The Review of Bycatch in Thailand In Relation to IOTC Species

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Abstract

This paper summarizes bycatch landing in Thailand from both IOTC area and the coastal water under Thailand jurisdiction where neritic tunas have been caught. The bycatch from IOTC area were mainly from foreign fishing vessels landing in Phuket ports of the last 15 years, during 2001-2016. The catch trend and bycatch composition during this period have been figured. For the coastal fisheries in the area under Thailand jurisdiction, the bycatch were from purse seines which this gear mainly target the coastal pelagic fish including neritic tunas. Sharks and rays bycatch from this fishery was explored and explained. So, the information included in this paper will give an overview of the bycatch situation in Thailand relating to the IOTC species, particularly on sharks and rays. The relevant information, existing actions or inactions, as well as obstacles of accommodation of the sharks' issues are also included. Lastly, the paper concludes with the information on the development of the NPOA-sharks that crucially reflects the engagement of Thailand in the international agenda on shark conservation.

Keywords: sharks, rays, oil fish, tuna, purse seines, tuna longline

Introduction

Foreign tuna longliners in Indian Ocean have landed their catch in Phuket Province since 1994. The supporting infrastructure and directed flight from Phuket to Narita airport of Japan are the main factor of their decision to landing there. So, this report presents the historical landing catch that included the bycatch. However, since Thailand had ratified the Port State Measure Agreement (PSMA) in 2016, the port inspection of the landing catch in the designated port of Phuket in relation to the bycatch of sharks and rays are addressed.

For coastal fisheries in the water of jurisdiction of Thailand, only purse seiners that target the pelagic fish relating to the IOTC species including neritic tunas. Regarding the resolution 15/02 on mandatory statistical reporting requirements for IOTC members, the catch and effort of these coastal fisheries are subjected to be reported. So, this study presents the overview of the coastal fisheries and explains catch composition based on the information from national statistical records.

2. Data Collection

2.1 Foreign Tuna Longliners in Indian Ocean: landing record of the port of Phuket, the port of landing of foreign longliners from the Indian Ocean.

2.2 Coastal Fisheries in the water of jurisdiction of Thailand: The port sampling was carried out to collect data of catch from all fishing vessel along the coast. The data in this report are from fishing vessel of the fishing ground zone 6 and 7 in the below map.

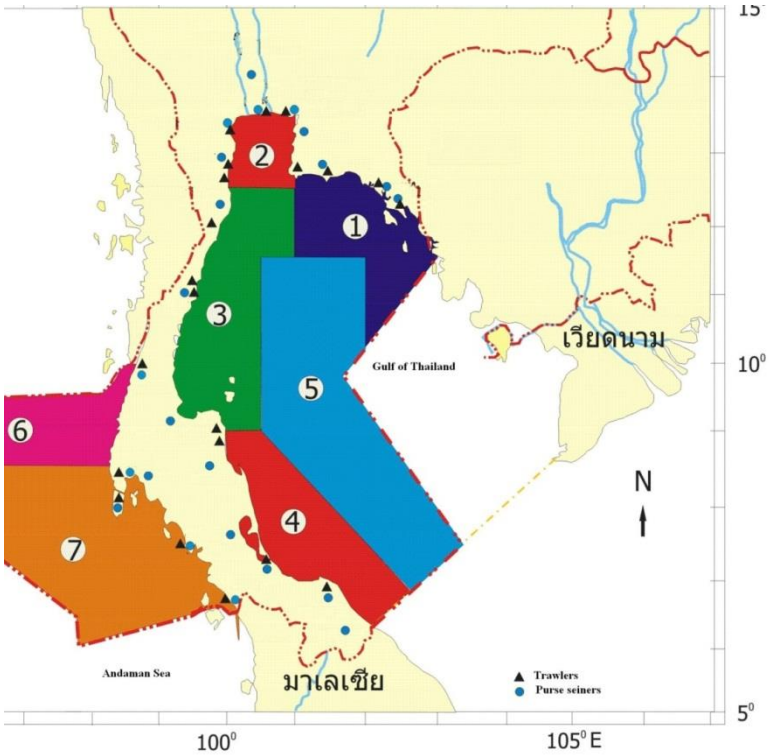

Figure 1 Statistical Fishing zones and fishing ports along the coast of Thailand.

3. Result

3.1 Landing of Retained Catch of Foreign Tuna Longliners in Indian Ocean:

The landing retained catch included the four majority groups of tunas, billfish, sharks and bycatch. The bycatch species included dolphinfish, Spanish mackerel (*Scomberomerus commersoni*), Barracuda (*Sphyraena barracuda)*, oil fish (*Ruvettus pretiosus*) and miscellaneous species that include escolar fish (*Lepidocybium* spp.), deep sea promfret and sunfish. During the first period of the statistical record, the information of bycatch species had not been identified. However, during 2001-2011, the port sampling discovered the species composition of these bycatch (Table 1). Although this record included shark as a landing catch, it is in sum of species. The species identification was not carried out. One of the reasons was the presentation of bycatch, including sharks are in frozen. So, the identification of species during the very quick landing was not easy. Apart from sharks, although the interrelation between the target species and those bycatch species or stock status of these bycatch species are not clear, the landing of these species means they are worth to retain and then to consumption. However, without the port sampling this group of bycatch will be declare as mixed fish or miscellaneous species. Moreover, the identification of species of frozen presentation was not easy and may lead the misidentification.

Table 1 R**etained catch (tons) from foreign longliners landed in Phuket during 1994 -2016.**

Year	No. of entry	Total landing catch	Tuna	Billfish	Bycatch						
					Sub Total	Sharks	Dolphinfish	Spanish mackerel	*Barracuda*	Oil fish	Miscellaneous
1994	72	622	381	122	20	20	-	-	-	-	-
1995	187	1,416	1,158	246	13	13	-	-	-	-	-
1996	567	2,903	2,003	851	49	49	-	-	-	-	-
1997	558	2,632	1,814	808	10	10	-	-	-	-	-
1998	655	3,015	2,867	147	1	1	-	-	-	-	-
1999	883	4,373	4,033	340	1	1	-	-	-	-	-
2000*	665	3,118	2,554	456	108						
2001*	876	4,372	3,273	1031	68	20	3	3	6	19	17
2002*	816	4,971	4,445	441	111	20	0.5	0	13	3	74.5
2003*	563	4,996	4,554	415	27	11.5	11.5	0.5	0.5	3	0
2004*	582	5,317	4,905	388	27	0	0	0	10	17	0
2005*	517	5,953	5,431	284	238	0.5	0	0	1	2	234
2006*	442	4,830	4,199	220	441	0	128.5	47	47	218.	0
2007*	494	6,315	5,158	451	706	30	79	352	168	77	0
2008*	533	7,710	6,359	655	696	20	8	4	662	2	0
2009*	521	6,821	5,951	156	714	0	0	82	632	0	0
2010*	575	9,230	7,796	80	1,35	854	0	0	0	500	0
2011*	375	5,543	4,317	91	1,13	5	0	0	0	1130	0
2012	315	7,024	4,919	135	1,97	0	0	0	0	1970	0
2013	261	4,924	2,947	1,274	703	0	0	0	0	703	0
2014	241	5,841	3,770	1,465	606	0	0	0	0	0	606
2015	295	10,57	7,199	2,465	791	0	0	500	0	0	291
2016	204	6,200	4,802	1,113	285	0	0	0	0	0	285

Remark: * Billfish included MLS WM SFA SSP and SWO; ** MSC= escolar fish, deep sea promfret and sunfish.

3.2 Coastal Fisheries in the Water of Jurisdiction of Thailand:

This report includes extracted information from the national statistic records since 1971 of fishing gears operating in Thai water jurisdiction that target neritic. The gears were purse seines that included Thai purse seine, Chinese purse seine, light luring purse seines and anchor FAD purse seines. However, based on the behavior of Thai coastal fisheries, purse seiners majorly targeted multiple pelagic species such as scads, Indian mackerels, Indo-pacific mackerel as well as neritic tunas. So, neritic tunas are just among those majority catch. This report, we particular observed only the presentation of sharks and rays when neritic tuna catch appeared as to examine their inter-relation. However, we found no relation between the catch of neritic tuna and the presentation of sharks and rays. Catch of sharks and rays were small percentage comparing to the catch of neritic tuna as well as fluctuated from year to years (Figure 2 and Table 2)

For sharks, the maximum catch was 86 tons in 1979 or 4.4% of neritic tuna catch. After then, sharks catch were absent for many year, later accounted for 1-19 tons per year during 1991-2006 or mostly less than 0.1%. The average percentage of the presentation was 0.17%.

For rays, the highest catch was 125 tons in 2003 that accounted for 1.1% of catch. The highest percentage of rays was found in 1980 when the catch of rays was 112 tons while the catch of neritic tuna was only 620 tons. The average percentage of rays was 0.76% of the neritic tuna.

As previous mention, the percentage of sharks and rays in this study was excluded the other catch. So, the accounted of sharks and rays to the total catch was less.

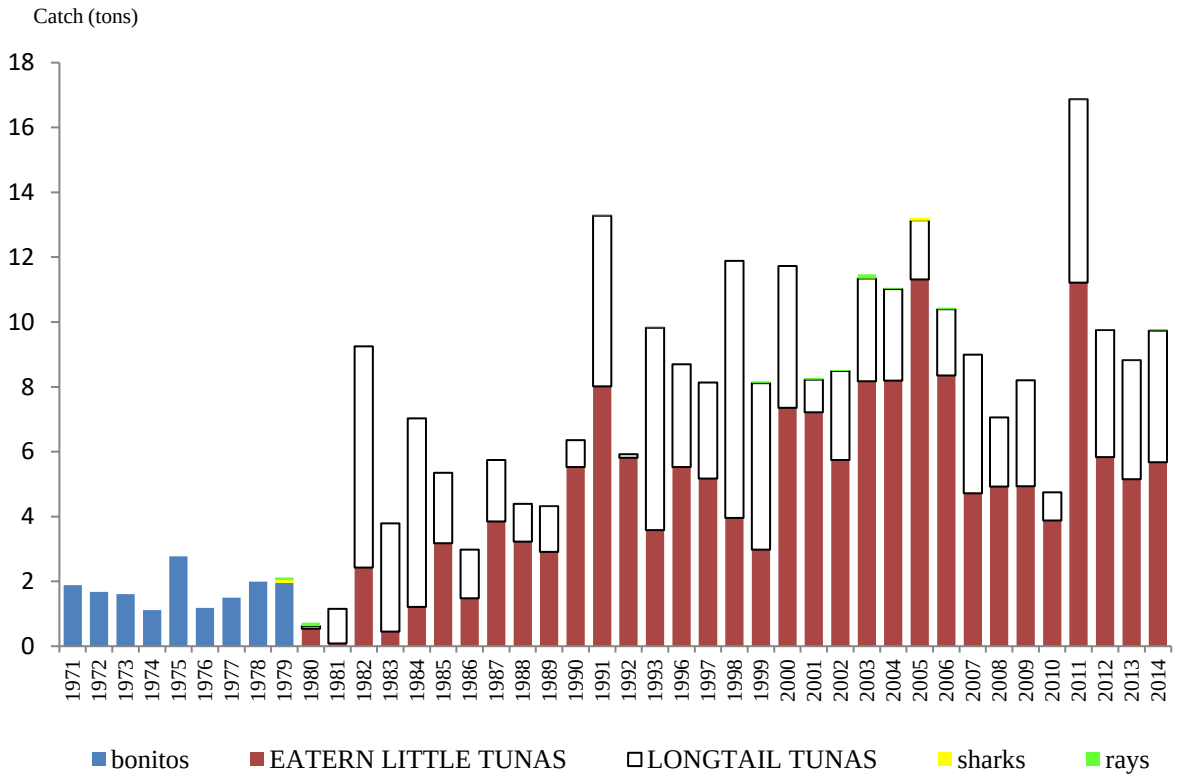

Figure 2 Historical Catch of neritic tunas and sharks and rays by purse seiners

Table 2 Historical Catch of neritic tunas and sharks and rays by purse seiners.

year	Neritic tunas				sharks		rays	
	Sub Total	Unidentified (bonitos)	*Euthynnus affinis*	*Thunnus tongol*	Catch (ton)	%	Catch (ton)	%
1971	1887	1887						
1972	1671	1671						
1973	1611	1611						
1974	1109	1109						
1975	2769	2769						
1976	1185	1185						
1977	1502	1502						
1978	1992	1992						
1979	2042	1956			86	4.2	75	3.67
1980	620		538	82			112	18.06
1981	1157		90	1067				
1982	9248		2430	6818				
1983	3790		448	3342				
1984	7024		1211	5813				
1985	5346		3180	2166				
1986	2979		1475	1504				
1987	5744		3851	1893				
1988	4393		3226	1167				
1989	4325		2907	1418			1	0.02
1990	6358		5525	833				
1991	13279		8018	5259	2	0.01		
1992	5922		5813	109				
1993	9821		3582	6239			7	0.07
1996	8692		5524	3168				
1997	8138		5175	2963				
1998	11888		3956	7932				
1999	8119		2982	5132	5	0.06	52	0.64
2000	11724		7351	4373				
2001	8224		7212	1012			51	0.62
2002	8488		5746	2741	1	0.01	35	0.41
2003	11345		8169	3175	1	0.009	125	1.10
2004	11022		8194	2827	1	0.009	37	0.34
2005	13156		11,318	1819	19	0.1	28	0.21
2006	10396		8348	2047	1	0.009	46	0.44
2007	8991		4721	4270				
2008	7054		4921	2133				
2009	8201		4930	3271				
2010	4744		3873	871				
2011	16869		11213	5656			16	0.09
2012	9754		5830	3924			9	0.09
2013	8829		5150	3679			5	0.06

2014	9730		5676	4054			5	0.05

4. Recommendations for Further Actions

1. On tuna longline fisheries, as it is unclear on the stock status of bony fish bycatch. So, the initiating of monitoring to these statuses by firstly strengthening the statistical record of these species is recommended. Individual fish of longline fisheries should be labeled the name of species before retaining onboard as to support scientific purpose as well as the port observer or inspector of the PSM official during landing or offloading.

2. The port sampling and data collection of sharks and rays from coastal fisheries including the identification of species is recommended to be furthers as to reflect the National Plan of Action on Sharks that the Draft of the NPOA-Sharks of Thailand is already in the process of submitted to the Parliament to approve.