



**SCIENTIFIC COMMITTEE
ELEVENTH REGULAR SESSION**

Pohnpei, Federated States of Micronesia
5-13 August 2015

ANNUAL REPORT TO THE COMMISSION

PART 1: INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS

WCPFC-SC11-AR/CCM-12 Rev 2
(30 August 2015)

REPUBLIC OF KOREA



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PART 1: INFORMATION ON FISHERIES, RESEARCH AND STATISTICS**

Republic of Korea

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Scientific data was provided to the Commission in accordance with the decision relating to the provision of scientific data to the Commission by 30 April 2015	YES
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1. SUMMARY

Korea has two types of fishing gears, purse seine and longlines, that engage in fishing for tuna and tuna-like species in the WCPFC Convention Area. These fisheries are managed by the Distant Water fisheries Development Act of Korea. Total catch in the WCPFC convention area by the Korean fisheries in 2014 was 293,816 mt, which accounted for 6% greater than the recent 5 years average (2010-2014) and 17% greater than that in 2013. The catch of purse seine fisheries from 28 vessels active was 270,048 mt in 2014, which was 9% greater than that of average recent 5 years and 20% greater than that of 2013. The catch of longline fishery with 113 vessels active was 26,265 mt in 2014, which 8% lower than the recent 5 year average and 8% greater than that in 2013. In purse seine fishery, skipjack and yellowfin catches in 2014 were 17% and 36% greater than those of 2013, respectively, but bigeye catch was 19% lower than that of 2013. In longline fishery, yellowfin catch in 2014 was 46% greater than that of 2013, and bigeye catch was similar to that of 2013. Purse seine fishing efforts ranged from 6,624 to 7,552 sets during 5 recent years, which showed the highest in 2013 and decrease again up to 6,882 sets in 2014. Longline fishing efforts ranged from 55,759 to 75,715 thousand hooks during 5 recent years, which showed the lowest in 2014. Purse seine fishing efforts in 2014 were moved eastward further and concentrated on the central area, and longline fishing efforts in 2014 were deployed relatively higher in the

central area around the equator than in previous years. The coverage rates of logsheet in 2014 were 100% for both purse seine and longline.

2. Tabular Annual Fisheries Information

Table 1(a). Annual catch and effort estimates for the Korean purse seine fishery by primary species in the WCPFC Convention Area, 2010-2014

Year	No. of sets	Catch (mt)				
		Total	SKJ	BET	YFT	OTH
2010	7,307	277,312	216,026	2,972	58,314	-
2011	6,624	207,702	168,690	2,295	36,717	-
2012	7,337	262,192	210,613	900	50,677	2
2013	7,552	225,642	190,251	1,684	33,697	10
2014	6,882	270,048	222,825	1,366	45,856	1

Table 1(b). Annual catch and effort estimates for the Korean longline fishery by primary species in the WCPFC Convention Area, 2010-2014

Year	No. of hooks ($\times 10^3$)	Catch (mt)										
		Total	ALB	YFT	BET	BFT	SKJ	BLM	BUM	MLS	SWO	OTH
2010	67,007	28,513	1,337	7,644	13,914	51	0	579	1,595	27	786	2,581
2011	75,715	30,736	670	7,881	15,282	0	23	331	1,415	73	1,340	3,723
2012	75,060	33,457	1,264	7,832	18,823	0	14	148	1,486	43	1,267	2,579
2013	62,852	24,429	1,155	5,716	12,818	0	51	90	1,727	90	1,214	1,568
2014	55,759	26,265	714	8,371	12,779	0	100	82	1,887	56	1,048	1,229

Table 1(c). Annual catch and effort of north Pacific albacore by the Korean longline fishery, 2010-2014

Year	Catch (mt)	Effort (days fished)
2012	182	NA
2013	171	NA
2014	117	NA

* Korea does not have any fishing vessels that fish for north Pacific albacore and any north Pacific albacore catch is bycatch.

Table 1(d). Annual catch and effort of southwest striped marlin by the Korean longline fishery in the south of 15°S, 2010-2014

Year	Catch (mt)	Effort (number of fishing vessels)
2012	0.241	NA
2013	0.479	NA
2014	0.407	NA

* Korea does not have any fishing vessels that fish for southwest striped marlin and any southwest striped marlin catch is bycatch.

Table 1(e). Annual catch of swordfish by the Korean longline fishery in the south of 20°S, 2010-2014

Year	CMM-flagged vessels south of 20°S		Chartered vessels		Other vessels fishing within the CCM's waters south of 20°S		
	Catch (mt)	Vessel numbers	Catch (mt)	Vessel numbers	Flag	Catch (mt)	Vessel numbers
2010	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-

Table 1(f). Annual catch and effort of south Pacific albacore by the Korean longline fishery in the south of 20°S, 2010-2014

Year	Catch (mt)	Effort (number of fishing vessels)
2010	-	-
2011	-	-
2012	-	-
2013	-	-
2014	-	-

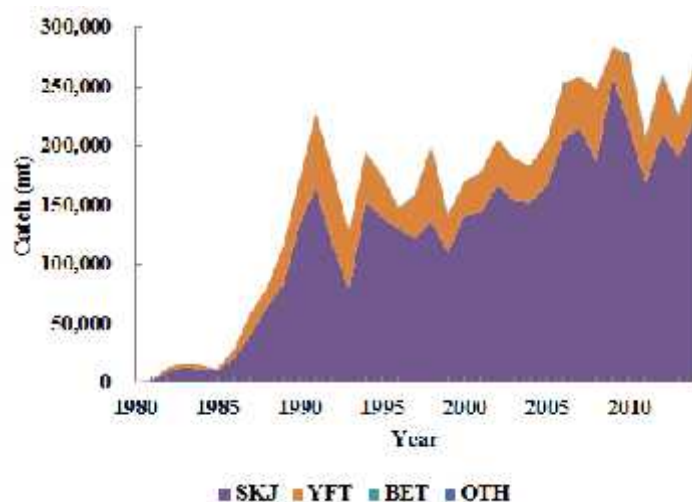


Fig. 1(a). Historical annual catch for the Korean purse seine fishery by primary species in the WCPFC Convention Area during 1980-2014.

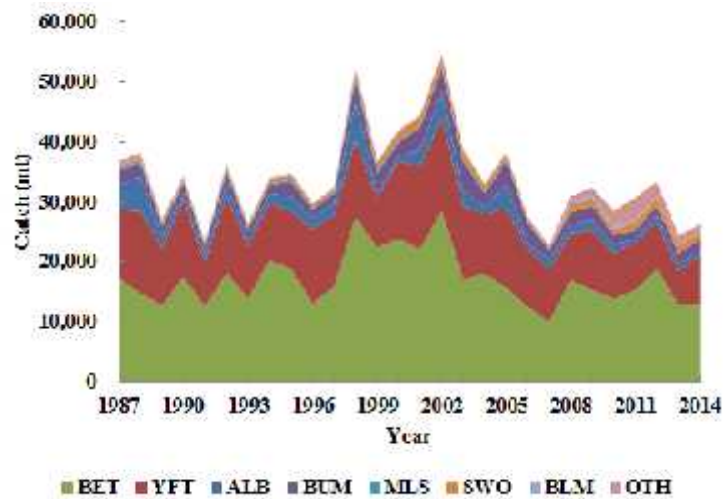


Fig. 1(b). Historical annual catch for the Korean longline fishery by primary species in the WCPFC Convention Area during 1987-2014.

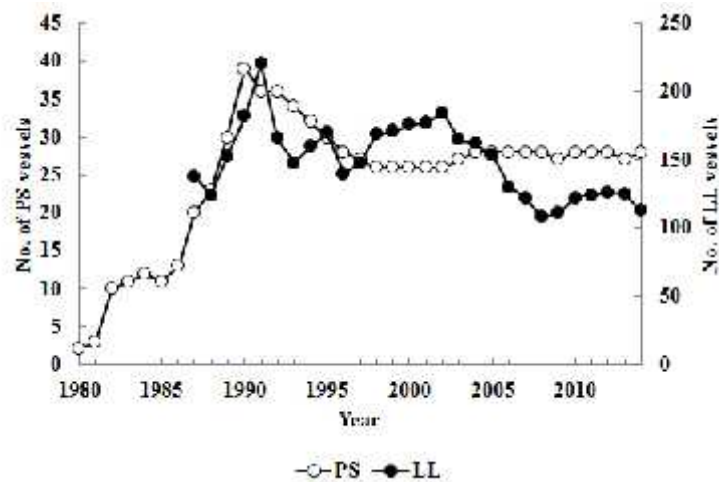


Fig. 2. Historical annual vessel numbers for the Korean tuna fisheries by gear in the WCPFC Convention Area during 1980-2014.

Table 2. Number of Korean vessels by gear and size, active in the WCPFC Convention Area, 2010-2014

Year	GRT class by gear									
	Longline					Purse seine				
	Total	0-50	51-200	201-500	500+	Total	0-500	501-1,000	1,001-1,500	1,500+
2010	122	-	-	122	-	28	-	13	12	3
2011	124	-	-	124	-	28	-	12	11	5
2012	126	-	-	126	-	28	-	12	11	5
2013	125	-	1	124	-	27	-	12	10	5
2014	110	-	1	112	-	28	-	10	13	5

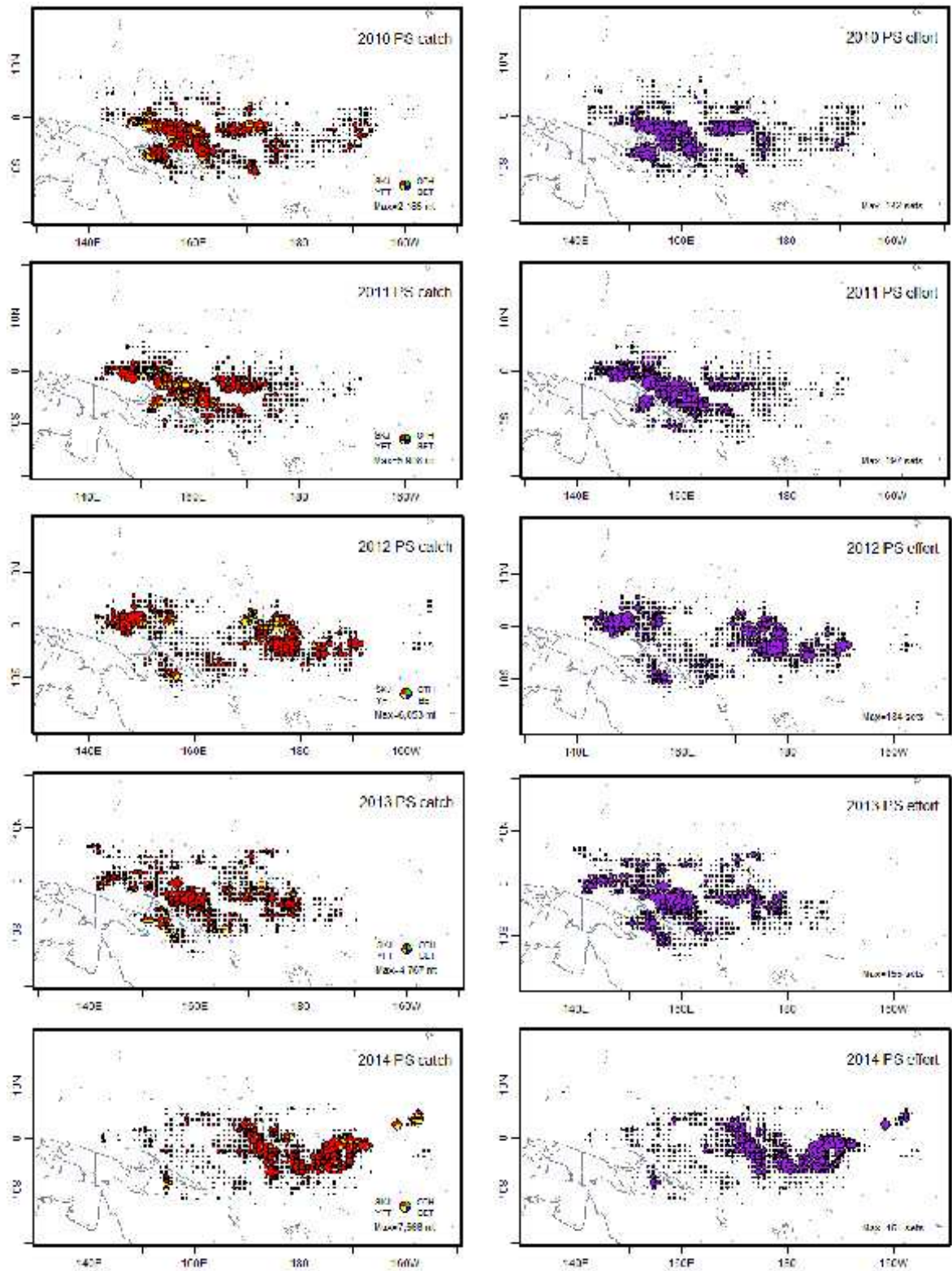


Fig. 3(a). Annual catch and effort distributions of target species by the Korean purse seine fishery active in the WCPFC Convention Area, 2010-2014.

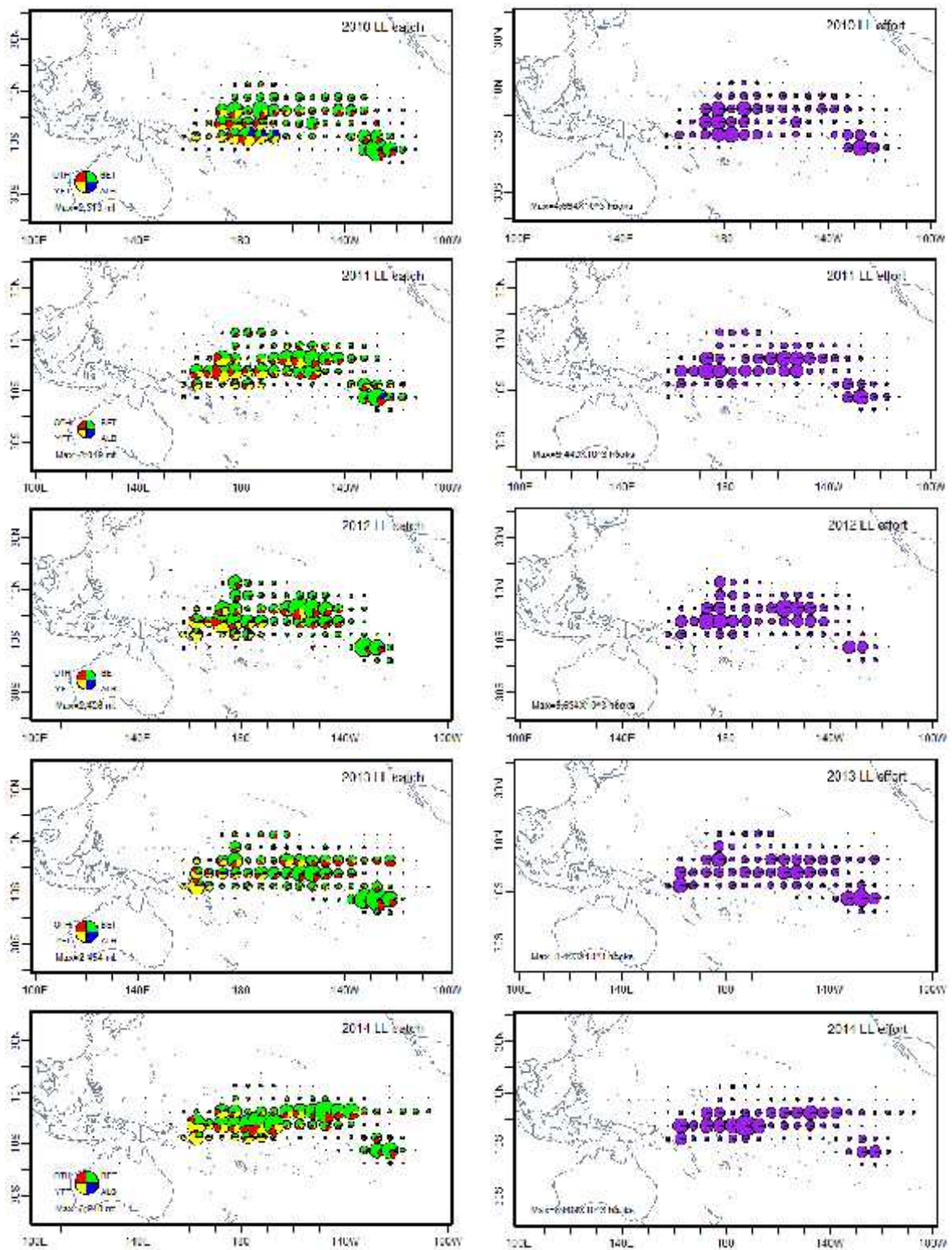


Fig. 3(b). Annual catch and effort distributions of target species by the Korean longline fishery active in the Pacific Ocean, 2010-2014.

Table 3. Annual estimated catch of species of special interest (seabird, turtle, marine mammals, etc.) by the Korean fisheries in the WCPFC Convention Area, 2013-2014

Fishery	Year	Catch (number) by species				
		Whale shark	Leatherback turtle	Olive ridley turtle	Loggerhead turtle	Other marine turtles
Purse seine	2013	30	1	1	10	27
	2014	8	-	-	5	-
Longline	2013	-	-	-	-	-
	2014	-	-	-	-	-

* No seabird and marine mammals were caught.

Table 4(a). Annual estimated catch of key sharks by the Korean longline fishery in the WCPFC Convention Area, 2011-2014

Year	Catch (mt) by key shark species						
	Blue shark	Thresher sharks	Hammerhead sharks	Mako sharks	Silky shark	Oceanic whitetip shark	Others
2011	9	1	<0.1	-	-	-	1,047
2012	68	33	4	6	4	1	640
2013	194	98	21	17	33	-	688
2014	201	124	13	11	33	-	457

* No shark catch by the Korean purse seine fishery.

Table 4(b). Annual number of releases of oceanic whitetip shark and silky shark by the Korean fishery in the WCPFC Convention Area, 2011-2014

Fishery	Year	Number of releases	
		Oceanic whitetip shark	Silky shark
Purse seine	2013	19	25*
	2014	2	5.7*
Longline	2013	299	26
	2014	173	58

* indicates that the unit is weight (mt).

Table 5. Estimated annual coverage of operational catch/effort and observer data for the Korean fisheries by gear, active in the WCPFC Convention Area, 2011-2014

Year	Gear	Logsheets coverage (%)	Observer coverage (%)
2011	Purse seine	100	100
	Longline	90	>5
2012	Purse seine	100	100
	Longline	85	>5
2013	Purse seine	100	100
	Longline	100	5.4
2014	Purse seine	100	100
	Longline	100	7.2

* 2014 observer coverage for Korean longline fishery

Fishery	No. of Hooks			Days Fished			Days at Sea			No. of Trips		
	Total Estimated	Observer	%	Total Estimated	Observer	%	Total Estimated	Observer	%	Total Estimated	Observer	%
Distant-water							25,364	1,829	7.21			

Table 6. Information on the transshipment of Korean fleets in 2014

A. Longliners

(1) Amount (kg) of transshipped fish

Species	Transshipment of catches caught in WCPFC area	Transshipment of catches caught outside of WCPFC area	Total
Bigeye tuna	6,869,394	2,117,506	8,986,899
Yellowfin tuna	4,071,484	525,031	4,596,515
Skipjack tuna	61,413	11,600	73,013
Albacore tuna	41,639	106,074	522,393
Swordfish	604,349	210,578	814,927
Striped marlin	32,274	19,931	52,206
Sharks	476,080	131,479	607,559
Shark fin	17,889	4,485	22,373
Others	1,062,245	256,567	1,318,813
Total	13,611,447	3,383,251	16,994,698

Species	Location of Transshipment : WCPFC area															Total
	In port Transshipment					At sea transshipment in EEZ					At sea transshipment in high seas					
	GG	Dress	Round	Other	Sub total	GG	Dress	Round	Other	Sub total	GG	Dress	Round	Other	Sub total	
Bigeye tuna	2,506,453	-	-	-	2,506,453	1,256,910	73,537	-	-	1,330,447	3,121,125	51,252	-	-	3172377	7,009,277
Yellowfin tuna	1,655,227	-	-	-	1,655,227	797,191	16,252	-	-	813,443	1,520,366	10,066	-	-	1530432	3,999,102
Skipjack tuna	-	-	24,436	-	24,436	-	-	22,894	-	22,894	93	-	12,091	-	12,184	59,514
Albacore tuna	-	-	154,147	-	154,147	-	-	92,852	-	92,852	-	-	172,911	-	172,911	419,910
Swordfish	-	230,466	-	-	230,466	-	134,924	-	-	134,924	-	260,543	-	-	260,543	625,933
Striped marlin	10,581	677	-	-	11,258	6,811	97	-	-	6,908	13,151	770	-	-	13,921	32,087
Sharks	-	185,502	-	-	185,502	-	114,587	6,683	-	121,270	-	170,730	-	-	170,730	477,502
Shark fin	-	-	-	6,702	6,702	-	-	-	4,647	4,647	-	-	-	6,354	6,354	17,703
Others	-	254,801	-	157,779	412,580	-	98,057	1,045	118,195	217,297	-	410,641	3,243	36,588	450,472	1,080,349
Total	4,172,261	671,446	178,583	164,481	5,186,771	2,060,912	437,454	123,474	122,842	2,744,682	4,654,735	904,002	188,245	42,942	5,789,924	13,721,377

Species	Location of Transshipment : outside of WCPFC area										
	In port transshipment					At sea transshipment					Total
	GG	Dress	Round	Other	Sub total	GG	Dress	Round	Other	Sub total	
Bigeye tuna	327,707	-	-	-	327,707	1,750,778	571	-	-	1,751,349	2,079,056
Yellowfin tuna	54,413	-	-	-	54,413	384,262	6,630	-	-	390,892	445,305
Skipjack tuna	-	-	-	-	-	-	-	2,520	-	2,520	2,520
Albacore tuna	-	-	16,983	-	16,983	-	-	86,210	-	86,210	103,193
Swordfish	-	39,259	-	-	39,259	-	171,702	-	-	171,702	201,961
Striped marlin	696	-	-	-	696	10,027	8,032	-	-	18,059	18,755
Sharks	-	18,819	-	-	18,819	-	105,926	-	-	105,926	124,745
Shark fin	-	-	-	636	636	-	-	-	3,666	3,666	4,302
Others	-	-	-	36,785	36,785	-	238,107	-	9,592	247,699	284,484
Total	382,816	58,078	16,983	37,421	495,298	2,145,067	530,968	88,730	13,258	2,778,023	3,273,321

(2) Number of transshipments

Number of transshipments by location of catches		Number of transshipments by location of transshipments				
		WCPFC area			Outside of WCPFC area	
Catches in WCPFC area	Catches outside of WCPFC area	In port	EEZ	High seas	In port	At sea
85	21	22	20	43	2	19

B. Purse seiners

(1) Amount (kg) of transhipped fish

Species	Transhipment of catches caught in WCPFC area	Transhipment of Catches caught outside of WCPFC area	Total
Bigeye tuna	1,146,200	-	1,146,200
Yellowfin tuna	45,759,000	-	45,759,000
Skipjack tuna	214,130,000	-	214,130,000
Total	261,035,200	-	261,035,200

Species	Location of transhipment : WCPFC area															Total	
	In port transshipment					At sea transhipment in EEZ					At sea transhipment in high seas						
	GG	Dress	Round	Other	Sub total	GG	Dress	Round	Other	Sub total	GG	Dress	Round	Other	Sub total		
Bigeye tuna	-	-	1,146,200	-	1,146,200	-	-	-	-	-	-	-	-	-	-	-	1,146,200
Yellowfin tuna	-	-	45,759,000	-	45,759,000	-	-	-	-	-	-	-	-	-	-	-	45,759,000
Skipjack tuna	-	-	214,130,000	-	214,130,000	-	-	-	-	-	-	-	-	-	-	-	214,130,000
Total	-	-	261,035,200	-	261,035,200	-	-	-	-	-	-	-	-	-	-	-	261,035,200

Species	Location of transhipment : outside of WCPFC area											Total
	In port transshipment					At sea transhipment						
	GG	Dress	Round	Other	Sub total	GG	Dress	Round	Other	Sub total		
Bigeye Tuna	-	-	-	-	-	-	-	-	-	-	-	-
Yellowfin Tuna	-	-	-	-	-	-	-	-	-	-	-	-
Skipjack	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-

(2) Number of transhipments

Number of transhipments by location of catches		Number of transhipments by location of transhipments				
		WCPFC area			Outside of WCPFC area	
Catches in WCPFC area	Catches outside of WCPFC area	In port	EEZ	High seas	In port	At sea
287	-	287	-	-	-	-

C. Carriers

(1) Amount (kg) of transhipped fish

Species	Location of transhipment : WCPFC area															Total
	In port transhipment					At sea transhipment in EEZ					At sea transhipment in high seas					
	GG	Dress	Round	Others	Sub total	GG	Dress	Round	Others	Sub total	GG	Dress	Round	Others	Sub total	
Bigeeye tuna	1,999,844	3,521	161,074	186,000	2,350,439	2,208,988	110,342	-	-	2,319,330	1,571,287	32,952	-	-	1,604,239	6,274,008
Yellowfin tuna	1,262,952	946	9,470,409	4,105,850	14,840,157	1,013,458	31,449	-	-	1,044,907	777,509	5,506	-	-	783,015	16,668,079
Striped marlin	3,555	1,529	-	-	5,084	11,880	1,252	235	-	13,367	12,868	152	-	-	13,020	31,471
Swordfish	-	178,021	-	-	178,021	-	278,210	4,978	-	283,188	-	133,966	-	-	133,966	595,175
Blue marlin	-	226,083	-	-	226,083	-	172,292	-	-	172,292	-	176,216	-	-	176,216	574,591
White marlin	-	12,717	-	-	12,717	-	758	-	-	758	-	2,099	-	-	2,099	15,574
Albacore tuna	56	-	101,439	-	101,495	-	-	99,405	-	99,405	-	-	2,271,087	-	2,271,087	2,471,987
Spearfish	-	1,100	-	-	1,100	-	-	-	-	-	-	-	-	-	-	1,100
Skipjack tuna	490	365	262,427,287	9,860,000	272,288,142	-	-	26,788	-	26,788	4,000	-	8,175	-	12,175	272,327,105
Sharks	-	102,209	7,691	11,027	120,927	-	148,266	13,497	-	161,763	-	142,344	-	-	142,344	425,034
Shark fin	-	-	-	4,520	4,520	-	-	222	5,526	5,748	-	-	-	12,139	12,139	22,407
Others	-	22,355	-	31,494	53,849	-	1,811	1,045	23,008	25,864	-	25,878	-	100,336	126,214	205,927
Total	3,266,897	548,846	272,167,900	14,198,891	290,182,534	3,234,326	744,380	146,170	28,534	4,153,410	2,365,664	519,113	2,279,262	112,475	5,276,514	299,612,458

Species	Location of Transhipment : outside of WCPFC area											Total
	In port transhipment					At sea transhipment						
	GG	Dress	Round	Others	Sub total	GG	Dress	Round	Others	Sub total		
Bigeeye tuna	-	-	-	-	-	1,157,147	-	-	-	1,157,147	1,157,147	
Yellowfin tuna	-	-	-	-	-	334,367	-	-	-	334,367	334,367	
Striped marlin	-	-	-	-	-	3,794	5,713	-	-	9,507	9,507	
Swordfish	-	-	-	-	-	-	94,211	-	-	94,211	94,211	
Blue marlin	-	-	-	-	-	-	144,959	-	-	144,959	144,959	
White marlin	-	-	-	-	-	-	-	20,459	-	20,459	20,459	
Albacore tuna	-	-	-	-	-	-	-	39,051	-	39,051	39,051	
Spearfish	-	-	-	-	-	-	-	-	-	-	-	
Skipjack tuna	-	-	-	-	-	-	-	488	-	488	488	
Sharks	-	-	-	-	-	-	50,478	-	-	50,478	50,478	
Shark fin	-	-	-	-	-	-	-	-	1,784	1,784	1,784	
Others	-	-	-	-	-	-	19,039	-	9,592	28,631	28,631	
Total	-	-	-	-	-	1,495,308	314,400	59,998	11,376	1,881,082	1,881,082	

(2) Number of transshipment

Number of Transshipments by location of transshipments				
WCPFC area			outside of WCPFC area	
In port	EEZ	High seas	In port	At sea
299	43	35	-	11

3. Background

About 59 year-old Korean distant water tuna longline fishery that stepped up the first fishing in the Indian Ocean in 1957, has explored the Pacific Ocean since 1958 and the Atlantic Ocean since 1967. The high seas and the waters within coastal states in the South Pacific Ocean have been the main fishing grounds for Korean longline fishery. There was a change in the longline fishing operation types. Longline vessels used foreign ports for fishing base near the fishing grounds from the beginning but they has gradually equipped with deep freezing facilities and used home ports for fishing base since 1972. All longline vessels have based domestic ports since 1999. This change gave advantages in exporting the products to Japanese markets and others. In domestic markets, tuna sashimi demands have been increasing year by year.

The Korean purse seine fishery was initiated by accessing into the Eastern Pacific fishing ground with 3 vessels in 1971. Helicopter-aided mass operations were introduced in 1979 for the first time, and the number of active vessels was the highest of 39 in 1990 and 27-28 in recent years. Most of the catches are supplied to the packers for domestic consumption, and are exported to foreign canneries.

These fisheries are managed by the Distant Water Fisheries Development Act put into effect on the 4 February, 2008, and the Act was revised for improving the data collection on 5 December, 2012. Currently, over 80% of Korean catch of tuna and tuna-like species has occurred in the western and central Pacific ocean (WCPO) area.

4. Flag State Reporting

4.1. Annual catch and effort

Annual catch and effort for Korean tuna fisheries by gear and primary species are shown in Table 1 and Fig. 1. The average of total catch in the WCPO by Korean tuna fisheries was 276,760 mt in recent 5 years (2010-2014). Total catch in 2014 was 293,816 mt, which accounted for 6% and 17% greater than those of average for 5 recent years and 2013, respectively.

The average catch of purse seine fishery was 248,579 mt during 5 recent years (2010-2014). The purse seine catch in 2014 was 270,048 mt from 28 vessels active, which was 9% and 20% greater than that of average for 5 recent years and 2013, respectively. In purse seine fishery, skipjack, bigeye and yellowfin catches in 2014 were 222,825 mt, 1,366 mt and 45,856 mt, respectively. The catches of skipjack and yellowfin were 17% and 36% greater than those of 2013, respectively, but bigeye was 19% lower than that of 2013. Purse seine fishing efforts ranged from 6,600 to 7,500 sets during 5 recent years, which showed the highest of 7,552 sets in 2013, and decreased again in 2014.

The average catch of longline fishery was 28,680 mt during recent 5 years (2010-2014). The longline catch in 2014 was 26,265 mt from 113 vessels active, which was 8% lower and 8% greater than that of average for 5 recent years and 2013, respectively. Catches of bigeye

and yellowfin caught by longline in 2014, which are target species by the Korean tuna longline fishery, were 12,779 mt and 8,371 mt, respectively. Longline fishing efforts ranged from 55,000 to 75,000 thousand hooks and decreased from 75,715 thousand hooks in 2011 to 55,759 thousand hooks in 2014, which was the lowest level during 5 recent years.

Catches of north Pacific albacore, southwest striped marlin, south swordfish and south albacore are shown in Table 1(c)-(f).

4.2. Fleet structure

The number of vessels active by gear and size is presented in Fig. 2 and Table 2. The number of purse seine vessels, once peaked at 39 in 1990, reduced to 28 in 1996 and has been maintained around 26-28 since then to recent years. It was 28 in 2014, of which 10 vessels were of 501-1,000 class, 13 vessels of 1,001-1,500 class and 5 vessels of over 1,500 class. The number of longline vessels reduced from 220 in 1991 to 108 in 2008, and slightly increased and ranged from 111 to 126 thereafter. It was 113 in 2014, of which 1 vessel was of 51-200 class and 112 vessels of 201-500 class.

4.3. Fishing patterns

The distributions of catch and effort of target species by gear are shown in Fig. 3. Korean tuna purse seine fishery has generally been operating throughout the year in the tropical area of the WCPO between 140°E-180°E and from time to time extended to the east subject to oceanographic conditions. Purse seine fishing efforts in 2010, 2011 and 2013 were concentrated on the western areas, while concentrated relatively higher on the central areas in 2009. In 2014, the effort distributions moved eastward further and concentrated on the central areas than previous years. Longline fishery efforts were normally higher in both the central and eastern areas. In 2014, the efforts were relatively higher in the central area around the equator.

4.4. Annual estimated catches of species of special interest

The species of special interest (seabird, turtle, marine mammal, etc.) caught incidentally by Korean purse seine and longline fisheries in 2014 are presented in Table 3. The data were compiled from logsheet recorded by captain onboard. The number by species in 2014 was 8 for whale shark and 5 loggerhead turtles, respectively. All these species were bycaught by purse seine fishery and released promptly.

4.5. Annual estimated catches of non-target, associated and dependent

The shark species caught by longline fishery are presented in Table 4(a). These data were compiled from logsheet recorded by captain onboard. As key shark species, the catches in 2014 were 201 mt for blue shark, thresher sharks 124 mt, hammerhead sharks 13 mt, mako sharks 11 mt, silky shark 33 mt and other sharks 457 mt, respectively. In accordance with CMM 2011-04 and 2013-08, the number of releases of oceanic whitetip shark and silky shark are presented in Table 4(b). All these bycaught were released promptly in a manner that results in as little harm to the shark as possible. As all Korean vessels operated the areas between 15°N and 20°S (Fig. 3), there was no bycatch of seabird in 2014.

4.6. Estimated annual coverage of catch and effort and observer data

Estimated annual coverages of logsheet (catch and effort data) and observer data are shown in Table 5. The coverage of logsheet data has been 100% for both purse seine and longline since 2013. The observer coverage in 2014 was 100% for purse seine and 7.2% for longline.

5. Coastal State Reporting

N/A

6. Onshore developments

Korea consistently promotes investment plans on land facility in the coastal states where its distant waters fleets are operating.

7. Future Prospects of the fishery

The fleet power of purse seine and longline is expected to keep the current level, and production seems to be affected by fisheries resources trend in the oceans, conservation and management measures of RFMOs and permission policy of the coastal states. Meanwhile recognizing that demand at international and domestic market is increasing on production caught from responsible and sustainable fishing activity, Korea strives to strengthen on MCS, scientific survey and education relating to bycatch for fishermen.

8. Status of tuna fishery data collection systems

8.1. Logsheet data collection and verification

Tuna catch statistics of Korea are obtained from two sources of data reporting. Korea Overseas Fisheries Association (KOSFA) collects total catches by gear and species from the Korean tuna industries, which are used as Korea's official total catch. National Fisheries Research and Development Institute (NFRDI) collects logsheet data from vessels filled out by captain onboard. In accordance with data reporting and submission requirement by the RFMOs, necessary improvements have been continuously made in logbook coverage, accuracy and monthly reporting through cross-checking between NFRDI and KOSFA. To improve fisheries database and data cross-checking, the NFRDI and the Ministry have been developing an electronic logbook system enabling to monitor the state of being submitted from fishing vessel in real time and to manage/cross-check the data. The Distant-water Fisheries Act obliges fishers to report the catch statistics to NFRDI every week. This measure was taken by revision of the Act put into effect from December 2012.

8.2. Observer programme

The scientific observer program of distant-water fisheries of Korea was started in 2002. National Fisheries Research and Development Institute (NFRDI) is responsible for implementing and developing the program. The basic requirement for observers is college graduated with the major field of nature science or fisheries high school graduated with at least 1-year experience on board and certificate of qualification to deck officer. Candidates for observer who have passed the paper review (including medical check) and oral interview have to take training programs for 3 weeks. Observer training programs include basic safety training for seafaring, operations of navigation devices, biological information training for target and non-target species and data collecting/reporting method for fishing activities. During the training program they have two kinds of test. First is the test for a technical term of fisheries and biology, and the other is the test for species identification. The person who scored 70% overall in the two tests and attended 100% of the course timetable can be qualified for a scientific observer and deployed on board. Korea has a total of 25 scientific observers at present.

8.3. Port sampling programme

In Korea, there are 4 domestic landing ports for tunas caught in WCPO, which are Busan, Masan, Tonyeong and Mokpo, all located along the southern coast of Korea, nearby the landing port, there are 5 canneries owned by 4 companies in which about 100,000 tons of tunas from WCPO are landing.

The National Fisheries Research and Development Institute (NFRDI) used to conduct biological sampling in the domestic cannery of Dongwon industry from 1997 to 2006. A preliminary study for species identification from the catch of purse seine was conducted in a cannery of Korea in 2011 and the result was provided to the WCPFC SC7 (ST-IP-09).

8.4. Unloading/Transshipment

In accordance with Article 13 of the Distant Water Fisheries Development Act, all distant water fishermen shall comply with procedures and regulations established by Regional Fisheries Management Organizations. Therefore, all transshipments by Korean vessels fishing all high migratory fish stocks covered by the WCPFC Convention take place in accordance with WCPFC CMM 2009-06. Also, vessel operators are encouraged to assist the WCPFC ROP observers in having full access to both the unloading and the receiving vessels to verify that the transhipped quantities of fish are consistent with other information available to observers. After the completion of transshipment, the transshipment declaration is subject to verification against fishing vessel's monthly catch report, logsheets and observer reports (if available). The information on the transshipment of Korean fleets is summarized in Table 6.

9. Research activities covering target and non-target species

Korea has a plan to conduct a sea trial on FADs in next year, and is carrying out a sea trial to mitigate bycatch of seabird in the Korean tuna longline fisheries with BirdLife International.