Some Observation on the Silky Shark (*Carcharhinus falciformis*) in the Tuna Gillnet Fisheries of Pakistan

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Abstract

Sharks form important part of bycatch of the tuna gillnet operations in Pakistan. Silky shark (*Carcharhinus falciformis*) was observed to the most dominating species in commercial landings of oceanic sharks at Karachi Fish Harbour Pakistan followed by mako shark. This species is considered as commercially important, as it meat is locally consumed whereas fins are exported despite restrictions because this species is included in Appendix-II of CITES. During the present study it was observed that large sized specimens (161 cm to 191cm TL) were not caught during 2017 and 2018 whereas in 2016, silky shark of these size classes were caught by tuna gillnetters as bycatch indicating overfishing of shark in general and silky shark in particular.

Introduction

Sharks are considered as an important bycatch group of tuna gillnet fishing in Pakistan (Khan, 2013; Moazzam, 2013, 2019; Shahid *et al.*, 2015, 2016). In Pakistan, gillnets consisting of monofilament and multifilament are used for catching tuna and tuna like species. Monofilament net is mainly used for catching neritic tuna in coastal waters whereas multifilament nylon nets are used for catching longtail tuna (*Thunnus tonggol*), yellowfin tuna (*Thunnus albacares*) and skipjack tuna (*Katsuwonus pelamis*) in the offshore waters. There are about 700 tuna gillnetters based mainly in Karachi along Sindh Coast and Gwadar along Balochistan Coast.

A number of shark species were observed to be entangled in the tuna gillnets which is dominated by silky shark (Khan *et al.*, 2013, Moazzam, 2012; Shahid, 2012; Shahid *et al*., 2015, 2016). Other species of sharks caught in tuna gillnet fisheries are mako shark, thresher sharks, hammerhead sharks and oceanic white tip sharks. Karachi Fish Harbour is the main fish landing center where major part of tuna and tuna like fishes and bycatch is landed. During the present study information about landings of silky shark was collected from Karachi Fish Harbour. Information about silky shark catches were also obtained from crew based observed programme implemented by WWF-Pakistan since 2012 and 2019 (Moazzam, 2019).

Materials and Methods

The information about landings of silk shark was collected from Karachi Fish Harbour during 2008 and 2019. Additionally information collected through observers under WWF-Pakistan crew based programme regarding silky shark was also analyzed.

Results and Discussions

Information about tuna gillnet fisheries of Pakistan including bycatch of shark is known through the work of Khan (2013), Moazzam (2011, 2012a-b, 2014, 2017), Moazzam

and Ayub (2015, 2017), Moazzam *et al.*, (2016, 2017) 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 information collected through the Crew-based Observer Programme initiated by WWF-Pakistan in 2012. In all of these publications information about shark bycatch is included.

Silky shark (*Carcharhinus falciformis*) was observed to be the dominating shark species observed in the landings at Karachi Fish Harbour as well as in the bycatch data obtained through crew based observer programme (Fig. 1).

Fig. 1. Silky shark (*Carcharhinus falciformis*)

Data collected from Karachi Fish Harbour, silky shark is the most dominating among the oceanic sharks and contributing 43.22 % (Fig. 2) followed by mako shark (*Isurus oxyrinchus*). It contributes to about 29.75 % in total landings of sharks (both demersal and Oceanic species) and ranks second highest after spadenose shark (*Scoliodon laticaudus*) which contributes about 27.83 %. Being a dominating shark species silky shark is of great economic importance as its meat is consumed locally whereas its fins finds their way in export although there is restriction on export because it is species which is included in Appendix-II of CITES.

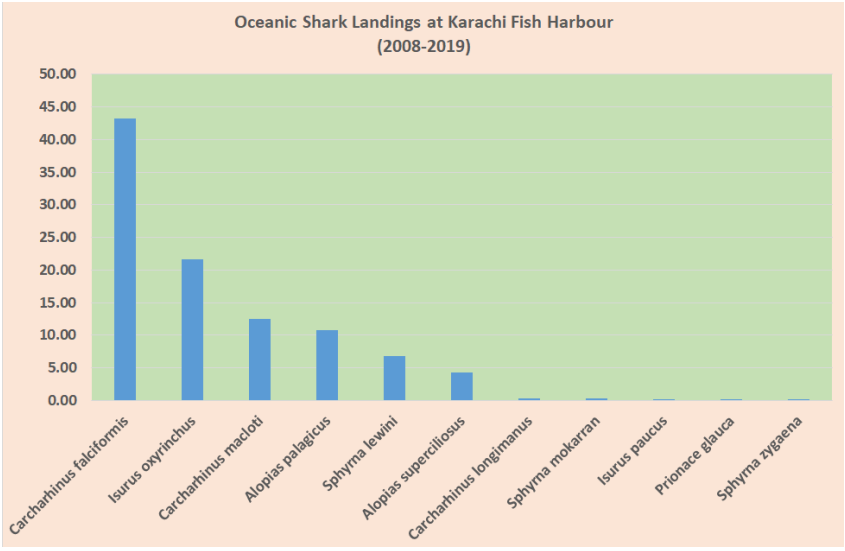

Fig. 2. Percentage contribution of oceanic sharks at Karachi Fish Harbour.

Commercial Landings

Silky shark is landed throughout the year except during June and July because of voluntary closed season for tuna fisheries. In 2016 to 2019, the close season was observed from May to August because of poor catches of tuna and unprecedented low prices in the market. The data presented in Fig. 3 indicates average monthly landings of silky shark in Karachi Fish Harbour. It is noticeable that high landings were observed during winter months except in 2017 when highest landing of about 2,700 kg was observed in May, Highest landings was in February 2018 when a total of 3,700 kg was landed.

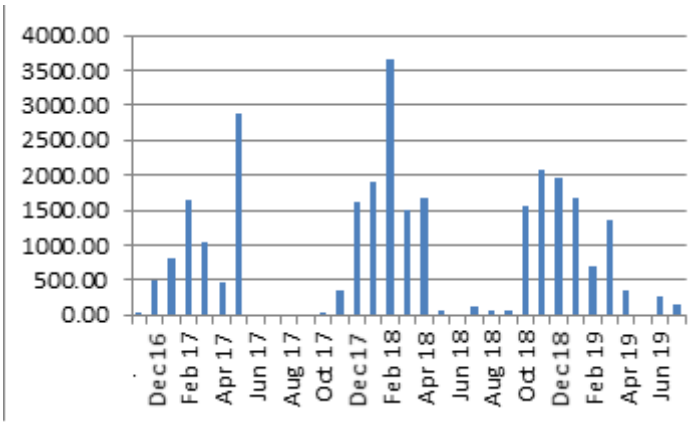

Fig. 3. Landings of silky sharks at Karachi Fish Harbour (December 2016 to June 2019)

Size Frequency Data

Size frequency data was obsrtined through WWF-Pakistan's Crew Based Observer Programme which revealed that size classes between 111 and 131 cm seems to be dominating. Highest frequency (19) was noticed for size class 111 in 2018. It is interesting to note that higher size classes 161 to 191 were altogther absent during 2017 and 2018 whereas these sies classes were obsered during 2016. This tend to suggest that absence of large specimens is possibly due to overfishing, however, it requires further studies to verify.

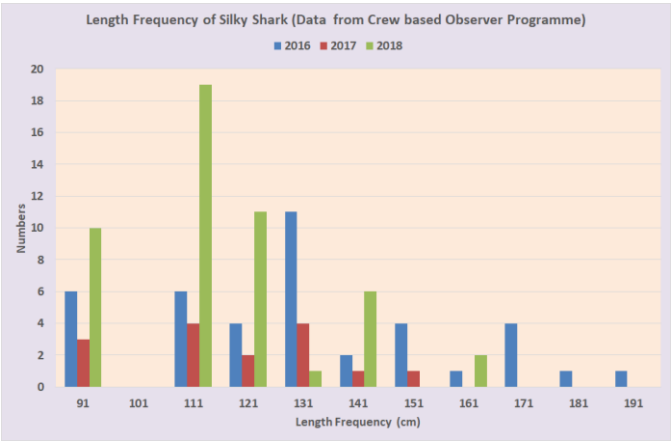

Fig. 4. Length frequency distribution of silky shark (2016-2018)

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