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

Pakistan's National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2019

TUNA FISHERY IN PAKISTAN

by

MUHAMMAD FARHAN KHAN
MINISTRY OF MARITIME AFFAIRS
GOVERNMENT OF PAKISTAN

INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

In accordance with IOTC Resolution 15/02, final scientific data for the previous year was provided to the IOTC Secretariat by 30 June of the current year, **for all fleets other than longline** [e.g. for a National Report submitted to the IOTC Secretariat in 2017, final data for the 2016 calendar year must be provided to the Secretariat by 30 June 2017)	YES Communication email dated 06-08-2020.
In accordance with IOTC Resolution 15/02, provisional **longline data** for the previous year was provided to the IOTC Secretariat by 30 June of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2017, preliminary data for the 2016 calendar year was provided to the IOTC Secretariat by 30 June 2017). **REMINDER:** Final longline data for the previous year is due to the IOTC Secretariat by 30 Dec of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2017, final data for the 2016 calendar year must be provided to the Secretariat by 30 December 2017).	YES Communication email dated 06-08-2020.
If no, please indicate the reason(s) and intended actions: Not applicable.	

Executive Summary

Tuna and tuna like fishes are one of the components of pelagic resources. In Pakistan, mainly neritic and oceanic species are caught in the tuna fishery. Tuna fishing fleet comprises of about 709 gillnet boats. The total production of tunas and tuna-like fishes, including neritic and oceanic tunas, billfishes and seerfishes during the year 2019 was 48,320 m. tonnes.

There are no reported instances of sea bird interaction in any of the tuna fishing boat. sea turtles, marine mammals and whale sharks are protected in Pakistan under various national and provincial fisheries and wildlife legislations. Data on tuna production is collected by provincial fisheries departments of maritime provinces of Sindh and Balochistan and compiled by Marine Fisheries Department, Government of Pakistan, Ministry Maritime Affairs.

Tuna and allied resources called as large pelagic resources. The large pelagic resources contributed 48,320 ton. Major share of the landing was by tunas (51.53%) followed by seerfishes (9.17%), dolphinfish (9.17%) and billfish (25.77%). Among the tunas, yellowfin was dominating with 24.61%, followed by tuna-nei (28.17%), frigate (27.90%), longtail (11.87 %), kawakawa (4.52%) and skipjack (2.88%). There were some landings of bullet tuna and striped bonito as well.

It may be noted that there is a major decrease in the landings of tuna and tuna like species in the gillnet fisheries of Pakistan. As compared to 2018 the landings of these species have decreased by a factor of 31.53 % in 2019. The landings of tuna and tuna like species was 70,569 m.tons during 2018 which has dropped to a level of 48,320 m. tons in 2019.

This major decrease in the landings of tuna and tuna like species is attributed to many factors which include early closure of fishing season in early April 2019 (as compared to June) because of extremely low catches in March and April 2019 as well as extreme low prices of tuna in the market. Usually a voluntary two-month close season is observed between June and July, however, the new fishing season was started only in late August 2019. The close season, therefore, remained effective for about four and half months (mid April to end August).

In addition, there was extremely high sea surface temperature during August to October (possibly oceanic heat wave) in major part of the Arabian sea resulted in poor catches of tuna, therefore, only a few tuna boats remained operated during this period. Unprecedented jellyfish bloom of Crambionella orsini during September and December (and even onward in 2020) forced fishermen to stop fishing operations during this period because of excessive entanglement and choking of fishing net.

Significant progress has been made during the years from 2016-2018, for the conservation of bycatch species which include promulgation of fisheries legislations by both provinces of Sindh and Balochistan. These legislations prohibited the catching of turtle, cetacean (whales & dolphins), whale shark, silky shark, oceanic whitetip shark, thresher shark, hammerhead sharks, all species of sawfishes of Family Pristidae, all species of guitarfishes and wedgefishes of family Rhinidae, Rhinobatidae or Rhynchobatodae. To monitor the activities of local tuna boat, it is made mandatory to have VMS on all fishing vessel larger than 15 meters (in length overall). The contravention of these regulation is punishable with fine and imprisonment.

CONTENTS

1. BACKGROUND/GENERAL FISHERY INFORMATION

Large pelagic being caught in Pakistan consists of tuna, billfishes, dolphinfish, pelagic sharks and barracudas. The fishing fleet engaged in large pelagic species are mainly based mainly in four coastal cities i.e. Karachi, Gwadar, Pasni and Jiwani, although there are more than 60 coastal towns and settlements along the coast of Pakistan. It is estimated that large pelagic contribute more than 20 % in the total landings of fishes from marine origin. A major of catch of large pelagic is transportedto Islamic Republic of Iran mainly through boats based in Gwadar area and to a lesser extent through land route. Small quantities are large pelagic (mainly Spanish mackerels) are consumed locally whereas smaller tuna species (kawakawa, frigate and bullet tuna) are also exported in salted dried form to Sri Lanka. Despites their importance large pelagic in Pakistan, there are a number of serious issues being faced by this fisheries mainly being non-compliant to the international instruments such as IOTC.

Neritic tuna gilnnet operations are primarily based in coastal villages of Pasni, Gwadar and Jiwani, however, there are few fishing boats based in Karachi, Gaddani and Ormara which are engaged (in some cases during specific fishing seasons). The boats engaged in this fishery have a size ranging between 7 to 11 m in length (locally known as Rachin in Balochistan and Hora in Sindh). Small scale neritic tuna fleet consists entirely of locally made wooden boats. Previously these boats used to undertake one day trip but most of these boats now undertake many day trips (maximum 5 days). Gill nets used in these boats have length ranging between 3 to 5 km with mesh sizes ranging between 5 to 14 cm (stretched). Most of these boats have inboard engine (33 to 200 hp) but a few still have longtail or outboard engines (7 to 33 hp).

Table-I: Types of Tuna Fishing vessels being Operated in Pakistan

Type of Vessel	Balochistan	Sindh	Total
Small scale neritic tuna gillnet fishing vessels	120	80	200
Larger scale offshore tuna fishing vessels	250	400	650
Large scale offshore vessels with onboard freezing facilities	70	0	70
Large scale tuna longlining	Nil	Nil	Nil
	340	480	820

Data is based on estimate as exact information about registration is not available.

These neritic tuna gillnet boats (Fig. 1) may not necessarily be targeting tuna or tuna like species but other demersal and pelagic species such as croakers, queenfish, Spanish mackerels, catfish, barracuda, seabreams and sharks may be targeted, however, still coastal tuna mainly longtail, kawakawa and frigate tuna are also main catch especially during January and February and October and November. No data of their contribution of tuna landings is available, however, it is rough estimate that this fisheries used to contribute about 20 % in total tuna landings, however, during the past 15 years their contribution in total tuna landings has been dropped to about less than 5 % as

major part of this fleet is engaged in catching of Indian mackerel using monofilaments. In the recent past (since last two years), there is a recovery in this fishery because of decline in the catches of Indian mackerel and now the some of the boats which were previously engaged in fishery for Indian mackerel has started returning to neritic tuna fishery. The area of operation of these neritic tuna gillnet boats is shown in **Figure 1**.

Figure 1: The area of operation of nertitic tuna gillnet boat.

2. FLEET STRUCTURE

Large scale offshore tuna fleet consists entirely of locally made wooden boats. Majority of these boats are operating from Karachi, Gwadar and Jiwani. These boats are large; exceeding more than 18 m LOA. Almost all tuna fishing boats operating from Karachi have transom at the stern whereas almost all tuna boats of Balochistan are double keeled. A survey of the tuna boats operating from Karachi was carried out in 2005 and again in 2012 which revealed that most tuna boats have an average length of about 12 to 15 m. All tuna boats both operating from Karachi or from Balochistan coast have inboard engine with 50 hp to 500 hp.

The boats are well equipped as these have latest GPS, fish finder and shortwave or VHF radios. Usually these boats have one or two hydraulically operated net hauler. Most of these boats have fish hold consisting of 6 compartments (larger boats have 8) each having capacity to hold about 1 ton of fish. Fish holds in almost all vessels of these categories are now lined with fiberglass sheet and insulated with polyurethane. Ice is carried on fishing trips and prime catch is placed with crushed ice. Previously salt used to be taken and fish catch is eviscerated and cut open and then salt is sprinkled and fish is allowed to drain excess water. Such wet salted catch used to kept in hold and excess is piled on deck. Use of salt as preservatives is now totally discontinued.

Surface gillnetting using nylon and polyamide nets are used by large scale offshore tuna gillnet fleet. The net stretched mesh size of 15 cm with a hanging ratio of 0.5. Length of head rope varies between 5,500 m. toa maximum of 17,000 m (Fig.5). The breadth of the net has about 8 to 20 m. Both stone and lead weights are used as sinkers whereas various types of floats (Styrofoam, plastic, HDP floats as well as recycled plastic cans) are used in the head rope.

Fishing boats engaged in tuna fisheries are mainly based in Karachi but Gwader is being used as operational base. Tuna fishing boats are also based in Pasni, Ormara and Jiwan. Tuna fishing boats undertake fishing voyage usually of about 10 to 40 days. Gillnets for catching tuna are laid in the

afternoon and retrieved in early morning. Nets haulers are used for heaving the nets. Fish is removed from the net and after its complete heavingthe catch is stored in the fish holds with ice.

Tuna is harvested throughout the year, however, because of rough seas during southwest monsoon (Mid May to Mid August) tuna fishing activities are totally stopped. Major fishing season for tuna is between November and April with peak season in March.

Table 2: Number of vessels operating in the IOTC area of competence, by gear type and size

Type of fishing boats	2012	2013	2014	2015	2016	2017	2018	2019
Gillnetters	3,324	3,538	3,459	3,624	3,935	3,800	3,800	3,800
Pelagic gillnet	869	938	964	977	984	815	815	815
Longlinners	0	0	0	0	0	0	0	0

3. CATCH AND EFFORT (BY SPECIES AND GEAR)

Table-2a Annual Nominal catch of tuna & allied fishes (2016-2019)

(Quantity in m.ton)

English name	Scientific name	Gear	2016	2017	2018	2019
Combined tunas		Gill	70,844	71,101	51,078	27,307
Combined billfish		Gill	4,500	4290	3,521	4,431
Combined Seerfish		Gill	20,459	21952	12455	12,455
Bycatch		Gill	36,390	31,362	1,392	5,457
Grand Total			101,224	102,463	71,961	49,650
No longline vessel was in operation		LL	0	0	0	

Table-2a Species wise Annual catch of tuna & allied fishes

(Quantity in m.ton)

English name	Scientific name	Gear	2016	2017	2018	2019
Yellowfin tuna	*Thunnusalbacares*	Gill	23,392	25471	16,541	6,721
Skipjack	*Katsuwonuspelamis*	Gill	1,118	3178	2,318	789
Longtail	*Thunnustonggol*	Gill	21,047	19143	11,985	3,242
Kawakawa	*Euthynnusaffinis*	Gill	5,392	4199	4,123	1,236
Frigate tuna	*Auxisthazard*	Gill	13,882	13187	10,986	7,619
Bullet tuna	*Auxisrochei*	Gill	2	2	2	2
Striped Bonito	*Sarda orientalis*	Gill	2	2	3	3

Tuna like nei		Gill	6,010	5919	5,120	7,695
Sub-total			70,844	71,101	51,078	27,307
Indo-Pacific Sailfish	*Istiophorus platypterus*				2,154	2,214
Black Marlin	*Istiompax indica*				943	978
Striped Marlin	*Kajikia audax*				328	865
Blue Marlin	*Makaira mazara*				96	374
Total Billfish					3,521	4,431
Spanish Mackerel	*Scomberomorus* spp.	Gill	20,459	21952	12455	12151
Dolphinfish	*Coryphaenahippuerus*	Gill	5,421	5120	3515	4431
sub-total- bycatch		Gill	36,390	31362	19,491	21,013

Figure 2. Historical annual catch for national fleet

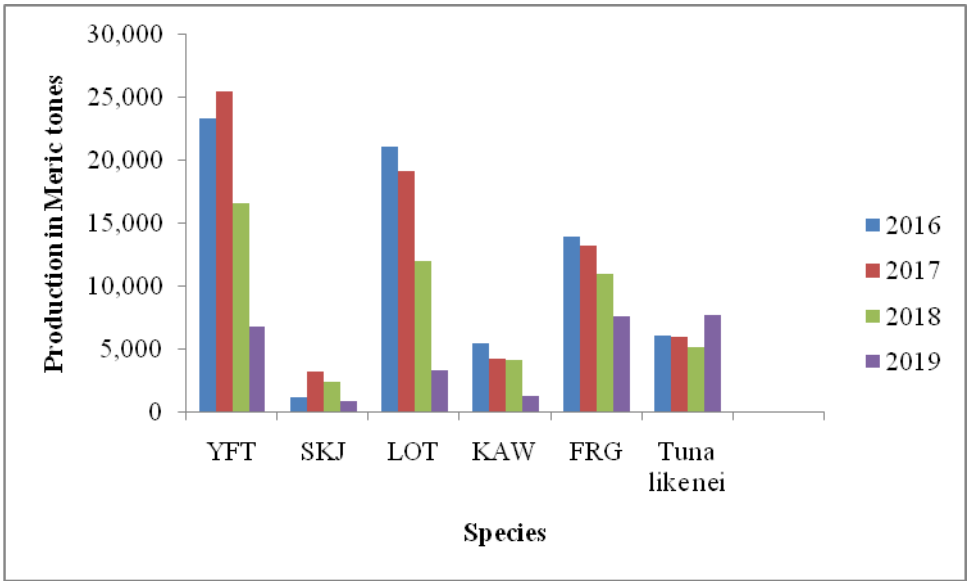


Figure 2a Historical catch of tuna fishes by gillnet fishery

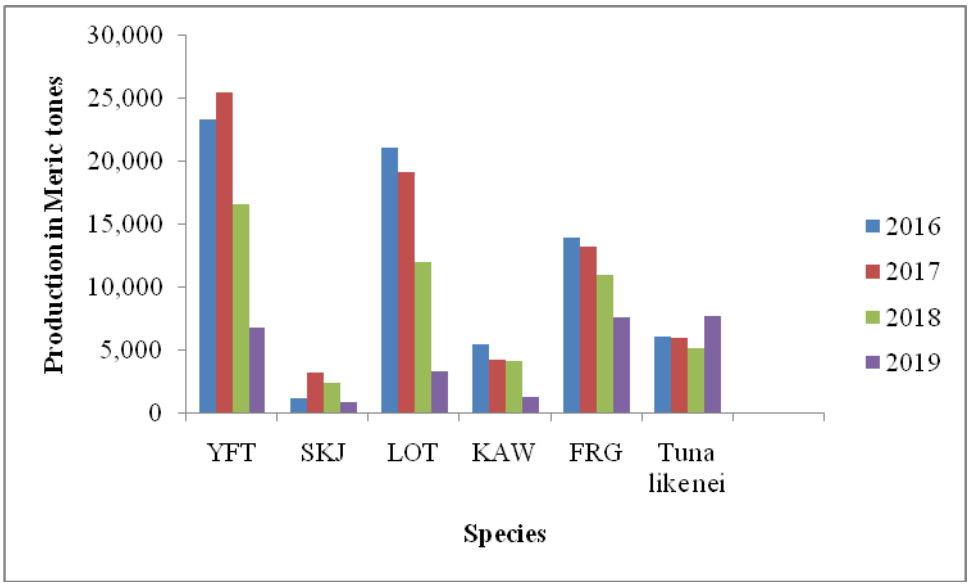


Figure 2b. Historical catch of tuna fishes by Longline fishery

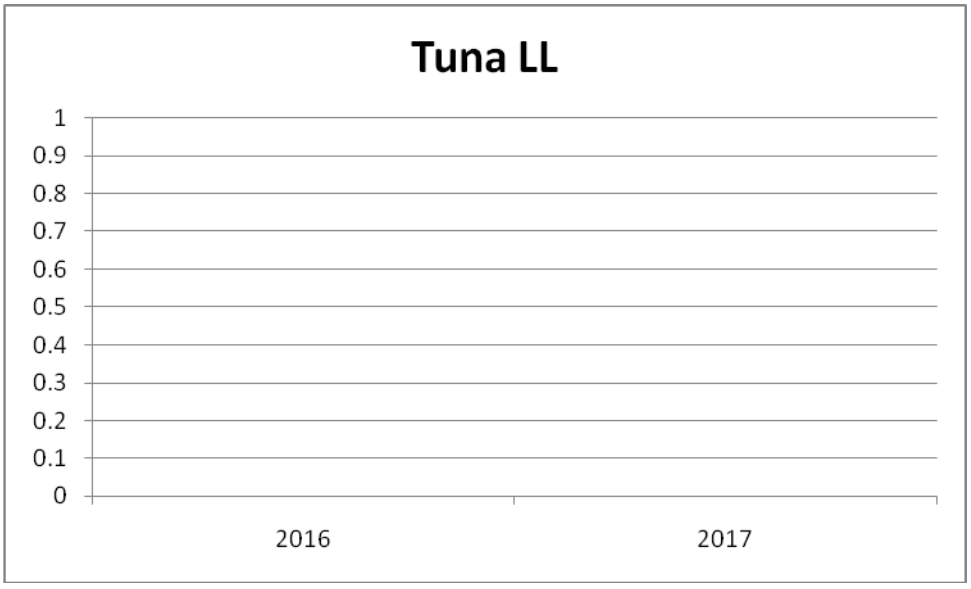


Figure 2c Historical bycatch catch of gillnet fishery

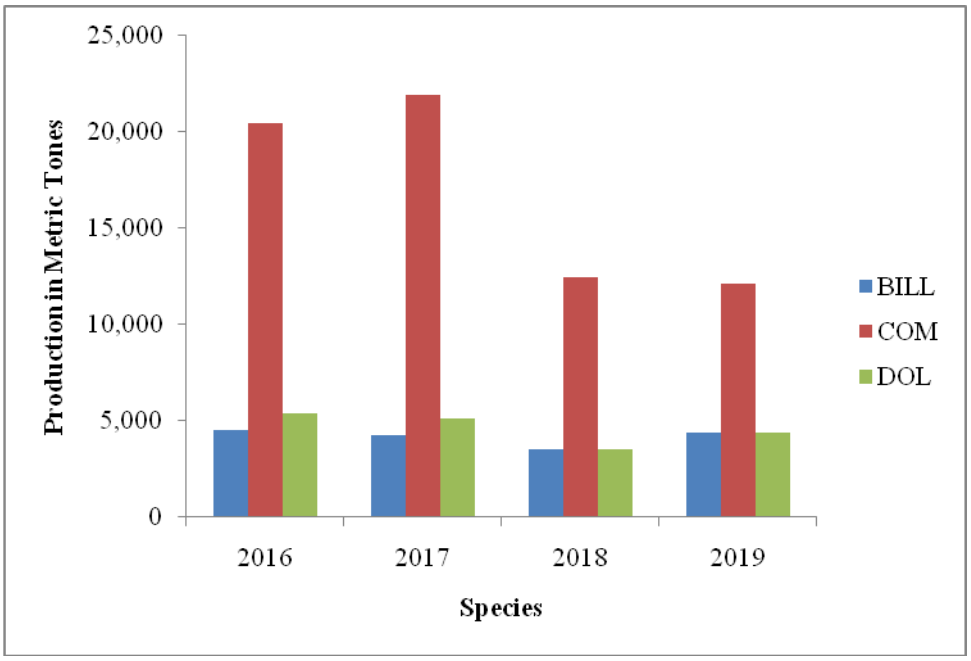


Figure3: Contribution of tunas & bycatch in percentage (2018)

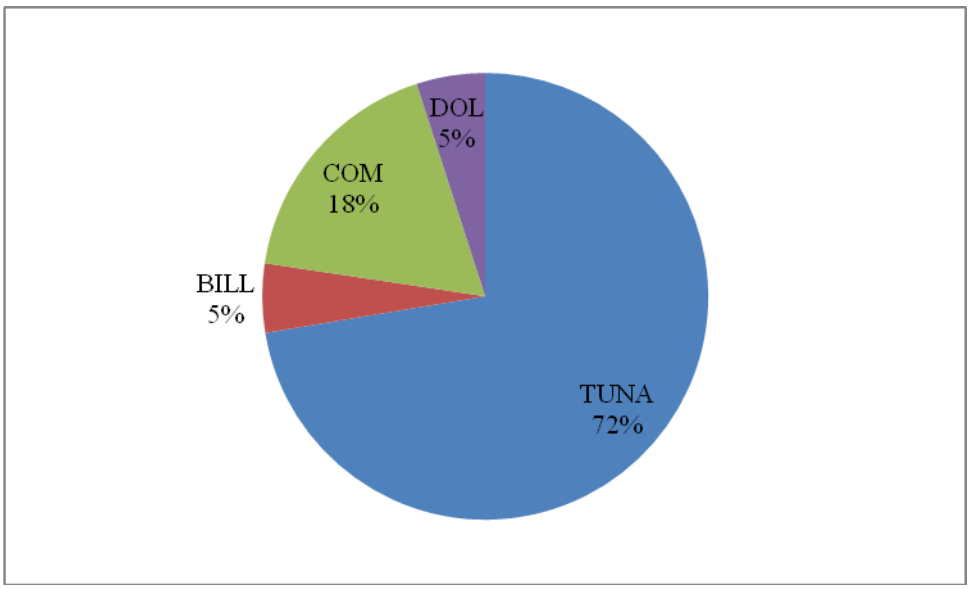
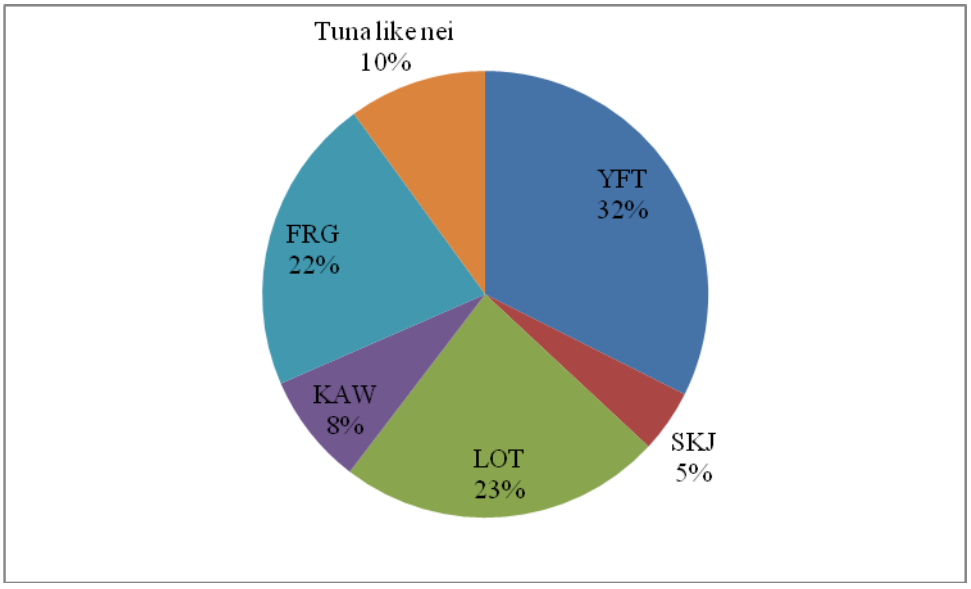


Figure 3a: Species composition of tunas (2018)



3b: Species composition of bycatch (2018)

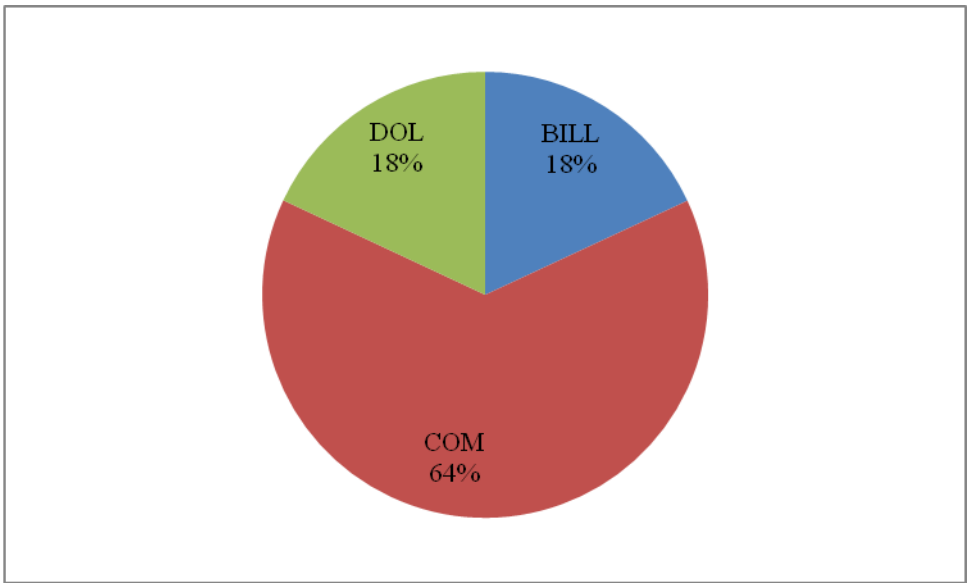


Figure 4. Percentage contribution of tunas & bycatch (2019)

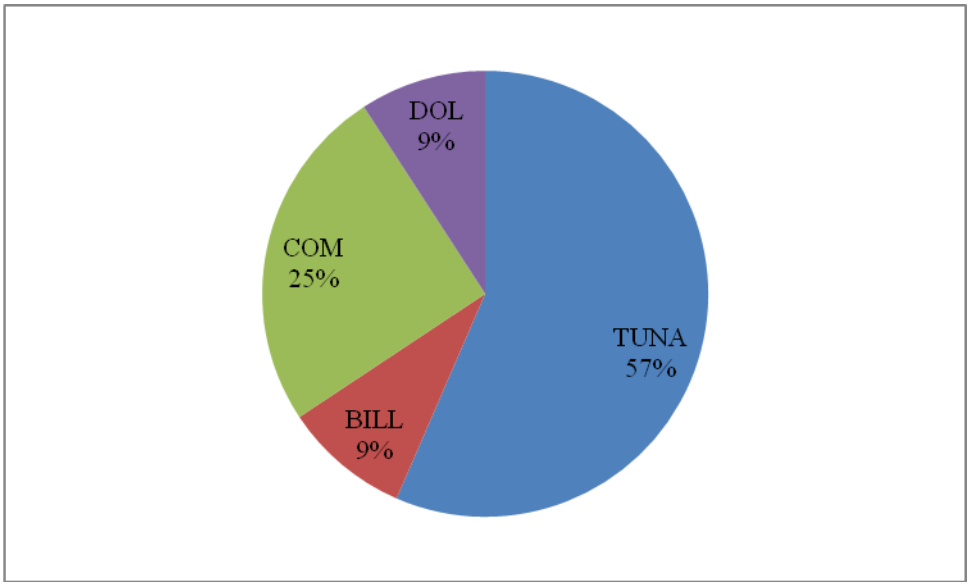


Figure 4a. Species wise contribution of tunas 2019

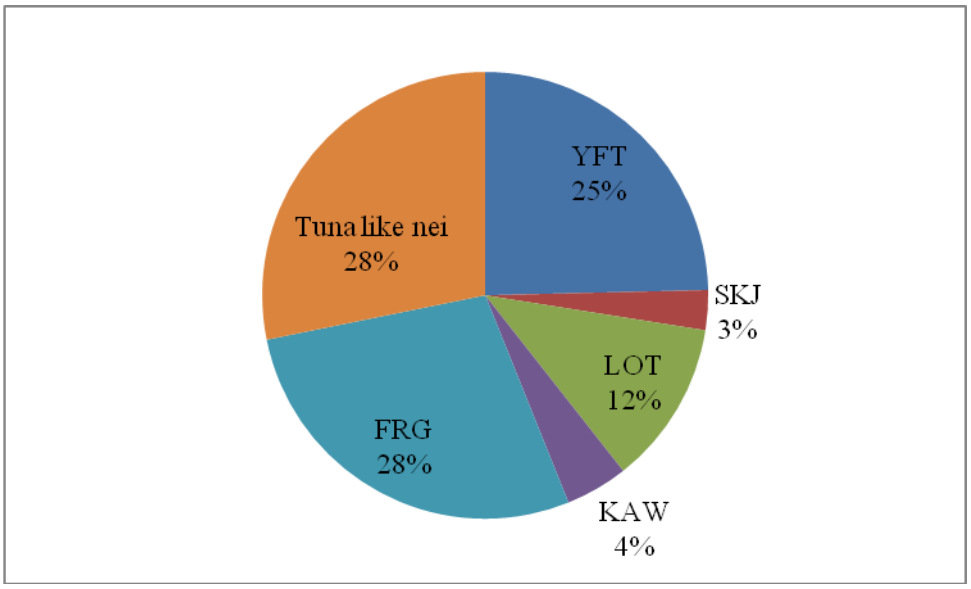
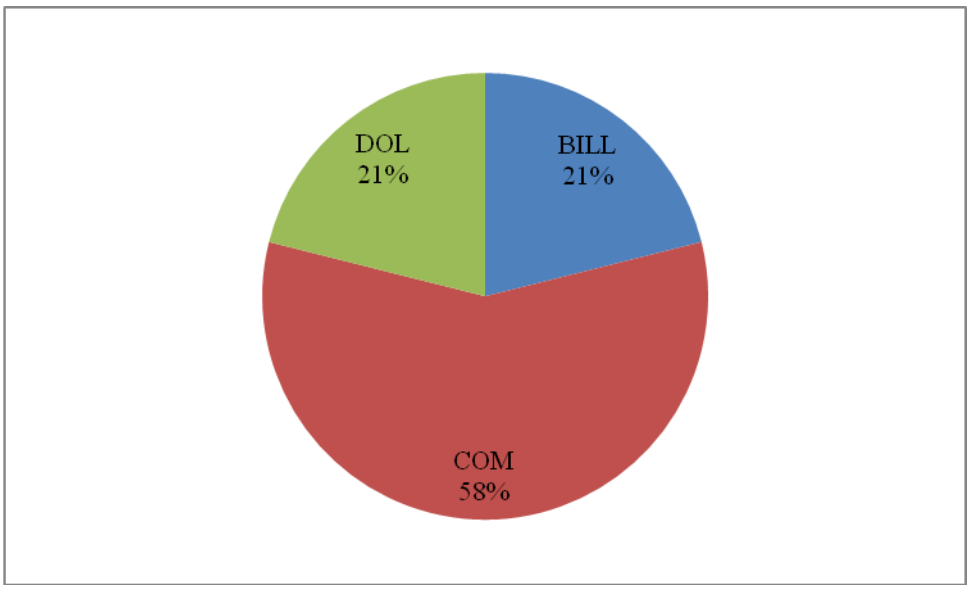


Figure 4b. Percentage contribution of bycatch (2019)



4. RECREATIONAL FISHERY

In Pakistan recreational fisheries was started in mid 1980's and getting popularity gradually. This activity is under taken by individual as well as group. Generally this fishing activity is taking place in zone-I. They are targeting billfishes, tuna and demersal fishes (grouper, barracuda, snappers, trevally, cobia, queenfish & croaker etc.). The rough estimate of the catch by this activity is about 130 metric ton. It has no contribution to the gross production of the fish in the country. The fish caught is being use by the people for their subsistence. So far it has no impact on the resources or other user of these resources. The area of operation is shown as RED Circle in **Figure 5.**

Figure 5. Geographical location Recreational fishery

5. ECOSYSTEM AND BYCATCH ISSUES

5.1 Sharks [Mandatory]

Fishes of Pakistan have been compiled by several workers (Jaleel & Khalil 1972, 1981; Ahmed &Niazi, 1975; Bianchi, 1985; Bilquees, 1985; Hoda, 1985; Majid *et al.* 1992 and Psomadakis, et al., 2015). Sharks are currently used as dried salted products (fin, skin, meet), liver and fins of sharks can be used for highvalueaddedproducts. These are not consumed locally, however, fins are dried for export or consumed in fishmeal production. The oil extracted from liver is used in smearing local fishing boats because of their low quality. Generally sharks and rays are recorded as a group i.e. sharks, rays, with the support of WWF-Paksitan observer program, catches of sharks and rays have been separated which includes four (04) species of sharks i.e. shortfin mako (*Isurusoxyrinchus*), pelagic thresher shark (*Alopiaspelagicus*), silky shark (*Carcharhinus falciformis*) and shark nei; whereas species of Mobulidae has been identified which includes Spinetailmobula (*Mobula japonica*) and Mobulanei.

For the conservation of shark following steps have been take by the federal and provincial governments:

a) An act titled "Pakistan Trade Control of Wild Fauna and Flora Act 2012" has been promulgated to ensure implementation the provisions of the Conservation on International Trade in Endangered Species of Wild Fauna and Flora. It was an obligation as Pakistan is a party to the United Nations Conservation on International Trade on Endangered Species of Wild Fauna and Flora. The Article-3 of this act, prohibting the export, re-export and import of such species of funa and flora included in any Appendix of the Convention.
b) Government of Sindh promulgated regulation Notification NO.5(3)SO(Fish)L&F/16/092 dated 18-05-2016 prohibition of catching of whale sharks, silky shark, Oceanic whitetip shark, thresher sharks, hammerhead sharks, sawfish of family Pristidae and mobulid rays throughout the year. This regulation also restricting the catching of guitarfishes, wedge fishes of families Rhynchobatidae, Rhinidae and Rhinobatidae of less than 30 cm.
c) Government of Balochistan also promulgated regulation Notification Mo.SO(Coord)Fish/2-1/2013/3148-58 dated 08-09-2016 prohibiting the catching, retention, marketing and trade of whale sharks, silky shark, oceanic whitetip shark, thresher sharks, hammerhead sharks, mobulid rays, all species of sawfishes of family Pristidae and all species of guitar fishes and wedge fishes of family Rhinidae, Rhinobatidae or Rhynchobatidae.
d) Balochistan(Wildlife Protection, Preservation, Conservation and Management) Bill 2014 (Bill No.15 of 2014) published vide No.PAB/Legis: V(15)2014 dated 28-03-2014, prohibiting the catching of turtle, whale, dolphins, sharks etc under Clause 14 (1). The contravention of any provision of this act is also punishable.

Table 3: Nominal catch of shark species caught by gillnet fishery (2016-18)

Quantity (m. tons**)**

Species	**2016**	**2017**	**2108**	**2019**
Shortfin mako	526	509	411	211
Pelagic thresher shark	375	401	387	209
Silky shark	310	321	318	298
Sharks nei	217	255	221	276
Mobula japonica	101	51	41	23
Mobulanei	43	21	14	9

Fishermen have been trained and persuaded to throw back (if dead) and release (if alive) species of sharks covered in IOTC list. There are a number of instances where fishermen have discarded thresher sharks oceanic whitetip sharks and also release a few thresher sharks. Historical annual nominal catch of sharks species is shown in Figure 6a and 6b.

Figure 6a: Nominal annual catch of shark species during 2016-19 by gillnet fishery

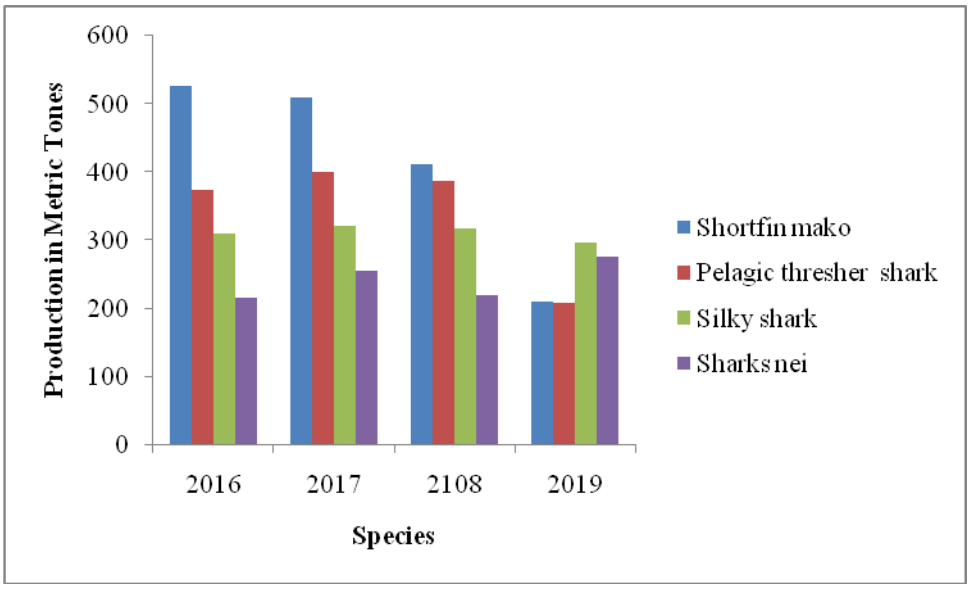
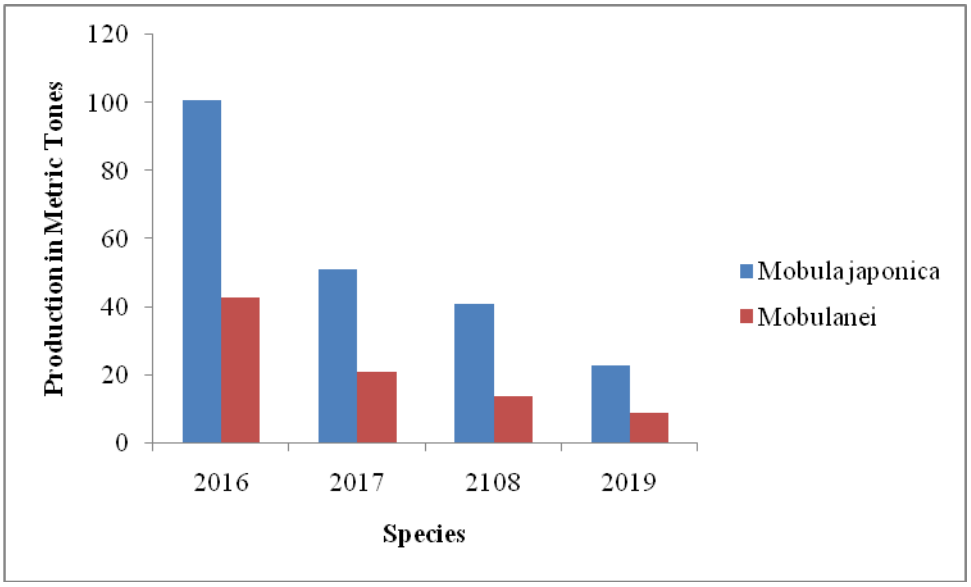


Figure 6b: Nominal annual catch of mobula fishes during 2016-19 by gillnet fishery



5.2 Seabirds

There is no longline fishery in Pakistan and no longliner is in operation in EEZ of Pakistan since 2009, therefore, this resolution is not applicable to Pakistan. No seabirds are reported to be entangled in tuna gillnets.

5.3 Marine Turtles

a. Government of Sindh promulgated regulation Notification NO.5(3)SO(Fish)L&F/16/092 dated 18-05-2016 under Sindh Fisheries Ordinance 1980, prohibition of catching of turtle (S.No.17) through the year. Contravention of any provision of the regulation is punishable which include fine as well as imprisonment.

b. Government of Balochistan also promulgated regulation Notification Mo.SO(Coord)Fish/2-1/2013/3148-58 dated 08-09-2016 prohibiting the catching, retention, marketing and trade of turtle (clause 2(a)i).Contravention of any provision of the regulation is punishable which include fine as well as imprisonment.

c. An act titled "Pakistan Trade Control of Wild Fauna and Flora Act 2012" has been promulgated to ensure implementation the provisions of the Conservation on International Trade in Endangered Species of Wild Fauna and Flora. It was an obligation as Pakistan is a party to the United Nations Conservation on International Trade on Endangered Species of Wild Fauna and Flora. The Article-3 of this act, prohibiting the export, re-export and import of such species of funa and flora included in any Appendix of the Convention.

d. The clause 5(c) of Pakistan Fish Inspection and Quality Control Rules, 1998 notified vide S.R.O. No.739(I)/98 dated 30-06-1998 promulgated under section 18(1) of the Pakistan Fish Inspection and Quality Control Rules, 1997 (XXXV of 1997), prohibiting the export of turtle.

e. Balochistan(Wildlife Protection, Preservation, Conservation and Management) Bill 2014 (Bill No.15 of 2014) published vide No.PAB/Legis: V(15)2014 dated 28-03-2014, prohibiting the catching of turtle, whale, dolphins, sharks etc under Clause 17 of Schedule-II. The contravention of any provision of this act is also punishable.

f. Because of use of subsurface gear, entanglement of sea turtles in gillnet being operateduin coastal and offshore waters have substantially been reduced. In 2013 a total of 28,000 sea turtles were reported to have entangled in gillnet fisheries with about 3 $ mortality. However, during 2018, total number of sea turtles entangled in gillnet was only 1,360 and mortality has been reduced to nil. All sea turtles that were entangled in gillnets are safely released.

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

i. Government of Sindh promulgated regulation Notification NO.5(3)SO(Fish)L&F/16/092 dated 18-05-2016 under Sindh Fisheries Ordinance 1980, prohibition of catching of whale sharks, marine and freshwater cetaceans (whales and dolphins) through the year. Contravention of any provision of the regulation is punishable which include fine as well as imprisonment.

ii. Government of Balochistan also promulgated regulation Notification Mo.SO(Coord)Fish/2-1/2013/3148-58 dated 08-09-2016 prohibiting the catching, retention, marketing and trade of whale sharks, all species of marine cetaceans (dolphins and whales).Contravention of any provision of the regulation is punishable which include fine as well as imprisonment.

iii. An act titled "Pakistan Trade Control of Wild Fauna and Flora Act 2012" has been promulgated to ensure implementation the provisions of the Conservation on

International Trade in Endangered Species of Wild Fauna and Flora. It was an obligation as Pakistan is a party to the United Nations Conservation on International Trade on Endangered Species of Wild Fauna and Flora. The Article-3 of this act, prohibiting the export, re-export and import of such species of funa and flora included in any Appendix of the Convention.

iv. The clause 5(c) of Pakistan Fish Inspection and Quality Control Rules, 1998 notified vide S.R.O. No.739(I)/98 dated 30-06-1998 promulgated under section 18(1) of the Pakistan Fish Inspection and Quality Control Rules, 1997 (XXXV of 1997), prohibiting the export of mammals including dugongs, dolphins, porpoises and whales.

v. Balochistan(Wildlife Protection, Preservation, Conservation and Management) Bill 2014 (Bill No.15 of 2014) published vide No.PAB/Legis: V(15)2014 dated 28-03-2014, prohibiting the catching of turtle, whale, dolphins, sharks etc under Clause 14 (1). The contravention of any provision of this act is also punishable.

vi. Because of use of subsurface gear, entanglement of whale sharks in gillnet being operated uin coastal and offshore waters have substantially been reduced. In 2013 a total of 28 whale shark were reported to have entangled in gillnet fisheries. However, during 2018, total number of whale sharks entangled in gillnet was only 16 and all whale sharks that were entangled in gillnets are safely released.

vii. Because of use of subsurface gear, entanglement of dolphins in gillnet being operated uin coastal and offshore waters have substantially been reduced. In 2013 a total of 12,000dolphins were reported to have entangled and died in gillnet fisheries. However, during 2018, total number of sea turtles entangled and died in gillnet was only 183.

viii. No entanglement or mortality of whales (including baleen and toothed whales) was reported during 2018.

ix.

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

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

Under Clause 13 of Exclusive Fishery Zone (Regulation of Fishing) Rules, 1990 it is mandatory for the licensed fishing vessel to provide furnish to the licensing authority or the Fishery Officer, in the first week of each month on prescribed form regarding the activities of his fishing craft during the previous month. No logsheet is maintained by tuna gillnetters. However, a plan is made to introduce logsheetssince January 2020.

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

i) As per Clause 7 (k) of Deep sea Fishing Policy 2009, it is mandatory requirement for the licensed tuna longliner (foreign flag vessel having joint venture with Pakistani company) to have satellite-based VMS on board. Contravention of any provision of the regulation is punishable under Exclusive Fishery Zone (Regulation of Fishing) Act, 1975 (XXXII of 1975) and Exclusive Fishery Zone (Regulation of Fishing) Rules, 1990 notified vide No. S.R.O. DD-60(I)/90 dated 04-02-1991 is punishable.

ii) On experimental basis VMS has been installed on four fishing vessels (With collaboration with WWF-Pakistan and Pakistan Maritime Security Agency). Another four vessels have been installed with satellite based AIS (with Collaboration with WWF-Pakistan). A plan is being developed with the collaboration of Provincial Governments to make it mandatory to install VMS on all vessels longer than 15 m. New Deep Sea Fishing Policy also make it mandatory to have all vessels operating in EEZ of Pakistan to have VMS.

iii) Government of Balochistan also promulgated regulation Notification No.SO (Coord) Fish/2-1/2013/3148-58 dated 08-09-2016 and Clause 2(b, c, d, e, f, g, and h), it is made mandatory that all fishing vessels larger than 15 meters (in length overall) licensed under Balochistan Sea Fisheries Ordinance, 1971 and engaged in catching tuna and tuna like species by any methods/gear operating drift net/ gillnet in territorial waters of Balochistan shall have a satellite-based vessel monitoring system (VMS) on board. Contravention of any provision of the regulation is punishable which include fine as well as imprisonment.

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

Table 4. Annual observer coverage by operation

Type of gear	**No of vessels monitored in 2016**	**Coverage in (%)**		
		2014	**2015**	**2016**
Purse seine	No Purse seine was in operation in Pakistan	Not applicable		
Longline	No longliner was in operation in Pakistan during 2016	Not applicable		
Gillnet	There are estimated 700 tuna gillnetters in operation in Pakistan. No Government observer on any gillnetters.	Government of Pakistan started to adopt and expend the crew based observer program		
		WWF-Pakistan has placed 4 crew based observers in 2014 (0.6%)	35 boats (5%)	85 boats (12.1)
Bait boat	No bait boat was in operation	Not applicable		
Hand line	No tuna handline fishing in Pakistan	Not applicable		

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

Tuna landings are being recorded at the port on regularly. The length frequency was recorded for different species as per frequencies given in Table 7 below.

Table 5. Number of individual measured by species of gillnet fishery

Name of species	2012	2013	2014	2015	2106
Skipjack	54	73	54	90	195
Yellowfin tuna	28	631	473	154	249
Kawakawa	49	568	197	102	250

Frigate tuna	30	156	27	19	84
Longtail tuna	10	553	226	115	261
Sarda orientalis	0	26	02	04	28

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

No large scale tuna vessel operating in Pakistani waters since 2009. Transhipment at mid-sea is not allowed under Clause 29 of Exclusive Fishery Zone (Regulation of Fishing) Rules, 1990. The Resolution 14/06 did not applicable at present.

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

The landings of Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish are monitored through the crew based sampling programme listed in Table 2 a.

6.6 Gillnet observer coverage and monitoring

This resolution is not applicable on Pakistan but details o WWF Crew Based Program is given clause 6.3 above

6.7. Sampling plans for mobulid rays

The landings of mobilids are monitored through the crew based sampling programme listed in Table 4 and Fig 6b.

7. NATIONAL RESEARCH PROGRAMS

At present there is no research program with any foreign country

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

Table 6. Scientific requirements contained in Resolutions of the Commission, adopted between 2011 and 2018.

Res. No.	Resolution	Scientific requirement	CPC progress
11/04	On a regional observer scheme	Paragraph 9	Observer program is being implemented in collaboration with WWF-Pakistan, the percentage coverage is 15%.
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	New regulations are in place for conservation of marine turtle as explain above at relevant paragraph.
12/06	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	There is no longline fishery in Pakistan, therefore, this Resolution did not applicable
12/09	On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence	Paragraphs 4–8	New regulations are in place for conservation of thresher sharks as explain above at relevant paragraph.
13/04	On the conservation of cetaceans	Paragraphs 7– 9	New regulations are in place for conservation of thresher sharks as explain above at relevant paragraph.
13/05	On the conservation of whale sharks (*Rhincodon typus*)	Paragraphs 7– 9	New regulations are in place for conservation of thresher sharks as explain above at relevant paragraph.
13/06	On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries	Paragraph 5–6	New regulations are in place for conservation of thresher sharks as explain above at relevant paragraph.
15/01	On the recording of catch and effort by fishing vessels in the IOTC area of competence	Paragraphs 1–10	List of active fishing vessel has been provided to IOTC on time.
15/02	Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)	Paragraphs 1–7	Mandatory statistical data has been provided to IOTC on time.
17/05	On the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 6, 9, 11	New regulations are in place for conservation of thresher sharks as explain above at relevant paragraph.
18/02	On management measures for the conservation of blue shark caught in association with IOTC fisheries	Paragraphs 2-5	New regulations are in place for conservation of thresher sharks as explain above at relevant paragraph.
18/05	On management measures for the conservation of the Billfishes: Striped marlin, black marlin, blue marlin and Indo-Pacific sailfish	Paragraphs 7 - 11	New regulations are in place for conservation of thresher sharks as explain above at relevant paragraph.
18/07	On measures applicable in case of non-fulfilment of reporting obligations in the IOTC	Paragraphs 1, 4	Pakistan is trying very hard to comply with the obligations of IOTC.
19/01	On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence	Paragraph 22	This resolution is not applicable to Pakistan as Pakistan have no vessels in list of IOTC authorized vessels as all the fishing Fleet is operating in EEZ of the country.
19/03	On the Conservation of Mobulid Rays Caught in Association with Fisheries in the IOTC Area of Competence	Paragraph 11	As describe in section 6.6

9. LITERATURE CITED

BIANCHI, G. (1985) FAO SPECIES IDENTIFICATION SHEETS FOR FISHERY PURPOSES. FIELD GUIDE TO THE COMMERCIAL MARINE AND BRACKISH-WATER SPECIES OF PAKISTAN. PREPARED WITH THE SUPPORT OF PAK/77/033 AND FAO (FIRM), REGULAR PROGRAMME. ROME, FAO: 200P.

BILQUEES, M. (1985) IDENTIFICATION OF COASTAL FISH VARIETIES OF PAKISTAN. PAK. AGRI. VOL.VII, NO.10:P.20-26

HODA, S. M. S. (1985) IDENTIFICATION OF COASTAL FISH VARIETIES OF PAKISTAN. PAK AGRI. VOL.VII, NO.10. P.38-43.

AHMED, M. F. AND NIAZI, M. S. (1975) A CHECKLIST OF ELASMOBRANCHS FISHES OF PAKISTAN. REC. ZOOL. SUR. PAK. VOL.8 (1&2): 35-69P

JALEEL, S. A. AND KHALIL UDDIN, M.(1972) A CHECK LIST OF MARINE FISHES OF WEST PAKISTAN. GOVT. OF PAKISTAN, MARINE FISHERIES DEPT. (BIOLOGICAL SECTION), KARACHI:.16P.

MAJID, A., KHAN, M. WASIM AND KALILUDDIN, M. (1992) COMMERCIALLY IMPORTANT MARINE FISHES OF PAKISTAN. PUBLISHED BY DEPARTMENT OF COMPOSITION, COMPILATION AND TRANSLATION. FEDERAL GOVERNMENT URDU SCIENCE COLLEGE, KARACHI. 263P. (IN URDU, ENGLISH).

PSOMADAKIS, P.N. ,OSMANY, H.B. & MOAZZAM, M. (2015).FIELD IDENTIFICATION GUIDE TO THE LIVING MARINE RESOURCES OF PAKISTAN.*FAO SPECIES IDENTIFICATION GUIDE FOR FISHERY PURPOSES.*ROME, FAO. 2015. X + 386 PP., 42 COLOUR PLATES.