Shark caught by Thai tuna longline in the Indian Ocean during 2014-2015

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ABSTRACT

This report was based on the data extracted from fishing logbooks by Thai tuna longliners which declared to Department of Fisheries, Thailand. Data from their logbooks displayed important information of their fishing operation and effort.

During the years 2011-2015, fishing grounds were mainly in the Western of Indian Ocean with 2,070 fishing day. The total catch by numbers were 65,283 fishes with 2,323.22 tonnes. The average catch rate of total catch were 11.39 individual fish/1,000 hooks or 405.44 kg/1,000 hooks. The major group caught were tuna, billfish, sharks and other species for 79.92%, 12.71%, 5.96% and 1.41% of the total catch, respectively. Shark were caught 3,949 fishes with 138.55 tonnes. The average catch rate of shark were 0.69 individual fish/1,000 hooks and 24.18 kg/1,000 hooks. The percentage of shark to the total catch were 6.05% by number and 5.96% by weight.

In 2014, shark were caught 1,145 fishes with 49.95 tonnes. The average catch rate of shark were 1.04 individual fish/1,000 hooks and 45.25 kg/1,000 hooks. The percentage of shark to the total catch is 7.82% by number and 8.73% by weight.

In 2015, shark were caught 1,835 fishes with 58.88 tons. The average catch rate of shark were 1.03 individual fish/1,000 hooks and 32.92 kg/1,000 hooks. Species composition of shark to the total catch were blue shark, mako shark and unidentified shark for 8.28%, 0.94% and 0.60% by weight or 6.10%, 1.56% and 0.62% by number, respectively.

1. Introduction

From 2011 - 2014 Thailand has three tuna longline vessels and increase to six vessels in 2015. Their operated in the Indian Ocean. The fishing companies declare their catches regularly by sending the copy of their logbooks to the Department of Fisheries. The data included information related to fishing trips and operations. The trip data was composed of dates and ports of vessel departure and return, number and weight of catch and effort (such as the number of hooks used) by species. The fishing operation included data on the date of the operation, location (latitude and longitude), the retained catch of target species and other information related to the operation. The data from their logbooks were used to calculate of the total catch (tonnes), species composition (%) and catch per unit of effort: CPUEs (individual fish/1,000 hooks or kg/1,000 hooks).

2. Fishing Ground

During 2011-2015 Thai tuna longliners operated around central and southern part of the Indian Ocean. (Figure 1)

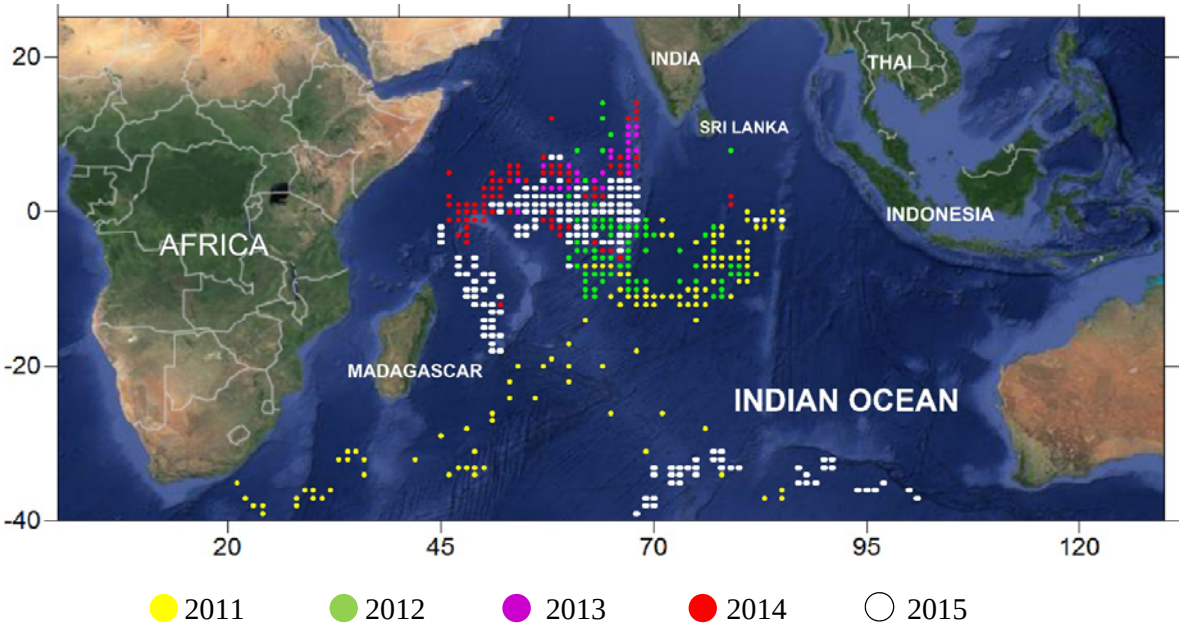


Figure 1 Fishing ground of Thai tuna longliners during 2011-2015

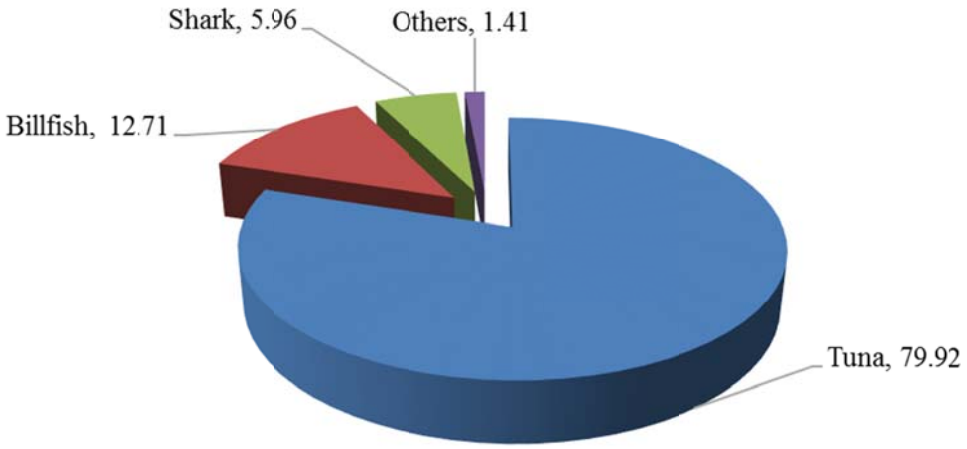
3. Fishing efforts, catches, percentage compositions and CPUEs between 2011-2015

Fishing efforts during 2011-2015 were shown in table 1. The fishing operations were recorded 2,070 fishing days. In 2015, The highest fishing effort 1,788,800 hooks (563 fishing days).

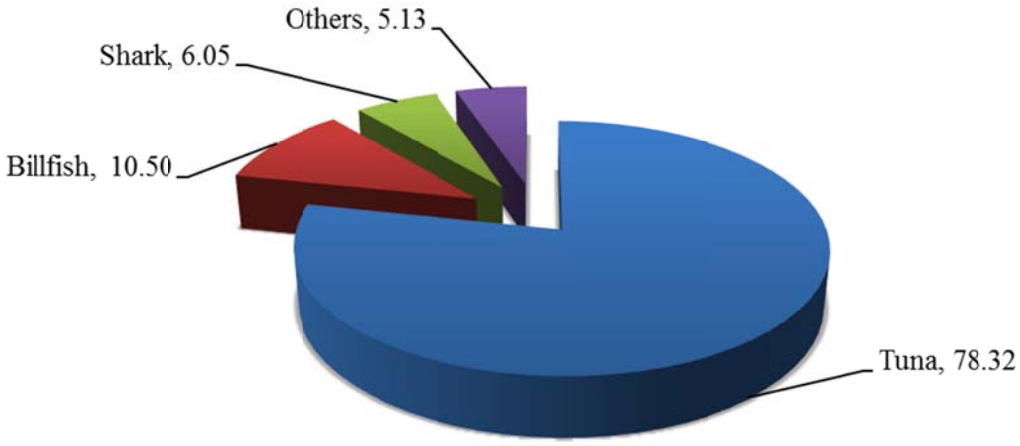
Table 1 Fishing effort, annual catches and CPUEs of Thai tuna longliners

Year	Fishing days	Total No. of Hooks	Total No. of fish	Total No. of sharks	Catch weight (Tonnes)							CPUE (fish/1,000 hooks)	CPUE of sharks	
					ALB	BET	YFT	Sharks	Billfish	Other species	Total		By number (fish/1,000 hooks)	By weight (kg/1,000 hooks)
2011	372	1,049,400	9,583	214	11.44	248.48	92.12	5.41	15.99	0.00	373.44	9.13	0.20	5.15
2012	388	1,083,600	11,732	544	2.73	342.18	81.92	18.53	25.05	0.00	470.41	10.83	0.50	17.10
2013	363	704,400	7,157	211	1.38	207.78	41.88	5.78	50.93	0.00	307.74	10.16	0.30	8.20
2014	384	1,103,900	14,663	1,145	13.91	270.87	123.91	49.95	108.72	4.54	571.91	13.28	1.04	45.25
2015	563	1,788,800	22,148	1,835	102.02	206.56	109.45	58.88	94.62	28.17	599.70	12.38	1.03	32.92
Total	2,070	5,730,100	65,283	3,949	131.47	1,275.88	449.28	138.55	295.31	32.71	2,323.20	11.39	0.69	24.18

Annual catches in 2011-2015 were estimated 373.44, 470.40, 307.74, 571.90 and 599.72 tonnes, respectively. The major species caught during 5 years were group of tuna, billfish, shark and other species which 1,856.64, 295.31, 138.55 and 32.71 tonnes. The average percentage composition by weight of tuna, billfish, shark and other species for 79.92%, 12.71%, 5.96% and 1.41%, respectively. (Figure 3A) The CPUEs have ranged between 9.13 and 13.28 fish/1,000 hooks, and the average CPUEs was 11.39 fish/1,000 hooks. The lowest CPUEs was in 2011, and the highest CPUEs was in 2014. (Table 1)



(A) By weight



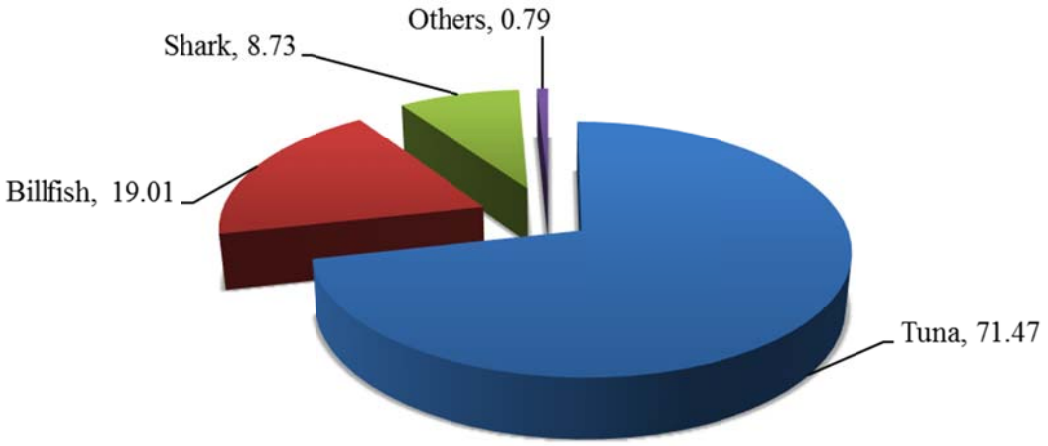
(B) By number

Figure 3 Fish composition form longliners during 2011-2015

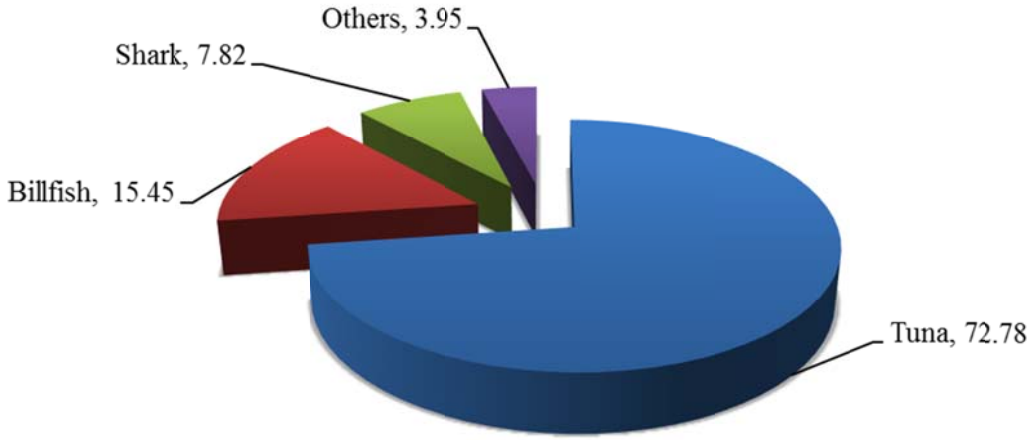
4. Shark

During 2011-2015, shark were caught 3,949 fishes with 138.55 tonnes. The CPUE of shark were 0.69 fish/1,000 hooks and 24.18 kg/1,000 hooks. The percentage composition of shark were 6.05% by number and 5.96% by weight.

In 2014, the fishing operations were recorded 384 fishing days. The fishing effort was 1,103,900 hooks. Shark were caught 1,145 fishes with 49.95 tonnes. The percentage of shark to the total catch is 7.82% by number and 8.73% by weight. (Figure 4) The average catch rate of shark were 1.04 fish/1,000 hooks and 45.25 kg/1,000 hooks. The highest CPUE was found in August (6.80 fish/1,000 hooks with 316.36 kg/1,000 hooks) while the lowest CPUE was found in January (0.01 fish/1,000 hooks with 0.24 kg/1,000 hooks). (Figure 5)



(A) By weight



(B) By number

Figure 4 Fish composition form longliners in 2014

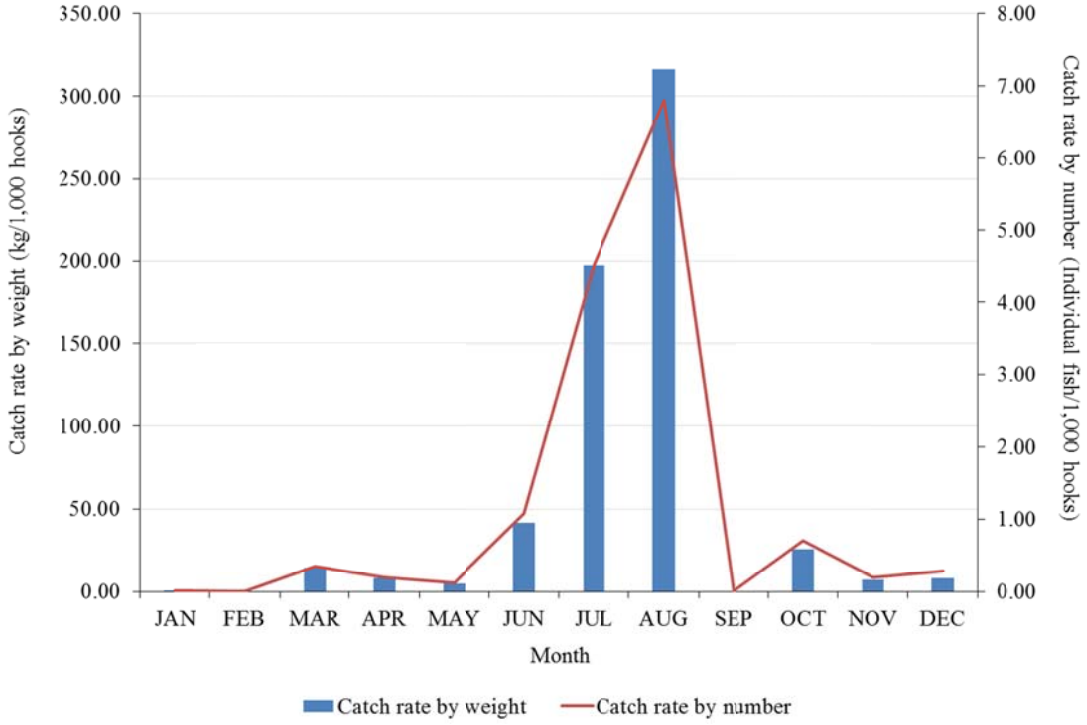


Figure 5 Catch per unit of effort (CPUEs) of sharks in 2014

In 2015, Thailand initiate to collect the data caught of shark by species. The sharks catching area were mostly around central part of the West Indian Ocean (Figure 6).

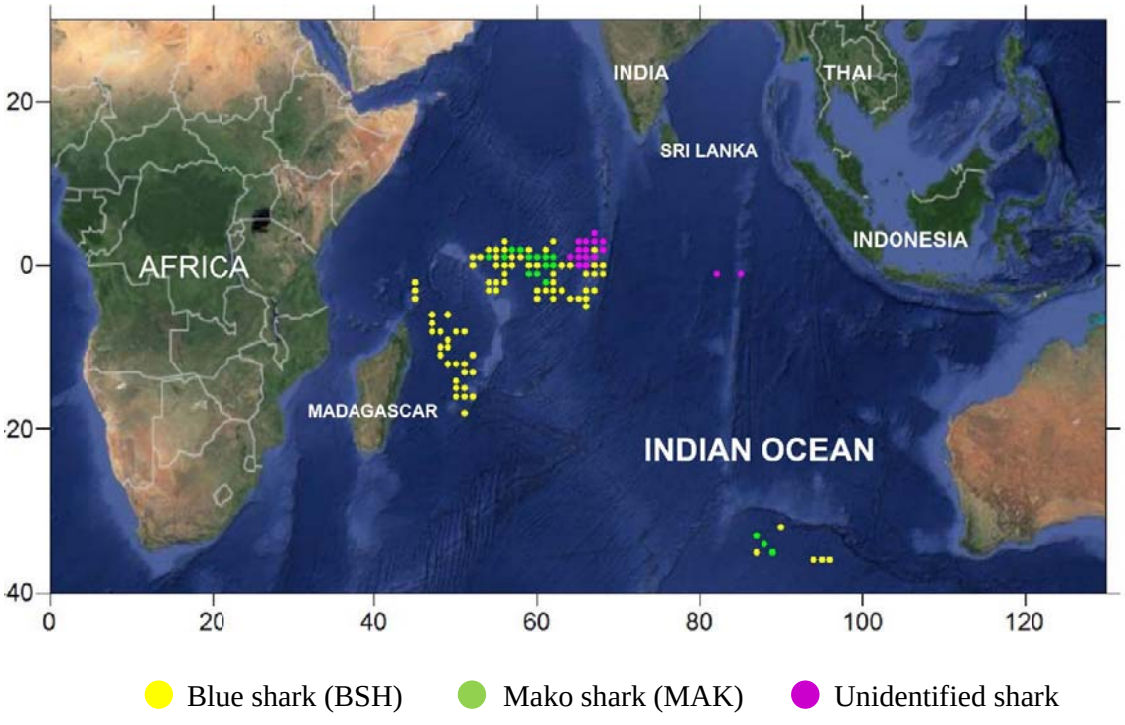
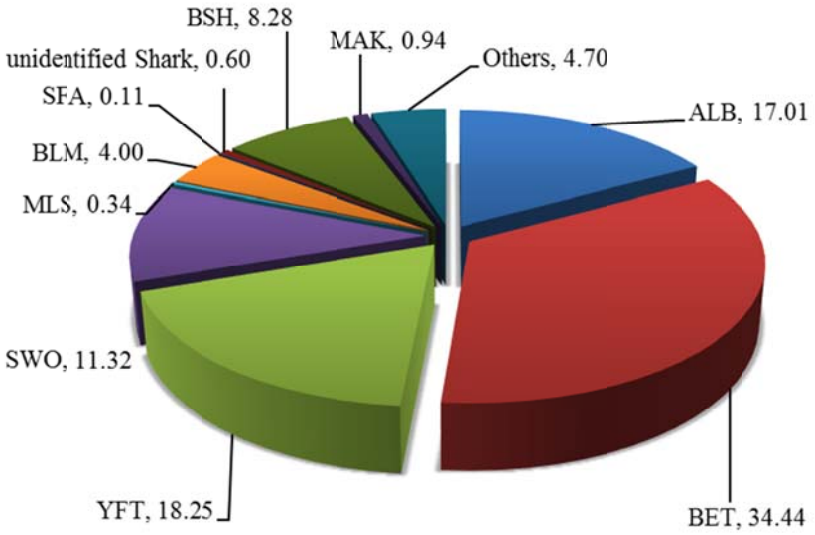
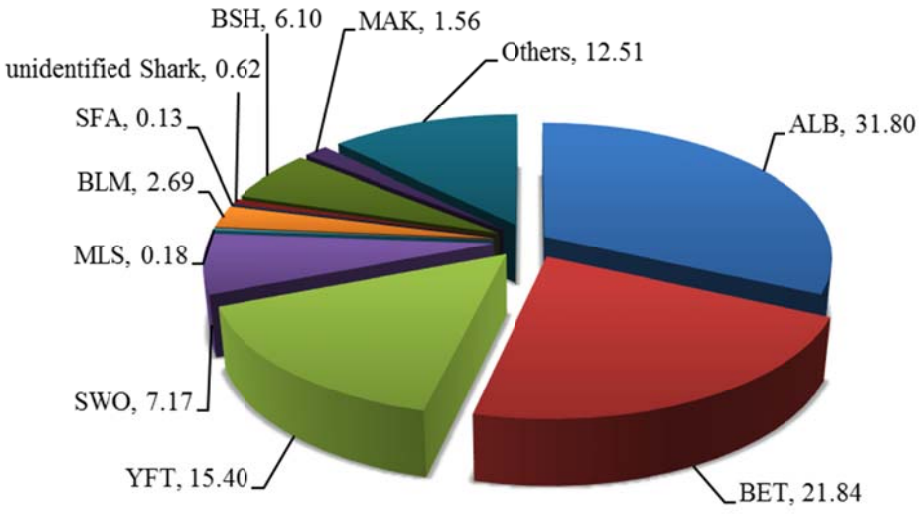


Figure 6 Sharks catching area in 2015

In 2015, Shark were caught 1,835 fishes with 58.88 tonnes. Species composition of shark to the total catch were blue shark (*Prionace glauca:* BSH), mako shark (*Isurus* spp.: MAK) and unidentified shark for 8.28%, 0.94% and 0.60% by weight or 6.10%, 1.56% and 0.62% by number, respectively. (Figure 7) The average catch rate of shark was 1.03 fish/1,000 hooks and 32.92 kg/1,000 hooks. The highest catch was found in June (2.60 fish/1,000 hooks with 76.00 kg/1,000 hooks) while the lowest catch rate was in July (0.01 fish/1,000 hooks with 0.65 kg/1,000 hooks). (Figure 8)



(A) By weight



(B) By number

Figure 7 Species composition form longliners in 2015

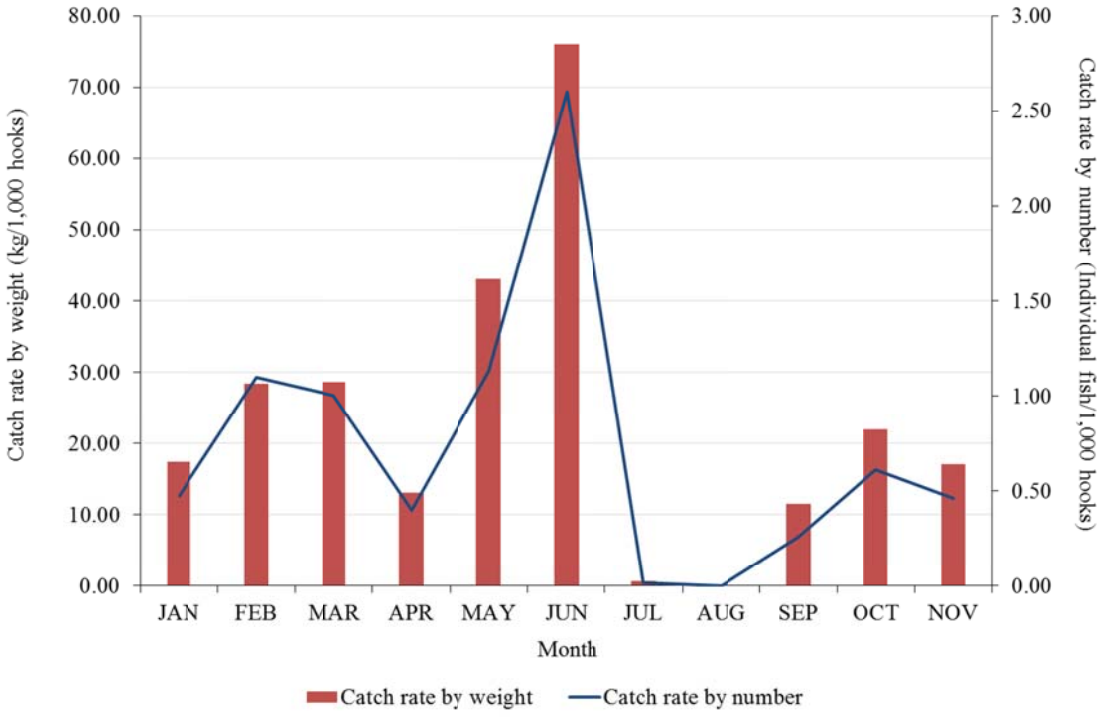


Figure 8 Catch per unit of effort (CPUEs) of sharks in 2015