15th Session of the Working party on Billfish (WPB15)

10-14 September 2017 Spain

A brief overview of the large pelagic in Iran with the emphasis on billfish by-catches of the Iran gillnet fishery in the IOTC area (2012-2016)

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Abstract

Iran fishing grounds in southern waters of country are of the oldest and most important resources of large pelagic species. There are 4 coastal provinces in those areas and more than 11 thousands vessels consist of fishing boat, dhows and vessels which are engaged in fishing in the coastal and offshore waters. There are four fishing methods targeting tuna and tuna-like species in the IOTC area which include gillnet, purse seine, long line by traditional boats and also some of small boats use trolling in coastal fisheries.

Gillnet is the dominant fishing gear in the IOTC area competency, Majority of the production comes from the gillnet vessels operating within EEZ of Iran as well as offshore fishery.

This paper reviews the landings of billfish made in large pelagic fisheries during the period 2012-2016. The annual production of large pelagic fishes in Iran was 274500 Mt in 2016, which 234000Mt belongs to tuna and tuna-like fishes in IOTC area competency. Although there is no target fishery for billfish, they are considered as by-catch species, it makes up to 5.4% of the total large pelagic landings in Iran.

The Sailfish dominated the billfish catch with 7809Mt, followed by Marlins about 6145Mt, and Swordfish 887Mt. Although there is no target fishery for billfish, they are considered as by-catch species and according our regulation for Tuna species fishing, no part of billfish catch will be discarded by vessels.

1. GENERAL FISHERY INFORMATION:

Marine aquatic species in Iran consists of two parts: aquaculture activities and marine fisheries activities. Each part of the activities appropriate to their specific requirements has social and technical considerations of its own. People involving in fishing community include large percentage of the population in coastal areas of the northern water (Caspian Sea) and Persian Gulf, Oman Sea which has always been the center of attention and sensitivity in fishing management plan.

Total volume of national aquatic production in 2016 was 1094 thousand Mt, which can be distributed as 57% (601 thousand Mt) of the total catch and production contributed to the southern water of country are located in the Persian Gulf, Oman Sea and offshore waters, about 4%(33 thousand Mt) of production from northern water (Caspian Sea) and 39%(460 thousand Mt) through inland water and aquaculture. (Figure 1.1 &1.2)

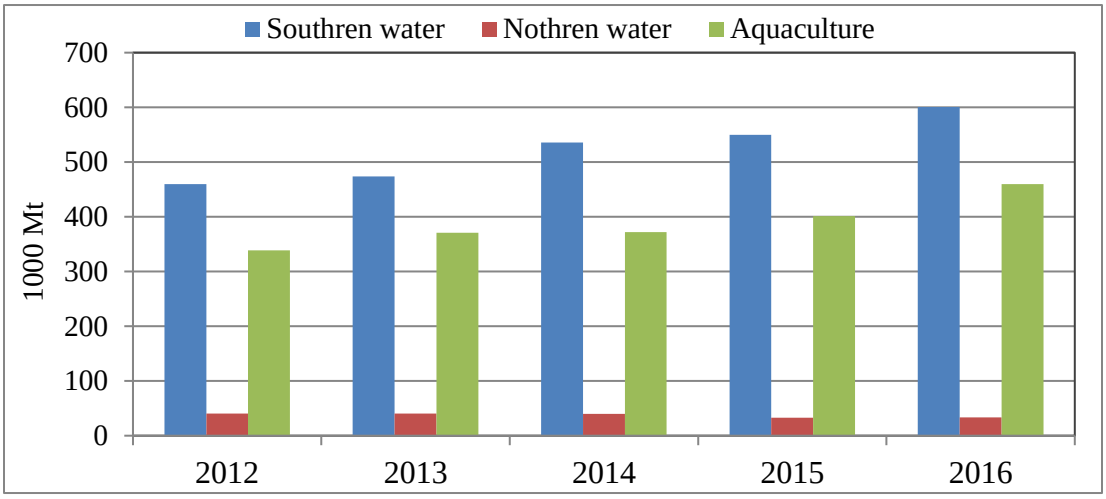
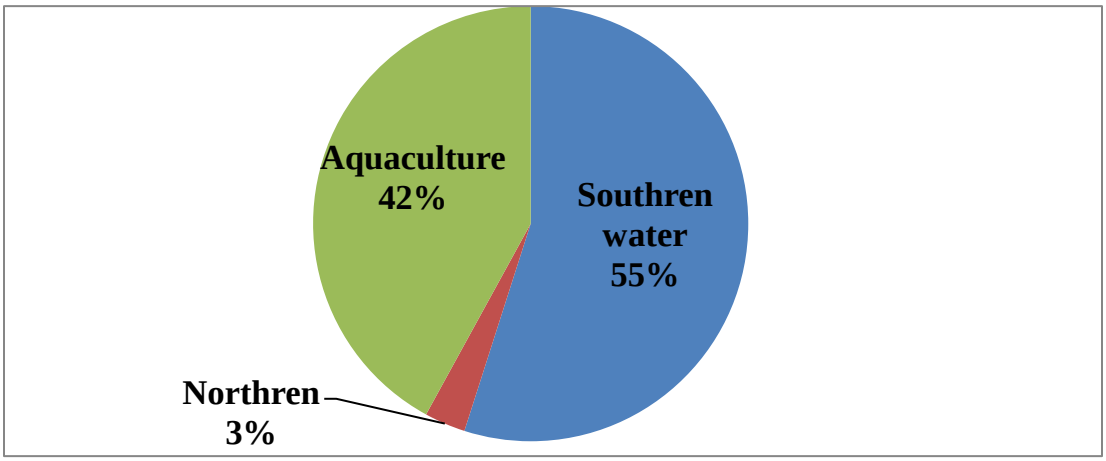


Figure1.1: Total Catch & production in the country during 2012-2016



Large pelagic; tuna and tuna-like species are important fishery resources for food and also have valuable contribution to the Iran's economy. The main fishing grounds for large pelagic species in southern of the country are located in the coastal sectors of Persian Gulf and Oman Sea and total volume of production in the coastal and offshore waters in 2016 around 601 thousand Mt, which consist of large pelagic 275000 Mt (45.8 % of total catch) Small Pelagic 79000 Mt, Demersal species 224000 Mt, Shrimp 9000 Mt and Myctophids 15000Mt. Figure3.shows the catches quantity of different aquatic species group in the southern waters of Iran.

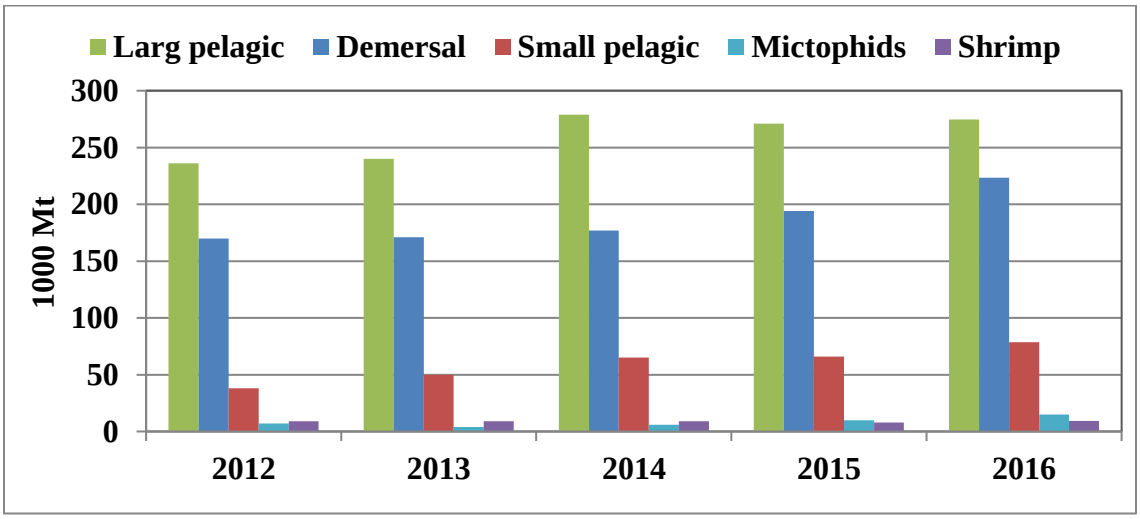


Figure1.3: The catches quantity of different aquatic species group in the southern waters of Iran during in 2012-2016

2: Fishing gear and fleet structure:

There are many fishing methods targeting large pelagic species which include gillnet, purse seine, long line by traditional boats and also some of small boats use trolling in coastal fisheries. The gillnet fleet consists totally of locally made wooden and fiberglass.

Figure 2.1: shows types of gillnet fleet in Iran operate for large pelagic species: (a) Small boat (b) Wooden Dhows and fiberglass:

b) Wooden

b) Fiberglass

In 2016, there are about 6620 fishing crafts were engaged in large pelagic species and around 1243 are active in the Oman Sea and offshore waters, of which five active Purse seiners more than 1000GT, 283 gillnet Dhows of more than 100 GT, 171 gillnet Dhows of 51< GT< 100, 649 gillnet Dhows of less than 50 GT, 3319 gillnet, 2190 trolling boats of less than 3GT which have Out board engine, operate one day fishing in coastal waters. Artisanal vessels (Dhows) with GT> 30 t around 15-30 m LOA and industrial purse- seiners with GT> 1000 t generally operate multiday fishing in the offshore and beyond EEZ in the IOTC area. In 2016 around 394 gillnet with different class are active as a long liner and this figure is not included in total vessels number, because they are active seasonal and temporal during a year.

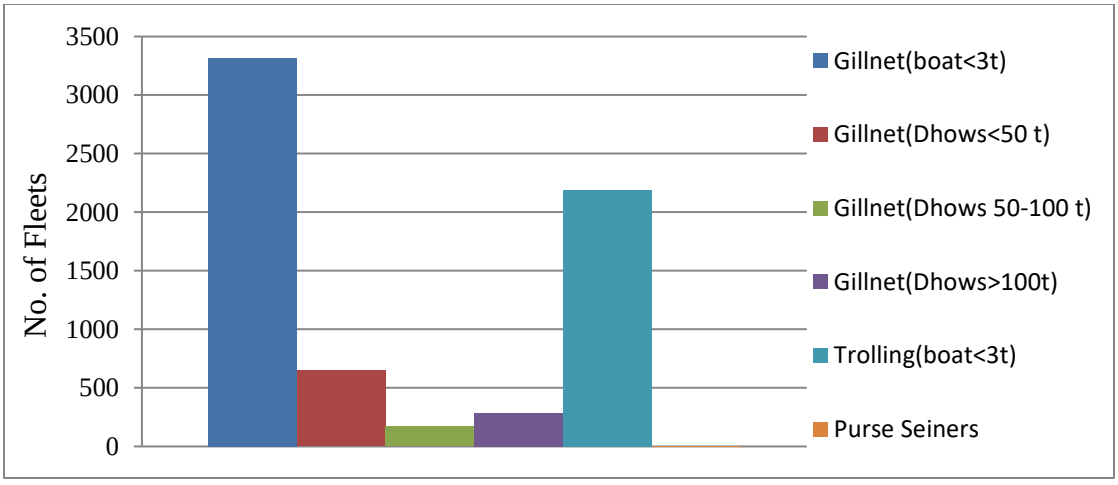


Figure2.2: Iranian fishing active vessels in Southern waters by gear type and size in 2016

3. Catch and Effort (By Gear and Species):

Data collection system:

Catch and effort data and size frequency were collected in 43 landing centers scattered along the coast in southern coastal waters by stratified random sampling by the samplers, in this way, 10% of total fishing crafts for different vessel classes of fishing dhows and boats are picked out randomly and their fishing data will be collected in the form of questionnaire. Also number of fishing days at Sea will be recorded in the Data Collection Software for all active fishing vessels and based on total fishing efforts; these data will then be raised. There are specific Scientific Committees (SC) both in provincial and national level and fishery research experts and administration officers are members of these committees. In these committees, trends of data collection and rising will be evaluated and finally approved.

Catch quantity:

The Catch quantity of large pelagic in Iran was 251215 Mt in 2016 reported to the IOTC Secretariat and around 234000Mt belongs to tuna and tuna-like fishes in the Indian Ocean areas. Those catch consist are mainly comprised of 6 tuna species with 74% (186635Mt) of tunas, 2 Seerfish species 12.4% (31340 Mt) and 5 billfish species with 5.9% (14841Mt), 1.9% (4797Mt) different species of shark and around 5.4% (13601Mt) other species of the total large pelagic landings in southern waters of Iran. Figure3.1 shows the nominal catch by species reported for the all fleet during 2012-2016.

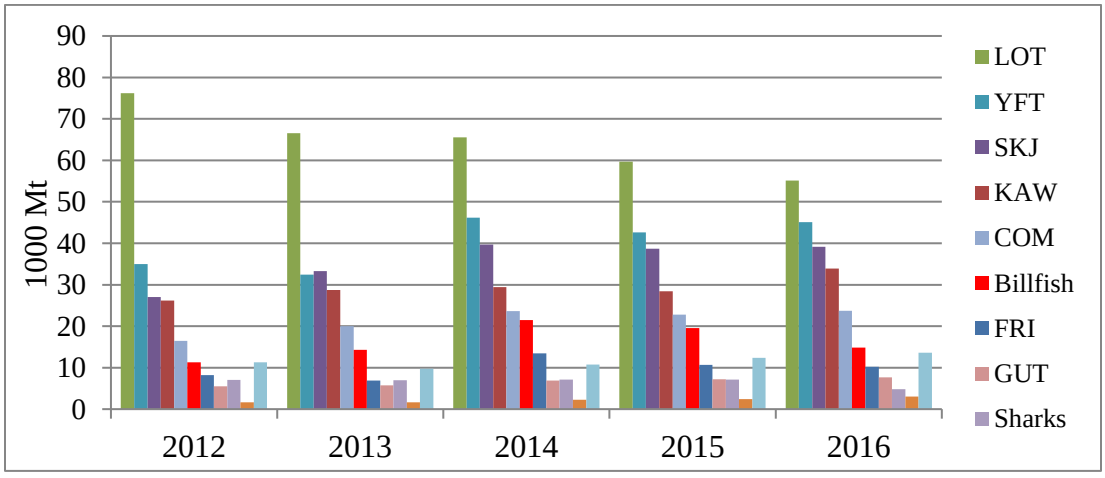


Figure3.1: Nominal catch by species reported for the all fleet during 2012-2016

Neritic tuna species are very important and have special ranking in coastal waters of Iran (Figure 3.2). In 2016 the amount of neritic tuna catches were about 128000 Mt and average five- years of it was about 13200 Mt that means 54% dominant group of total volume of large species reported to IOTC, followed by tropical (32%), billfish (6%) and shark (3%).

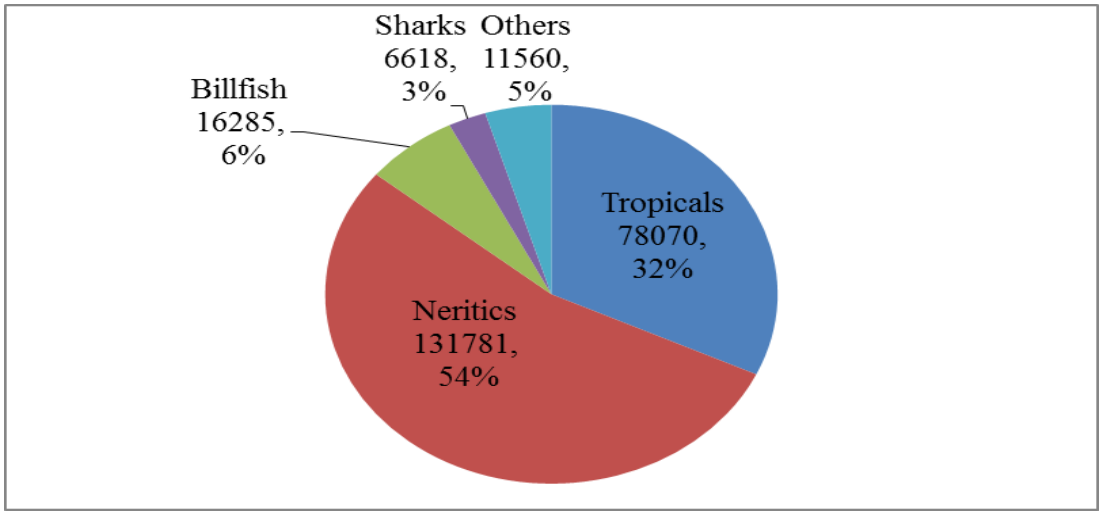
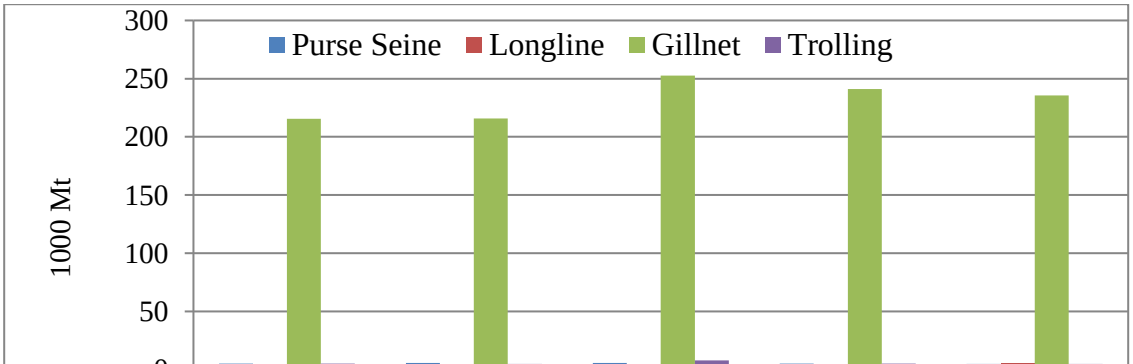


Figure3.2: Average five- years catches of Iran reported to the IOTC (2012-2016)

In 2016 total catch for purse seine, Gillnet, long line by traditional boats and trolling was estimated 4879 Mt, 235668Mt, 5760 Mt and 4908 Mt respectively. Gillnet with 94% of Catch is the dominant fishing gear followed by Purse seiners 2%, long line with 2% and around 2% comes from Trolling vessels.(Figure3.3 &3.4)



	2012	2013	2014	2015	2016
Purse Seine	5,154	5,735	5,794	5,308	4,879
Longline	0	0	0	0	5,760
Gillnet	215,551	215,795	252,729	241,121	235,668
Trolling	5,169	4,879	8,002	5,122	4,908

Figure 3.3: Annual Catch by Gear Type

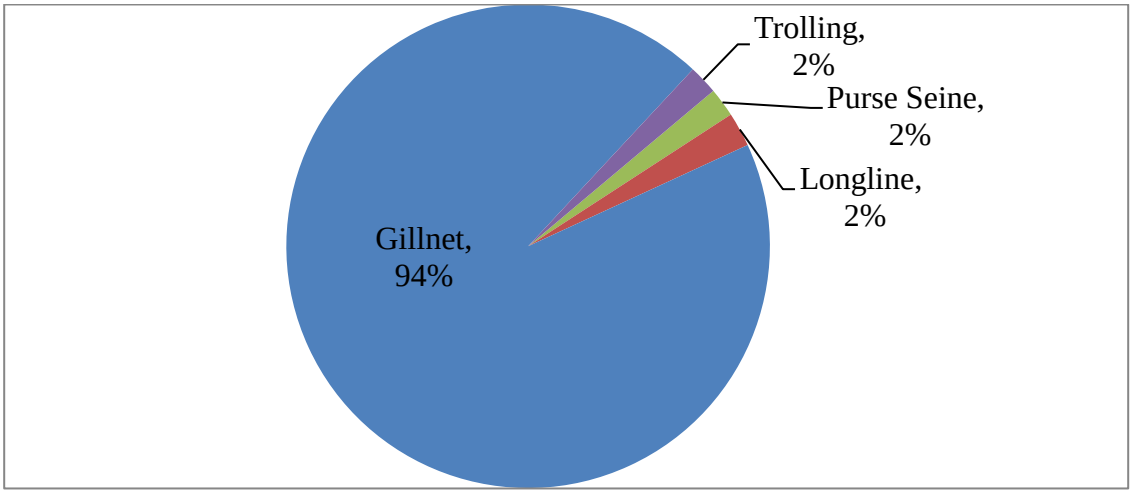


Figure 3.4: Annual Catch in percent by Gear Type

Fishing effort:

Table3.1.Shows the trend fishing effort for large pelagic species for the all fleet consists of purse seine, gillnet, long line by traditional boats and trolling. In 2016, for tuna and tuna-like catches more than 900 thousand days fishing efforts was Carried out, of which 685000 days was operated by Gillnet,1164 days by purse seine, 21760 days by seasonal and temporal longline and 229000days done by trolling fisheries.

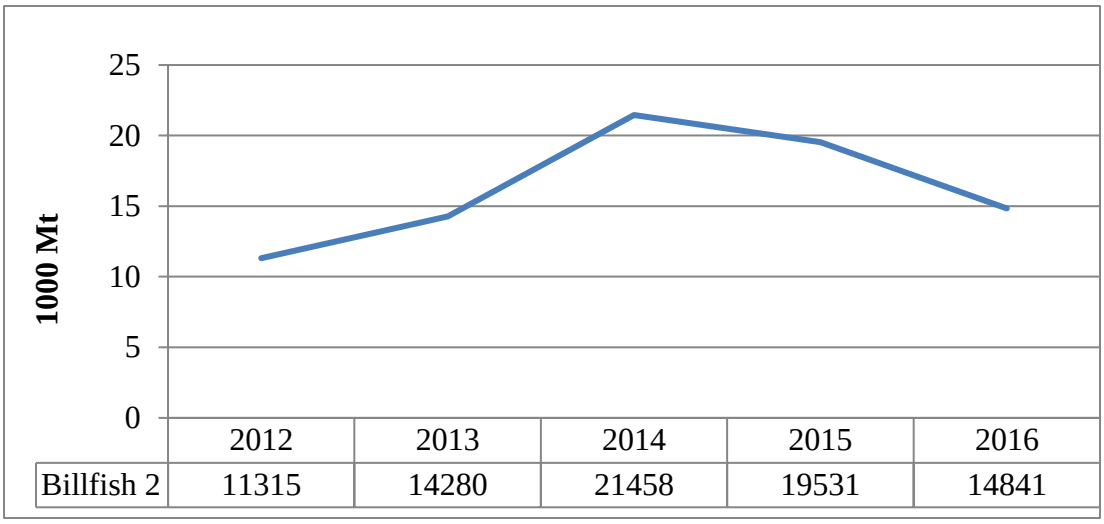
GEAR GROUP	Capacity GT	Fishing effort by gear(days)				
		2012	2013	2014	2015	2016
Purse seine	1000 - 2000	981	727	1080	1005	1164
Longline by traditional boats	< 3	0	0	0	0	18000
	20 - 50	0	0	0	0	3200
	>51	0	0	0	72121	560
Gillnet	< 3	557434	538550	476632	552367	487646
	3 - 20	43303	40985	44679	44374	41682
	21 - 50	195643	184070	137860	72121	74870
	51 - 100	91293	91790	84658	33749	30337
	101 - up	57662	60400	53020	51260	50530
Trolling	< 3	125446	123450	226770	254934	229190
Total all Gear fishing effort		1071762	1039972	1024699	1009810	937179

Table3.1:.Fishing effort for large pelagic species by different vessel categories in2012-2016

Billfish catches:

Billfish is capture in Iran by pelagic gillnetters that operate in the Persian Gulf and Oman Sea and offshore waters. Tuna is the main target species of these gillnetters; however, fishermen also consider billfish as an important by-catch species.

Billfish catch in 2016 was 14841Mt this is around 5.6% of large pelagic species and 2.4% of total country catch and around14.6% (2166 Mt) from Persian Gulf and Oman Sea and around 85.4% (12675 Mt) belongs to offshore fishery. Figure.3.5 showing a trend of landing of billfish are steadily decreasing in the previous years. This decreasing shows 24% compared to the same period last year, Of 19531Mt, Sailfish was the dominant species, contributing 53 % (7809 Mt) of the total billfish catch, 28% (4148Mt) black Marline, Stripped Marline 4% (634Mt), Swordfish 6%(887) and 9% (1363 Mt) others. Sailfish20% and black marline 30% of two species of billfish has much decline in compare to the previous year. (Figure 3.6)



	2012	2013	2014	2015	2016
Billfish 2	11315	14280	21458	19531	14841

Figure3.5: Nominal catch of billfish in 2012-2015

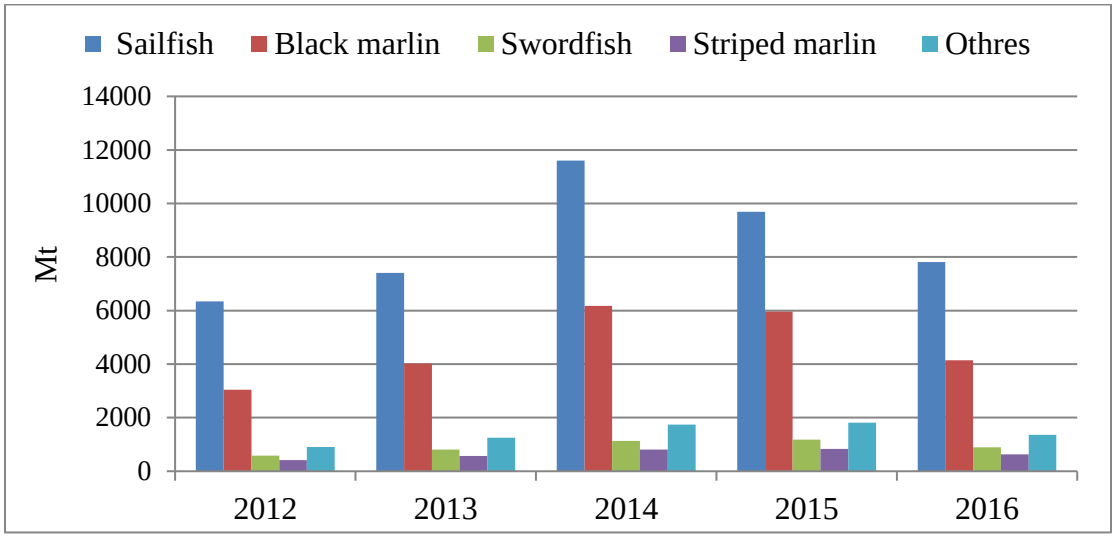


Figure3.6: landing billfish during 2012-2016

The billfish landings centers at Sistan &Bluchestan 13010 Mt and 1565Mt landings centers at Hormozgan province during 2016.

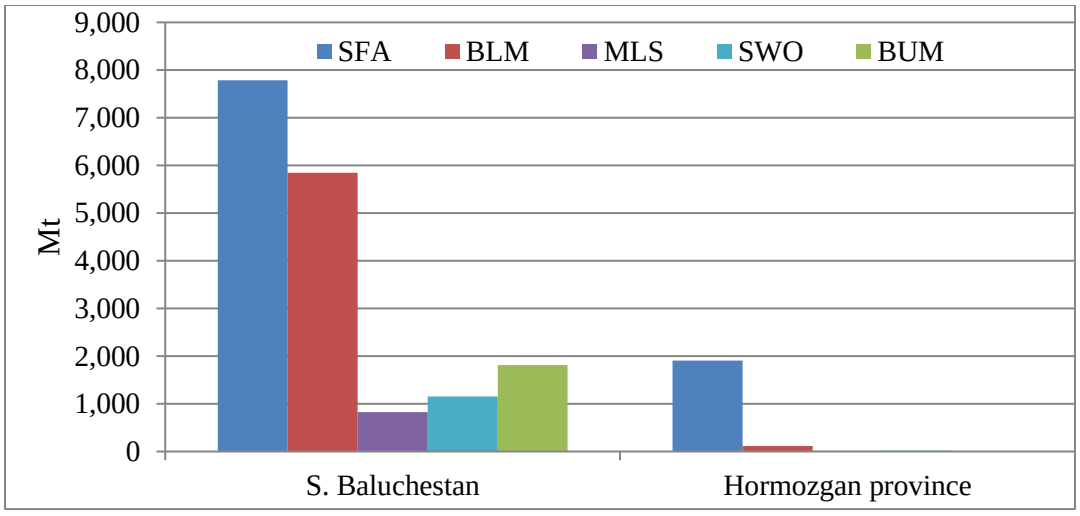


Figure3.7: Billfish landed in Baluchestan and Hormozgan province in 2016

4. Seasonal variation of billfish:

Following figure shown the seasonality of catch component of billfish. The period between April to May was the peak season for the billfish catches while catches was generally low between June to August (monsoon season). There was a sharp rise in the number of billfish landings January and September.

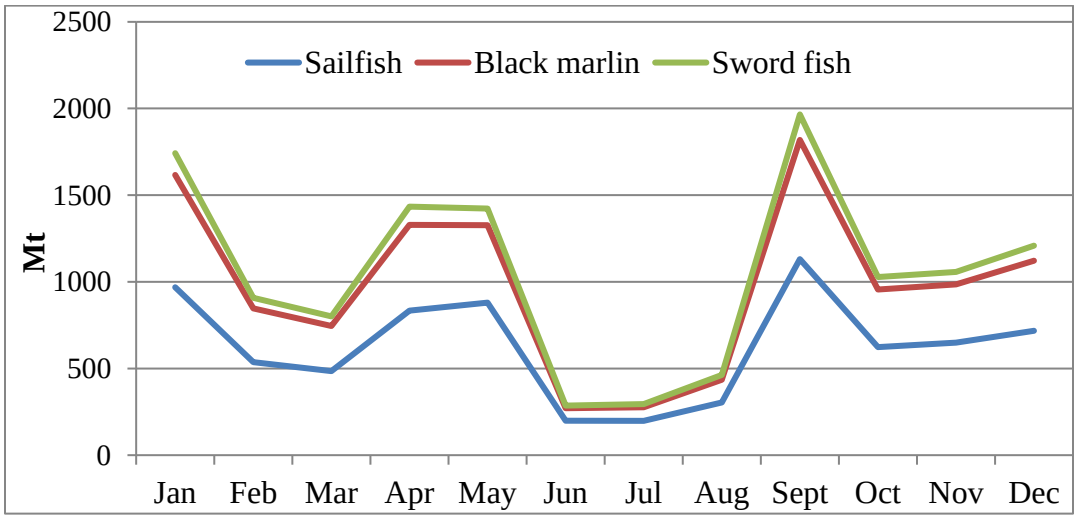


Figure4.1: Seasonal variation of billfish catches in 2016

References:

Iran Fisheries Statistics yearbooks 2012-2016

Data Collection System and Data Processing Method in Iran