Received: 17 November 2013

Thailand National Report

to the Scientific Committee of the Indian Ocean Tuna Commission, 2012

Pornchai Singhaboon

Deep Sea Fishery Technology Research and Development Institute,
Marine Fisheries Research and Development Bureau, Department of Fisheries.

Kasetsart Campus, Chatuchak, Bangkok 10900 THAILAND
e-mail: pornslek@hotmail.com

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 14 June 2011
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 14 June 2011
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 45,083 tons in 1997 to 13,093 tons in 1999. The production was quite stable around 10,711 and increase to 11,861 in 2009. 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 2008-2012 only two Thai tuna longliners kept on fishing there. Fishing grounds were mainly in the western coast of Indian Ocean. The fishing operations were recorded 2,276 fishing days. The highest total catch was in 2010 with 607.69 tonnes followed by 2012, 2007, 2011, 2009 and 2008, respectively (494.95,461.64, 370.39, 295.23 and 265.57 tonnes). The highest CPUE was found in 2010 with 13.62 fish/1,000 hooks followed by 2012 and 2007, respectively (10.80 and 10.20 fish/1,000 hooks). The major catch species wer bigeye tuna (*Thunnus obesus*) , yellowfin tuna (*T. albacores*) Albacore tuna (*T. alalunga*), swordfish and shark.

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 were 1.610 million tons shared about 50.61% of the total fishery production from fishery sectors which consisted of 66.12% from the Gulf of Thailand and 33.88% 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 and tuna purse seine 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 2012. 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. Four Thai purse seiners operated 670, 388, 436 and 227 fishing hauls respectively, in the Indian Ocean during 2007 to 2010. Fishing ground of the Thai tuna purse seiners is located in the Western Indian Ocean. Tuna purse seine fishery can be operated throughout the year in both the eastern and western parts of the Indian Ocean with the peak from February to May and September to October.

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), green purse seine (GPS), fish aggregating device (FAD), light luring purse seine (LPS), tuna purse seine (TUN), and Chinese purse seine (CPS). 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 and purse seine. In 2007, there are 3 longliners and 6 purse seiners 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 Purse Seiners	No. of Research Vessel[1] of DOF-Thailand	Size of the Vessels (GT)
2007	3	6	3	From 151 to 1,948
2008	2	4	3	
2009	2	4	3	
2010	2	4	3	
2011	2	4	3	
2012	2		3	

[1] Can operate tuna longline and purse seine

3. CATCH AND EFFORT

3.1 Catch and effort - neritic tuna

Tables 2a and 2b show the catch and CPUEs of neritic tunas from purse seine and king mackerel gillnet. CPUEs of neritic tunas show decreased trend since 1998 and keep stable from 1999 to 2012. The CPUEs trend from king mackerel gillnet show stable during 1998 to 2003, then CPUEs were reduced during 2004 to 2007 and increased again during 2008 to 2012.

Table 2a. Annual catch and effort of neritic tunas from purse seine in the Andaman Sea from 1998 to 2012

Year	Catch (tons)			CPUE
	Total	Longtial tuna	Kawakawa+ Frigate tuna	kg/day
1998	34,172	17,057	17,115	394.25
1999	8,114	5,132	2,982	117.33
2000	11,724	4,373	7,351	226.16
2001	8,224	1,012	7,212	157.79
2002	8,487	2,741	5,746	162.30
2003	11,344	3,175	8,169	178.45
2004	11,021	2,827	8,194	204.78
2005	13,137	1,819	11,318	200.93
2006	10,395	2,047	8,348	160.34
2007	11,416	4,948	6,468	186.06
2008	9,845	3,313	6,532	152.98
2009	11,405	4,412	6,993	177.33
2010	11,973	4,299	7,638	
2011	12,383	4,385	7,998	
2012	12,993	5,449	7,545	142.89

Table 2b. Annual catch and effort of neritic tunas from king mackerel gillnet in the Andaman Sea from 1998 to 2012

Year	Catch (tons)			CPUE
	Total	Longtial tuna	Kawakawa+ Frigate tuna	kg/day
1998	547	542	5	34.68
1999	670	667	3	61.18
2000	488	465	23	50.81
2001	752	714	38	50.10
2002	847	795	52	44.75
2003	812	732	80	29.13
2004	99	37	62	9.64
2005	39	0	39	5.42
2006	43	6	37	8.20
2007	82	26	56	10.56
2008	685	188	497	79.31
2009	441	126	315	44.59
2010	633	199	434	74.84
2011	752	242	510	90.65
2012				

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 20,035 tons during 1997 to 2012. The trend of catch was decreasing since 1997 (20,035 tons) to 2005 (1,819 tons) and had increased again in 2006 (2,053 tons) to 2012 (5,449 tons). The changing of catch shows in Figure 1a.

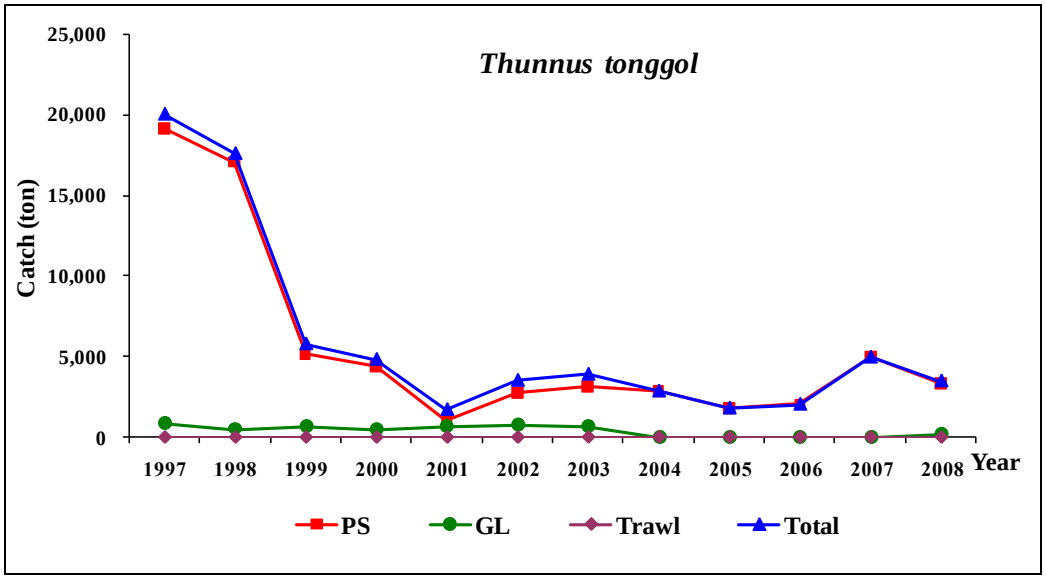

Figure 1a. Change of longtail tuna catch in Andaman Sea, 1997-2009

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 identify cause of same price categories. The catch was varied from 2,985 to 19,423 tons during 1997 to 2012. The trend of catch was decreasing since 1997 (19,423 tons) to 1999 (2,985 tons) and had increased again in 2000 (7,374 tons) to 2005 (11,318 tons). The changing of catch shows in Figure 1b.

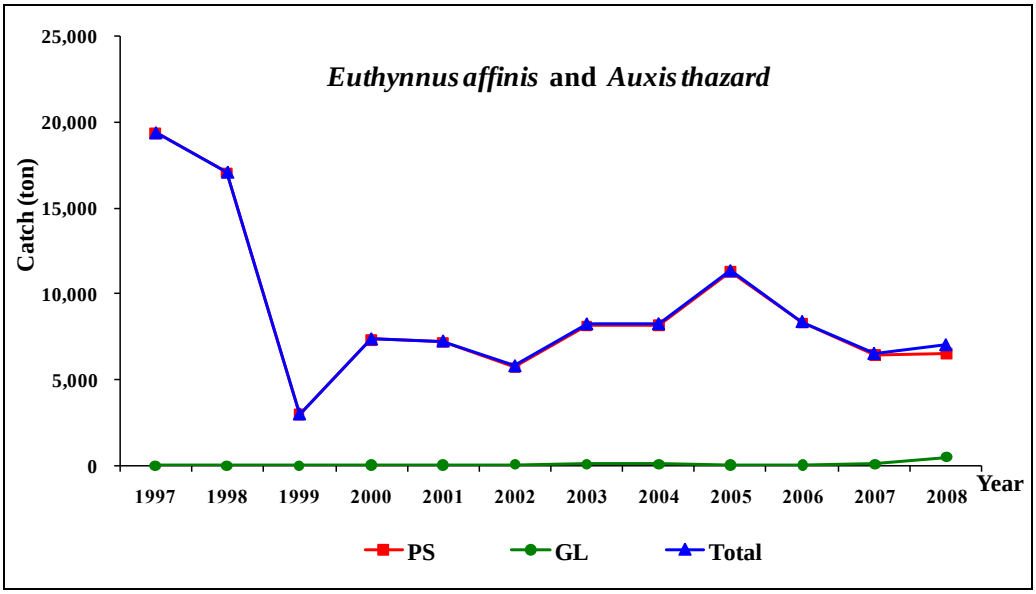

Figure 1b. Change of kawakawa and frigate tuna catch in Andaman Sea, 1997-2009

3.2 Catch and effort – tuna longliners

Fishing efforts of tuna longline during 2007 to 2012 are shown in Table 2a. In 2007, fishing effort of Thai tuna longliners was the highest at 1,503,600 hooks for 537 days of fishing. However, it shows the decreasing trend of the catch as the fishing efforts in 2012 was at 1,083,600 hooks for 387days of fishing.

Table 2a. Catch and effort of tuna longiners operated in the Indian Ocean during 2007 to 2012

Year	Fishing days	No. of Hooks (x 1,000)	Catch in number	Catches weight (tons)							CPUE (tail/1,000 hooks)
				ALB	BET	YFT	SWO	Sharks	Others	Total	
2007	537	1,503.6	15,334	115.07	138.61	111.18	8.23	0.71	87.84	461.64	10.20
2008	417	1,167.6	6,863	22.84	69.74	89.76	59.35	--	27.84	269.53	5.88
2009	477	1,335.6	6,897	23.57	152.07	64.96	54.63	--	--	295.23	5.16
2010	473	1,324.4	18,044	263.41	170.10	93.60	80.58	--	--	607.69	13.62
2011	372	1,041.6	9,746	11.44	248.6	92.12	16.00	2.22	-	370.39	9.36
2012	387	1,083.6	11,732	2.73	242.18	81.92	25.05	18.52		470.40	10.83
Total	2276	7,456,400	68,616	463.60	1,121.30	533.52	243.84	21.46	115.68	2499.43	9.20

Remarks: ALB = Albacore, BET = Bigeye tuna, YET = Yellowfin tuna, SWO = Swordfish, Others = Other species.

Annual catches from 2007 to 2012 were estimated to 461.64, 269.53, 295.23, 607.69,370.39 and 470.40 tons, respectively. The major species caught during these four years included albacore (*Thunnas alalunga*), bigeye tuna (*T. obesus*), yellowfin tuna (*T. albacares*) and swordfish (*Xiphias gladius*). Those species yield catch decreased from 2008 to 2009 but it increased in 2012 , especially for the catch of albacore and bigeye tuna that showed the highest record in 2010 (263.41 and 170.10 tons, respectively).

The CPUEs of Thai tuna longliners from 2007 to 2012 ranged from 5.16 to13.62 tails/1,000 hooks, with an average CPUE of 8.84 tails/1,000 hooks. The lowest CPUE was 9.18 tails/1,000 hooks in 2009 and highest was 13.62 tails/1,000 hooks in 2010. It found that the high catch appear in 2010 and 2012.

Figure 1d and 1e show the historical annual catch for the tuna longliners in the Indian Ocean from 2007 to 2010, by number and weight of catch, respectively.

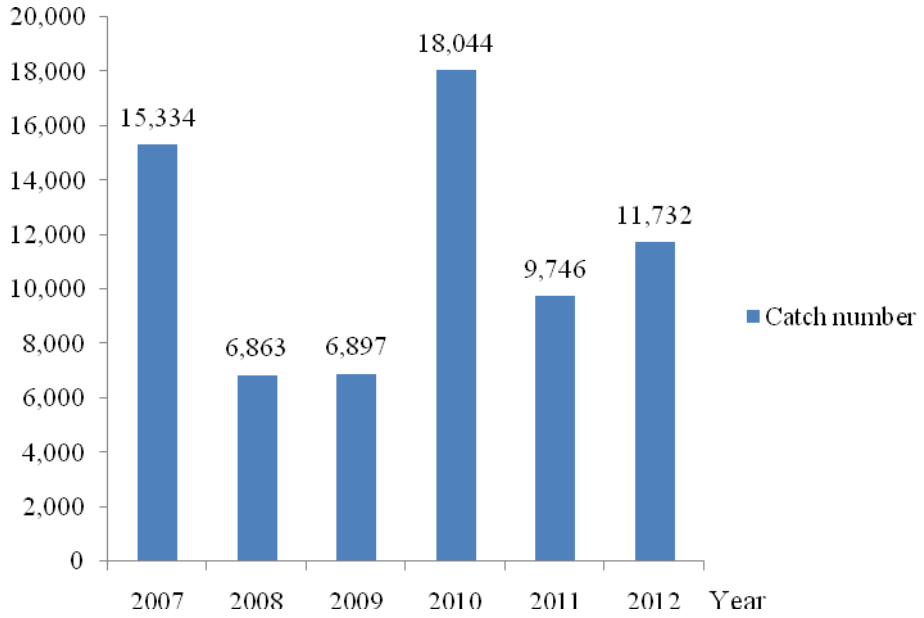

Figure 1d. Historical annual catch of the Thai tuna longliners from 2007 to 2012 operated in the Indian Ocean, by number of the catch (individual)

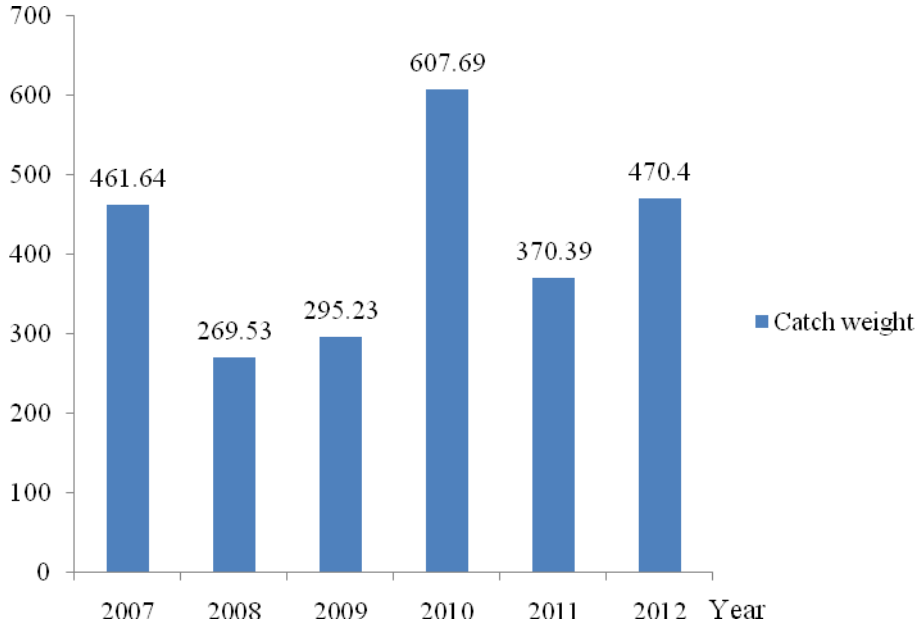

Figure 1e. Historical annual catch of the Thai tuna longliners from 2007 to 2012 operated in the Indian Ocean, by weight of the catch

The information from logbook collection found that three Thai tuna longline vessels operated in the Western Indian Ocean in 2007, while there were only 2 Thai tuna longliners remained in 2008-2012. The main fishing grounds were east coast and south of Madagascar where located southern part of the Indian Ocean (Figure 2a). However, in 2012 their fishing ground was expanded to the middle part of the Indian Ocean.

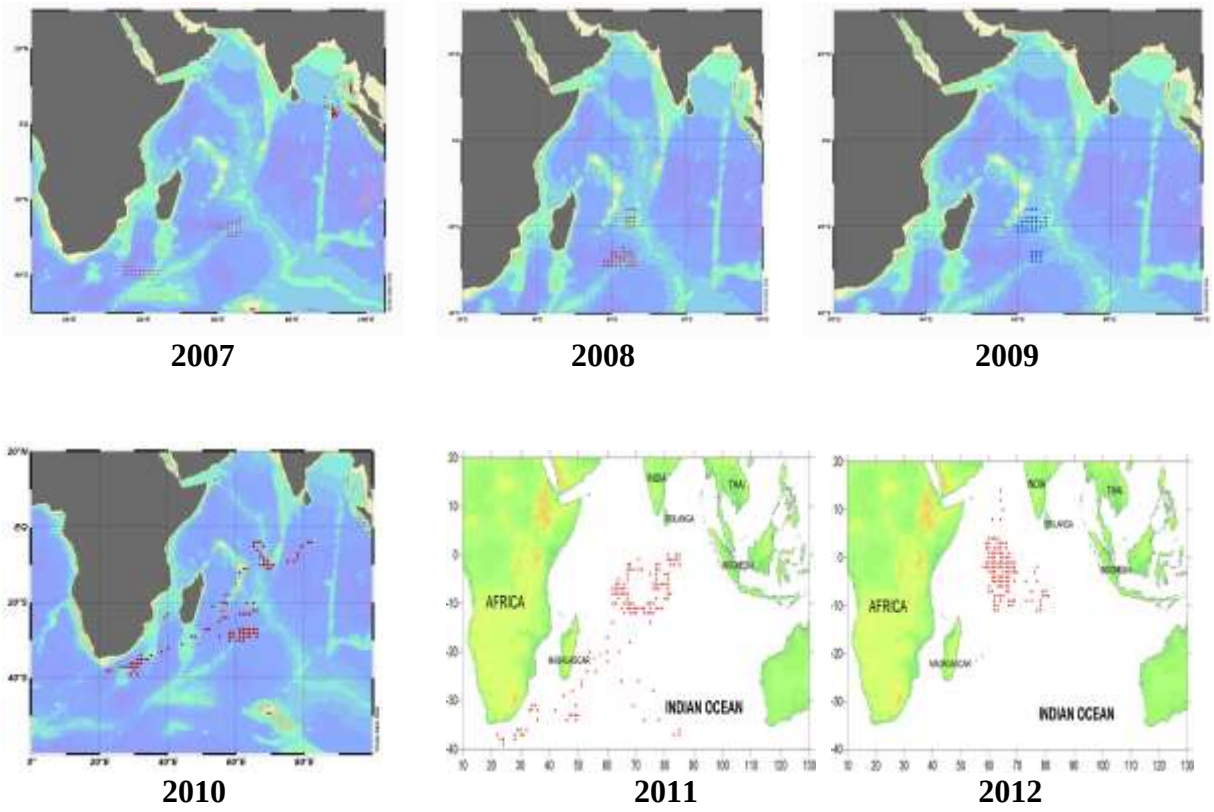

Figure 2a. Map of the distribution of the tuna longliners fishing effort in the Indian Ocean area in 2007, 2008, 2009, 2010, 2011and 2012

4. 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).

5. 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 with in 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 2007, 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 bycatch 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 and endorsement of the National Plan of Actions for Sharks in 2010; (ii) a series of study on shark bycatch using the national research vessels; (iii) development of handbook for sharks species identification and its database system for sharks and rays found in Thailand; 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).

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.

Seabirds

NONE

6. 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.

6.1 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.

7. LITERATURE CITED

Chanthip Bunluedaj and Pattira Lirdwitayaprasit. 2009. Oversea Thai Tuna Fishery of Thailand during 2008 to 2009. 5pp.

Department of Fisheries (DOF). Marine Fisheries Statistic based on the sampling survey (1996-2009). Ministry of Agriculture and Cooperative, Government of Thailand (In Thai)

Department of Fisheries. Fisheries Statistics of Thailand (1985-2009). Ministry of Agriculture and Cooperative, Government of Thailand (In Thai)

Pattira Lirdwitayaprasit. 2009. National Report of Thailand in 2009.

Pattira Lirdwitayaprasit and Phithak Chaidee 2012. National Report of Thailand in 2012.

Pirochana Sailkling, and others. 2010. Thai Tuna Fisheries in Indian Ocean during 2007 to 2010. 9pp.

Praulai Nootmorn and Pornchai Singhabon. 2007. National Report of Thailand in 2007. IOTC-2007-SC-INF15.

Praulai Nootmorn and Sopana Boonyapiwat. 2008. National Report of Thailand 2008

Praulai Nootmorn, Thumawadee Jaiyen, Pattira Liardwitayaprasit, and Chantip Bunluedaj. 2010. National Report of Thailand in 2010.