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Thailand National Report

to the Scientific Committee of the Indian Ocean Tuna Commission, 2014

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INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

In accordance with IOTC Resolution 10/02, final scientific data for the previous year was provided to the Secretariat by 30 June of the current year, **for all fleets other than longline** [*e.g.* for a National report submitted to the Secretariat in 2010, final data for the 2009 calendar year must be provided to the Secretariat by 30 June 2010).	Yes 30th July 2014
In accordance with IOTC Resolution 10/02, provisional **longline data** for the previous year was provided to the Secretariat by 30 June of the current year [*e.g.* for a National report submitted to the Secretariat in 2010, preliminary data for the 2009 calendar year was provided to the Secretariat by 30 June 2010). **REMINDER:** Final longline data for the previous year is due to the Secretariat by 30 Dec of the current year [*e.g.* for a National report submitted to the Secretariat in 2010, final data for the 2009 calendar year must be provided to the Secretariat by 30 December 2010).	Yes 3rd December 2013
If no, please indicate the reason(s) and intended actions:	

EXECUTIVE SUMMARY

Neritic tuna and king mackerel species in the Andaman Sea Coast, Thailand comprise 7 species (*Thunnus tonggol*, *Euthynnus affinis*, *Auxis thazard*, *A. rochie*, *Katsuwonus pelamis* and *Sarda orientalis*, *Scomberomorus* spp.). These species were caught from purse seine, king mackerel gill net and trawl, while purse seine was the main fishing gear. The trend of neritic tuna catches have been decreasing from 37,037 tons in 1998 to 8,670 tons in 2010. The production was quite stable around 11,889 and increase to 22,218 in 2011. These neritic tuna species are more or less have its production trend similarity.

Three Thai tuna longliners were operated in the Indian Ocean in 2007 and in 2008-2009 only two Thai tuna longliners kept on fishing there. Fishing grounds were mainly in the western coast of Indian Ocean. During 2009 to 2013, fishing operations were recorded 2,073 fishing days. The highest total catch was in 2010 with 607.69 tons followed by 2012, 2011, 2013 and 2009 respectively (470.41, 373.44, 307.74 and 295.22 tons). The highest CPUE was

found in 2010 with 13.62 fish/1,000 hooks followed by 2012 and 2013, respectively (10.83 and 10.16 fish/1,000 hooks). Bigeye tuna and yellowfin tuna caught by number (and weight) were 24,126 fish (1,120.61 tons) and 10,531 fish (374.47 tons), respectively. The average percentage composition by number of the bigeye tuna and yellowfin tuna were 45.17% and 19.72% and by weight 54.54% and 18.23%, respectively. The composition of bigeye tuna by fishing zones during 2009-2013 was the highest catch in the East Coast of Somalia (15,571 fish and 690.85 tons) and the lowest catch in Arabian Sea (86 fish and 3.70 tons). The composition of yellowfin tuna by zone during 2009-2013 was also the highest catch in the the East Coast of Somalia (5,527 fish and 190.62 tons) and the lowest catch in the Arabian Sea (84 fish and 3.07 tons).

Foreign Tuna Fleets Unloading in Phuket, Thailand during 1995-2013, fresh tuna longliner show the fishing effort increased steadily from 187 trips in 1995 to the peak of 883 trips in1999, after then it fluctuated in narrow scope and continuously decreased into 261 trips in 2013. The whole figure of total landing catch during 1995 to 2013 showed the increasing trend (1,416 to 4,923 tons) although it showed some distinct decreased in between, which decreased from 4,373 tons in 1999 to 3,118 tons in 2000 and decreased from 5,953 tons in 2005 to 4,830 tons in 2006. The landing per trip decreased opposite with the total landing catch and the fishing effort during 1995 to 1996 (from 8 into 5 tons/trip) after then it's steady until 2001 and increased continuously into 13 tons in 2009. Due to fuel crisis since July 2003 to 2013, the longliners reduced their cost by transshipment at sea with other contracting fishing vessel, for this reason the fishing vessel could stay and fish longer at sea. The main species composition were yellowfin tuna, bigeye tuna, miscellaneous species (Sharks, *Lepidocybium* spp., *Coryphaena* spp., *Thunnus alalunga*, *Molar* spp., *Ruretlus pretiosus*, *Sphyraena* spp. and *Taractichtis* spp.) and bill fish (*Makaira* spp., *Tetrapturus* spp, *Istiophorus* spp.) with the average composition 62 20 9 and 5% of total landing respectively, while swordfish contributed 4% of the total landing during 1995 to 2013. The total landing of yellowfin tuna, miscellaneous species, swordfish, bill fish and bigeye tuna in 2013 were 2,488 756 692 555 and 432 tons, respectively. Taking in to account of the percentage of main target species, yellowfin tuna fluctuated during 1995 to 2002 with the peak of 80.8% of total landing in 1998, while the percentage of bigeye tuna fluctuated opposite with yellowfin tuna during 1995 to 2002 with the peak 49.7% of total landing in 2002, after then, it continued downward trend to 11.8% of total landing in 2007, increased to 22.9% in 2008 and decreased lowest to 4% in 2010.

Tuna Purse Seiners, there were only Japanese tuna purse seiners landed in Phuket during the last six years which were the 6 vessels. During 2003 to 2006, there was only Nippon Maru landed for 2-6 trips/year. In the later year, 2007, they were 5 vessels with totally landed of 12 trips. In 2008 there were 5 vessels with totally landing of 10 trips. In 2009 there were two vessels with totally landing of 8 trips. During 2010 to 2012, Nippon Maru was landed of 4, 6 and 4 trips respectively. But in 2013, there was no landing of tuna purse seiners in Phuket. Catch and percentage composition of skipjack, yellowfin tuna and bigeye tuna during 2003 to 2012 were 20,032 (62.8%), 5,041 (15.6%) and 6,760 tons (21.6%), respectively. The total catch of the three species during 2003 to 2012 were 31,833 tons. There was a few of bycatch which the most frequented observed species was triggerfish, *Abalistes stellaris* (Bloch & Schneider, 1801).

CONTENTS

1. BACKGROUND/GENERAL FISHERY INFORMATION

The development of marine fisheries in the past two decades in Thailand led to the currently rank among the top-ten fishing nations in the world. Marine fishery production in 2011 was 1.610 million tons shared about 53% of the total fishery production from all fishery sectors which consisted of 66% from the Gulf of Thailand and 34% from the Andaman Sea Coast. The small tunas and king mackerel were one of the important pelagic species. It had become the main target species for Thai fishermen since 1982 because of the high price offered by the tuna canneries (small tunas) and local consumption (king mackerel).

Thai tuna fishing gears including tuna longliner operated in the Indian Ocean from 2007 to 2010. Data collection from their logbooks displayed important information on catch, fishing operation, and effort. During 2007 to 2010, 1,904 days of fishing operation were recorded. Thai tuna longliners composed of three tuna longliners in 2007, but remained only two tuna longliners during 2008 to 2010. Their main fishing ground was located in the Southern part of the Indian Ocean in the area around the East and South coast of Madagascar.

2. FLEET STRUCTURE

The fishing gears catch neritic tuna and king mackerel namely, purse seine, gill net and trawl. For purse seines along the Andaman Sea Coast of Thailand can be classified into regular purse seines (RPS- that are Thai purse seine (TPS), fish aggregating device (FAD), light luring purse seine (LPS), and tuna purse seine (TUN). Among the purse seiners, TUN boat length is longer than other regular purse seine that is 21-25 meter and the size of net used are also longer ranging 1,000-2,000 meters in length, 100-150 meters in depth, and number of crew is range 35-45 persons. Normally, TUN operates during the Northeast monsoon, from November to May in the offshore area. Apart from those months, the TUN boat moves to fish pelagic species in coastal area or offshore area by using the net of mesh size 2.5 centimeter and change the gear to be LPS and TPS.

For Thai fishing fleet to the high sea of the Indian Ocean consist of Tuna longliner. In 2007, there are 3 longliners operated in Indian Ocean but one of each fishing gear operated only 6 months. After that the active fishing vessels remained 2 longliners. The number of fishing fleet was shown in table 1.

Table 1. Number of vessels operating in the Indian Ocean by gear type and size of the boats

Year	No. of Longliners	No. of Research Vessel[1] of DOF-Thailand	Size of the Vessels (GT)
2007	3	3	From 151 to 1,948
2008	2	3	
2009	2	3	
2010	2	3	
2011	2	3	

3. CATCH AND EFFORT

3.1 Catch and effort - neritic tuna

Tables 2a and 2b show the catch and CPUE of neritic tunas from purse seine and king mackerel gillnet. CPUE of neritic tunas show decreased trend since 1999 and keep stable from 2000 to 2011. The CPUE trend from king mackerel gillnet show stable during 1998 to

[1] DOF's research vessel have operated tuna longline and purse seine

2003, then CPUE were reduced during 2004 to 2007 and increased again during 2008 to 2013.

Table 2a. Annual catch and effort of neritic tunas from purse seine in the Andaman Sea from 1998 to 2011

Year	Catch (tons)				CPUE (kg/hour)
	Total	Longtail tuna	Kawakawa	King mackerel	
1998	34,895	16,877	17,115	903	17,464.96
1999	8,943	5,132	2,982	829	4,473.74
2000	12,377	4,373	7,351	653	6,188.50
2001	8,158	1,012	6,870	276	4,076.96
2002	9,249	2,741	5,746	762	4,619.88
2003	12,205	3,175	8,169	861	6,093.36
2004	11,615	2,887	8,194	534	5,795.91
2005	13,512	1,819	11,248	445	6,739.15
2006	10,877	2,047	8,348	482	5,422.23
2007	11,784	4,948	6,468	368	5,871.45
2008	10,259	3,313	6,532	414	5,109.06
2009	11,838	4,445	6,993	400	5,892.48
2010	8,181	2,084	6,073	24	4,070.15
2011	22,019	9,568	11,544	907	10,949.28
2012	14,645	7,433	6,760	452	7,278.83
2013	14,278	6,213	7,603	462	7,092.90

Table 2b. Annual catch and effort of neritic tunas from king mackerel gillnet in the Andaman Sea from 1998 to 2011

Year	Catch (tons)				CPUE (kg/day)
	Total	Longtail tuna	Kawakawa	King mackerel	
1998	2,142	542	5	1595	135.80
1999	1,612	667	3	942	152.62
2000	1,295	465	23	807	134.83
2001	1,944	714	38	1,192	129.52
2002	2,316	789	52	1,475	122.36
2003	2,374	732	80	1,562	85.16
2004	778	37	62	679	75.76
2005	386	0	39	347	53.63
2006	350	6	37	307	66.31
2007	516	26	56	434	65.42
2008	829	188	497	144	95.98
2009	783	126	315	342	79.17
2010	489	77	181	231	54.22
2011	199	0	86	113	15.49
2012	495	67	195	233	46.76
2013	397	51	153	193	36.69

Changing of Neritic Tunas and King Mackerel in the Andaman Sea

Figures 1a - 1c show change of catch by species break down from national statistic and gears.

Longtail tuna (*Thunnus tonggol)* catch was varied from 1,726 to 17,419 tons during 1998 to 2013. The trend of catch was decreasing since 1998 (17,419 tons) to 2005 (1,819 tons) and had increased again in 2006 (2,053 tons) to 2013 (6,264 tons). The changing of catch shows in Figure 1a.

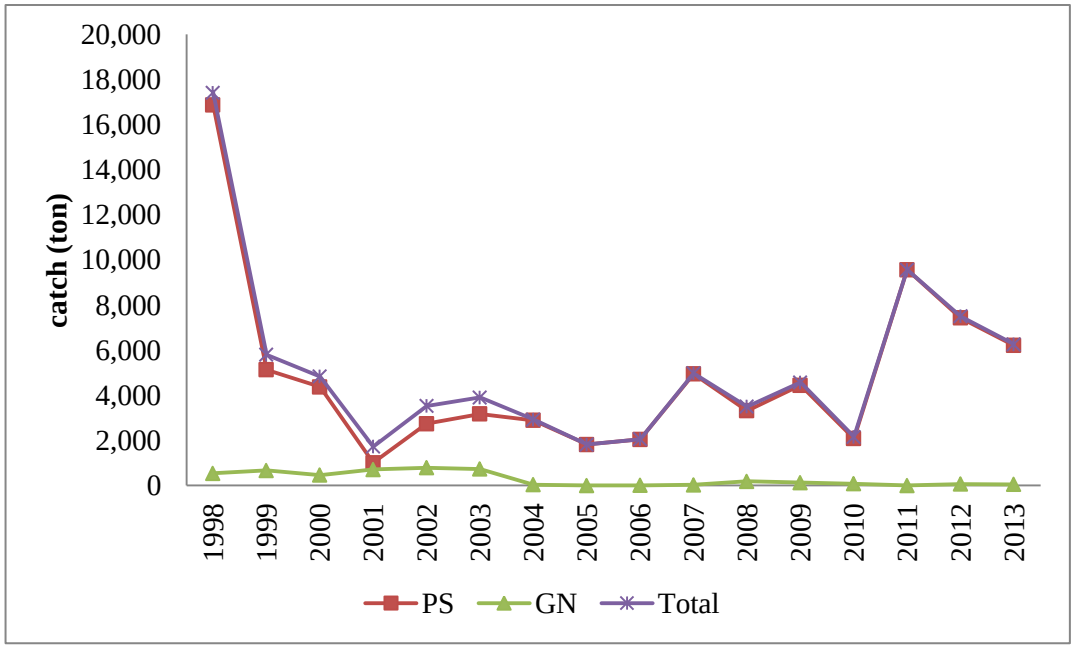


Figure 1a. Change of longtail tuna catch in Andaman Sea, 1997-2013

Kawakawa have been reported in the Thai national statistics as the mix of kawakawa (*Euthynnus affinis*) and frigate tuna (*Auxis thazard* and *A. rochei*). The fishers haven't identified cause of same price categories. The catch was varied from 2,985 to 17,120 tons during 1998 to 2013. The trend of catch was decreasing since 1998 (17,120 tons) to 1999 (2,985 tons) and had increased again in 2000 (7,374 tons) to 2005 (11,357 tons), then decrease to 7,756 tons in 2013. The changing of catch shows in Figure 1b.

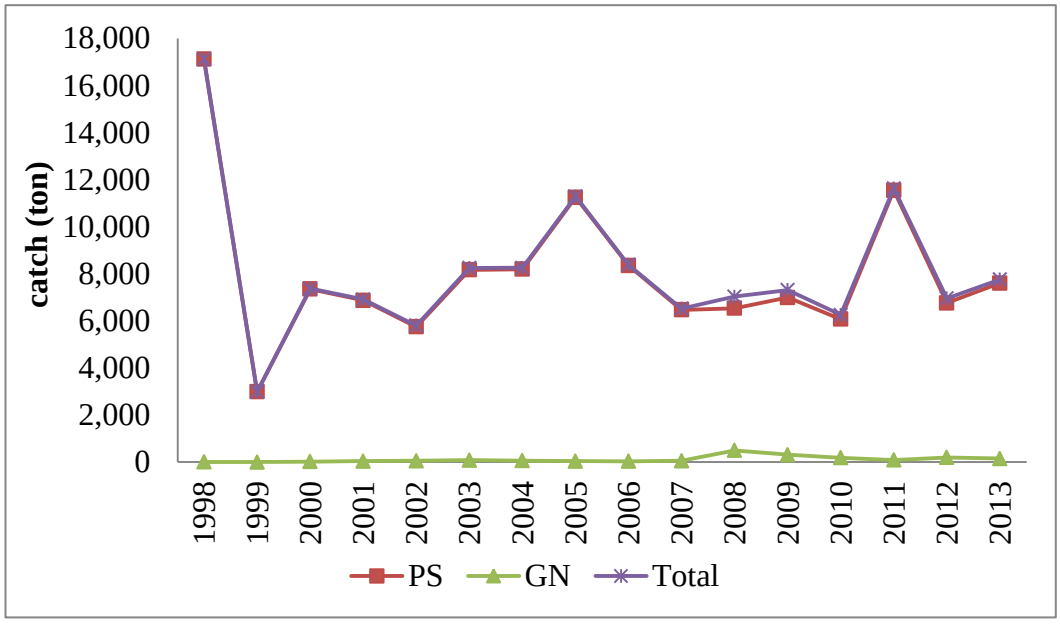


Figure 1b. Change of kawakawa and frigate tuna catch in Andaman Sea, 1998-2013.

King mackerel (*Scomberomorus* spp.) was showed the trend of catch in Figure 1c, their catch varied from 255 to 2498 tons during 1998 to 2013, the highest catch found in 2003.

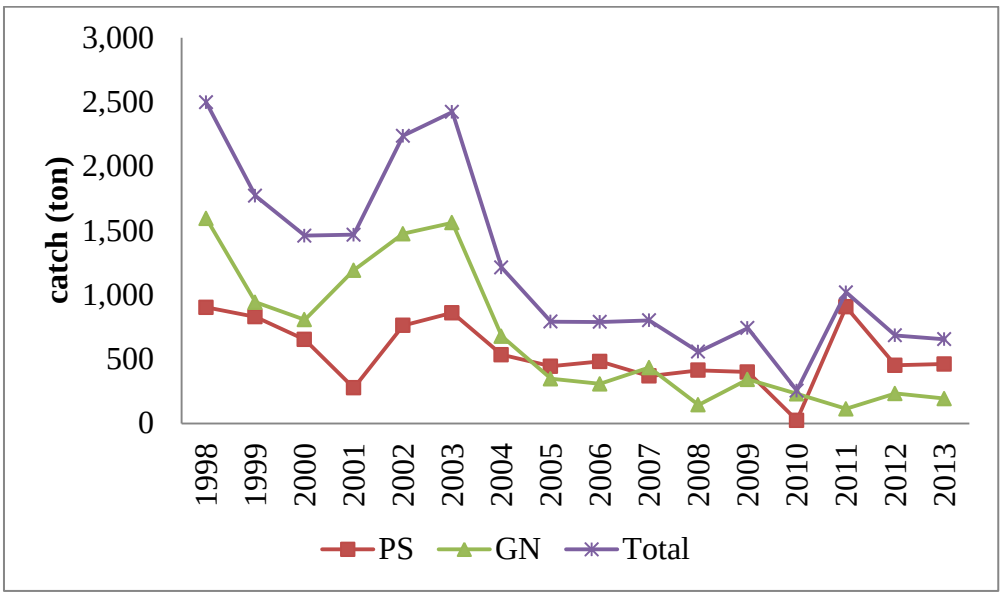


Figure 1c. Change of king mackerel catch in Andaman Sea, 1998-2013.

3.2 Tuna longliners

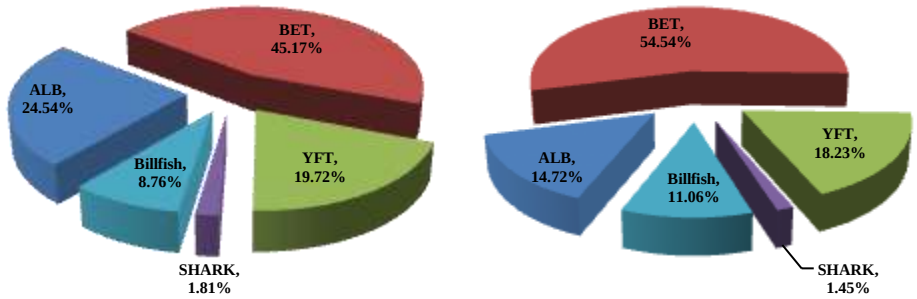
Fishing efforts, catches, percentage compositions and CPUEs between 2009-2013

Fishing efforts during 2009-2013 were shown in Table 3. In 2009, Thai tuna longliners exerted the highest fishing effort 1,335,600 hooks (477 fishing days). On the other hand, fishing efforts in 2013 were decrease to 704,400 hooks (363 fishing days).

Annual catches in 2009-2013 were estimated to 295.23, 607.69, 373.44, 470.41and 307.74 tons, respectively. The major species caught during 5 years were bigeye tuna (*T. obesus*), yellowfin tuna (*T. albacares*), albacore tuna and billfish and shark. Their total catches were 1,120.61, 374.47, 302.53, 227.18 and 29.71 tons, respectively.

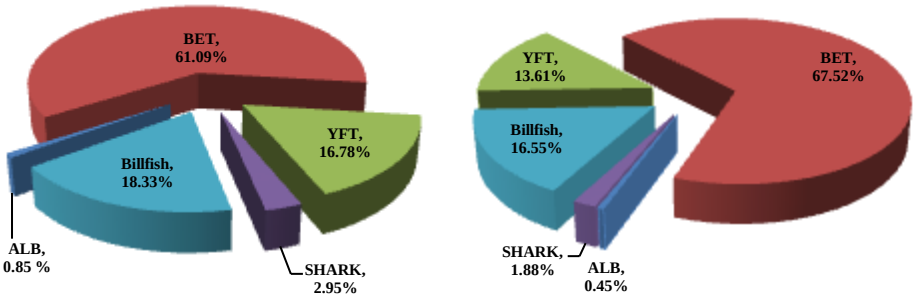
During 2009-2013, the average percentage composition by number of bigeye tuna, yellowfin tuna, albacore tuna, billfish and shark were 45.17%, 19.72%, 24.54%, 8.76% and 1.81%, respectively (Figure 2A). In contrast, catch composition by weight of bigeye tuna, yellowfin tuna, albacore tuna, swordfish and shark were 54.54%, 18.23%, 14.72%, 11.06% and 1.45%, respectively (Figure 2B).

In 2013, bigeye tuna and yellowfin tuna were shown in figure 2 with 77.87 % by number and 81.13 % by weight of the total catch composition. The percentage composition by number of bigeye tuna and yellowfin tuna were found 61.09 % and 16.78 %, respectively (Figure 3A). The percentage composition by weight of bigeye tuna and yellowfin tuna were found 67.52 % and 13.61 %, respectively (Figure 3B).



(A) By number (B) By weight

Figure 2 Catch composition by number (A) and by weight (B) during 2009-2013



(A) By number (B) By weight

Figure 3 Catch composition by number (A) and by weight (B) in 2013

During 2009-2013, the highest CPUE was found in 2010 with 13.62 fish/1,000 hooks followed by 2012 and 2013, respectively (10.83 and 10.16 fish/1,000 hooks). The average CPUE of bigeye tuna and yellowfin tuna was 6.30 fish/1,000 hooks. In 2013, total CPUE of these 2 species was 7.91 fish/1,000 hooks. In 2009, total CPUE of these species was lowest 3.63 fish/1,000 hooks. In 2013, the CPUE of bigeye tuna was 6.21 fish/1,000 hooks whilst the CPUE of yellowfin tuna was 1.70 fish/1,000 hooks (Table 3).

Table 2 Fishing efforts, annual catches and CPUEs of Thai tuna longliners

Year	Fishing days	Total Number of Hooks	Total fish		Total catch by No. and Weight										Total CPUE (fish/1,000 hooks)	
					ALB		BET		YFT		Billfish		Sharks			
			No.	Tonnes	No.	Tonnes	No.	Tonnes	No.	Tonnes	No.	Tonnes	No.	Tonnes	By No.	By Weight
2009	477	1,335,600	6,897	295.22	1,117	23.56	2,856	152.07	1,989	64.95	935	54.63	-	-	5.16	221.04
2010	473	1,324,400	18,044	607.69	11,456	263.4	2,994	170.09	2,188	93.6	1,406	80.58	-	-	13.62	458.84
2011	372	1,049,400	9,583	373.44	353	11.44	5,883	248.48	2,842	92.12	291	15.99	214	5.4	9.13	355.86
2012	388	1,083,600	11,732	470.41	120	2.72	8,021	342.18	2,311	81.92	736	25.05	544	18.52	10.83	434.12
2013	363	704,400	7,157	307.74	61	1.38	4,372	207.78	1,201	41.87	1,312	50.92	211	5.77	10.16	436.88
Total	**2,073**	**5,497,400**	**53,413**	**2,054.50**	**13,107**	**302.50**	**24,126**	**1,120.60**	**10,531**	**374.46**	**4,680**	**227.17**	**969**	**29.69**	**9.72**	**373.72**

Table 3 Fishing efforts, annual catches and CPUE of BET and YFT during 2009-2013

Year	Fishing days	Total Number of Hooks	Total catch	BET	YFT	CPUE of BET (per 1,000 hooks)	CPUE of YFT (per 1,000 hooks)	CPUE of BET&YFT (per 1,000 hooks)
			No.	No.	No.	No.	No.	No.
2009	477	1,335,600	6,897	2,856	1,989	2.14	1.49	3.63
2010	473	1,324,400	18,044	2,994	2,188	2.26	1.65	3.91
2011	372	1,049,400	9,583	5,883	2,842	5.61	2.71	8.31
2012	388	1,083,600	11,732	8,021	2,311	7.4	2.13	9.53
2013	363	704,400	7,157	4,372	1,201	6.21	1.7	7.91
Total	**2,073**	**5,497,400**	**53,413**	**24,126**	**10,531**	**4.39**	**1.92**	**6.30**

Catches of bigeye tuna and yellowfin tuna by zone during 2009-2013

During 2009-2013, Thai tuna longliners were operated in the 1st - 5thzone (R 1-5) as shown in figure 4. The highest fishing effort was in the 2nd zone (2,285,000 hooks, 921 fishing days), but it was lowest in the 1st zone (21,000 hooks, 11 fishing days).

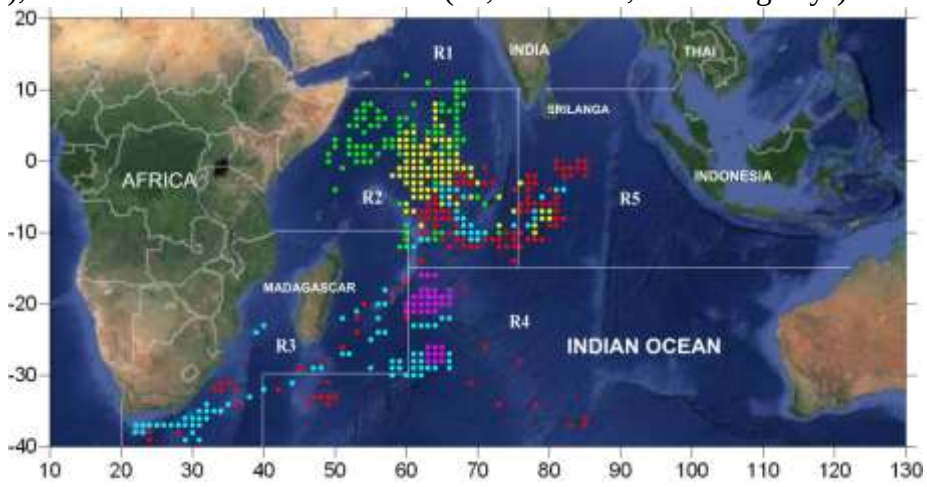
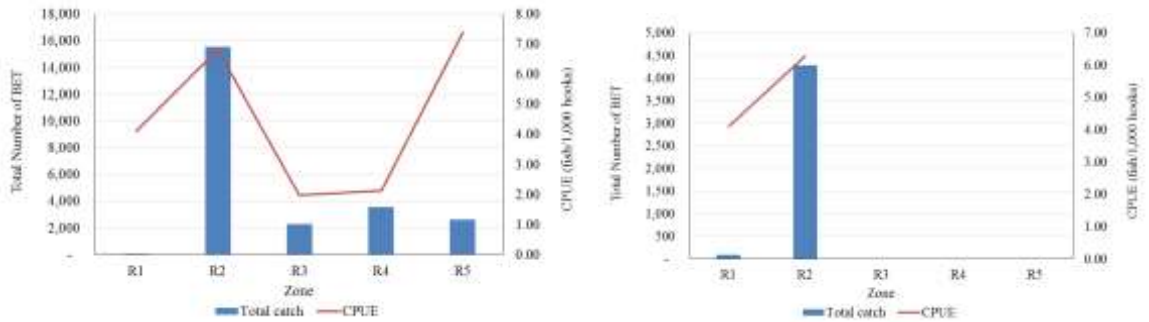


Figure 4 Fishing ground of bigeye tuna and yellowfin tuna by zone during 2009-2013

Bigeye tuna

Bigeye tuna caught during 2009-2013 was found the highest catch by number and weight in the 2nd zone (15,571 fish, 690.85 tonnes) and the lowest in the 1stzone (86 fish, 3.70 tonnes). However, the highest CPUE was in the 5th zone (7.39fish/1,000 hooks) and the lowest in the 3rd zone (1.97 fish/1,000 hooks). (Figure 5A, 5B; Table 3)

In 2013, Thai tuna longliners were operated only in the 1stzone and the 2nd zone. The fishing effort in the 1st zone was 21,000 hooks with 11 fishing days and the 2nd zone was 683,400 hooks with 352 fishing days. Total catch of the 1stzone and the 2nd zone were 86 fish and 4,286 fish, respectively. Average CPUE of bigeye tuna in this year was 6.21 fish/1,000 hooks (Table 4).



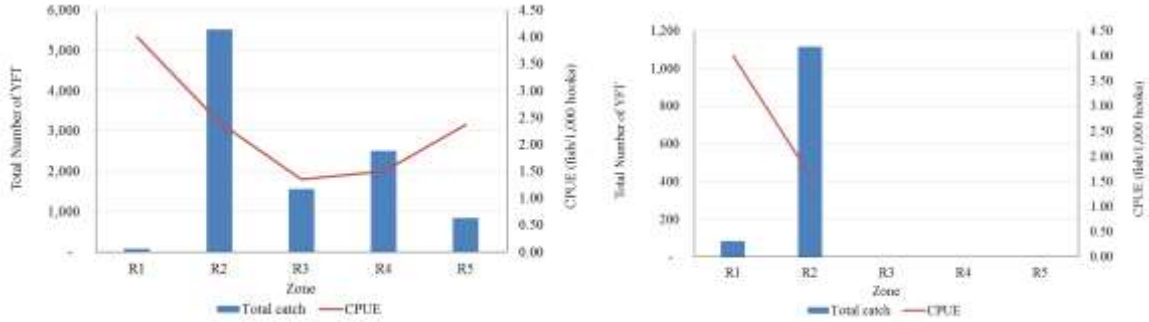
(A) Number and CPUE during 2009-2013 (B) Number and CPUE in 2013

Figure 5 Number and CPUE of bigeye tuna by thai tuna longliner fishery during 2009-2013

Yellowfin tuna

The catch of yellowfin tuna during 2009-2013 was recorded the highest by number and weight in the 2nd zone (5,527 fish, 190.62 tonnes) and lowest in the 1st zone (84 fish, 3.07 tonnes). Contrarily, the CPUE was highest in the 1st zone (4.00fish/1,000 hooks) and lowest in the 3rd zone (1.35 fish/1,000 hooks). (Figure 6A, 6B; Table 4)

In 2013, total catch of yellowfin tuna in the 1stzone and the 2nd zone were 84 fish and 1,117 fish, respectively. Average CPUE of this species was 1.70 fish/1,000 hooks (Table 5).



(A) Number and CPUE during 2009-2013 (B) Number and CPUE in 2013

Figure 6 Number and CPUE of bigeye tuna by thai tuna longliner fishery during 2009-2013

Table 4 Fishing efforts, catches and CPUE by zone during 2009-2013

Zone	Fishing days	Total Number of Hooks	Total catch	BET		YFT		ALB	Billfish	Shark	CPUE (fish/1,000 hooks)	CPUE of BET (per 1,000 hooks)		CPUE of YFT (per 1,000 hooks)	
			No.	No.	tonnes	No.	tonnes	No.	No.	No.	No.	No.	tonnes	No.	tonnes
R1	11	21,000	196	86	3.70	84	3.07	0	26	0	9.33	4.10	0.18	4.00	0.15
R2	921	2,285,000	24,938	15,571	690.85	5,527	190.62	622	2321	897	10.91	6.81	0.30	2.42	0.08
R3	416	1,159,200	15,725	2,287	126.02	1,566	67.39	10788	1084	0	13.57	1.97	0.11	1.35	0.06
R4	599	1,677,200	8,689	3,560	189.74	2,513	83.75	1522	1094	0	5.18	2.12	0.11	1.50	0.05
R5	126	355,000	3,865	2,622	110.31	841	29.65	175	155	72	10.89	7.39	0.31	2.37	0.08
Total	2,073	5,497,400	53,413	24,126	1,120.6	10,531	374.5	13,107	4,680	969	9.72	4.39	0.20	1.92	0.07

Table 5 Fishing efforts, catches and CPUE by zone in 2013

Zone	Fishing days	Total Number of Hooks	Total catch	BET		YFT		ALB	Billfish	Shark	CPUE (fish/1,000 hooks)	CPUE of BET (per 1,000 hooks)		CPUE of YFT (per 1,000 hooks)	
			No.	No.	tonnes	No.	tonnes	No.	No.	No.	No.	No.	tonnes	No.	tonnes
R1	11	21,000	196	86	3.70	84	3.07	-	26	-	9.33	4.10	0.18	4.00	0.15
R2	352	683,400	6,961	4,286	204.09	1,117	38.81	61	1286	211	10.19	6.27	0.30	1.63	0.06
R3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
R4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
R5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	363	704,400	7,157	4,372	207.8	1,201	41.9	61	1,312	211	10.2	6.21	0.29	1.70	0.06

3.3 Foreign Tuna Fleets Unloading in Phuket

Both of unloaded tuna from longline and purse seine fisheries are examined in term of effort, catch and value, species composition, landing production categorized by flag countries. The objective of this study is to follow up the data on tuna fisheries in the Indian Ocean, thus the available data at first from the beginning of tuna longliners unloading in Phuket until the year of 2013 and the data of tuna purse seiners unloading in Phuket during 2003 to 2013.

Fresh Tuna Longliners:The fishing effort increased steadily from 187 trips in 1995 to the peak of 883 trips in1999, after then it fluctuated in narrow scope and continuously decreased into 261 trips in 2013. The whole figure of total landing catch during 1995 to 2013 showed the increasing trend (1,416 to 4,923 tons) although it showed some distinct decreased in between, which decreased from 4,373 tons in 1999 to 3,118 tons in 2000 and decreased from 5,953 in 2005 to 4,830 tons in 2006. The landing per trip decreased opposite with the total landing catch and the fishing effort during 1995 to 1996 (from 8 into 5 tons/trip) after then it's steady until 2001 and increased continuously into 13 tons in 2009 (Figure 7 and 8). Due to fuel crisis since July 2003 to 2013, the longliners reduced their cost by transshipment at sea with other contracting fishing vessel, for this reason the fishing vessel could stay and fish longer at sea.

The main species composition were yellowfin tuna (YFT), bigeye tuna (BET), miscellaneous species (MSC) (Sharks, *Lepidocybium* spp., *Coryphaena* spp., *Thunnus alalunga*, *Molar* spp., *Ruretlus pretiosus*, *Sphyraena* spp. and *Taractichtis* spp.) and bill fish (BILLs) (*Makaira* spp., *Tetrapturus* spp, *Istiophorus* spp.) with the average composition 62 20 9 and 5% of total landing respectively, while swordfish (SWO) contributed 4% of the total landing during 1995 to 2013. The total landing of yellowfin tuna, miscellaneous species, swordfish, bill fish and bigeye tuna in 2013 were 2,488 756 692 555 and 432 tons, respectively (Figure 9). Taking in to account of the percentage of main target species, yellowfin tuna fluctuated during 1995 to 2002 with the peak of 80.8% of total landing in 1998, while the percentage of bigeye tuna fluctuated opposite with yellowfin tuna during 1995 to 2002 with the peak 49.7% of total landing in 2002, after then, it continued downward trend to 11.8% of total landing in 2007, increased to 22.9% in 2008 and decreased lowest to 4% in 2010. It was to be remarked that the declaration of sharks were disappear since 2000 while the miscellaneous fish was declared as frozen mixed fish and indicated more significant. In 2011 and 2012 the frozen mixed fish accounted 20.5%, 28% of the total landing catch and decreased to 15.4% in 2013 (Figure 10).

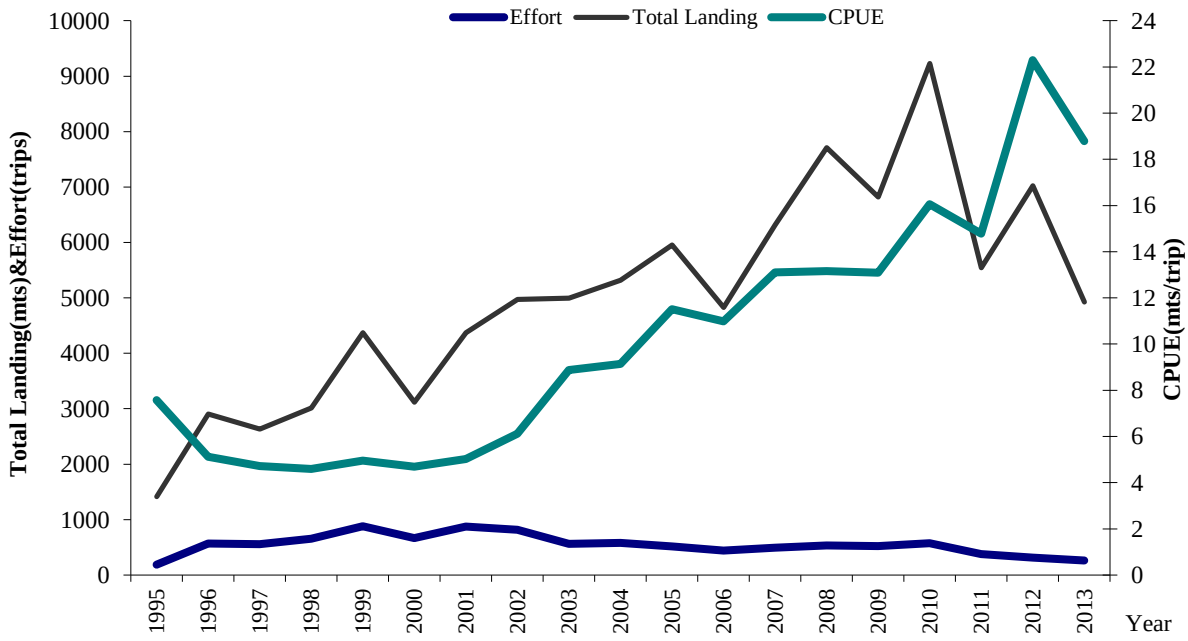


Figure 7 Change of fishing effort, total landing catch (tons), and CPUE (tons/trip) of longliner from 1995 to 2013.

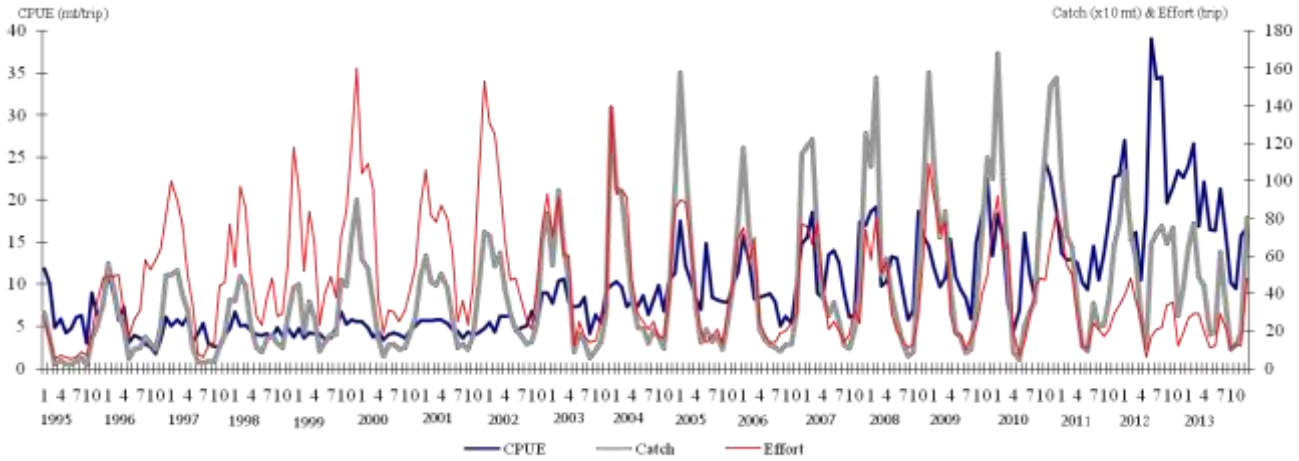


Figure 8 Changes of CPUE (tons/trip), total landing catch (tons) and fishing effort (trip) of longline fleets from 1995 to 2013.

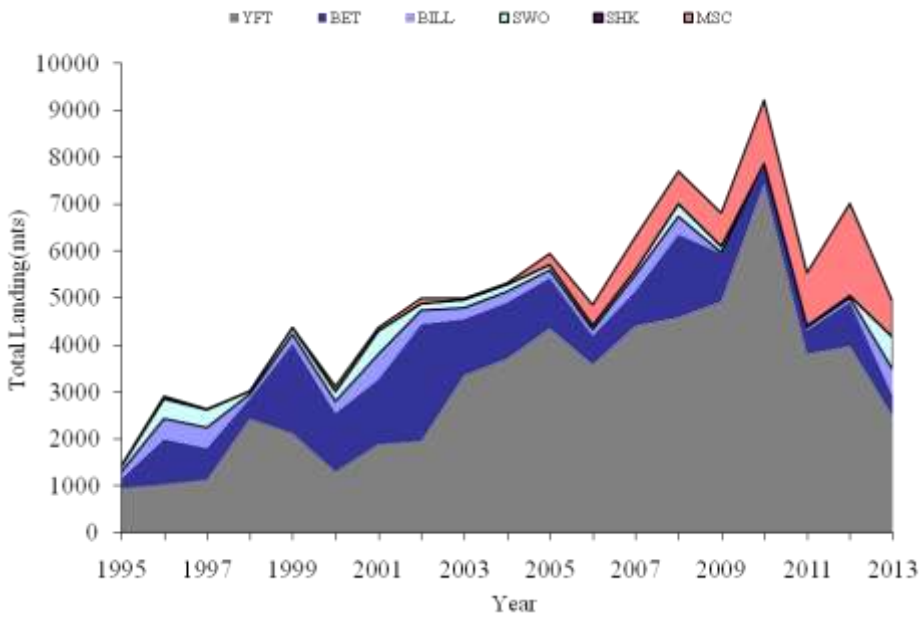


Figure 9 Total landing catch from long liners categorized by species, during 1995 to 2013.

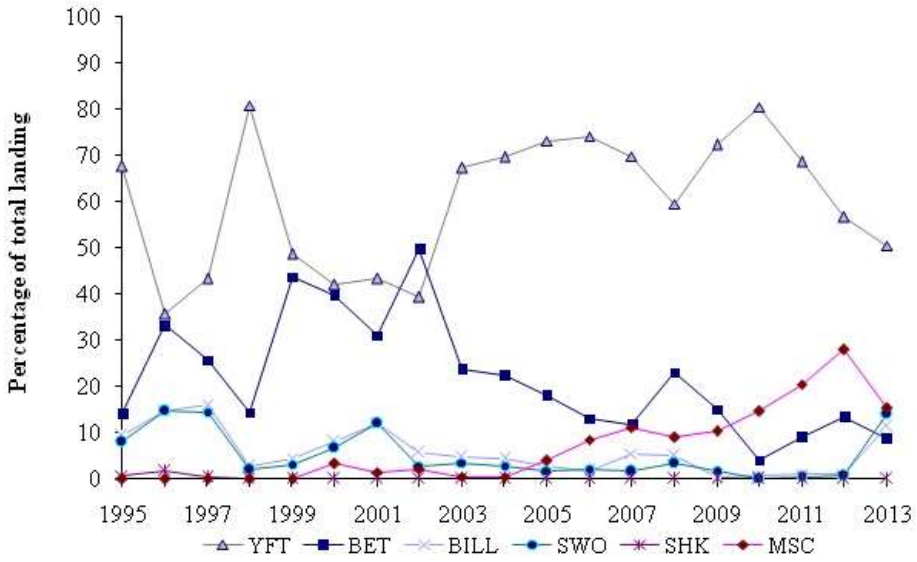


Figure 10 Total landing catch from long liners categorized by main target species, during 1995 to 2013.

Total landing and effort statistics by each vessel nationality (Taiwanese, Chinese, Indonesian, Thai, Vanuatu, Malaysian Belizean Indian and Bolivian) during January in 2000 to December in 2013. The main fishing fleet still was Taiwanese followed by Indonesian. In January to November of 2003, there was no landing of Chinese longliner because some of the fleet resigned the contract and moved back to their own country and some of the remainder vessels were repaired at the dock in Phuket then shifted to operate in the Oman water. Although the Chinese longliners came back to landing in Phuket again in 2004, after that year there were few and far between of landing. In 2007, the Thai longliner landed for five trips and there was one trip of landing from Vanuatu vessel, In 2008, 2009 the Malaysian longliner was landed one trips per years and 9 trips in 2011. The Belizean was landed 65, 63 and 26 trips in 2010, 2011 and 2012 respectively. In 2011, Indian longliner landed for 2 and 22 trips of the Bolivian longliner was landed in 2013. Average of landing catch of Taiwanese longliner showed higher than Chinese longliner while average of

landing catch of Indonesian longliner was the highest variation (1 to 39.28 mts/trip). Cause of high landing catch of Taiwanese and Indonesian longliners longer of the fishing day, 25 - 35 days and 20 - 25 days, respectively, and the fishing was operated all hours a day while Chinese longliner ‘s fishing days was approximately 10-20 days and operated either day or night-time.

Figure 11 showed pie graphs of species composition during 2000-2013 from each vessel nationality which yellowfin tuna and bigeye were the main composition. In 2013, the main composition was yellowfin tuna followed by miscellaneous species and swordfish, respectively. As it was mentioned previously, the unidentified miscellaneous species were significant increasing, 18% from Taiwanese, 14% from Indonesian, 10% from Belizean and 13% from Bolivian were unloaded.

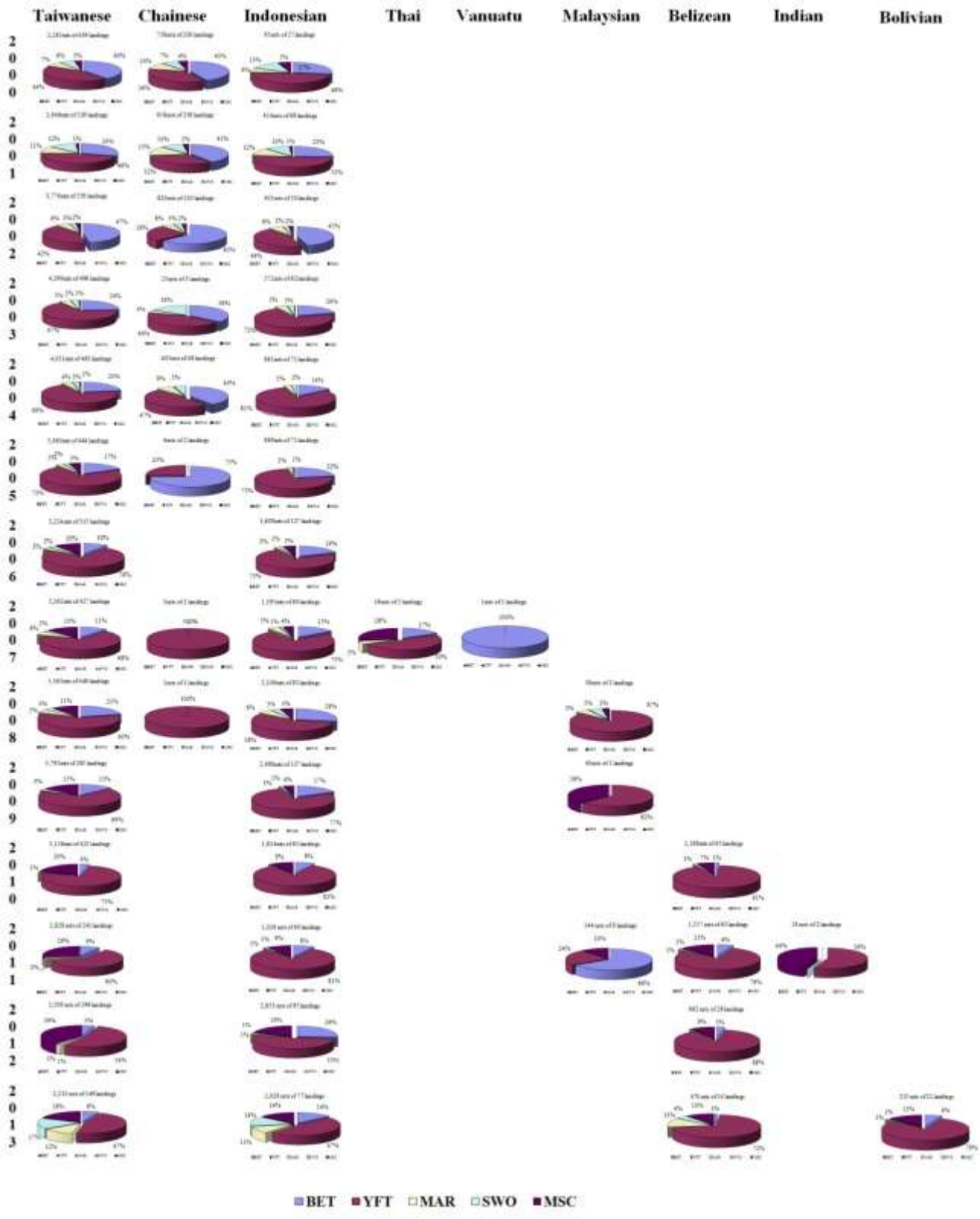


Figure 11 Species composition from tuna longliners landing in Phuket during 2000-2013, categorized by flag countries.

Tuna Purse Seiners: There were only Japanese tuna purse seiners landed in Phuket during the last six years which were the six vessels of the size range 349-477 (GRT, Gross Ton Net) 63.24-75.97 m (LOA, length overall). Type of preservation was brine and fish was kept as frozen. During 2003 to 2006, there was only Nippon Maru landed for 2-6 trips/year. In the later year, 2007, they were five vessels with totally landed of 12 trips. In 2008 there were five vessels with totally landed of 10 trips. In 2009 there were two vessels with totally landed of 8 trips. During 2010 to 2012 Nippon Maru was landed of 4, 6 and 4 trips, respectively. But in 2013, there was no landing of tuna purse seiners in Phuket.

Table 6 Number of foreign tuna purse seines landed in Phuket during 2003 - 2012.

Type of vessel	Number of landing										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	**Total**
Tuna Purse Seiners	4	3	6	2	12	10	8	4	6	4	**59**

Fishing Ground: The tuna purse seiners operated in the fishing grounds between latitude 05° 00′ N to 10° 41′ S and longitude 59° 12′ E to 98° 48′ E. The most intensive fishing effort was operated in the West of Indonesia and the areas around Maldives and Chagos while there were scantily fishing in the East of Somalia and around Seychelles. During 2003 to 2012 the tuna purse seiners operated only the fishing grounds where were near by the landing site, West of Indonesia and the areas around Maldives and Chagos. Thus it saved the cost of fuel (Figure 12).

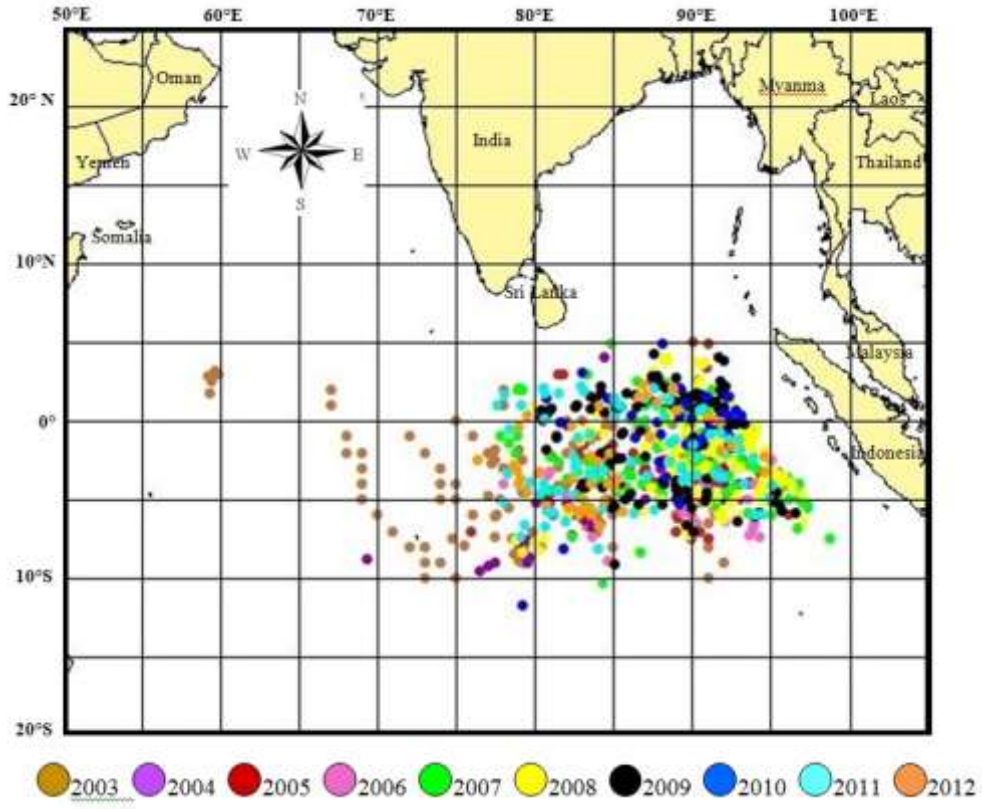


Figure 12 Fishing grounds of tuna purse seiners which landing in Phuket, 2003- 2012.

Catch and Species composition: Catch and percentage composition of skipjack, ellowfin tuna and bigeye tuna during 2003 to 2012 were 20,032 (62.8%), 5,041 (15.6%) and 6,760 tons (21.6%), respectively. The total catch of the three species during 2003 to 2012 were 31,833 tons (Table 7). There was a few of by-catch which the most frequented observed species was triggerfish, *Abalistes stellaris* (Bloch & Schneider, 1801).

Table 7 Catch and value of tunas caught by foreigner's purse seine landed in Phuket during 2003 - 2012.

Year	SKJ		YFT		BET		total
	Mts	%	Mts	%	Mts	%	Mts
2003	1,755	61.6	465	16.3	630	22.1	2,850
2004	1,602	66.8	324	13.5	474	19.8	2,400
2005	3,246	65.7	998	20.2	696	14.1	4,940
2006	895	66.3	220	16.3	235	17.4	1,350
2007	3,074	62.8	754	15.4	1,066	21.8	4,894
2008	2,435	60.7	874	21.8	703	17.5	4,012
2009	3,170	62.9	529	10.5	1,343	26.6	5,042
2010	912	52.6	311	17.9	512	29.5	1,735
2011	1,708	62.1	362	13.2	680	24.7	2,750
2012	1,235	66.4	204	11.0	421	22.6	1,860
Total	20,032	62.8	5,041	15.6	6,760	21.6	31,833

RECREATIONAL FISHERY

Recreational fishery for tuna and tuna-like species is not a popular fishing game in Thailand, and they are only occasional and seasonal events in Andaman Sea (Indian Ocean).

4. ECOSYSTEM AND BYCATCH ISSUES

Thailand has several measures to reduce the impact of fishing on marine ecology such as 1) prohibited trawler and push netter with engine operated within 3 kilometers from the shore line 2) mesh size regulation for purse seine to reduce a juvenile from the catches, and 3) determination of closed area and season in particular fish species.

Sharks

Referring to the Thai Fisheries Statistics during 1995 to 2009, it was reported that sharks and rays were mainly caught by otter-board trawler and pair trawler where their fishing areas are located in the Thai's EEZ. In addition, there is no record from the Thai tuna long liners and purse seiners on the shark by-catch from their fishing operation in the Indian Ocean. (only 2007 was recorded).

However, there are a numbers of national initiatives related to conservation and management of sharks. It includes: (i) development in 2012 and will be endorsement of the National Plan of Actions for Sharks in 2015; (ii) a series of study on shark by-catch using the national research vessels; (iii) development of handbook for sharks species identification and its database system for sharks and rays found in Thailand in 2012-2014; and (iv) participation of the staff concerned of Department of Fisheries to the meetings related to sharks/rays conservation and management (e.g. organized by SEAFDEC in September 2011, in Bangkok, Thailand).

Based on the major findings from a study on shark by-catch in the pelagic longline fishing along the Ninety East ridge carried out by the national research vessels in 2011-2012,

it was found that a total of 232 individuals that belong to 18 species were caught. The largest proportion of the catch was mainly tuna, followed by sharks, marlin and swordfish (Table 8).

National Plan of Action for Conservation and Management of Shark of Thailand. In an effort to strengthen the conservation and sustainable utilization of sharks, Thailand has published its NPOA-Sharks, based on the guidelines of the IPOA-Sharks. Data collection on shark fisheries has been carried out in three fishing areas: Samut Prakan and Songkhla provinces in the Gulf of Thailand, Phuket province in the Andaman Sea. The expected outcome of this project is a solid and reliable set of data and information that can serve as a basic tool of the national policy on shark conservation and management.

Table 8. Results from the study on by-catch in tuna longline fishing in Indian Ocean carried out by the national research vessel of Department of Fisheries - Thailand, in February 2011

Common name	Scientific name	Individual
Target catch		
Bigeye tuna	*Thunnus obesus*	22
Skipjack tuna	*Katsuwonus pelamis*	2
Yellowfin tuna	*Thunnus albacores*	31
Bycatch species – sharks and rays		
Blacktip shark	*C. limbatus*	3
Blue shark	*Prionace glauca*	4
Croccodile shark	*Psudocarcharias kamoharai*	2
Pelagic stingray	*Pteroplatytrygon violacea*	9
Silky shark	*Carcharhinus falciformis*	3
Bigeye thresher shark	*Alopias superceliosus*	1
Bycatch species – others		
Blue marlin	*Makaira mazara*	2
Dolphin fish	*Coryphaena hippurus*	2
Escolar	*Lepidocybium flavobrunneum*	25
Great barracuda	*Sphyreana barracuda*	1
Lancet fish	*Alepisaurus ferox*	105
Sickel pomfret	*Taractichthys steindachneri*	8
Snake mackerel	*Gempylus serpens*	1
Swordfish	*Xiphias gladius*	4
Wahoo	*Acanthocybium solandri*	7
Total		***232***

Seabirds

NONE

Marine Turtles

Thailand is one of the countries that actively involved in the conservation programme of turtles long time ago.

Under Fisheries Act 1974, turtle and marine mammals are not allowed to be fished, disturbed or taken for whatever means without the permission of Fisheries authority. The turtles and marine mammals that are accidentally caught alive during fishing have to be release immediately.

Other ecologically related species

No record available on the number of accidental caught marine animals and whale sharks by Thai fishing vessels. Under Fisheries Act 1974, Whale shark are not allowed to be fished,

disturbed or taken for whatever means without the permission of Fisheries authority.

5. NATIONAL DATA COLLECTION AND PROCESSING SYSTEM

There are two national agencies collecting, processing, analyzing, and reporting fishery landing data, namely (i) Fisheries Statistics Analysis and Research Group (FSARG); and (ii) Marine Fisheries Research and Development Bureau (MFRDB). Generally, the FSARG is responsible for collecting national fisheries statistics; MFRDB collects mainly data/information as for research-based activities. FSARG is collecting two types of data in collaboration with Provincial Fisheries Offices, namely, (a) marine fisheries statistics based on the sample survey (logbook survey) and (b) marine fisheries statistics at landing sites. Marine fisheries statistics based on the sample survey means that landing of a fishing vessel (distinguished to be sample) is counted on the province where her fishing gear is registered wherever the vessel actually landing her catches. Survey on this type of data is conducted by logbook survey for large to middle-scale fisheries by FSARG started this survey in 1964 (catch by species/species group and fishing effort). Marine fisheries statistics of landing sites means that landing of a fishing vessel is counted on the landing place where she actually unloads her catch. FSARG has been conducting the survey of this type at 37 selected landing sites along Thai coasts since 1974.

5.1 Logsheet data collection and verification

Sampling survey using logbook will be carried out for marine fisheries statistics. For the commercial-scale fishing vessels, FSARG samples vessels at the following sample rate for each fishing gear based on the fishing vessels registration statistics of the year. The sampling rate is decided based on the variation of catches of each fishing gear. Random sampling is employed for selected vessels in principle. The list of vessels sampled in this way for each province is sent to respective Provincial Fisheries Office. The enumerator of the Provincial Fisheries Office visits owners of sampled fishing vessel monthly and fills the datasheet that prepared by FSARG. When the enumerator is not able to obtain sufficient data by the interview survey, he/she collects Fish Tickets (records of fish landing prepared by fish traders who buy fish from the owner, fish brokers who intermediate fish trade between fishes and fish trader, or Fish Marketing Organization or Fishers' Cooperatives who manages fish landing places) to obtain further information to fill the datasheet. In many cases, only records in Fish Tickets are available later.

For the survey of MFRDB, there are two types of landing statistics survey, including (i) landing survey of Thai fishing vessels, and (ii) landing survey of foreign fishing vessels. Generally, the survey team of MFRDB will visit each landing site once a month and interview fishing master to obtain information such as vessel name, fishing gear, fishing days, total weight and species composition of catch. They collect the pelagic fish sample, including neritic tuna sample from the landing and take measurement of total length/fork length. They collect the fish landing records monthly also from the Fish Market Organization to obtain data on the total number of vessels unloaded their catches and total weight of fish landed by species for each fishing gear. From the landing records, they also obtain data of monthly landed weight of fish by species for each fishing vessel.

At present Thailand have developed and implemented on Catch Certificate Exemption Statement since 1st January 2010 by apply Catch Certificate and Fishing Logbook following Deter and Eliminate Illegal, Unreported and Unregulated Fishing. Then, the system of estimate the total production of neritic tunas and seer fish will be gathering and improve on the percentage of coverage of logbook.

5.2 Vessel monitoring system

Thailand will start and implement the VMS system on artisanal purse seine in 2011. Regarding, the commercial purse seiner and distant longliner have already implemented the VMS system onboard in compliance with the fisheries management authorities.

5.3 Observer programme

The programme/scheme has been postponed, due to the insufficient fund.

5.4 Port sampling programme

Fish species caught by local purse seiner and trawler are classified into 24 and 324 species/groups, respectively by MRFDB. Fish species caught by foreign fishing vessels are classified into species level as species composition of their catch is simple except for sharks which are aggregated as "sharks" whatever species are included. MRFDB obtains data of total weight by species in all surveys. Furthermore, they obtain weight and length data for specimens collected from landed fish. Therefore, size frequency data is available for tuna and tuna-like species. MRFDB obtains number of fishing trips, fishing-days and fishing operations for Thai purse seiners, while number of fishing trips, fishing day, fishing operation and fishing hours for Thai trawlers. For foreign longliner, Andaman Sea Fishery Research and Development Center (AFRDEC) obtains number of trips and day per trip, while number of trip, day per trip, and operation by fishing ground for foreign purse seiner.

For the landing survey of foreign vessels, it was observed that the commercial tuna purse seine vessels (foreign vessels and a Thai vessel which operated only during 1998-2001) unloaded their catches at Phuket since 1993. In recent years, the number of commercial tuna purse seiners operating in the Eastern Indian Ocean has declined and only one Japanese research vessel "Nippon Maru" is operated there and unloading her catches at Phuket in 2001. Andaman Sea Fisheries Research and Development Center (AFRDEC) have been conducting port sampling and landing survey on those industrial tuna purse seine vessels at Phuket deep-sea port since 1993. The logsheet of AFRDEC's data collection includes information on vessel (name, flag, and registration number), the port of unloading, the vessel's agent in the port of unloading, the dates of unloading, fishing days per trip, and the amount and value of the fish unloaded by species. The logsheet was improved in 1999 to include information related to fishing trips and fishing operation. The trip data include the dates and ports of departure and return, and the number of net shooting per trip. The operation data include the time, location, and target species for each fishing operation. AFRDEC also collects some specimen from the landed catches and conducts detail biological examination, including measurements of fork length and weight, stomach contents, determination of sex and reproductive stage and otolith sample taking.

For the tuna longline owned by Taiwanese, Chinese and Indonesian, it was recorded that they started to unload their catches at Phuket fishing port in 1994, 1996 and 1999, respectively. AFRDEC has been conducting landing and biological data collection on tuna, tuna-like and by-catch species unloaded by those tuna longline vessels. The data collection includes vessel information (name, flag and registration number), fishing ground, vessel's agent, date of unloading, and amount and value of fish unloaded by species. AFRDEC collects data and related information through interviewing master fishermen, checking records of the agent, Fish Marketing Organization and Custom Office of Phuket. In addition, AFRDEC also issues the "Certificate of Origin" based on those data and information.

6.5. Unloading/Transhipment

The cooperation program between Thai DOF and IOTC-OFCF was finished in December 2006. As the information of catches taken by foreign vessels operating in the Indian Ocean and landed at the fishing port in Thailand is so important not only for Thailand but also for

IOTC. Nowadays, Thailand is still continuous collecting data from foreign longliner and purse seiner that landing catch at Phuket Province.

The activities involve collecting the number of landings, catch, vessel operating (no. of trip), weight samples, interviewing, biological samples and other activities such as collection of information of shark, other species, and study age of the fish by using otolith.

In case of fresh tuna longliner, the percentage of data coverage is less than 30 percent and followed all the protocol from the previous cooperation program.

6. NATIONAL RESEARCH PROGRAMME

The following research programs were carried out by DOF – Thailand:-

Table 8. Summary table of national research program

Project title	Period	Countries involved	Budget total	Funding source	Objective	Short description
Study on length frequency distribution of tuna caught by Thai tuna purse seiners in Indian Ocean				DOF-Thailand	To study on the length frequency distribution for monitor the stock size of the catch as precautionary approach for sustainable tuna fisheries in Indian Ocean.	Relationships between length and fork-length of the catch will be studies. This aims to monitor the changes in size of the catch over time series.
Foreign tuna fleets unloading in Phuket	Completed by December 2006			DOF-Thai, IOTC and OFCF	To obtain information on: catch (also shark bycatch), vessel operating (no. of trip), weight samples, and biological sampling.	Information collection on the catches of foreign vessels operating in the Indian Ocean who landed their catch at the fishing port in Phuket, Thailand, including tuna longline and purse seiner.
Neretic tuna fisheries in Thailand	Completed by October 2006			DOF-Thai, IOTC and OFCF	To enhance the data collection and processing system for neritic tuna fisheries in Indian Ocean.	IOTC and OFCF provided the technical assistance to the DOF Thailand. Collecting data of the neritic tuna fisheries along the Andaman Sea, Thailand.

Project title	Period	Countries involved	Budget total	Funding source	Objective	Short description
EU regulation to prevent, deter and eliminate IUU fishing	Since 1st January 2010			DOF-Thailand	To develop and implement: "Catch Certificate Exemption Statement" by applying EU's Catch Certificate and use of fishing logbook.	DOF will emphasize its work on the suppression of illegal practices which is along the line of the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU).
Indian Ocean: Swordfish stock structure project				IOSSS project	To study on structure and characteristics of the swordfish (*Xiphias gladius*) stock in Indian Ocean	Andaman Sea Fisheries Research and Development Center implemented this program in close co-operation with IOSSS.
Neritic tunas resources in Thai Project	To be started in 2012 to 2013			DOF-Thailand	To study biological and stock assessment of neritic tunas in the Gulf of Thailand and Andaman Sea	Stock assessment of neritic tuna will be carried out using data from at-sea survey through research activities, and data from major landing sites of tunas in the Gulf of Thailand and Andaman Sea.

7. IMPLEMENTATION OF SCIENTIFIC COMMITTEE RECOMMENDATIONS AND RESOLUTIONS OF THE IOTC RELEVANT TO THE SC.

At present Thailand have developed and implemented on Catch Certificate Exemption Statement since 1st January 2010 by apply Catch Certificate and Fishing Logbook. DOF has established two certification centers in Bangkok and Songkhla Province, and established the coordination center for certification marine capture by the Commission.

Thailand will be conducting the project "Neritic Tuna Resources in Thai Waters" during 2011 to 2013. The project will study on fisheries biology and stock assessment of neritic tuna in Thai waters. This project will fulfill constrain on up-to-date information and neritic tuna status in the Andaman Sea.

Thailand has implemented the recommendations adopted in the IOTC Scientific Committee including the following actions:-

- Collecting scientific data and information of neritic tunas distributing in the Thai waters**.**
- Conducting research surveys in the Eastern Indian Ocean to collect scientific data and information of oceanic tunas distributing in the high seas.
- Monitoring fishing operation of Thai tuna fishing vessels operating in the high seas both purse seiners and longliners (include 3-month catch report and port sampling program).
- Collecting information of foreign tuna longline and purse seine vessels operating in the Indian Ocean and unloading their catch in fishing port in Thailand.
- Collecting information and reporting bigeye and swordfish statistical document and re-export certificate.

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