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A REVIEW ON NERITIC TUNA FISHERIES IN SRI LANKA

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Abstract

This paper reviews on **NERITIC TUNA FISHERIES** in Sri Lanka. The major component of Neritic Tuna namely as *Auxis thazard* (frigate tuna), *Auxis rochei* (bullet tuna) and *Euthynnus affinis* (Kawakawa) in the country. It is observed increasing trend in the past decade (from 2003-2012). Neritic Tuna resources are mainly targeted by coastal artisanal fishing crafts in the country. Out of 53,270 fishing crafts operating in Sri Lanka, including MTRB, NTRB, OFRP, IDAY and IMUL. At present there is a trend to use gear combination for fishing. After the Tsunami and the Civil war in the country, an increase tendency of new access with technical improvement are observed and resulted in the production being increased quality with a higher contribution to the total fish production. This paper reviews three main Neritic Tunas, main fishing gears and with some consideration of neritic tuna production of the past decade.

Key words: neritic tuna, coastal fisheries, fishing gear, contribution, fishing season

Introduction

The most important International Initiative contributed to the expansion of marine fisheries in the World was the adoption of the United Nations Convention on Law of the Sea, 1982. After ratification of UNCLOS, the coastal states are entitled to 200nm of the Exclusive Economic Zone (EEZ) under their sovereignty. This caused expansion of the fishing areas of the coastal developing countries, mostly within the EEZ while the developed nations increased the capacities of distant water fishing in the high seas.

In the early stage, there was an open access to fisheries and limited number of fishes engaged in fisheries sector. However, with the increase of the world's population and the fishing expanded and modern techniques have been introduced to harvest fishery resources. Sri Lanka is one of the most important Tuna fish producing island nations in the Indian Ocean and it is one of the oldest livelihood along the coast in the country.

Expansion of the fishing areas and the inclusion of new multiday boats resulted the tuna production being increased since early 1980's: 24,115 Mt in 1982, 85,220 Mt in 1998 and 138,698 Mt in 2010 (Bandaranayake, K.H.K and Maldeniya R 2012). It is observed increasing trend in the past decade (from 2003-2012). On the other hand, Neritic tunas, Namely Kawakawa (*Euthynnus affinis*), Frigate tuna (*Auxis thazard*) and Bullet tuna (*Auxis rochei*) are showed significant contribution to the Total Fish Production in the Country. (Bandaranayake, K.H.K and Maldeniya; 2012). The present study reviews the trends in the neritic tuna fisheries in Sri Lanka with some concern on the status of the resources.

Source of data

IOTC published database, Vessel Registry/ Department of Fisheries and Aquatic Resources (DFAR), Statistical unit/ Ministry of Fisheries and Aquatic Resources Development (MFARD) data, were used for this review.

Fishing Crafts and Gear

Neritic tuna resources are mainly targeted by coastal fishing crafts in the country. Out of 53,270 fishing crafts operating in Sri Lanka, more than 90 percent of crafts are operated in the coastal fishery (Vessel Registry Unit, DFAR 2013). Normally all the coastal fishing vessels are day boats and can be categorized as Motorized Traditional Boats (MTRB), Non-motorized Traditional Boats (NTRB), Fiberglass Reinforced Plastic Boats with outboard engine (OFRP) and Single-day Boats with inboard engine (IDAY). Multi-day Boats (IMUL) are used for offshore fishing. OFRP and IDAY boats represent about 45 percent of the total vessels (Vessel Registry Unit, DFAR 2013; Statistical unit/MFARD.). It is observed an increase trendancy in fishing fleets during past decade.(Table 1; figure 1)

Operating Fishing Craft

Boat Type	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
MTRB	618	674	1660	1842	1680	3179	2126	2680	2960	2340
NTRB	15040	15260	14739	16347	16640	17042	18243	20165	22630	22800
OFRP	11020	11559	11010	13860	15200	14747	17193	18770	22890	23160
IDAY	1486	1493	1164	907	1060	1940	958	1177	1120	890
IMUL	1530	1581	1328	2394	2460	2809	2934	3346	3872	4080

Table 1: Operating fishing boats

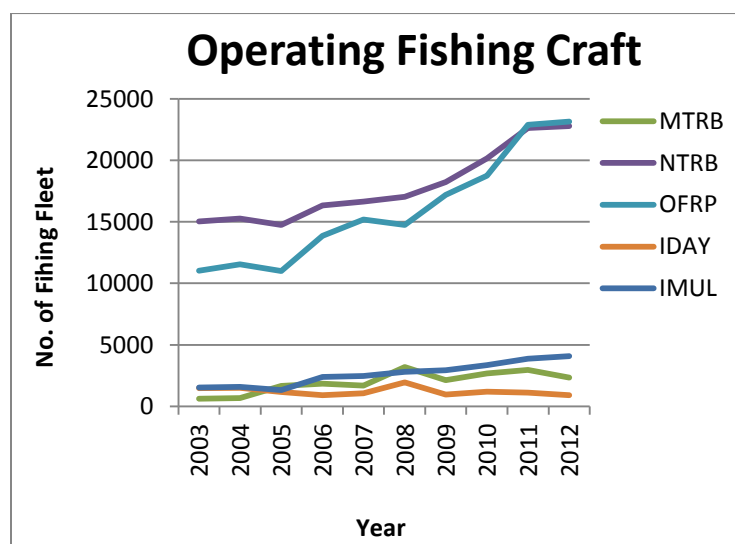


Figure: 1 Variation in Fishing Fleet in the coastal fisheries

Various types of fishing gears such as Gillnet, Ring Net, Trolling, Long line, etc. are being used to catch Neritic tuna due to the multi species nature of Large Pelagic Fishery in the country. Earlier, gillnet was effective for frigate tuna catches while hand-line and trolline were important for the Kawakawa production (Maldeniya et al., 1988). Gillnet as a key fishing gear in the tuna fishery. It has been firmly established as the dominant/main gear while the other gears have become seasonally. (Table 2; figure 2)

Year	Fish production by fishing gear								
	Ring (blt)	Ring (fri)	Ring (kaw)	Gill (blt)	Gill (fri)	Gill (kaw)	LG (blt)	LG (fri)	LG (kaw)
2003	146	2,910	163	354	1,873	3,432	138	1,436	403
2004	147	2,923	164	355	1,882	3,449	490	1,157	873
2005	115	2,279	127	277	1,467	2,689	224	712	1,120
2006	114	2,265	127	275	1,458	2,672	596	504	1,508
2007	104	2,076	116	252	1,336	2,448	820	693	2,075
2008	112	2,232	125	271	1,437	2,633	564	477	1,429
2009	94	1,876	105	228	1,207	2,213	763	646	1,932
2010	118	2,350	131	286	1,512	2,772	1,449	2,447	985
2011	86	1,702	95	207	1,096	2,008	2,545	3,834	1,067
2012	68	1,352	76	164	871	1,595	3,169	3,559	2,038

Table 02 (Source: IOTC) (Figures in Mt)

Ring – Ring Net **Gill-** Gill Net **LG** – Long line, Gill net Combination

Variation of Neritic Tuna Production by Fishing Gears

Annual Production of neritic tuna species ranged between 1,258 Mt in 1982 and 12050 Mt in 2010 by selected fishing gear. (IOTC 2011). During the 2003 - 2012 period, neritic tuna production was dominated by the Frigate tuna followed by Kawakawa and Bullet tuna respectively. (Fig.3). However a considerable change was noted in the production for the period of 2004-2009 where Kawakawa became dominant by Gill net. (Figure 2). This may be due to multiple reasons: expansion of the fishing area and new access and fishing practices, etc. Contribution of fish production with fishing gears are shown in figure 4; 5; and 6.

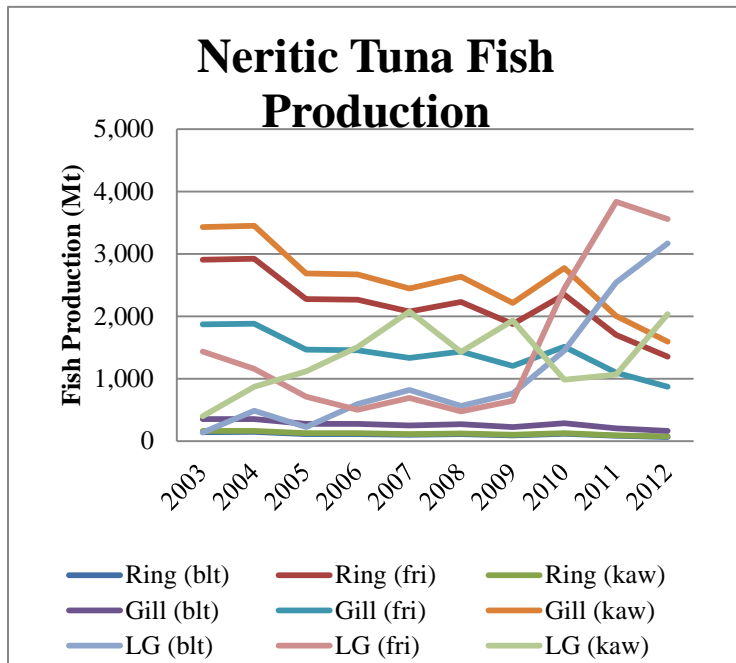


Figure 2 Fish production trend by 3 selected gears

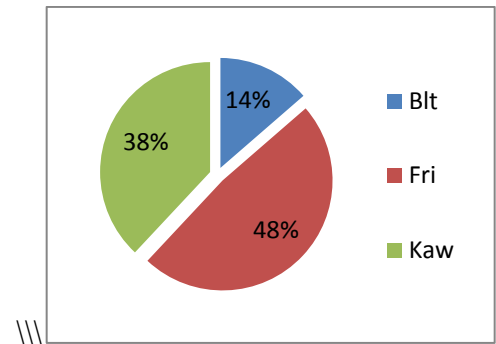


Figure 3: Contribution of Fish Production by Species

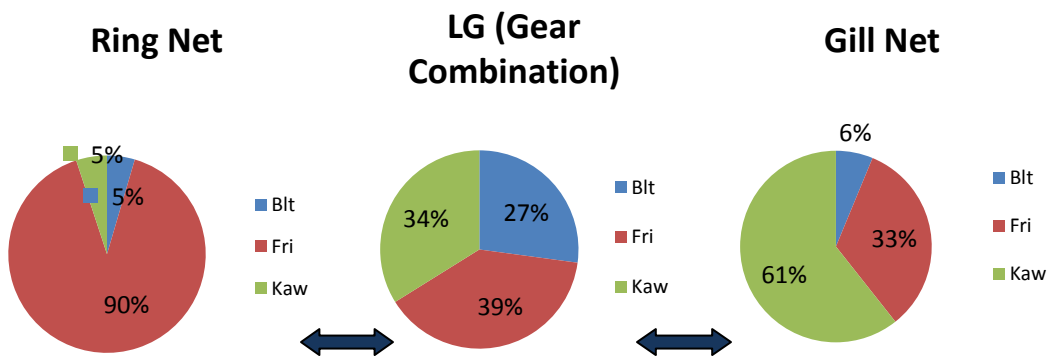


Fig. 4

Fig.5

Fig. 6

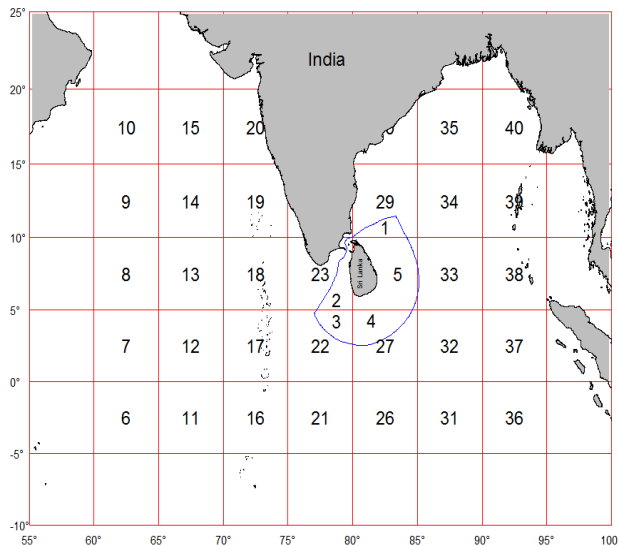
Contribution of Fish Production by Gear

Fishing Season

Neritic tuna is harvested throughout the year. However, The fishing seasons and fishing activities are generally associated with the two monsoons: the southwest monsoon from May to September and the northeast monsoon from November to March (Joseph 1999, Dissanayake, 2005).

Fishing zone map:

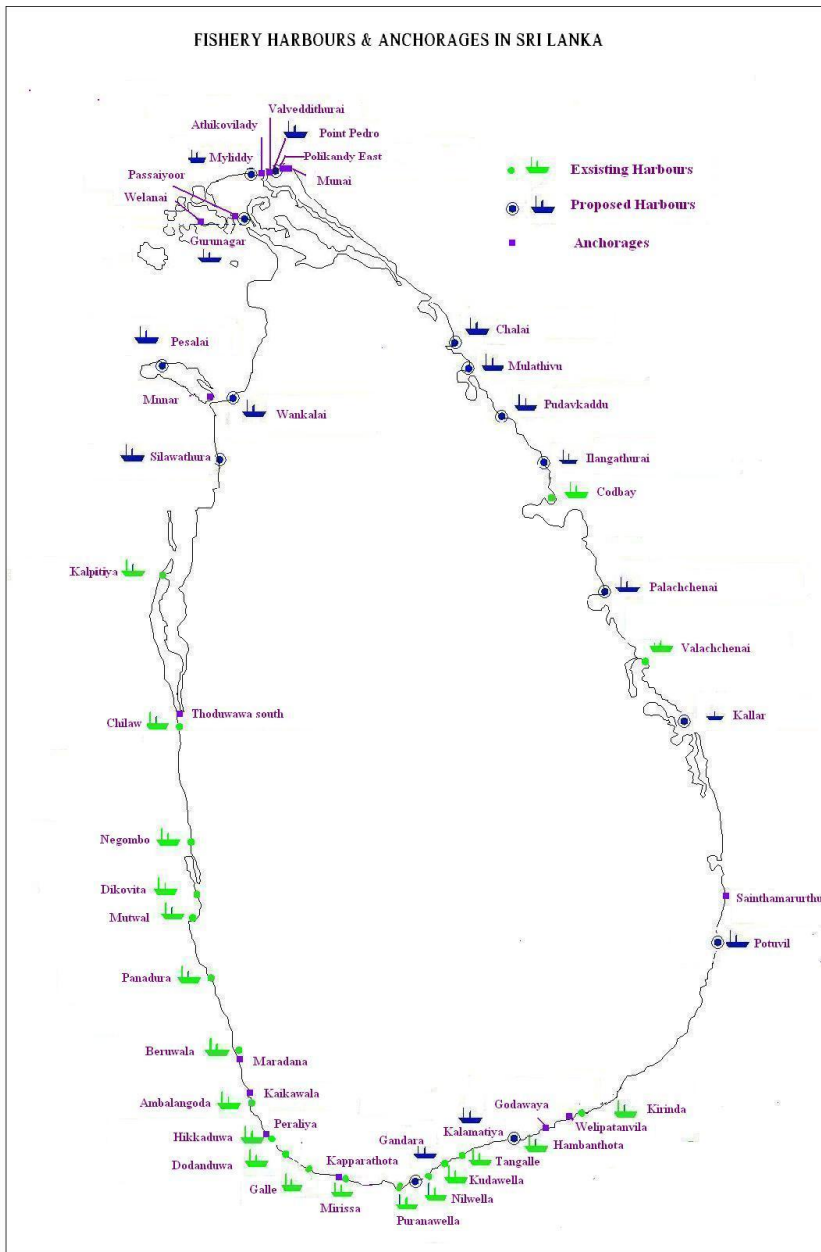
The fishing zone map is used in the survey in order to identify the fishing area in five grid levels beyond the EEZ. The EEZ was demarcated into five statistical ones. The data collectors were instructed to discuss with the crew or observe his fishing information diary and to identify the correct fishing area. (Figure 7)



(Figure 7)

Fishery Harbours and Anchorages

Catch and effort and biological data of the offshore and coastal large pelagic fishery are collected at the 22 fish landing sites in the country. (Appendix 1). There are 27 samplers from DFAR are engaged in data collection of each anchorage/ landing sites covering 12 days per month. (Appendix 1)



Appendix 1

Conclusions

Neritic Tuna fisheries in Sri Lanka is artisanal nature small scale with an increasing trend and heading for expansion to offshore/deep sea. This can be further increased with the provision to develop fisheries activities in the Northern areas of the country.

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