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Status Gillnet fisheries and data reconstruction of Tropical Tuna in Pakistan

Muhammad Farhan Khan
Assistant Fisheries Development Commissioner
Ministry of Ports and Shipping
Government of Pakistan

Abstract

Pakistan is endowed with huge resources for development of fisheries sector, having 1100 km coastal belt situated in the province of Sindh and Baluchistan but unfortunately minimal aquaculture exists in the country. Marine fisheries today is considered to be amongst the best and major source of food security, income generation, poverty alleviation, foreign exchange and food substitute. Tuna support some of the more important fisheries in Pakistan. There are eight known species of tuna landed in Pakistan. However, only five species contribute significantly to commercial catches: longtail tuna (Thunnus tonggol), yellowfin (Thunnus albacares), skipjack (Katsuwanus pelamis), frigate tuna (Auxis thazard), and Kawakawa (Euthynnus affinis). The official reported data does not include any landings of bigeye tuna (Thunnus obesus). The statistical data of Tropical tuna along with other species of tuna and tuna like species is regularly provided by Government of Pakistan to IOTC. WWF-Pakistan started a crew based observer programme in 2012 which includes collection of information about tuna landings, including Tropical tuna. 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. The exercise revealed that the catch of tuna species in most cases is underreported. Data of landings of Tropical tuna have also some disparities. In many cases, data are merely extrapolated from the previous year, and lack reliability, traceability, transparency and coherence. Such disparities are now resolved in the two data sets and reconstructed data is now being submitted to IOTC by Government of Pakistan which will resolves issues related with tuna statistical data. The statistics has been reconciled with WWF-Pakistan and data has been re-estimated from 1998-2016. The total catches for the tuna in Pakistan during the period of 1998-2016 was recorded as 750,972 out of which the catches of Yellowfin tuna during the period from 1998-2016 was recorded as 219,828 m tons (29% of the total catch of tuna) and skipjack the total production during the period from 1998-2016 was recorded as 78,598 m tons (10.47 % of the total catch of tuna). Whereas the catches in the year 2016 of Yellowfin tuna was recorded as 25,766 m tons (37.05% of the total catch of tuna) and skipjack was recorded as 3,852 m tons (5.54 % of the total catch of tuna). The official reported data does not include

any landings of bigeye tuna (*Thunnus obesus).* The Gillnet is the main fishing gear used for catching tuna and other large pelagic fishes in many countries of the world including Pakistan. There has been no sustained increase in fish production from marine sector in spite of significantly increased fleet size.

Introduction

Pakistan is endowed with huge resources for development of fisheries sector, having 1100 k coastal belt situated in the province of Sindh and Baluchistan but unfortunately minimal aquaculture exists in the country. Marine fisheries today is considered to be amongst the best and major source of food security, income generation, poverty alleviation, foreign exchange and food substitute. Tuna fishing is one of Pakistan's oldest fisheries. Fishermen used to undertake long fishing trips to catch large pelagics in Omani (Marisa) and Somali waters. Tuna used to be salted dried for export to Sri Lanka. There are eight known species of tuna landed in Pakistan. However, only five species contribute significantly to commercial catches. bigeye tuna (Thunnus obesus), Longtail tuna (Thunnus tonggol), Yellowfin (Thunnus albacares), Skipjack, (Katsuwanus pelamis), Frigate tuna (Auxis thazard) and Kawakawa (Euthynnus affinis). Gillnet is the main fishing gear used for catching tuna and other large pelagic fishes in Pakistan. Tuna fishing in Pakistan is based on large gillnets used onboard about 500 vessels which are dedicatedly engaged in catching large pelagic fishes.

Data for the landings of neritic species is collected and compiled by the two provincial fisheries departments of Sindh and Balochistan which is provided to federal fisheries institution i.e. Marine Fisheries Department for compilation and its transmittal to concerned agencies such as FAO and IOTC. It was observed in most of the cases landing of tuna is under reported (Hornby et al., 2004; FBS, 2009) The major reason for under reporting was the methodology of data collection by Provincial Governemnts . In the last working party of tropical it was decided that Government of Pakistan will reconcile it data with WWF from their regional observer program. WWF-Pakistan started a crew-based observer programme on board tuna gillnet vessels which was aimed to improve the tuna catch data as well as collection of information about bycatch species. Compilation of the data based on observer programme revealed that there are anomalies in the data being collected through observer programme and those reported in the Government statistics. Present paper deals with the reconstruction of the data from 1999 to 2016 based on information collected through observer programme and comparing it with landings data being reported by Government of Pakistan.

Fisheries Data Collection Practiced in Pakistan

There are 7 major landing centres in Pakistan, of which 5 i.e. Jiwani, Gwadar, Pasni, Ormara and Damb are located in Balochistan and Karachi and Ibrahim Hayderi are located in Sindh Province. In addition there are 28 small landing places along Balochistan coast whereas in the Sindh (mainly in the Indus Delta) there are 30 small landing stations. Staff of provincial fisheries department is deputed at all large landing centres and some smaller but important centers to collect landings data of commercially important species. There is no data collection system at smaller fish landing centers. Details of this data collection system is also given in IPTP (1991). The landing data is not collected from each boat but information about total landings is obtained from the auctioneers. The collected information is compiled by the respective fisheries departments of the two provinces. Information about smaller landing centre is mainly based on mere estimates. The data collection is seemingly marred with a number of issues as data of fish transshipped at high seas and those transferred from one fishing vessels to another is not recorded. Similarly under reporting has been observed in case of information provided by auctioneers. This results is anomalies in the tuna landings data available with the provincial fisheries departments and compiled 0 20 40 60 80 2012 2013 2014 2015 2016 2017 Numbers OBSERVERS by federal fisheries organization (Marine Fisheries Department) if compared with the data being recorded by WWF-Pakistan.

Data Compilation by WWF-Pakistan

The monthly summary sheet for each fishing trips of every observer is compiled on the basis of data recorded for each haul. The data for each observer is then added up to determine the yearly catch made by the observer. This information is used for averaging and calculating annual landings for each category of the boat. Annual landing is calculated by multiplying with number of each category of boats being employed in tuna gillnet fisheries. The data is calculated for 2013 to 2016 whereas back calculation is done using various multipliers for catch reconstruction from 1999 to 2016. No calculation was done for the years prior to 1999 because the difference between the Government data and calculated data was found to be very small. Data for 1999 to 2016 is presented here indicating the difference between government data and reconciled data.

Tuna Landing

The reconstructed/ reconcile data provided to IOTC by Government of Pakistan shown in Fig 1 which shows that there is significant difference found among two data sets. The reconcile and WWF observer program found almost same Government of Pakistan Data found to be in lower side due under reporting

of the previous year data whereas the reconstructed data taken into account the changes that taken place in fisheries including all impacts of under reporting. The data indicates that there is underreporting in case of Government data which is about 57 % less than reconstructed data in 1999 whereas this difference is about 44 % in 2016

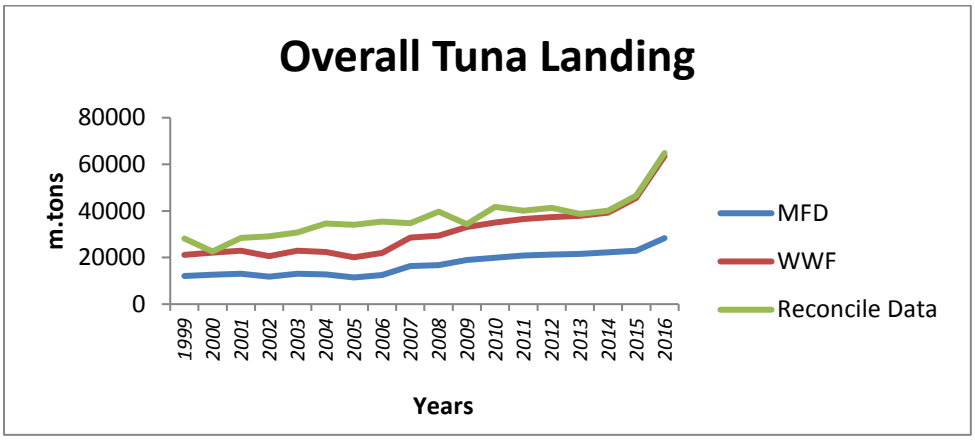

Fig 1: Tuna landings data (Reconstructed, WWF and Govt. Data)

Tropical Tuna Landing

The reconstructed/ reconcile data provided by Government of Pakistan of tropical tunas shown in Fig 2 which shows that there is significant difference found among two data sets. The reconcile and WWF observer program found almost same Government of Pakistan Data found to be in lower side due under reporting of the previous year data whereas the reconstructed data taken into account the changes that taken place in fisheries including all impacts of under reporting. The data indicates that there is underreporting in case of Government data which is about 61 % less than reconstructed data in 1999 whereas this difference is about 56 % in 2016

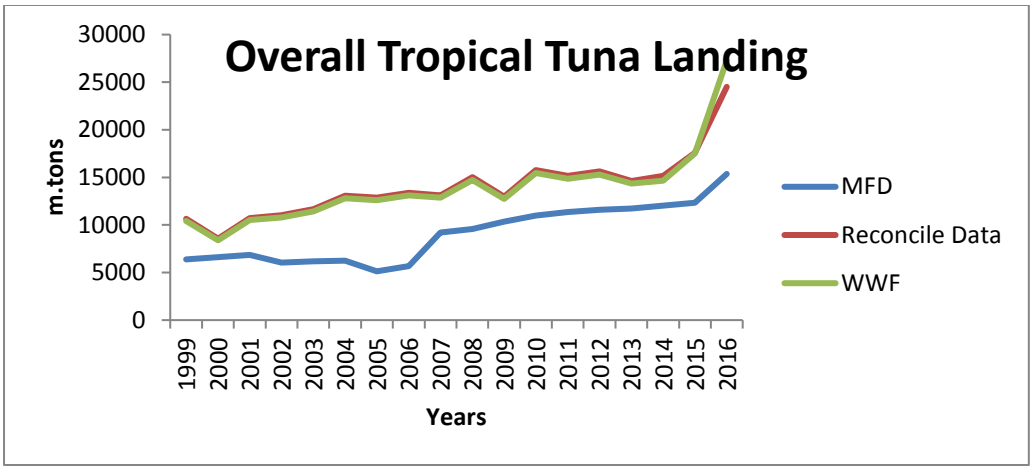

Fig 2: Tropical Tuna landings data (Reconstructed, WWF and Govt. Data)

Yellow Fin Tuna Landing

The reconstructed/ reconcile data provided by Government of Pakistan of yellow fin tuna shown in Fig 3 which shows that there is significant difference found among two data sets. The reconcile and WWF observer program found almost same Government of Pakistan Data found to be in lower side due under reporting of the previous year data whereas the reconstructed data taken into account the changes that taken place in fisheries including all impacts of under reporting. The data indicates that there is underreporting in case of Government data which is about 28 % less than reconstructed data in 1999 whereas this difference is about 39% in 2016

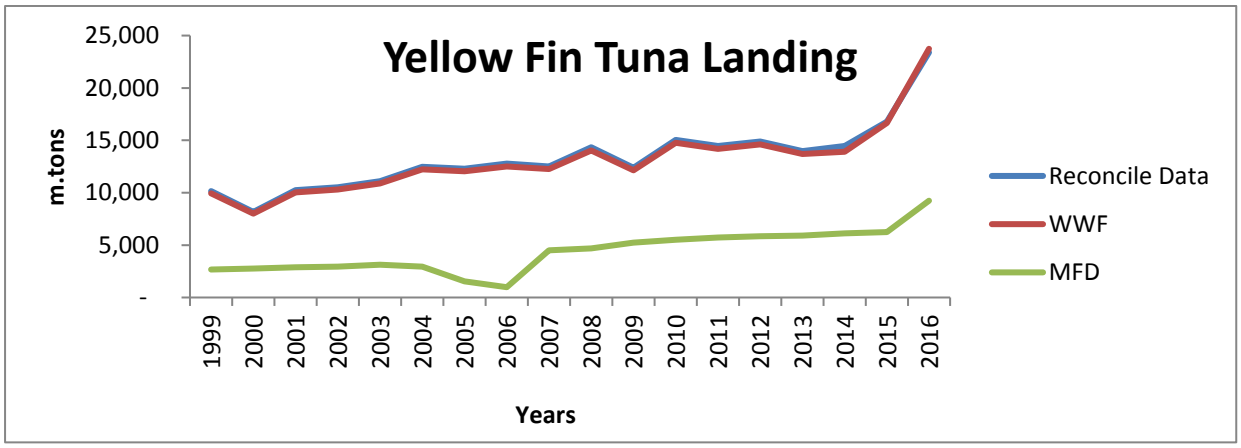

Fig 3: Yellow Fin Tuna landings data (Reconstructed, WWF and Govt. Data)

Skipjack Tuna Landing

The reconstructed/ reconcile data provided by Government of Pakistan of Skipjack tuna shown in Fig 4 which shows that there is significant difference found among two data sets. The reconcile and WWF observer program found almost same Government of Pakistan Data found to be in higher side due many reasons i.e. impact of Somali piracy on tuna fisheries, misidentification, misreporting and etc of the previous year data whereas the reconstructed data taken into account the changes that taken place in fisheries including all impacts of under reporting. The data indicates that there is over reporting in case of Government data and WWF data which is about 13 % less than Government data in 1999 whereas this difference is about 18% in 2016

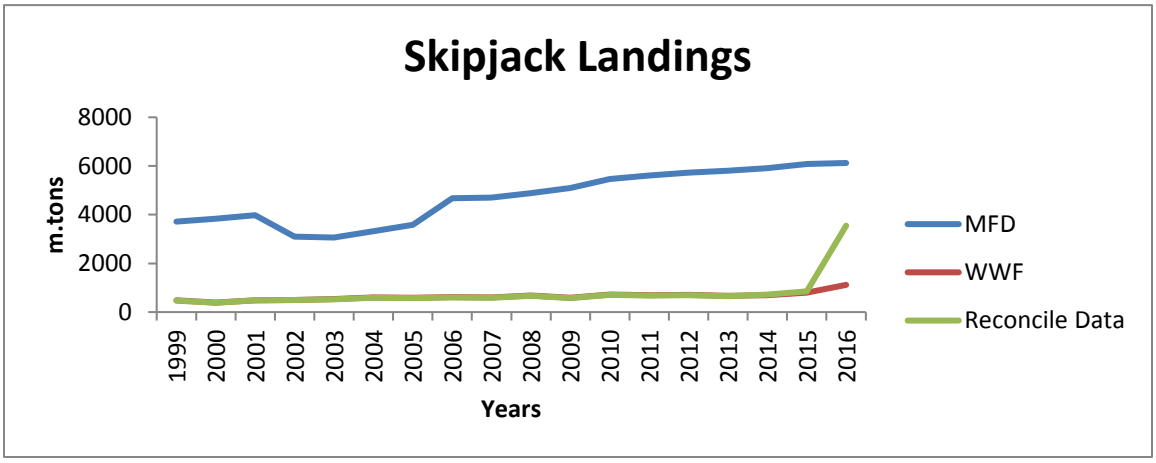

Fig 4: Skipjack Tuna landings data (Reconstructed, WWF and Govt. Data)

Discussions

Significant difference was found between statistical data of tropical tuna alongwith other species of tuna and tuna like species that is regularly being provided by Government of Pakistan to IOTC and those calculated on the basis of data collected through WWF-Pakistan's crew based observer programme which was initiated in 2012. A major difference in the two set of data (Government data and observer data), therefore, a process of reconciliation of the two data set was made in consultation with WWF and Marine Fisheries Department. It was also decided that a catch reconstruction of tuna and tuna like species for the previous years (from 1999 to 2016) may also be made. The exercise revealed that the catch of tuna species including tropical tuna in most cases is underreported or over reported. The major difference was found in case of skipjack tuna whose annual landings was wrongly reported in government data due to

of Somali piracy on tuna fisheries, misidentification, misreporting and etc Reconstructed data was compiled by Marine Fisheries Department, Government of Pakistan which were transmitted to IOTC. It is expected that tuna catch reconstruction will resolve issues related with tuna statistical data from Pakistan.

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