

Status of Billfish fisheries of Pakistan

Muhammad Moazzam

WWF-Pakistan, 46-K, PECHS Block 6, Karachi-75400, Pakistan
(mmoazzamkhan@gmail.com)

ABSTRACT

Six species of billfishes including Indo-Pacific sailfish (*Istiophorus platypterus*), black marlin (*Istiompax indica*), striped marlin (*Kajikia audax*), Indo-Pacific blue marlin (*Makaira mazara*) and shortbill spearfish (*Tetrapturus angustirostris*) belonging to family Istiophoridae and swordfish (*Xiphias gladius*) belongs to family Xiphidae are known to occur in Pakistan, however, only two species i.e. Indo-Pacific sailfish and black marlin are dominating in the commercial catches. Both the species were found throughout the year, however, period between September through January is the peak season of their landing. It is estimated that about 4,500 m. tons of billfish are annually landed in Pakistan. Billfishes are not locally consumed but transported to neighboring country through land or sea route.

INTRODUCTION

Pelagic gillnetting is an important component of the coastal and offshore fisheries of Pakistan as about 700 fishing vessels are engaged in harvesting of tuna and tuna like fishes. Historically pelagic gillnetting is one of the oldest fisheries of the area. Gillnets consisting of multifilament nylon nets are used for catching tunas and other pelagic species which include billfishes. Six species of billfishes belonging to six genera and two families are reported from Pakistan. Of these, one species i.e. swordfish (*Xiphias gladius*) belongs to family Xiphidae whereas all other species belonged to family Istiophoridae.

Information about billfishes tuna fisheries of Pakistan is limited. Some scanty information is available through the work of Moazzam (2010), Moazzam and Usmani ((2004), Osmany *et al.*, (2009) and Rashid (1966). Moazzam (2013), however, provided some details of billfish fisheries of Pakistan including species composition, gears, fishing boats, area of fishing and other aspects of the fisheries. A major part of the information presented by Moazzam (2013) was based mainly on the fisheries statistical data being published by Marine Fisheries Department, Government of Pakistan and also some information collected through the Crew-based Observer Programme initiated by WWF-Pakistan in 2012.

Based on the information generated through this WWF-Pakistan's Crew-based Observer Programme, landing data tuna and tuna like species (including billfishes) was calculated which is reconciled with the landings data available with Marine Fisheries Department, Government of Pakistan. In addition, an exercise for reconstruction of landing data for IOTC species since 1987 to 2017 was also carried out. These data sets were already provided to IOTC by Marine Fisheries Department, Government of Pakistan (also presented in this paper). These data, however, do not provide information about species composition of billfishes.

BILLFISH LANDINGS

There is limited information about the billfish landings of Pakistan is available. Government of Pakistan publishes a Handbook of Fisheries Statistics of Pakistan (Anonymous, 2013-updated) which contains landing data of commercially important fish species including billfishes. However, it does not give any information about species composition of billfishes and data of all species is pooled.

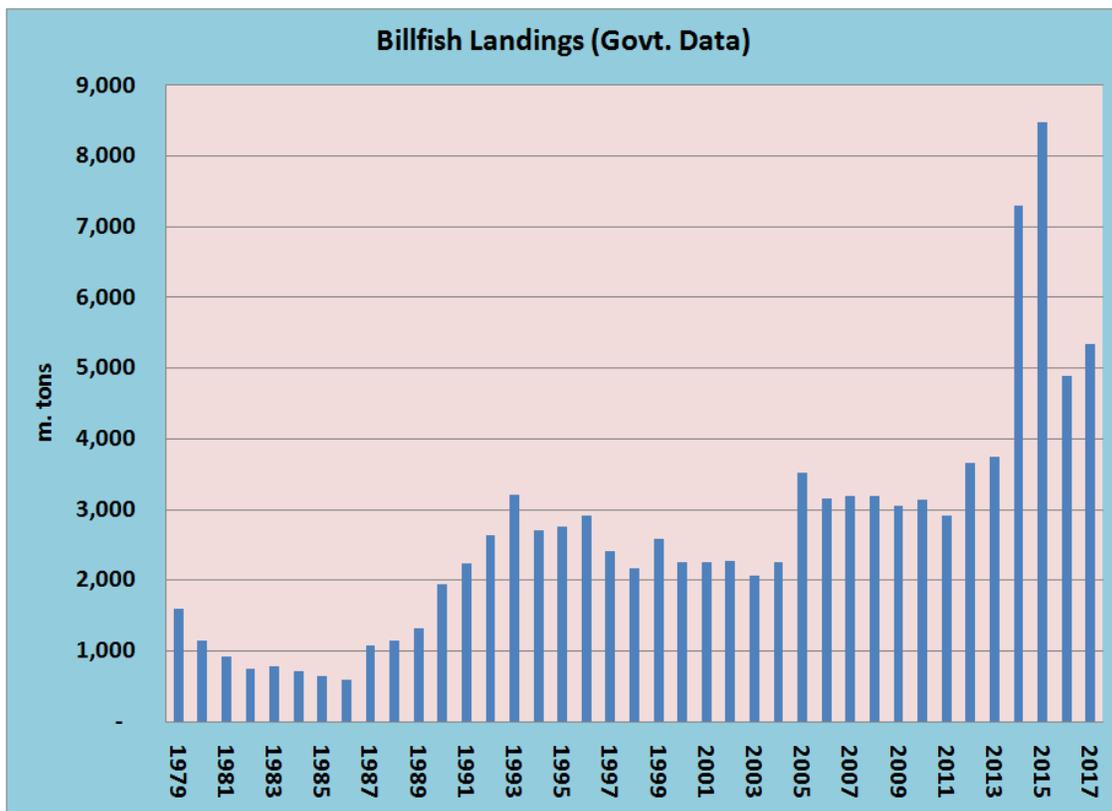


Fig. 1. Billfish landings according to Government Statistics (Anonymous, 2013; updated)

The statistical data of billfishes is regularly provided by Government of Pakistan to IOTC which was considered to be under-reported and has other anomalies. WWF-Pakistan started a Crew-based Observer Programme in 2012 through which information about

landings of tuna and tuna like species including billfish species was also collected. This data was collected which was used for calculating annual tuna landings for Pakistan. A major difference in the two set of data (Government data and observer data) was observed. In order to reconcile the two data, a catch reconstruction exercise of catches of tuna and tuna like species was made in consultation with the Government of Pakistan (Fig. 2). The exercise confirmed that the catch of tuna and other species in most cases is underreported and has a number of disparities. In case of billfishes, it was found that data from 2000 to 2004 was highly under reported whereas data for 2005 to 2015 was over-reported. Now the reconciled data (Fig. 2) is already communicated by Marine Fisheries Department, Government of Pakistan to IOTC.

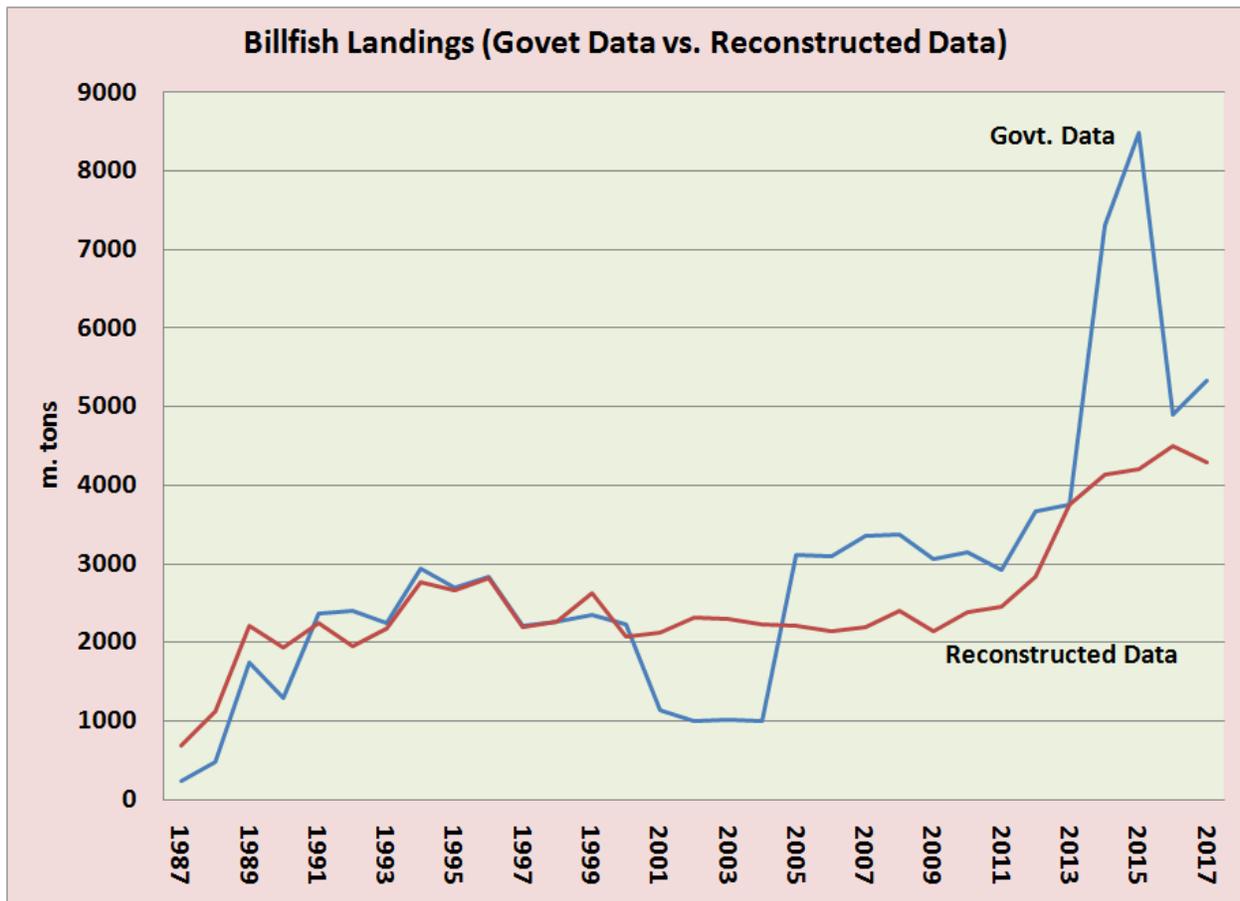


Fig. 2. Billfish landings of Pakistan (Govt. Data vs. Reconstructed Data)

SPECIES COMPOSITION

Limited or no information was available on the species composition of billfish landed in Pakistan. From June 2012 to May 2013, WWF-Pakistan in collaboration with Government of Pakistan (Marine Fisheries Department) collected data for species composition of billfish from Karachi Fish Harbour which is the largest fish landings centre in Pakistan. Fig. 3 present average landings/day for each month during this

period which reveals that Indo-Pacific sailfish (*Istiophorus platypterus*) is the dominating species throughout the year except in May 2013 when landings of black marlin (*Istiompax indica*) surpasses the landings of Indo-Pacific sailfish. Landings of blue marlin was minimum with a minor peak in February 2013. Landings of black marlin was also insignificant except during April and May 2013 when it reaches 10,150 kg/day and 18,200 kg/day respectively.

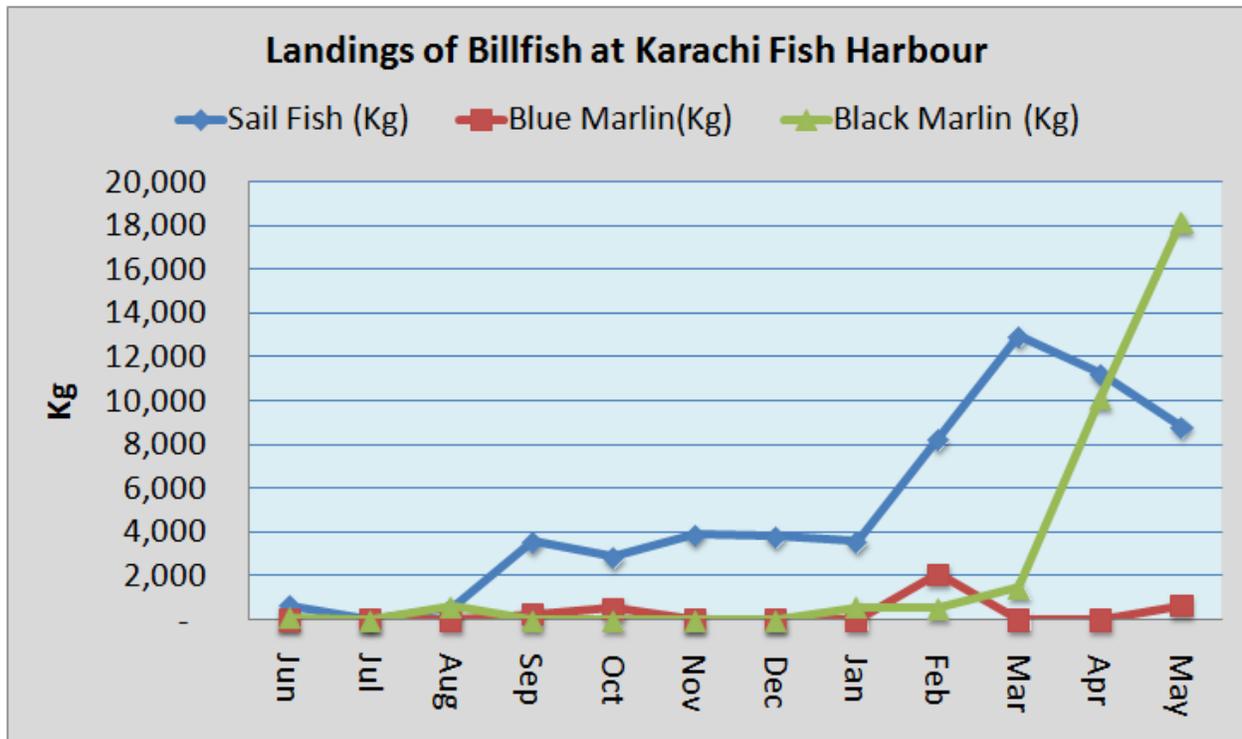


Fig. 3. Average monthly landings of billfishes (kg/day) during June 2012 and May 2013 from Karachi Fish Harbour.

Crew-based Observer Programme of WWF-Pakistan provided information for catches of tuna and tuna like species (including billfishes) since 2012. Average monthly catches of billfishes including Indo-Pacific sailfish and black marlin obtained through observer programme is presented in Fig. 4 which reveals that both species are found throughout the year. *Istiophorus platypterus* has two peaks of abundance; the first during March and April with maxima in April whereas the second peak was observed during October and January with maxima in October.

In case of *Istiompax indica* also there are two peaks of abundance; the first during March whereas the second peak was observed during October and January with maxima in November. It was also observed that Indo-Pacific sailfish is the dominating species throughout the year except during September when the catches of black marlin was observed to be higher.

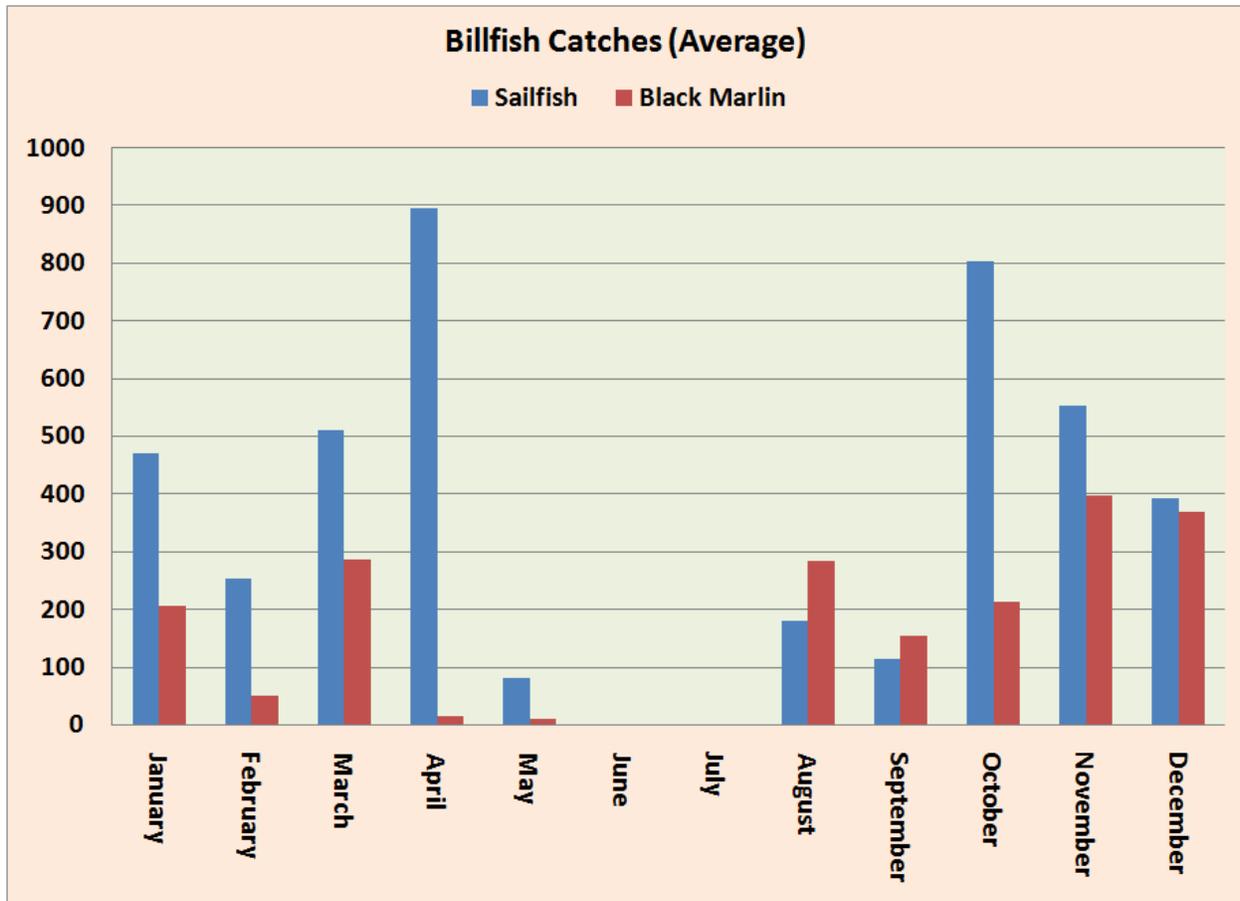


Fig. 4. Average monthly catches (in kg/month) of billfishes (Data collected through WWF-Pakistan's Observer Programme)

Other species of family Istiophoridae including striped marlin (*Kajikia audax*), Indo-Pacific blue marlin (*Makaira mazara*) and shortbill spearfish (*Tetrapturus angustirostris*) are also caught by the Pakistani tuna gillnetters, however, these are of rare occurrence and no marked seasonality was also noticed. Swordfish (*Xiphias gladius*) also rarely caught by these vessels but most of them were observed to be juveniles or subadults (between 100 and 120 cm).

There is a voluntary two month close season observed during June and July by the tuna gillnet fishermen mainly because of extremely rough weather and intensive wave action due to summer monsoon. During this period almost no billfish are landed at any of the fish harbours along the coast.

CONCLUSION

Billfishes are commercially important fish species which is caught by the Pakistani tuna gillnetters that operate in neritic and offshore waters (Exclusive Economic Zone-EEZ and Area Beyond National Jurisdiction-ABNJ). Although billfishes may be regarded as

bycatch of gillnet fisheries, however, because of their high prices sometime fishermen specifically target them even preferring them over tuna species. Annually landings of all billfishes is estimated to be about 4,500 m. tons in Pakistan, however, prior to 2012, there average annual landings was reported to be between 2,000 and 3,000 m. tons.

Marked seasonality was observed in the landings of the billfish species which depends mainly on the area of operation and prevailing oceanographic conditions. Although six species of billfishes are known from the area but only two species i.e. Indo-Pacific sailfish (*Istiophorus platypterus*) and black marlin (*Istiompax indica*) are regularly caught by gillnetters.

During 2017, a decrease in the landed quantity of billfishes was observed which is because of operation of large Pakistani gillnet vessels in comparatively offshore waters (mainly in ABNJ) targeting skipjack and yellowfin tuna. Although billfishes are found even in such deep and offshore waters of ABNJ but these are not as abundant as compared to neritic and EEZ area. Swordfish is not commonly caught by Pakistani gillnetters because this species is mainly found near equator and Southern Indian Ocean which is mostly beyond the area of operation of Pakistani gillnetters.

Billfishes are not consumed locally and almost entirely sent to neighboring country. Those caught by gillnet vessel is beheaded, eviscerated and cut into large pieces (usually in two) on board the fishing vessels. These are either landed at the fish harbors (mainly Karachi and Gwadar) or transshipped at high seas to fishing/carrier vessels from neighboring country. Landed billfish is transported by either land route or by sea to neighboring country. It is ironic that the billfish caught by Pakistani vessels though is recorded in the landings of Pakistan, however, it is also again reflected in the landings of the neighboring country.

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