SCIENTIFIC COMMITTEE
NINETEENTH REGULAR SESSION

Koror, Palau
16 - 24 August 2023

ANNUAL REPORT TO THE COMMISSION
PART 1: INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

WCPFC-SC19-AR/CCM-12 (Rev.02)

REPUBLIC OF KOREA

2023 ANNUAL REPORT TO THE COMMISSON

Part 1. INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

Republic of Korea

Haewon LEE, Hee Won PARK, Youjung KWON, Junghyun LIM and Jae Bong LEE,

National Institute of Fisheries Science (NIFS)
216 Gijang-Haeanro, Gijang-eup, Gijang-gun, Busan 46083, Republic of Korea

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 2023	**YES**

1. SUMMARY

Korea has two types of fishing gears, purse seine and longline, 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 2022 was 256,112 t, which accounted for 11% and 1% less than those of the average for recent 5 years (2018-2022) and of 2021, respectively. The catch of purse seine fishery with 22 active vessels was 227,818 t in 2022, which was 12% and 1% less than those of the average for recent 5 years (2018-2022) of 2021, respectively. The catch of longline fishery with 94 active vessels in 2022 was 28,294 t, which was almost same for recent 5 years (2018-2022) and 4% greater than of 2021. In purse seine fishery, yellowfin and bigeye catches in 2022 were 21% and 41% less but skipjack catch was 5% greater than those of 2021, respectively. In longline fishery, catches of yellowfin and albacore in 2022 were 11% and 109% greater, but bigeye was 5% less than those of 2021, respectively. Purse seine fishing efforts ranged from 6,098 to 7,525 sets during 5 recent years (2018-2022), and the number of sets in 2022 was 6,473 set. Longline fishing efforts ranged from 55,462 to 60,437 thousand hooks during 5 recent years (2018-2022), and the number of hooks in 2022 was 57,119 thousand hooks. The logsheet coverages through electronic reporting system in 2022 were 100% for both purse seine and longline fisheries, and the observer coverage in 2022 was 4.9% for longline fishery.

2. Tabular Annual Fisheries Information

Table 1(a). Annual catch and effort estimate for the Korean purse seine fishery by primary species in the WCPFC Convention Area, 2018-2022

Year	No. of sets	Catch (t)				
		Total	SKJ	BET	YFT	OTH
2018	6,866	267,558	233,729	4,339	29,480	9
2019	7,527	314,572	279,553	2,767	32,249	3
2020	6,767	252,314	203,635	4,247	44,429	3
2021	6,098	230,252	181,739	3,363	45,150	0
2022	6,473	227,818	190,307	1,754	35,756	0

* Data for 2022 are preliminary.

Table 1(b). Annual catch and effort estimates for the Korean longline fishery by primary species in the WCPFC Convention Area, 2018-2022

Year	No. of hooks ($\times 10^3$)	Catch (t)										
		Total	ALB	YFT	BET	BFT	SKJ	BLM	BUM	MLS	SWO	OTH
2018	58,201	24,788	1,225	6,519	13,828	0	202	39	1,740	67	791	377
2019	60,437	32,937	1,902	13,847	13,711	0	390	68	2,007	58	602	351
2020	56,374	27,374	744	10,948	13,011	0	251	39	1,389	78	554	360
2021	55,462	27,312	611	10,340	13,686	0	332	14	1,168	123	563	475
2022	57,119	28,294	1,278	11,516	12,986	0	424	6	908	80	714	336

* Data for 2022 are preliminary.

Table 1(c). Average annual fishing effort for 2002-2004 and annual fishing effort for subsequent years for the Korean longline fishery directed at North Pacific albacore in the North Pacific Ocean

Area	Fishery	2002-04 Average		2016		2017		2018	
		No. of vessel	Vessel days	No .of vessel	Vessel days	No .of vessel	Vessel days	No. of vessel	Vessel days
Convention area	Longline	*	*	*	*	*	*	*	*
Area	Fishery	2019		2020		2021		2022	
		No. of vessel	Vessel days	No. of vessel	Vessel days	No. of vessel	Vessel days	No. of vessel	Vessel days
Convention area	Longline	*	*	*	*	*	*	*	*

* Korea does not have any vessels targeting directly North Pacific albacore in the North Pacific Ocean.

Table 1(d). Annual catch and effort of southwest striped marlin by the Korean longline fishery in the south of 15°S, 2018-2022

Year	Catch (t)	Effort (number of fishing vessels)
2018	0	0
2019	0	0
2020	0	0
2021	0	0
2022	0	0

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

a) Number of the Korean fishing vessels fished for MLS south of 15S in 2001, 2002, 2003 and 2004 : 26, 24, 28 and 28

b) maximum number of vessels that are permitted to continue to fish for MLS south of 15S : 28

Table 1(e). Annual catch of swordfish by the Korean longline fishery in the south of 20°S, 2018-2022

Year	CMM-flagged vessels south of 20°S		Chartered vessels		Other vessels fishing within the CCM's waters south of 20°S		
	Catch (t)	Vessel numbers	Catch (t)	Vessel numbers	Flag	Catch (t)	Vessel numbers
2018	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0

* Korea does not have any vessels fishing for swordfish in the Convention Area south of 20°S, and any swordfish catch is bycatch.

Table 1(f). Annual catch and effort of south Pacific albacore by the Korean longline fishery in the south of 20°S, 2018-2022

Year	Catch (t)	Effort (number of fishing vessels)
2018	0	0
2019	0	0
2020	0	0
2021	0	0
2022	0	0

* Korea does not have any vessels fishing for south Pacific albacore in the Convention Area south of 20°S, and any south Pacific albacore catch is bycatch.

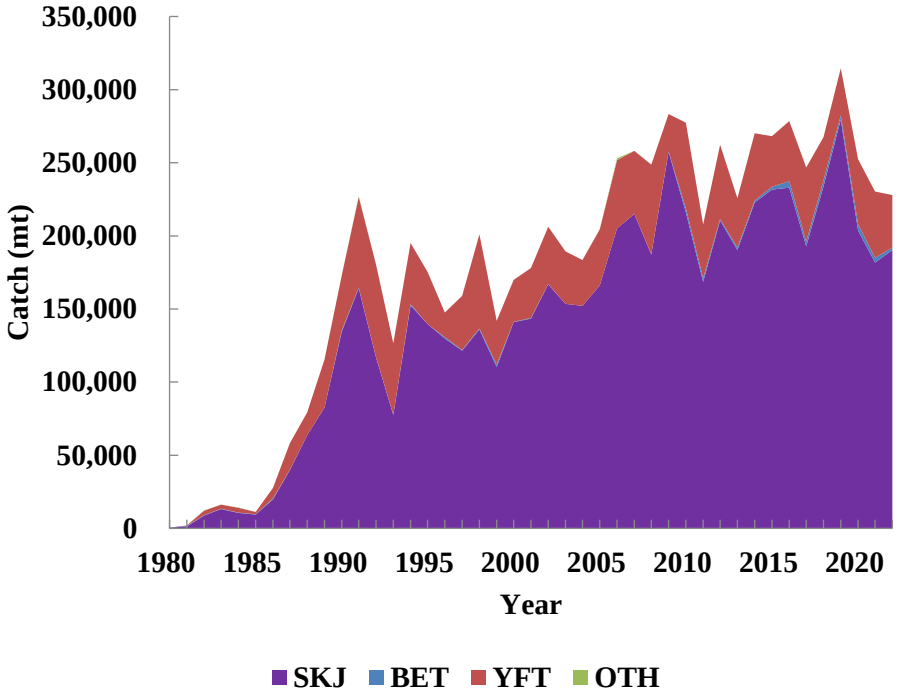

Fig. 1(a). Historical annual catch for the Korean purse seine fishery by primary species in the WCPFC Convention Area during 1980-2022.

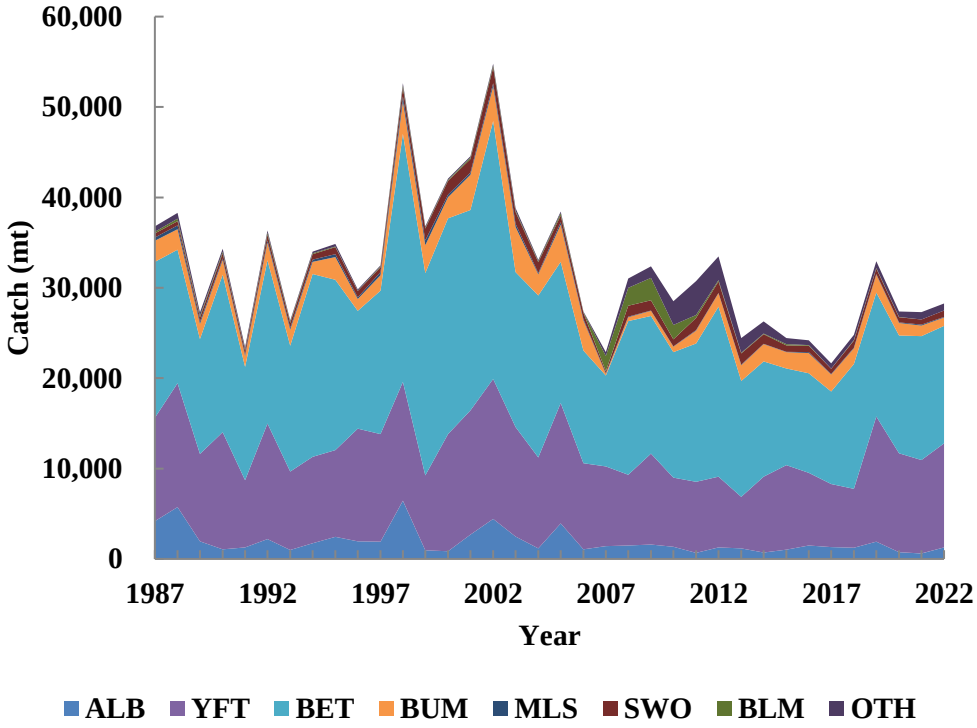

Fig. 1(b). Historical annual catch for the Korean longline fishery by primary species in the WCPFC Convention Area during 1987-2022.

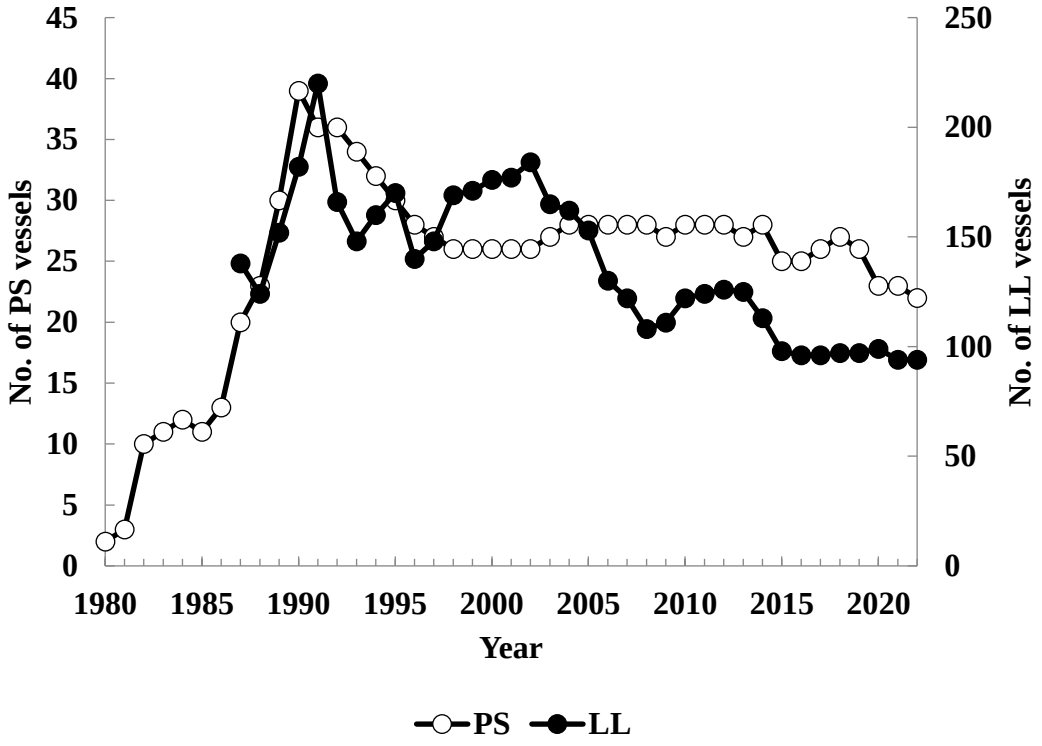

Fig. 2. Historical annual vessel numbers for the Korean tuna fisheries by gear in the WCPFC Convention Area during 1980-2022.

Table 2. Number of Korean vessels by gear and size, active in the WCPFC Convention Area, 2018-2022

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+
2018	97	0	1	96	0	27	0	6	15	6
2019	97	0	1	96	0	26	0	5	15	6
2020	99	0	1	98	0	23	0	5	15	6
2021	94	0	0	94	0	23	0	2	15	6
2022	94	0	0	94	0	22	0	3	13	6

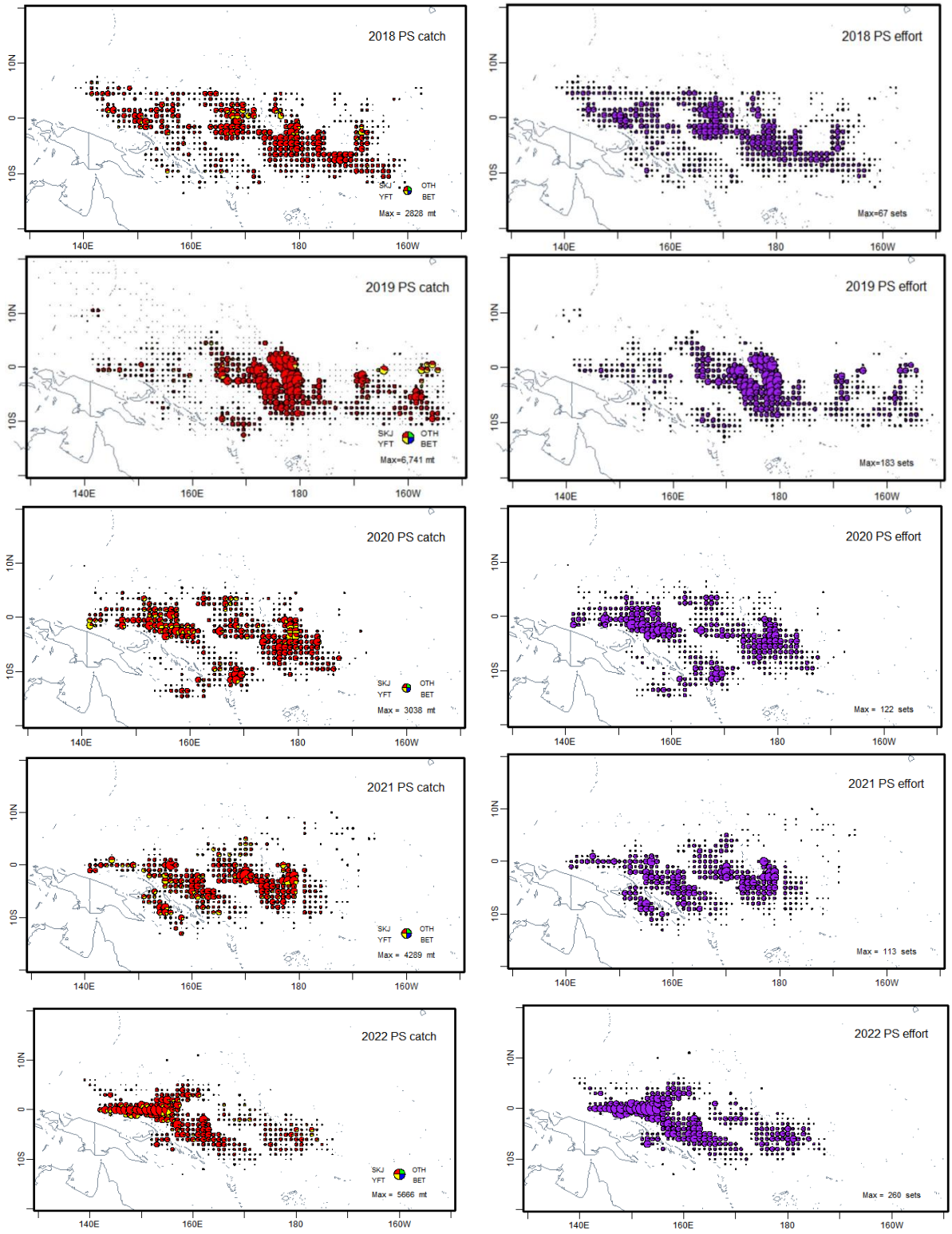

Fig. 3(a). Annual catch and effort distributions of target species by the Korean purse seine fishery in the WCPFC Convention Area, 2018-2022.

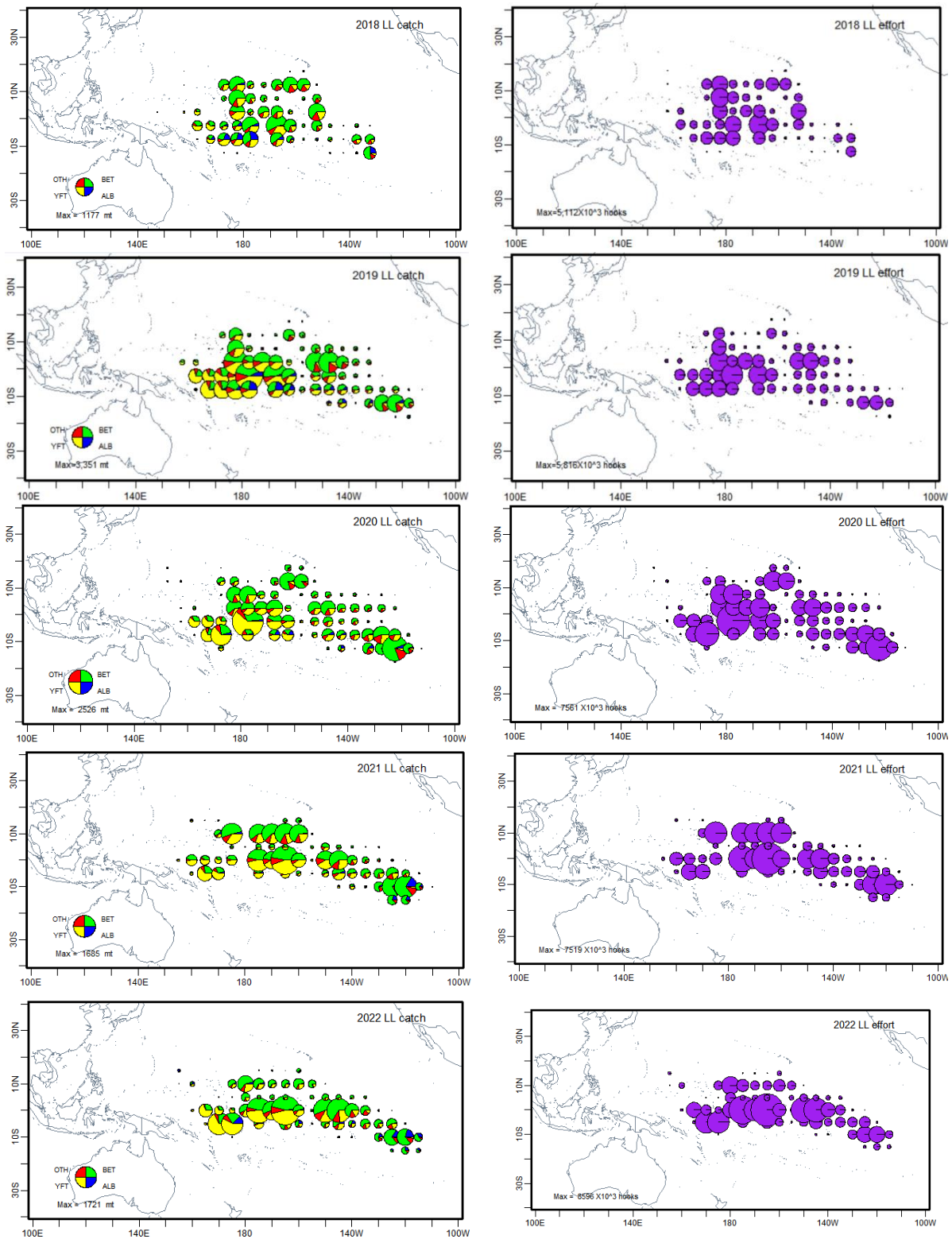

Fig. 3(b). Annual catch and effort distributions of target species by the Korean longline fishery in the Pacific Ocean, 2018-2022.

Table 3(a). Annual estimated catch or encounter of species of special interest (seabird, turtle, marine mammals, etc.) by the Korean fisheries in the WCPFC Convention Area, 2018-2022

Fishery	Year	Number by species										
		Whale shark	Leather-back turtle	Olive ridley turtle	Logger-head turtle	Green turtle	Other marine turtles	False killer whale	Hump-back whale	Pygmy killer whale	Other whales	Sea-birds
PS	2018	D:0, A:9	-	-	-	D:0, A:1	D:1, A:10	-	-	D:0, A:7[1)]	D:0, A:12[2)]	-
	2019	D:0, A:33	-	D:1, A:0	D:2, A:0	D:0, A:1	-	D:0, A:12[3)]	-	D:0, A:7[4)]	D:0, A:24[5)]	-
	2020	D:,0 A:14	-	-	D:0, A:6	D:0, A:1	D:,0 A:1	D:0, A:13[6)]	-	-	D:0, A:7[7)]	-
	2021	-	-	-	A:2	-	-	-	-	-	-	-
	2022	A:1	-	-	-	A:1	-	-	-	-	-	-
LL	2018	-	D:1, A:0	-	-	-		-	-	-	-	-
	2019	-	D:1, A:2	D:1, A:0	-	-	-	-	-	-	-	D:1 A:0
	2020	-	-	D:2, A:0	-	-	-	-	-	-	-	D:1 A:0
	2021	-	-	-	-	-	-	-	-	-	-	D:3
	2022	-	-	-	-	-	A:2	-	-	-	-	D:25

* D and A indicate “dead” and “alive”, respectively.

** Date/Location: 1**)** ’18.11.14 / 1°N175°E, ’18.11.19 / 0°S179°E, ’18.11.20 / 0°S179°E, ’18.12.13 / 9°S155°E, ’18.12.14 / 9°S155°E, ’18.12.24 / 6°S152°E, **2)** ’18.1.4 / 0°N153°E, ’18.1.20 / 5°S153°E, ’18.3.10 / 9°S157°E, ’18.4.29 / 2°N144°E, ’18.5.18 / 0°S146°E, ‘18.5.29 / 2°N156°E, ’18.6.2 / 5°N144°E, ’18.12.17 / 8°S154°E, ’18.12.23 / 7°S176°W, **3)** ’19.6.26 / 0° S172°E, ’19.10.6 / 0°S177°E, ’19.11.6 / 5°S176°E, ’19.11.24 / 3°S173°E, **4)** ’19.3.3 / 0°S143°E, ’19.3.11 / 4°S156°E, ’19.3.19 / 10°S168°E, ’19.5.24 / 1°N175°E, ’19.5.6 / 1°N177°E, **5)** ’19.01.12 /0°N144°E, ’19.2.8 / 1°S169°W, ’19.3.21 / 0°S165°W, ’19.3.26 / 1°S151°E, ’19.4.30 / 5°S179°W, ’19.5.4 / 2°S170°E, ’19.5.15 / 0°S172°E, ’19.8.30 / 3°N161°E, ’19.9.29 / 1°S179° E, ’19.10.3 / 1°S177°E, ’19.10.3 / 1°S177°E, ’19.10.14 / 2°S177°E, ’19.11.25 / 3°S173°E, ’19.12.4 / 3°S174°E, ’19.12.10 / 3 °S174°E, ’19.12.17 / 8°S154°E, ’19.12.23 / 11°S159°E, **6)** ’20.1.3 / 11°S168°E, ’20.1.5 / 11°S168°E, ’20.1.9 / 10°S168°E, ’20.5.11 / 1°N147°E, **7)** ’20.1.4 / 11°S168°E, ’20.1.5 / 11°S168°E, ’20.1.30 / 11°S167°E, ’20.2.6 / 13°S158°E, ’20.8.2 / 2° S155°E, ’20.8.14 / 1°S154°E

Table 3(b). Effort, observed and estimated seabird captures by fishing year for Korean longline fishery in the area of 23°N - 25°S, 2018-2022

Year	Fishing effort				Observed seabird captures	
	Number of vessels	Number of hooks(X1,000)	Observed hooks(X1,000)	% hooks observed	Number	Rate
2018	97	58,201	1,919	3.3	0	0
2019	96	60,445	2,246	3.7	1	0.002
2020	99	56,374	1,417	2.5	1	0.002
2021	94	55,462	1,149	2.1	3	0.005
2022	94	57,119	1,370	2.4	25	0.044

* Korea does not have any vessels operating in the Convention Area north of 23 ºN and in the south of 30 ºS.

Table 3(c). Proportion of mitigation types[1] used by Korean longline fishery in 2022

	Combination of Mitigation Measures	Proportion of observed effort using mitigation measures			
		South of 30°S	25°S-30°S	25°S to 23°N	North of 23°N
	No mitigation measure			94.1	
Options required south of 25°S	TL+NS			5.9	
	TL+WB				
	NS+WB				
	TL+WB+NS				
	HS				
Other options 25°S-30°S	WB				
	TL				
Other options north of 23°N	SS/BC/WB/DSLS				
	SS/BC/WB/(MOD or BDB)				
Provide any other combination of mitigation measures here	MOD				
	Totals			100	

[1] TL= tori line, NS= night setting, WB= weighted branch lines, SS= side setting, BC= bird curtain, BDB= blue dyed bait, DSLS= deep setting line shooter, MOD= management of offal discharge, HS= hook-shielding device.
* This data comes from scientific observer data.

Table 3(d). Number of observed seabirds captured in Korean longline fisheries, 2022, by species and area

Species	South of 30°S	25°S-30°S	North of 23°N	23°N-25°S	Total
Wandering albatross				25	25
Total				25	25

Table 4(a). Annual estimates of retained and discarded catch of key sharks by the Korean longline fishery in the WPCFC Convention Area, 2018-2022

Year	Retained catch (mt) by key shark species						
	Blue shark	Thresher sharks	Hammerhead Sharks	Mako sharks	Silky shark	Oceanic whitetip shark	Others
2018	<1	3	0	<1	0	0	<1
2019	5	<1	<1	<1	0	0	11
2020	0	<1	<1	<1	0	0	14
2021	5	0	0	0	0	0	<1
2022	0	0	0	0	0	0	0

* No shark species has been retained by the Korean purse seine fishery.

Fishery	Year	Discard catch (number) by key shark species				
		Blue shark	Thresher sharks	Hammerhead sharks	Mako sharks	Others
Purse seine	2018	0	0	2	0	69
	2019	0	1	1	0	50
	2020	0	1	1	0	102
	2021	0	0	0	0	40
	2022	0	0	0	0	791
Longline	2018	3,121	1,839	6	263	3,695
	2019	2,640	1,063	6	183	2,479
	2020	1,688	728	3	41	1,651
	2021	2,925	284	0	22	3,369
	2022	1,026	64	0	8	887

* These data include all of status of “dead” and “alive”.

** See Table 4(b) for oceanic whitetip shark and silky shark.

Table 4(b). Annual number of releases of oceanic whitetip shark and silky shark by the Korean fisheries in the WPCFC Convention Area, 2018-2022

Fishery	Year	Number of releases	
		Oceanic whitetip shark	Silky shark
Purse seine	2018	D: 8, A: 14	D: 1,704, A: 625
	2019	D: 5, A: 1	D: 1,675, A: 767
	2020	D: 21, A: 0	D: 1,845, A: 304
	2021	D: 0, A: 0	D: 170, A: 76
	2022	D:3, A:0	D: 466, A:322
Longline	2018	D: 19, A: 12	D: 726, A: 43
	2019	D: 32, A: 45	D: 733, A: 370
	2020	D: 13, A: 9	D: 106, A: 194
	2021	D: 2, A: 18	D: 28, A: 113
	2022	D: 47, A:102	D: 227, A: 240

* D and A indicate “dead” and “alive”, respectively.

Table 5. Estimated annual coverage of operational catch/effort and observer data for the Korean fisheries by gear, active in the WCPFC Convention Area, 2018-2022

Year	Gear	Logsheet coverage (%)	Observer coverage (%)
2018	Purse seine	100	100
	Longline	100	6.3
2019	Purse seine	100	100
	Longline	100	7.1
2020	Purse seine	100	*
	Longline	100	3.8
2021	Purse seine	100	*
	Longline	100	2.0
2022	Purse seine	100	100
	Longline	100	4.9

* WCPFC Commission agreed to suspend the requirements for observer coverage on purse seine vessels and at-sea transhipment due to COVID-19 pandemic.

∗ 2022 observer coverage for Korean longline fishery

Fishery	No. of Hooks			Days Fished			Days at Sea			No. of Trips		
	Total Estimated	Observed	%	Total Estimated	Observed	%	Total Estimated	Observed	%	Total Estimated	Observed	%
Longline							26,219	1,592	6.1			

Table 6. Information on the transhipment of Korean fleets in 2021

(1) Amount (kg) of transshipped fish

a);	b) transshipped in port, transshipped at sea in areas of national jurisdiction, and transshipped beyond areas of national jurisdiction			c) transshipped inside the Convention Area and transshipped outside the Convention Area		d) caught inside the Convention Area and caught outside the Convention Area	
offloaded and received	Transshipped in port	Transshipped at sea in areas of national jurisdiction	Transshipped beyond areas of national jurisdiction	Transshipped inside the Convention Area	Transshipped outside the Convention Area	Caught inside the Convention Area	Caught outside the Convention Area
Offloaded	-	-	17,743,420	14,901,158	2,842,262	14,863,642	2,879,778
	194,816,400	24,972,000	-	219,788,400	-	219,788,400	-
Received	309,952,687	36,314,000	15,090,540	359,482,472	1,874,755	359,793,459	1,563,768

e) Species											
BET	YFT	SKJ	ALB	BUM	SWO	MLS	WHM	WHH	OSH	Shark fin	OTH
8,684,345	6,429,214	301,271	961,984	496,389	483,325	59,185	1,534	-	-	-	326,173
1,624,000	36,192,400	181,972,000	-	-	-	-	-	-	-	-	-
11,715,126	62,319,163	14,496,497	827,533	409,009	540,767	270,599,816	-	262	-	-	449,054

f) Product Form				g) Fishing gear
GG(GG+GGT)	Dress(HGT+DWT)	Round	Others	
15,063,276	1,405,624	1,187,308	87,212	Longline
895,000	2,862,400	216,031,000	-	Purse seine
12,665,138	2,276,911	344,854,126	1,561,052	Carrier Vessel

(2) Number of transshipments

a) offloaded and received;	b) transshipped in port, transshipped at sea in areas of national jurisdiction, and transshipped beyond areas of national jurisdiction			c) transshipped inside the Convention Area and transshipped outside the Convention Area		d) caught inside the Convention Area and caught outside the Convention Area		e) Fishing gear
	Transshipped in port	Transshipped at sea in areas of national jurisdiction	Transshipped beyond areas of national jurisdiction	Transshipped inside the Convention Area	Transshipped outside the Convention Area	Caught inside the Convention Area	Caught outside the Convention Area	
Offloaded	-	-	137	119	18	118	19	Longline
	188	25	-	213	-	213	-	Purse seine
Received	464	53	130	630	17	634	13	Carrier Vessel

3. Background

The Korean distant water tuna longline fishery (herein "Korean 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 have gradually equipped with deep freezing facilities and used home ports for fishing base since 1972. All longline vessels have based domestic ports since 1999.

The Korean distant water tuna purse seine fishery (herein "Korean tuna purse seine fishery") was initiated by accessing into the Eastern Pacific fishing ground with 3 vessels in 1980. Helicopter-aided mass operations were introduced in 1980 or the first time, and the number of active vessels was the highest of 39 in 1990, but has decreased to 23-27 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 has been amended several times according to RFMOs' CMM amendments. The electronic reporting (ER) system has been implemented since 1 September, 2015.

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 western and central Pacific Ocean (WCPO) by Koran tuna fisheries was 286,644 t in recent 5 years (2018-2022). Total catch in 2022 was 256,112 t, which accounted for 11% and 1% less than those of the average for 5 recent years and of 2021, respectively.

The average catch of purse seine fishery was 258,503 t during 5 recent years (2018-2022). The purse seine catches in 2022 was 227,818 t with 22 active vessels, which was 12% and 1% less than those of the average for 5 recent years (2018-2022), respectively. In purse seine fishery, yellowfin and bigeye catches in 2022 were 21% and 41% less but skipjack catch was 5% greater than those of 2021, respectively. Purse seine fishing efforts ranged from 6,098 to 7,527 sets during the 5 recent years, and the number of sets in 2022 was 6,473 sets.

The average catch of longline fishery was 28,141 t during recent 5 years (2018-2022). The catch of longline fishery with 94 active vessels in 2022 was 28,294 t, which was almost same for recent 5 years (2018-2022) and 4% greater than of 2021. Catches of bigeye and yellowfin caught by longline in 2022, which are target species by the Korean tuna longline fishery, were 12,986 t and 11,516 t, respectively. Longline fishing efforts ranged from 55,462 to 60,437

thousand hooks during 5 recent years (2018-2022), and the number of hooks in 2022 was 57,119 thousand hooks.

Catches and efforts of north Pacific albacore, southwest striped marlin, south swordfish and south Pacific albacore in 2022 are shown in Table 1(c, d, e, f).

4.2. Fleet structure

The number of active vessels by gear and size is represented in Fig. 2 and Table 2. The number of purse seine vessels, once peaked at 39 in 1990, reduced to 28 in 1996, and after that decreased to 23 up to now. In 2022, the number of fishing vessels was 22, of which 3vessels were of 501-1,000 class, 13 vessels of 1,001-1,500 class and 6 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. Since 2015 it has decreased to less than 100. In 2022, the number of active vessels was 94 of 201-500 GRT 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^{o}E-170^{o}W and from time to time extended to the east subject to oceanographic conditions. Purse seine fishing efforts in 2018 mainly operated in the western and central areas. In 2019, the efforts extended further eastward to 150^{o}W. In 2020 and 2021, they relatively concentrated on west of 165^{o}E. In 2022 the relatively concentrated between 150^{o}E-160^{o}E.

Longline fishery efforts were normally higher in the central and eastern Pacific Ocean. The fishing efforts in 2018 and 2019 they were more concentrated on the central tropical area 170^{o}E-160^{o}W of 15^{o}N-15^{o}S compared to the previous years. In 2020, 2021 and 2022, their fishing efforts were more concentrated on the central tropical area, which was the same as 2018-2019, and the eastern part of 115 ^{o}E-130 ^{o}E in the southern tropical area

4.4. Annual estimated catches of species of special interest

The species of special interest (seabirds, turtles, marine mammals, etc.) encountered or bycaught incidentally by Korean purse seine and longline fisheries are presented in Table 3. The data were compiled from logsheet recorded by captain on board and collected by scientific observer programs. In 2022, 1 green turtle was encircled by purse seine nets, and 25 seabirds and 2 turtles were bycaught by longline fishery, respectively. All these species were encountered with purse seine nets or bycaught incidentally by longline, and they were released promptly under the guideline for safety release of each species. All Korean fishing vessels operated in the areas between 20^{o}N and 20^{o}S (Fig. 3), and the observed seabird capture rate were 0.002, 0.005 and 0.044 in 2020, 2021 and 2022, respectively (Table 3(b)). As for the proportion of mitigation types used by Korean longline fishery in 2022, tori line (TL) accounted for the largest proportion (5.9%) (Table 3(c)).

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 2022 were 0 t. 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 species bycaught were released promptly in a manner that results in as little harm to individual as possible.

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 fisheries since 2013. The observer coverage in 2022 was 6.1% 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

Catch statistics of Korean distant water fisheries are obtained from two sources of data reporting. The Korea Overseas Fisheries Association (KOFA) collects monthly catch by gear and species from the Korean tuna industries, and the National Institute of Fisheries Science (NIFS) collects operational effort and catch data through the Electronic Reporting (ER) system. In accordance with data reporting and submission requirement by the RFMOs, necessary improvements have been continuously made in data coverage, accuracy and verification through cross-checking between NIFS and KOFA. Since 1st September 2015, the Act on

Fisheries Information and Data Reporting has obliged fishers of distant-water fisheries to report fishing information to the NIFS in real time through the Electronic Reporting (ER) system. This system continuously be reviewed and updated to include data reporting and collection requirements recently adopted by tuna RFMOs regarding ecologically important species, discard/release and bycatch mitigation, etc. The coverage of data reporting by the ER is 100%.

8.2. Observer programme

The scientific observer program of distant-water fisheries of Korea was started in 2002. The National Institute of Fisheries Science (NIFS) and Korean Fisheries Resources Agency (FIRA) are 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 67 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, Tongyeong 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 Institute of Fisheries Science (NIFS) used to conduct biological sampling in the domestic cannery 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/Transhipment

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 transhipments 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 transhipment, the transhipment declaration is subject to verification against fishing vessel’s monthly catch report, logsheets and observer reports (if available). The information on the transhipment of Korean fleets in 2022 is summarized in Table 6.

9. Research activities covering target and non-target species

Korea carried out a sea trial to mitigate bycatch of seabird in the Korean tuna longline fisheries with BirdLife International, 2013-2016, and conducted a project in the Indian Ocean for developing FAD to the extent possible minimize the capture of small bigeye and yellowfin and to reduce the entanglement of bycatch, 2016-2018.