A Summary of the Korean Tuna Fishery Observer Program for the Indian Ocean (2004-2005)

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Introduction

Korea began to develop its observer program for distant-water fisheries including tuna fisheries in 2002. The purpose of this program is to meet the requirements of relevant regional fisheries bodies and therefore the mission of trained observers are similar to those set out in the convention of the fisheries bodies. Before the official observer program was launched, Korea had irregularly dispatched NFRDI scientists aboard commercial tuna vessels to monitor fisheries and collect reliable catch statistics including biological samples, which were unobtainable by the regular data collection system. A total of 10 scientific observations were conducted for tuna fisheries operating in the Pacific and Indian Ocean where the majority of Korean tuna purse seiners and longliners were active.

In 2004 and 2005, 5 observers were trained and educated, of which 2 observers were deployed to monitor tuna longline fishery in the southern Indian Oceans. Results of the two observer trips conducted in the Indian Oceans from 2004 to 2005 were summarized.

Tuna longline fishery

To monitor the Korean tuna longline fishery operated in the southern Indian Ocean, 2 trained observer were deployed to 2 Korean longliners (424 and 417 GRT) fishing in the southern Indian Ocean, between 34°30′ ~ 37°30′ S and 19°30′ ~ 26°06′ E in 2004 and 26°26′ ~ 31°10′ S and 35°15′ ~ 40°40′ E in 2005, respectively (Fig. 1).

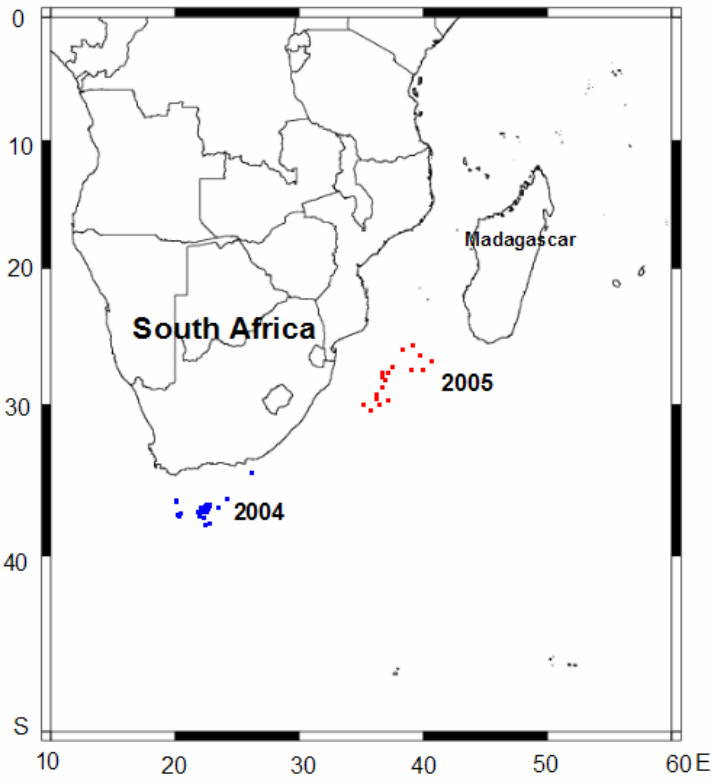

Fig. 1. Longline observation points in the western Indian Ocean.

During the 39 days of the observation period from August 10 to September 17, 2004, a total of 38 longline sets (one set per day) were monitored. The average number of baskets used for each set was 242 and hooks used ranged from 1,620 to 2,910 (average 2,414 hooks). Longline setting began at around 2:00am and finished by 6:30am in the morning and after about 2 hours of soaking, the longline sets were hauled until 9:30pm.

During the 28 days of the observation period from November 10 to December 7, 2005, a total of 20 longline sets (one set per day) were monitored. The average number of baskets used for each set was 324 and hooks used ranged from 3,300 to 3,641 (average 3,582 hooks). Longline setting began at around 2:00am and finished around 10:00am and after about 2~3 hours of soaking, the longline sets were hauled until 03:30 am in the next early morning.

Catches sampled by the observer in 2004 were 120.6mt of tuna and billfishes, of which yellowfin tuna (92.0mt) was the dominant tuna species accounting for 76.3% of the total catch in weight, followed by bigeye at 19.7mt (16.3%), albacore at 5.1mt

(4.2%), and southern bluefin at 0.8mt (0.7%). Billfishes incidentally caught were blue marlin (0.3%), swordfish (2.2%)(Table 1).

Catches sampled by the observer in 2005 were 32.1mt of tuna and billfishes, of which yellowfin tuna (21.7mt) was the dominant tuna species accounting for 67.7% of the total catch in weight, followed by albacore at 5.1mt (15.8%), bigeye at 2.6mt (8.0%) Billfishes incidentally caught were swordfish (3.1%), shortbill spearfish (3.8%), black marlin (1.0%) and sailfish (0.1%)(Table 1)..

Table 1. Catch and CPUE of tunas and billfishes

2004

Species	Catch				CPUE	
	No. of fish	%	Weight (kg)	%	fish/100hooks	weight/100hooks
Yellowfin	4,955	82.0	92,045	76.3	5.4	100.3
Bigeye	575	9.5	19,652	16.3	0.6	21.4
Albacore	457	7.6	5,067	4.2	0.5	0.5
Southern bluefin	11	0.2	837	0.7	0.0	0.0
Blue marlin	1	0.0	350	0.3	0.0	0.0
Swordfish	41	0.7	2,662	2.2	0.0	2.9
Total	6,040	100.0	120,613	100.0	6.6	131.5

2005

Species	Catch				CPUE	
	No. of fish	%	Weight (kg)	%	fish/100hooks	weight/100hooks
Yellowfin Tuna	388	41.7	21,734	67.7	0.54	30.45
Bigeye Tuna	93	10.0	2,583	8.0	0.13	3.62
Albacore Tuna	315	33.9	5,078	15.8	0.44	7.12
Skipjack Tuna	10	1.1	78	0.2	0.01	0.11
Striped Marlin	2	0.2	63	0.2	0.0	0.09
Black Marlin	3	0.3	319	1.0	0.0	0.45
Sword fish	24	2.6	1,002	3.1	0.03	1.40
Shortbill spearfish	94	10.1	1,207	3.8	0.13	1.69
Sailfish	1	0.1	33	0.1	0.0	0.05
Total	930	100	32,097	100	1.28	44.98

A total of 15 bycatch species (283 in number) in 2004 and 15 bycatch species (465 in number) in 2005 were observed during the trip, among which sharks were most common and some other fish species were also observed (Table 2). To prevent the incidental catch of seabirds, the vessel was implementing several measures, recommended by various international societies, such as the use of thawed bait, bait casting machine and weighted branch line. Nevertheless, 4 albatrosses (3 in 2004 and 1 in 2005) were caught and died as the line was hauling.

Length frequency data for the sampled by-catch species in 2005 were collected. The fork length of blue shark ranged from 130cm to 290cm (mode: 200, 260cm) and total length of escolor and wahoo were ranged from 50cm to 150cm (mode: 90, 130cm) and from 100cm to 190cm (mode 150cm), repectively (Fig. 2).

Table 2. List of bycatch species (billfish not included)

2004

Common Name	No. of fish	%
Blue shark	62	21.9
Mako sharks	37	13.1
Pelagic thresher shark	14	4.9
Bigeye thresher shark	3	1.1
Opah	2	0.7
Escolars	44	15.5
Oilfishes	33	11.7
Ocean sunfish	1	0.4
Dolphin fishes	1	0.4
Hakes	75	26.5
Seabreams	4	1.4
Pomfrets= Angelfishes	3	1.1
Pelagic stingrays	1	0.4
Rays	2	0.7

Other fish	1	0.4
Total	283	100.0

2005

Common Name	No. of fish	%	Weight(kg)	%
Blue shark	115	24.73	8257	60.88
Shortfin mako shark	15	3.22	605	4.46
Oceanic whitetip sharks	5	1.08	174	1.28
Silky shark	2	0.43	18	0.13
Crocodile shark	11	2.37	30	0.22
Escolar	80	17.20	791	5.83
Oilfish	15	3.23	69	0.51
Dolphinfish	39	8.39	263	1.94
Wahoo	130	27.96	2301	16.97
Opah	26	5.59	967	7.13
Bigtooth pomfret	1	0.22	2	0.01
Sickle pomfret	2	0.43	9	0.07
Longnose lancetfish	21	4.52	71	0.52
Snake mackerel	1	0.22	2	0.01
Pelagic stingray	2	0.43	2	0.15
Total	465	100	13,561	100

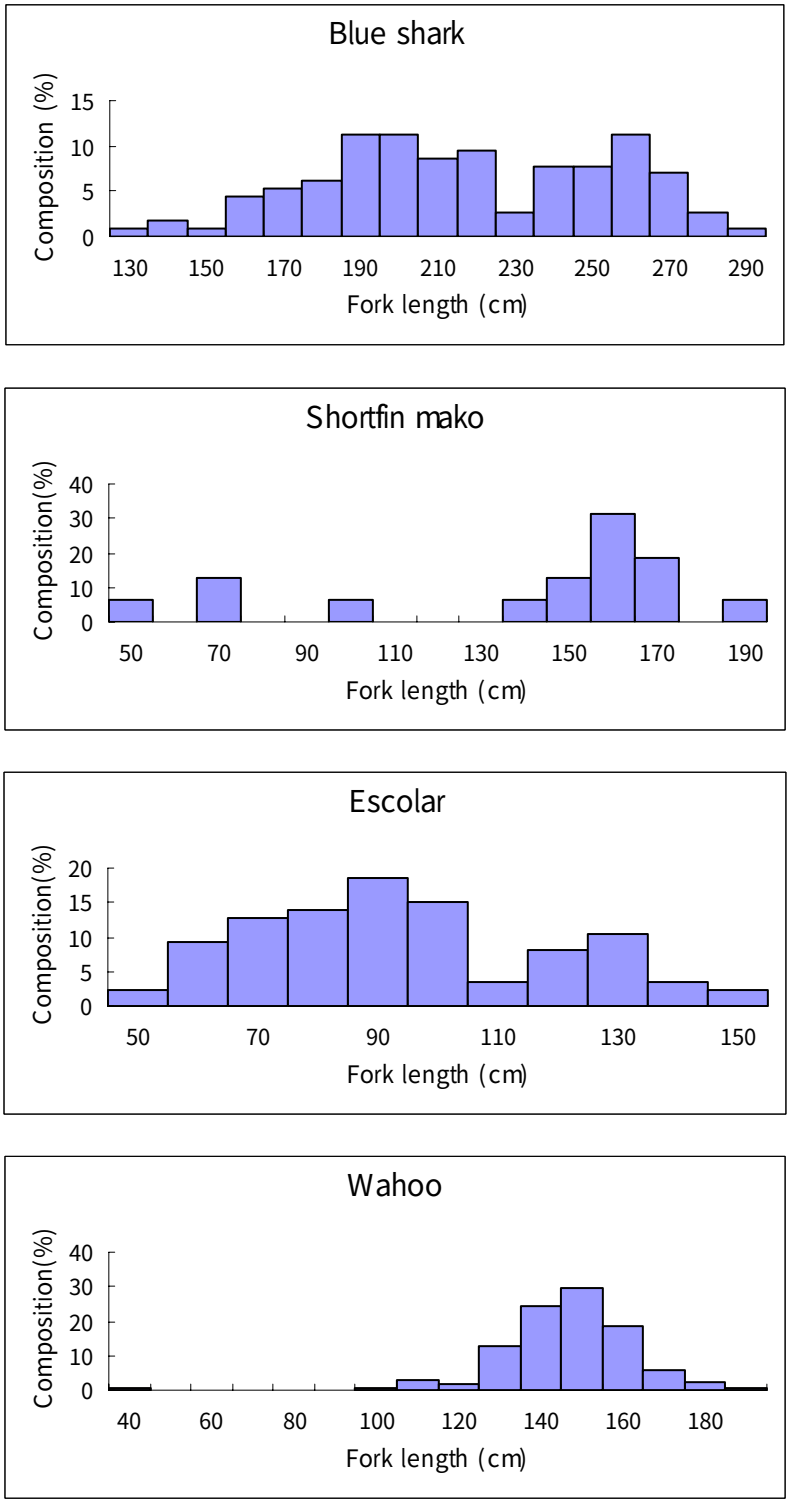

Fig. 2. Length composition of major bycatch species (2005)