
Status of Tropical Tuna Fisheries of Pakistan with Special Reference to Yellowfin Tuna

Muhammad Moazzam

WWF-Pakistan, 35-D, PECHS Block 6, Karachi-75400, Pakistan
(mmoazzamkhan@gmail.com)

ABSTRACT

Tropical tuna is represented by two species in Pakistan; of these yellowfin tuna (*Thunnus abacares*) contributed 5,219 tons during 2020. Annual landings of skipjack tuna (*Katsuwonus pelamis*) during 2020 were recorded to be 712 m. tons. Tropical tuna is contributed about 22.62 % in total landings of tuna during 2020. Tropical tuna landing in 2020 was 21.03 % lower than 2019 which is mainly because of operation of tuna fleet for only 8 months as compared to a normal fishing year of about 10 months. A change in marketing pattern was also noticed as major part of the fleet has shifted their operational base from Karachi to Gwadar (near Iranian border) where higher prices for tropical tuna was prevailing as compared to Karachi Fish Harbour.

INTRODUCTION

Tuna species are caught in Pakistan through pelagic gillnetting which is an important fisheries mainly based in Karachi and Gwadar. Gillnets consisting of multifilament are used in Pakistan for catching tropical tunas including yellowfin tuna (*Thunnus abacares*) and skipjack tuna (*Katsuwonus pelamis*). Bigeye tuna (*Thunnus obesus*) is extremely rare in Pakistan, therefore, it does not contribute to the tuna landings of Pakistan.

Information about tropical tuna fisheries of Pakistan is known through the work of Khan (2016), Moazzam (2011, 2012a-b, 2018, 2020), Moazzam *et al.*, (2017, 2019, 2020), Nawaz and Moazzam (2014) and Shahid *et al.* (2018). These studies were based mainly on the fisheries statistical data that was published by Marine Fisheries Department, Government of Pakistan. Some information collected through the Crew-based Observer Programme initiated by WWF-Pakistan since 2012 was also incorporated in these studies.

Based on the information generated through this WWF-Pakistan's Crew-based Observer Programme, data of tuna and tuna like species was reconciled with the landings data available with Marine Fisheries Department, Government of Pakistan. An exercise for reconstruction of landing data for IOTC species since 1987 to 2018 was also carried out. These data sets were provided to IOTC by Marine Fisheries Department, Government of

Pakistan whereas a part of it was presented in WPNT07 (Moazzam and Ayub, 2017) which is accepted by IOTC SC meeting held in Karachi, Pakistan in 2019. .

TROPICAL TUNA LANDINGS

Tropical tuna landings during 2020 was observed to be comparatively much lower than previous years (Table-I). Total landings of tropical tuna was observed to be 5,931 m. tons during 2020 whereas it was 7,510 m. tons during 2019. The landings of tropical tuna, therefore was 21.03 % lower than 2019 as compared to landings of 2020. Landing of yellowfin tuna (*Thunnus abacares*) was 5,219 m. tons during 2020 as compared to 2019 landings which was 6,721 m. tons. Annual landings of skipjack tuna (*Katsuwonus pelamis*) during 2020 were recorded to be 712 m. tons which was 789 m. tons during 2019.

The major decrease in landings of tropical tuna during 2020 is attributed mainly to the operation of Pakistani tuna fleet for shorter period during 2020 as compared to previous years. In 2020, major part of tuna fleet operated for only 8 months as compared to a normal fishing year of about 10 months. It may be pointed out that there was a widespread bloom of jellyfish (*Crambionella orsini*) in the Arabian Sea since September 2019. This bloom covered almost entire Arabian Sea by late April 2020 forcing the fleet to stop their operation.

Fishing operation was commenced in August, 2020, however, the tuna prices were extremely low in Karachi Fish Harbour. It may be mentioned that during January and April, 2020 and after August 2020, a major part of tuna fleet operated in the coastal waters as compared to previous years when the fleet was operating in comparatively deeper and offshore deeper waters. Tropical tuna are not found in abundance in coastal waters as compared to deeper oceanic waters.

A change in marketing pattern was also noticed as the prices of tropical tuna species dropped substantially in Karachi Fish Harbour due to COVID-19. With high prices of fuel and low prices for the catch, the tuna fleet operators decided to shift their fleet from Karachi to Gwadar. Tropical tunas (yellowfin and skipjack) and longtail tuna from Pakistan are traded with Iran whereas kawakawa and frigate tuna are mainly exported to Sri Lanka in salted-dried form whereas small quantities of these species are locally consumed. The prices of tropical tunas are always higher in Gwadar because of close proximity with Iran. In addition, fuel is comparatively much cheaper in Gwadar area. By August 2020, entire tuna fleet which used to be based in Karachi has shifted to Gwadar and still most of the tuna boats are still (late April, 2021) in Gwadar whereas a few have returned back to Karachi in anticipation for approaching close season, A part of the catch of tuna was reported to transferred to Iranian boats at high seas, therefore, not landed even at Gwadar, thus not reflected in the catches of Pakistan.

Table-I: Landings of Tropical Tuna Landings during 2019 and 2020

Species	Scientific Names	2019	2020	% Increase/Decrease
Yellowfin tuna	<i>Thunnus albacores</i>	6,721	5,219	22.35
Skipjack Tuna	<i>Katsuwonus pelamis</i>	789	712	9.76
Bigeye tuna	<i>Thunnus obesus</i>	0	0	-
TOTAL (Tuna Landings)TT+NT		27,307	26,217	3.99

Source: Marine Fisheries Department, Government of Pakistan

TREND OF TROPICAL TUNA LANDINGS

Tropical tuna has always been very important component of large pelagic fisheries in Pakistan. Landings data reconstructed by Marine Fisheries Department, Government of Pakistan and WWF-Pakistan (Moazzam, 2020; Moazzam *et al.*, 2017) indicates that annual landings of tropical tuna ranged between 6,000 m. tons during 1987 to a maximum of about 29,000 in 2017 (Fig.1). Unprecedented increase in the annual landings of tropical tuna was noticed in 2017, thereafter the landings to tropical tunas plunged down to a level of about 16,500 m. tons in 2018, 7,510 m. tons in 2019 and mere 5,931 m. tons in 2020.

Analysis of the reconstructed landing data also indicates that yellowfin tuna (*Thunnus albacares*) is the most dominating species among all neritic and tropical tunas species. An increasing trend in the annual landings is noticeable since 2000 when landings of yellowfin tuna were 8,000 m. tons which steadily increased to 23,992 m. tons in 2017, thereafter it decreased to a level of 5,931 m. tons in 2020 (Fig. 2).

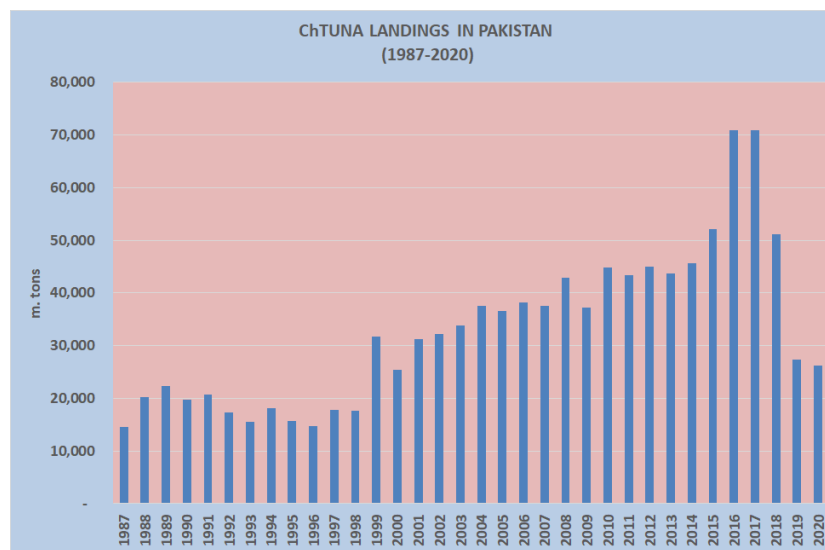


Fig. 1: Trend of landings of tropical tuna in Pakistan.

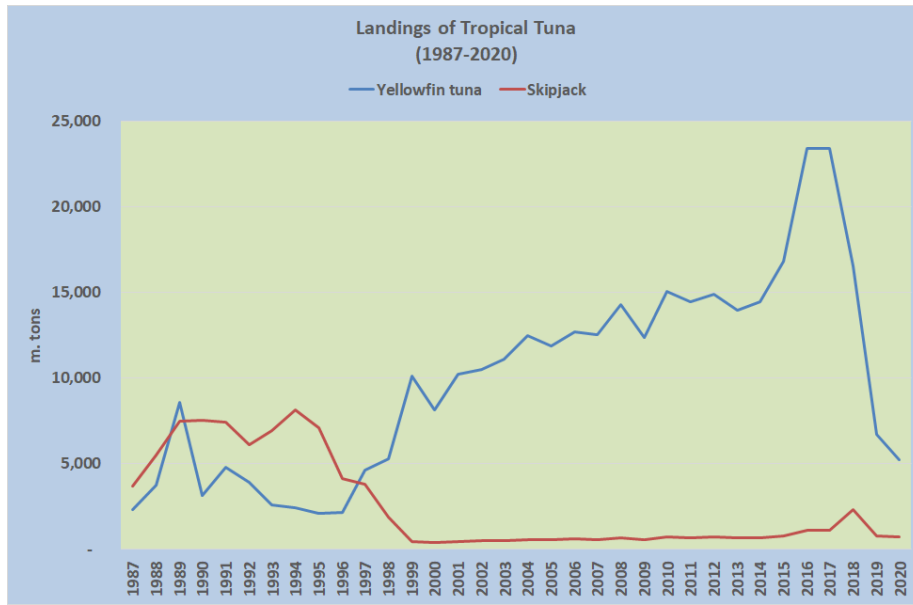


Fig.2: Trend of landings of tropical tuna species in Pakistan

An opposite trend was observed in case of skipjack tuna (*Katsuwonus pelamis*). Its annual landings were observed to have a maxima in 1994 when it reached to a level of 8,000 m. tons. Since then its annual landings decreased to 485 m. tons in 1999. This decrease can be attributed to impact of Somali piracy (Moazzam 2012). Annual landings of skipjack tuna remained low (between 485 m. tons and 1,118 m. tons) during 1994 and 2016. An unprecedented increase in annual landings of skipjack tuna was noticed in 2017 when it reached a level of 3,000 m. tons. In 2018, the landings of skipjack tuna again decreased to a level of 2,318 m. tons. It reached a level of 798 m. tons in 2019 and 712 m. tons in 2020. Major decrease in skipjack landings is attributed to operation of tuna fleet in coastal waters owing to high fuel prices. Need not to mention that skipjack tuna are of more common occurrence in offshore waters.

SEASONAL CATCHES OF TROPICAL TUNA

Data collected through WWF-Pakistan's Crew-based Observer Programme revealed a marked seasonality in the CPUE of tropical tuna. Peak CPUE of tropical tuna was observed in February, March, April, September and November 2019 (Fig. 3). Lowest CPUE was noticed in the month of December whereas highest was in November.

The analysis further revealed that CPUE of yellowfin tuna was higher as compared to skipjack throughout the year (Fig. 3). The CPUE of yellowfin tuna were observed to be extremely low during December. It is worth mentioning that average data for 2013 to 2017 indicates high CPUE of skipjack during November and December when major part of the fleet moves to offshore and deeper waters of EEZ of Pakistan and in the Area Beyond National Jurisdiction (ABNJ) where skipjack are more common as compared to yellowfin

tuna (Moazzam *et al.*, 2019). In 2019, skipjack CPUE was comparatively higher during January and April as compared to August and December.

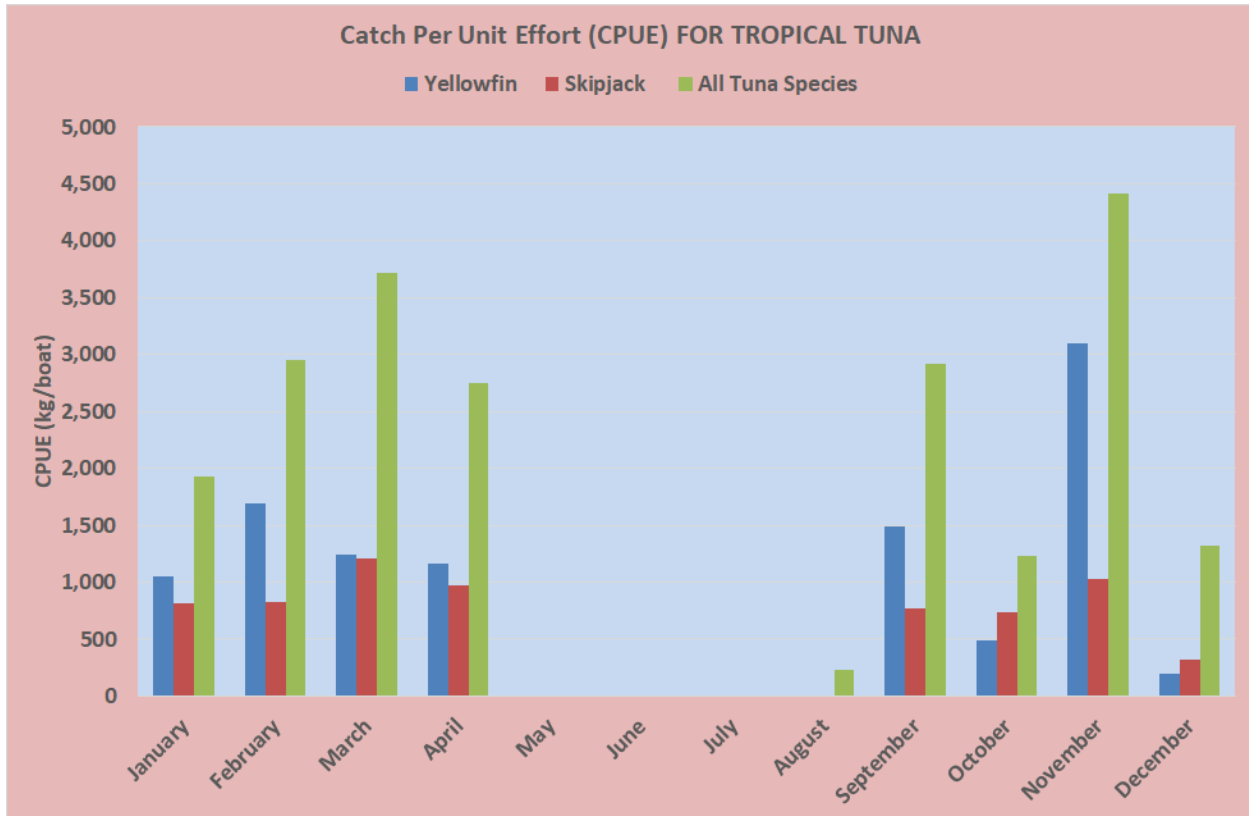


Fig. 3: Seasonal changes in CPUE (kg/month/boat) of tropical tuna in Pakistan (2019).

CONCLUSION

Tropical tuna species forms the important part of the tuna fisheries in Pakistan (Moazzam, 2018, 2020). Yellowfin tuna is the most dominating tuna species observed since 1987 which is followed by longtail tuna (*Thunnus tonggol*). A marked seasonality in the tropical tuna landings was noticed with a peak in February, September and November during 2020. There is a voluntary two month close season observed during June and July by the tuna gillnets fishermen mainly because of extremely rough weather and intensive wave action due to summer monsoon. However, in 2020, the closed season was observed from May to of end of August.

During 2020, tropical tuna landings was observed to be about 21.03 % lower than 2019 which is mainly because of operation of tuna fleet for only 8 months as compared to a normal fishing year of about 10 months. A change in marketing pattern was also noticed as major part of the fleet has shifted their operational base from Karachi to Gwadar (near Iranian border) where higher prices for tropical tuna was prevailing as compared to Karachi Fish Harbour and operation of tuna fleet in coastal waters as compared to

previous years when the fleet was operating in comparatively deeper and offshore deeper waters..

Bigeye tuna (*Thunnus obesus*) is rarely caught by Pakistani gillnet vessels. This may be because of geographical distribution of bigeye tuna in Indian Ocean. According to Lee *et al.* (2005) bigeye tuna mainly distributed in tropical waters of Indian Ocean between 10°N and 15°S which is an area seldom fished by Pakistani gillnetters. Mohri *et al.*, (1991) observed that low catches in the north high latitude region of the Arabian Sea.

WWF-Pakistan has collected data through its Crew Based Observer Programme which included information about length frequency of dominating catches of tuna gillnets including both yellowfin and skipjack tuna. This data is available for 2013 to 2019 and can be made available to IOTC for scientific analysis, if required. CPUE was also collected but it is yet to digitized and once done, WWF-Pakistan may like to share this with IOTC.

REFERENCES

- Khan, M. F., 2016. Status of Tropical Tuna Gillnet fisheries in Pakistan. Working Party on Tropical Tuna (WPTT18) 05 November, 2016- 10November, 2016. Mahé, Seychelles.IOTC-2016-WPTT18-INFO3.
- Lee, P.-F., Chen, I.-C., and Tzeng, W.-N., 2005. Spatial and Temporal Distribution Patterns of Bigeye Tuna (*Thunnus obesus*) in the Indian Ocean. *Zool. Stud.* 44:260-270.
- Moazzam, M., 2011. Tuna fishing of Pakistan: Impact of transboundary migration on exploitation levels. In: Proceedings of Seminar "Transboundary Coastal and Marine Protected Areas with Special Priorities for Spawning Grounds (27-28 May, 2009). (Eds. Wahab, A., Moazzam, M. and Hasan, A., (Editors) 2011. Zoological Survey of Pakistan, Islamabad. Pp. 49-60.
- Moazzam, M., 2012a. Tuna Situation Analysis. WWF-Pakistan Report. Karachi 43p..
- Moazzam, M., 2012b. The impacts of piracy in the Pakistani fisheries sector: case study of Pakistan. In: Seminar on "The impacts of Piracy on Fisheries in the Indian Ocean" Mahé, Republic of Seychelles, 28 – 29 February 2012. European Bureau for Conservation and Development.
- Moazzam, M., 2018. Status of fisheries of yellowfin and skipjack tunas in Pakistan. Working Party on Tropical Tunas (WPTT20), Mahe, Seychelles. OTC-2018-WPTT20-13. 7p.

- Moazzam, M., 2020. Unprecedented decrease in landings of tropical tuna in Pakistan during 2019. Working Party on Tropical Tuna (WPTT): Data Preparatory Meeting lotc-2020-Wppt22(DP)-Inf05. 6p.
- Moazzam, M., Nawaz, R., Khan, B. and Ahmed, S., 2020. Whale Distribution in the Northern Arabian Sea along Coast of Pakistan in 2019 based on the information obtained through Fisheries Crew-Based Observer Programme. Scientific Committee-International Whaling Commission SC/68B/CMP/08. 10p.
- Moazzam, M. and Ayub, S., 2017. Catch reconstruction of neritic tuna landings of Pakistan based on data collected by WWF-Pakistan's Crew Based Observer Programme. Seventh Session of IOTC Working Party on Neritic Tuna (WPNT07) 10-13July 2017. Male, Maldives. IOTC- 2017-WPNT07-11.
- Moazzam, M., Ayub, S., Shahid, U., Nawaz, R. and Khan, B., 2019. Status of tropical tuna fisheries of Pakistan especially impact of subsurface gillnetting on their landings. . IOTC Working Party on Tropical Tuna. Donostia-San Sebastian, Spain, October 21-26, 2019. IOTC-2019-WPTT21-16- Rev-1.10p.
- Moazzam, M., Khan, M. F. and Khan, M. W., 2017. Status of Gillnet fisheries and Data Reconstruction of Tropical Tuna in Pakistan. Working Party on Tropical Tuna (WPTT19) 17 October, 2017- 22October, 2017. Mahé, Seychelles.IOTC 2014 WPTT19 12_Rev1.
- Mohri, M., Hanamoto, E., Takeuchi,S. 1991. Distribution of Bigeye Tuna in the Indian Ocean as Seen from Tuna Longline Catches. Nippon Suisan Gakkaishi 57: 1683-1687.
- Nawaz, R., and Moazzam, M., 2014. An assessment of cetacean mortality in the tuna fisheries of Pakistan. Final Report Australian Marine Mammal Centre Grants Program. WWF-Pakistan 89p.
- Shahid, U., Moazzam, M., Khan, B., Nawaz, R., Razzaq, S. A. Kazmi, S. M. R., Ayub, S. and Islam, S., 2018. Do different gear settings affect capture of target catch in tuna gillnet fisheries – Experiences from NIO off Pakistan. WPTT190, Mahe, Seychelles 20 Oct.-3 Nov. 2018. IOTC-2018-WPTT20-19. 5p.