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PART 1: INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS

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KOREA

2012 ANNUAL REPORT TO THE COMMISSON

Republic of Korea

Part 1. INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

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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 on the 30th April 2012	**YES**

1. SUMMARY

Korea has two types of fishing gears, distant water purse seine and distant water longlines, that engage in fishing tuna and tuna-like species in the WCPFC Convention Area. These fisheries are managed by the Distant Water fisheries Development Act. Total catches decreased from 305,825 t in 2010 to 238,438 t in 2011. Purse sein catch was 207,702 mt reported from 28 vessels active in 2011. This was 26.0% decline from the peak in 2009. Longline catch was 30,736 mt from 124 vessels active in 2011, which was 7.8 % increase from the catch of 122 vessels in 2010. In purse sein catch, skipjack, yellowfin and bigeye catches were 22%, 37% and 23% decline from those in 2010, respectively. In longline catch, bigeye catch was 9.8 % increase from the catch in 2010. Yellowfin tuna catch was 3.1 % increase from the catch in 2010. Purse seine fishing efforts decreased from 7,307 sets in 2010 to 6,624 sets in 2011. These were the lowest levels of the past 5 years. Longline fishing efforts increased from 90,844 thousand hooks in 2010 to 95,407 thousand hooks in 2011. These were 5.0% increase to those of 2010. Purse seine fishing efforts were concentrated on the western areas, while longline efforts were deployed relatively higher in the central and eastern areas. These fishing patterns were quite comparable to those of the previous years. The coverage rates of logsheet were 100% for purse seine and 84 % for longline in 2011. Scientific observation coverage was fairly over 5% in 2011.

2. Tabular Annual Fisheries Information

Table 1 (**a**). Annual catch and effort estimates for Korean **purseine** fisheries by primary species in the WCPFC Convention Area, 2007-2011

Year	No. of sets	Total	SKJ	BET	YFT	OTH
2007	7,211	258,177	214,933	-	43,244	-
2008	7,064	248,802	187,277	45	61,480	-
2009	7,123	283,278	257,481	135	25,652	10
2010	7,307	277,312	216,026	2,972	58,314	-
2011	6,624	207,702	168,690	2,295	36,717	

* The catch for 2011 is provisional.

Table 1 (**b**). Annual catch and effort estimates for Korean **longline** fisheries by primary species in the WCPFC Convention Area, 2007-2011

Year	No. of hooks ($\times 10^3$)	Total	ALB	YFT	BET	BFT	SKJ	BLM	BUM	STM	SWO	OTH
2007	100,234	22,876	1,433	8,817	10,054	0	1	166	1,693	54	245	413
2008	90,505	31,035	1,481	7,846	17,001	0	2	422	1,966	59	1,206	1,052
2009	85,977	32,370	1,608	10,032	15,231	0	0	571	2,453	54	1,134	1,289
2010	90,844	28,513	1,337	7,644	13,914	51	0	579	1,595	27	786	2,581
2011	95,407	30,736	670	7,881	15,282	0	23	331	1,415	73	1,340	3,695

* The catch for 2011 is provisional.

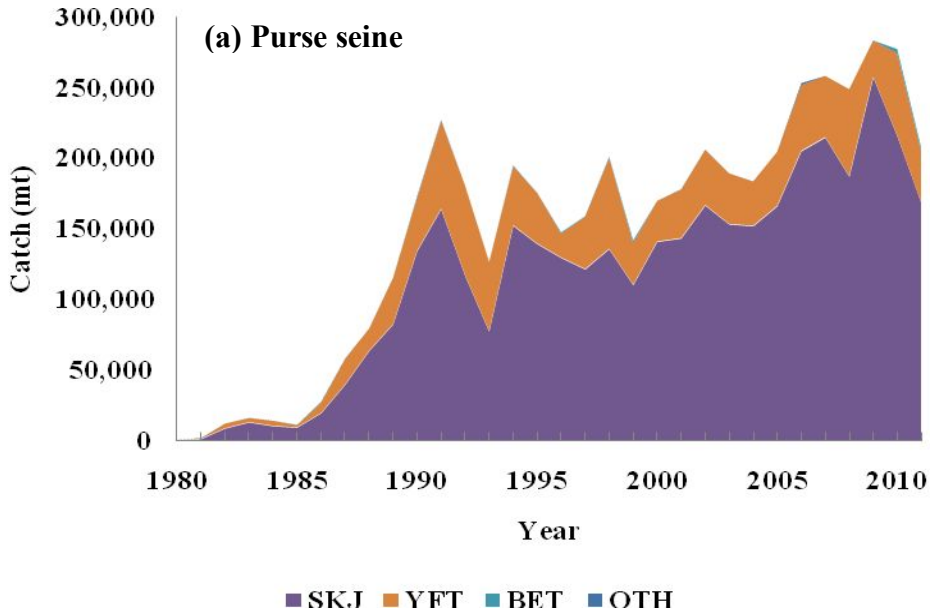

Fig. 1 (a). Historical annual catch of Korean purse seine fishery by primary species in the WCPFC convention area during 1980-2011.

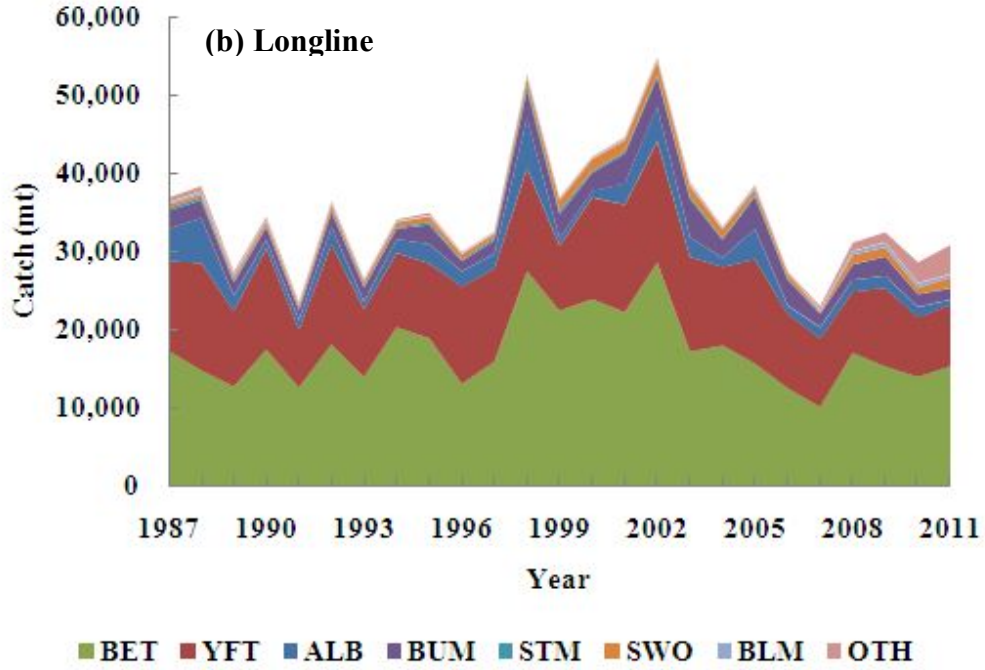

Fig. 1 (b). Historical annual catch of Korean longline fishery by primary species in the WCPFC convention area during 1987-2011.

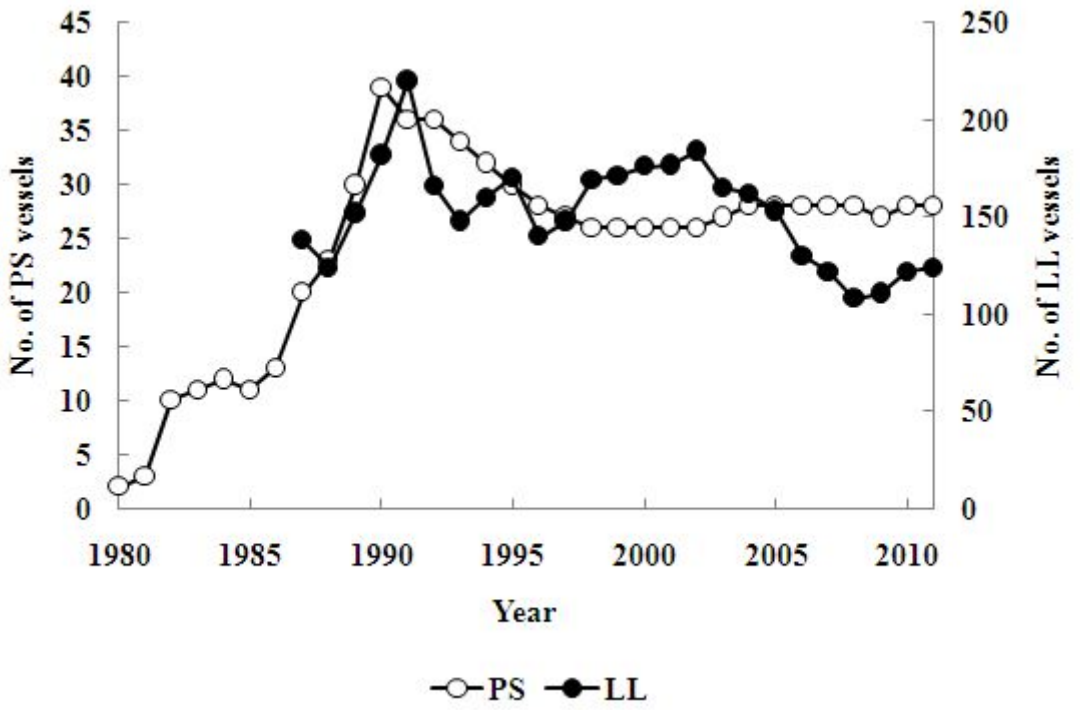

Fig. 2. Historical annual vessel numbers of Korean tuna fisheries in the WCPFC convention area during 1980-2011.

Table 2. The number of Korean vessels by gear and size, actually operating in the WCPFC Convention Area, 2007-2011

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+
2007	122	-	-	122	-	28	-	14	13	1
2008	108	-	-	108	-	28	-	15	12	1
2009	111	-	-	111	-	27	-	13	11	3
2010	122	-	-	122	-	28	-	13	12	3
2011	124	-	-	124	-	28	-	12	11	5

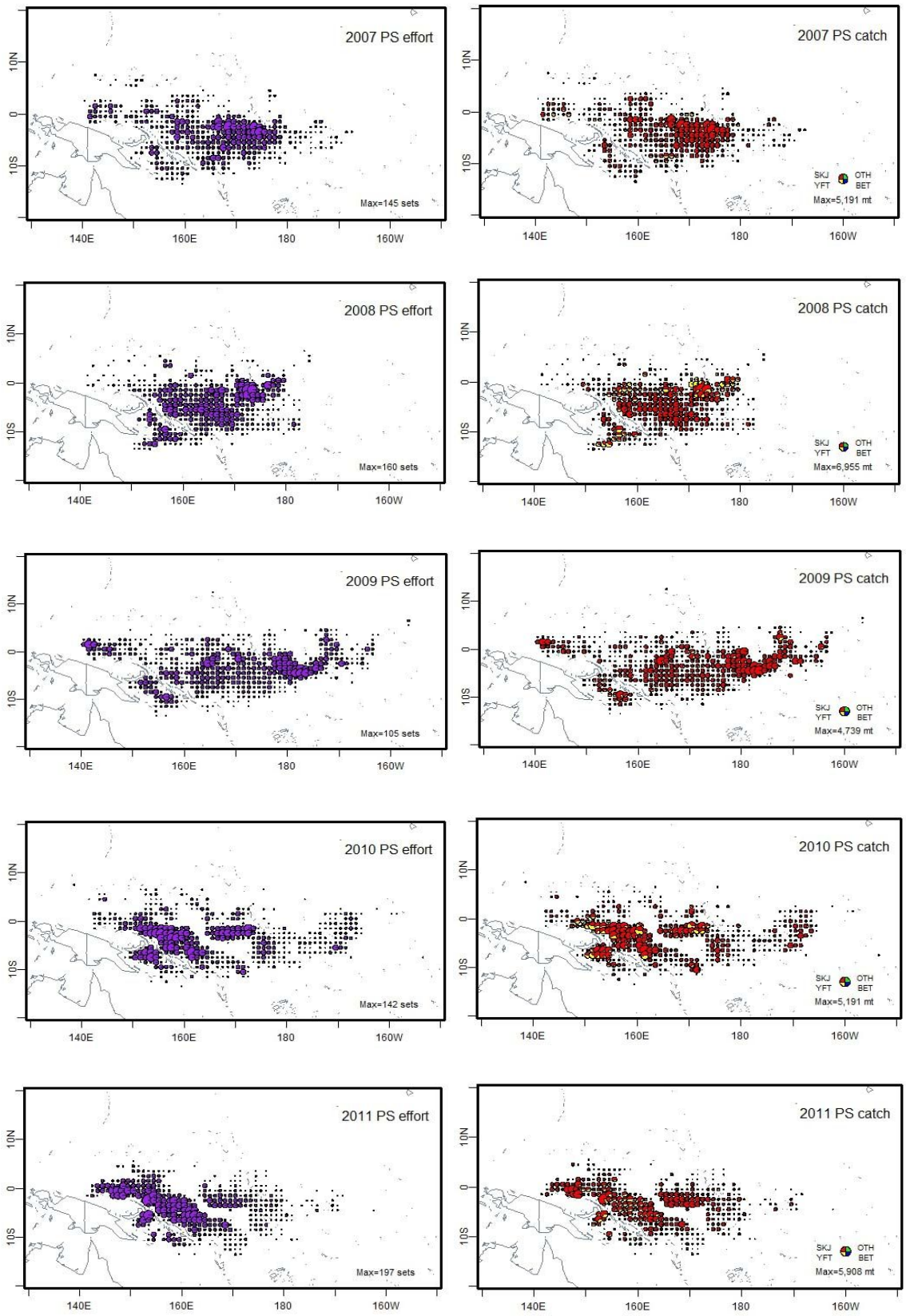

Fig. 3. Annual catch and effort distributions of target species by Korean purse seine fleets

operating in the Pacific Ocean, 2007-2011.

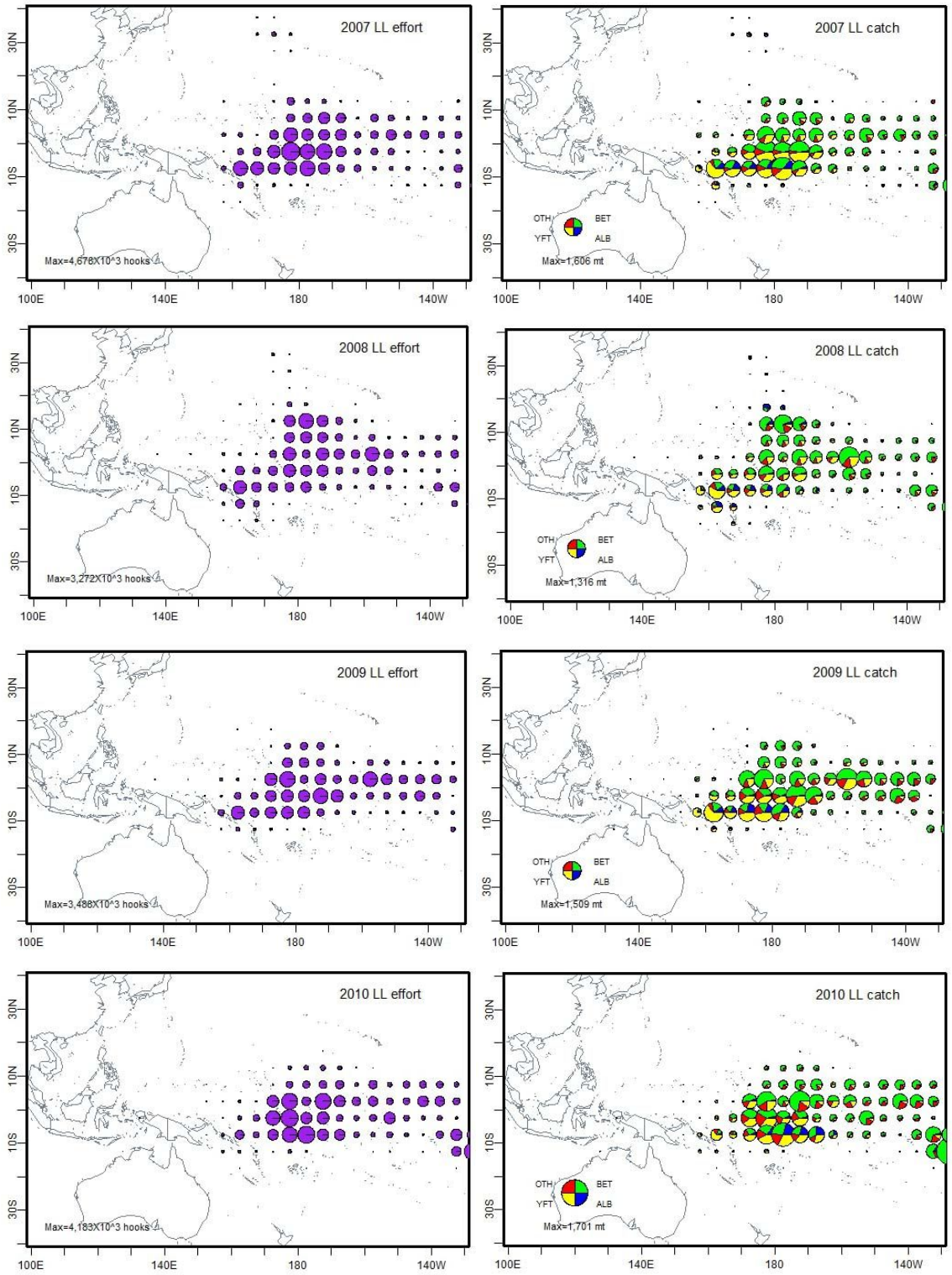

Fig. 4. Annual catch and effort distributions of target species by Korean longline fleets operating in the Pacific Ocean, 2007-2011.

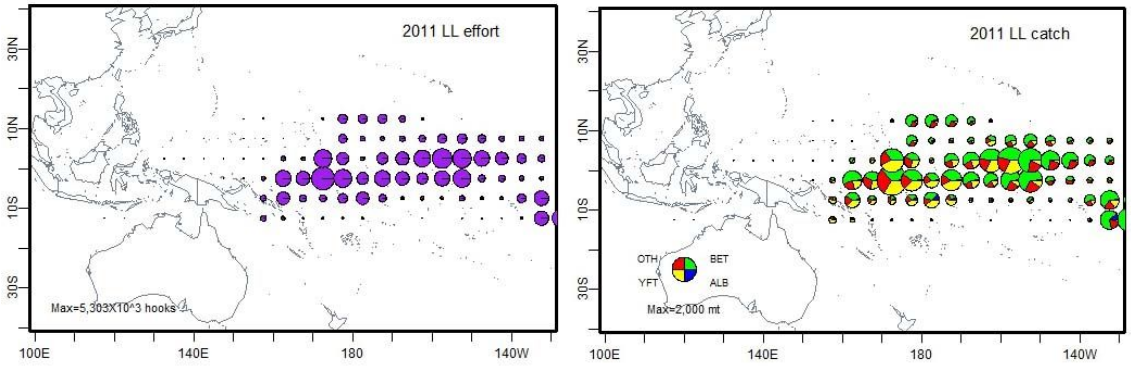

Fig. 5. Continued.

Table 4. The catch estimates of key shark in the WPCFC convention area, 2011

Year	Catch by key shark species			
	Porbeagle	Blue shark	Thresher sharks	Others
2011	17	9	1	1,030

* Others includes catch of unidentified species as well as non-key sharks. And this data is provisional.

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

Year	Gear	Logsheet coverge (%)	Observer coverage (%)
2011	Purse seine	100	5
	Longline	84	5

3. Background

The 55 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 within the coastal states in the South Pacific have been the main fishing grounds for Korean longline fishery and tuna purse sein fishery as well. There was a sort of 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 use 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.

Korean tuna 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 vessels increased to 30 as of the end of 2010. Most of the catches are supplied to the packers for our domestic consumption, and the remainders are being exported to foreign canneries.

These fisheries are managed by the Distant Water fisheries Development Act put into effect on the 4 February, 2008. Currently, over 94% 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 by gear and primary species are tabulated in table 1 and Fig. 1. Total catches decreased from 305,825 t in 2010 to 238,438 t in 2011. Purse sein catch was 207,702 mt from 28 vessels active in 2011. This was 26.0% decline from the peak in 2009. Longline catch was 30,736 mt from 124 vessels operated in 2011, which was 7.8 % increase from the catch by 122 vessels in 2010. In purse sein catch, skipjack, yellowfin and bigeye catches were 22%, 37% and 23% decline from those in 2010, respectively. In longline catch, bigeye catch was 9.8 % increase from the catch in 2010. Yellowfin tuna catch was 3.1 % increase from the catch in 2010. Purse seine fishing efforts decreased from 7,307 sets in 2010 to 6,624 sets in 2011. These were the lowest levels of the past 5 years. Longline fishing efforts increased from 90,844 thousand hooks in 2010 to 95,407 thousand hooks in 2011. These were 5.0% increase to those of 2010.

4.2 Fleet structure

The number of vessels by gear is presented in Fig. 2 and table 2. The number of purse seine vessels, once peaked at 39 in 1990, had been reduced to 26-28 until 1998 and since then has been maintained at the present level of 27 in 2009, 29 in 2010 and 28 in 2011. In terms of GRT class, 12 vessels were of 500-1000 class, 11 vessels of 1000-1500 class and 5 vessels of over 1500 class. The number of longline vessels was reduced from 220 in 1991 to 108 in 2008 but slightly increasing to 122 in 2010 and 124 in 2011. All longline vessels were in the class of 201-500 GRT with deep freezing facilities.

4.3 Fishing patterns

Catch and effort by gear are mapped in Fig. 3 and 4. Korean tuna purse seine fisheries have generally been operating throughout the year in the tropical area of the Western and Central Pacific between 140°E-180°E and extended farther to the east when oceanographic conditions were favorable. In 2011, purse seine fishing efforts were concentrated on the western areas, while longline efforts were deployed relatively higher in both the central and the eastern areas. These fishing patterns were quite comparable to those of the previous years. In 2009, purse seine fishing efforts were high in the central area with an extension farther to the east and, in 2010, they shifted a bit westward but less than in 2011. In case of longline fishing efforts in 2009 and 2010, they were higher in the central area than the eastern area. It was observed that purse seine fishing mainly occurred in the western area, while longline fishing in the central and eastern area. It was suggested that this difference in the distribution of efforts between gears was attributable to species distribution depth subject to the oceanographic conditions and to the ability of gears to attain the depth where fish were.

4.4 Estimated total catches of non-target, associated and dependent

Bycatch of shark species is presented in table 4. This was were compiled from logsheet in 2011. As key shark species, 17 porbeagles, 9 blue sharks and 1 thresher shark were reported. The other species of sharks numbered 1,030 individuals. Others included unidentified species as well as non-key sharks.

4.5 Estimated annual coverage of catch and effort and observer data

Estimated annual coverage of catch and effort and observer data is tabulated in table 5. Logsheet data coverage was 100% for purse seine and 68% for longline as of the due date of the scientific data submission to the Commission. In case of longline, it was 84% as of the date of the part 1 reporting. 19 scientific observers from WCPFC ROP were dispatched onboard the 19 vessels from 1 July 2011 to 30 June 2012. During this period, total observer trips were 1,742 days, which was fairly over 5% of the observer coverage.

5. Coastal State Reporting

N/A

6. Socio-economic factors

It was fact that the fishing cost of 2011 was increased than in the last and previous years, although it could not be shown as percentage by fleet, area and fishing gear due to the difference from each of them. Of the fishing cost, the oil price was the most influential factor which accounted for 40% of the total cost of 2011. Especially the fishing cost of purse seine is very sensitive to fishing permission policy of the coastal states and conservation and management measures of RFMOs. It seems to be affected by not only fishing fee to the coastal states and production but also international fish price. Meanwhile fish price fallen by various factors including decreased production is considered not to give positive effect to consumption patterns in the long term.

7. Disposal of catch

About 80% of total tuna longline production is exported to Japan for sasimi, and the rest is consumed in the domestic market. In case of purse seine production, 50% of them is exported to Bangkok, Japan, Europe and South America etc. for cannery, and the rest is consumed in the domestic market. As seeing current export situation by species, skipjack tuna, which amounts to 83% of total production, is exported to Thailand, 15% to Japan, Ecuador, China and Mexico. Yellowfin tuna is exported 34% of them to Thailand, 23% to Japan and 18% to Spain, and for bigeye tuna 86% to Japan.

8. Onshore developments

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

9. 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 quota management, scientific survey and education relating to by-catch for fishermen.

10. Status of Tuna Fishery Data Collection System

a. Logsheet data collection and verification

Tuna catch statistics of Korea are obtained from two sources of data reports. Korea Deep-Sea Fisheries Association (KODEFA) collects total catches by gear types from the Korean tuna industries, which are used as Korea's official total catch. National Fisheries Research and Development Institute (NFRDI) collects logsheet sampling data from vessels. To address the past shortcomings and the ever-increasing data requirement by the RFMOs, necessary improvements have recently made in terms of the types of mandatory data, the area of coverage, submission timeframes and formats, and now the Association and NFRDI cooperate with each other to provide the data to the government. Also, the NFRDI has improved fisheries database systems and data cross-checking systems. With the above improvement, the Distant-water Fisheries Act obliges fishers to report the catch statistics to NFRDI every month in the electronic format. This measure was taken by revision of the Act put into effect from July 2012.

b. 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 qualification for observers is college graduated where major field is nature science or fisheries high school graduated with at least 1-year experience on board and certificate of qualification to deck officer. Candidate 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 collection 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 and deployed on board as a scientific observer. Up to 2010, a total of 19 scientific observations were made for tuna fisheries operating in the WCPO up to 2010.

c. Port sampling programme

The national fisheries research and development institute used to conducted biological sampling in the domestic cannery of Dongwon industry from 1997 to 2006. 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. Neighboring landing port and cannery benefit saving cost and time. A preliminary study for species identification from the catch of purse seine was conducted in a cannery of Korea in April 2011. With this experience, the programme will be extended to foreign canneries where Korean purse seine catch is unloaded in accordance with the CMM 2009-10.

d. Unloading/Transhipment

In accordance with Article 13 of the DSFA, all distant fishermen shall comply with procedures and regulations of transhipment at sea and in ports set out in each regional fisheries management organization. Transshipment on the HS is allowed only where the receiving vessel carries WCPFC ROP observer whose identity (name and nationality) should be reported prior to the commencement of such transshipment to the Korean government to ensure that observer is onboard and monitor transshipments as required by CMM2009-06. 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 transshipped 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 fleet is summarized as follows;

Vessel	Purse seiner	Longliner	Reefer carrier
Frequency	In port, 182 times	In port, 9 times At sea in EEZ, 38 times At high sea, 21 times	In port, 44 times