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

Report prepared

by

Suman Barua
Assistant Director

Marine Fisheries Office
Department of Fisheries (DoF)
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Indian Ocean Tuna Commission
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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: 12/11/2020
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.	

Executive Summary

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 being after demarcation of sea boundary with the neighbours that lead to open up the access of Bangladeshi fishers to the Area Beyond National Jurisdiction (ABNJ) of high seas. But, it is not possible yet to take this opportunity by harnessing tuna and tuna like bill fishes from expanded high seas because of initiation stage of such fishing industry. 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 potentiality. Proper attention is needed in every aspects of exploitation, handling and processing, export and marketing as well as in biological and institutional management strategies. Therefore, a pilot project has been launched to harness tuna and tuna like fishes from Bangladesh marine waters and ABNJ of high seas. Basically, there is no specific tuna fishery in Bangladesh. Tunas are by catch of industrial trawlers and artisanal gill netters. Statistically it shows that tunas comprises about 0.13% (155.42 mt) of the industrial catch and 0.14% (161.40 mt) of catch is mackerels in the year 2019-20. This report, thereby tried to articulate in a frame as per format of commission incorporating a salient feature of the marine fisheries of Bangladesh. Besides, there was no reporting of sea bird interactions with the both industrial and artisanal fishery during the reporting period. Similarly, there was no reporting of mortality of sea turtles, marine mammals and whale sharks, which are protected under existing rules and regulations.

CONTENTS

1. BACKGROUND/GENERAL FISHERY INFORMATION

The contribution of marine resources to the growth, prosperity and employment generation has been remarkably addressed at the highest tiers of the government in Bangladesh. Marine Fisheries is a major source of food security for million of coastal fishermen and households, who also propagate further multiplier employment in ancillary activities including fish processing and marketing. The coastline of the country comprises about 710 km extending from the tip of Teknaf in the south-east to the south-west coast of Satkhira (*Hossain, 2004*). 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*). The coastal waters are very shallow with less than 10 m depth covering about 24,000 km^2 (Hossain, 2004).

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 artisanal sector plays a vital role in marine fisheries production of Bangladesh. This sector contributes 82% 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 18% of the total marine production with demersal and pelagic fin fish and shrimps catches (DoF, 2019). There are signs of overfishing, and of some important demersal species like grunters, threadfins, snapper, large croakers and cat fish have dwindled gradually. To elucidate present stock biomass in Bangladesh marine waters,

a multipurpose survey and research vessel R.V. Meen Sandhani has been added into country's fishing fleet in the year June 2016. Shrimp, demersal and pelagic surveys are being carried out through this research vessel from 2016-17 fiscal year, which provided stock status of some commercially important species in 2019. In parallel, stock biomass and Maximum Sustainable Yield (MSY) of industrial shrimp and fish stock based on trawl catch log has been elucidated in 2018 and 2019 (Barua *et al.* 2018 & Barua 2019). Though, a number of surveys conducted since 1958 to 1984, proved the potentialities of ground fish, shrimp and pelagic stock. 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.

The average of last 10 year's production shows that the industrial fishery based on trawl fishery (shrimp and fish trawl) contributes around 15% of the total marine production and the artisanal small scale fisheries contributes 85% of the total marine landings. There is lack of data on sustainable harvest of marine fisheries resources. Besides, due to poor socioeconomic conditions and lack of alternate income source of fisher folk, maintaining sustainable harvest of marine fisheries resources has become very difficult. Management of marine fisheries of Bangladesh has focused predominantly on industrial trawler fleets, with limited attention being paid to artisanal sectors. This has led to uncontrolled expansion of fishing efforts, which has put forward the sector in crisis of overfishing. The poor artisanal fishers are putting more and more nets of fine mesh to survive, which exerts excessive pressure on the fish stocks and increasingly catching less valued and under-sized juvenile and consequently, fish stocks are plummeting, which outweigh the sustainable strategy taken by government. The marine capture fisheries of Bangladesh consist of complex and multispecies in nature. This sector contributes 15.31% of the total fish production of Bangladesh (*DoF 2019*), despite of a sizable marine and brackish water area under the EEZ. Though, the strategic development of this sector has not yet been properly addressed, 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 has already taken measures such as conversion of bottom trawlers to midwater trawlers, moratorium on increase of trawlers and implementation of season ban for 65 days from 20 May to 23 July and 22 days hilsha ban during peak breeding season of hilsha. There are generally fished six species of tunas where mostly are neritic tunas. These are Frigate tuna (*Auxis thazard*), Bullet tuna (*Auxis rochei*), Eastern little tuna/kawakawa (*Euthynnus affinis*), Big eye tuna (*Thunnus obesus*), Long tail tuna (*Thunnus tonggol*) and Skipjack tuna (*Katsuwonus pelamis*). Though small in sizes, *Katsuwanus pelamis*, *Thunnus tonggol* and *Auxis rochei* are usually shown in the catch log of trawlers and *Euthynnus affinis*, *Auxis thazard* and *Thunnus obesus* are caught in coastal waters by artisanal gill nets and hooks & lines as by catch. Mackerels including Indo-Pacific King mackerel (*Scomberomorus guttatus*) and narrow-barred Spanish mackerel (*Scomberomorus commerson)* are substantially caught by industrial trawlers. Other tuna like billfishes are Barracuda (*Sphyraena barracuda*), Sword fish (Xiphias gladius), Sail fish (*Istiophorus platypterus*), Marlin (*Tetrapturus audax*), Dolphin fish (*Coryphaena hippurus) and* Wahoo (*Acanthocybium solandri*) occasionally reported in both industrial and artisanal landings (Barua 2020).

2. FLEET STRUCTURE

The marine fisheries sector of Bangladesh is divided into two sub-sectors: industrial and artisanal. There were 255 industrial trawlers and 67,669 mechanized and non-mechanized boats in fishing fleet off Bangladesh (DoF 2019). In the list, there were some trawlers which actually sunken, scrapped. A decision has been made by the authority to delist them and that's why, the number of trawlers in 2019-20 were less than before. The artisanal boats relatively engaged to 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.

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	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**
a) Shrimp Trawler	32	30	32	37	37	30
b) Fish Trawler	175	174	169	216	218	190
Total	207	204	201	253	255	220
a) Mechanized boat (MB)	33859	32859	32859	32859	32859	32859

b) Non-Mechanized boat (NMB)	33810	34810	34810	34810	34810	34810
Total	67669	67669	67669	67669	67669	67669
a) Gill net	115028	119958	118353	118353	37190	37190
b) Set Bag net (SBN)	40824	40824	42429	42429	20750	20750
c) Long line	11863	11863	11863	11863	3225	3225
d) Trammel net	422	422	422	422	131	131
e) Other gear	15640	15640	15640	15640	6373	6373
Total	183777	188707	188707	188707	67669	67669

Table 1(b): National fleet structure based on 2019-20 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	shrimp trawl	Shrimp and fish as by catch	no	Non mechanized	34810	ESBN[1], Gillnet, Stake net	Mixed species mainly shrimp,	no

30-43m LOA, 450-750 BHP)								young stages of different fishes , Hilsa	
Fish trawler (steel and wooden hull 24-54 m LOA, 520-1450 BHP)	49	fish trawl	Mixed species mainly sardines, croakers, catfish , redfish, ribbon fish etc	about 2-3 % of tuna and tuna like fishes	Mechanized	32859	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, 1050-1850 BHP)	112	Mid water trawl	Mixed species mainly sardines, croakers, catfish , redfish , ribbon fish etc	about 2-3 % of tuna 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)

The marine fishing sector is governed by the Marine Fisheries Ordinance, 1983 and 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 2014-15 to 2019-20

Year	Marine production (MT)	No of trawlers	Industrial (MT)	No of Boats	Artisanal (MT)
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
2018-19	659911	255	107302	M 32859 NM 34810	552609
2019-20	689104	220	115354	M 32859 NM 34810	573750

*M-Mechanized, *NM-Non mechanized

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

Species/Group	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Hilsa	1,815	3,694	6948	11060	12366	9616
Sardine	30,385	42,576	46104	40936	27421	16154
Bombay duck	-	-	4320	6050	2656	6494
Indian Salmon	-	-	-	-	-	-
Pomfret	487	292	686	849	849	1205
Croaker	3826	2888	3033	3862	5020	6271
Cat fish	2866	2245	2001	2735	3010	5223
Sharks and	918	621	645	549	724	602

Rays						
Others	41,816	50448	41524	50565	52523	67353
Shrimp	2,733	2583	3219	3682	2733	2436
Total	84,846	1,05,347	1,08,480	1,20,288	107302	115354

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

Species/Group name	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**
Hilsa	250000	250500	272000	273440	288681	304950
Sardine	2450	1810	2600	550	835	660
Bombay duck	53950	58545	64910	69035	65445	65255
Indian Salmon	1020	895	775	487	295	177
Pomfret	10950	10300	10000	11050	10155	8818
Jew fish	28000	29005	31000	31565	36580	36672
Cat fish	6610	6450	6560	6720	8445	8387
Shark & Ray	4175	4000	3850	3425	3550	2771
Other fish	114845	114675	90902	93163	98607	103680
Shrimp	43000	45000	46400	45165	40016	42380
Total	515000	521180	528997	534600	552609	573750

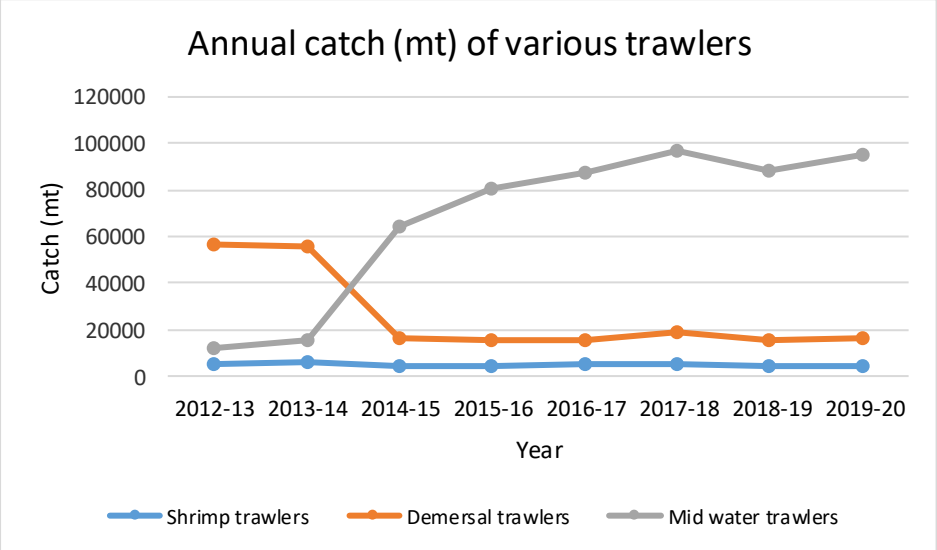

Figure 1a: Historical annual catch by industrial trawler fleet (gear-wise), for the IOTC area of competence from 2012-13 to 2019-20.

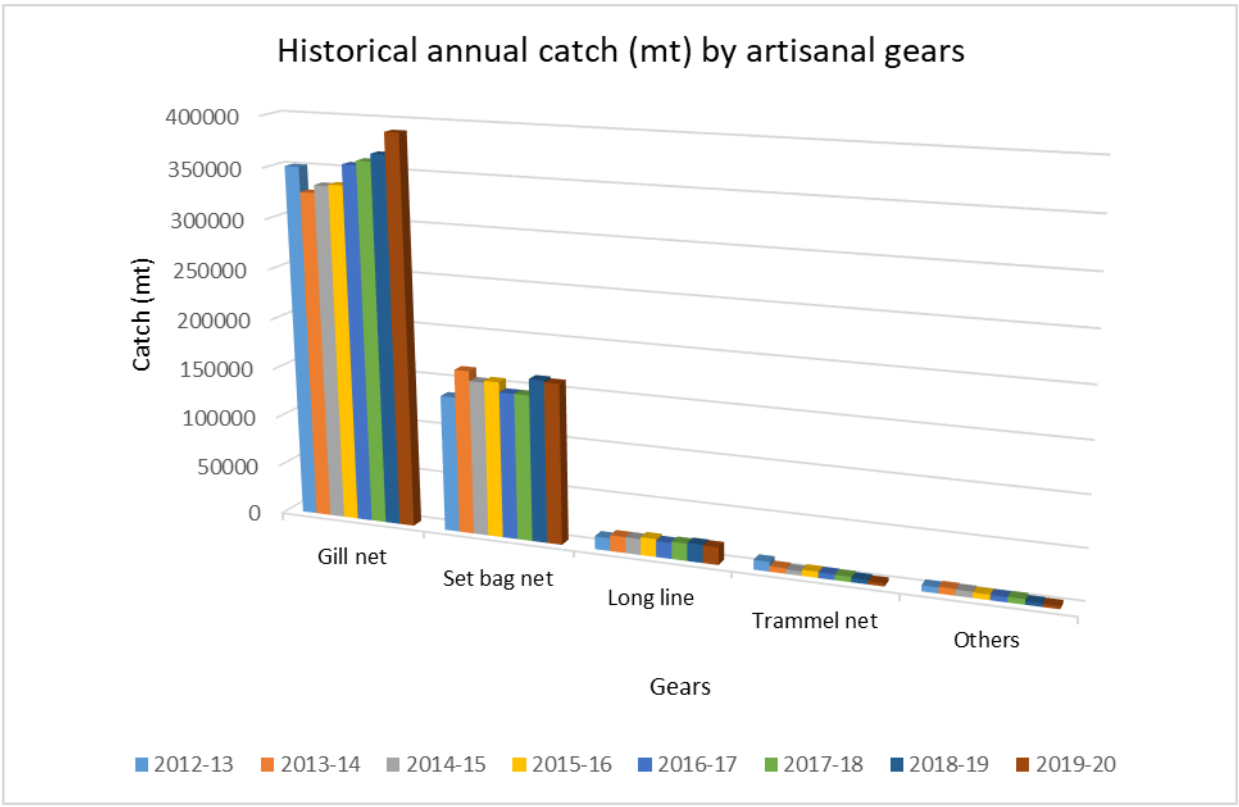

Figure 1b: Historical annual catch by artisanal fleet (gear-wise), for the IOTC area of competence from 2012-13 to 2019-20.

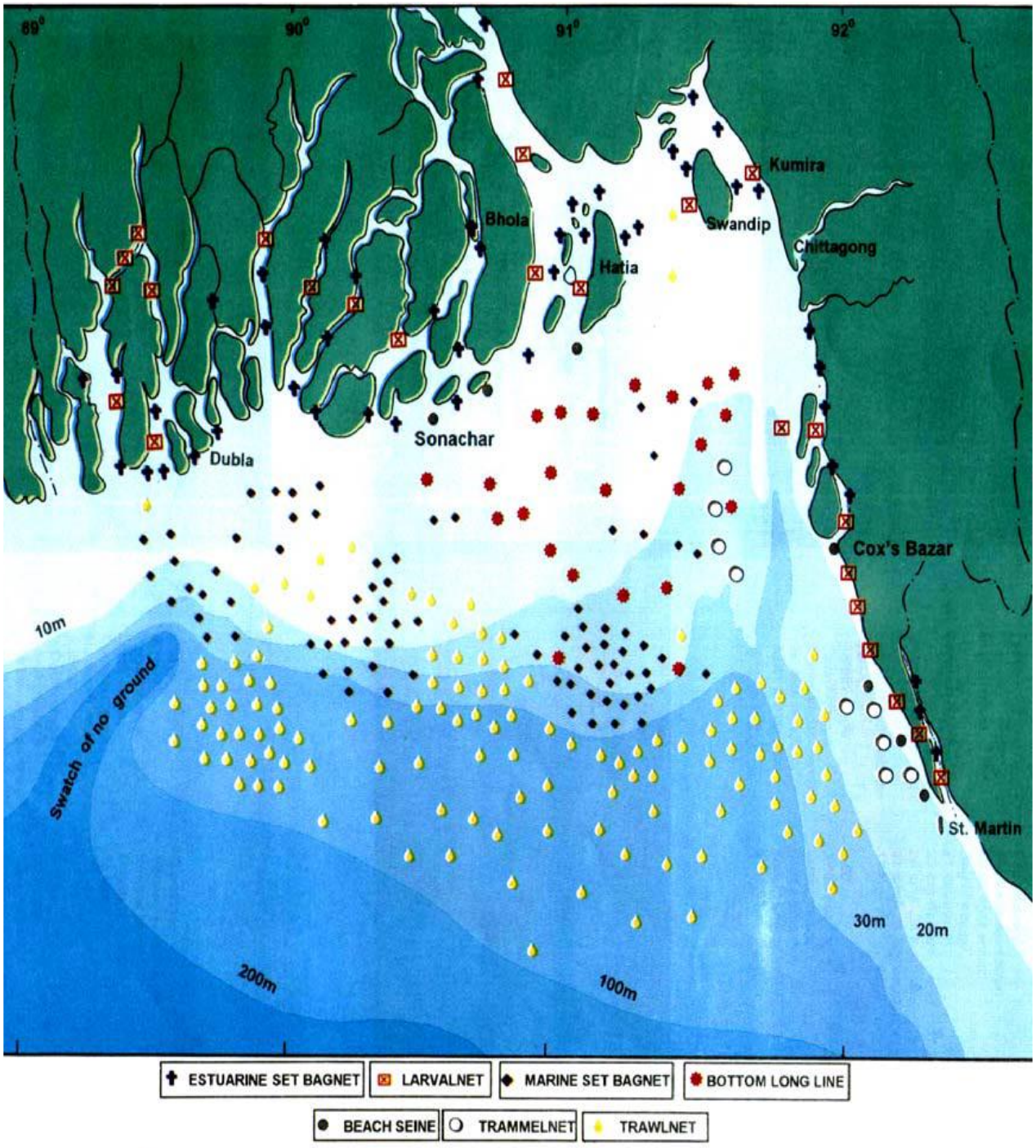

Figure 2a: Map of the distribution of fishing effort, by gear type for the national fleet in the IOTC area of competence.

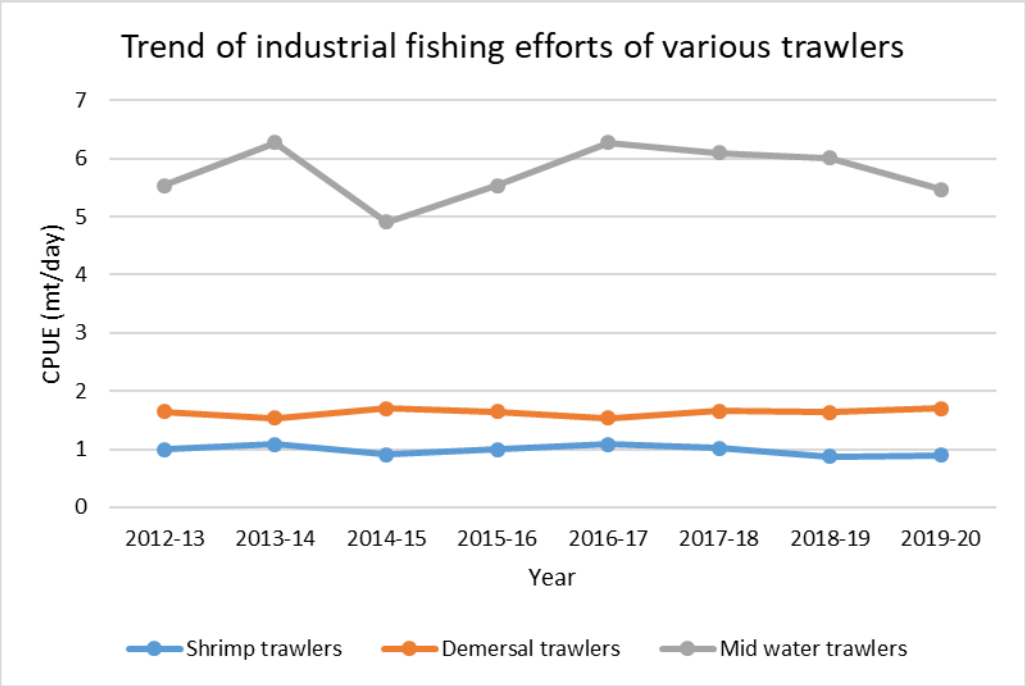

Figure 2b. Map of trend of industrial fishing efforts, by gear type for the national fleet in the IOTC area of competence.

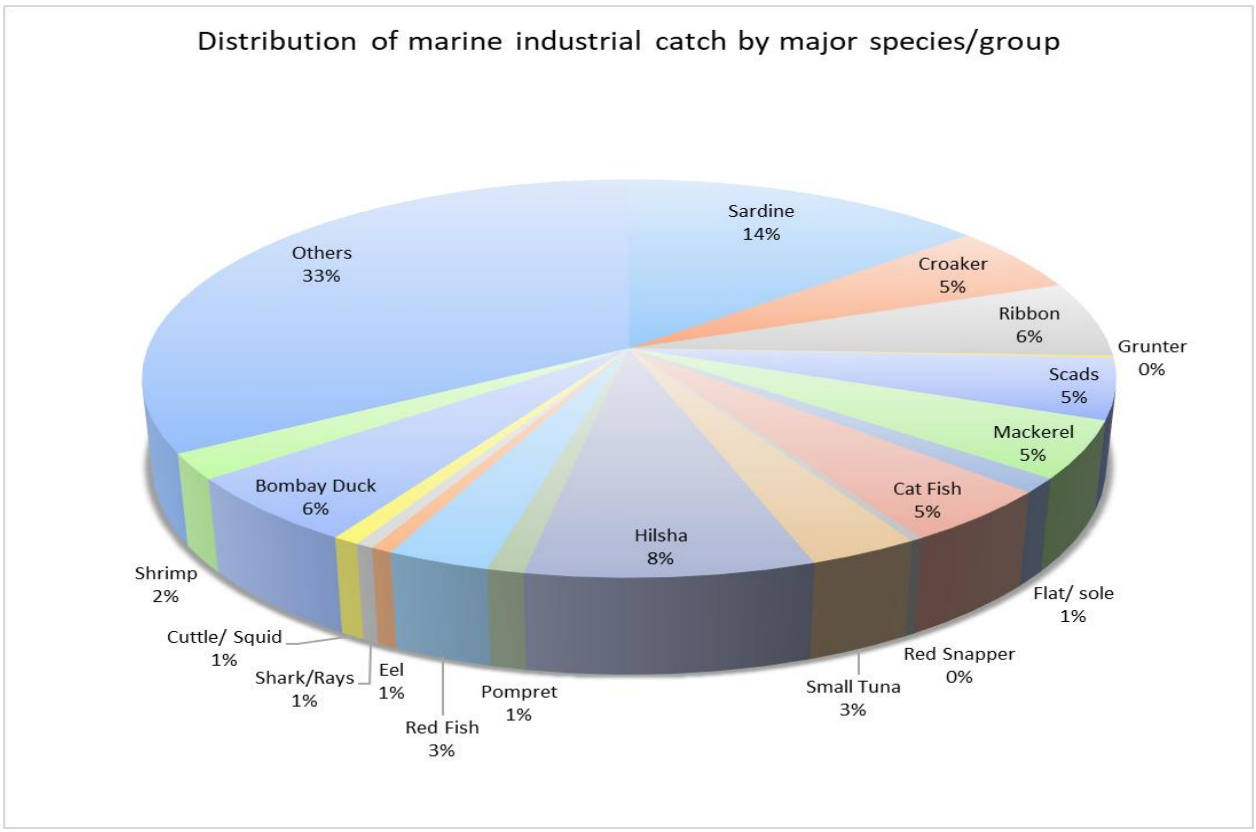

Figure 3a. Map of distribution of fishing catch, by species for the industrial fleet, in the IOTC area of competence of 2019-20.

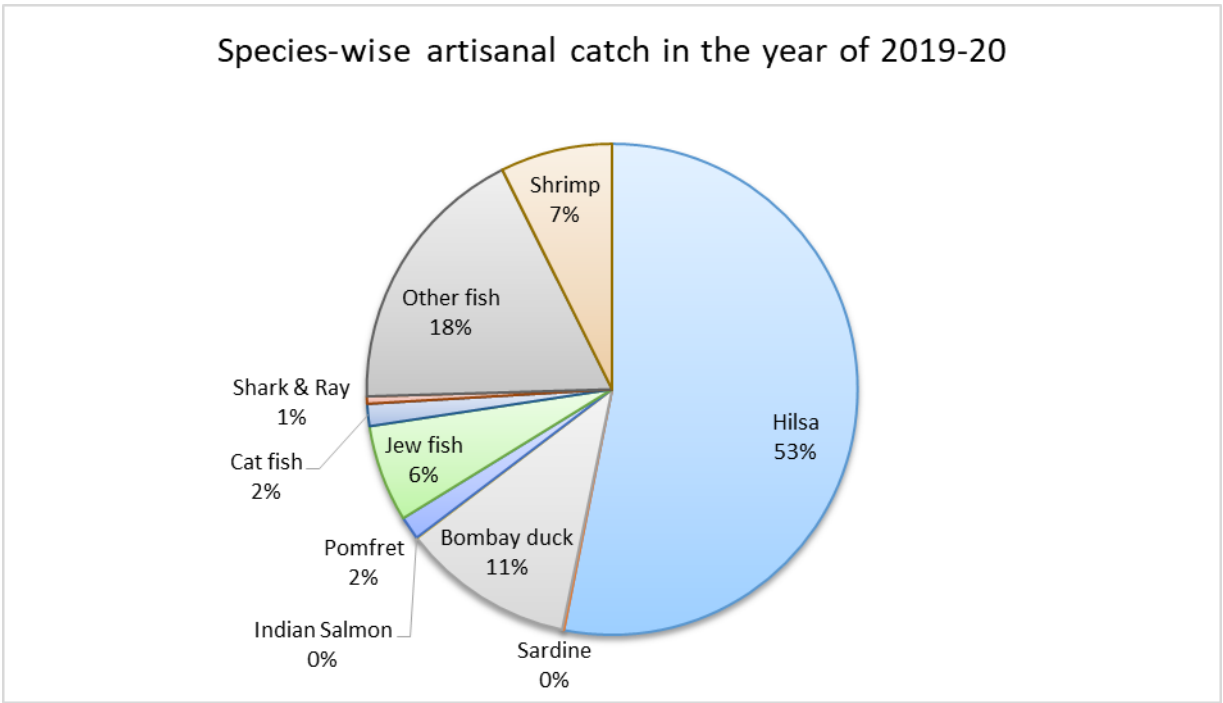

Figure 3b: Map of distribution of fishing catch, by species for the artisanal fleet, in the IOTC area of competence of 2019-20

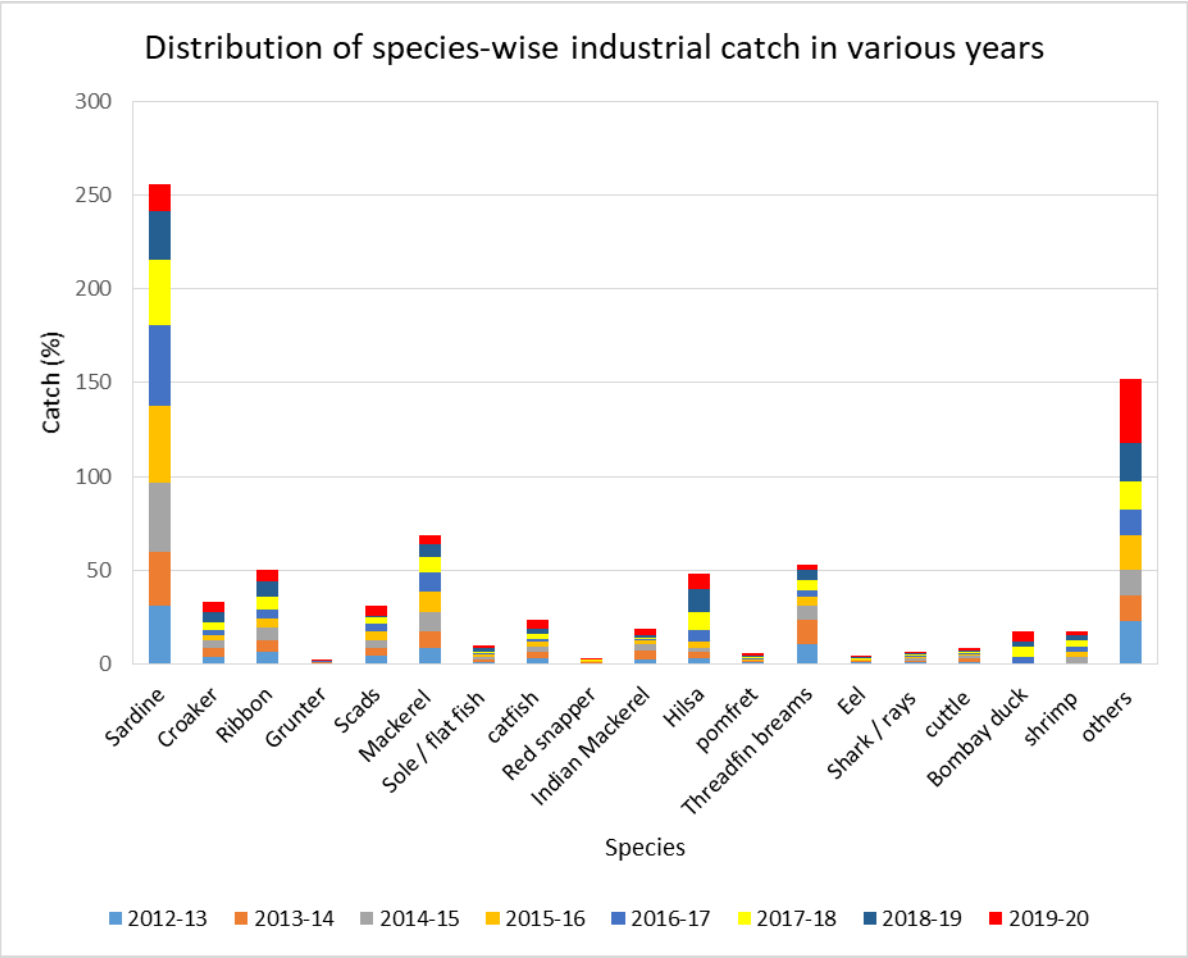

Figure 3c: Map of distribution of fishing catch, by species for the industrial fleet in various years, in the IOTC area of competence.

4. RECREATIONAL FISHERY

There is no record of 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

Sharks, skates and rays are available in Bangladesh marine waters. Draft version of NPOA for shark has developed by BoBLME. It is now necessary to ratify by the authority after reviewing all concerned issues and the IOTC requirements to address of key national strategies related to sharks would be recommended to incorporate.

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

There is no species wise collection of data for shark, skates and rays in national database, though there were some data on species wise for a specific region in previous years, which was mentioned in previous year reports. However, very little amount of shark, skates and rays in industrial catch, which was 0.53% (604 mt) in annual industrial catch of 2019-20. But, the artisanal landing of shark, skates and rays was 2771 mt (1%) of total artisanal catch in 2019-20.

Table 4: Total number of sharks, by species, released/discarded by the national fleet in the IOTC area of competence (for the most recent five years at a minimum, e.g. 2015–2019). Where available, include life status upon released/discard.

Not available

5.2 Seabirds

There were no reported instances of sea bird interactions in any of the Bangladesh marine fishery.

5.3 Marine Turtles

All the five species of marine turtles occurring in Bangladesh marine waters are listed in the Schedule I of the Bangladesh wildlife preservation order-1973. Turtle Extruder Device (TED) is used in shrimp trawlers to let the turtle out during bottom fishing. 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. 2015–2019 or to the extent available).

Not available

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

6.1. Log sheet data collection and verification

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

6.2. Vessel Monitoring System

There were 133 trawlers under VMS but now plan has taken to implement new VMS interface and hopefully, every industrial vessels and a specific percentage of mechanized fishing boats will come under VMS/AIS system within short possible time by the finance of SCMFP.

6.3. Observer programme

No conventional observer scheme yet to on-board to monitor deep sea fishing. The national fishing fleet is fully depends on Bangladesh Navy and Coast guard for fishery protection at sea. But, officers 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 in 2016. Then, it was carried out by Coast guard ship in January 2019. Though, it was not continued by Coast guard ship since then. But, it has plan to deploy observer system on-board both industrial and artisanal fleet on a randomize fashion through on-implementing Sustainable Coastal and Marine Fisheries Project (SCMFP).

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. 2015–2019 or to the extent available).

- Longline and purse seine are not operating yet in the trawl fleet.

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

-Not applicable

6.4. Port sampling programme

Marine Fisheries Survey Management Unit of Department of Fisheries has made a draft on land-based survey (LBS) and put forward for approval. It seems to be taken by higher authority as prime issue and plan to organize workshops so that a comprehensive strategy on such burning issues may come out soon.

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

- It is possible to report after implementing LBS.

6.5. Unloading/Transhipment

Both unloading by foreign fishing vessels and mid-sea transhipment are not permitted in Bangladesh marine waters under the prevailing rules/regulations.

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

Not yet taken action to monitor catches and manage fisheries for Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish.

6.7. Gillnet observer coverage and monitoring

Not yet to establish observer system but plan has taken to deploy observer at some portion of gillnet fishery and to monitor them more efficiently as well.

6.8. Sampling plans for mobulid rays

No plan has taken to address sampling of mobulid rays.

7. NATIONAL RESEARCH PROGRAMS

[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.]

7.1. National research programs on blue shark

Not yet but it has plan to take in near future.

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

Not yet but it has plan to take in future.

7.3. National research programs on sharks

Various research programs on shark has taken sporadically by various organizations and now has taken initiative by DoF to articulate them in a coordinated way.

7.4. National research programs on oceanic whitetip sharks

Not yet but it has plan to take in future.

7.5. National research programs on marine turtles

Some research organizations has conducted research on turtles but not accumulated them and plan has taken to articulate them in an organized way.

7.6. National research programs on thresher sharks

Not yet but it has plan to take in future.

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

Project title	Period	Countries involved	Budget total	Funding source	Objectives	Short description
Sustainable Coastal and Marine Fisheries Project	2019-2023	Bangladesh	USD281.60M	World Bank and GoB (Government of Bangladesh)	Strengthening capacity of national 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.
Pilot Project for Extraction of Tuna and Similar Pelagic Fish in the Deep Sea	July 2020 to June 2023	Bangladesh	BDT61.7Cr	GoB	To create trained and skilled manpower for deep-sea tuna and homogeneous fishing	Under this pilot project to procure tuna long liners, tuna and similar fish will be caught from deep-sea and international waters.

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 2012 and 2019.

Res. No.	Resolution	Scientific requirement	CPC progress
11/04	On a regional observer scheme	Paragraph 9	No regional observer scheme yet to frame
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	TED is used in shrimp trawlers. Demersal fish trawlers are modifying to Mid-water trawlers gradually. It has planned to introduce provision of reporting the catch of turtle in fish trawl and gillnet fisheries and take measures to reduce catch and increase survival of turtle.
12/06	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	No tuna long liners yet and no reporting of catching seabirds by national fishing fleet.
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
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.
15/01	On the recording of catch and effort by fishing vessels in the	Paragraphs 1–10	Have well-organized recording system includes catch log in industrial fishery and plan to introduce electronic system there.

Res. No.	Resolution	Scientific requirement	CPC progress
	IOTC area of competence		Simultaneously, it is now mandatory to maintain catch log in mechanized fishing boat and must submit them for taking sailing permission (SP) of next trip as per Marine Fisheries Act 2020.
15/02	Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)	Paragraphs 1–7	Have statistical report of both industrial, mechanical and artisanal fishing.
17/05	On the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 6, 9, 11	A draft NPOA on shark has formulated and now try to ratify it by the authority.
18/02	On management measures for the conservation of blue shark caught in association with IOTC fisheries	Paragraphs 2-5	Not yet but it has plan to take action in near future.
18/05	On management measures for the conservation of the Billfishes: Striped marlin, black marlin, blue marlin and Indo-Pacific sailfish	Paragraphs 7 – 11	Not yet but it has plan to take action in future.
18/07	On measures applicable in case of non-fulfilment of reporting obligations in the IOTC	Paragraphs 1, 4	As a CPC, Bangladesh try to comply all reporting templates asked by IOTC.
19/01	On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence	Paragraph 22	Not reported YFT yet in Bangladesh marine waters.
19/03	On the Conservation of Mobulid Rays Caught in Association with Fisheries in the IOTC Area of Competence	Paragraph 11	Not yet but it has plan to take action in future.

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