Indian Ocean Tuna Commission
Commission des Thons de l'Ocean Indien
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IOTC–2015–SC18–NR32

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

compiled
by
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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 long line** [e.g. for a National Report submitted to the IOTC Secretariat in 2015, final data for the 2014 calendar year must be provided to the Secretariat by 30 June 2015)	YES
In accordance with IOTC Resolution 15/02, provisional **long line 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 2015, preliminary data for the 2014 calendar year was provided to the IOTC Secretariat by 30 June 2015). **REMINDER:** Final long line 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 2015, final data for the 2014 calendar year must be provided to the Secretariat by 30 December 2015).	NO Date of submission: 18/11/2018
If no, please indicate the reason(s) and intended actions: There is no long-liner in our fishing fleet. Recently, Bangladesh has taken initiative to introduce Long Liner and notification has been made inviting proposal from Bangladeshi entrepreneurs in collaboration with foreign counterpart having related aptitude. 10 private entrepreneurs are permitted to bring long liner vessels and parties are in a process of bringing vessels.	

Executive Summary

Bangladesh is blessed with vast coastal and marine resources. The coastal area of the country is known as one of the highly productive areas of the world by virtue of her geographical position and climatic condition. Bangladesh is rich not only in terms of its vast water areas but also in terms of the biological diversity. One of the unique features of the coastal areas is the influence of the mangrove forests, which support a high number of fishes and other commercially important aquatic organisms. The biological and ecological values of the Bay of Bengal have been pointed out by many authors. The coastal and marine fisheries have been playing considerable roles not only in the social and economic development of the country but also in the regional ecological balance. A large number of commercially important fishes have long been exploited which are of high export values and consume locally as precious item. Tuna and tuna like other highly migratory species have become high pace in the priority list to the government of Bangladesh for a couple of years especially after demarcated sea boundary with the neighbour that lead to the access of Bangladeshi fishers to the Area Beyond National Jurisdiction (ABNJ) of high seas. Simultaneously, the study of tuna and tuna like fishes of Bangladesh marine waters are one of the most poorly studied areas of the world although it possesses high potential. Proper attention is needed in every aspect of exploitation, handling and processing, export and marketing as well as in biological and institutional management strategies. Basically, there is no specific tuna fishery in Bangladesh. Tuna are by catch of industrial trawlers and artisanal gill netters. In quantity, tuna comprises about 1% of the industrial catch and 9% of catch is mackerel in the year 2017-18. The coastal and marine fisheries of Bangladesh are briefly reviewed in this report to provide a salient feature of the available information of marine fisheries with a view to identify sustainable management of the resources.

CONTENDS

1. BACKGROUND/GENERAL FISHERY INFORMATION

As a littoral state of the Bay of Bengal, Bangladesh is endowed with vast coastal and marine resources. Bangladesh has vast marine fisheries resources with 475 species of fish, 36 shrimp, 5 lobsters, 12 crabs and 33 sea cucumbers and a lot of aquatic fauna and flora. The marine fisheries sector is divided into industrial and artisanal fisheries. Marine fishing of Bangladesh is divided into industrial and artisanal sector. The artisanal sector plays a vital role in marine fisheries production of Bangladesh. This sector contributes 83% of the production targeting Hilsa, Bombay duck, Ribbon fish, Croakers, catfish, sardines, thread fin breams etc as major groups. The industrial sector contributes to only 17% of the total marine production with demersal and pelagic fin fish and shrimps catches (DoF, 2018). There are signs of overfishing, and of some important demersal species like grunters, threadfins, snapper, large croakers and cat fish have dwindled gradually. Bangladesh is very much concerned about the conservation of marine fisheries resources and is keen to develop deep water fishing to increase the fish production as an alternate to demersal fishing. For this, the government already has taken measures such as conversion of bottom trawlers to midwater trawlers, moratorium on increase of trawlers and implementation of season ban.

The historic settlement of Maritime dispute with Myanmar and India through the verdicts of International Tribunal for the Law of Sea and International Court of Arbitration established sovereign rights of Bangladesh to explore, exploit and manage living and non-living resources of the Bay of Bengal within 1,18,813 sq. km area (DoF 2015). A number of surveys conducted since 1958 to 1984, proved the potentialities of ground fish, pelagic fish and shrimp stock, but no survey was done since then. Ground fish and shrimp surveys indicated a good abundance of large pelagic such as tuna and tuna like fishes and sharks in Bangladesh marine waters in the upper Bay of Bengal. It is very important to know the actual stock of pelagic, ground fish and shrimp in the new boundary of Bangladesh and existing area of her as well. For this purpose, a multipurpose survey and research vessel R.V. Meen Sandhani has been added into country's fishing fleet. Shrimp, demersal and pelagic survey are being carried out through this research vessel.

2. FLEET STRUCTURE

In Bangladesh, as elsewhere, traditional fisheries exist side by side with commercial fisheries. There are 253 industrial trawlers and 67,669 mechanized and non-mechanized boats in fishing fleet off Bangladesh. The former involving solely the use of trawlers and the later involving relatively the use of simple gear such as gillnets, set bag nets, trammel nets by the array of mechanized and non-mechanized boats. Non-mechanized boat is engaged in daily fishing by nature in very low depth close to coastline with 3 -5 fishermen. Mechanized boat is typically fishing for 5 to 7 days within 40 m depth contour using ice cube. The number of fisherman varies from 10 to 25 based on types of gear used.

Based on preservation capacities, industrial trawlers are of two kinds including freezer and iced (wooden body) trawlers, being engaged in fishing in the EEZ of Bangladesh. Freezer trawlers are divided into shrimp and fish trawlers. Fish trawlers are also of two types like demersal and mid-water trawlers. All wooden body trawlers have chilling facilities and almost all steel hull trawlers have freezing facilities for preservation of their caught fish. The industrial fishing fleet has a capacity of gross tonnage ranged between 56 to 148MT for wooden body and 251 to 668MT for steel hull trawlers. The overall length is ranged from 18.5 to 26.50 meters for wooden body trawlers and 34 to 54 meters for steel hull trawlers. The engine powers are varied from 420-600 BHP for wooden body and 716-1850 BHP for steel hull, but mostly fall within 500-1000 BHP. These industrial trawlers are mainly engaged in harvesting demersal fish and shrimp, but in recent years mid-water trawlers have been added to the fleet for fishing pelagic species. The white fish trawlers use mostly high opening bottom trawls from the stern side with 60 mm mesh size at the cod-end. The head-rope length in the fish trawler fleet varies from 18m to 32m. Almost all the trawlers are equipped with modern navigations, communication and fish finding equipments. Trawl fishing has been restricted by ordinance to operate beyond 40 meters depth contour. The smaller wooden trawlers usually sail for 14 days and steel-hull vessels for 30 days in one trip. They usually complete 5-6 hauls in a day taking 3-3.5 hours per haul (Barua et al., 2014). But the number of hauling and fishing days substantially depends on weather, sea worthiness and functioning of trawler itself. Particularly, shrimp trawler engaged in fishing in the EEZ of Bangladesh beyond 40 meter depth contour. Shrimp trawlers usually have 150-250 tonnes gross tonnage capacity including main engine power of 500-900 BHP. The maximum day of fishing per trip is 30 days. Every day usually completes 5-6 hauls for a period of 3-4 hours (Barua et al., 2018).

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

Type of fishing	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**
1.Industrial					
a) Shrimp Trawler	30	32	30	32	37
b) Fish Trawler	169	175	174	169	216
Total	199	207	204	201	253
2.Artisanal (Craft)					
a) Mechanized boat (MB)	30164	33859	32859	32859	32859
b) Non-Mechanized boat (NMB)	27699	33810	34810	34810	34810
Total	57863	67669	67669	67669	67669
3. Artisanal (Gear)					
a) Gill net	114353	115028	119958	118353	118353
b) Set Bag net (SBN)	40824	40824	40824	42429	42429
c) Long line	12538	11863	11863	11863	11863
d) Trammel net	422	422	422	422	422
e) Other gear	15640	15640	15640	15640	15640
Total	183666	183777	188707	188707	188707

Table 1(b): National fleet structure based on 2017-18 report

Industrial Fishing vessel over 24 m					**Artisanal Fishing vessel below 24 m**				
Trawler type	Number	Gear used	Species caught	Tuna and Tuna like fish caught	Vessel type	Number	Gear used	Species caught	Tuna and Tuna like fish caught
Shrimp trawler (steel hull of 30-43m LOA, 450-750 BHP)	37	shrimp trawl	Shrimp and fish as by catch	no	Non mechanized	34,810	ESBN[1], Gillnet, Stake net	Mixed species mainly shrimp, young stages of different fishes , Hilsa	no
Fish trawler (steel and wooden hull 24-54 m LOA, 520-1450 BHP)	97	fish trawl	Mixed species mainly sardines, croakers, catfish , redfish, ribbon fish etc	about 2-3 % of tuna and tuna like fishes	Mechanized	32,859	Gill net , MSBN[2] Bottom hook and line for Jew fish	Hilsa, different species of shrimp jew pomfret, anchovies , ribbon etc	some tuna and tuna like fish is caught in Hilsa gillnet which is estimated to be about 0.5 to 0.6 % only
Mid water trawler	119	Mid water trawl	Mixed species mainly	about 2-3 % of tuna					

(steel hull, 36-45 LOA, 1050-1850 BHP)			sardines, croakers, catfish , redfish , ribbon fish etc	and tuna like fishes					

[1] Estuarine Set bag net [2] Marine Set bag net

Table 1(c): Gear and their operation

Name	Species caught	Depth of operation
Trawl	Tiger and other peneied shrimps, Catfish, Jew fish , ribbon fish, mackerels, scads etc	40-100 m
Gill net	Hilsa , Indian salmon, mackerels , pama croaker, grunters etc	8-10m (fixed) ,up to 30m (drift nets) up to 80 m (bottom set gill net)
ESBN	Mostly pre-adult stages of fresh water and marine shrimp.jew, bombay ducks, gobies, croakers etc	5-10 m
MSBN	Peneied shrimps ,anchovies, bombay duck, clupeids, sea perch	10-30m
Bottom long line	Sciaenieds	10 -30m
Beach seine	Small peneied shrimps clupeids ,anchovies, sciaenids	8-10m

3. CATCH AND EFFORT (BY SPECIES AND GEAR)

Historically, fishermen in this country used to fish in the sea (not too far from the sea shore) with the help of paddle (oar) and sail boats. As a matter of fact, fishing in the marine waters of the Bay of Bengal was more of an artisanal rather than a commercial practice by the traditional fishermen. Therefore, fishing was carried out mainly for subsistence earnings. Technology-based fishing leading to a capital intensive commercial fishing was quite unknown, and the fishermen were unfamiliar with modern trawl fishing as a business venture until

the independence of Bangladesh in 1971. After independence, Government offers, coupled with assistance offered by DANIDA, Swedish Government and others especially the Soviet Union, led to initial attempts to modernize the fishing techniques and physical inputs. The use of motorized boats was introduced since then in the marine fisheries sector. With the advent of newer and sophisticated technologies a sharp distinction has emerged between the two major types of fishing - traditional and commercial.

The marine fishing sector is governed by the Marine Fisheries Ordinance, 1983, Marine Fisheries Rules, 1983 followed by subsequent Rules. No fishing vessel is allowed in fishing without valid license in Bangladesh marine waters. All industrial trawlers and mechanized fishing boats are required to have license for fishing. The trawlers are allowed to catch fish/shrimp in area of no shallower than 40 meter depth. Mechanized fishing boats are allowed to fishing within 40 meter depth. Industrial fishing fleet has mandatorily to take sailing permission (SP) from Marine Fisheries Office under Department of fisheries (DoF) by submitting supporting documents and stipulated fee. Submission of catch log sheet of previous trip is prerequisite during application for sailing permission of next trip. Vessels are randomly inspected by personnel of Marine Fisheries Office of DoF before and after trip randomly as shore based inspection. The MCS activities of industrial fishing fleet are well monitored by the patrolling vessel of Bangladesh NAVY and Coastguard. Recently, personnel of Marine Fisheries Office of DoF are being on board as observer in the patrolling vessel of Bangladesh NAVY and working in concert with them.

As the demersal fishes are under pressure, the focus of fishing towards pelagic resources are increasingly being observed after conversion of ground fish trawlers into mid water trawlers.

Table 2(a): Fish Production 2013-14 to 2017-18

Year	Marine production (MT)	No of trawlers	Industrial (MT)	No of Boats	Artisanal (MT)
2013-14	595385	199	76885	M 32859 NM 34810	518500
2014-15	599846	207	84846	M 33859 NM 33810	515000
2015-16	626528	204	105348	M 32859 NM 34810	521180
2016-17	637477	201	108480	M 32859 NM 34810	528997
2017-18	654687	253	120087	M 32859 NM 34810	534600

*M-Mechanized, *NM-Non mechanized

Table 2(b): Industrial Fisheries species wise catch (MT)

Species/Group	2013-14	2014-15	2015-16	2016-17	2017-18
Hilsa	2,004	1,815	3,694	6948	11060
Sardine	20,680	30,385	42,576	46104	40936
Bombay duck	-	-	-	4320	6050
Indian Salmon	-	-	-	-	-
Pomfret	505	487	292	686	849
Croaker	3,657	3826	2888	3033	3862
Cat fish	2,259	2866	2245	2001	2735
Sharks and Rays	843	918	621	645	549
Others	43,138	41,816	50448	41524	50565
Shrimp	3,799	2,733	2583	3219	3682
Total	76,885	84,846	1,05,347	1,08,480	1,20,288

Table-2(c): Artisanal Fisheries species-wise catch (MT)

Species/Group name	2013-14	2014-15	2015-16	2016-17	2017-18
Hilsa	203500	250000	250500	272000	273440
Sardine	6910	2450	1810	2600	550
Bombay duck	103795	53950	58545	64910	69035
Indian Salmon	1960	1020	895	775	487
Pomfret	22850	10950	10300	10000	11050

Jew fish	34195	28000	29005	31000	31565
Cat fish	7460	6610	6450	6560	6720
Shark & Ray	4805	4175	4000	3850	3425
Other fish	90838	114845	114675	90902	93163
Shrimp	42187	43000	45000	46400	45165
Total	518500	515000	521180	528997	534600

Table-2(d): Species Composition (%) of Estuarine Set Bag Net (ESBN) Fisheries

Species/Group name	Local name	2013-14	2014-15	2015-16	2016-17	2017-18
Harpadon nehereus	Loittya	27.03	28.56	22.91	37.04	15.25
Arius sp.	Kata machh	3.22	3.53	2.41	2.84	1.75
Protonibea diacanthus	Kala poa	0.49	0.31	0.53	0.83	.08
Otolithes cuvieri	Sada poa	4.86	5.57	2.69	2.20	2.17
Johnius argentatus	Lal poa	0.56	0.62	0.38	0.40	.50
Escualosa thoracata	Hischiri machh	0.58	0.80	0.68	0.70	.67
Coilia dussumieri	Olua	2.20	2.21	1.31	0.72	1.17
Thryssa mystax	Faisha	1.00	1.67	0.76	1.34	1.25
Setipinna taty	Taila faisha	0.21	0.33	0.27	0.36	.42
Apocryptes spp.	Green(Dorakata) chewa	1.34	1.41	1.54	0.27	1.33
Gobioides rubicandus	Chewa	3.29	1.50	1.93	1.95	7.92
Trypauchen vagina	Lal chewa	3.14	6.02	1.81	2.23	4.08
Bregmaceros spp.	Puiya	0.63	0.53	0.73	2.11	1.33
Lepturacanthus savala	Churi/Ribon Fish	1.68	2.30	1.58	2.24	1.75
Muraenesox talabonoides	Kamila/Eel (baim)	0.25	0.33	0.19	0.11	.58
Platycephalus indicus	Mur/Sara baila	0.36	0.42	0.37	0.69	.83
Polynemus paradiseus	Tapsi	2.32	2.34	1.27	0.77	.83
Leiognathus brevirostris	Tak chanda	0.16	0.09	0.72	0.54	.08

Cynoglossus lingua/bilineatus	Kukurjib/Bansh pata	1.21	1.89	1.77	1.26	2.08
Loligo spp.	Nuilla	0.02	0.01	0.02	0.02	.08
Sepia spp.	Nua Chaai	0.02	-	-	0.08	.25
Crab	Kakra	2.88	3.42	2.53	4.26	3.17
Acetes spp.	Gura Icha	25.20	14.06	19.44	21.95	22.58
Nematopalaemon tenuipes	Kuikka Chingri	3.10	1.09	3.63	2.32	1.75
Penaeus semisulcatus	Bagatara Chingri	1.93	3.25	2.04	2.42	2.92
Parapenaeopsis sculptilis	Ruda Chingri	2.42	5.42	3.63	4.25	3.0
Metapenaeus brevicornis	Loilla Chingri	3.14	4.24	3.16	1.28	.92
Squillla mantes	Chingri Poka	0.55	0.74	0.36	0.28	.50
Sillago domina	Tular Dandi/Hundra	0.27	0.84	0.64	1.00	.67
Lutjanus spp/Liza sp.	Ranga Chowkka	0.03	1.33	0.07	0.06	.08
Tenualosa ilisha	Ilish	0.25	0.22	0.21	0.27	.42
Glob fish	Potka	0.13	0.06	0.11	0.04	-
Others	Others	5.41	5.83	3.84	3.19	2.75

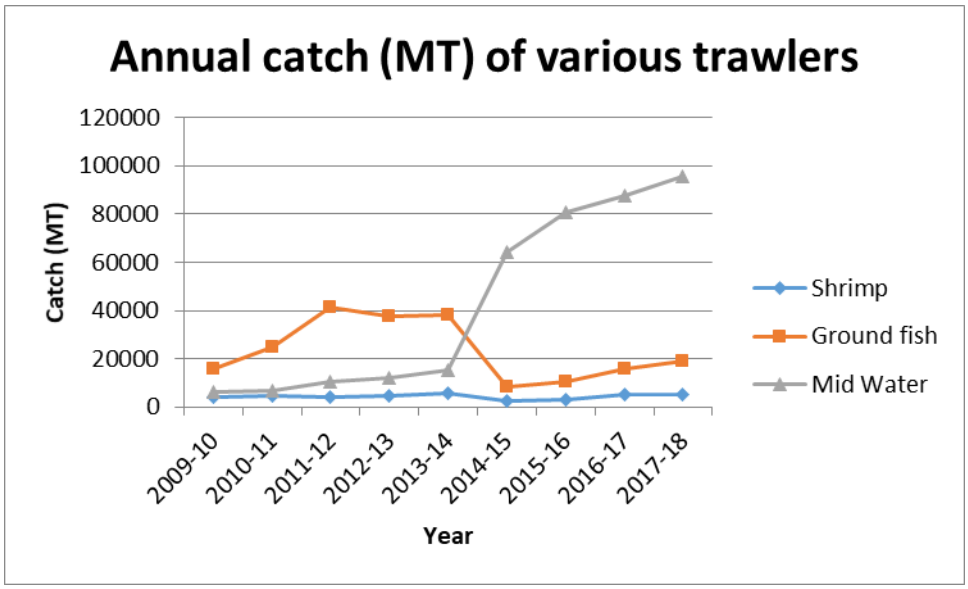

Figure 1a: Historical annual catch by industrial trawler fleet (gear-wise), for the IOTC area of competence from 2009-10 to 2017-18.

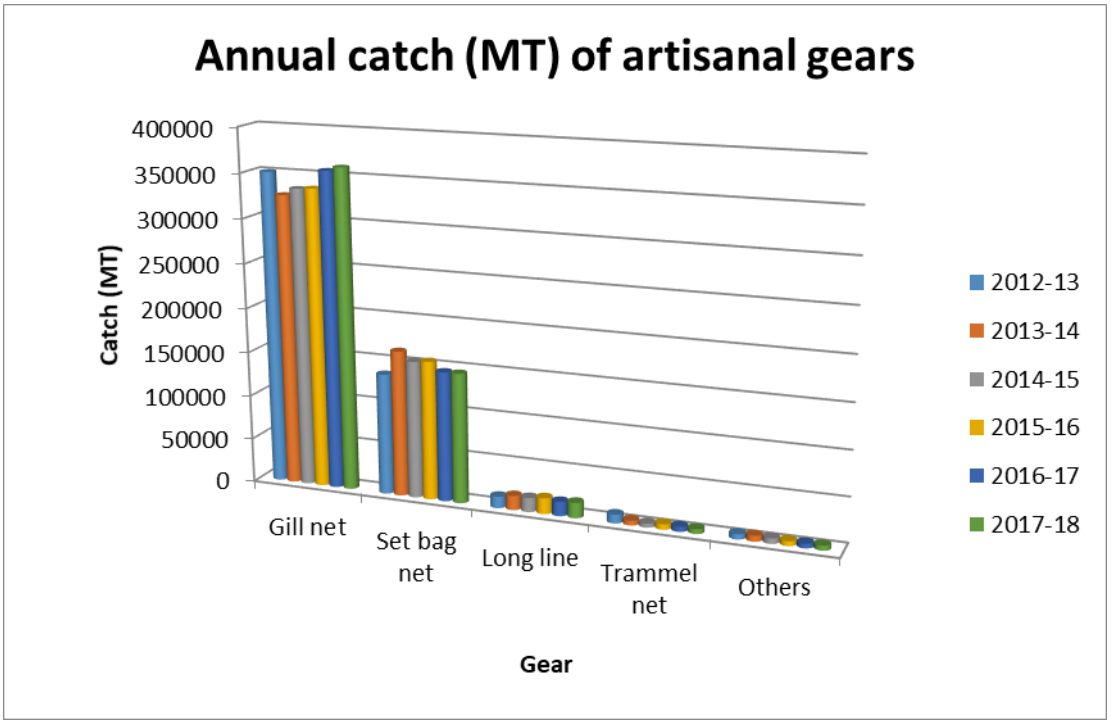

Figure 1b: Historical annual catch by artisanal fleet (gear-wise), for the IOTC area of competence from 2012-13 to 2017-18.

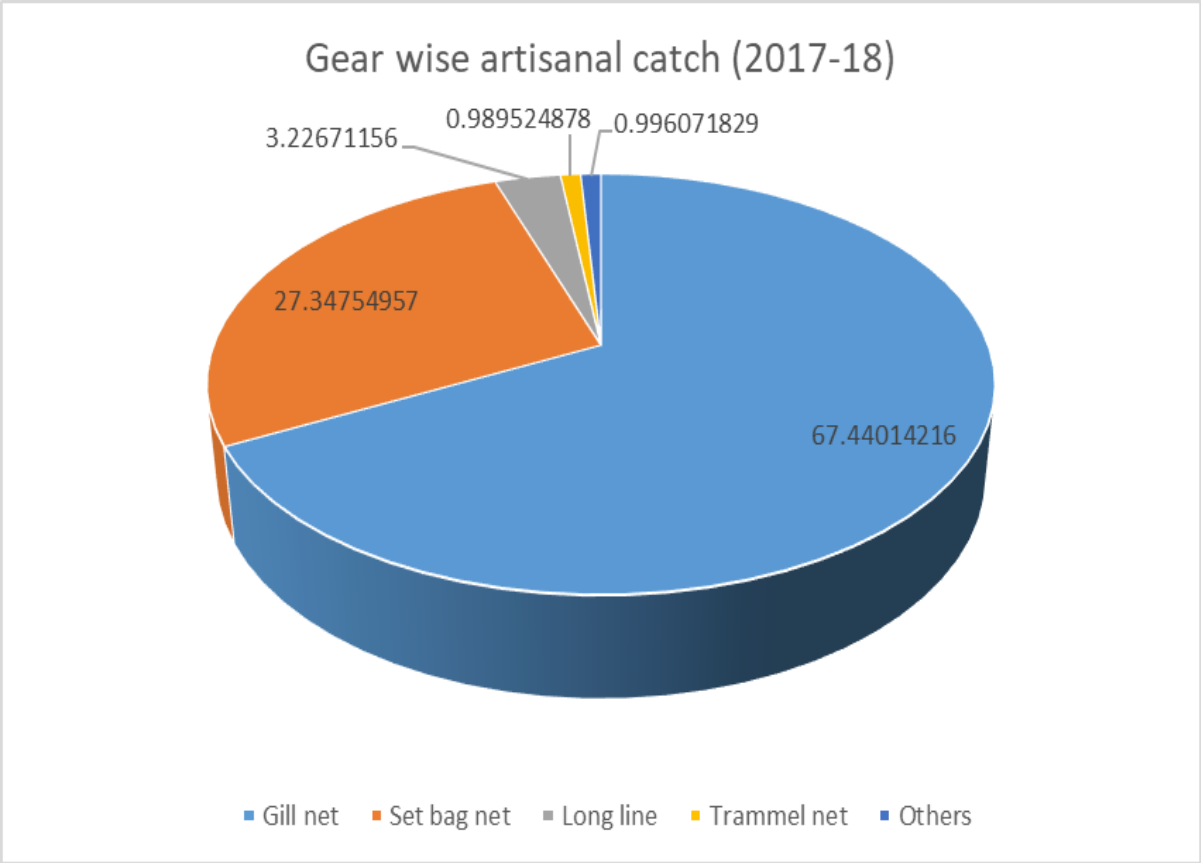

Figure 1c: Artisanal catch by Gear in the year 2016-17

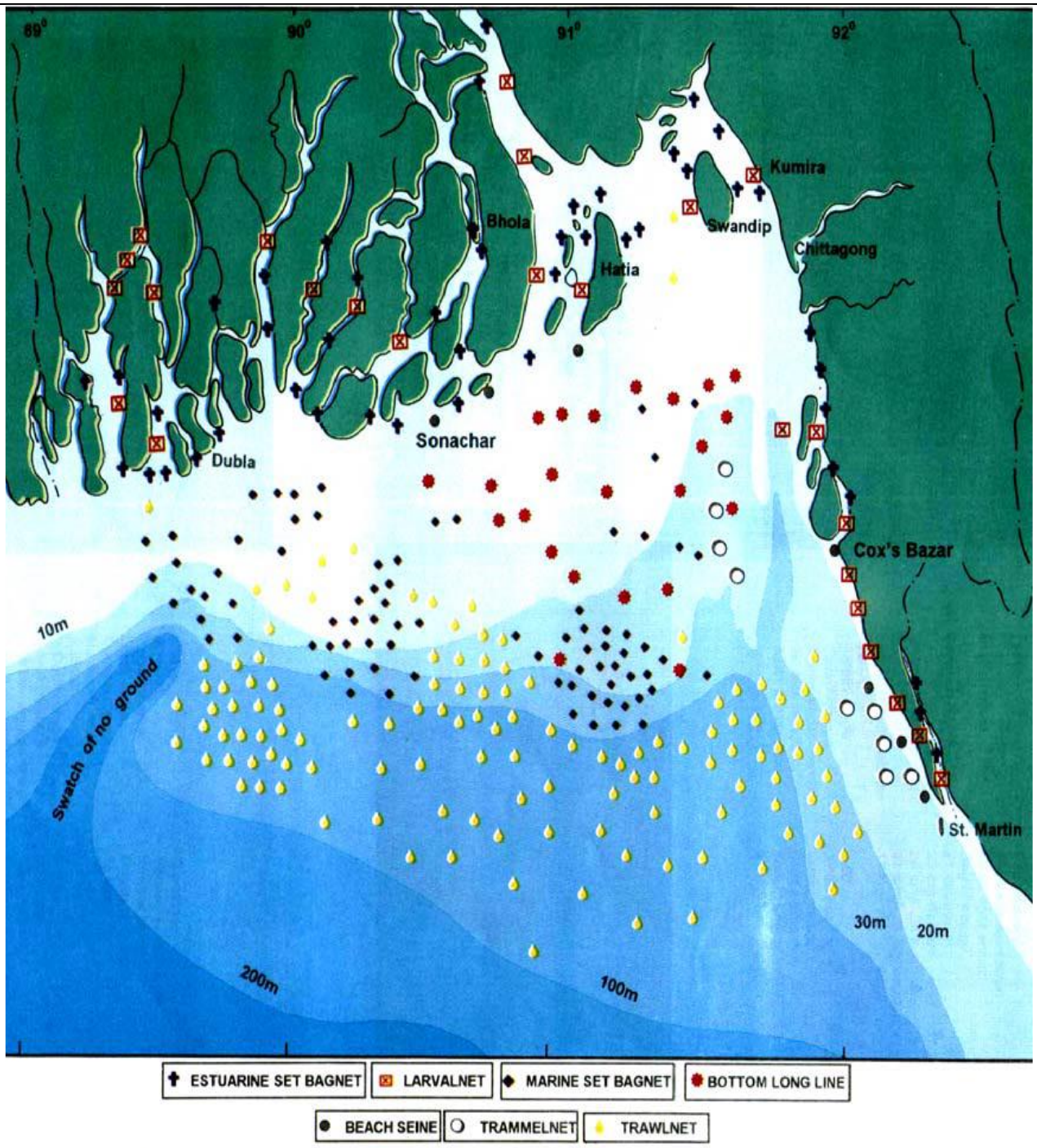

Figure 2a: Map of the distribution of fishing effort, by gear type for the national fleet in the IOTC area of competence.

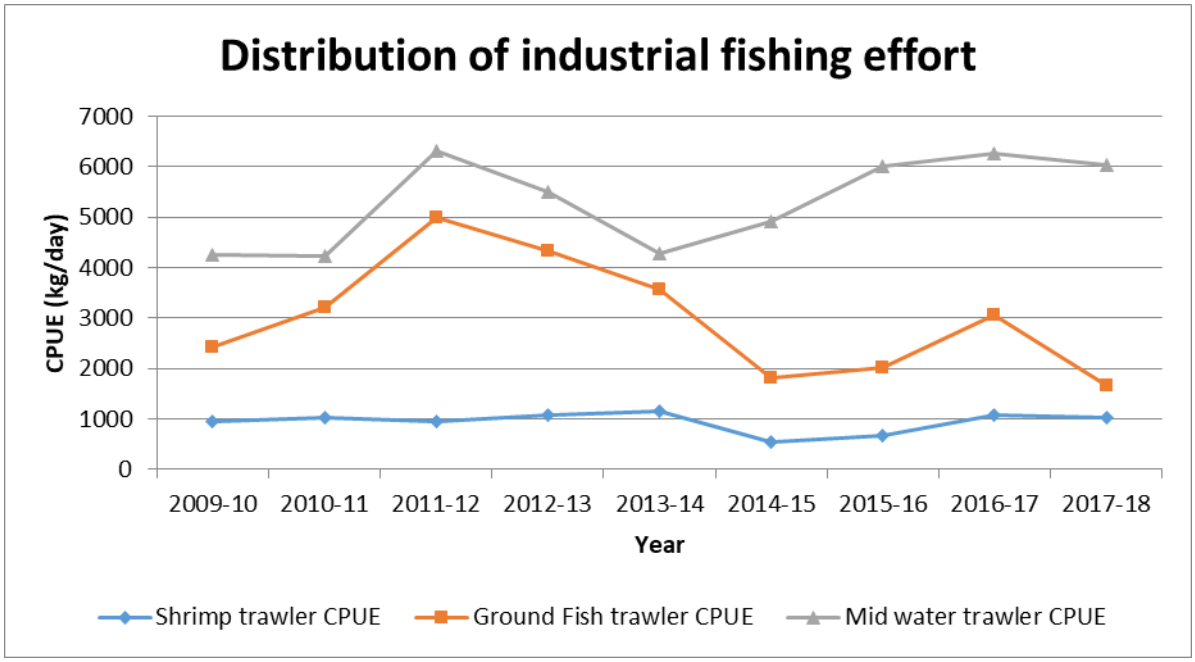

Figure 2b. Map of the distribution of industrial fishing effort, by gear type for the national fleet in the IOTC area of competence.

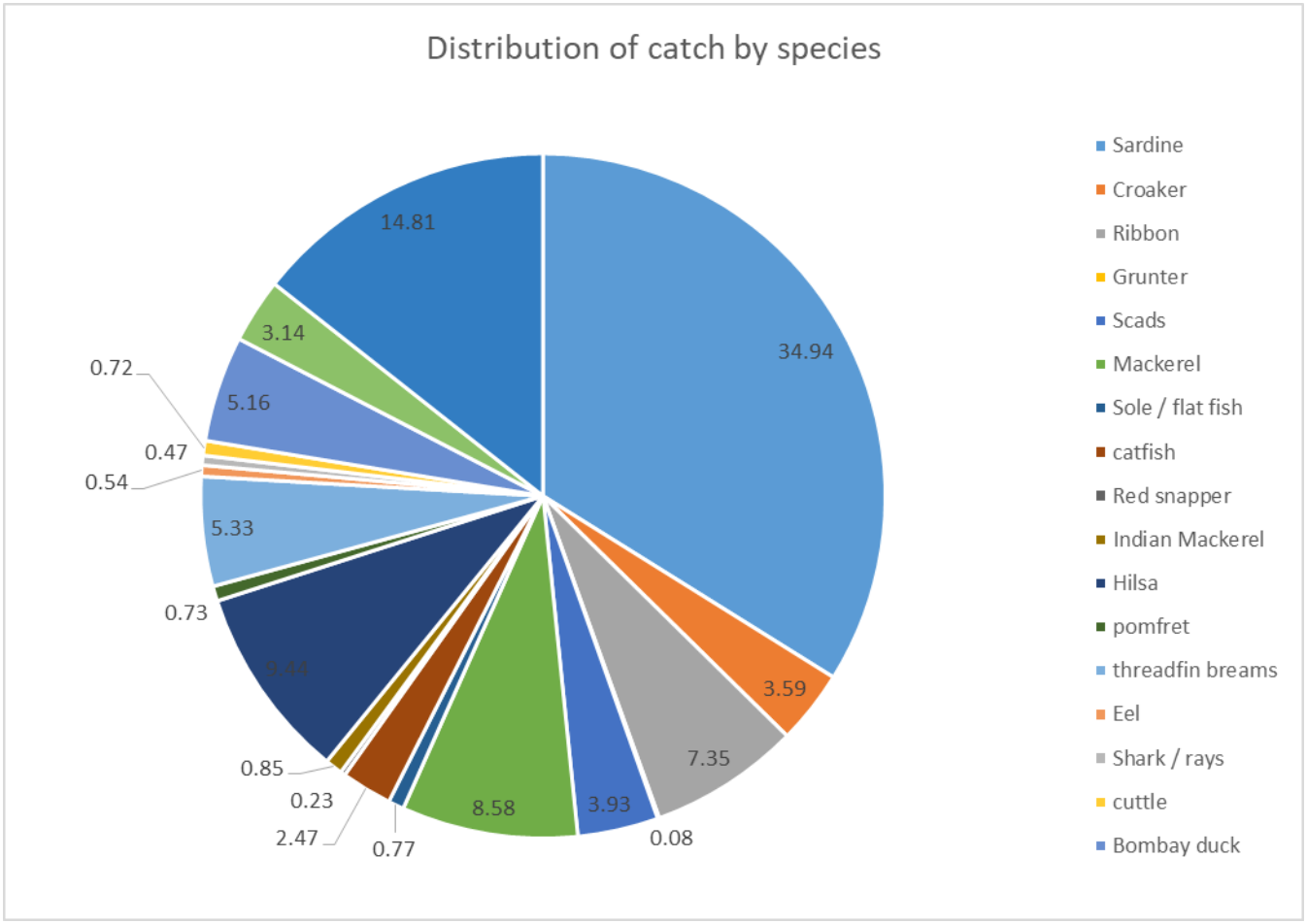

Figure 3a. Map of distribution of fishing catch, by species for the national fleet, in the IOTC area of competence of 2017-18.

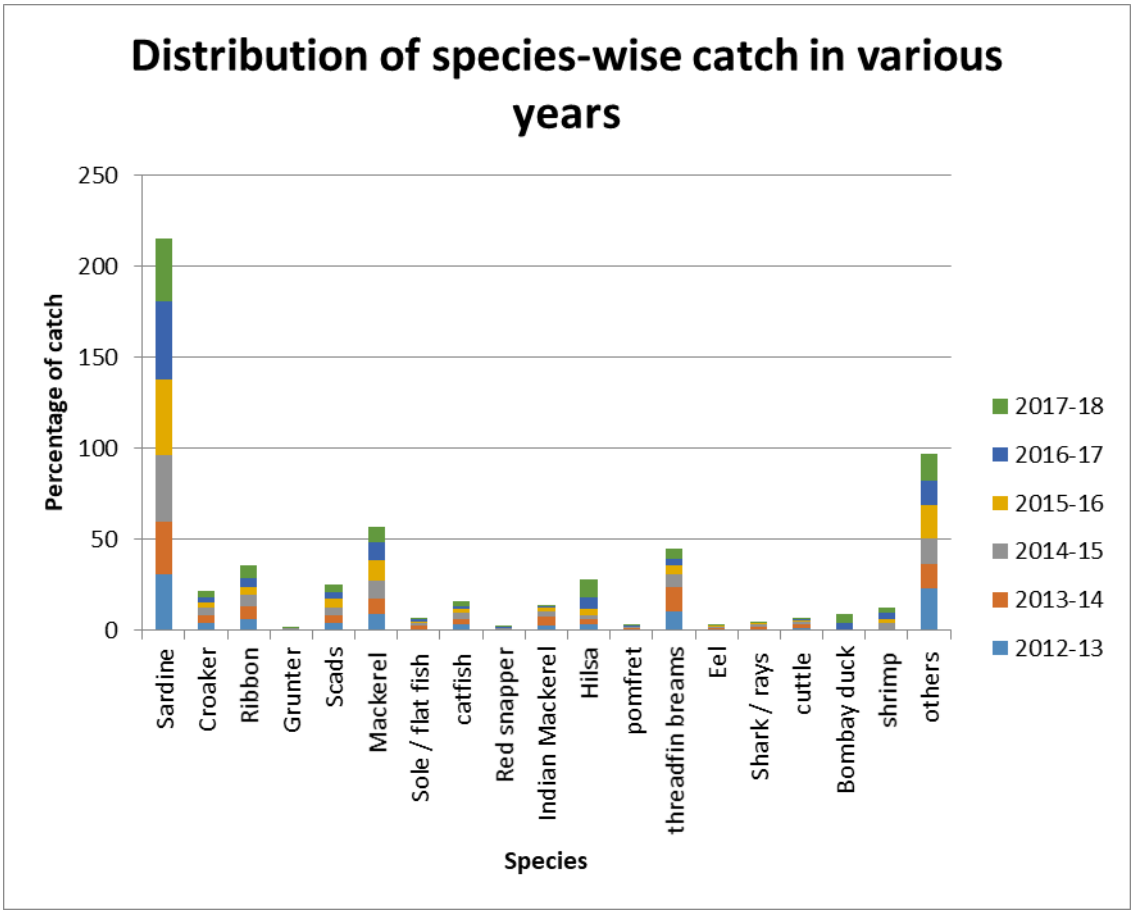

Figure 3b. Map of distribution of fishing catch, by species for the national fleet, in the IOTC area of competence of last five years.

4. RECREATIONAL FISHERY

There is no recreational fishery in Bangladesh marine waters.

5. ECOSYSTEM AND BYCATCH ISSUES

The coastal zone of Bangladesh is categorized as tropical maritime climate. Four distinct seasonal weather patterns including dry-winter, pre-monsoon, rainy season and post-monsoon period are prevailed. Precipitation continues from late May up to mid October. The protection of environment is to key to mitigation of climate change relating planning. The marine environment is a huge carbon store. It will continue to be carbon store when the integrity of the ocean environment is maintained in terms of bio diversity and all the endemic flora and fauna is able to survive. In this way it can absorbs shocks to changes its ecosystem. Pollution controls, maintaining the unique composition of flora and fauna at all levels and depth is imperative of this condition. So responsible ecosystem based fisheries management is the key climate change adaptation and mitigation measure in fisheries sector.

Fin fish species are non-target species in catch composition of shrimp trawl as by-catch, which now accounts for approximately 35% to 40% of total catch (Hoq et al. 2013). In previous days, high level of discarded fin fish were reported and rose to approximately 70% of total catch (Khan & Latif 1997; Lamboeuf 1987). Subsequently, regulation has framed banning on discarded by-catch at sea, the use of prescribed mesh size for trawlers, gillnets and set bag nets. There is no by catch in true sense as almost all fish caught are brought ashore as alternate use of fishes which are not consumed directly. Discarding of trash fish/by-catch at sea is forbidden by Rule 7 of the Marine Fisheries Rules, 1983 (The Bangladesh Gazette, 1983). The main reason is generated high valued market of dried low-priced trash fish as reasonable protein source for established poultry and aquaculture industry.

5.1 Sharks

No sharks under the IOTC list are present in the Bay of Bengal. NPOA for shark is being developed which may incorporate the IOTC requirements to introduce of key national strategies related to sharks, including the status of the NPOA-sharks. However, very little amount of shark and rays in industrial catch (0.47% in 2017-18) is reported. The artisanal landing of shark and rays are listed as follows-

Table 3: Total Landing and Species Wise percentage (%) of Sharks and Rays

Scientific Name	2013-14 (MT)	2014-15 (MT)	2015-16 (MT)	2016-17 (MT)	2017-18 (MT)
Total landing MT)	**5648.00**	**5017.00**	**4000.00**	**3850.0**	**3425.00**
Scoliodon laticaudus	2053.05	1134.34	959.20	2790.09	77.22
Rhizoprionodon acutus	110.70	166.06	86.0	28.49	1.89
R. oligolinx	1.69	-	-	-	-
Sphyrna lewini	433.20	595.02	363.60	224.07	2.78
Sphyrna mokarran	3.95	-	-	-	2.72
Chiloscyllium indicum	29.93	25.09	79.60	20.02	-
Galeocerdo cuvier	128.21	51.68	59.60	28.11	0.85
Carcharhinus melanopterus	105.05	47.66	81.20	19.64	0.22
C. leucas	158.71	115.39	82.70	122.05	2.52
C. falciformis	98.28	61.20	101.20	0.77	
C. sorrah	35.58	314.57	117.20	-	
Stegostoma fasciatum				5.39	
Himantura uarnak	139.51	10.54	17.20	63.53	0.05
H. undulata	198.81	430.46	179.60	46.59	0.44
H. gerrardi	16.38	56.19	11.60	0.77	0.01
H. uarnacoides	1033.58	1048.55	1145.60	312.24	10.36
Gymnaura japonica	262.07	197.17	272.80	52.36	0.15
Rhinoptera javanica	46.31	-	1.20	2.31	0.03
Aetomylaeus nichofii	37.28	47.16	139.60	10.78	0.12
Mobula japonica	167.18	150.51	120.80	67.76	0.20
Rhynchobatus granulatus	-	-	-	-	0.01
Rhina ancylostoma	31.63	-	-	0.39	

					0.01
Aetobatus narinari	-	-	-	-	-
Urogymnus asperimus	24.29	-	-	-	-
Rhynchobatus djeddensis	33.32	33.61	3.6	0.04	-
Rhinobatos typus	476.69	383.80	200.40	53.52	0.47
Himantura walga	22.59	83.78	-	-	-
Narcine timlei		64.22		-	-

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. 2010–2014). Where available, include life status upon released/discard.

Not available

5.2 Seabirds

Not available

5.3 Marine Turtles

Turtle Extruder Device (TED) is used in shrimp trawlers. Demarsal Fish trawlers are being modified to Mid-water trawlers gradually. It is necessary to introduce provision of reporting the catch of turtle in fish trawl and gillnet fisheries and take measures to reduce catch and survival of turtle.

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

Other ecologically related species (e.g. marine mammals, whale sharks) shall not be hunted, killed or captured according to the Bangladesh wildlife preservation order-1973. Moreover NPOA is being developed which may incorporate the other ecologically related species (e.g. marine mammals, whale sharks) including the status of the NPOA.

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. 2010–2014 or to the extent available).

Not available

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

6.1. Log sheet data collection and verification (including date commenced and status of implementation)

IOTC species have been included to the fishing log sheet and it is mandatory to submit to the Marine Fisheries Office for each trawlers of listed to take sailing permission for next trip.

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

There are already 133 trawlers under VMS and hopefully, every vessel will come under VMS/AIS system by the next.

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

No conventional observer system practicing on board to monitor sea fishing. The national fishing fleet is fully depends on Bangladesh Navy and Coast guard. But, recently personnel of Marine Fisheries Office of DoF were on board as observer in the patrolling vessel of Bangladesh NAVY on test basis. Though, it is not continued after 2 operations.

Table 6: Longline, hooks and purse seine are not operating in the trawler fleet.

Figure 4. Map showing the spatial distribution of observer coverage.

Not applicable

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

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

6.4. Unloading/Transhipment [including date commenced and status of implementation

- No transhipment or unloading from industrial vessels at sea in Bangladesh marine waters.

7. NATIONAL RESEARCH PROGRAMS [Desirable]

[a description of research activities covering target and non-target species e.g. biological studies supporting stock assessments; composition of the catch according to length, weight and sex; research on environmental factors, abundance/biomass surveys, oceanographic and ecological studies, etc.]

Table 8. Summary table of national research programs, including dates. [currently underway]
Example only

Project title	Period	Countries involved	Budget total	Funding source	Objectives	Short description
Programme régional de marquage de thons	2010–2014	EU – France and Spain		ED- DG FISH	Observer program: collection of bycatch data	
Marine Fisheries Capacity Building project (MFCBP)	2007-2019			IDB and Govt. of Malaysia	Capacity Building of Marine Fisheries sector	Stock assessments, abundance/biomass estimation using research and survey vessel RV Meen Sandhani and various biological and oceanographic studies are being carried out.

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

Table 9. Scientific requirements contained in Resolutions of the Commission, adopted between 2005 and 2015.

Res. No.	Resolution	Scientific requirement	CPC progress
15/01	On the recording of catch and effort by fishing vessels in the IOTC area of competence	Paragraphs 1–10	Have records of the industrial fishery as group, no species wise tuna catch in recorded.
15/02	Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)	Paragraphs 1–7	Have statistical report of industrial and artisanal fishing.
15/05	On conservation measures for striped marlin, black marlin and blue marlin	Paragraph 4	No deep sea long lining vessels
13/04	On the conservation of cetaceans	Paragraphs 7– 9	No purse seine, so not applicable
13/05	On the conservation of whale sharks (*Rhincodon typus*)	Paragraphs 7– 9	No purse seine or FAD, so not applicable
13/06	On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries	Paragraph 5–6	NPOA for shark is being developed which may incorporate the IOTC requirements
12/09	On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence	Paragraphs 4–8	No thresher sharks caught in Bangladesh marine waters
12/06	On reducing the incidental bycatch of seabirds in long line fisheries.	Paragraphs 3–7	No tuna long liners
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	TED is used in shrimp trawler. Demersal Fish trawlers are modifying to Mid-water trawlers gradually. It has planned introduce provision of reporting the catch of turtle in fish trawl and gillnet fisheries and take measures to reduce catch and survival of turtle
11/04	On a regional observer scheme	Paragraph 9	No regional observer scheme
05/	Concerning the conservation of	Paragraphs 1–	NPOA for shark is being developed which

Res. No.	Resolution	Scientific requirement	CPC progress
05	sharks caught in association with fisheries managed by IOTC	12	may incorporate the IOTC requirements
	Bangladesh government has keen interest to explore its marine resources.		

9. LITERATURE CITED:

Barua S., Magnusson A. and Humayun N.M. 2018. Assessment of offshore shrimp stocks of Bangladesh, based on commercial shrimp trawl logbook data. Indian Journal of Fisheries. 65(1), 1-6.

Barua, S., E. Karim, and N.M. Humayun. 2014. Present status and species composition of commercially important finfish in landed trawl catch from Bangladesh marine waters. International Journal of Pure and Applied Zoology 2(2): 150-159.

Department of Fisheries (DoF). 2018. Compendium: National Fish Week 2018. 160pp.

Hoq, M.E., A.K.Y. Haroon and S.C. Chakraborty. 2013. Marine Fisheries of Bangladesh: Prospect & potentialities. SBOBLME Pub./Rep.8.support to Sustainable Management of the BOBLME Project, Bangladesh fisheries Research Institute, Bangladesh. 92pp.

Khan, M.G., 2008. The status of coastal and marine fishing fleet in Bangladesh and preparedness for a monitoring, control and surveillance regime // In: National workshop on monitoring, control and surveillance in marine fisheries Bangladesh in Cox'sbazar, Bangladesh organized by GoB/DANIDA/ BOBP-IGO on 7-8 June 2008, pp: 77-89.

Lamboeuf, K. 1987. Bangladesh, Demersal resources of the continental shelf. FAO/BGD Marine Fisheries Research, Management & Dev. Project, FI: DP/BGD/80/015: 26p.

Rahman, A.K.A. 1992 Coastal Fishery Management in Bangladesh Paper presented at the expert consultation on the development of community based Coastal Fishery system for the Asia and Pacific, Kobe, Japan, June 9–12, 1992.