Indian Ocean Tuna Commission
Commission des Thons de l'Ocean Indien
iotc ctoi

Received on: 3 November 2016
IOTC–2015–SC18–NR33

Bangladesh National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2016

Nasiruddin Md. Humayun
Adhir Chandra Das
Suman Barua
Abdullah Al Mamun
Nripendra Kumar Singha

Marine Fisheries Office
&
Marine Fisheries Survey Management Unit
The Department of Fisheries (DoF)
Bangladesh

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: 20/10/2016
If no, please indicate the reason(s) and intended actions: In the present industrial fleet there exists no long liner and different species of tuna or mackeral are being caught as non-targeted species during trawl operation. Recently, Bangladesh has taken initiative by sanctioning 4 (four) long liners to operate beyond 200 m depth and international water those are yet to launch. Due to lack of experience and technological knowledge for deep and distant water fishing including operation of long liner government has encouraged entrepreneurs to start tuna harvest in collaboration with foreign counterpart.	

Executive Summary

Bangladesh is favoured by large coastal and marine water resources with highly productive ecosystem of the world due to her geographical apposition and prevailing climatic factors. Bangladesh is enriched not only in terms of its water areas but also with rich biological diversity including 475 fish and 36 shrimp species. 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 significant 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 also consumed as delicacy in their diets. 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, tuna and tuna like fishes of Bangladesh marine waters are not adequately assessed and studied its potentiality. Yet no tune long liner been introduced despite of its high potential to supplement superior protein and export market. 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 2% of the industrial catch and 11% of catch comprised small mackerel in the year 2015-16. 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 conservation and management of the resources.

CONTENTS

1. BACKGROUND/GENERAL FISHERY INFORMATION

As a littoral state of the Bay of Bengal, Bangladesh is endowed with ample coastal and marine resources. Bangladesh has favoured with marine fisheries resources with 475 species of fish, 36 shrimp, 5 lobsters, 12 crabs and 33 sea cucumbers and many other aquatic fauna and flora of economic nd ecological importance. Marine fishing of Bangladesh is divided into industrial and artisanal sector. The artisanal sector plays a significant contribution in marine fisheries production of Bangladesh. The artisanal fishing contributes about 87% of the marine capture fisheries production targeting Hilsa, Bombay duck, Ribbon fish, Croakers, Catfish, Sardines, Scads, Thread fin breams etc. as major groups. The industrial fishing contributes to only 13% of the total marine production with demersal and pelagic fin fish and shrimps (DoF, 2015). There are signs of overfishing of some important demersal species like grunters, threadfins, snapper, large croakers and cat fish have dwindled gradually. Bangladesh is concerned about the conservation and sustainable management of marine fisheries resources and planed to develop deep and distant 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 closed season for both coastal and marine fisheries resources..

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 detailed survey was undertaken afterwards. Demersal fish and shrimp surveys indicated the presence of large pelagic such as tuna and tuna like fishes and sharks in Bangladesh marine waters in the upper Bay f Bengal that requires elaboration. The standing biomass pelagic by species, demersal fish and shrimp within the Exclusive Economic Zone (EEZ) of Bangladesh and Area Beyond National Jurisdiction (ABNJ). In recent time, Bangladesh has procured a multipurpose survey and research vessel R.V. Meen Sandhani which has already been added into country's fishing fleet in June 2016 which is prepared to undertake scientific cruise from December 2016 onwards.

2. FLEET STRUCTURE

In Bangladesh, as elsewhere, artisanal fisheries exist side by side with commercial fisheries. Currently, 247 industrial trawlers are permitted to conduct fishing operation where 200 are active during 2015-16. Besides, around 68 thousand mechanized and non-mechanized boats engaged in fishing in the EEZ of Bangladesh marine waters. 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 10 days within 40 m depth contour using ice cube. The number of fisherman varies from 10 to 25 based on types of gear used.

Industrial trawlers are of two kinds including freezer (steel hull) and iced (wooden hull) 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 hull 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 148 MT 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 hull trawlers and 34 to 54 meters for steel hull trawlers where engine powers ranges from 420-600 BHP for wooden hull 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 demersal trawler fleet ranges between 18m to 32m. Majority of the trawlers are equipped with modern navigation, communication and fish finding equipment. 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. 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 (Uddin et al., 2012).

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

Type of fishing	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**
1.Industrial							
a) Shrimp Trawler	37	35	33	32	30	32	30
b) Fish Trawler	117	123	132	152	169	175	174
Total	154	158	165	184	199	207	204
2.Artisanal (Craft)							
a) Mechanized boat (MB)	21726	21726	21726	21726	30164	33859	32859
b) Non-Mechanized boat (NMB)	23651	23651	23651	23963	27699	33810	34810
Total	**45377**	**45377**	**45377**	**45689**	**57863**	**67669**	**67669**
3. Artisanal (Gear)							
a) Gill net	108040	108040	131326	131326	114353	115028	119958
b) Set Bag net (SBN)	51522	51522	52824	52824	40824	40824	40824
c) Long line	25538	25538	25538	25538	12538	11863	11863
d) Trammel net	7122	7122	7122	7122	422	422	422
e) Other gear	31636	31636	25644	25640	15640	15640	15640
Total	223858	223858	242454	242450	183666	183777	188707

Table 1(b): National fleet structure based on 2015-16 report of MFO

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 30-43 LOA, 450-750 BHP)	37	shrimp trawl	Shrimp and fish as by catch	no	Non mechan-ized	34,810	ESBN[1], Gillnet, Stake net	Multispecies and hilsa with varied stages	no
Fish trawler (steel and wooden hull 24-54 m LOA, 520-1450 BHP)	112	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 (steel hull, 36-45 LOA,	98	Mid water trawl	Mixed species mainly sardines, croakers, catfish	about 2-3 % of tuna and tuna like fishes	-	-	-	-	-

1050-1850 BHP)			, redfish , ribbon fish etc						

[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 demersal fish trawlers into mid water trawlers.

Table 2(a): Fish Production 2009-10 to 2015-16

Year	Marine production (mt)	No of trawlers	Industrial (mt)	No of Boats	Artisanal (mt)	Total landing (m)
2009-10	517282	154	34182	M-2100 NM -2200	483100	517,282
2010-11	546333	158	41665	M-2100 NM -2200	504668	546,333
2011-12	578620	165	73386	M* 27761 NM* 24753	505234	578,620
2012-13	588988	184	73030	M 30164 NM 27699	515958	588,988
2013-14	595385	199	76885	M 32859 NM 34810	518500	595,385
2014-15	599846	207	84846	M 33859 NM 33810	515000	599,846

2015-16	626528	204	105348	M 32859 NM 34810	521180	626528

*M-Mechanized, *NM-Non mechanized

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

SL	Species/Group	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
1	2	3	4	5	6	7	8	9
1	Hilsa	-	23	-	2,205	2,004	1,815	3,694
2	Sardine	-	-	11,105	20,906	20,680	30,385	42,576
3	Bombay duck	890	267	1,042	-	-	-	-
4	Pomfret	334	362	487	428	505	487	292
5	Jew fish	365	1,340	2,653	2,817	3,657	3826	2888
6	Cat fish	589	977	2,254	2,122	2,259	2866	2245
7	Sharks and Rays	-	-	-	546	843	918	621
8	Others	29,508	35,911	53,633	40,922	43,138	41,816	50448
9	Shrimp	2,496	2,785	2,212	3,083	3,799	2,733	2583
	Total	34,182	41,665	73,386	73,030	76,885	84,846	1,05,347

Table-2(c) Historical annual catch by industrial fish trawlers, by primary species (in %)

SL	species	2012-13	2013-14	2014-15	2015-16
1	Sardine	30.75	29.06	36.58	41.43
2	Croaker	3.81	4.55	4.33	2.81
3	Ribbon	6.23	6.60	6.45	4.65
4	Grunter	0.41	0.32	0.26	0.26
5	Scads	4.09	4.46	3.85	5.18

6	Mackerel	8.68	8.55	10.17	11.3
	Sole / flat fish	0.81	1.63	1.41	1.12
8	catfish	3.02	3.08	3.38	2.18
9	Red snapper	0.37	0.45	0.43	0.24
10	Small tuna	2.34	4.97	3.18	1.75
11	Hilsa	3.24	2.94	2.19	3.6
12	pomfret	0.63	0.70	0.59	0.28
13	Red fish / thread fin breams	10.42	13.23	7.16	4.86
14	Eel	0.71	0.66	0.52	0.36
15	Shark / rays	0.8	1.18	1.11	0.61
16	cuttle	1.06	2.13	1.31	0.69
17	shrimp	**0**	0.60	3.29	2.45
18	others	22.92	13.42	13.81	18.62

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

Sl.	Species/ Group name	Local name	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
1	2	3	4	5	6	7	8	9	10
1	*Harpadon nehereus*	Loittya	21.52	19.94	21.03	22.04	27.03	28.56	22.91
2	*Arius sp.*	Kata machh	6.41	6.13	3.65	3.12	3.22	3.53	2.41
3	*Protonibea diacanthus*	Kala poa	1.52	0.43	0.20	0.25	0.49	0.31	0.53
4	*Otolithes cuvieri*	Sadapoa	2.22	3.32	3.81	4.76	4.86	5.57	2.69
5	*Johnius argentatus*	Lalpoa	1.03	0.62	0.24	0.43	0.56	0.62	0.38
6	*Escualosa thoracata*	Hischirimachh	0.66	0.75	0.72	0.67	0.58	0.80	0.68
7	*Coiliadussumieri*	Olua	4.42	3.07	2.53	2.20	2.20	2.21	1.31
8	*Thryssamystax*	Faisha	1.86	1.16	0.92	1.31	1.00	1.67	0.76
9	*Setipinnataty*	Tailafaisha	1.23	1.91	0.74	0.12	0.21	0.33	0.27
10	*Apocryptes spp.*	Green(Doraka ta) chewa	2.35	2.49	4.93	6.67	1.34	1.41	1.54
11	*Gobioides rubicandus*	Chewa	3.91	4.77	8.69	3.60	3.29	1.50	1.93
12	*Trypauchen vagina*	Lalchewa	6.24	9.67	5.70	6.66	3.14	6.02	1.81
13	*Bregmaceros spp.*	Puiya	0.81	1.25	0.77	0.42	0.63	0.53	0.73
14	*Lepturacanthussavala*	Churi/Ribon Fish	2.35	1.78	1.58	1.79	1.68	2.30	1.58
15	*Muraenesox talabonoides*	Kamila/Eel (baim)	0.11	0.06	0.07	0.12	0.25	0.33	0.19
16	*Platycephalus indicus*	Mur/Sara baila	0.92	0.16	0.06	0.14	0.36	0.42	0.37
17	*Polynemus paradiseus*	Tapsi	1.63	1.14	1.34	1.88	2.32	2.34	1.27

18	*Leiognathus brevirostris*	Takchanda	0.49	-	0.03	0.07	0.16	0.09	0.72
19	*Cynoglossus lingua/bilineatus*	Kukurjib/Banshpata	0.96	1.00	0.76	1.00	1.21	1.89	1.77
20	*Loligo spp.*	Nuilla	0.05	0.04	0.03	-	0.02	0.01	0.02
21	*Sepia spp.*	NuaChaai	0.34	0.03	-	-	0.02	3.42	-
22	*Crab*	Kakra	11.04	3.42	3.78	2.45	2.88	14.06	2.53
23	*Acetes spp.*	GuraIcha	19.13	26.28	27.02	27.98	25.20	1.09	19.44
24	*Nematopalaemon tenuipes*	Kuikka Chingri	2.04	0.57	0.75	0.56	3.10	3.25	3.63
25	*Penaeus semisulcatus*	Bagatara Chingri	1.74	2.13	1.53	1.70	1.93	5.42	2.04
26	*Parapenaeopsis sculptilis*	Ruda Chingri	1.40	1.14	1.69	1.96	2.42	4.24	3.63
27	*Metapenaeus brevicornis*	Loilla Chingri	1.40	2.29	2.13	2.75	3.14	0.74	3.16
28	*Squillla mantes*	Chingri Poka	0.13	0.60	0.23	0.14	0.55	0.84	0.36
29	*Sillago domina*	Tular Dandi/Hundra	0.11	0.21	0.31	0.23	0.27	1.33	0.64
30	*Lutjanus spp./ Liza spp.*	Ranga Chowkka	0.64	0.37	0.19	-	0.03	-	0.07
31	*Tenualosa ilisha*	Ilish	0.31	0.08	0.10	0.37	0.25	0.22	0.21
32	Puffer fish/Glob fish	Potka	0.34	0.29	0.01	0.29	0.13	0.06	0.11
33	Others	Others	4.15	4.64	4.73	4.76	5.41	5.83	3.84

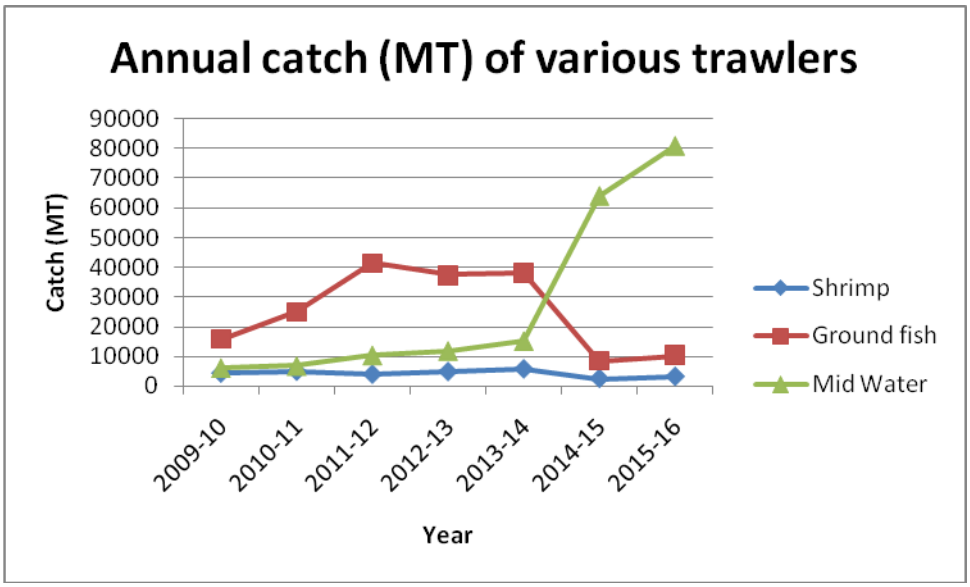

Figure 1a: Historical annual catch by industrial trawler fleet (gear-wise), for the IOTC area of competence from 2009-10 to 2015-16.

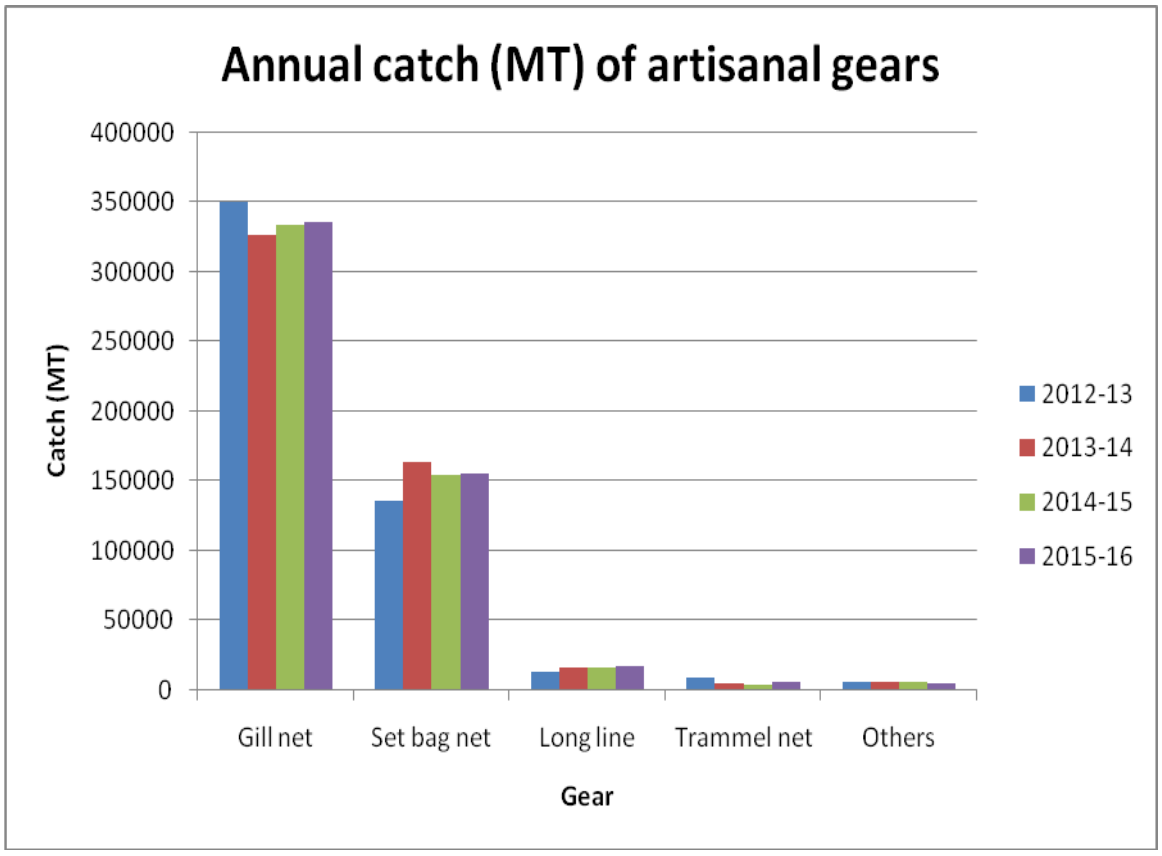

Figure 1b: Historical annual catch by artisanal fleet (gear-wise), for the IOTC area of competence from 2012-13 to 2015-16.

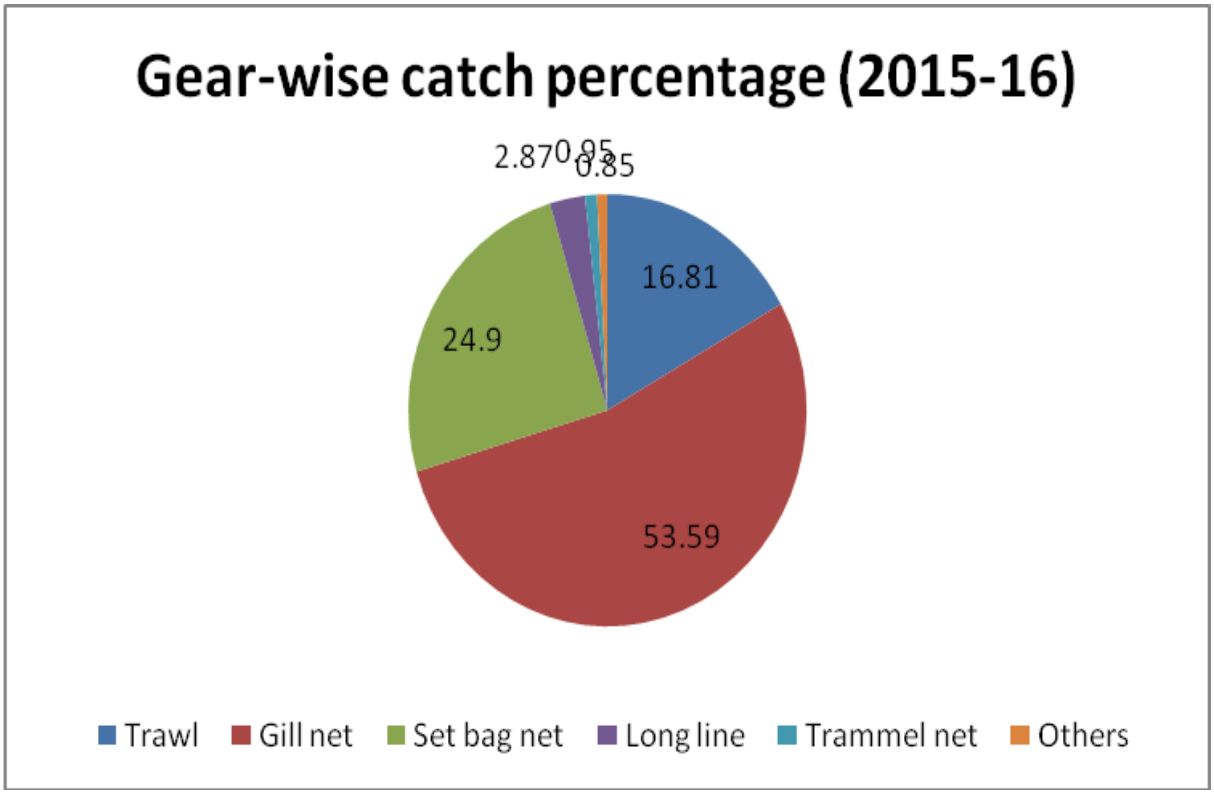

Figure 1c: National marine catch by Gear in the year of 2015-16

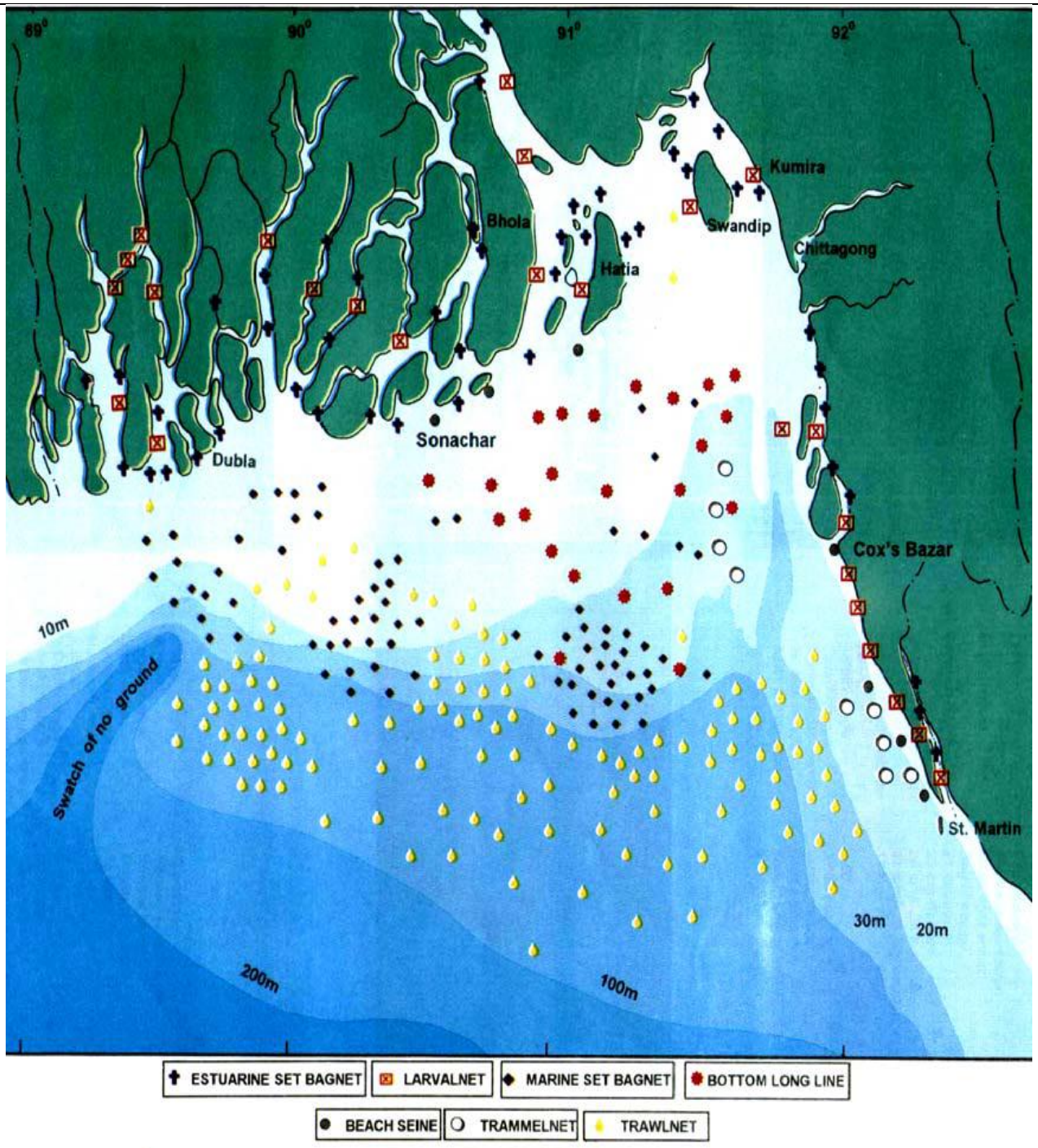

Figure 2a: Map of the distribution of fishing effort, by gear type for the national fleet in the IOTC area of competence.

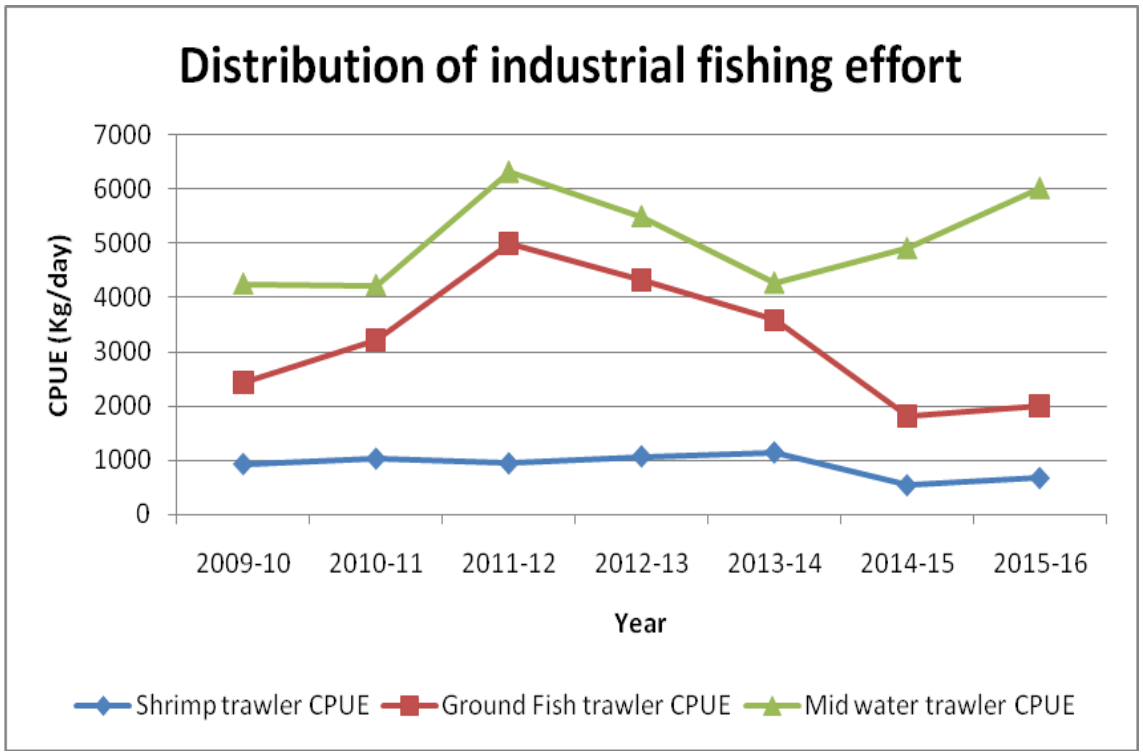

Figure 2b. Map of the distribution of industrial fishing effort, by gear type for the national fleet in the IOTC area of competence (average of the 5 previous years e.g. 2010–2014).

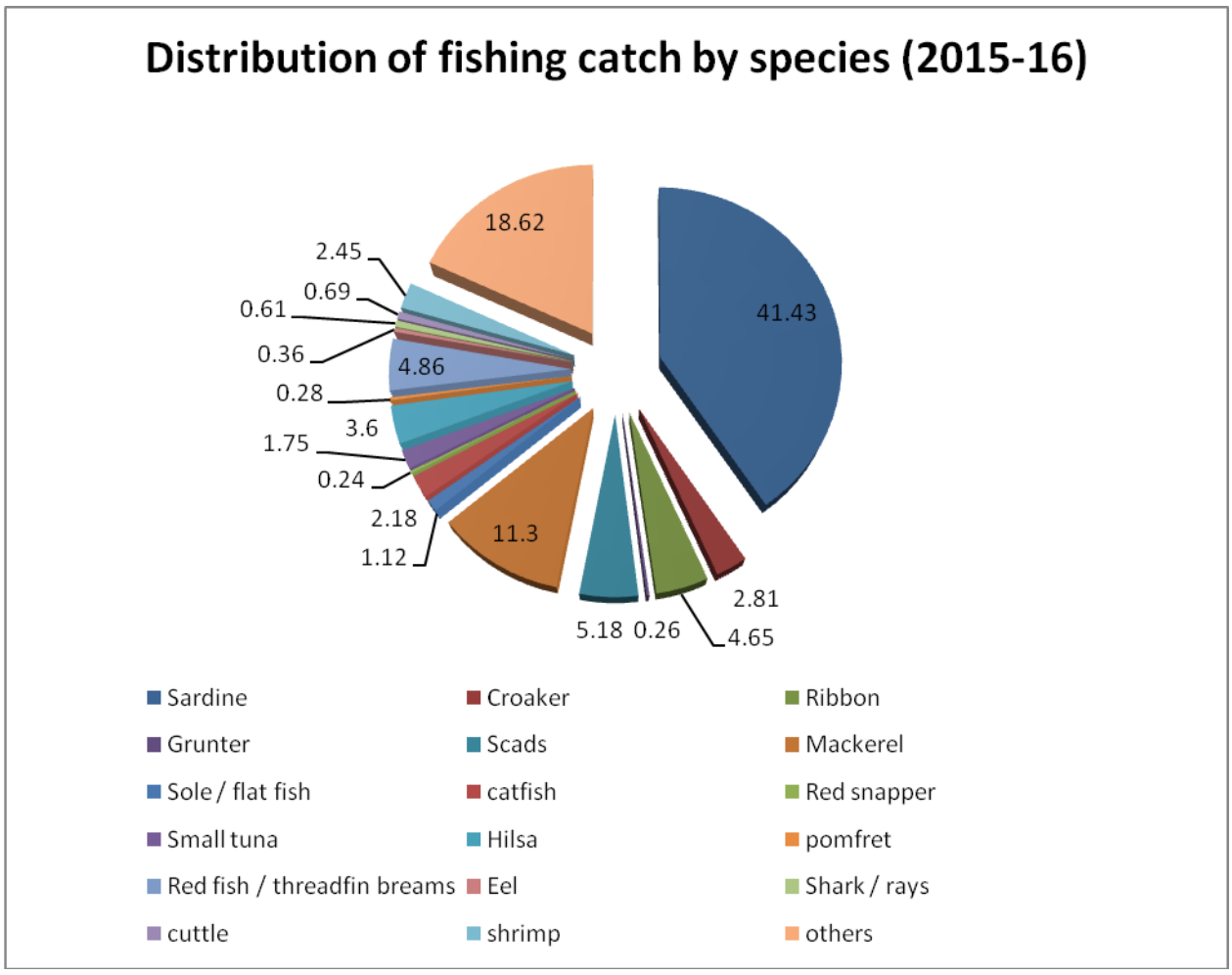

Figure 3a. Map of distribution of fishing catch, by species for the national fleet, in the IOTC area of competence of 2014-15 (most recent year e.g. 2014).

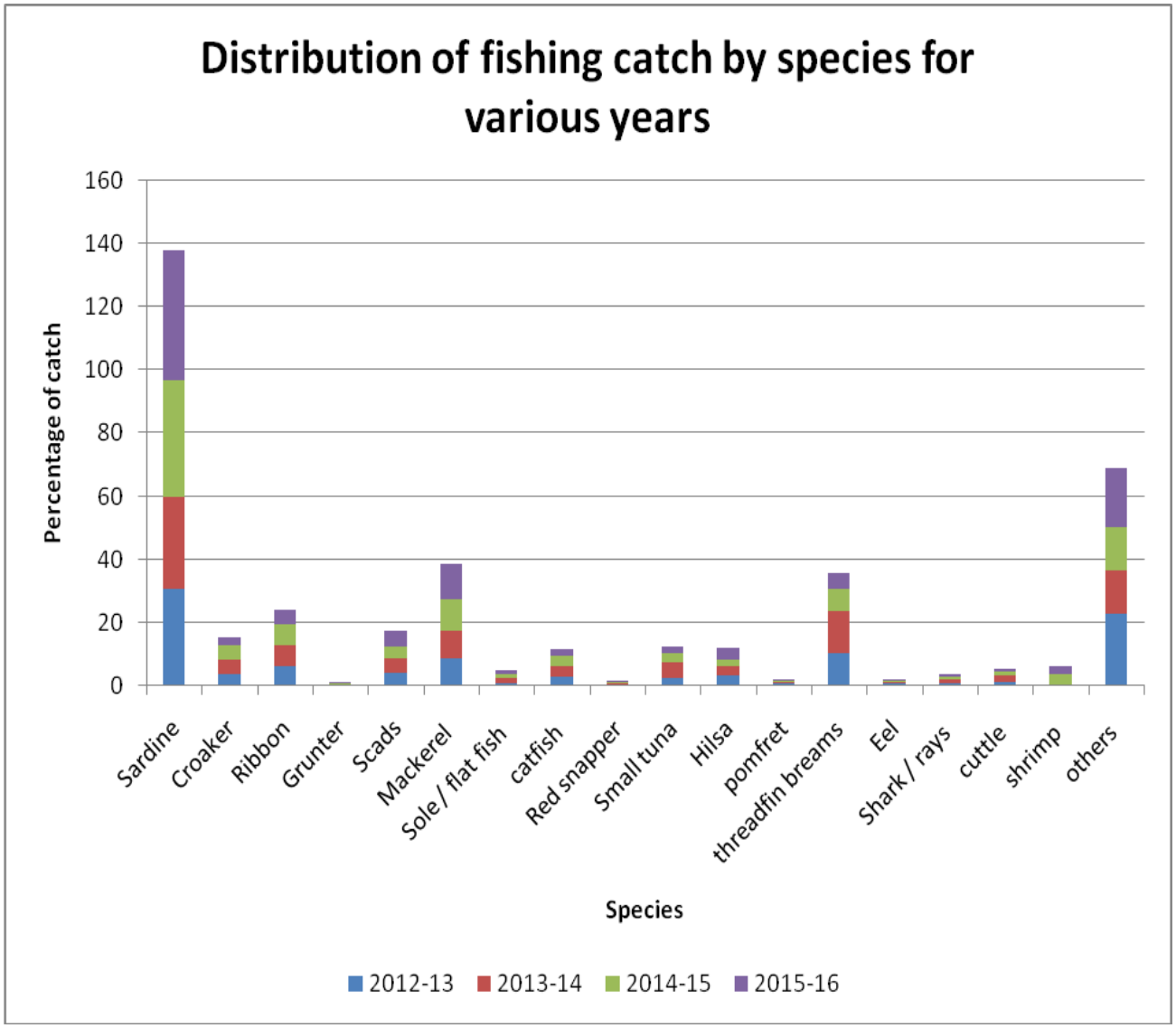

Figure 3b. Map of distribution of fishing catch, by species for the national fleet, in the IOTC area of competence of last four years.

4. RECREATIONAL FISHERY

There is no recreational fishery in Bangladesh marine waters.

5. ECOSYSTEM AND BY CATCH 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 (0.61% in 2015-16) 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

Sl.No.	Scientific Name / Group	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
1	2	3	4	5	6	7	8	9
	Total landing (MT)	**4033**	**2205**	**3865**	**4471**	**5648**	**5017**	**4000**
1.	*Scoliodon laticaudus*	25.53	6.06	22.07	22.46	36.35	22.61	23.98
2.	*Rhizoprionodon acutus*	7.33	4.97	1.45	2.22	1.96	3.31	2.15
3.	*R. oligolinx*	5.46	5.06	0.005	3.64	0.03	-	-
4.	*Sphyrna lewini*	4.50	0.07	7.07	10.25	7.67	11.86	9.09

5.	*Chiloscyllium indicum*	4.88	7.13	1.26	0.53	0.53	0.50	1.99
6.	*Galeocerdo cuvier*	1.66	1.06	1.34	2.15	2.27	1.03	1.49
7.	*Carcharhinus melanopterus*	10.02	3.88	1.25	1.52	1.86	0.95	2.03
8.	*C. leucas*	3.85	0.75	0.30	1.35	2.81	2.30	1.50
9.	*C. falciformis*	0.22	7.47	0.88	0.27	1.74	1.22	2.53
10.	*C. sorrah*	7.23	36.46	0.003	0.76	0.63	6.27	2.93
11.	*Himantura uarnak*	0.15	34.00	42.93	2.37	2.47	0.21	0.43
12.	*H. undulata*	2.23	0.41	0.31	2.06	3.52	8.58	4.49
13.	*H. gerrardi*	0.58	11.34	0.23	0.47	0.29	1.12	0.29
14.	*H. uarnacoides*	0.29	0.28	0.20	33.15	18.30	20.90	28.64
15.	*Gymnaura japonica*	2.96	0.05	8.69	3.44	4.64	3.93	6.82
16.	*Rhinoptera javanica*	18.91	2.88	2.61	0.56	0.82	-	0.03
17.	*Aetomylaeus nichofii*	0.31	0.71	0.08	1.34	0.66	0.94	3.49
18.	*Mobula japonica*	0.31	0.63	0.88	2.01	2.96	3.00	3.02
19.	*Rhinobatos typus*	0.02	0.82	0.45	6.39	9.03	7.65	5.01
20.	*Rhynchobatus granulatus*	0.04	11.49	7.09	0.06	-	-	-
21.	*Rhina ancylostoma*	0.001	0.38	0.60	0.002	0.56	-	-
22.	*Aetobatus narinari*	0.32	0.18	0.02	-	-	-	-
23.	*Urogymnus asperimus*	2.85	0.32	0.008	-	0.43	-	-
24.	*Rhynchobatus djeddensis*	-	-	-	-	0.59	0.67	0.09
25.	*Sphyrna mokarran*	-	-	-	-	0.07	-	-
26.	*Himantura walga*	-	-	-	-	0.40	1.67	-

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. Demersal Fish trawlers are modifying to Mid-water trawlers gradually. Shall 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)

Ecologically related species (e.g. marine mammals, whale sharks) shall not be hunted, killed or captured according to the Bangladesh Wildlife Preservation Act-1973. Moreover NPOA is being developed which may incorporate the other ecologically related species (e.g. marine mammals, whale sharks).

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)

Bangladesh Government has initiated Vessel Monitoring System (VMS) to trace dynamics of trawler. Already 133 trawlers are equipped with VMS out of 247 and the rest will be supported with same devices from BMFCBP.

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 MCS activities of the national fishing fleet engaged in offshore operation depends on Bangladesh Navy and Coast guard . personnel of Marine Wing of DoF were participated on board as observer in 2 patrolling vessel of Bangladesh Navy on test basis.

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]

- No port sampling programme is traduced in Bangladesh. But trawl landings are monitored by authorized personnel from Marine Wing of the Department of Fisheries.

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

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

- Transhipment is not permitted with the purview of present Regulation/Law [Marine Fisheries Ordinance,1983; Marine Fisheries Rules, 1983].

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

Project title	Period	Countries involved	Budget total	Funding source	Objectives	Short description
Bangladesh Marine Fisheries Capacity Building Project	Dec.2016-June 2019	National/ Govt. of Malaysia	BDT. 1210. 00 million	IDB and Govt. of Malaysia	Capacity Building of Marine Fisheries sector	Stock assessments, abundance/biomass surveys, biological studies to length, weight and sex, data collection of crafts and gears etc.

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 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 lines
13/04	On the conservation of	Paragraphs 7– 9	No purse seine, so not applicable

Res. No.	Resolution	Scientific requirement	CPC progress
	cetaceans		
13/05	On the conservation of whale sharks (*Rhincodon typus*)	Paragraphs 7– 9	No purse seine or FAD, so not applicable, as well this spp. Not yet recorded in BD marine waters
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 drafted 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 shark yet identified in Bangladesh marine waters
12/06	On reducing the incidental bycatch of seabirds in long line fisheries.	Paragraphs 3–7	Long liner not yet introduced in the existing industrial fishing fleet of BD
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	TED is used in shrimp trawler. Demersal Fish trawlers are being converted to Mid-water gradually. Provision of reporting the catch of turtle in fish trawl and gillnet fisheries in future for conservation of turtle.
11/04	On a regional observer scheme	Paragraph 9	No regional observer scheme
05/05	Concerning the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 1–12	NPOA for shark is being developed which may incorporate the IOTC requirements
	Bangladesh government has planned to explore its marine resources from deep and distant waters within the EEZ and ABNJ.		

9. LITERATURE CITED

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). 2015. Compendium: National Fish Week 2015. 144pp.

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.

Uddin, M.S., E.Karim, S.J.Hasan, S.Barua and N.M. Humayun. 2012. Catch composition of marine shrimp species in Bangladesh. Bangladesh Research Publication Journal 7:91-98. Retrieve from http://www.bdresearchpublications.com/admin/Journal/ Upload/09319.pdf.