

A review on billfish fishery resources in Sri Lanka

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Abstract

Sri Lanka is one of the oldest and most important large pelagic fish producing, mostly tuna producing island nations in the Indian Ocean. Apart from tuna, billfish, sharks and seer fish are caught mostly within the EEZ of Sri Lanka as well as in high seas. The third largest group of fish reported in the large pelagic fish production in Sri Lanka is the billfish which include three species of marlins, one species of sailfish and one species of sword fish. The three species of Marlins dominates the billfish catch, followed by sailfish. Although billfish are not normally targeted species, they are very common in offshore gillnet and longline catches and are considered as by-catch species. Total billfish production in Sri Lanka in 2010 was 12440 Mt and this is around 10% of the total tuna and tuna like fish production. Relatively higher proportion of billfish is being caught using gillnet-longline gear combination. With the development of the offshore fishery, the contribution of billfish to the marine fishery became significant, and the catch has increased over the years highlighting their importance especially in the large pelagic/offshore fishery in Sri Lanka. Over the last five years, around 65% of the total catch has come from the offshore fishing vessels.

Background

Exploitation of the fishery resources in the Indian Ocean over a number of years has shown that tuna resources in Sri Lanka mainly consist of Yellowfin tuna (*Thunnus albacares*), Big eye tuna (*Thunnus obsesus*), Skipjack tuna (*Katsuwonus pelamis*), Kawakawa (*Enthynnus affinis*), Frigate tuna (*Auxis thazard*) and Bullet tuna (*Auxis rochei*) (Joseph et al. 1985; Joseph and Dayaratne, 1994). Apart from that, billfish, sharks and seer fish inhabited mostly

within the EEZ of Sri Lanka as well as in high seas are also targeted by Sri Lankan fishermen during the fishing operations. Large pelagic fishery plays an important role to the fisheries sector as it contributes more than 35% of the total fish production of the country. The fishery has developed rapidly during the recent past with the expansion of the fishing zone together with the expansion of the export market. A considerable change has been observed over the last six decades especially with respect to the operational vessels and gear as well as target species.

The third largest groups of fish reported in large pelagic fish production in Sri Lanka is the Billfish which include 3 species of marlins, one species of sailfish and a single species of sword fish. Marlins as a combination of the three species dominated the Billfish, followed by sailfish. Although Billfish are not targeted species they are very common in offshore gillnet operations and are considered as by-catch species.

The vessels

The fishing vessels engage in multiday fishing mainly target tuna and tunalike species. Also, few coastal vessels operate in day fishing also target but mainly coastal tunas such as frigate tuna and bullet tuna. All Sri Lankan multiday fishing vessels are smaller in size. The size of the multiday fishing fleet has been gradually growing especially after 2005 and it has reached to 2934 in 2009 (Figure 1). Few types of multiday fishing vessels are operated for tuna and tuna like species in Sri Lanka (Table 1 & Figure 2).

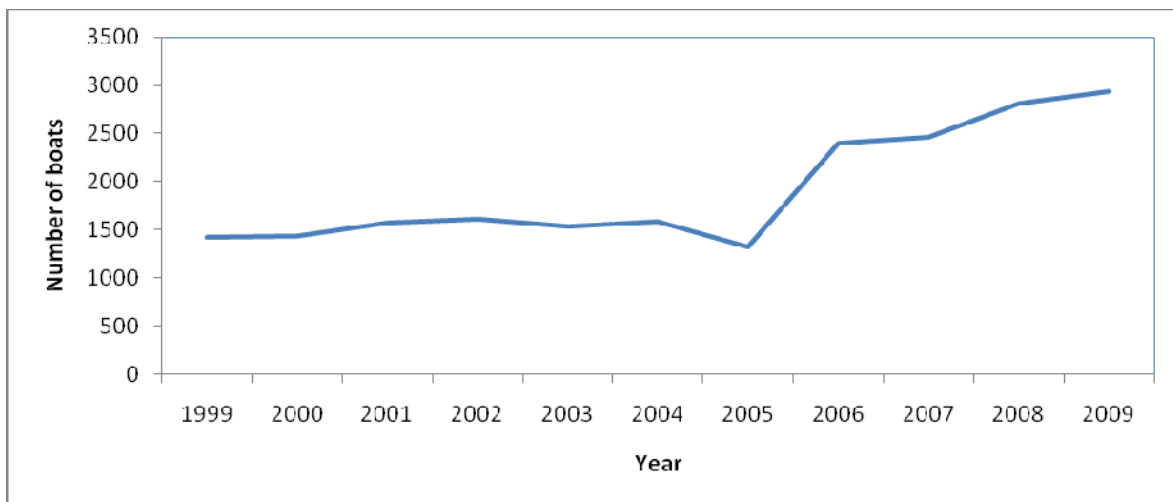


Figure 1. Operating multiday fishing crafts in Sri Lanka (1999 – 2009)

Table 1. Classification of multiday fishing vessels in Sri Lanka operate for tuna and tuna like species

Boat category	Boat Description
UN2B	8.8 - 9.8 m (28' - 34'). FRP or wooden, Inboard engine (single) - 40 HP Insulated fish hold - no gear hauler, may have GSP/sounder/fish finder
UN3A	9.8 - 12.2 m (34' - 40'). FRP or wooden. Inboard engine (single) - 60 HP Insulated fish hold and may have gear- hauler/ GSP/sounder/fish finder
UN3B	12.2 m – 15.2 m (40' - 50'). FRP or wooden. Inboard engine (single) - 60 + HP. Insulated fish hold and may have freezer facilities. Gear Hauler/GSP/sounder/fish finder
UN4	15.2 - 18.3 m (50' - 60') Inboard engine, fish storage facility, may have RSW or CSW or freezing facility, gear hauler, GPS, echo-sounder/fish finder, radio communication

(a)



(b)



(c)



(d)

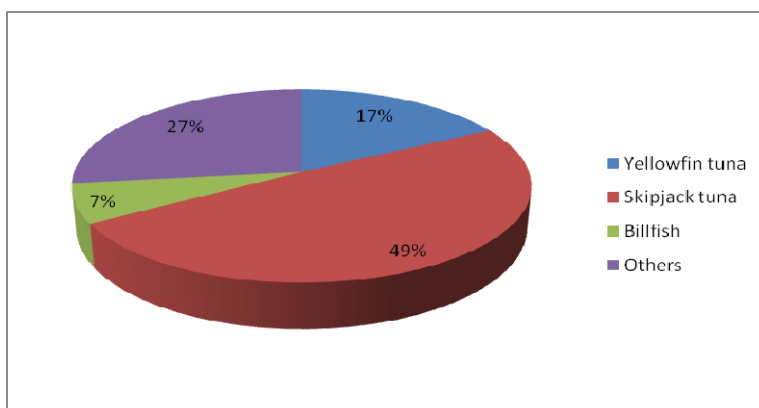


Figure 2. Types of multiday fishing vessels in Sri Lanka operate for tuna and tuna like species: (a) UN2B, (b) UN3A, (c) UN3B and (d)UN4

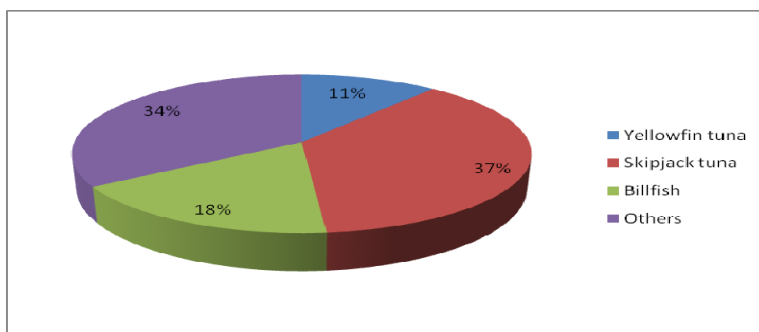
Fishing gear

A range of gears are being used in the Sri Lankan marine fishery for capturing tuna and tuna like fish. But, gillnet is the most popular gear still used for capturing tuna and tuna-like species. Both gillnet and longline, which are frequently used in Sri Lankan Tuna fishery mainly contribute for capturing the billfish too. Several combinations of fishing gear is also being used in offshore fisheries targeting tuna and tuna like species. Gillnets in combination with other gears such as long line and ring net are the main gear combinations used in tuna fisheries contributing more than 75 % to the total fishing effort. For gillnet-longline combination, 150 -200 net pieces of 5” to 6” mesh size and around 500 - 700 hooks are normally used depending on the craft type. Relative contribution of Billfish to the total catch is highest for the Gillnet-Longline combination (18%) compared with the same for gillnet and Longline single gears (Figure 3).

(a)



(b)



(c)

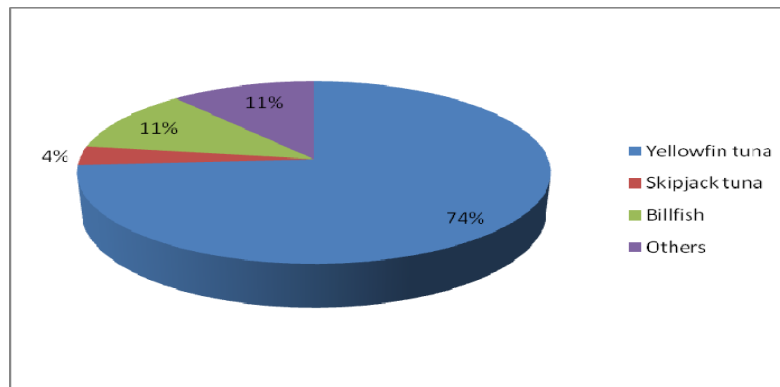


Figure 3. Species composition of (a) gillnet (b) Gillnet/longline combination and (c) Longline

Billfish catch

Total billfish catch in Sri Lanka is 12440 Mt in 2010 (MFARD, 2010). The contribution of billfish to the tuna and tuna like fish catch is around 9%. Before developing the offshore fishery in Sri Lanka, billfish catch was not considerably high. During that period, the catch was almost taken from the landings made from the coastal fishing vessels. With the development of the offshore fishery, the contribution of billfish to the marine fishery became significant, and the catch has increased over the years highlighting their importance especially in the large pelagic/offshore fishery in Sri Lanka. Over the last five years, around 65% of the total catch has come from the offshore fishing vessels.

A considerable decline in billfish catch was noted in 2008 and 2009 but in 2010, the highest value for 2006 – 2010 period was reported (Figure 4). The highest contributor to the billfish catch is mostly marline. Reported three species of marlines are Indo-Pacific Blue Marlin (*Makaira mazara*), Black Marlin (*Makaira indica*) and Striped Marlin (*Tetrapturus audax*). Single species of Sailfish and Swordfish found in Billfish catches are Indo-Pacific Sailfish (*Istiophorus platypterus*) and Swordfish (*Xiphias gladius*). The catch of the Marlin is often poorly recorded, mostly lumped together into single category. Another billfish species named as shortbill spearfish (*Tetrapturus angustirostris*) has also been reported in the commercial catches.

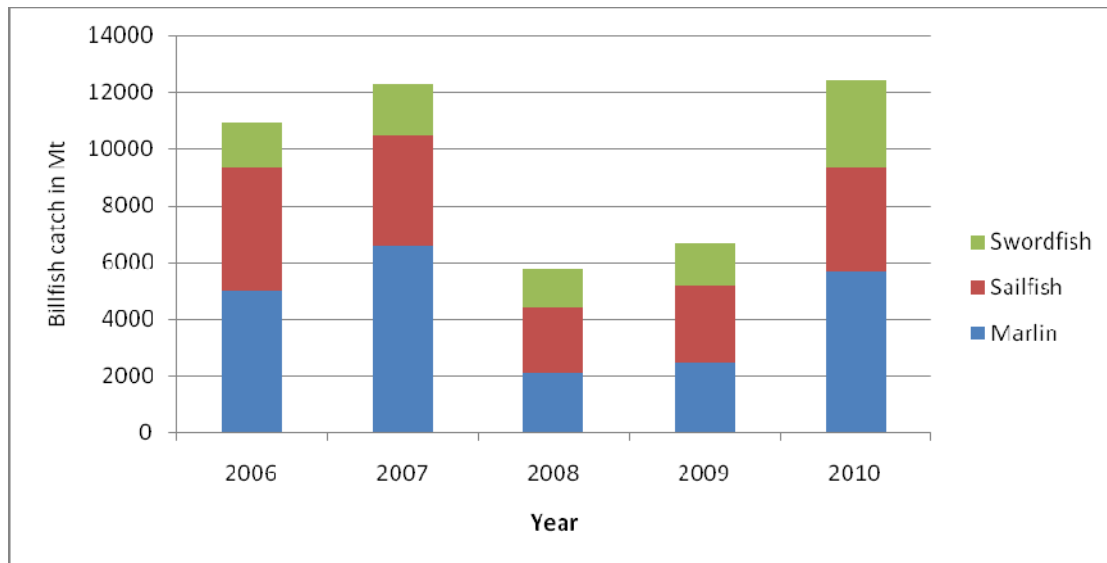


Figure 4. Billfish catch in Sri Lanka for 2006 -2010 period

Conclusion

Marlins, swordfish and sailfish which are broadly categorized as billfish are not targeted fish either in coastal or offshore fisheries in Sri Lanka but, play an important role as an export commodity in recent years. At present, the contribution of billfish to the fishery is significant with the increased catch over the years highlighting their importance in the large pelagic/offshore fishery in Sri Lanka. When compared with the other countries in the Indian Ocean that exploit billfish resources, Sri Lanka contributes substantially to the total billfish production in the Indian Ocean region.

References

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