

National Report of Thailand in 2007^{a)}

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Summary

Nertic 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.). The fishing gear used to catch neritic tuna or tuna-like are purse seine, king mackerel gill net and trawl, while purse seine is the main fishing gear. The trend of neritic tuna catches have been decreasing from 1997 accounting for 45,083 mt to be around 15,000 in 1999. Further the production was quite stagnant around 17,000 mts during 1999 to 2006. These neritic tuna species are more or less have its production trend similarity.

For oversea tuna fishery, Thailand has two distance tuna longliners, namely Mook Andaman number 018 and 028 that had operated since 2000. Catch and catch rate of long liners varied from 94-414 mts and 1.1-1.7 no/100 hooks. The main fishing grounds of these long liners were concentrated in the Western Indian Ocean. Bigeye tuna was the main composition, followed by yellowfin tuna, albacore, swordfish, marlins and sharks.

Six tuna purse seiners operating under Thai flag in the Indian Ocean. These vessels range between 1,400-2,700 gross tonnage and have been authorized for tuna fishing in the IOTC areas since September 2005. The operating areas range from 10°58.5'N-8°22.4'S and 42°28'E-85°36.3'E. Tunas caught by this fleet are taken back to Thailand for canning. Before the commencement of the current fleet in 2005 the total annual catches were less than 2,000 mts. After the entry of the six tuna purse seiners, production rose sharply to 12,216 mts in 2005 and increased almost double fold in 2006. The highest catches were taken in February – May. Monthly CPUEs ranged from 15 to 55 mts/day. The high CPUE was in the period February – May. Skipjack made up 71.98% of the total catch, followed by bigeye 17.02%, yellowfin 10.06% and the bonito 0.94%. The sizes of skipjack, bigeye and yellowfin in 2006 were 41-76 cm, 41-133 cm and 33-152 cm respectively, and with mean length 67.5, 77.5 and 61.5 cm respectively.

The national research programs and implementation of Department Of Fisheries has been reported to this meeting.

Neritic Tunas 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 1996 were shared about 78% 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 mts in 1997 to 18,946 metric mts in

2006 (Figure 1). The production during 1997 to 2006 was rather stagnant at the level around 17,000 mts.

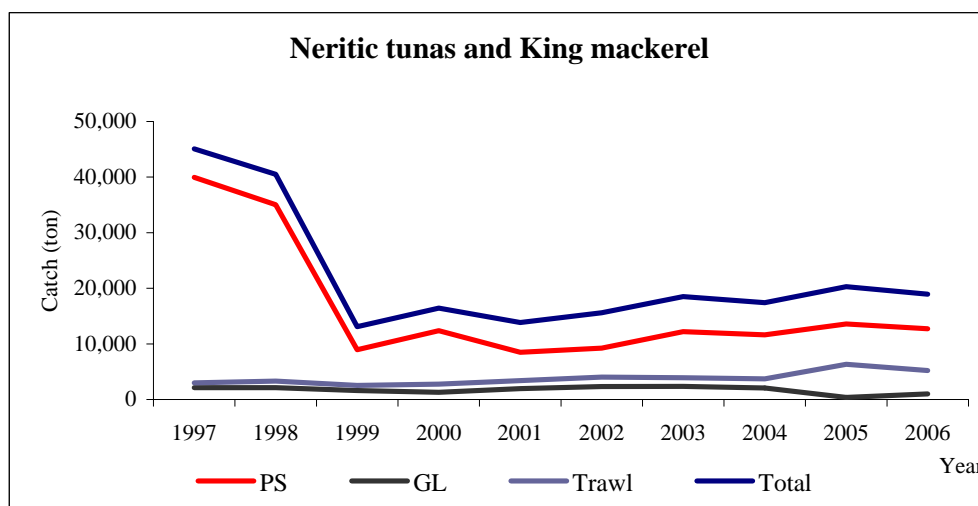


Figure 1. Change of neritic tunas and king mackerel catch in Andaman Sea, 1997-2006.

The Fishing gear

The fishing gear use to catch neritic tuna and king mackerel namely, purse seine, gill net and trawl.

Purse seiners: 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) and tuna purse seine (TUN) and Chinese purse seine (CPS). Purse seiners are the main fishing to harvest neritic tuna in Andaman Sea.

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 net and trawler catch some neritic tuna and most of king mackerel. The species breakdown of neritic tunas and tuna-like species in the nation statistic report is kawakawa or eastern little tuna (*Euthynnus affinis*), frigate tuna (*Auxis thazard*), longtail tuna (*Thunnus tonggol*) and *Scomberomorus* spp. Figures 2-4 show change of catch by species and gear.

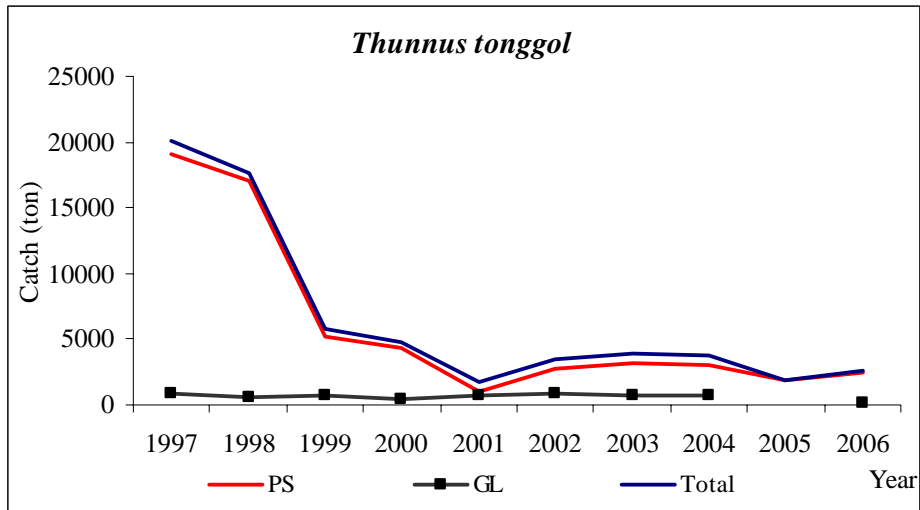


Figure 2. Change of longtail tuna catch in Andaman Sea, 1997-2006.

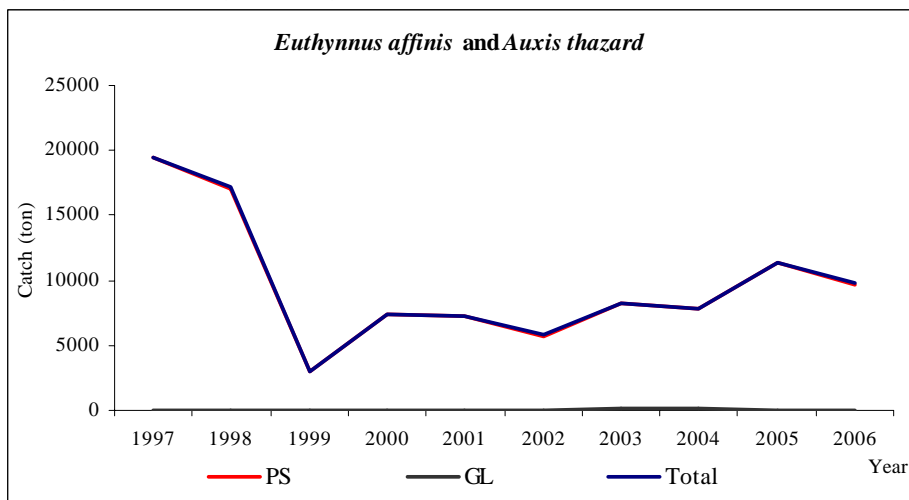


Figure 3. Change of kawakawa and frigate tuna catch in Andaman Sea, 1997-2006.

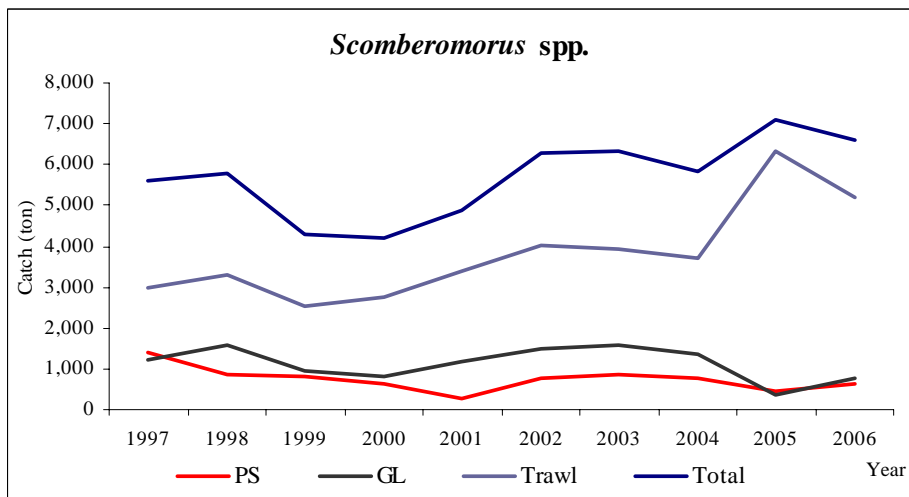


Figure 4. Change of king mackerel catch in Andaman Sea, 1997-2006.

Overseas Thai Tuna longliners

Thai tuna longliners were operated in the Indian Ocean from 2000 to 2006; data from their logbooks displayed important information of their fishing operation and effort. Total annual catch were 382.6, 390.89, 93.55, 252.48, 272.41, 280.11 and 414.44 mts, with the value of 2, 1.84, 0.46, 1.16, 1.58, 0.98 and 2.42 million US\$ respectively (Table 1). Fishing grounds were reported in 6 areas, namely Bay of Bengal, west coast of Indonesia, Maldives and Chagos archipelagos, east and

south of Seychelles, east coast of Somalia and southern part of the Indian Ocean.

The highest catch rate was found in west coast of Indonesia (1.6 ind/100 hooks), followed by east coast of Somalia, east and south of Seychelles, Maldives and Chagos archipelagos (1.3 ind/100 hooks in each area). The lowest catch rate was reported in the Bay of Bengal (0.7 ind/100 hooks) compared to the other fishing grounds (Table 2). The major catch species were bigeye tuna (*T. obesus*), yellowfin tuna (*Thunnus albacares*), albacore tuna (*T. alalunga*), and swordfish and other species comprising 36.64, 35.77, 20.28, and 7.31 % of the total catch in 7 years. Catch of bigeye tuna was found in all fishing grounds with the highest catch in southern part of Indian Ocean. Yellowfin tuna occurred in all fishing grounds; however, the highest abundance was found in the east and south of Seychelles while the lowest abundance was found in the Eastern Indian Ocean. Albacore tuna (*T. alalunga*) occurred dominant in the southern part of Indian Ocean (Figure 5). Other species recorded included swordfish (*Xiphias gladius*), sharks, blue marlin (*Makaira mazara*), black marlin (*M. indica*), striped marlin (*Tetrapturus audax*) and sailfish (*Istiophorus* spp).

Table 1 Total catch (mts) and value (million US\$) of Thai longliner from 2000 to 2006.

Year	Albacore	Yellowfin	Bigeye	Swordfish & other species	Total	
					Catch	Value
2000	2.66	178.52	171.63	32.09	384.9	2.00
2001	6.44	247.07	99.3	38.12	390.93	1.84
2002		69.49	18.42	5.66	93.57	0.46
2003	64.25	67.21	97.07	23.95	252.48	1.16
2004	77.24	103.14	55.56	36.47	272.41	1.58
2005	142.61	19.72	104.38	13.41	280.12	0.98
2006	130.43	61.98	218.95	3.08	414.44	2.42
Total	423.63	747.13	765.31	152.78	2,088.85	10.45

Table 2 Fishing effort and catch rate of Mook Andaman Longliners in each fishing ground.

Zone	Total number of sets	Total number of hooks	Total number of fish	Total catch (mts)	Catch rate tons/set	Catch rate ind/100hooks	Catch rate tons/100hooks
1	376	1,140,778	14,772	478.4	1.3	1.3	0.042
2	502	1,272,200	16,621	584.6	1.2	1.3	0.046
5	962	2,829,000	28,456	791.1	0.8	1.0	0.028
6	93	279,200	3,527	107.8	1.2	1.3	0.039
7	58	174,000	2,702	72.9	1.3	1.6	0.042
8	57	193,400	1,262	51.1	0.9	0.7	0.026

Remark: 1=East Somalia, 2=east and south Seychelles, 5=south Indian Ocean, 6=Maldives and Chagos archipelagos, 7=west Indonesia, 8=Bay of Bengal.

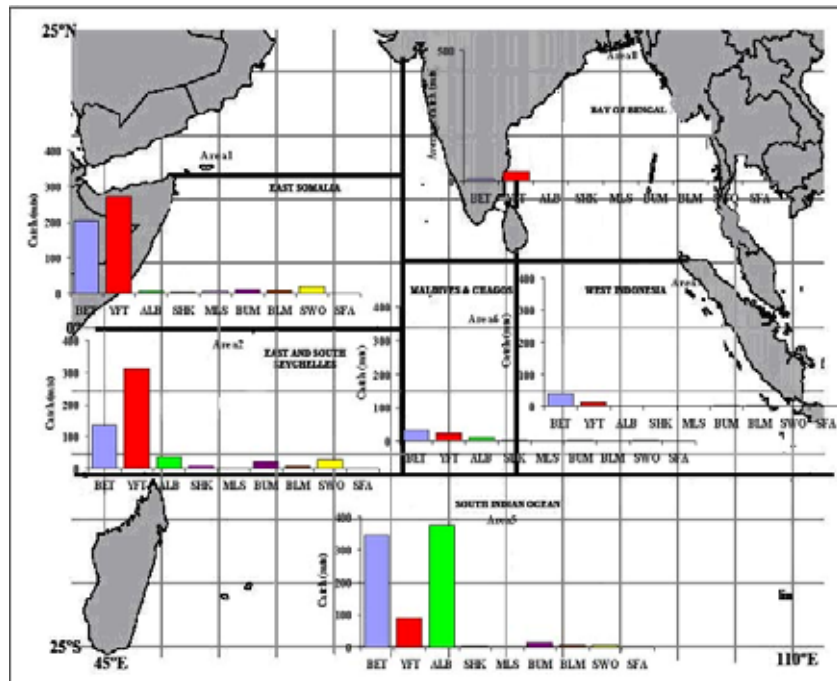


Figure 5. Fishing ground of Thai tuna long liner in the Indian Ocean.

Oversea Thai Tuna Purse Seiners

At present there are six tuna purse seiners operating under Thai flag in the Indian Ocean. These vessels range between 1400-2700 gross tonnage and have been authorized for tuna fishing in the IOTC areas since September 2005. The operating areas range from 10°58.5'N-8°22.4'S and 42°28'E-85°36.3'E. Tunas caught by this fleet are taken back to Thailand for canning. Before the commencement of the current fleet in 2005 the total annual catches of Thai tuna purse seine were less than 2,000 mts. After the entry of the six tuna purse seiners, production rose sharply to 12,216 mts in 2005 and increased almost double fold in 2006 (Figure 6). The highest catches were taken in February – May (Figure 7). Monthly CPUEs ranged from 15 to 55 mts/day. The high CPUE was in the period February – May (Figure 8). Skipjack made up 71.98% of the total catch, followed by bigeye 17.02%, yellowfin 10.06% and the bonito 0.94% (Figure 9). The sizes of skipjack, bigeye and yellowfin in 2006 were 41-76 cm, 41-133 cm and 33-152 cm respectively, and with mean length 67.5, 77.5 and 61.5 cm respectively (Figure 10).

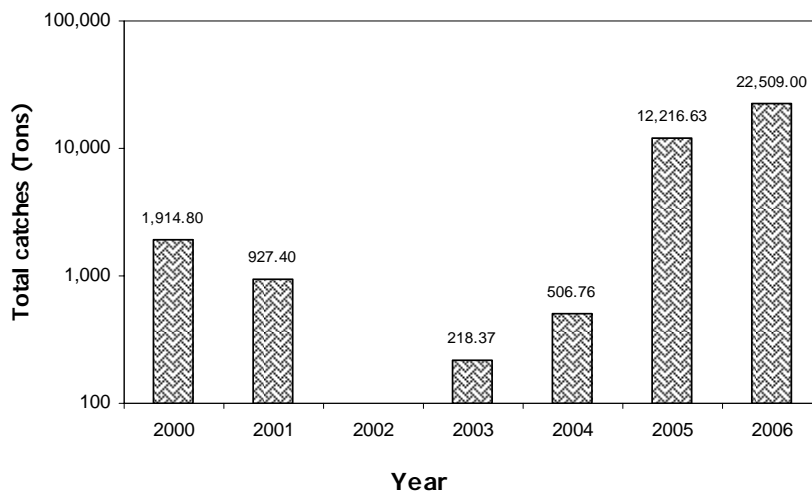


Figure 6. Yearly tuna production by Thai purse seiners during 2000-2006.

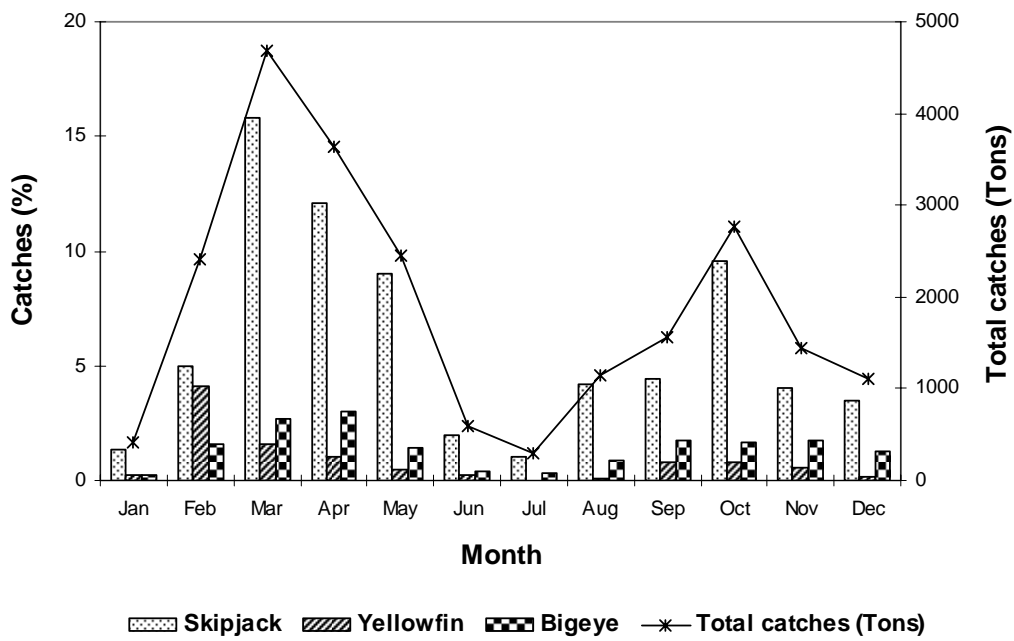


Figure 7. Monthly change of total catches and catch composition in 2006.

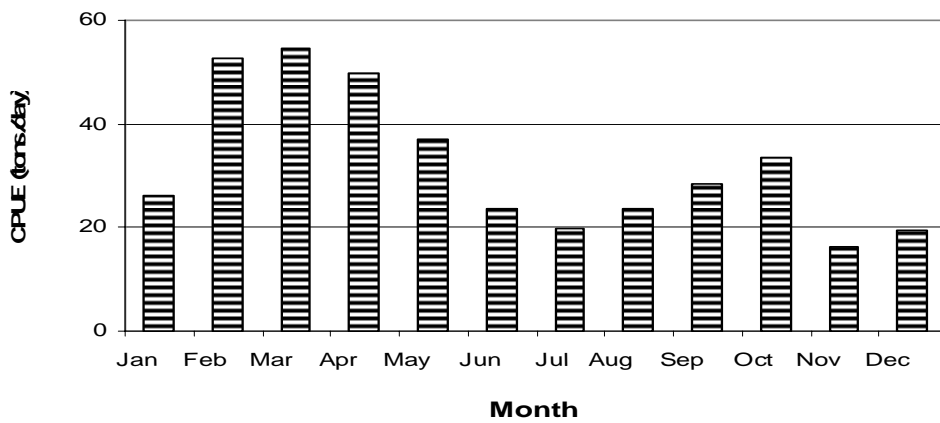


Figure 8. Monthly change of CPUE in 2006.

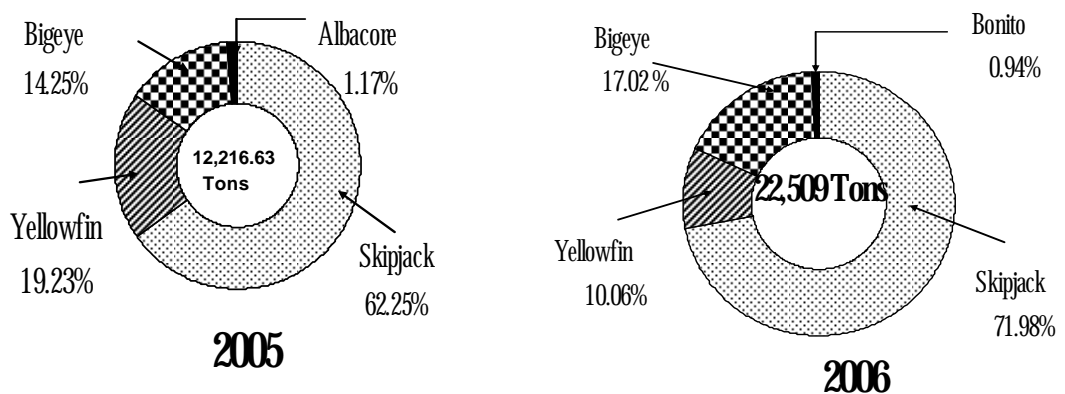


Figure 9. Catch composition of tuna caught by Thai fleets in 2005-2006.

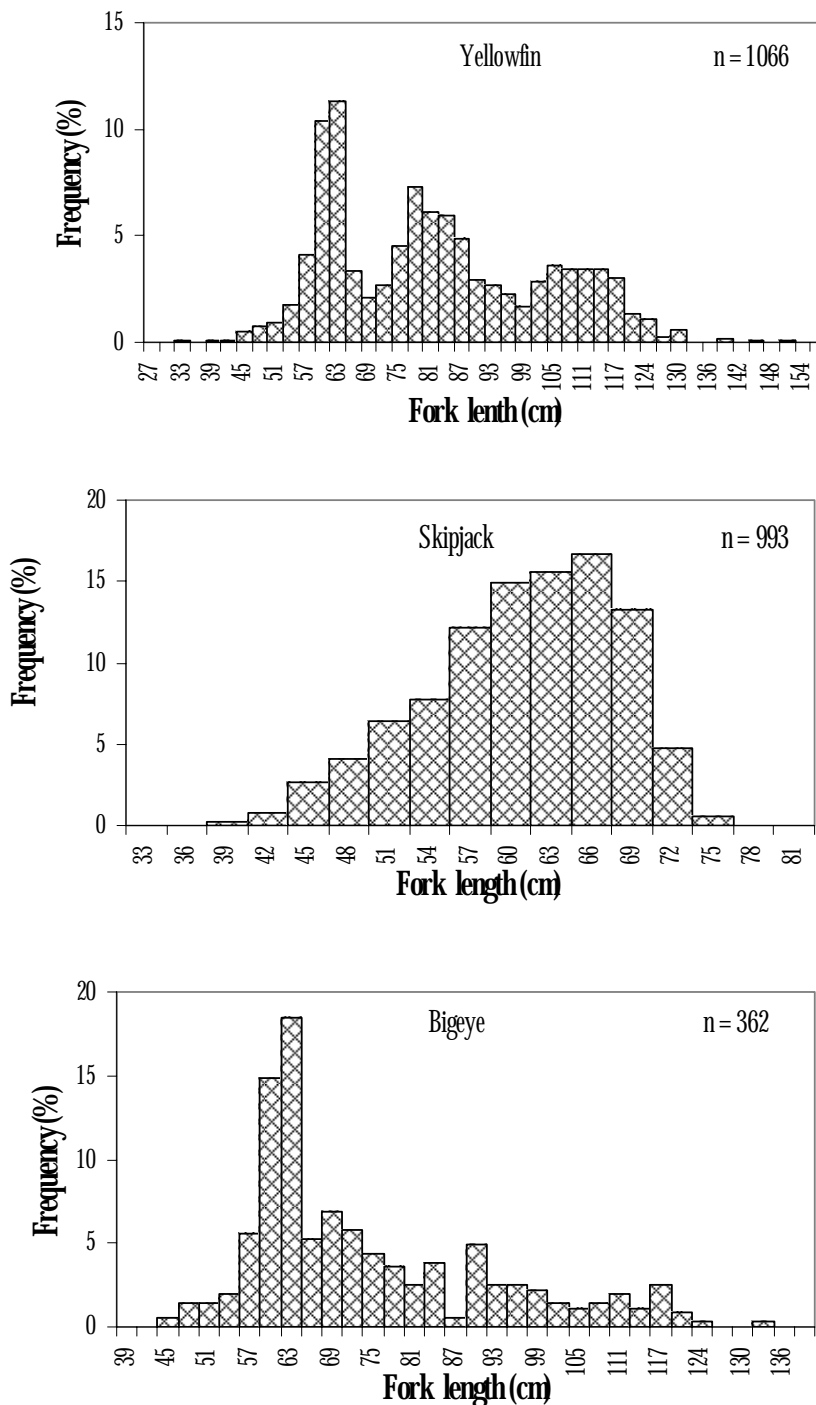


Figure 10. Length frequency distribution of yellowfin, skipjack and bigeye in Indian Ocean.

National Research Programs

The following research programs were carried out by the Department of Fisheries of Thailand from 2005 to 2007:

A. The Sampling Program on Tuna Longline Vessels Unloading in Phuket

The program was initially supported and financed by IOTC in the beginning stage since April 2000. The program was extended after that with the collaborative support given by IOTC and OFCF (Overseas Fishery Cooperation Foundation) under the “Cooperation Project for Enhancing the Data Collection and Processing Systems for Tuna Resources in the Indian Ocean”. The program has been carried out and

provides a lot of useful information regarding foreign tuna longliners fishing in Indian Ocean and landing their catches at the Phuket fishing port, Thailand.

The purpose of this program is as follows:

- Enhance data collection and processing system for tuna fisheries in Thailand
- Improve and update data collection on tuna longline fisheries in the East Indian Ocean as well as information on the activities, nominal catches, catch breakdown by species and size composition for each species caught by tuna longliners unloaded in Phuket.

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.

The program 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 as a whole, Thailand wishes to receive the continuing support from IOTC-OFCF or relevant organizations for the extension of the sampling program if the second phase is available and possible. Nowadays, Thailand is still continuous collecting data from foreign longliner and purse seiner that landing catch at Phuket Province. 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 purpose of the program is to assess the precision of the current catch estimates by review and analysis of the existing data and comparing with catch estimates derived from alternate sampling activities. The landing surveys are conducted to collect fishing and biological data of neritic tuna, pelagic fish, and by-catch species. The activities at the landing places include collecting catch, effort (no. of trip), sizes by individual total length for pelagic fish and fork length for neritic tuna and tuna-like species and weight.

The program was 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. Tuna Resources Survey in the Eastern Indian Ocean

Thailand has conducted tuna resources survey in the Indian Ocean since 1988 (M.V. MAHIDOL has started since 1995). In 2004-2006, fifth cruises of tuna resources survey were carried out by the M.V. MAHIDOL, a purse seine research vessel of the Department of Fisheries of Thailand, in the Eastern Indian Ocean during December 2003-February 2004, December 2004-March 2005, December 2005-February 2006 (conducted the survey by MV SEAFDEC) and March-May 2007. The purpose of the research program is to collect the relevant information of tuna distribution in the Indian Ocean in particular the Eastern Indian Ocean. The information derived from the research survey includes catch composition, catch rate, size of caught tunas, fork length frequency, and length-weight relationship. In addition, the information on water current, wave and wind condition, and other oceanographic observation has been collected.

D. The Ecosystem-Based Fishery Management in the Bay of Bengal

The ecosystem-based fishery management is another alternative approach for managing fishery resources. The concept emphasizes not only on fishery itself but also embrace the interaction among fish, associated species, and environment. It is very essential at the beginning stage to comprehensively understand the ecosystem in the Bay of Bengal. The incurred scientific information will be highly beneficial for States bordering the Bay of Bengal to eventually draft the policy on optimum utilization of fishery resources and fishery management in this area.

As being the lead country for fishery sector cooperation of BIMSTEC, the Department of Fisheries of Thailand has proposed the project on ecosystem-based fishery management in the Bay of Bengal which initially focuses on joint research survey to observe and collect scientific data concerned with fishery and oceanographic aspects in this open access area. The survey areas should cover deep seas and international waters as well. Three fishing gears, namely tuna long-line, drift gill net and squid jigging would be used for fishery resources survey. In addition, thermocline and currents in the survey areas were also topic of interest for oceanographic study. Thailand has offered to provide the research vessel and shoulder the operational expense of the survey. Two scientists from each BIMSTEC Members would be invited to work collaboratively with Thai scientists on board the research vessel. The survey will be investigated from 25th October to 21st December 2007.

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.