

Status on neritic tuna in Peninsular Malaysia

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*Capture Fisheries Division, FRI Kampong Acheh, 32000 Sitiawan, Perak, MALAYSIA***ABSTRACT**

Neritic tuna species are among the important pelagic fish caught by commercial and traditional fishing gears. The main neritic tuna found in Malaysian waters were longtail (*Thunnus tonggol*) and kawakawa (*Euthynnus affinis*) while frigate tuna (*Auxis thazard*) were rarely caught because they were mostly found toward the offshore area. About 45% of the neritic tuna catch in Malaysia were from the Malacca Straits (west coast of Peninsular Malaysia) and the rest are from South China Sea and Sulu and Celebes Sea, east coast of Borneo continent. Annual catch of neritic tuna in the Malacca Straits showed increasing trends but the opposite trends occurred in the South China Sea. The purse seine contributed about 82% of the annual catches of neritic tuna and as the most important fishing gear in neritic tuna fisheries.

INTRODUCTION

Marine capture fisheries sub-sector comprising of inshore and deep sea fisheries is the major contributor of the total national fish production by 82%, valued at RM 6,939.47 million. Deep sea fisheries alone contributed 17% in terms of quantity and 13% in terms of value to the national fish food sector. In the year 2011, the total marine landings decreased by 3.9% which amounted to 1,373,105 tonnes as compared with 1,428,881 tonnes in 2010.

From the annual catch of marine fishes, catch contributed from the deep sea of offshore fisheries are still quite low (22%). Therefore, emphasis by the government at present is given to the development of tuna fisheries not only in coastal waters but also offshore waters within the Exclusive Economic Zone (EEZ). Tuna fisheries which include both oceanic and neritic tuna are one of the targeted fisheries to be developed in near future. The second strategic development plan for tuna fisheries is to be launched before end of 2013.

During early 1980, small tuna were only caught as by-catch by the gill nets and purse seines. When tuna purse seines were introduced in 1987, the neritic tuna fisheries started to increase. Gradually, after operating by searching a wild tuna school, the purse seiners started to use spotlights to aggregate fish (Chee, 1996). There was a tagging experiment on neritic tuna carried out in South China Sea. The results showed that 50% of the recaptured tuna came from the purse seine operators (Raja Bidin, 1990).

The increase in neritic tuna catches in Malaysia has continued in line with the growth of the processing industry (canning fish) locally. Other than for domestic use, there is also an increasing demand from the canning industry in Thailand. Neritic tuna continuous improvement is aided by increased effort and the use of Fish Aggregating Device (FADs), including the use of light luring technique.

FISHING AREAS IN MALYSIAN WATERS



Figure 1 : Malaysian fishing areas.

Malaysia is a maritime nation, surrounded by four seas; namely the Straits of Malacca, South China Sea, Andaman Sea and Sulu Sea. Marine fishing areas in Malaysia can be divided into several fishing sub-areas, namely the west (Malacca Straits) and east coast (South China Sea) of Peninsular Malaysia, Sarawak and Sabah waters which include Sulu and Celebes Seas in the east coast. The Malacca Straits is a

part of the IOTC area of competence, which includes the state of Perlis, Kedah, Penang, Perak and Selangor. The Malaysian EEZ in the Malacca Straits is bordering with the Indonesian toward the west and toward the north it is bordering with the Thailand (Andaman Sea) (Figure 1).

ANNUAL CATCHES OF THE NERITIC TUNA

In Malaysia, neritic tuna consists of longtail tuna, kawakawa, frigate tuna and skipjack tuna. Neritic tuna landings contributed 4.24% to the total marine landings (Figure 2). In the year 2011, neritic tuna landings amounted to 51,937 mt decreased by 10% compared to 57,967 mt in 2010. The annual catch of neritic tuna in Malaysia from 1997 until 2011 ranged from 40,000 to 65,000 mt. The highest catch was recorded in 2008 and 2002 with 65,000 mt and 62,000 mt respectively. In general, landings of neritic tuna showed increasing trends from 1994 to 2002. From the catch at 25,821 mt in 1994, it increased to 61,885 mt in 2002. During 2003 to 2005, an apparent decreased were observed before the catch stabilized again in 2006 above 50,000 mt (Figure 3).

Neritic tuna landings	Contribution* (%)
Quantity – 58,210 mt	4.24
Value – 332.46 million	4.79

* from total marine fish landings

Figure 2: Tuna landing, Malaysia, 2011.

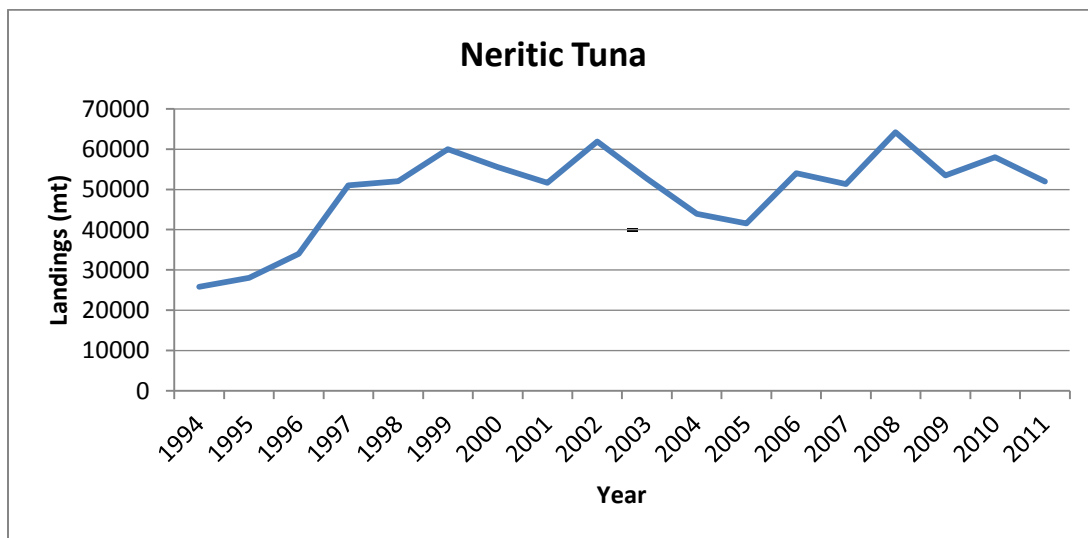


Figure 3 : Annual landings of neritic tuna in Malaysia 1994-2011

In average, Malacca Straits contributed 45% of the neritic tuna catches in Malaysia and 55% was from South China Sea and Sulu and Sulawesi Sea (Samsudin, B. and A.B. Noraisyah, 2011). Figure 4 shows the annual catches of neritic tuna in the Malacca Strait and South China Sea from 1990-2011. The catches showed the landings in the Malacca Straits showed a steady increasing trend with small fluctuations. The catch in the Malacca Straits increased from 4,625 mt in 1990 to 20,147 mt in 2010. The highest catch in Malacca Straits was recorded in 2012 at 23,767 mt, an increased by 9% from the previous year.

Meanwhile in the South China Sea, the catch increased steeply from 8,007 mt in 1994 to 34,648 mt in 2000, and decreased from 2000 to 2004 before it stabilized within the range of 15,000 mt from 2004-2007. In the South China Sea, 57% of the neritic tuna catch was contributed by the purse seines vessels and other fishing gears that contribute to the catch of neritic tuna are trolling, drift nets, gill nets hook and line and trawlers. Prior to the year 2000, the annual catch of the neritic tuna in the South China Sea were higher than the annual catch from Malacca Straits.

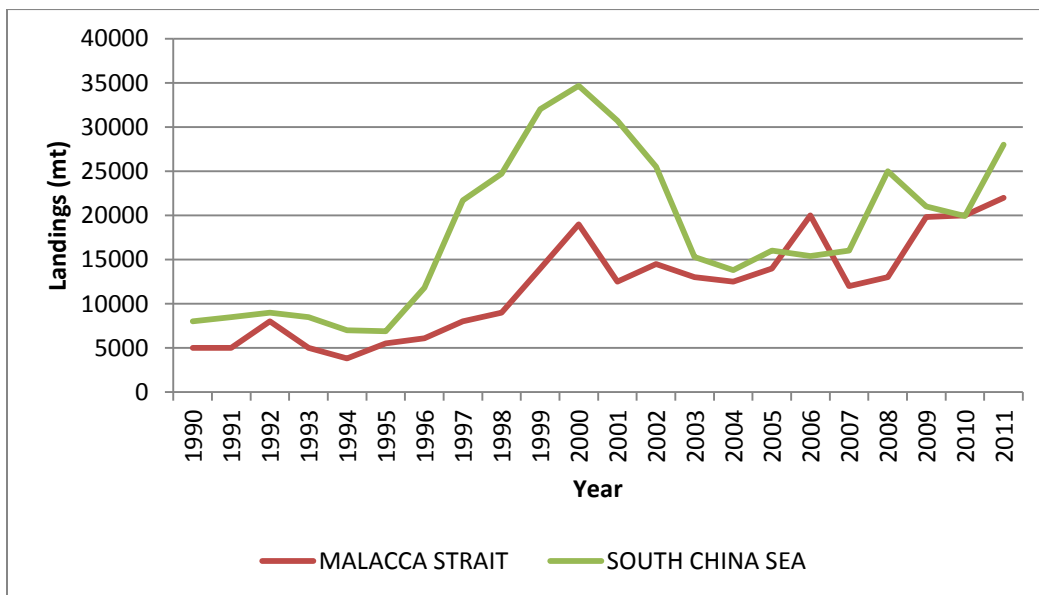


Figure 4 : Landing trends of neritic tuna in the west coast (Malacca Straits) and the east coast (South China Sea) of Peninsular Malaysia.

From observation in Figure 4, a sudden and drastic increase in the annual catch after 1996 was probably resulted from a change to a new fisheries policy introduced at that time by the Department of Fisheries. The policy which boosting the annual catch was to encourage the local fishermen to explore and operate in the offshore fishing areas. This is in conjunction to the declaration of Malaysia EEZ waters in 1980 which

covers up to 200 nm from the shoreline. The Department of Fisheries Malaysia has issued a large number of licenses for the deep sea fishing. In 1998, the catch of neritic tuna increased dramatically when the purse seine fishery started to efficiently use the FADs in their fishing operations.

TUNA FISHING

Fishing for neritic tunas such as *Euthynnus affinis*, *Thunnus tonggol* and *Auxis thazard* is mainly confined to the coasts of the Peninsular Malaysia, with only small fisheries off Sabah and Sarawak. This is due to the continental shelf areas being limited in both of these states. Fishing grounds here are generally deep which ranging from 200 m up to 2,000 m. Generally, neritic tuna were caught mainly by trawl nets, purse seines, drift/gill nets and hook and lines. Purse seines are the main fishing gears that catch neritic followed by trawl nets and for drift/gill nets and hook and lines, they were widely used in the east coast of Peninsular Malaysia compare to other sub-areas. For hook and lines in the east coast of Peninsular Malaysia, such gears using trolling technique. The trolling are carried out around FADs or floating objects and sometimes the fishermen are searching for wild schools.

The neritic tuna species in Malaysia was found associate with any floating objects in sea. These floating objects could be floating logs or different types of Fish Aggregating Devices (FAD) (Sakri, 1991). Application of FAD has facilitated and increase efficiency for tuna fishing.

PURSE SEINE CATCH COMPOSITION

The total catch of marine fish by all gears in the Malacca Straits in 2011 was 725.064 mt, about 50% of total marine catch in Malaysia. Purse seines were the second most effective commercial fishing gears after trawlers. Almost 95% of the neritic tuna catch in the Malacca Straits are caught by the purse seines and it accounted nearly 20% of the total catch in Malacca Straits. The neritic tuna comprise of 14.17% of the purse seines catch in the Malacca Straits and oceanic tuna (skipjack) was only 0.06% (Figure 5).

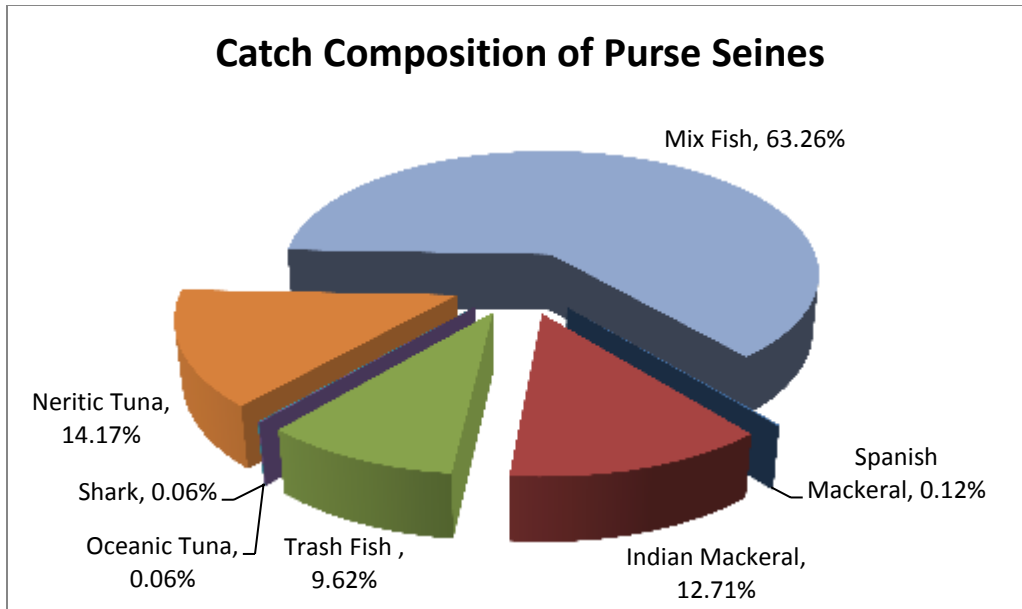
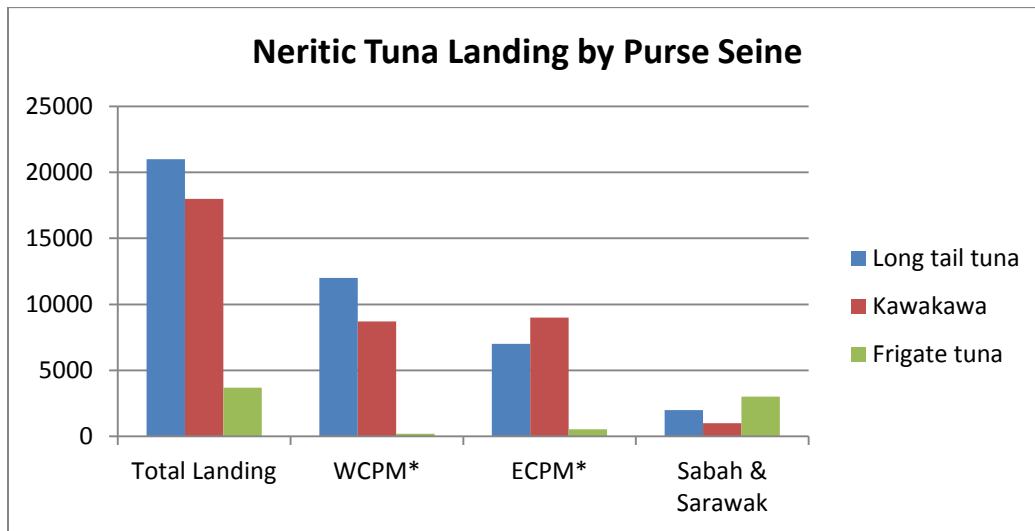


Figure 5 : Fish composition by purse seine on the West Coast of Peninsular Malaysia.

NERITIC TUNA SPECIES



WCPM = West Coast Peninsular Malaysia
 ECPM = East Coast Peninsular Malaysia

Figure 6 : Composition of neritic tuna caught by purse seines.

There are 3 major types of neritic tuna caught by purse seiners from West Coast of Peninsular Malaysia, namely longtail (*Thunnus tonggol*), kawakawa (*Euthynnus affinis*) and frigate tuna (*Auxis thazard*). In 2011, longtail tuna dominated the catch in the West

Coast followed by Kawakawa. However, the catches of kawakawa and frigate tuna in the east coast of Peninsular Malaysia were more significant than long tail (Figure 6).

CATCH BY VESSELS TONNAGE

Presently, purse seines are the second most efficient fishing gear in tuna fishing after trawlers. All purse seines vessels were categorized based on their gross tonnage. For each tonnage, the vessel are allowed to operate within a specified fishing areas such as for the tonnage groups of 25 – 39.9 GRT (above 5 nm off shore), 40 – 70 GRT (12 nm off shore) and above 70 GRT (above 30 nm off shore).

The catch of neritic tuna in the Malacca Straits by vessel size of more than 70 GRT and less than 70 GRT were 39.3% and 60.7% respectively. Whereas for the South China Sea, the catch by these two different vessels size were 33.8% and 66.2% respectively (Figure 7).

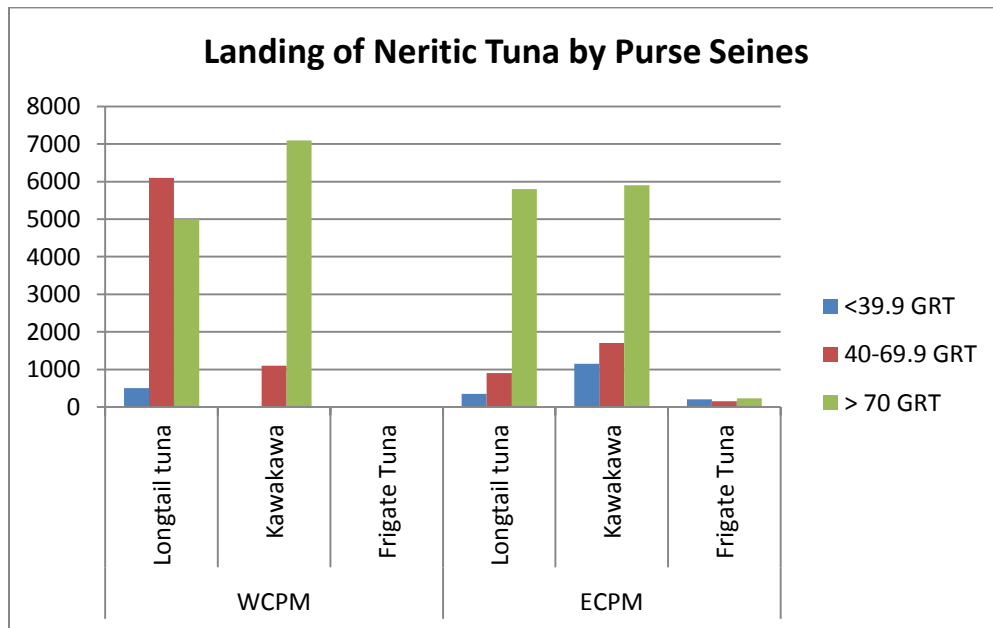


Figure 7 : Landings by species landed by purse seine vessels with different GRT.

CONCLUSION

Generally, the annual catches of neritic tuna showed increasing trends in Malacca Straits but opposite trends occur in South China Sea. Perhaps, by increasing the fishing capacity especially the bigger tonnage of vessels, particularly purse seines may increase the catch of neritic tuna in South China Sea. Neritic tuna are shared stocks, thus managing it need a regional management. To manage the shared stocks, it need systematic cooperation and shared management between the bordering countries such as Malaysia, Thailand and Indonesia.

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