# National Report of Thailand in 2009

Praulai Nootmorn[1], Thumawadee Jaiyen[1], Pattira Lirdwitayaprasit[2], Chantip Bunluedaj[2] and Wilailux Premkit[2]

[1] Andaman Sea Fisheries Research and Development Center
77 Tumbon Vichit, Maung District, Phuket 83000 THAILAND
e-mail:nootmorn@yahoo.com
[2] Deep Sea Fisheries Technology Research and Development Institute, Phrapradaeng District, Samutprakarn, 10130, THAILAND
e-mail: chanthipb@gmail.com

## Summary

Neritic tuna and king mackerel species in the Andaman Sea Coast, Thailand comprise 6 species (*Thunnus tonggol*, *Euthynnus affinis*, *Auxis thazard*, *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 metric tons in 1997 to 13,093 metric tons in 1999. The production was quite stable around 17,000 metric tons during 1999 to 2007. These neritic tuna species are more or less have its production trend similarity.

The oversea tuna longline fishery of Thailand was conducted by two Thai tuna longliners in the West Indian Ocean. Four hundred and seventeen fishing operations were carried out in 2008. The total catches were 269.19 metric tons with average catch per unit effort 64.5 kg/100 hooks. Yellowfin tuna was the dominant species caught with 34% of the total, followed by bigeye tuna, billfish, albacore tuna and other species.

Regarding to tuna purse seine fishery by four Thai tuna purse seiners, 388 fishing operations were conducted in the Indian Ocean. The total catches were 9,614.20 metric tons with average catch per unit effort 24.78 metric tons/fishing operation. Skipjack tuna was the dominant species caught with 64% of the total, followed by bigeye tuna, yellowfin tuna and bonito.

## Neritic Tunas and King Mackerel in the Andaman Sea

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 2005 were shared about 64% of the total fishery production from all fishery sectors which consisted of 70% from the Gulf of Thailand and 30% from the Andaman Sea Coast.

The small tunas was 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. In Andaman Sea, the total catches of small tunas and king mackerel decreased from 45,083 metric tons in 1997 to 16,705 metric tons in 2007 (Figure 1). The highest production during 1998 to 2007 was rather stagnant at the level around 20,290 metric tons. Catch of neritic tunas and king mackerel contributed from purse seiners (71 %), followed by trawlers (26 %) and mackerel gill-netters (3 %). In 2007, neritic tunas caught only from purse seiner and gill-netter, while king mackerel caught mainly from trawler (84.60 %), followed by mackerel gill-netter (8.33 %) and purse seiners (7.07 %).

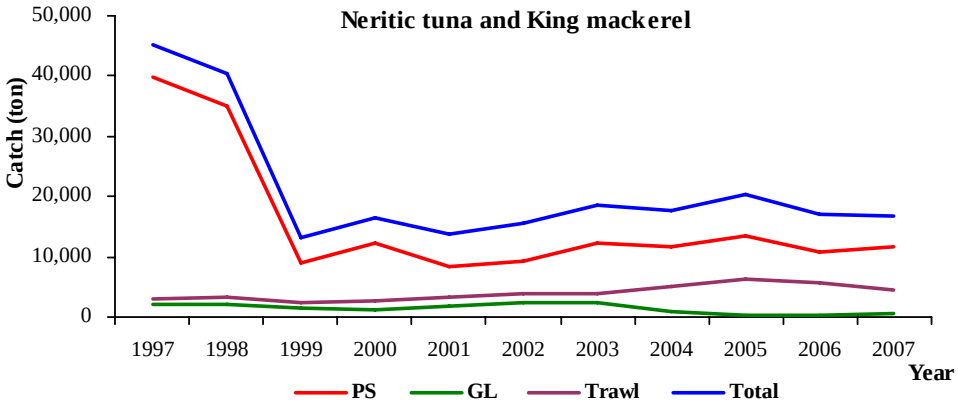


**Figure 1. Change of neritic tunas and king mackerel catch in Andaman Sea, 1997-2007.**

## The Fishing Gear

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). Purse seiners with length over all (LOA) 18-25 meters are popular in the Andaman Sea Coast of Thailand from the year 1994 to the present year. The common mesh sizes used in TPS, LPS, FAD are approximately 2.5 centimeter, while the length and depth of the net range from 500-1,200 meters and 50-150 meters respectively. Number of crew is ranging 25-40 persons. For CPS, the mesh size is approximately 2.5 centimeter, 300-500 meters in length and 50-70 meters in depth and number of crew is about 20-30 persons. The length, depth and mesh size of GPS net are 500-1,300 meters, 60-140 meters and 3.8-4.3 centimeters respectively, and number of crew is ranging 25-40 persons.

Among the regular purse seiners, (TUN) boat length is longer than other regular purse seine that is more than 24 meter and the size of net used are also longer ranging 1,200-1,600 meters in length, 120-150 meters in depth, and 9.4 centimeter mesh size 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.

King mackerel gill-netter with the LOA 9-18 meters, the length and depth of net varied from 1,000 to 6,000 meters and 12-20 meters with the mesh size range as 6.3 to 8.0 centimeters. The fishing ground of this gear operated around islands and beaches at depth of water as 20-65 meters.

Trawl: there are three types of trawler in Thailand, namely, otter board trawl, pair trawl and baby-bream trawl.

## Changing of Neritic Tunas and King Mackerel in the Andaman Sea

Figures 2-4 show changed of catch by species breakdown from national statistic and gears.

Longtail tuna (*Thunnus tonggol)* catch was varied from 1,726 to 20,035 metric tons during 1997 to 2007. The trend of catch was decreasing since 1997 (20,035 metric tons) to 2005 (1,819 metric tons) and had increased again in 2006 (2,053 metric tons) to 2007 (4,974 metric tons). The changing of catch shows in Figure 2.

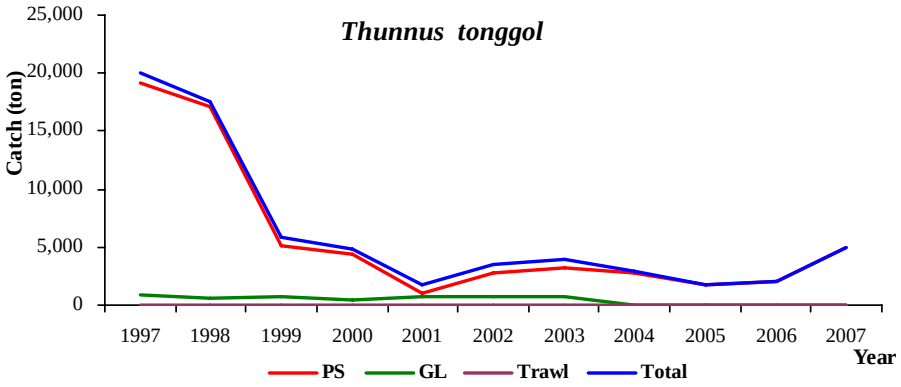


**Figure 2. Change of longtail tuna catch in Andaman Sea, 1997-2007.**

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 fisher haven't identify cause of same price categories. The catch was varied from 2,985 to 19,423 metric tons during 1997 to 2007. The trend of catch was decreasing since 1997 (19,423 metric tons) to 1999 (2,985 metric tons) and had increased again in 2000 (7,374 metric tons) to 2005 (11,357 metric tons). The changing of catch shows in Figure 3.

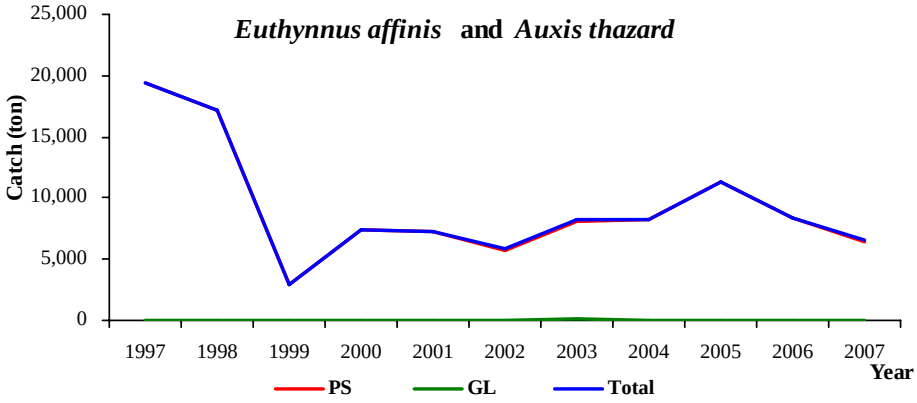


**Figure 3. Change of kawakawa and frigate tuna catch in Andaman Sea, 1997-2007.**

King mackerel (*Scomberomorus* spp.) was showed the trend of catch in Figure 4, their catch varied from 4,213 to 7,114 metric tons during 1997 to 2007, the highest catch found in 2005 caught from trawler.

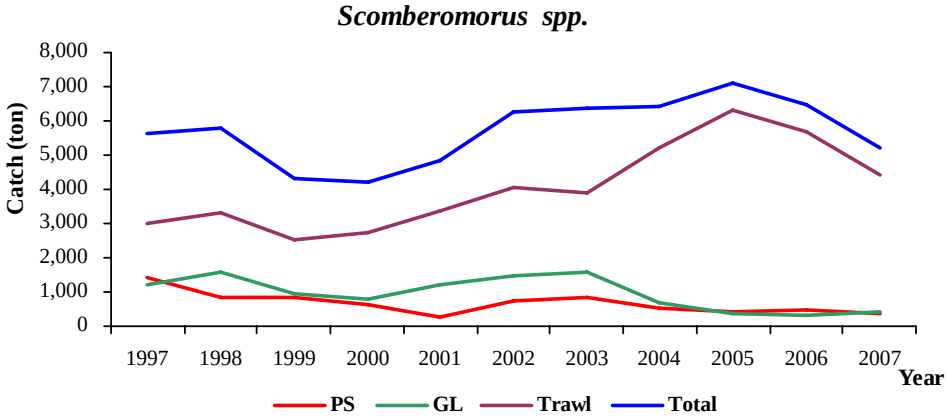


**Figure 4. Change of king mackerel catch in Andaman Sea, 1997-2007.**

AFRDEC has collecting data information such as catch, effort, species composition, size distribution and other relevant fishing information's from purse seiners. Their catch in EEZ of Andaman Sea, Thailand and landed the catch along the fishing ports.

Sizes frequency distributions from data sampling per quarter on 2007 showed in Figure 5. ***Thunnus tonggol* :** FL distribution varied from 8 to 60 cm, small size (6-22 cm) of *T. tonggol* recruited to fishing ground in quarter 1, 3 and 4, while the large size (22-60 cm) but still less than the maturity size (> 60 cm) recruit to the fishing ground all year.

***Katsuwonus pelamis*:** FL distribution varied from 32 to 44 cm in quarter 1, 2 and 4, this size is less than the size at first mature (42-44 cm). LPS and FAD caught skipjack.

***Euthynnus affinis***: FL distribution varied from 8 to 52 cm all year round, most of them was less than the size at first mature (>40 cm).

***Auxis tharzard****:* FL distribution varied from 8 to 42 cm all year round, small fish (< 29 cm) and large fish (>29 cm ) was distributed to fishing ground all year round.

***Auxis rochei****:* FL distribution varied from 4 to 30 cm all year round, all of them was less than the size at first mature (>35 cm).

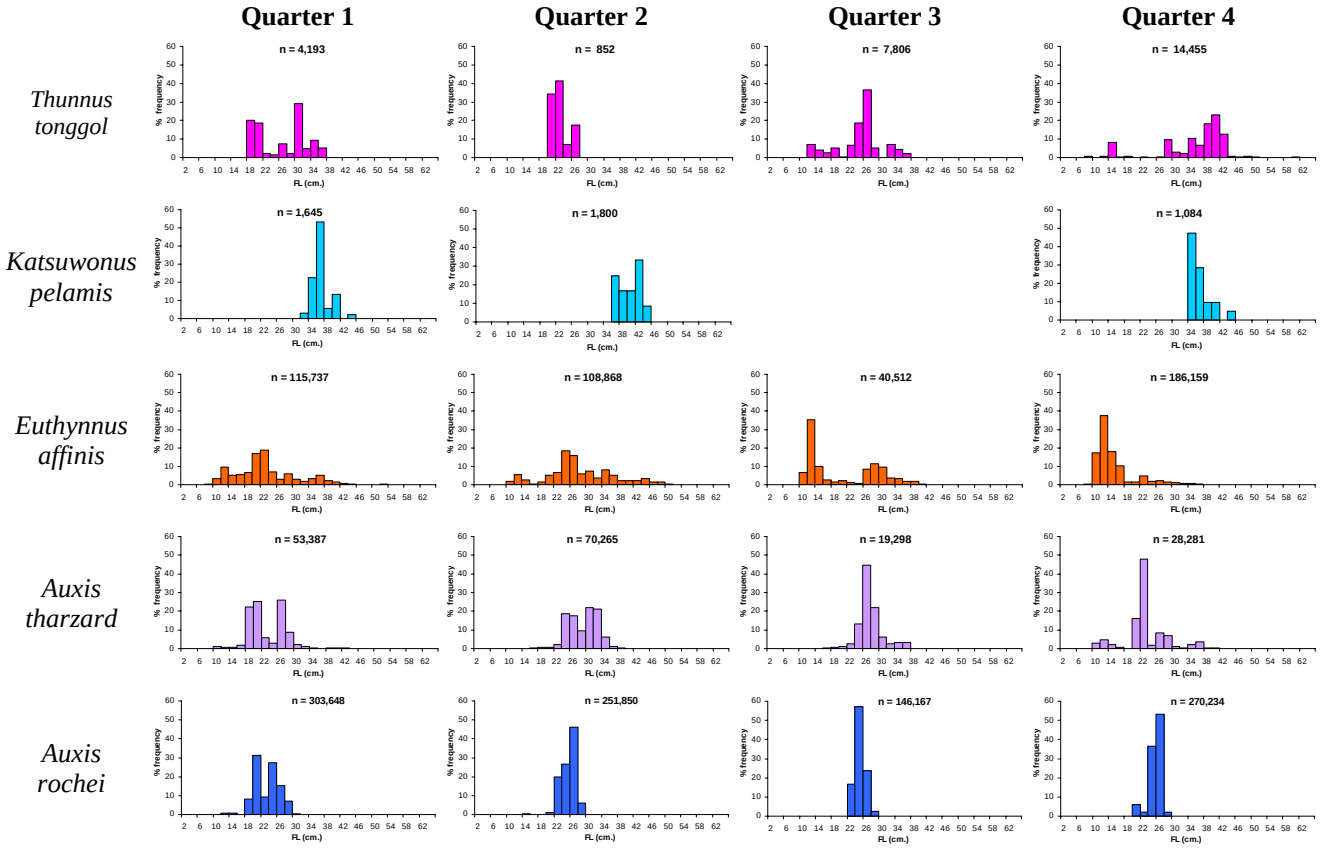


**Figure 5. Size distribution of neritic tunas from tuna purse seine in each quarter on 2007.**

## Oceanic tuna

## Tuna Longliners

In 2008, two tuna longliners were operated off the eastern part of Madagascan in the western Indian Ocean during January to December (Figure 6). Four hundred and seventeen fishing operations were conducted in this area. The total catches were 269.16

metric tons with average catch per unit effort (CPUE) 64.5 kg/100 hooks. In accordance with high number of fishing operation during May to August, and the highest CPUE was in July 95 kg/100 hooks. But from September to the end of the year, a sharp decrease was apparent for all factors (Figure 7). Yellowfin tuna was the dominant species caught with 34% of the total catch, followed by bigeye tuna 26%, billfish 22%, albacore tuna 8% and other species 10% (Figure 8).

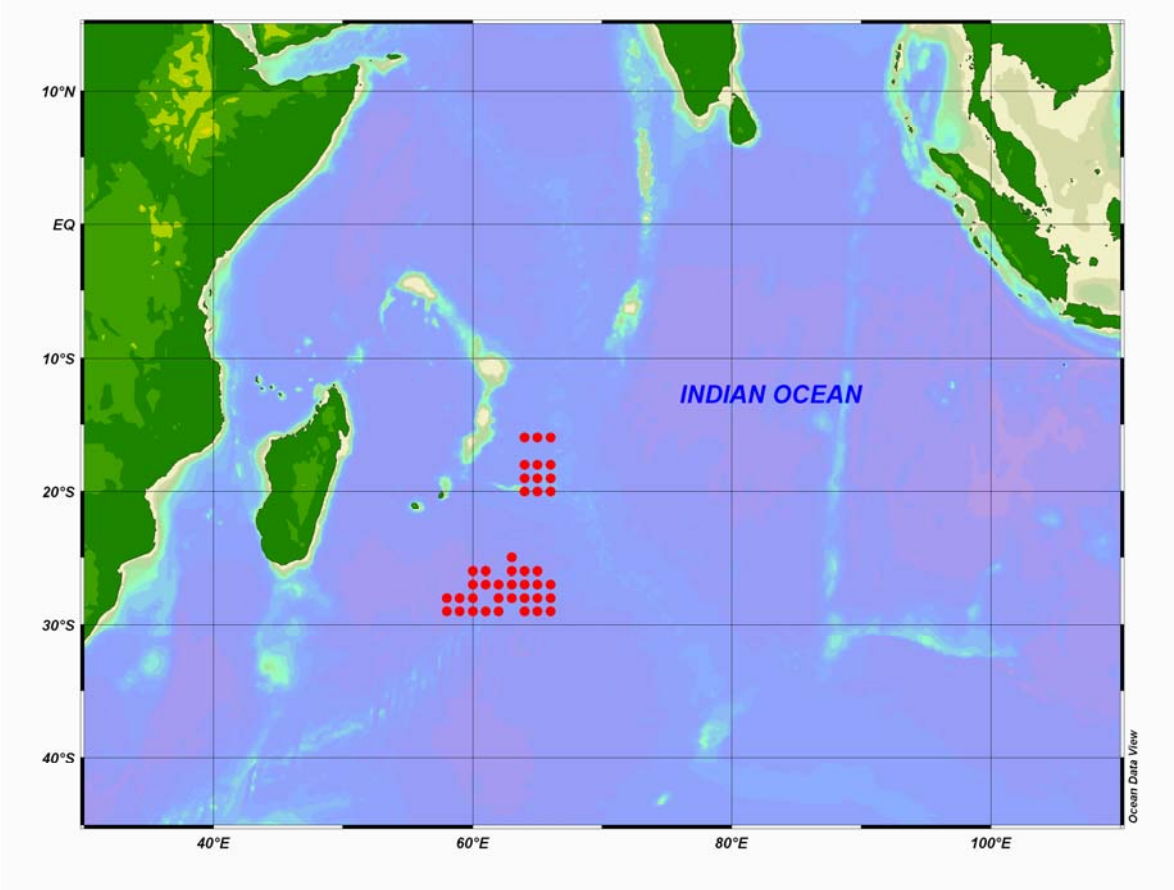


**Figure 6** Fishing ground of Thai tuna longliners in the western Indina Ocean, 2008

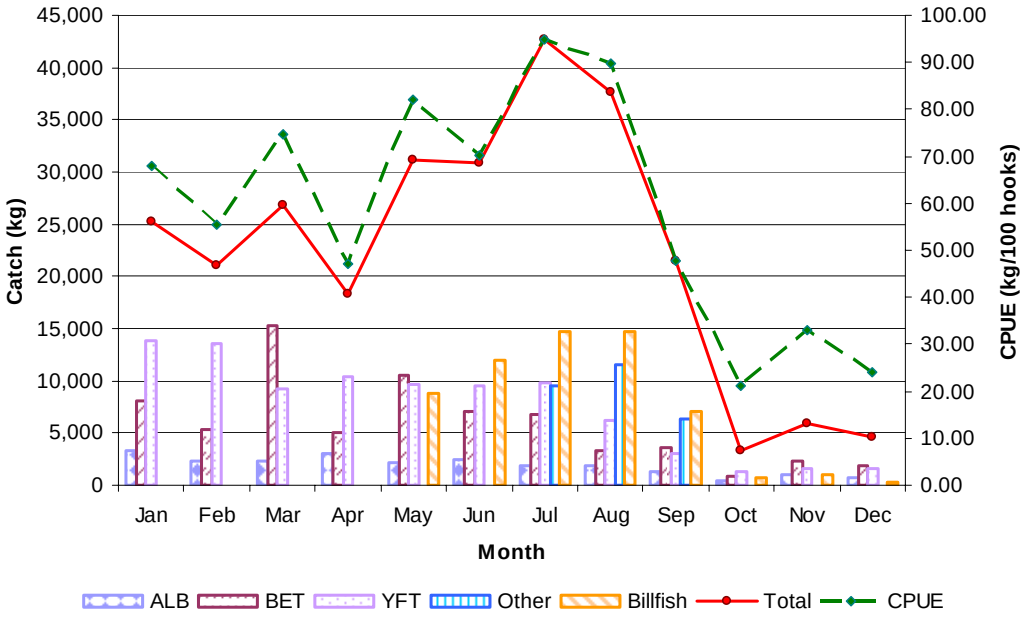


**Figure 7** Monthly changes of catches and CPUE by Thai tuna longliners in 2008

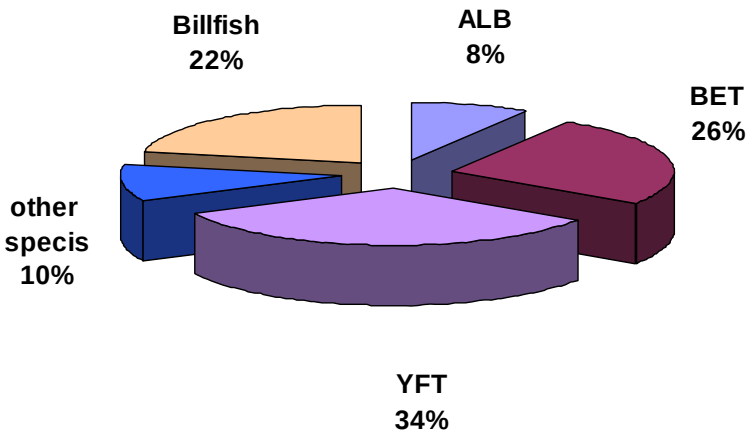


**Figure 8** Catch composition from Thai tuna longliners in 2008

**Tuna Purse Seiners**

Three hundred and eighty-eight fishing operations were conducted by four Thai tuna purse seiners in the Western and Eastern Indian Ocean. The total catches were 9,614.20 metric tons with an average catch per unit effort of 24.78 metric tons/set. The total catch in 2008 has decreased from 11,747.71 metric tons in 2007 (approximately 18.16%). Though the catches were very high in March to May (over 1,000 metric tons/month) as a result of high frequency in number of set (more than 50 sets in monthly), the CPUE was lower than those in August to October. In August, there were only 11 set but the CPUE was 53.64 metric tons/ set (Figure 9).

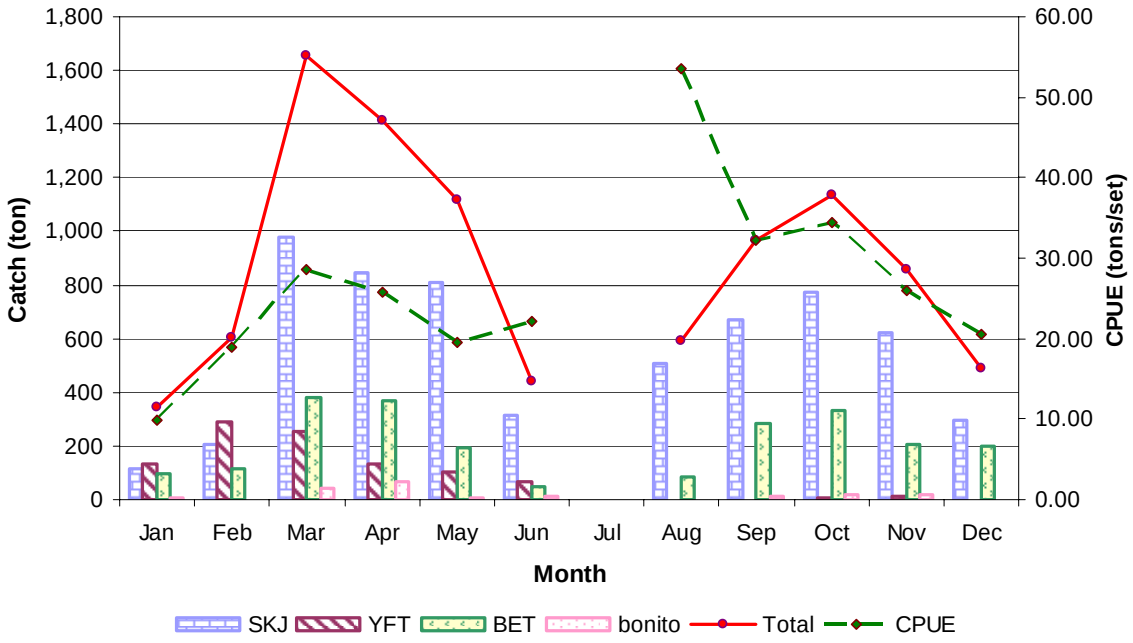


**Figure 9** Monthly catch from Thai tuna purse seiners in 2008

The catch composition were mainly skipjack tuna accounted for 64% of the total catch, followed by bigeye tuna 24%, yellowfin tuna 10% and bonito 2%. Bonito were caught in small quantities (Figure 10).

Skipjack dominated both on the east and the west of the Indian Ocean (60-70%) while yellowfin tuna was mainly found higher density on the east than the west and bigeye tuna was vice versa (Figure 11).

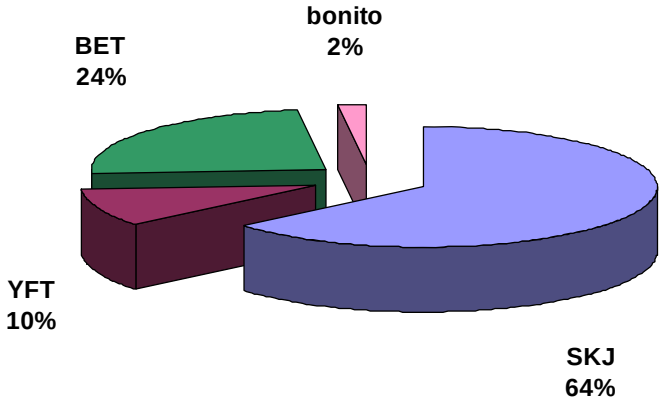


**Figure 10** Catch composition of tuna from Thai tuna purse seiners in 2008

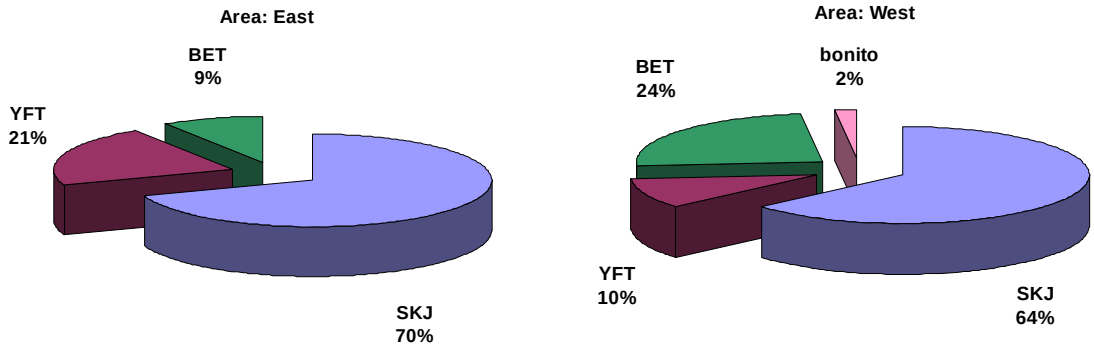


**Figure 11** Catch composition by Thai tuna purse seiners in the eastern and western Ocean Indian in 2008

Three groups of tuna: skipjack tuna, yellowfin tuna and bigeye tuna were the majority of catches from Thai tuna purse seiners. All groups of tuna were caught in the western more than in the eastern Indian Ocean. Skipjack tuna had CPUE in the western Indian Ocean obviously higher than in the eastern whereas yellowfin tuna and bigeye tuna displayed not much difference of CPUE between the western and eastern the Indian Ocean (Figure 12-14).

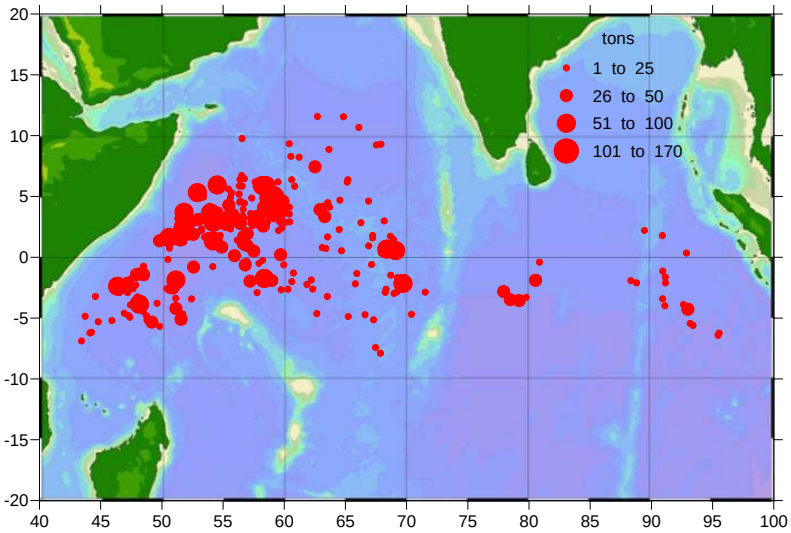


**Figure 12** Catch of skipjack tuna by Thai tuna purse seiners in 2008

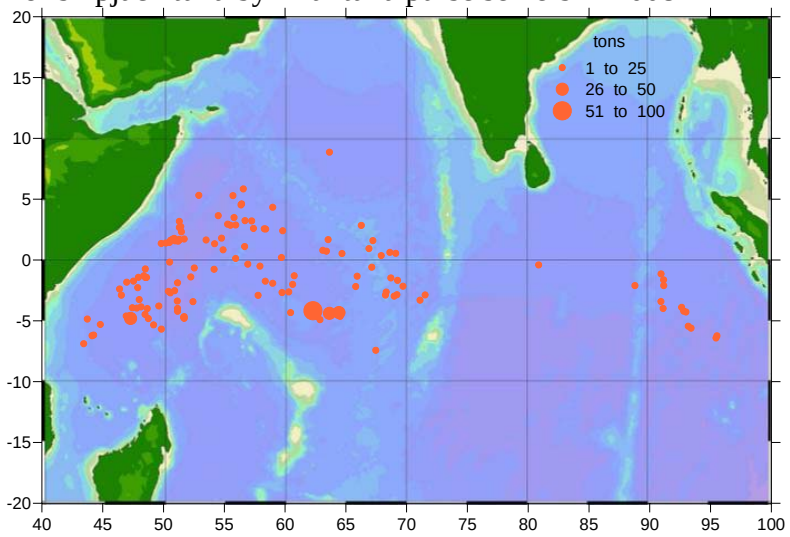


**Figure 13** Catch of yellowfin tuna by Thai tuna purse seiners in 2008

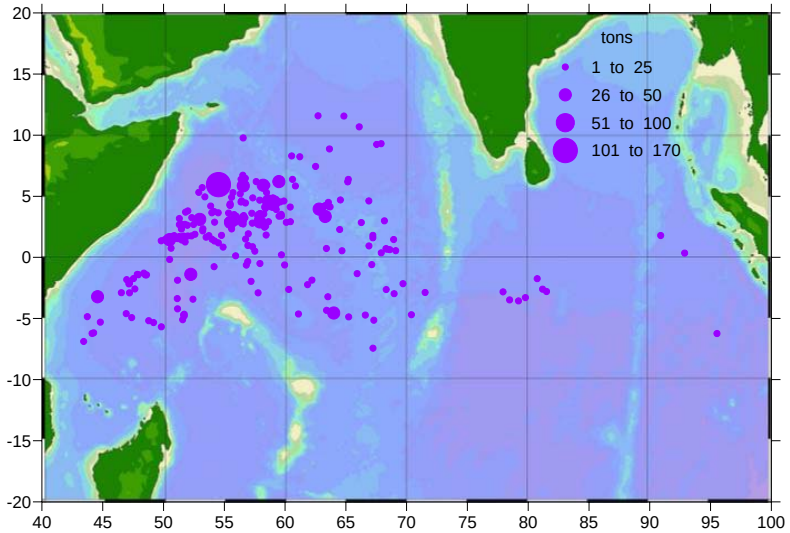


**Figure 14** Catch of bigeye tuna by Thai tuna purse seiners in 2008

Size distribution in length of skipjack tuna varied from 29 to 88 cm FL which the mode was 38-64 cm FL. The size caught of yellowfin tuna ranged from 26 to 160 cm FL and the mode was 41-64 cm FL. Fork length of bigeye tuna was between 29 and 145 cm and mainly was 44-70 cm (Figure 15-17).

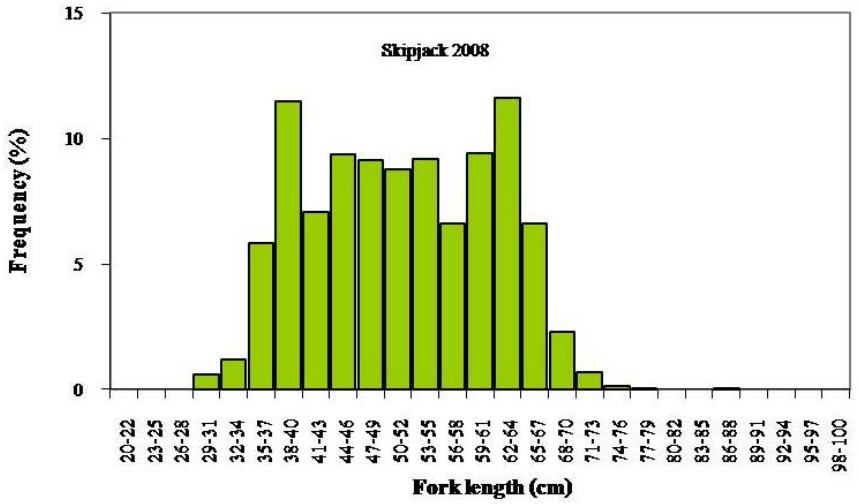


**Figure 15** Length frequency distribution of skipjack tuna in the Indian Ocean

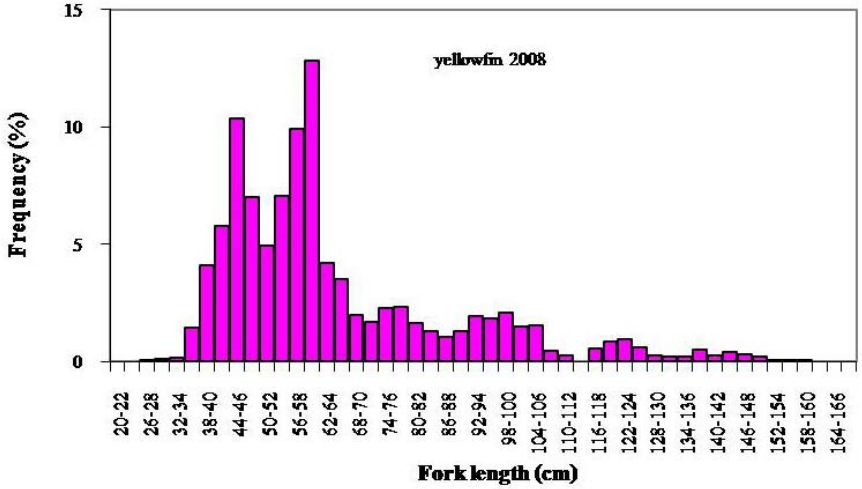


**Figure 16** Length frequency distribution of yellowfin tuna in the Indian Ocean

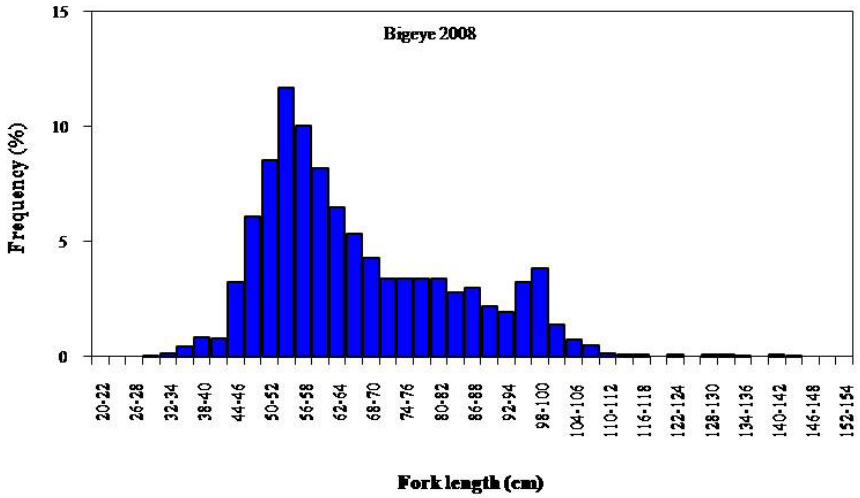


**Figure 17** Length frequency distribution of bigeye tuna in the Indian Ocean

**National Research Programs**

The following research programs were carried out by the Department of Fisheries of Thailand:

A. Foreign Tuna Fleets Unloading in Phuket

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.

B. The Neritic Tuna Fisheries in Thailand

With the view to enhancing the data collection and processing system for neritic tuna fisheries in Thailand, IOTC and OFCF provided the technical assistance to the Department of Fisheries of Thailand. The assistance was undertaken under the "Cooperation Project for Enhancing the Data Collection and Processing Systems for Tuna Resources in the Indian Ocean".

The program had already ended in October 2006. Nowadays, Thailand is still continuous collecting data from the neritic tuna fisheries along the Andaman Sea, Thailand. The percentage of coverage is more than 30 percent and followed some of the protocol from the previous cooperation program, such as hire more enumerator at Kuraburi fishing port, Phang-Nga Province.

C. Indian Ocean: Swordfish Stock Structure Project (IOSSS)

Andaman Sea Fisheries Research and Development Center have the cooperation to work on "the Prospecting the structure and characteristics of the Swordfish (*Xiphias gladius*) stocks in the Indian Ocean under the IOSSS project.

**Implementation of Recommendations of the Scientific Committee**

Thailand has seriously 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.
- National Plan of Action for Conservation and Management of Shark DOF, Thailand realize that the study on conservation and management of shark need to be implemented in a regular and long term system harmonized to the International Plan of Action for the Conservation and Management of Shark.

**Other Matters and Need to be Address**

**Piracy:** Thailand has drastically affected on fishing activities of tuna purse seine in Seychelles water where near by Somalia water. We are experiencing on the shortage of fishing vessel activities due to the security risk posed by piracy. The problem is spreading throughout the region and needs to be addressed soon.