

Korea National Report to the Scientific Committee of the Indian Ocean Tuna Commission, 2024

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INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

In accordance with IOTC Resolution 15/02, final scientific data for the previous year was provided to the IOTC Secretariat by 30 June of the current year, for all fleets other than longline [e.g. for a National Report submitted to the IOTC Secretariat in 2024, final data for the 2023 calendar year must be provided to the Secretariat by 30 June 2024)	YES 30/06/2024
In accordance with IOTC Resolution 15/02, provisional longline data for the previous year was provided to the IOTC Secretariat by 30 June of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2024, preliminary data for the 2023 calendar year was provided to the IOTC Secretariat by 30 June 2024). REMINDER: Final longline data for the previous year is due to the IOTC Secretariat by 30 Dec of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2024, final data for the 2023 calendar year must be provided to the Secretariat by 30 December 2024).	YES 30/06/2024
If no, please indicate the reason(s) and intended actions:	

Executive Summary

The number of active vessels in 2023 was 4four for longline fishery and two for purse seine fishery. With this fishing capacity, Korean tuna longline fishery caught 731 tonnes in 2023, which was 10% lower than that of 2022. The fishing efforts in 2023 were 1,422 thousand hooks. The fishing efforts averaged for recent five years (2019-2023) were 3,220 thousand hooks and distributed in the western tropical areas around 0-20°S as well as in the western and eastern areas around 20°S-40°S. Since 2015, some vessels have moved to the western tropical area between 5°N-10°S to fish for bigeye tuna and yellowfin tuna. In 2020, Korean longline vessels moved again to the eastern Indian Ocean to operate southern bluefin tuna. Korean tuna purse seine fishery in the Indian Ocean recorded 13,877 tonnes in 2020. In 2020, two vessels of Korean tuna purse seine fishery operated mainly in the western and central tropical areas around 10°N-10°S. The fishing efforts in 2020 were 610 sets, which mainly distributed in the western and central tropical areas around 40°E-70°E. During 2020-2021, national scientific observers for longline fishery were not dispatched onboard for implementing observer program due to the worldwide spread of the COVID-19. National observer for longline fishery was dispatched again since 2022. Regarding purse seine fishery, regional scientific observers were dispatched onboard.

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1. BACKGROUND/GENERAL FISHERY INFORMATION

Korean tuna longline fishery in the Indian Ocean commenced in 1957, and its target species were yellowfin tuna, bigeye tuna and albacore tuna from the beginning. Since 1991, southern bluefin tuna has been targeted because of the highest value in market price. And Korean tuna purse seine fishery initiated operating in 2012, and has targeted tropical tunas.

The traditional fishing grounds of Korean tuna longline fishery were mainly distributed in the central tropical area between 20°N-20°S, and extended south to 45°S and east to 120°E for fishing for southern bluefin tuna in recent years. The number of active vessels peaked at 185 in 1975, but after that gradually decreased to 21 in 2009 and 7 in 2011, and has increased to 12-14 since 2013. The catch recorded the highest with about 70 thousand tonnes in 1978, since then also has gradually decreased, and is showing a level of about 0.7 thousands tonnes in recent years.

Since 2012, Korean tuna purse seine fishery has operated mainly in the central and western tropical area. In 2023, two vessels operated and recorded about 12.4 thousand tonnes in total catch.

2. FLEET STRUCTURE

Korean tuna longline fleets in the Indian Ocean are all deep freezing tuna vessels. In 2023, the size ranges from 500 to 1,000 in gross tonnage class (Table 1). Total number of vessels had decreased from 185 in 1975 up to seven in 2011, but it showed somewhat of increasing after 2013. Since 2016, 12 vessels of Korean tuna longline fishery on average have operated in the Indian Ocean. In 2023, there were four vessels of Korean tuna longline fishery, which was sharply decreased compared to five vessels of 2022.

Korean tuna purse seine fishery initiated operating in 2012 with 3 vessels, and its number of vessels increased to five in 2016, but decreased to two after 2018 (Table 1).

Table 1. Number of vessels operating in the IOTC area of competence, by gear type and size, 2019-2023

Gear type	GT	Year				
		2019	2020	2021	2022	2023
Longline	200-500	2	-	-	-	-
	500-1,000	8	10	5	5	4
Purse seine	1,000-2,000	-	-	-	-	-
	2,000-3,500	2	2	2	2	2

3. CATCH AND EFFORT

Total annual catch of Korean tuna longline fishery steeply increased from the mid-1960s, and peaked at about 70 thousands tonnes in 1978, and then has decreased with large fluctuations, where the decadal average of catch was about 39 thousands tonnes in the 1970s, 33 thousands tonnes in the 1980s, 12 thousands tonnes in the 1990s, five thousands tonnes in the 2000s, and three thousands tonnes in the 2010s, respectively (Fig. 1a). In 2023, the total catch was 731 tonnes, which accounted for 10% decreasing from that of 2022 (812 tonnes). The changes in the number of active vessels closely coincided with the catch trend throughout the periods. The number of active vessels peaked at 185 in 1975, after that sharply decreased to seven vessels in 2011-2012, and increased to 10-13 vessels in 2016-2019. In 2023, the fishing efforts were 1,422 thousand hooks. The fishing efforts averaged for recent five years (2019-2023) were 3,220 thousand hooks and distributed in the western tropical areas around 0-20°S as well as in the western and eastern areas around 20°S-40°S (Table 2a, Figs. 2a and 2b). Since 2015, some vessels have moved to the western tropical area between 5°N-10°S to fish for bigeye tuna and yellowfin tuna. Since 2020, Korean longline vessels moved again to the eastern Indian Ocean to operate southern bluefin tuna (Table 2a, Figs. 1a, 3a and 3b).

Korean tuna purse seine fishery in the Indian Ocean commenced in 2012 and recorded about 14 thousand tonnes in 2020 (Table 2b, Fig. 1b). In 2023, two vessels of Korean tuna purse seine fishery operated mainly in the western and central tropical areas around 10°N-10°S to catch tropical tunas (Table 1, Fig. 3a). The fishing efforts in 2023 were 476 sets, which mainly distributed in the western and central tropical areas around 50°E-70°E (Table 2b, Figs. 2a).

Table 2a. Annual catch (in number) and effort of Korean tuna longline fishery by primary species in the IOTC area of competence, 2019-2023

Year	No. hooks (X 10 ³)	BET	YFT	SKJ	ALB	SBF	SWO	BLM	BUM	MLS	SFA	NEI	Total
2019	5,899	9,945	62,318	1,340	20,288	687	1,568	174	672	167	1,350	27,046	125,555
2020	4,981	7,505	35,741	725	15,384	12,543	1,029	163	403	221	888	15,712	90,314
2021	2,131	6,387	13,598	481	3,847	2,683	336	7	170	52	349	4,781	32,691
2022	1,667	12,626	5,158	174	3,956	1,657	375	1	129	5	35	4,231	28,347
2023	1,422	4,289	18,371	1,317	635	1,967	282	8	96	27	166	7,866	35,024

Table 2b. Annual catch (in tonnes) and effort of Korean tuna purse seine fishery by primary species in the IOTC area of competence, 2019-2023

Year	No. sets	SKJ	BET	YFT	NEI	Total
2019	763	10,043	1,797	8,730	80	20,650
2020	610	10,743	716	2,393	25	13,877
2021	683	14,326	1,566	5,806	4	21,702
2022	565	10,834	1,497	4,159	3	16,493
2023	476	7,093	1,128	4,197	0	12,418

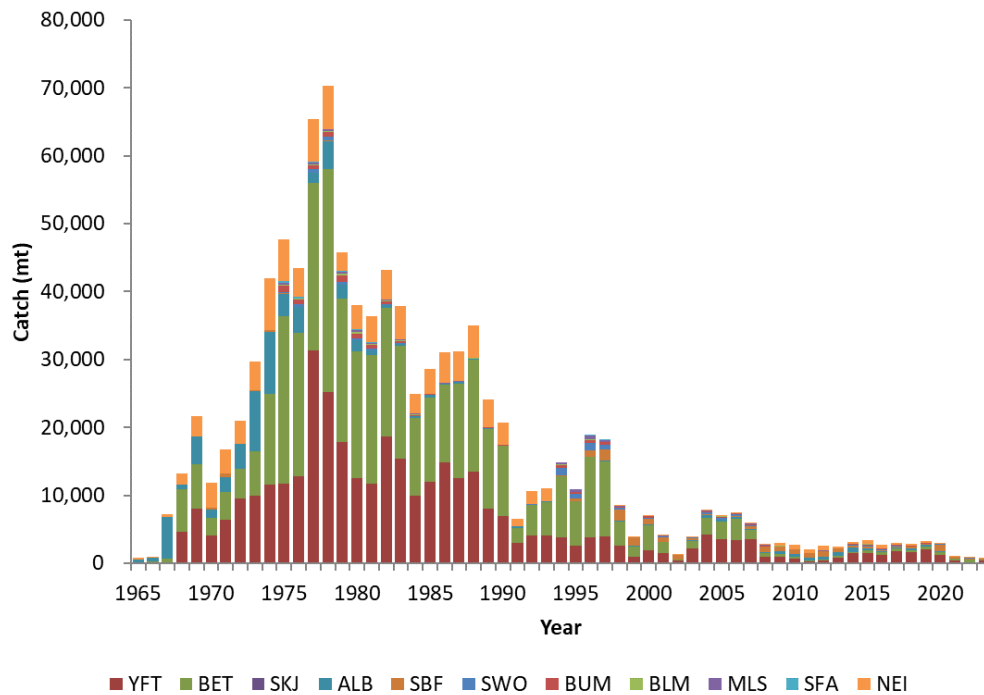


Figure 1a. Historical annual catch for Korean tuna longline fishery by primary species, for the IOTC area of competence.

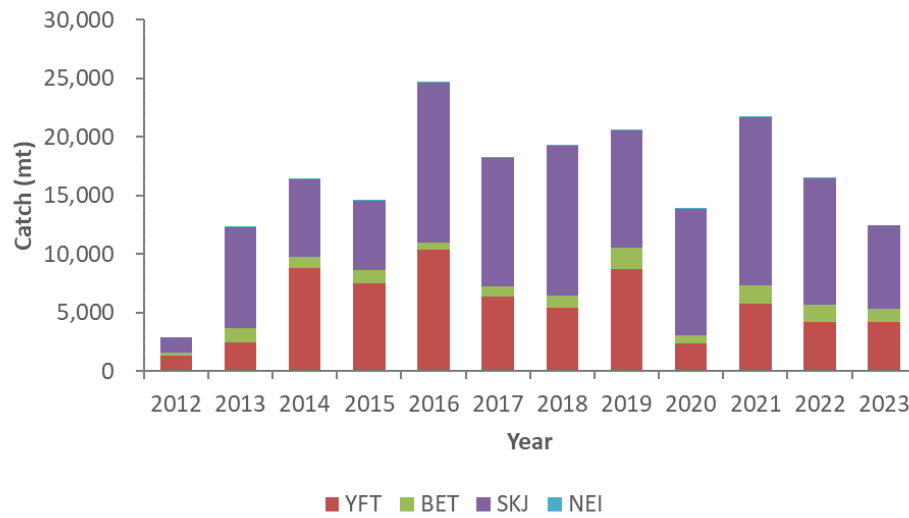
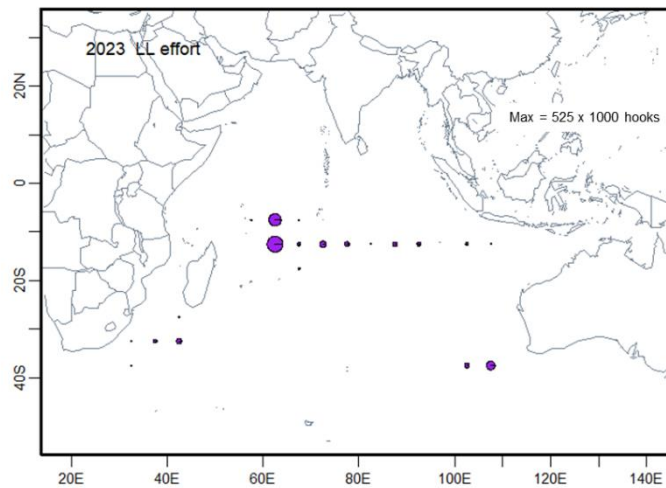
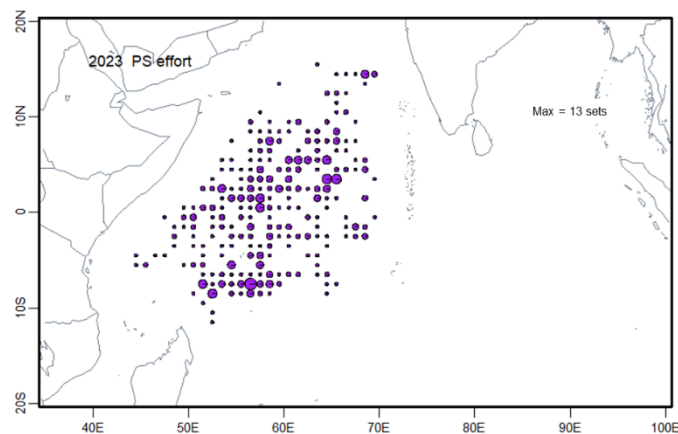


Figure 1b. Historical annual catch for Korean tuna purse seine fishery by primary species, for the IOTC area of competence.

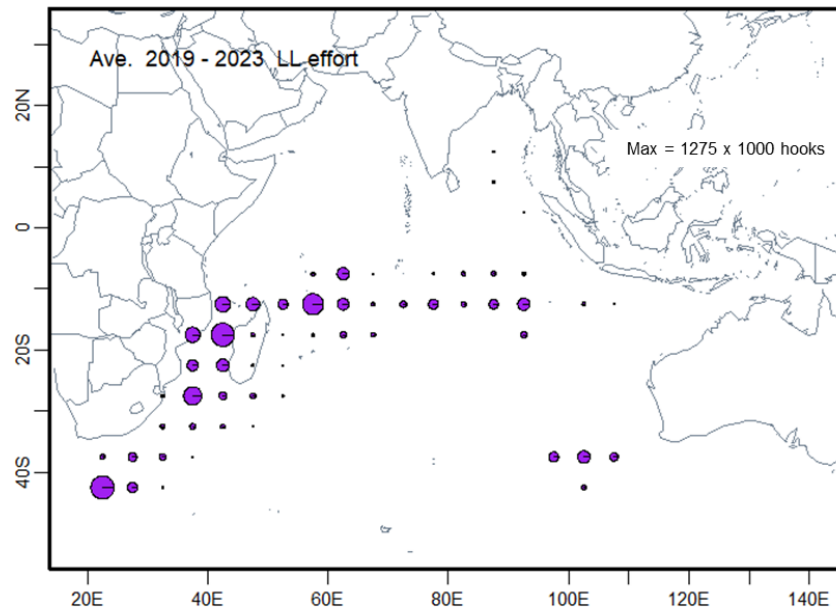


(a) Longline

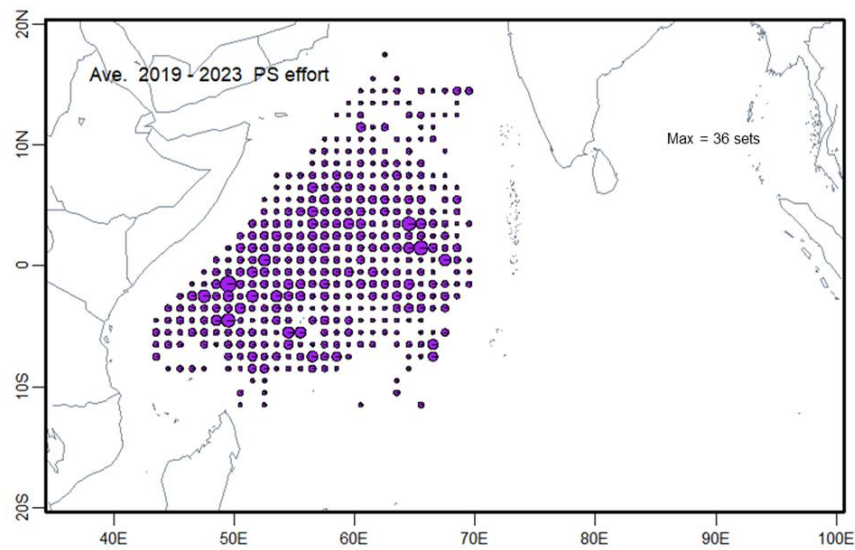


(b) Purse seine

Figure 2a. Map of the distribution of fishing effort by gear type in the IOTC area of competence, 2023.

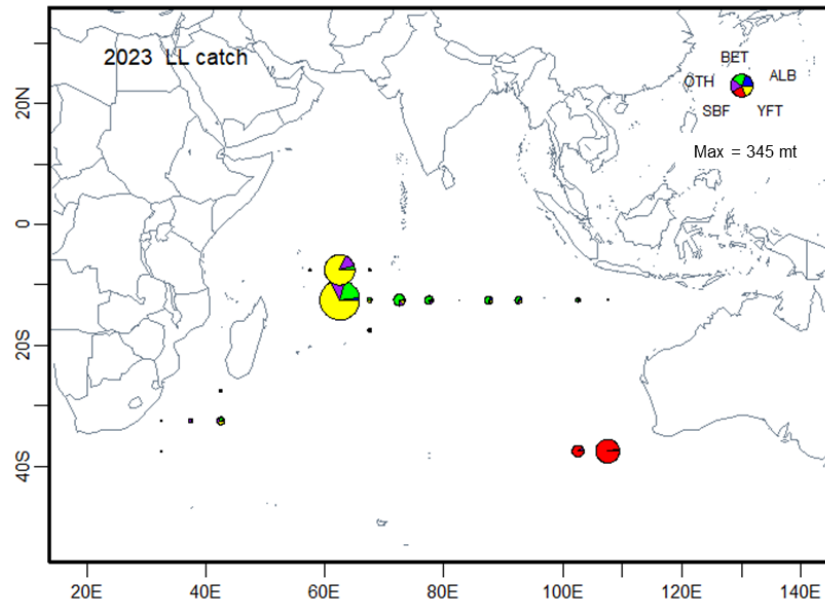


(a) Longline

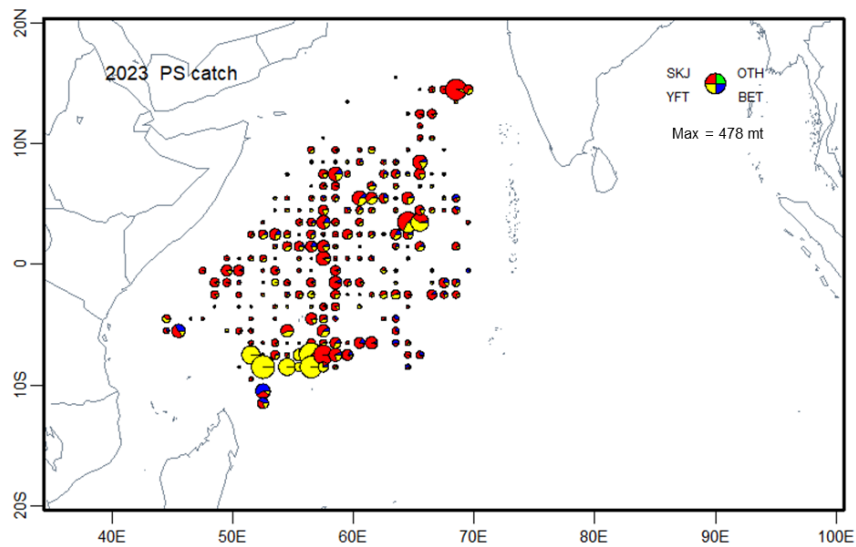


(b) Purse seine

Figure 2b. Map of the distribution of fishing effort by gear type in the IOTC area of competence for average of the 5 previous years, 2019-2023.

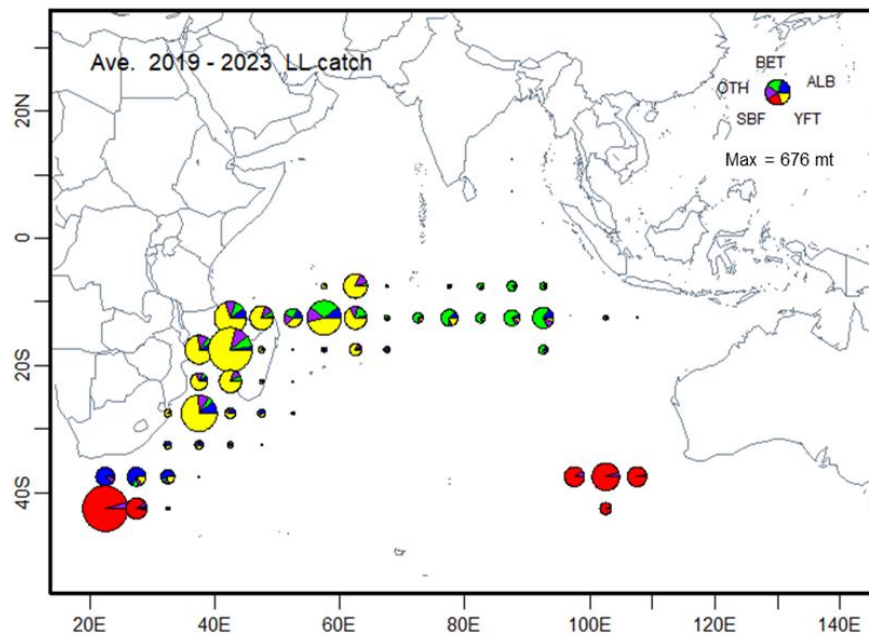


(a) Longline

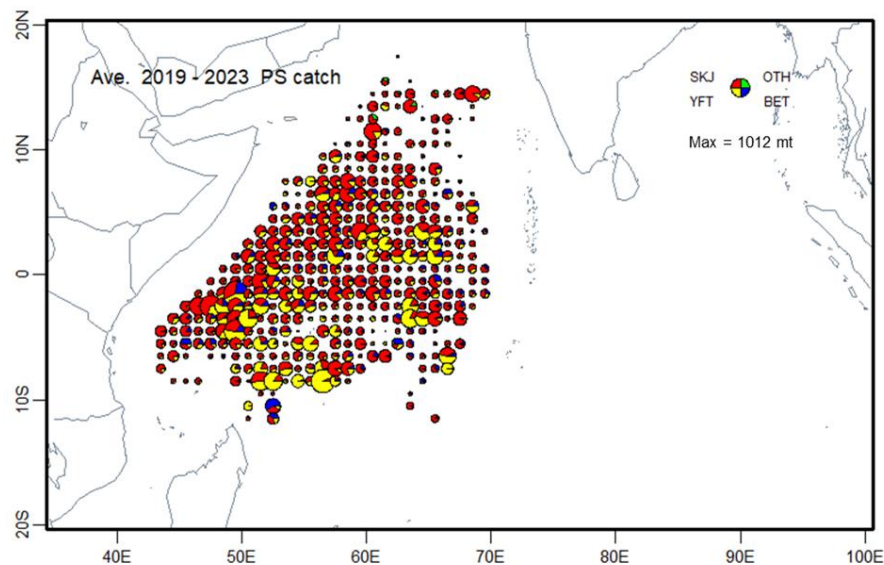


(b) Purse seine

Figure 3a. Map of distribution of catch by species for Korean tuna longline and purse seine fisheries in the IOTC area of competence, 2023.



(a) Longline



(b) Purse seine

Figure 3b. Map of distribution of catch by species for Korean tuna longline and purse seine fisheries in the IOTC area of competence for average of the 5 previous years, 2019-2023.

4. RECREATIONAL FISHERY

Korea has no recreational fishery.

5. ECOSYSTEM AND BYCATCH ISSUES

Environmental issues have been administrated with various individual laws since the 1960s. In relation to Korean national fisheries, there are the law of preservation and management of marine ecosystem (2007), the

framework act on marine fishery development (2009) and the law of fisheries management (2010). In particular, with regard to Korean distant water fisheries, they comply with the measures related to ecosystem and bycatch, taken by the five tuna Regional Fisheries Management Organizations (RFMOs) to which Korea acceded, in accordance with Article 16 of the Distant Water Fisheries Development Act. And to address the increasing data collection and reporting requirement by the tuna RFMOs for ecologically related species (ERS) such as sharks, seabirds, marine turtles, etc., the Act on Fisheries Information and Data Reporting was revised in December, 2012. It includes the data recording and reporting requirements recently adopted by the tuna RFMOs regarding catch by species, discards/release (alive/dead), seabird mitigation measures used, etc.

5.1 Sharks

5.1.1. NPOA sharks

Korean National Plan of Action for the Conservation and Management of Sharks (NPOA-sharks) was developed and approved in August 2011. Statistical and biological information on sharks have been collected through logsheet compiled from fishermen onboard and national scientific observer program (Tables 3 and 4).

5.1.2. Sharks finning regulation

Korean longline vessels land frozen sharks, and according to the NPOA-sharks and the Distant Water Fisheries Development Act entered into force in 2008, fishing vessels that land frozen sharks shall not to have onboard fins that total more than 5% of the weight of sharks onboard, up to the first point of landing. It is monitored by scientific observer program.

5.1.3. Blue shark

All Korean fishing vessels shall record and report data of not only shark catch by species but also discard/release through Electronic Reporting System, and Korea has provided the data in full accordance with the Resolution 18/02.

Table 3. Total number and weight of sharks by species, retained by Korean tuna longline and purse seine fisheries in the IOTC area of competence for the most recent five years, 2019-2023

Fishery	Year	Retained catch by species (tonnes/inds.)							
		Blue shark	Mako sharks	Porbeagle shark	Oceanic whitetip shark	Hammerhead sharks	Thresher sharks	Others	Total
Longline	2019	0 /0	11 /244	0 /0	0 /0	0 /0	0 /0	0 /0	11 /244
	2020	6 /193	8 /184	0 /0	0 /0	0 /0	0 /0	0 /0	14 /377
	2021	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0
	2022	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0
	2023	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0
Purse seine	2019	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0
	2020	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0
	2021	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0
	2022	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0
	2023	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0	0 /0

Table 4: Total number of sharks by species, released/discarded by Korean tuna longline and purse seine fisheries in the IOTC area of competence for the most recent five years, 2019-2023

Fishery	Year	Released/discarded by species									
		Blue shark	Mako sharks	Porbeagle shark	Silky shark	Oceanic whitetip shark	Hammerhead sharks	Bigeye thresher shark	Thresher sharks	Others	Total
Longline (inds.)	2019	3,507	2	0	0	0	0	0	0	0	3,509
	2020	8,190	0	4	0	0	0	0	1	1	8,196
	2021	3,746	0	0	0	0	0	0	0	0	3,746
	2022	1,434	29	0	5	1	0	4	22	19	1,514
	2023	2,066	18	0	0	0	0	0	1	26	2,111
Purse seine (tonnes)	2019*	0	0	0	341	1	0	0	0	0	342
	2020	0	0	0	0	0	0	0	0	0	0
	2021	0	0	0	0	0	0	0	0	0	0
	2022	0	0	0	0	0	0	0	0	0	0
	2023	0	0	0	9	0	0	0	0	0	9

* indicates the number of individuals.

5.2 Seabirds

Korean National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (NPOA-seabirds) was established in January 2014. Interactions and mortality of seabirds have been collected through national scientific observer program and logsheets compiled from fishermen onboard (Table 5). Although it has been encouraged fishermen to record on logsheets and report the data for seabirds, fishermen are not familiar with data recording and reporting for seabirds due to difficulty in species identification. Hence, it has recommended that fishermen take a picture when not being able to identify seabird species, and the National Institute of Fisheries Science (NIFS) has educated and requested fishermen to record and report the required data with great emphasis on ERS and implementation of its mitigation measures in close cooperation with the NIFS. And the NIFS has distributed the field guide for identifying seabird to fishermen and scientific observers. In 2023, three out of four vessels of Korean tuna longline fishery operated in the areas south of 25°S and the vessels used both bird-scaring lines and line weighting (100%) as seabird mitigation measures.

5.3 Marine Turtles

Interactions and mortality of marine turtles have been collected through national scientific observer program and logsheets compiled from fishermen onboard (Table 5). The field guide for identifying marine turtle has been distributed on board to encourage fishermen to record and report the data for marine turtles, likewise the case of seabirds. And Korean fishing vessels keep the device for landing and releasing marine turtles onboard.

5.4 Other ecologically related species (e.g. marine mammals, whale sharks)

Interactions and mortality of marine mammals and whale sharks have been collected through national scientific observer program and logsheets compiled from fishermen onboard (Table 5). When marine mammals and whale sharks are observed during fishing operation, fishing vessels shall stop all the operations until they have been released safely.

Table 5. Observed annual catches of species of special interest by species (seabirds, marine turtles and marine mammals) by Korean tuna longline and purse seine fisheries in the IOTC area of competence for the most recent five years, 2019-2023

(a) Seabirds

Fishery	Year	Seabirds										
		Yellow nosed albatross	Royal albatross	Black browed albatross	Buller's albatross	Cape petrel	Grey headed albatross	Southern giant albatross	Wandering albatross	Sooty albatross	White-chinned petrel	Unidenti-fied sp.
Longline	2019	3	0	0	0	0	0	0	0	1	3	0
	2020 [†]	0	0	0	0	0	0	0	0	0	0	0
	2021 [†]	0	0	0	0	0	0	0	0	0	0	0
	2022	0	0	0	0	0	0	0	0	0	0	0
	2023	0	0	0	0	0	0	0	0	0	0	0

* Data were compiled by national scientific observers. However, during 2020-2021, they were not dispatched onboard due to the COVID-19. † indicates data compiled by fishing vessels.

** No seabird was bycaught by purse seine fishery.

(b) Marine turtles and other ecologically related species

Fishery	Year	Marine turtles					Marine mammals			Whale shark
		Loggerhead turtle	Olive ridley turtle	Green turtle	Leatherback turtle	Uniden-tified sp.	Spinner dolphin	Pygmy killer whale	Uniden-tified sp.	
Longline	2019	0	0	0	0	0	0	0	0	0
	2020 [†]	0	0	0	0	0	0	0	0	0
	2021 [†]	0	0	0	0	0	0	0	0	0
	2022	0	0	0	0	0	0	0	0	0
	2023	0	0	0	1	0	0	0	0	0
Purse seine	2019 [†]	0	0	0	0	0	0	0	0	0
	2020 [†]	0	0	0	0	0	0	0	0	0
	2021 [†]	0	0	0	0	0	0	0	0	0
	2022 [†]	0	0	0	0	0	0	0	0	0
	2023	0	0	0	1	0	0	0	0	0

* Data were compiled by national scientific observers and fishing vessels, of which † indicates data compiled by fishing vessels.

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

6.1. Logsheet data collection and verification

The NIFS has collected the data of Korean tuna fisheries, and data are available from 1971. In 2012, Korean domestic law (Distant Water Fisheries Development Act) was revised that the time for data submission was changed from within 30 days (home-based) or 60 days (foreign-based) after completion of their operations to monthly report for improving the data collection to meet the timely submission of data and to have higher quality and quantity of the data. A series of subsequent has been made on logsheets updates including the amount of discard/release, the incorporation of ERS, implementation of the biological measurement and sampling required, seabird mitigation measures used, etc. After September 2014, the Act obliged fishers to report the catch statistics to the NIFS every week, and since 1st September 2015, the Distant Water Fisheries Development Act has obliged fishers to report the catch statistics every day to the NIFS through the Electronic Reporting System in order to manage/cross-check the data in real time.

Catch statistics of Korean fishing vessels are obtained from two sources of data reporting. The Korea Overseas Fisheries Association (KOFA) collects catch by species and by vessels from fishery industries, and the NIFS collects logbook data from vessels filled out by captain onboard. The data collected are

verified and confirmed through cross-checking between the NIFS and the KOFA. In addition, catch data are cross-checked between those of the NIFS and the National Fishery Products Quality Management Service (NFQS) prior to issuing Catch Documentation Scheme (CDS).

6.2. Observer scheme

Korean scientific observer program for distant water fisheries was started in 2002. The NIFS is responsible for implementing and developing the observer program. The qualification for being observers is college graduated where major field is nature science or fisheries high school graduated with at least one-year experience on board having a 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 three 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. One is the test on a technical term of fisheries and biology, and the other is the test on species identification. The person who scored above 70 in the two tests and attended 100% of the course timetable can be qualified and deployed on board as a scientific observer. At present, Korea has 67 persons being able to be deployed onboard as an active scientific observer.

For implementing observer program, scientific observers collected the data which are required by the IOTC scientific observer program standards. The data collected were vessel and gear characteristics, setting and catch (retained/discarded) details, ERS interaction, biological information, sighting of marine mammals, etc. The biological measurements were conducted on all species, if possible.

During 2020-2021, Korean had not deployed national scientific observers on longline vessels operating in the Indian Ocean due to the worldwide spread of the COVID-19. Since 2022, one national observer was dispatched again and observed the fishing efforts of 116 thousands hooks for longline fishery, which observer coverages were estimated to be % in 2023 (Fig. 4). Regarding purse seine vessels, regional scientific observers were dispatched onboard (Table 6).

Table 6. Annual observer coverage (%) by Korean tuna longline and purse seine fisheries for the most recent five years, 2019-2023

Fishery	2019	2020**	2021**	2022	2023
Longline	4.7	-	-	9.8	8.1
Purse seine*	-	-	-	-	-

* It does not include the coverage implemented by regional observer programs.

** National observers for longline fishery were not dispatched onboard due to the COVID-19.

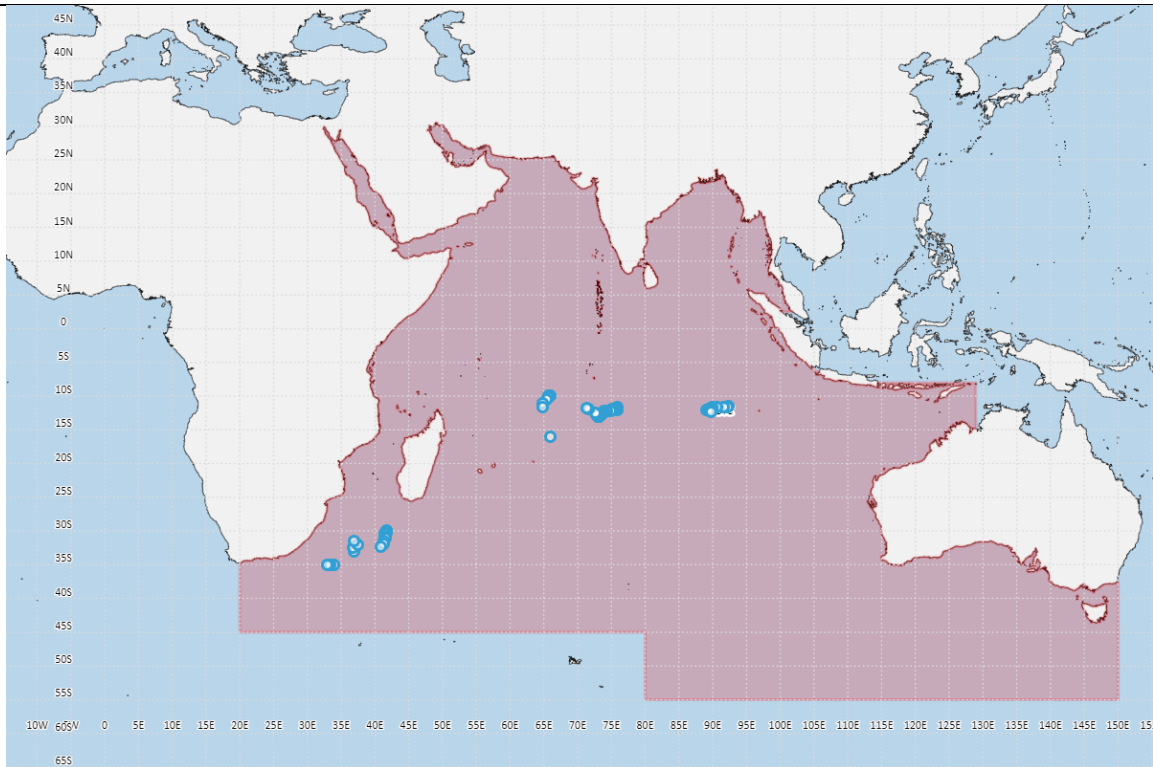


Figure 4. Map showing the spatial distribution of observer coverage by Korean tuna longline fishery in 2023.

6.3. Port sampling programme

Korea did not conduct any port sampling program within the IOTC Convention Area in 2023.

6.4. Actions taken to monitor catches & manage fisheries for Striped Marlin, Black Marlin, Blue Marlin and Indo-pacific Sailfish

All Korean fishing vessels shall record and report data of the billfishes that they retain onboard and discard/release, and Korea has provided all the data in full accordance with the Resolution 18/05.

6.5. Gillnet observer coverage and monitoring

Korea has no gillnet fishing vessels within the IOTC Convention Area.

6.6. Sampling plans for mobulid rays

No sampling plans for mobulid rays.

7. NATIONAL RESEARCH PROGRAMS

There was no research program in 2023.

8. IMPLEMENTATION OF SCIENTIFIC COMMITTEE RECOMMENDATIONS AND RESOLUTIONS OF THE IOTC RELEVANT TO THE SC

Table 9. Scientific requirements contained in Resolutions of the Commission, adopted between 2012 and 2023

Res. No.	Resolution	Scientific requirement	CPC progress
12/04	On the conservation of marine turtles	Paragraphs 3, 4, 6–10	Data and interaction on marine turtles are collected through observer programs and logsheets. Study on use of circle hook was conducted in the Pacific Ocean in 2006. The NIFS conducts education for conservation of marine turtles to the fishermen, and fishing vessels carry the device for handling and releasing marine turtles onboard.
12/09	On the conservation of thresher sharks (family alopiidae) caught in association with fisheries in the IOTC area of competence	Paragraphs 4–8	Thresher sharks are prohibited to retain onboard Korean longline vessels. If bycatch occurred, fishermen shall cut the line, promptly release unharmed them with proper handling and record the interaction on logbook.
13/04	On the conservation of cetaceans	Paragraphs 7–9	Korea collects the data on cetaceans through logsheets and observer programs.
13/05	On the conservation of whale sharks (<i>Rhincodon typus</i>)	Paragraphs 7–9	Korea collects the data on cetaceans through logsheets and observer programs.
13/06	On a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries	Paragraph 5–6	Fishermen shall record and report the incidental catch with interaction information in accordance with IOTC logsheets template.
15/01	On the recording of catch and effort by fishing vessels in the IOTC area of competence	Paragraphs 1–10	Fishermen shall record catch and effort data on logbook and keep it onboard. And they shall daily report logbook data, in accordance with IOTC logbook template, to the NIFS, Korea. Korea has submitted the official logbook template used in Korean vessel and catch and effort data on an aggregated basis to the Secretariat.
15/02	Mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)	Paragraphs 1–7	All Korean fishing vessels shall record and report the data to government on daily basis, and measure biological information on at least 1 fish per a ton of catch.
17/05	On the conservation of sharks caught in association with fisheries managed by IOTC	Paragraphs 6, 9, 11	Korea has collected shark catch by species, and provided the data in time.
18/02	On management measures for the conservation of blue shark caught in association with IOTC fisheries	Paragraphs 2-5	All Korean fishing vessels shall record and report data of shark catch by species, and Korea has provided the data in full accordance with the Resolution.
18/05	On management measures for the conservation of the Billfishes: Striped marlin, black marlin, blue marlin and Indo-Pacific sailfish	Paragraphs 7 – 11	All Korean fishing vessels shall record and report data of the billfishes that they catch, and Korea has provided the data in full accordance with the Resolution.
18/07	On measures applicable in case of non-fulfilment of reporting obligations in the IOTC	Paragraphs 1, 4	Korea has collected and provided the data described in the paragraphs.
19/01	On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence (<i>If not provided under Res 21/01 below</i>)	Paragraph 22	Korea has no gillnet fishing vessels within the IOTC Convention Area.
19/03	On the Conservation of Mobulid Rays Caught in Association with Fisheries in the IOTC Area of Competence	Paragraph 11	There is no any catch of mobulid rays by Korean fishing vessels in 2023. However, we will monitor the catch through scientific observer program, if occurred.
21/01	On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence (<i>If not provided under Res 19/01 above</i>)	Paragraph 23	Korea has no gillnet fishing vessels within the IOTC Convention Area.
22/04	On a regional observer scheme	Paragraph 12	Korea reports annually the number of vessels monitored, observer coverage with its trip report.
23/07	On reducing the incidental bycatch of seabirds in longline fisheries.	Paragraphs 3–7	Korea has provided information on how we are implementing this measure and have conducted sea trials for

Res. No.	Resolution	Scientific requirement	CPC progress
			developing seabirds mitigation measure since 2013. Korean longline fishing vessels have implemented seabirds mitigation measures in accordance with IOTC resolution.

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