

## 12TH WORKING PARTY ON NERITIC TUNAS (WPNT12)

**NERITIC TUNA FISHERIES OF PAKISTAN: STATUS AND TREND**

Muhammad Moazzam

WWF-Pakistan, D-35, PECHS, Block 6, Karachi 75400, Pakistan

**ABSTRACT**

Neritic tuna are important component of the tuna fisheries of Pakistan. Neritic tuna has a share of about 47.68 % in the total landings of tuna in 2021. Of the five species of neritic tunas, longtail tuna (*Thunnus tonggol*) contributes 3,120 m. tons in 2021 and 3,320 m. tons in 2020. Landings of frigate tuna (*Auxis thazard thazard*) during 2021 was recorded to be 6,190 m. tons whereas it was 6,759 m. tons in 2020. Landings of kawakawa (*Euthynnus affinis*) in 2021 was 1,210 m. tons and 1,310 m. tons in 2020. Other two species i.e. bullet tuna (*Auxis rochei*) and striped bonito (*Sarda orientalis*) contributed insignificantly in the total tuna landings of Pakistan.

Landings of neritic tuna were observed to have decreased in 2021 by 7.26 % as compared to 2020. This decrease in landings can be attributed to many factors including early closure of the fishing season in April 2021 and late start in August 2021. This decrease is also on account of partial closure of small scale fishing operations along Balochistan coast during September to December due to protest of fishermen on account of poaching of shrimp trawlers in waters of Balochistan. Overall annual tuna landings (including both tropical and neritic tuna) of Pakistan have shown a decrease of 15.80 % during 2021 as compared to year 2020.

**INTRODUCTION**

Tuna gillnetting is an important fisheries in Pakistan which includes both neritic and tropical tuna species. A major part of the artisanal fleet is engaged in fishing of neritic species. Gillnets consisting of monofilament and multifilament are used for catching neritic tunas. Monofilament net is mainly used for catching frigate (*Auxis thazard thazard*) and bullet tunas (*Auxis rochei*) whereas multifilament nylon nets are used for catching longtail tuna (*Thunnus tonggol*), kawakawa (*Euthynnus affinis*) and striped bonito (*Sarda orientalis*) as well as tropical tunas.

Information about neritic tuna fisheries of Pakistan is known through the work of Ahmed (1989), Imad (1988), Griffiths *et al.*, (2019), Kazmi *et al.*, (2019), Moazzam (2011, 2012a-c, 2014, 2018, 2020b, 2021), Moazzam and Ayub (2015, 2017), Moazzam *et al.*, (2016, 2019) and Nawaz and Moazzam (2014). These studies were based mainly on the fisheries statistical data being published by Marine Fisheries Department, Government of Pakistan and also on the information voluntarily provided by the Crew-Based Observers (Moazzam, 2021).

Based on the information generated through 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 2021 was also carried out. These datasets were provided to IOTC by Marine Fisheries Department, Government of Pakistan and a part of it was presented in WPNT07 (Moazzam and Ayub, 2017).

## MATERIALS AND METHODS

In 2012, WWF-Pakistan initiated a crew based observer programme to collect information about catches of tuna and tuna-like species as well as of the bycatch non-target species in the tuna gillnet fisheries of Pakistan (Moazzam and Nawaz, 2017). This programme has continued, with a growing number of participating fishing crews, each year since 2012. There were 75 observers that were engaged in data collection programme. The programme, although has completed in September 2019 but still some of the fishermen provide information to WWF-Pakistan on voluntary basis.

Tuna fishing operations are undertaken throughout the year except during June and July, which is closed season, coinciding with rough sea conditions of the southwest monsoon. The tuna vessels generally set 6-8 km long gillnets before sunset and retrieve them the next morning after a soak time of about 12 hours. The information about tuna species (including neritic tuna) is recorded on daily basis on log sheets especially designed for the Crew Based Observer Programme.

## RESULTS

Neritic tuna species have a share of about 47.68 % in the total landings of tuna in 2021 which is considered to be slightly lower (6.00 %) than previous year (Table-I). Of the five species of neritic tuna, longtail tuna (*Thunnus tonggol*) contributes 3,120 m. tons in 2021, 3,320 m. tons in 2020 and 3,242 m. tons in 2019 and 11,985 m. tons in 2018. Landings of frigate tuna (*Auxis thazard thazard*) during 2021 was recorded to be 6,190 m. tons in 2020 whereas it was 6,759 m. tons in 2020, 7,619 m. tons in 2019 and 10,986 m. tons in 2018. Kawakawa (*Euthynnus affinis*) landings in 2021 was 1,210 m. tons, 1,310 m. tons in 2020, 1,236 m. tons in 2019 and 4,123 m. tons in 2018. Other two species i.e. bullet tuna (*Auxis rochei*) and striped bonito (*Sarda orientalis*) contributed insignificantly in the total tuna landings of Pakistan.

There was an overall decrease of 7.26 % decrease in the landings neritic tuna during 2021 as compared to 2020 (Fig.1). Major decrease in 2021 was noticed in cases of frigate tuna and kawakawa where the decreases of 8.42 % and 7.63 % respectively were noticed as compared to same period of 2020 (Fig. 2; Table-I). It may be added that a major decrease in the landings of neritic tunas (as well as tropical tunas) was recorded since 2019 (Moazzam, 2020b, 2022).

Category Tuna nei mentioned in Table-I includes neritic tuna caught by small scale vessels along Balochistan Coast. The landings in this category were recorded to be 5,120 m. tons on 2018, 7,695 m. tons in 2019, 8,892 m. tons in 2020 and 5,142 m. tons in 2021. This unprecedented decrease of 42.17 % in 2021 was due to closure of small scale fishing operations along Balochistan coast during September to December 2021 due to protest of fishermen on account of poaching of shrimp trawlers in waters of Balochistan. Species breakdown in Tuna nei category is not recorded but it consists mainly of neritic tuna especially kawakawa and frigate tuna.

In case of tropical tuna, the landings of yellowfin and skipjack tunas during 2021 has substantially increased 7.26 % and 13.76 % respectively as compared to landings in 2020. Yellowfin tuna (*Thunnus albacares*) contributed 5,598 m. tons and skipjack tuna (*Katsuwonus pelamis*) contributed 810 m. tons in 2021 (Moazzam, 2022).

Table-I. Landings of tuna species during 2018 and 2021 in Pakistan

Species	2018	2019	2020	2021	% Increase/ Decrease
Neritic Tuna					
Longtail tuna	11,985	3,242	3,320	3,120	-6.00
Kawakawa	4,123	1,236	1,310	1,210	-7.63
Frigate tuna	10,986	7,619	6,759	6,190	- 8.42
Bullet tuna	2	2	2	2	-
Striped Bonito	3	3	3	3	-
<b>Subtotal</b>	<b>27,099</b>	<b>12,102</b>	<b>11,349</b>	<b>10,525</b>	<b>-7.26</b>
Yellowfin tuna	16,541	6,721	5,219	5,598	7.26
Skipjack tuna	2,318	789	712	810	13.76
<b>Subtotal</b>	<b>18,859</b>	<b>7,510</b>	<b>5,931</b>	<b>6,408</b>	<b>8.04</b>
<b>Tunas NEI</b>	<b>5,120</b>	<b>7,695</b>	<b>8,892</b>	<b>5,142</b>	<b>-42.17</b>
<b>TOTAL</b>	<b>51,078</b>	<b>27,307</b>	<b>26,217</b>	<b>22,075</b>	<b>-15.80</b>

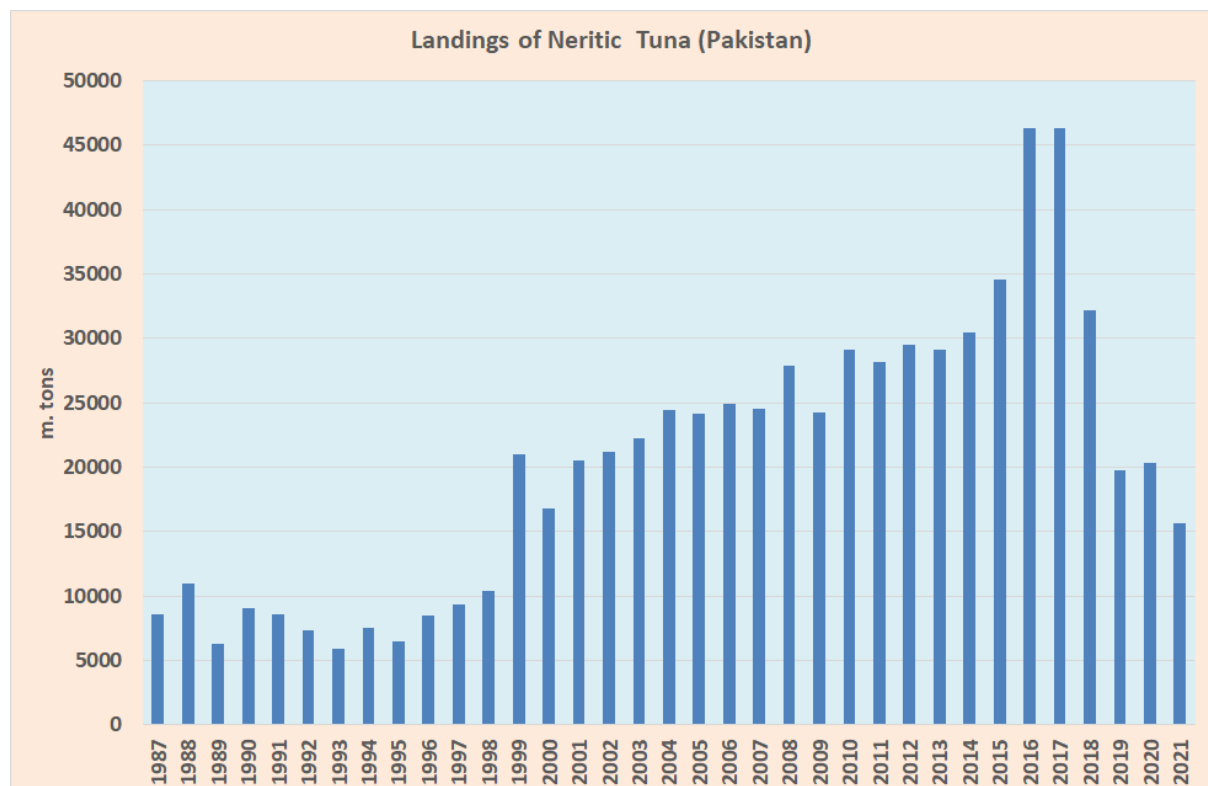


Fig. 1. Landings of neritic tuna of Pakistan (1987-2021)

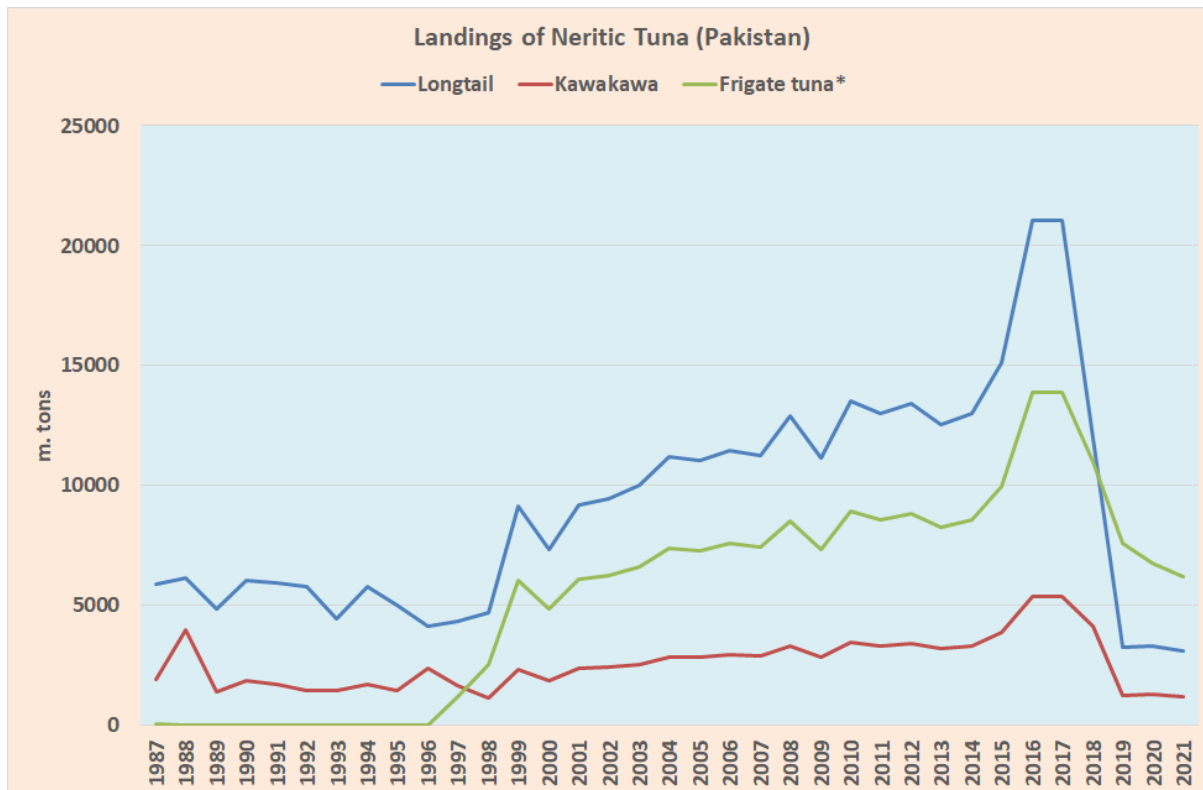


Fig. 2. Landings of neritic tunas species in Pakistan (1987-2021)

## DISCUSSIONS

During 2021, the landings of neritic tunas were observed to have decreased as compared to 2020, however, an increasing trend was noted during the same period in case of tropical tuna (Table-I). The decrease in landings of neritic tunas is not because of status of their stocks or fishing intensity but it is because of issues related to fishing operations. Landings of neritic tuna species have shown maxima during 2016 to 2018, however, unprecedented decrease in landings was noticed in 2019 which is still continuing (Fig. 2).

It may be added that longtail tuna is generally targeted by fishermen engaged in neritic tuna fishing because of its demand in the neighbouring country. Tropical tuna species (yellowfin and skipjack) also fetch high prices in the neighbouring country. Other neritic species including kawakawa, frigate tuna, bullet tuna and stripped bonitos are either consumed locally (mainly by Bangladeshi immigrants) or salted dried for export to Sri Lanka and Bangladesh.

A major part of the tuna fleet which is normally based in Karachi (Sindh Province) has shifted to Gwadar (Balochistan Province) because of better prices offered for yellowfin, skipjack, longtail and kawakawa (large specimens) in Gwadar than in Karachi. Diesel prices are also cheaper in Gwadar than in Karachi due to proximity with Iran.

Considering decreasing trend for both tropical and neritic tuna during last four years, operators of a few tuna gillnet vessels decided to convert their gillnet vessels to shrimp/fish trawling. Although exact number of such vessels are not known but it is believed that about 35 such vessels (2021 data) are now operating as trawlers.

## REFERENCES

- Ahmed, J., 1989. An overview of tuna fisheries of Pakistan. Indo-Pacific Tuna Development and Management Programme. IPTP/89/GEN/16:20-32.
- Imad, A., 1988. Some observation on the tuna fisheries of Pakistan. Indo-Pacific Tuna Development and Management Programme. IPTP/89/GEN/13: 16-23.
- Griffiths, S. P., Leadbitter, D., Willette, D., Kaymaram, F. and Moazzam, M., 2019. Longtail tuna, *Thunnus tonggol* (Bleeker, 1851): a global review of population dynamics, ecology, fisheries, and considerations for future conservation and management. *Rev Fish Biol Fisheries* 29:1-42.
- Kazmi, S. M. R., Shahid, U., Khan, B., Nawaz, R., Khan, J. U., Razzaque, S. A., Ayub, A. and Moiz, A., 2019. Investigating capture rates of Neritic tuna species in the tuna gillnet fisheries of Pakistan; results from four tuna gillnet vessels. Ninth Session of IOTC Working Party on Neritic Tuna (WPNT09) 01-05 July 2017. Seychelles. IOTC-2019-WPNT09-INF01. 9.,
- 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. Status of fisheries of neritic tuna in Pakistan. Second Session of the Working Party on Neritic Tuna (WPNT02) 19-21 November, 2012 Penang, Malaysia. IOTC 2012 WPNT02 13.
- Moazzam, M., 2012c. 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., 2014. Update on the neritic tuna fisheries of Pakistan with special reference to frigate tuna (*Auxis thazard thazard*). Fourth Session of IOTC Working Party on Neritic Tuna (WPNT04) 29 June- 2 July, 2014. Phuket, Thailand IOTC 2014 WPNT04 33.
- Moazzam, M., 2018. Status of neritic tuna fisheries of Pakistan. Eight Session of IOTC Working Party on Neritic Tuna (WPNT08) 21-24 August 2016. Mahe, Seychelles..IOTC- 2016-WPNT08-17.
- Moazzam, M., 2020a. Unprecedented decrease in landings of tropical tuna in Pakistan during 2019. 22nd Working Party on Tropical Tuna (WPTT): Data Preparatory Meeting. Seychelles, 22-26 June, 2020. IOTC-2020-WPTT22(DP)-INF05. 6p.

- Moazzam, M., 2020b. Status of neritic tuna in Pakistan with special reference to longtail tuna. Tenth Session of IOTC Working Party on Neritic Tuna (WPNT10) July 6-8, 2020 Virtual. IOTC-2020-WPNT10-INF03. 8p.
- Moazzam, M., 2021. Declining neritic tuna landings in Pakistan-causes and impact on fishing effort and marketing. Eleventh Session of IOTC Working Party on Neritic Tuna (WPNT11) July 5-9, 2021 Virtual. IOTC-2021-WPNT11-10. 9p.
- Moazzam, M., 2022. Tropical Tuna Fisheries of Pakistan-Status and Trends. Twenty-fourth Session of IOTC Working Party on Tropical Tuna (WPTT 24)-Data Preparatory Meeting May 30-June-3, 2021 Virtual. IOTC-2022-WPTT24(DP)-11. 6p.
- Moazzam, M., and Ayub, S., 2015. Changes in the landings of neritic tuna and tuna like species in Pakistan during last three years. Fifth Session of IOTC Working Party on Neritic Tuna (WPNT05) 26-29 May 2015. Zanzibar, Tanzania. IOTC 2015 WPNT05 25.
- 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) 10-13 July 2017. Male, Maldives. IOTC- 2017-WPNT07-11.
- Moazzam, M. and Nawaz, R. 2017. Arabian Humpback and Baleen Whale sightings along the Pakistan Coast: Information Generated Through WWF Pakistan's Fishing Crew Observer Programme. IWCSC\_67A\_CMP\_05.
- Moazzam, M., Ayub, A., Khan, B. and Nawaz, R., 2019. Distribution, abundance and some aspects of biology of kawakawa (*Euthynnus affinis*) from Northern Arabian Sea with an update on neritic tuna fisheries of Pakistan. Ninth Session of IOTC Working Party on Neritic Tuna (WPNT09) 01-05 July 2017. Seychelles. IOTC-2019-WPNT09-16\_Rev1. 12p.
- Moazzam, M., Nawaz, R., and Ayub, S., 2016. Update on the neritic tuna fisheries of Pakistan. Sixth Session of IOTC Working Party on Neritic Tuna (WPNT057) 21-24 June 2016. Mahe, Seychelles.. IOTC- 2016-WPNT06-24.
- Nawaz, R., and Moazzam, M., 2014. An assessment of cetacean mortality in the tuna fisheries of Pakistan. IOTC-2014-WPEB 10-INF25. 1-89.