Changes in the landings of neritic tuna and tuna like species in Pakistan during last three years

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ABSTRACT

Five species of tuna are represented in catches in the neritic waters along Pakistan coast. Of these longtail tuna (*Thunnus tonggol*) seems to be dominating followed by kawakawa (*Euthynnus affinis*) and frigate tuna (*Auxis thazard thazard*). Although bullet tuna (*Auxis rochei rochei*) and striped bonitos (*Sarda orientalis*) are also found in the landings but their combined contribution is less than 1 % of the total landings of neritic tuna. Neritic species are caught with surface gillnets which are mainly operated in the continental shelf area of Pakistan. Total landings of neritic tuna was 23,035, 22,040 and 16,690 m. tons during 2012, 2013 and 2014 respectively. Their contribution in overall tuna landing is decreasing because of decline in Somali piracy and now Pakistani tuna vessels are fishing in comparatively deeper offshore waters as well as in area beyond national jurisdiction.

INTRODUCTION

Harvesting of neritic tuna is an important fishing activity along the coast of Pakistan. Previously fishing vessels based all along the coast used to target neritic tuna but now major fleet is based in Karachi (Sindh Province) and in Gwader (Balochistan Province) whereas a few boats based in Pasni and Jiwani are also catch neritic tuna especially during peak fishing season. Studies carried out by WWF-Pakistan revealed that that contribution of neritic tuna (longtail tuna, kawakawa, frigate and bullet tunas) and oceanic tuna (yellowfin and skipjack) is almost equal (Moazzam, 2014; Nawaz and Moazzam, 2014). There has been a change in the contribution of neritic tuna depending upon area of operation of tuna gillnetters along the Pakistan coast (Moazzam, 2012a) which relates with Somali piracy which has seriously affected tuna fishing operation in Pakistan (Moazzam, 2012c). In the paper, present status of neritic tuna fisheries of Pakistan is described with special emphasis on its contribution in overall tuna fisheries of Pakistan.

SPECIES COMPOSITION

Five species of neritic tuna are represented in commercial catches in Pakistan (Fig. 1). Of these longtail tuna (*Thunnus tonggol*) seems to be dominating followed by kawakawa (*Euthynnus affinis*) and frigate tuna (*Auxis thazard thazard*). Although bullet tuna (*Auxis rochei rochei*) and striped bonitos (*Sarda orientalis*) are represented in the catches but their contribution is insignificant. Among oceanic tunas, yellowfin (*Thunnus albacores*) is dominating followed by

skipjack (*Katsuwonus pelamis*) whereas bigeye tuna (*Thunnus obesus*) is rarely found in Pakistan.

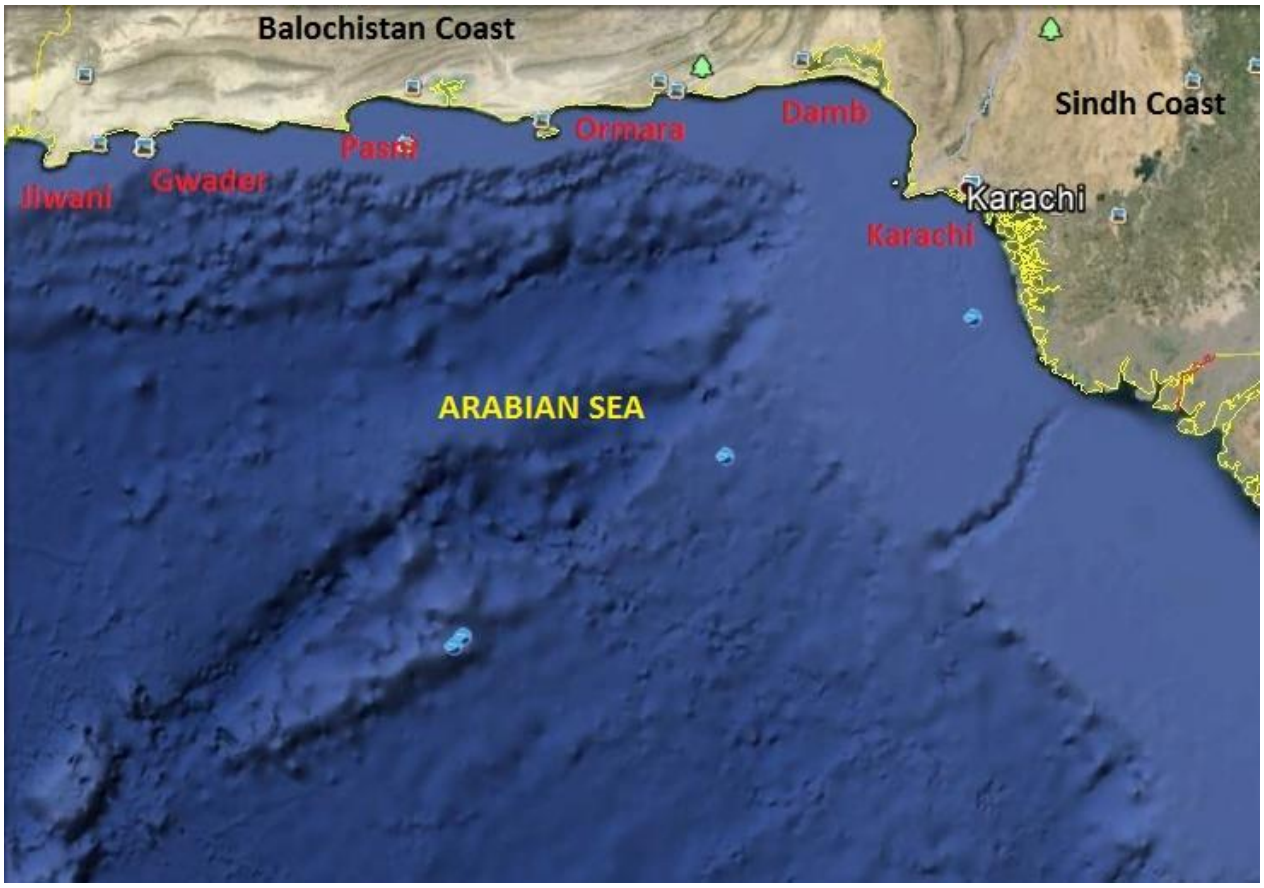

Fig. 1. Pakistan coast showing major tuna landing centres.

Landings data of Pakistan indicates that species composition of tuna is changing under the influence of various factor. Data for last three years (2012 to 2014) also indicates changes in the composition (Fig. 2). The data reveals that contribution of oceanic tunas i.e. yellowfin and skipjack is increasing from 43 % to 57 % as compared to neritic tuna during 2012 to 2014 period (Fig. 3). Changes in the contribution of neritic species in the landings of tuna species are noticed (Table-I). In the offshore fisheries during 2003 to 2005, the contribution of neritic tuna was insignificant (only 5 %) whereas contribution of offshore tuna especially in Balochistan is reduce to only 1 to 7 %. Overall neritic tuna contributes about 45 to 55 % in the tuna landings but deviation was noticeable. The main factor responsible for this deviation is Somali piracy which forced the fishermen from Pakistan especially from Balochistan to restrict their activity to the coastal area.

During 2009 and 2012, there was almost no offshore tuna fishing activity in the offshore waters. Now that Somali Piracy has declined, if not stopped, the fishermen have started operating in the offshore waters which is reflected from the tuna species composition in the landings. During

2014, the contribution of oceanic tuna (yellowfin and skipjack) has increased from 43 to 49 % as now more tuna gillnet vessels are operating in the offshore waters and in the high seas (ABNJ).

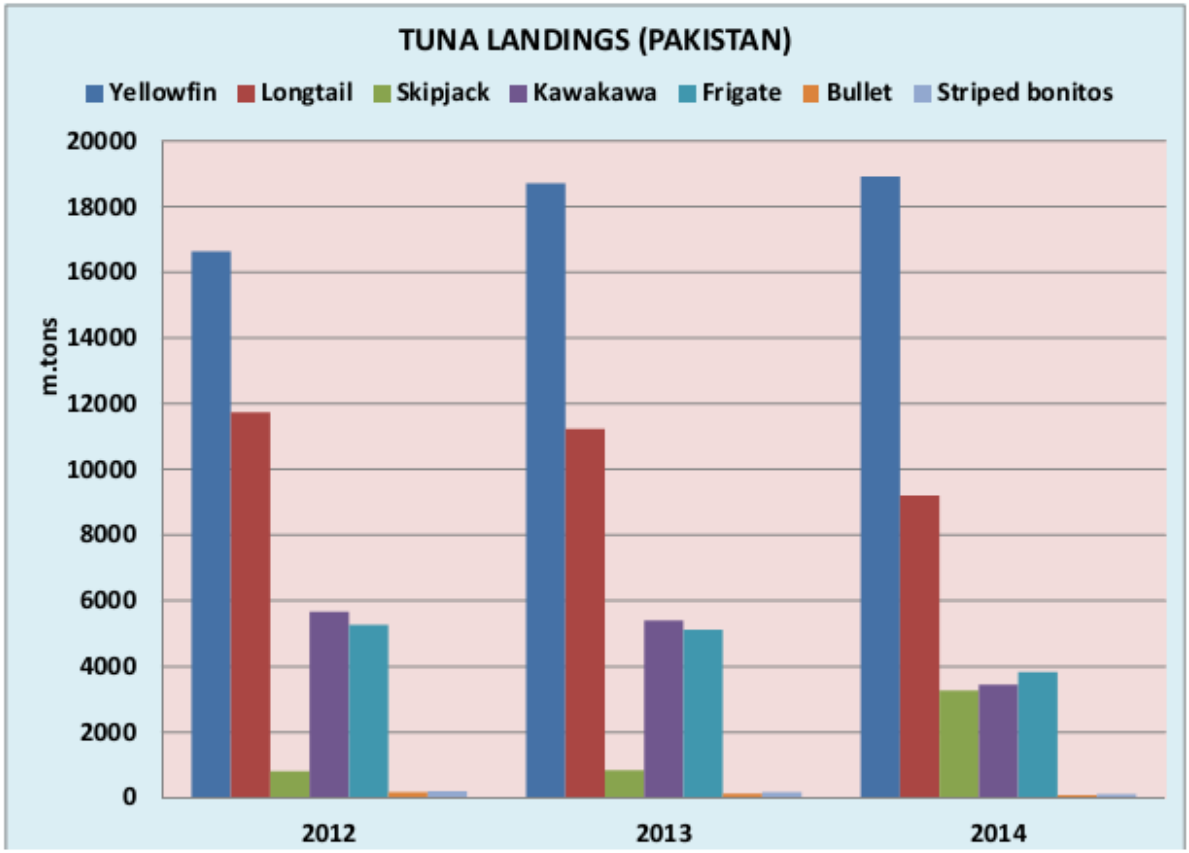

Fig. 2. Species composition in tuna landings for 2012 to 2014.

TUNA LIKE SPECIES

Tuna like species dominated in the commercial catches are narrow-barred Spanish mackerel (*Scomberomorus commerson*), Indo-Pacific king mackerel (*Scomberomorus guttatus*) and common dolphinfish (*Coryphaena hippurus*). Landings of Spanish mackerel (including both *S. commerson* and *S. guttatus*) and dolphinfish is presented in Fig. 3. Separate data for two *Scomberomorus* is not available, however, it is estimated that on average Indo-Pacific king mackerel contributes about 25 to 30 % of the total landings of *Scomberomorus*. The landing data of the Spanish mackerel ranges between 7,000 and 12,400 m. tons with highest landings reported in 2014 and lowest in 2006.

Landings of dolphinfish were observed to be ranging between 2,000 and 4,000 m. tons with peak of 4,133 m. tons in 2014 and about 1954 m. tons in 2000. Although pompano dolphinfish (*Coryphaena equiselis)* is also caught along the coast of Pakistan, however, it contribution in total dolphinfish landings is less than 1 %.

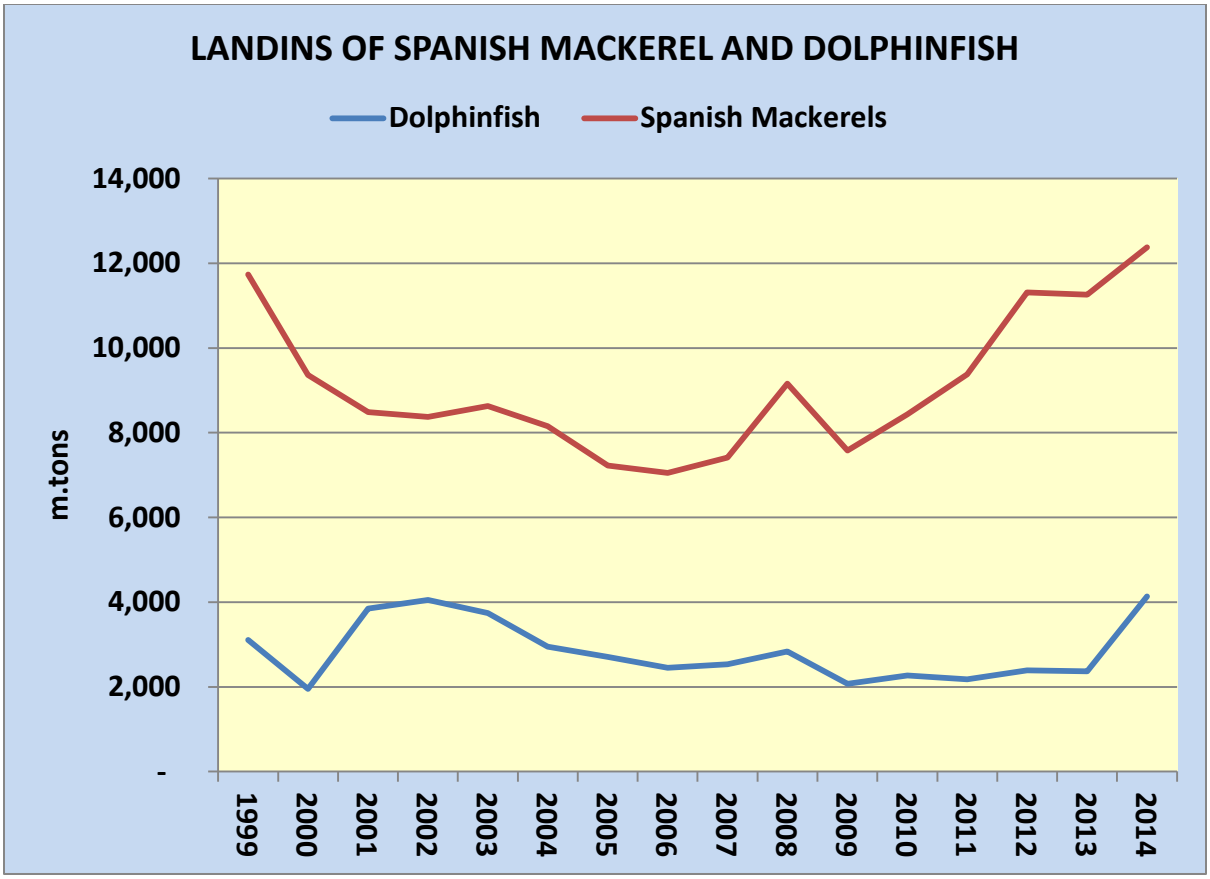

Fig. 3. Landings of Spanish mackerel and dolphinfish along the coast of Pakistan.

Among other tuna like species, wahoo (*Acanthocybium solandri*) and ranbow runner (*Elagatis bipinnulata*) are regularly caught, however, their contribution in total landings is insignificant, therefore, not separately recorded and documented. A number of species of barracuda including great barracuda (*Sphyraena barracuda*) and sawtooth barracuda (*Sphyraena putnamae*) are also caught by tuna vessels operating in neritic waters but their separate data is not recorded. Their landings are merged with barracudas caught with other gears.

Two other species which are caught along with neritic tuna in substantial quantities are cobia (*Rachycentron canadum*) and Talang queenfish (*Scomberoides commersonnianus*). The landings of Talang queenfish ranged between 17,779 m. tons in 1999 and 7,043 m. tons in 2011 (Fig, 4). Three other species of queenfish are also found alongwith neritic tuna species which includes doublespotted queenfish (*Scomberoides lysan*), barred queenfish (*Scomberoides tala*) and needlescaled queenfish (*Scomberoides tol*) but their numbers are insignificant. Cobia is another important fish which is found along with neritic tuna. It catch was observed to be highest in 2013 when it reached a level of 3,939 m. tons whereas its lowest landings was reported in 1999 when its landings was only 1,136 m. tons.

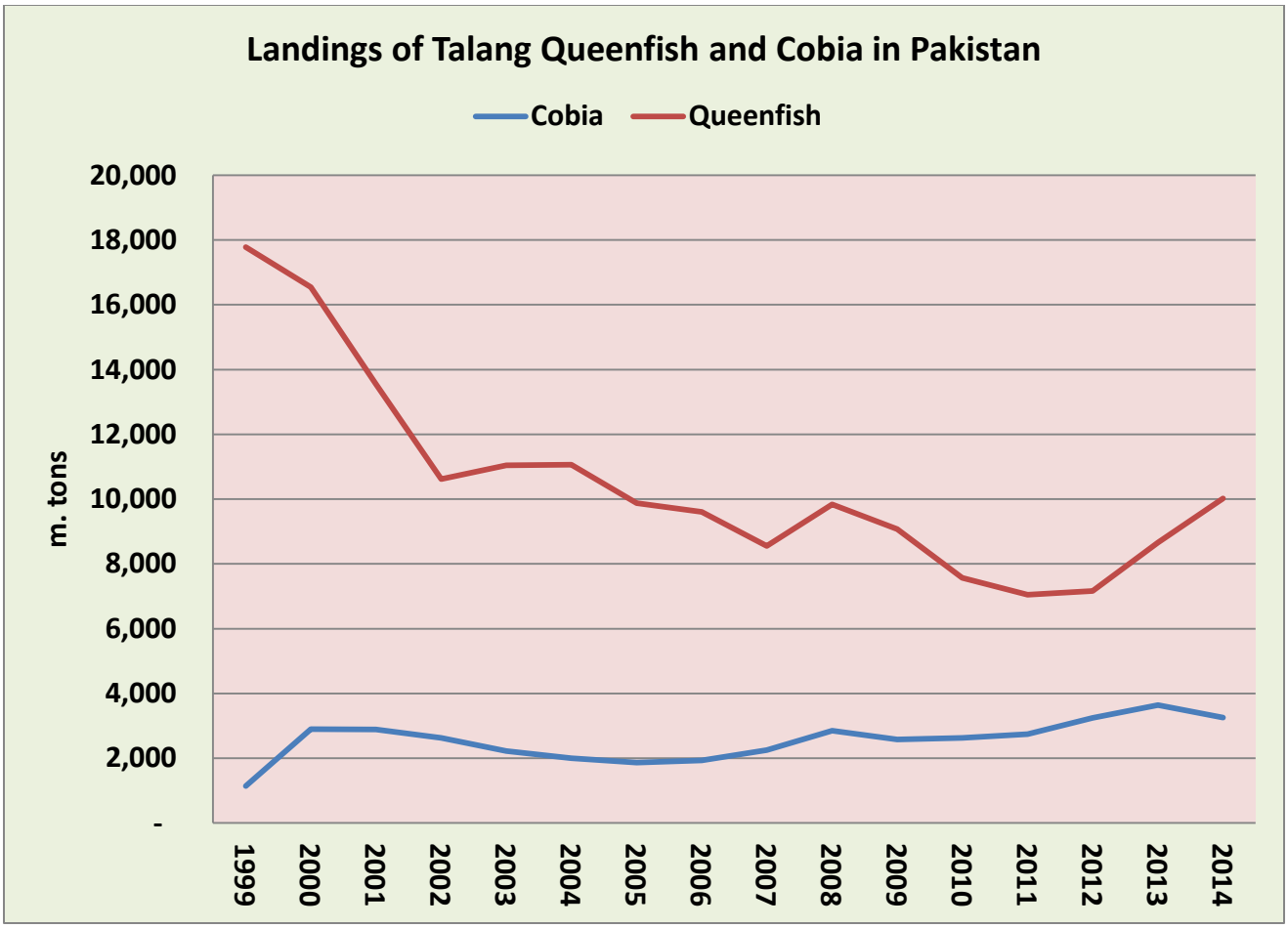

Fig. 4. Landings of Talang queenfish and cobia along the coast of Pakistan

Other species which are caught on neritic tuna includes rough triggerfish (*Canthidermis maculata*), largescale triggerfish (*Canthidermis macrolepis*), Lesser bream (*Brama dussumieri*), Atlantic brama (*Brama brama*), sickle pomfret (*Taractichthys steindachneri*) but their quantities are insignificant. In the past few years, landings of unicorn leatherjacket (*Aluterus monoceros*) have shown unprecedented increase. Similar increase in the landings of this species was noticed in India (Gosh *et al.*, 2011). This species is also caught in other fishing gears including fish trawling and bottom set longlining but their increase in neritic as well as in the offshore gillnet fisheries is of immense interest. Now this fish in whole and dressed form is exported. Similarly an increase in numbers of includes rough triggerfish as well as largescale triggerfish in noticed in past few years. Although reasons for abrupt increase of these species are not known but it is believed to be on account of climate change and response of some fish species of changes in ecosystem dynamic because of increased fishing activities.

Table-I. Percentage Species Composition of Neritic Tuna along Pakistan Coast

YEAR	Oceanic Tunas	NERITIC TUNA SPECIES					REFERENCES
		LONGTAIL	KAWAKAWA	FRIGATE	BULLET	BONITO	
Inshore (2003-2005)	46	33	19	2	0	0	Moazzam (2012 a,b)
Offshore (2003-2005)	95	1	1	3	0	0	Moazzam (2012a,b)
Balochistan 2011	4	14	76	6	0	0	Moazzam (2012a,b)
Karachi Fish Harbour	4	59	29	8	0	0	Moazzam (2012a,b)
Gwader 2011	1	18	70	11	0	0	Moazzam (2012a,b)
Pasni 2011	7	12	77	4	0	0	Moazzam (2012a,b)
Sur 2011	0	29	45	26	0	0	Moazzam (2012a,b)
Pakistan 2012	43	28	14	13	>1	>1	Present study
Pakistan 2012	45	26	13	12	>1	>1	Present study
Pakistan 2012	49	24	8	10	>1	>1	Present study

DISPOSITION OF NERITIC TUNA

Tuna is not consumed in Pakistan. Longtail tuna fetches higher prices (about US $ 2.00 to 2.50 per kg) in the neighbouring country, therefore, this species is either transported through coastal highway or through carrier vessels which operate in the area. Other species of neritic tuna are salted dried and exported to Sri Lanka. Since Pakistani tuna gillnetters including those operating in neritic waters undertake longer fishing trips (10 to 30 days), therefore, keeping bullet tuna and smaller frigate tuna with ice for longer duration is not possible, therefore, all bullet tuna and small frigate tuna are discarded.

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