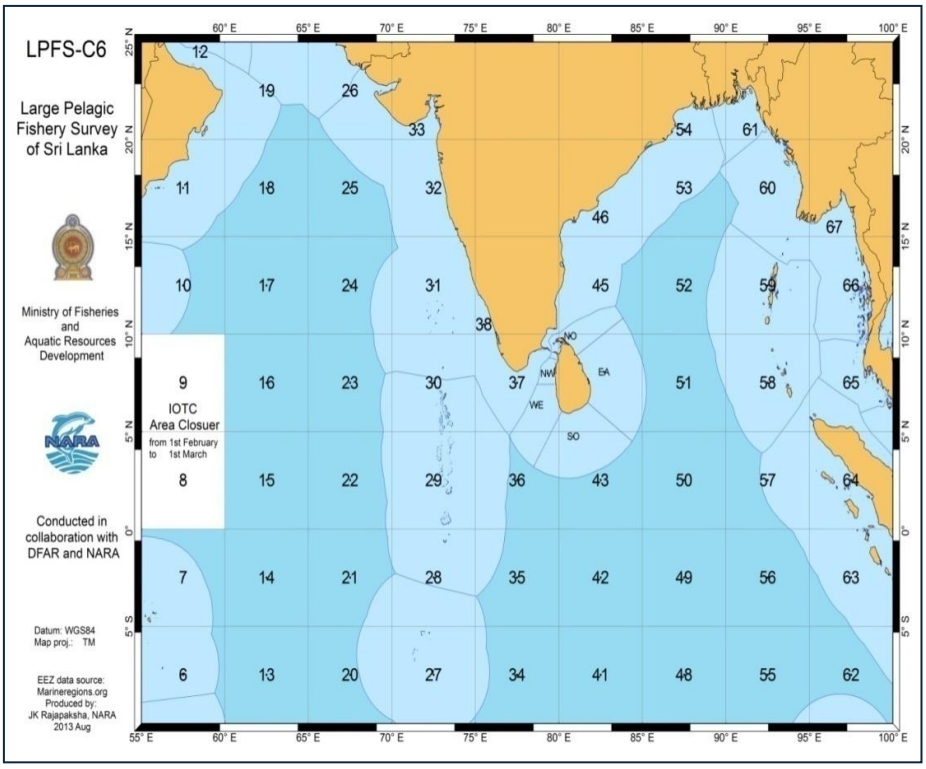
The revised sampling system is basically designed to cover the large pelagic fishery. Therefore, the offshore multiday boats and tuna targeting coastal day boats are focused. In the present context sampling range is extended covering thirteen coastal fisheries districts out of fifteen; except Mannar and Jaffna. The data collection is done in all the major fishery harbours and anchorages where offshore multiday boats are landed and in few cases coastal landing sites where the large pelagic fish species land from the coastal day boats. Accordingly 23 major fishing ports and 10 minor landing sites are covered.

Number of field data collectors have increased since 2013. A total of 28 FIs and Fishery Resources Management Assistance (FRMA) of DFAR are newly apportioned for this task. They were trained on sampling and species identification, assigned for data collection at the harbours/ landing centers in addition to the 12 Samplers/ Research Assistance of NARA. Since NARA samplers have long experience in field sampling and fish identification they are made trainers of the trainees at field level so that the programme is supported internally and therefore sustained. Special training was given on fish identification specially identification of billfish, bigeye and yellowfin tuna and sharks. Identification materials are developed (shark poster, field guild).

Vessels operating in the large pelagic fishery are categorized in to six types considering the LOA, structure of the vessel, fishing trip duration/ area of fishing activities undertaken. The fishing gears mainly used in large pelagic fishing activities in Sri Lanka are considered.

Since there is limited option in getting spatial data the new sampling strategy has introduced a map to identify the fishing area in large by interviewing the skippers of the vessels. The map reflects the area within 10^0 S to 25^0 N and 55^0 E to 100^0 E. Area within the EEZ has been divided in to five statistical zones to denote North, South, East, West and Northwest areas. The area beyond the EEZ has been divided in to five degree grids and coded (Figure 2).

The map reflects the area within 10^0 S to 25^0 N and 55^0 E to 100^0 E. Area within the EEZ has been divided in to five statistical zones to denote North, South, East, West and Northwest areas. The area beyond the EEZ has been divided in to five degree grids and coded.



Data collection

Data collectors are supposed to collect daily effort, catch and length weight data at the landing sites. The three data collection forms used to collect the relevant information has been revised considering the present data requirements.

Daily effort - Form – A, the Daily Effort Form is used to list the fish landed vessels/crafts with the relevant information (boat registration number, length overall, last port of call, date of departure and the catch on board) on each category in a particular sampling site on a particular sampling day. After the total landings are listed, the total number of landings and total number of sampled boats are identified according to the boat categories in the

Form – A.

Catch –The total catch unloaded by the sampled boat is recorded either by weight or numbers in the Form – B,.At the same time information on the fishing operation of the sampled boats such as fishing gears used, fishing area, etc., are also recorded in the same form. Catch composition is recorded for33 species, bill fish (6), neritic tuna (3), tropical tuna (3), sharks (13), seer fish (2) skates (4) and other bonny fish (2)

Length and weight – Form – C, the Length weight frequency data sheet is used to collect individual length and weight measurements of the catches in sampling boats. Curve length of the fish is taken using the measuring tapes while eye estimate or the scale measurement of the individual weight is recorded.

Data storage The PELAGOS database was modified and upgraded to MS Access 2007 by the IOTC and installed at NARA and at SU separately for test data entry. The database is modified to fit with the updated sampling scheme and data collection forms.

Table 7. Number of individuals measured, by species and gear in 2017**[Mandatory]**

Fish Name	Within EEZ			Beyond EEZ			Grand Total
	Gillnet	Longline	Ringnet	Gillnet	Longline	Ringnet	
Skipjack tuna	43980	5995	8825	6524	1113	2048	68485
Yellowfin tuna	5654	22383	5557	1275	6680	261	41810
Bigeye Tuna	159	3352	691	85	1733	61	6081
Albacore	-	-	-	150	528	75	753
Bullet tuna	1487	-	999		218	67	2771
Frigate tuna	960	51	906	235	569	154	2875
Kawakawa	2456	171	151	119		61	2958
Blue Shark	259	-	-	27	119		405
Silky shark	-	345	-	187	602	25	1159
Scallop hammerhead	-	-	-	2	-	-	2
Blue marlin	-	-	-	16	72	1	89
Black marlin	1193	-	-	9	24	1	1227
Sailfish	1539	1344	-	84	31	5	3003
Swordfish	-	-	-	46	104	2	152

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

The Port State Measures (PSM) regulation gazetted and under implementation with effect from 26th March 2015. Four commercial harbours and one fishery harbour designated. All Foreign fishing vessels enter to designated ports Sri Lanka of for landing/ transhipment/ services are subject to this regulation.24 hrs minimum advance request for port entry was followed. Port inspections are conducted and 31. Inspection reports submitted to IOTC. Only one (01) fish unloading took place in Sri Lanka designated harbours in year 2017. Only crew and security personnel exchange, provision of supplies, maintenance refuelling and resupply was carried out.The summary of implementation status is as follows.

Nationality of vessels	No of vessels do port entry	Purpose of port call	No.of vessels inspected		No. of reports submitted to IOTC
			Basic	Full	
Taiwan	42	Crew and security personnel exchange (07)	-	-	-
		Loadingbaits/Refuelling /Maintenance (03)		3	3
		Transhipment and services (29)	6	23	23
		Force Majeure Condition (02)		1	1
		Landing (01)		1	1
Seychelles	9	Security personnel exchange (07)	-	-	-
		Transhipment and services (02)		02	02
China	2	Security personnel exchange (02)	02	-	-
Norway	1	Security personnel exchange (01)		01	01

7. NATIONAL RESEARCH PROGRAMS [Desirable]

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

Project title	Period	Countries involved	Budget total	Funding source	Objectives	Short description
Assessment and monitoring of small pelagic and large pelagic fishery resources via port sampling	Ongoing	Sri Lanka	2.8 LKR million	Treasury	Collection of large pelagic fisheries statistics-catch species Effort –by craft and gear Length by species, craft, gear	Information sent to FAO, IOTC and also utilize for fishery management (locally)
Survey to find fish breeding, spawning and nursery grounds in West Coast of Sri Lanka	2018	Sri Lanka	0.902 LKR million	Treasury	Identify spatial, temporal distribution of fish larvae in West coast. To identify relationship between fish larvae distribution and physic-chemical parameters.	This will give clear picture of spawning seasons, spawning grounds and spatial and temporal distribution of commercially important fin fish in West coast.
Study the spatial and temporal distribution & abundance of marine mammals and their interactions with fisheries (continuous project)	On going	Sri Lanka	1.0 million	Treasury	conservation and management	Information recorded separately
Molecular identification of whales, dolphins, dugongs. (stranded),	2010 continued	Sri Lanka	-	Treasury	Species identification	Information recorded in separate database
Sri Lanka – Norway Bilateral project" to improve the management of fish resources of Sri Lanka (continuous project)	2016 continued	Sri Lanka-Norway	7.298 million	Sri Lanka-Norway	Upgrade of NARA port sampling procedure, Fish stock assessments including resources surveys with RV. Dr. Fridtjof Nansen and	Development and establishment of a robust fisheries information system is essential for sustainable management of coastal fisheries. To achieve above targets, "Sri Lanka-Norway" bilateral project for fisheries sector is being conducted by NARA and Institute of Marine Research (MRI), Bergen, Norway. Since this is a joint project both countries are involved in financing. Sri Lanka has to contribute for the project

Res. No.	Resolution	Scientific requirement	CPC progress
18/05	On management measures for the conservation of the billfishes: striped marlin, black marlin, blue marlin and Indo-Pacific sailfish	Paragraphs 7-9	- Data recording of catch and effort data is practised by using a log book prepared as per the standards given in the resolution 15/01 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 Indo-pacific Sailfish
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 in National report. •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 • submited data for sharks, as required by IOTC data reporting procedures.
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.
12/06	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	• There is a separate box in the log book to report 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.
12/04	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
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

17/05	On the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 6, 9, 11	- the removal of shark fins on board,landing, retention on-board, transhipment and carrying of shark fins which are not naturally attached to the shark carcass until the first 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 ordered by the law published in March 2015. - 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 on-board the wire trace/shark lines in High Seas fishing vessels.
18/02	On management measures for the conservation of blue shark caught in association with IOTC fisheries	Paragraphs 2-5	-Record catch and effort data by using a log book prepared as per the standards given in the resolution 15/01 and report as per resolution 15/02. -Use of species identification cards for proper identification of shark species -Conducted on-job training for the port samplers and on board observers on species identification and on collection of size, discard and other biological data - The NPOA-Sharks is being amended to ban use /carry on-board the wire trace/shark lines in High Seas fishing vessels
18/07	On measures applicable in case of non-fulfilment of reporting obligations in the IOTC	Paragraphs 1, 4	- Sri Lanka report all catch and effort data on sharks including zero catches from the beginning. - The new matrix given in resolution 18/07 will follow in next data submission and this has been included to the discuss points of the next discussion on IOTC data collection in the Department and NARA.

8. LITERATURE CITED [Mandatory]