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The bycatch records of sharks, marine turtle and seabirds by the Malaysian tuna longliners and the Malaysian coastal fisheries

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ABSTRACT

From 2005 to 2010 total sharks caught by Malaysian tuna longliners targeting tropical tuna was from 10 – 134 tons. It made up between 06-1.2% of the total catches of the tuna vessels. The catch rates of sharks by these vessels greatly vary at the range of 30 – 600 kg/vessel. From 2012 to June 2013, Malaysian flag vessels shifted their target species to albacore tuna. However, the sharks catch data only available from Janaury – March 2012 as the rest of the period, the sharks caught by the longline were released immediately into the sea. The highest catch rate of sharks was recorded in January 2012 at 600 kg/vessel. No information on catch of turtle or marine mammal were recorded by the Malaysia tuna longliners. In the coastal waters, shark catch contributed only 0.2% of total annual landing and 80% were from trawlers with the major catch from over 30 nm from the shore. There are about 56 species of sharks that inhibit in Malaysian waters. The widely distributed sharks in the Malaysian waters include spot-tail shark (Carcharhinus sorrah), blackspot shark (Carcharhinus sealei), Milk shark (Rhizoprionodon acutus), Scalloped hammered shark (Sphryna lewini) and Sicklefin weasel shark (Hemigaleus mirostoma). Most of the catch were from trawl nets. For the conservation and manegement measures for both sharks and marine turtles species in the EEZ, Malaysia have developed the National Action Plans for shark (2006) and marine turle (2005).

INTRODUCTION

Malaysia tuna fisheries began in 2013 with several longline vessels registered under Malaysian flag. The first Malaysian tuna fleet targeted tropical tuna for their catch. Most of the catch were landed in Penang tuna Port and some in other foreign fishing ports. After sometimes, some of the vessels shifted their fishing grounds toward the western Indian Ocean and landed their catches in Port Loius, Mauritius. Untill end of 2010 the fleet ceased their operation due to management problem faced by the vessel owner. In 2011, a new tuna longline fleet, fully owned by local investors began to operate in the Indian Ocean targeting albacore tuna. Their fishing areas are in the southwest of Indian Ocean from 14^{o}S - 30^{o}S. Their operation office is based in Port Loius and all the catches are unloaded in Port Loius Port.

As the fleet is fully owned by the Malaysian investors, there is a close cooperation between the Malaysian Fisheries Authority and the vessel operators in their effort to comply to the IOTC conservation and management measures. Even with best effort to comply with the IOTC management rules, there are still much for Malaysian Fisheries Authority to do to assist the fleet owner to fully comply with IOTC standard level of data requirement. This paper will report the status of bycatch of sharks, marine turtles and seabirds by previous longline vessels targeting tropical tuna and the present longline vessels fishing on albacore tuna and also the fishing vessels namely purse seines and trawlers operating within the EEZ Malaysia.

Tropical Tuna Longliners

The frozen sharks landed by the Malaysian flag vessels at the Penang Port in 2004 – 2009 were in the form of gutted and headed. This made it not possible to record the shark catches at species level. In the catch records, they were recorded as sharks groups. The frozen sharks with other bycatches and low quality tunas were send to the processing plant for canning. All the catch records on tuna and bycatches were obtained from the fishing port authority which in turn were provided by the vessel owners after every unloadings. Figure 1 showed the annual catches of sharks and their percentage which were unloaded at the Malaysian International Tuna Port (MITP) by the Malaysian flag tuna vessels. The shark catches only contributed between 0.6-3.9% of the total catches. Beginning from 2005, the sharks catches from Malaysian flag vessels were properly recorded until 2009. In 2010, there were uncertainty of the records the fleet owner faced management problem.The highest catch of sharks were in 2005 at 134 tons and made up nearly 3.9% of total catch. However, in 2009, shark catches were only 33.3 tons but, in term of percentage, it contributed about 3.3%. For the rest of the year, the percentage of shark from total catches were between 0.6 – 1.2%.

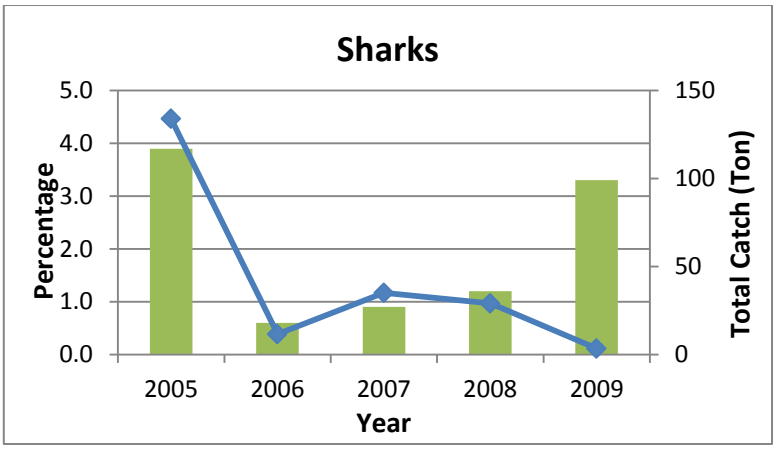

Figure 1: Total catch (line) dan percentage of shark from Malaysian tropical tuna longliners

The sharks unloaded by large longliners vessels at the MITP normally from the catches of several small fishing vessels of the same fleet. It was estimated that for each berthing, each vessel unloaded the catches from the average of 5 other small fishing vessels. This was based on the number different tag colours marked on the tuna body. Figure 2 showed the estimated monthly catches of sharks by each fishing vessel during the period of 2005 - 2009. The highest catch rates (kg/per vessel) was recorded in 2005 at 600 kg/vessel. The catch rates of sharks vary significantly with the range between 30 – 600 kg/vessel and the average at 131 kg/vessel.

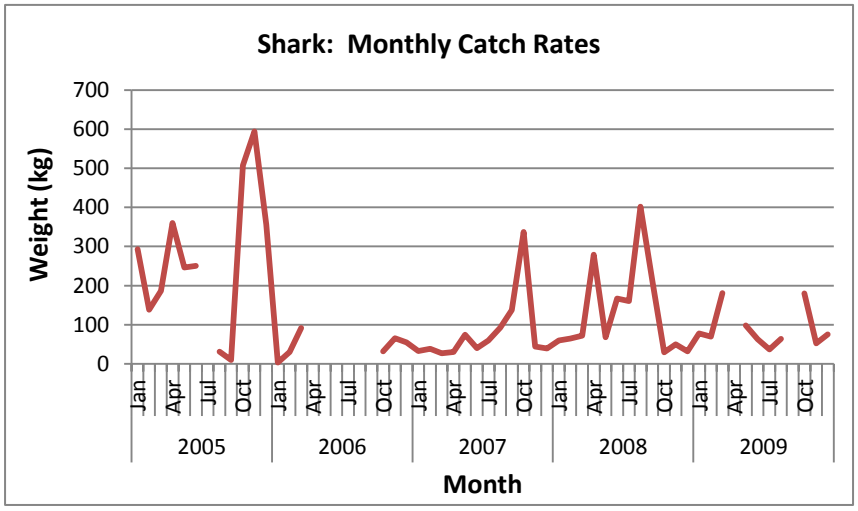

Figure 2 : Estimated monthly catch rates of sharks by Malaysian vessels targeting tropical tuna from 2005 - 2009

During the period of 2003 – 2010, Malaysian flag vessels fishing tropical tuna in the eastern and western Indian Ocean. From the end of September to February, most of the vessels operated in the eastern part of Indian Ocean, from the southern part of Sri Langka to the Andaman Sea and sometimes on the west coast of Sumatera. During this period, all the catches including sharks were unloaded in the Penang MITP. For the rest of the months, the vessels shifted their fishing areas to the western part of Indian Ocean and they unloaded their catches in the Mauritius Port Loius. Figure 3 shows common fishing areas for most of the Malaysian longliners catching tropical tuna in the Indian Ocean.

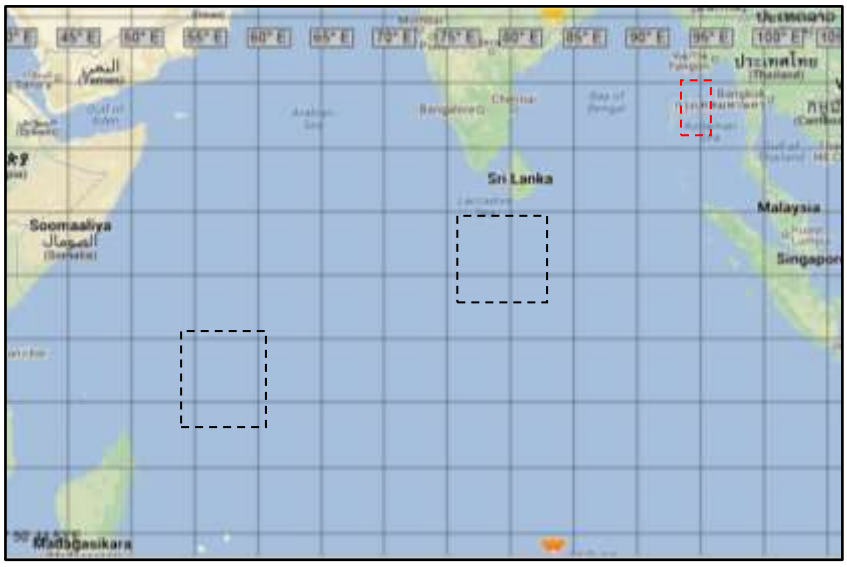

Figure 3: Common fishing areas by Malaysian longliners targeting tropical tuna from 2005 - 2009

Albacore Tuna Longliners.

From September 2011, Malaysia tuna fleet entirely manage under a new local owner. The new fleet consisted of 4 fishing vessels shifted their target species to albacore tuna and their fishing areas are in the southwest of Indian Ocean. From that period, all the catches were unloaded and transhipped to other countries at the Mauritius Port Loius. As a new Malaysia owner of the fleet, Malaysian Fisheries Authority manage to work closely with the operator to obtain the catch and effort data of all the Malaysian flag vessels. The cooperation from the vessel owner has resulted for the Malaysian Fisheries Authority to get an improve catch and effort data.

The shark catch data from the Malaysian flag vessels only available from January to March 2012 and October – November the same year (Figure 4). Starting from April 2012, the vessel owner has instructed his vessel crews to release immediately all the sharks caught during haulings by mean of wire cutting.

The reasons for this action are due to low price of sharks and marketing difficulty. Figure 4 shows the monthly catch of sharks from January – March 2012 by Malaysian flag vessels. The highest was in January with the record of 3.0 tons and gradually decrease to oly 0.7 ton in March. An incidental unloaded of sharks were also observed in October and November 2012 at 110 kg and 120 kg respectively.

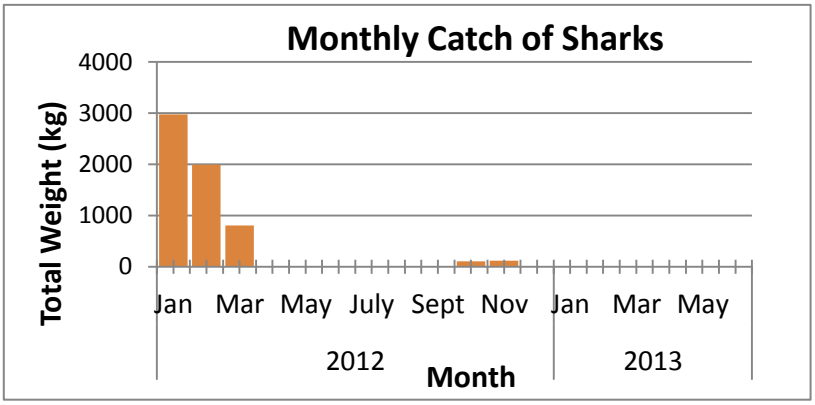

Figure 4: Monthly catch of shark by Malaysian longliners targeting albacore

Figure 5 shows monthly catch rates of sharks by Malaysian vessels. The catch rates decreased from 600 kg/vessel in January 2012 to 161 kg/vessel and form October and November the same year, the catch rates were only 21 kg and 24 kg/vessel respectively. At normal condition, about 2,200 hooks were used in each shooting and sometimes reduce the number during the bad weather. The catch were not recorded to species and the reason given by the owner was that the crews found it difficult to identify the species and the nature of work make them less unable to record to species level. As a way to improve catch data of sharks, the Fisheries Authority already mulling to implement observer onboard for vessels operating within the Malaysian EEZ. This may takes time as it involves budget and extra staffing.

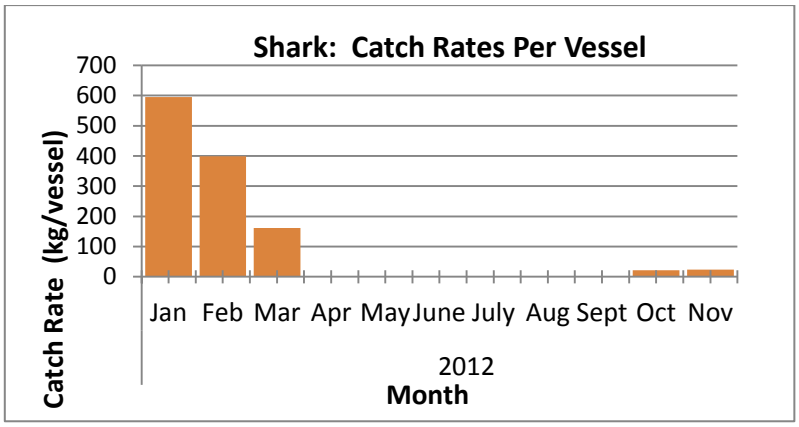

Figure 5: Monthly catch rates of sharks by Malaysian longliners targeting albacore.

Fishing Areas

Since shark catch records only available from January - March 2012, the fishing areas during that period were identify. Figure 6 shows the fishing areas where all the Malaysian flag vessels operated in January – March 2012. The fishing areas included within the waters of Madagascar EEZ where there was an aggreement between the vessels' owner and the Madagascar Government for the Malaysian flag vessels to operated at the specify period.

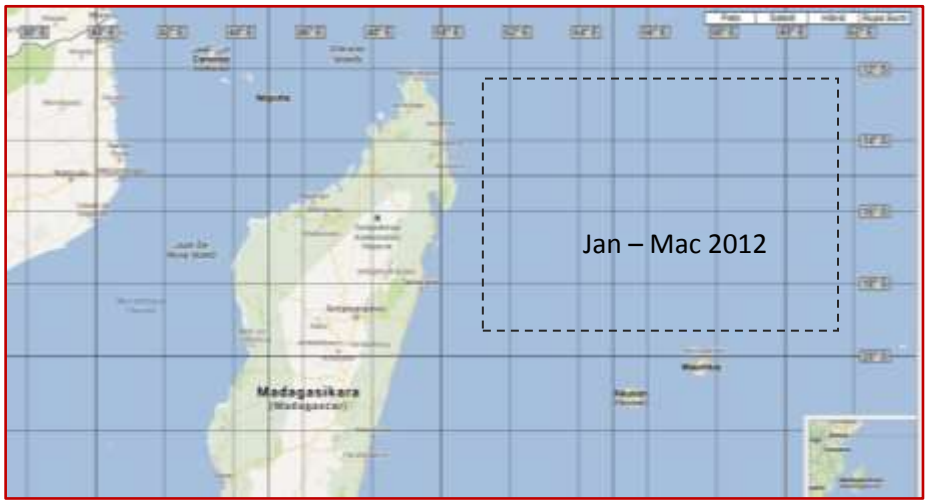

Figure 6: Fishing areas of Malaysian vessels from January - March 2012

Bycatch of Sharks in Malaysian EEZ

In Malaysian marine fisheries, sharks were not the a target species. They are caught as by-catch by fishing gears targeting high value commercial fish species. The sharks species were mainly caught by trawler nets, drift nets, hook and lines and purse seines. Figure 7 showed the percentage of sharks caught by different fishing gears in the west coast of Peninsular Malaysia. Trawler nets alone catch nearly 80% total sharks in the west coast of Peninsular Malaysia. Over 90% of the sharks were caught by large trawlers above 40GRT which operate beyond 12 nm from the shore.

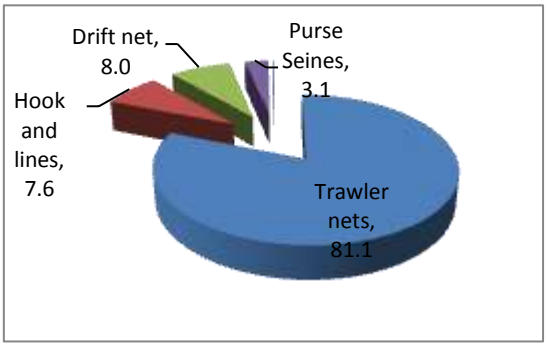

Figure 7: Cacth Percentage of sharks by fishing gears in the west coast of Peninsular Malaysia

Figure 8 shows the annual catches of sharks in the west coast of Peninsular Malaysia from 2005 – 2012. There was an increasing trend of sharks caught in the west coast of Peninsular Malaysia from 800 tons in 2005 to 1,300 tons in 2012. There was only a slight decrease in catch in 2008 before the catch increase again in 2009 to 1,300 tons. The increase trend in shark catches may have attributed by the increase in fishing efforts.

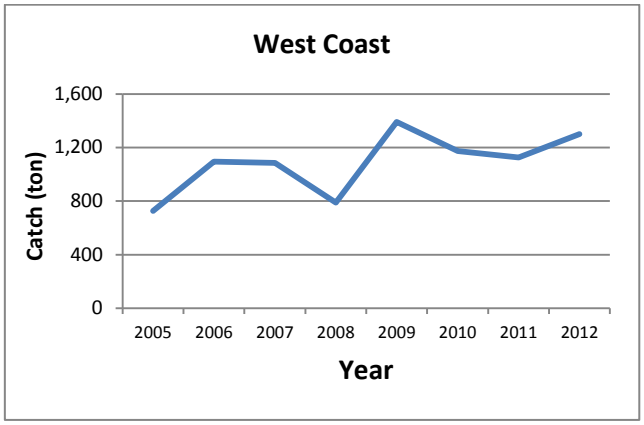

Figure 8: Annual catch of sharks in the west coast of Peninsular Malaysia

Sharks Species in Malaysian Waters

As a tropical country, Malaysia is a multispecies and multigears fisheries. A totall 294 marine fish species are found in Malaysian waters and they vary in the commerical values. For sharks, they are a bycatch species which mostly caught by commercial trawlers and other fishing gears such as drift nets, purse seines and hook and lines. There were various study on Malaysian fishes, starting by Cantor (1894), Scot (1959) and Mohsin and Ambak (1996). The latest study by Yono *et.al* (2005) found out that there are 56 species of sharks and 41 species of rays in Malaysian waters. The widely distributed sharks in the Malaysian waters include spot-tail shark (*Carcharhinus sorrah*), blackspot shark (*Carcharhinus sealei*), Milk shark (*Rhizoprionodon acutus*), Scalloped hammered shark (*Sphryna lewini*) and Sicklefin weasel shark (*Hemigaleus mirostoma*).

Conservation Activities for Sharks

Activities for conservation on sharks in the Malaysian EEZ are based on the National Plan of Action for Shark which was first developed in 2006. The second review of NPOA Sharks is now nearly completed and is expected to be implemented by end of 2013. Current activities carried out which related to

improve the sharks catch data are on capacity building for staff involve field data collection. There are a continous workshop on species identification for staff at different working level. At the same time, the pilot project under BOBLME program on sharks data collection is being carried out at two sampling sites in the west coast of Peninsular Malaysia. Under this pilot project, catch data on sharks are collected to species or genus level. This is very challanging work as the field staff have to identify every single sharks species landed by fishing gears namely trawlers.

Bird

To date, no report on interaction of seabirds with Malaysian longline vessels during their fishing operations. This information solely depend from the report of the vessel operators. To present, Malaysia has no plan to develop NPOA on seabird as the Malaysia fleet involve in tuna fishing is still small fleet.

Turtle

Marine turtle is a protected species in Malaysia. There is very limited information on interaction of marine turtles with fishing vessels in Malaysia waters and longline vessels fishing tuna in the Indian Ocean. The vessel crews are keep on reminded to record any interaction with the marine turtle during their fishing operation. Conservation on marine turtles in Malaysia involved a close cooperation between government bodies and NGOs. At present, several mitigition programs are being carried out such as encourage the used of turtle excluder devise (TED) by trawlers and the use of circle hooks in the longline fishing gear. The programmes are a continuous programmes that involve fishermen operating trawler nets, drift nets and longlines.

In the west coast of Peninsular Malaysia, there are two nesting sites for green turtles and olive ridley turtles. Average annual nesting visit by green turtles and olive ridley turtle in these two areas are 57 and 1 respectively. At those two nesting areas, turtle conservation centres are buildt to protect and manage the nesting sites. On average, a total of 3,130 hatchling turtles were released into their natural habitat. For the new adult turtles landing for nesting in these two areas, they are tagged at the flipper as a method to determine the frequency the adult turtles visiting the same nesting sites.

CONCLUSION

Malaysian tuna fleet have entered a new phase of tuna fishing in the Indian Ocean. Fully owned by Malaysian operator, the close cooperation with the Fisheries Authority will assist in the collection of quality catch and effort data as per IOTC requirement. Experiencing through the tuna management by the IOTC, it will help Malaysia government of improve his fisheries conservation and management in his EEZ waters.

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