PLENARY 06

25th Meeting of the
International Scientific Committee for Tuna
and Tuna-Like Species in the North Pacific Ocean
Busan, Republic of Korea
17-20 June 2025

NATIONAL REPORT OF JAPAN (JAPANESE TUNA AND TUNA-LIKE FISHERIES IN THE NORTH PACIFIC OCEAN IN 2024)[1]

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June 2025

[1] Prepared for the 25th Meeting of the International Scientific committee on Tuna and Tuna-like Species in the North Pacific Ocean (ISC) held 17-20 June 2025, in Busan, South Korea. Document should not be cited without permission of the authors.

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SUMMARY

Japanese tuna fisheries consist of the three major fisheries (i.e., longline, purse seine, and pole-and-line) and other miscellaneous fisheries like troll, driftnet, and setnet fisheries. This paper described the recent trend of the Japanese tuna fisheries in the North Pacific Ocean and updated the statistics given in the previous National Report for ISC24 (Nishikawa et al., 2024). The total catch of tunas excluding skipjack caught by Japanese fisheries in the North Pacific Ocean was 85,423 metric ton (t) in 2023 and 79,769 t in 2024. The total catch of tunas including skipjack caught by Japanese fisheries in the North Pacific Ocean was 226,155 t in 2023 and 264,148 t in 2024. The total catch of swordfish and striped marlin was 6,023 t in 2023 and 6,432 t in 2024. In addition to fisheries description, a brief description was given on Japanese research activities in 2024 for tuna and tuna-like species in the Pacific Ocean.

1 TRENDS IN FLEET SIZE

Tables 1-A and B show the number of Japanese tuna fishing vessels engaged in fishing by type of fishery and by vessel size class during 1980-2006 (Ministry of Agriculture, Forestry and Fishery, MAFF 1982-2008) and 2006-2024. The number of active vessels during 2006-2024 was estimated based on logbook data. The coastal longline vessels less than 20 Gross Register Tonnage (GRT), which are regulated operating only within Japan's Exclusive Economic Zone (EEZ), the research and training vessels of both longline and pole-and-line were not included in Table 1-B. The coastal longline vessels less than 20 GRT, which don't have a license to operate in areas beyond Japan's EEZ, were not included in Table 1-B. The research and training vessels of both longline and pole-and-line were not included in Table 1-B. The values of number of vessels in 2023 and 2024 were provisional in Table 1-B.

The total number of longline vessels showed a continuous declining trend since the early 1990s (Table 1-A). The number of longline vessels of the largest size class (> 200 GRT) was nearly constant in the period between the beginning of the 1980s and the mid-1990s. In accordance with the agreement of the Food and Agriculture Organization of the United Nations (FAO)'s international action plan on fishing capacity, the Japanese government implemented the fleet reduction program and decreased its large longline vessels by 20% in 1998. The number of longline vessels continued to decline thereafter. In 2009, the Japanese government implemented the second fleet reduction program for its fishery following the management measures adopted by the Western and Central Pacific Fisheries Commission (WCPFC). The recent declining trend for the fleet size larger than 50 GRT was remarkable. The number of vessels of 50-99 GRT was 5 in 2024 which is 11% of that in 2006, and the number of vessels of 100-199 GRT was 13 in 2024 which is 25% of that in 2006 (Table 1-B). This large reduction was mainly derived from high price of fuel especially since 2007 and the fleet reduction programs implemented twice by the Government of Japan. As for the fleet size under 50 GRT, the number of vessels for 20-49 GRT showed a sharp decline since the late 1980s whereas the number of vessels of smallest size class (< 20 GRT) fluctuated at around 700 during 1980-2006 (Table 1-A). The number of vessels of 10-49 GRT was relatively stable ranging between 273 and 290 during 2006-2011 and then decreased to 190 in 2024 (Table 1-B).

The total number of purse seine vessels was 52 in 2006, and it was nearly 80% of that in the 1980s (Table 1-A). After 2006, the total number of purse seine vessels fluctuated ranging between 67 and 75 until 2024. The purse seine vessels which are allowed to operate in the tropical waters are larger vessels (currently, 349 GRT or larger).

The total number of pole-and-line vessels showed a continuous declining trend since 1980 (Tables 1-A and B). Suppose vessel size categories 20-49 GRT, 50-199 GRT, and over 200 GRT for 1980-2006 to compare with that for 2006-2024, the number of vessels for each category showed declining trend throughout the period (Table 1-A). The number of vessels both for 50-199 GRT and over 200 GRT showed declining trend throughout the period (Table 1-B). The number of vessels for 50-199 GRT was 34 in 2024 which is 41% of that in 2006. The number of vessels for over 200 GRT showed a declining trend with annual fluctuations, was 20 in 2024, which is 67% of that in 2006.

2 CATCH AND EFFORT TRENDS OF THE MAJOR FISHERIES

2.1 Longline

Longline is classified by the type of license issued by the Government of Japan, i.e., coastal (< 20 GRT and can fish only in Japanese EEZ), small offshore (10-20 GRT), offshore (10-120 GRT), and distant water (> 120 GRT).

Annual distributions of fishing effort of longline in 2023 and 2024 are shown in Fig. 1. In those years, the fishing grounds were in the east-west direction off Japan to Hawaii, the equatorial area between 15˚S and 15˚N, off Australia and off Peru. The fishing effort of the distant water and offshore longline remained stable at around 200 million hooks in the North Pacific in the 1980s, and then it decreased continuously to 100 million hooks in the early 2000s, and it had further decreased until 2009 (Fig. 2). After 2009, the amount of effort showed a trend of gradual decrease at a level of 35-50 million hooks.

Total catch of four tuna and four billfish species caught by distant water and offshore longline (not including small offshore longline fishery) in the North Pacific has been decreased since the highest catch of 119,185 t in 1980 and was 13,758 t in 2024 which is 11% of that in 1980 (Fig. 2). Bigeye has been the dominant species in this fishery in the North Pacific. The bigeye catch, which was stable in the 1980s and about 50,000 t in the late 1980s, showed a declining trend since the 1990s, was less than 10,000 t since 2009, and was less than 5,000 t since 2016. Yellowfin tuna catch ranged between 30,000 t and 50,000 t until the early 1980s. It gradually decreased to less than 5,000 t in 2007. Albacore catch, which fluctuated around 10,000 t until 2001, decreased to about 2,000-6,000 t and kept stable at a low level during the period 2003-2024.

2.2 Purse seine

There are two types of Japanese purse seiners targeting tunas, i.e., single and group purse seine. Historically, a typical group seiner consists of one purse seiner, one searching vessel, and two carrier vessels. Still, the group seiner tended to reduce the number of vessels within each group to reduce costs in recent years. Besides those, coastal purse seiner takes a relatively small number of tunas as a by-catch.

Fishing grounds of Japanese purse seine were widely spread, ranging from 40˚N to 10˚S, and from 120˚E to 180˚ (Fig. 3). The group seiner operates mainly in the temperate northwestern Pacific. The carrier holds fish in chilled water with ice and unloads those catches. Meanwhile, the single purse seiner (> 349 GRT) operates mainly in the tropical waters of the central and western Pacific, but a part of the vessels seasonally operates in the temperate waters.

The fishing effort for the single purse seiner was around 9,000 sets in the late 1980s, then decreased to about 6,000 sets in 1998 (Fig 4). The fishing effort generally stayed at about 2,000-4,000 sets in the last decade (Fig. 4). The skipjack catch has been dominant among species in this fishery, followed by yellowfin. The skipjack catch was about 150,000 t until 2008 and then decreased to 80,000 t in 2011 (Fig. 4). After 2011, the skipjack catch fluctuated between 55,000 t and 140,000 t (Fig. 4). The statistics in 2024 are provisional, and that skipjack catch is about 98,000 t.

2.3 Pole-and-line.

The pole-and-line is composed of three distinct categories, i.e., coastal (< 20 GRT), offshore (10-120 GRT) and distant water (> 120 GRT) vessels in terms of the license of this fishery. Note that some of 19 GRT type vessels obtained offshore licenses since 2007, which are included in offshore category in this document. The pole-and-line can be categorized into large, middle, and small sized vessels which correspond to larger than 300 GRT, 20-300 GRT and less than 20 GRT in vessel size.

Fishing grounds of the pole-and-line were widely spread ranging from 45˚N and 10˚S, from 120˚E to 180˚. The fishing ground was rather sequential from north to south and was unlike that in the purse seine fishery. (Fig. 5). The middle-sized vessels generally operate in near shore waters of Japan and their trips are within 10 days. Southernmost fishing area for these vessels, in recent years, is near 15˚N, but the important fishing ground is waters north of 25˚N, around Japan and adjacent areas (Fig. 5). These vessels primarily fish skipjack and albacore from spring through autumn off the Pacific side of Japan, and harvest relatively small amount of yellowfin and bigeye tuna. They hold fish in cooled water and unload it as fresh fish. The activity of the small pole-and-line vessels is like that of the middle vessels but the area of fishing is limited within the Japanese EEZ, and the trip of these vessels is shorter. On the contrary, the large vessels tend to operate farther off waters from Japan and their trips last for two to three months. Usually, they primarily target albacore from summer through autumn season in the waters north of 20˚N, and skipjack in winter and spring in the waters south of 20˚N (Fig. 5). These vessels are equipped with a brine freezer, in which fish caught are immediately stored in a tank filled with cooled brine, and then unloaded as frozen fish.

Generally, fishing effort expressed by fishing days for offshore and distant water pole-and-line rapidly decreased from around 62,000 days in the early 1980s to around 20,000 days in 1994, increased to around 23,000 days in 2000, and then decreased to 8,862 days (preliminary) in 2024 (Fig. 6). Total catch of five tuna species for those fisheries rapidly decreased from around 280,000 t to around 170,000 t during the 1980s, and then gradually decreased from around 130,000 t to 50,000 t until the latest year (Fig. 6). Skipjack is a dominant species for this fishery, but the proportion of skipjack tended to decrease, from 87-78% (mean 84%) during 1980-1986 to 90-50% (mean 73%) during 2011-2024.

3 RECENT TRENDS FOR MAJOR SPECIES

3.1 Pacific bluefin tuna (Table 2-A)

Preliminary total catch of Pacific bluefin tuna (PBF) in 2024 was 9,726 t (Table 2-A), which was similar level with that in previous year (9,811 t). Continuing from 2022, this was the highest level since the strict catch upper limit was implemented in 2015 in accordance with the WCPFC Conservation and Management Measure (CMM). The annual catches of PBF by major fisheries in 2024 is as follows; purse seine: 4,614 t, troll: 1,370 t, setnet: 1,537t, longline: 1,550 t, and other fisheries: 649 t.

Japanese longline (LL) fishery had caught mainly large spawner PBF, which were about 200 cm Fork Length (FL), and the composition in 2024 showed an unimodal distribution with a peak value in 186 cm (Fig. 7). The size range of the composition in 2024 was fairly wide and this would be consisted by multiple cohorts.

3.2 Albacore (Table 2-B)

The preliminary total catch of albacore in 2024 was 32,616 t, which was smaller than the average of the past five years (2019-2023: 31,565 t). The main Japanese fisheries for albacore are the longline and pole-and-line fisheries. Longline fisheries catches have been stable in recent years, at around 13,000 t. The pole-and-line fisheries target both albacore and skipjack, and albacore catches fluctuate depending on the combined catch of both species. Catches by the distant waters pole-and-line fisheries fluctuated significantly, ranging from 2,234 t to 23,802 t.

Longline fisheries target the larger fish, while pole-and-line fisheries target much smaller fish (Fig. 8). The size of the albacore caught by the longline in 2024 ranged from 59 to 122 cm. A slightly bimodal size distribution was observed, with a main peak at 85 cm FL. The albacore caught by the pole-and-line fisheries ranged in size from 46 cm to 84 cm.

3.3 Swordfish (Table 2-C)

The total swordfish catch in 2024 was 5,359 t which is 102.2% of the catch in 2023 (5,246 t). These statistics are preliminary but indicate that the catch somewhat exceeds the average over the past five years (2020-2024: 4,878 t). Swordfish have been caught mainly by offshore and distant water longline, whose catch in 2024 was 3,166 t. The coastal longline catch in 2024 was 1,098 t. Length composition data was collected from longline fishery. 95% of individuals measured in 2024 fall between 94 and 210 cm eye-fork length (Fig. 9).

3.4 Striped marlin (Table 2-D)

The total striped marlin catch in 2024 was 1,073 t which is 138.2 % of the catch in 2023 (777 t). These statistics are preliminary but indicate that the catch somewhat exceeds the average over the past five years (2020-2024: 972 t). In recent years, Japanese pelagic fisheries catch striped marlin as bycatch except for coastal drift-net and part of other longline fisheries that target striped marlin seasonally. Length-composition data was collected from longline fishery. 95% of individuals measured in 2024 fall between 104 and 178 cm eye-fork length (Fig. 10).

3.5 Blue shark (Table 2-E)

The ISC SHARK WG conducted a benchmark stock assessment of blue sharks in 2022. The catch for 2016-2020 was maintained using the annual catch used in the stock assessment (Kai, 2021; Kai and Yano, 2021), and the annual catch in 2021-2023 was updated using almost the same estimation method used in the stock assessment in 2021. The total catch of blue sharks in 2022 and 2023 was estimated at 7,992 t and 9,576t, respectively. The decreasing trends in total catch since 2018 were mainly due to the decline in catches for longline fisheries but the increase in 2023 was due to the increase in fishing effort of longline fleets.

3.6 Shortfin mako (Table 2-F)

The ISC SHARK WG conducted a benchmark stock assessment of shortfin mako sharks in 2024. The annual catch for 2018-2022 of shortfin mako was maintained using the annual catch used in the stock assessment (Kai, 2023; Kai and Yano, 2023) and the annual catch in 2023 was updated using almost the same estimation method used in the stock assessment in 2024. The total catch of shortfin mako in 2022 and 2023 was estimated at 819 t and 877t, respectively. The decreasing trends in total catch since 2018 was mainly due to the decline of catches for longline fisheries and large mesh drift-net fishery, but the increase in 2023 was due to the increase in fishing effort of longline fleets.

3.7 Others (Bigeye, Skipjack and Yellowfin tunas) (Table 2-G, H and I)

Preliminary total catch of bigeye in 2024 was 11,945 t which corresponds to 94.6% of the catch in 2023 (12,622 t) and was higher than the average of past five years (2020-2024: 10,859 t). Total catch of bigeye by Japanese fisheries fluctuated between 8,000-13,000 in the last six years and longline has been the highest proportion among gears in the North Pacific.

Preliminary total catch of skipjack in 2024 was 184,379 t which corresponds to 131.0% of the catch in 2023 (140,732 t) and was higher than the average of past five years (2020-2024: 144,369 t). Most skipjack were caught by pole-and-line and purse seine in the North Pacific Ocean. Total catch of skipjack by Japanese fisheries showed no clear trend in the last six years in the North Pacific Ocean. The lower total catch in 2022 and 2023 were due to lower catch by both pole-and-line and purse seine fisheries.

Preliminary total catch of yellowfin tuna in 2024 was 25,482 t which corresponds to 83.8% of the catch in 2023 (30,374 t) and was lower than the average of past five years (2020-2024: 28,605 t).

4 RESEARCH ACTIVITIES

The Fishery Agency of Japan, in cooperation with the Fisheries Resources Institute (FRI) and local prefectural fisheries experimental stations, has run the nationwide port sampling project for collection of catch, effort and size data of tunas, skipjack, billfishes, and sharks at the major landing ports since the early 1990s. The tagging studies using conventional, archival and popup have been conducted by research and training vessels as well as commercial vessels. In addition, there were cooperative works with prefectural fisheries experimental stations and universities. Several cooperative studies were also conducted with foreign countries.

4.1 Pacific Bluefin tuna

4.1.1 bluefin tuna larvae/juveniles research cruise

Since 2011, larval surveys have been conducted to estimate current main spawning area and period of PBF. In 2024, research cruises were designed to focus on ecological studies of larval/juvenile PBF by a R/V of Fisheries Agency of Japan, Kaiyo-Maru, and R/Vs of FRA, Shunyo-Maru and Yoko-Maru. In addition, five prefectural R/Vs also conducted larval survey of PBF. Surveys for larval/juvenile PBF were conducted in the south of Japan around Nansei Islands area, where is a major spawning ground of PBF, from May to July and also in the Sea of Japan, which is another spawning ground of PBF, from July to August. In 2024, PBF larvae were captured by all cruises in the spawning grounds. Small juveniles of PBF around 2-5 cm FL were also captured in Nansei Islands area by a small surface-trawl net. Also, spawning behavior of adult PBF was observed and recorded during the cruise of Kaiyo-maru around Nansei Islands area. Collected samples are being examined by a variety of approaches such as genetic identification, aging, growth analysis, stable isotope, microchemistry and stomach contents analyses to elucidate the survival processes of larval and juvenile PBF in relation to biological and environmental factors, which should help to understand the recruitment mechanism to PBF fisheries around Japan. In addition, the yearly changes of the catch of larval PBF have been analyzed statistically to make a time-series larval abundance index, which is expected to contribute to the future stock assessment as the alternative index of spawning stock biomass (SSB).

4.1.2 Post-spawning migration of adult Pacific Bluefin tuna

There is limited information on the migration of adult PBF in the northwestern Pacific Ocean, where spawning occurs. The FRI conducted a tagging study using pop-up satellite archival transmission (PAT) tag to investigate the post-spawning migration and habitat use of PBF from the major spawning grounds of the Nansei Islands (approximately 23–31° N), Japan (Fujioka et al.

2025). The PAT tags were deployed on 15 PBF individuals (estimated fork lengths: 170–260 cm) in the late spawning season (May–June) of 2021, and tracking data were collected for 3–103 days. Four tagged PBF individuals moved > 2,500 km north to the Kuroshio-Oyashio transition region at high latitudes (40° N) in July–September, immediately after the spawning season. During this northward movement, these PBF showed a spatiotemporal change in their vertical behavior, adapting to regional thermal habitat differences. At low latitudes near the spawning grounds (23.6–29.6° N), the PBF dived to deep depths (mean: 162.8 m) to avoid the warm surface layer (mean: 28.6 °C); however, once they reached higher latitudes (36.6–44.9° N), they spent most of their time in the cool surface layer (mean: 18.5 °C; 22.3 m). Our findings suggest that adult PBF move from spawning grounds to physiologically suitable low-temperature, food-rich waters through long-distance movements, and then exhibit a habitat preference behavior characterized by repeated short-distance movements in response to the feeding environments at high latitudes.

4.1.3 *Troll survey on age-0 Pacific Bluefin tuna*

Recruitment index (standardized CPUE from the Japanese troll fishery) for current PBF stock assessment is based on the sales-slips data and terminated in 2010 fishing year in the assessment model. To have a better understanding of the recruitment status more timely and precisely than the sales-slip based index, which naturally lacked zero-catch or spatio-temporal information, the FRI commenced using a real-time monitoring survey data of troll fishery's operations in 2011. In this survey, the catch information (Number of fish by species) with its geographic position and Sea Surface Temperature (SST) are sent to the FRI in near-real time fashion using a data transmitter which was equipped on the troll vessels. Furthermore, since 2021 fishing year, IQ-independent charter real-time monitoring surveys were initiated to ensure sufficient operations in each spatial and temporal stratum, in addition to the conventional real-time monitoring.

Based on those data, the FRI reported the latest recruitment index, which informs the relative strength of the cohorts over 2011 to 2023 year classes, to the PBFWG meeting held in in December 2024 (Fukuchi et al., 2024). Totally 3,950 days operational data from 14 real-time monitoring vessels, which targeted for age-0 PBF (i.e., 40-60 cm fork length) during the winter season (November to following February) in the East China Sea were used to standardize the CPUE by Vector Autoregressive Spatio-Temporal (VAST) model formulated a delta-generalized linear mixed model. Estimated indices for 2011-2023 were quite similar to the traditional sales slip index throughout the overlapping period (2011-2016). However, there were obvious differences in the nominal CPUE between the chartered RTM operation and the conventional RTM operation. To better understand the cause of the difference between chartered RTM and conventional RTM, Fukuchi et al. (2025) reviewed the vessel tracks of the chartered operations, which were targeting PBF, to understand the characteristics of PBF targeting operations. Based on those data reviews, there could be potential contamination of the operations, which were targeting other species. Further data curation based on the objective criteria is necessary, but there is a possibility to have a more consistent recruitment index by filtering out the operations targeting other species.

4.1.4 Tissue sampling and technical development for close-kin analysis for PBF

Tissue sampling for close-kin analysis started in 2015 and around 2,000 individuals were sampled in 2024 as an annual routine. The tissues of large mature adult PBFs (about 120-300 kg in BW; Body Weight) were sampled by coastal longline fishery around Okinawa Islands in late April to early July, while those of young-of-the-year juveniles (about 0.1-0.3 kg in BW) were sampled by troll fishery during summer in the Pacific coastal water off Western Japan, such as Kochi Prefecture. The hatching area of these juveniles can be identified as the water around Nansei archipelago based on the knowledge about the migration pattern of age-0 PBF. For the other spawning ground, the Sea of Japan, young adult PBFs which are either nearly-matured or matured (about 20-60 kg in BW) were sampled in Sakai-minato in June to early July, while those of young-of-the-year juveniles were sampled in Oki islands in late September to early November. Due to the existence of multiple segregated spawning grounds for PBF stock, the juvenile samples only whose hatch ground are known were collected. All of muscle tissues sampled were preserved in specific buffer (TNES-Urea 6M buffer) because of the higher stability of content DNA under the room temperature. A part of collected (around 1,500) samples were annually analyzed and sequenced by GRAS-Di technique since 2019.

In addition to samplings and DNA sequencings, the kinship identification method was developed and published in January 2025. This method utilized the Identify-by-descent, which is the traditional genetic indicator to represent the degree of heredity between two individuals. The ability of kinship identification is equivalent to some common methods used for a lot of studies of kinship identifications, while the configuration for the software is much less than those common methods.

4.2 Sharks, billfishes and swordfish

4.2.1 Port sampling and the onboard research program in Kesennuma fishing port

In 2024, size and sex data of blue shark and shortfin mako were collected from the port sampling in Kesennuma fishing port, located in the northeastern Honshu (the main island of Japan), and the onboard research project for Kesennuma offshore longline fleet throughout the year.

In the port sampling, size data from 9,747 blue shark were collected, and 80% of individuals measured were males. In addition, 57% of males and 47% of females measured were juveniles. In the onboard research program for Kesennuma-offshore longline fleet, the catch number of blue shark was recorded by four size categories (large, middle, small, and extra small). Total of 170,340 blue sharks were recorded and large (processed weight ≥ 15 kg) consisted 56% of all catch with size categories with 24% of middle (11 kg ≤ processed weight < 15 kg), 18% of small (5 kg ≤ processed weight < 11 kg) and 2% of extra small (processed weight < 5 kg).

For shortfin mako, size data from 6,476 individuals was collected in port sampling program, and 52% of individuals measured were males. Among these sharks measured, 72% of males and 100 (99.7)% of females were juveniles. In contrast to blue shark, almost all of sampled female were juvenile in shortfin mako. Total of 9,049 shortfin mako was recorded by size category from the onboard research by Kesennuma-offshore longline fleet. Large (precaudal length > 200 cm) consisted 3% of all catch with 28% of middle (150 cm < precaudal length ≤ 200 cm), 51% of small (100 cm < precaudal length ≤ 150 cm) and 18% of extra small (precaudal length ≤ 100 cm).

4.2.2 Tagging for sharks

In 2024, conventional tags were attached to 11 blue sharks, one shortfin mako, and one bigeye thresher in the area around 30 degrees north and 171 degrees west during the research cruise of Japanese research and training vessel (JRTV). The released blue sharks were subadult and adult .

4.2.3 Biological sample collection

Samples of sagitta, reproductive organ, dorsal fin and anal fin were collected from a total of 207 swordfish, 286 striped marlin, and 11 blue marlin for the collaborative study within ISC billfish working group to estimate biological parameters of billfishes and swordfish (samples shared from US and Taiwan were not included here). For the study of genetic population structure and other ecological study, muscle tissue was collected from 163 swordfish, 185 striped marlin, and 16 blue marlins.

For sharks, samples of whole body were collected from shortfin mako and salmon shark for the biological study of life history, genetic population structure, and other ecological study. Reproductive organ, muscle, and vertebrae were collected from three adult female shortfin mako to investigate the reproductive cycle, growth, and distribution pattern.

All the samples above were collected by the research cruise (including chartered vessel) and commercial/training longline operation, and sport-fishing conducted in the North Pacific Ocean in 2024.

4.3 Skipjack

4.3.1 *Tagging for Skipjack*

The FRI has been conducting skipjack tagging research to investigate their migration patterns off Japan. FRI has collaborated with Ajinomoto Co., Inc. to conduct skipjack tagging in coastal areas of southwestern Japan. A total of 464 skipjack tuna were released including 17 individuals with archival tags (Biologging solutions Inc, LoggLaw C7-250) in October 2024. Furthermore, two prefectural research and training vessels conducted skipjack tagging in 2024 and 2025. The tagging locations were off Wakayama and Kochi. A total of 136 skipjack tuna were released including 54 individuals with archival tags (37 LoggLaw C7-250 and 17 LAT2910 (Lotek Inc.)).

4.4 Albacore

4.4.1 Tagging for Albacore

The FRI has been conducting albacore tagging research to investigate their migrations in the northwestern Pacific Ocean. In March 2025, tagging research was conducted off Wakayama; however no albacore were caught and released.

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6 TABLE

Table 1. Number of Japanese tuna fishing vessels.

A. Number of Japanese tuna fishing vessels operated in the Pacific Ocean by type of fisheries and vessel size based on MAFF (1980-2006).

	Longline fishery*1						Purse seine fishery			Pole-and-line fishery					
Year	1-19 GRT	20-49 GRT	50-99 GRT	100-199 GRT	200- GRT	Total	50-199 GRT*2	200- GRT	Total	1-19 GRT*3	20-49 GRT	50-99 GRT	100-199 GRT	200- GRT	Total
1980	821	57	715	103	645	2,341	50	16	66	3,232	14	350	10	198	3,804
1981	774	55	706	100	661	2,296	50	23	73	3,064	10	353	6	179	3,612
1982	722	43	634	90	589	2,078	52	33	85	3,011	11	320	6	138	3,486
1983	561	38	589	93	550	1,831	59	36	95	3,021	12	297	9	116	3,455
1984	523	32	538	108	610	1,811	54	33	87	2,904	8	273	10	105	3,300
1985	620	28	512	131	628	1,919	47	35	82	2,754	8	244	9	95	3,110
1986	536	25	435	168	632	1,796	53	38	91	2,455	6	224	9	91	2,785
1987	661	23	348	197	649	1,878	47	34	81	2,404	6	210	9	89	2,718
1988	586	21	289	233	649	1,778	48	39	87	2,613	5	191	11	70	2,890
1989	650	20	248	238	653	1,809	43	37	80	2,254	3	187	12	67	2,523
1990	685	21	227	241	664	1,838	43	35	78	2,228	4	176	9	66	2,483
1991	768	19	199	222	682	1,890	38	35	73	2,277	3	166	10	63	2,519
1992	793	19	164	206	681	1,863	31	38	69	2,093	3	156	11	46	2,309
1993	790	18	138	201	682	1,829	27	36	63	1,927	3	147	10	43	2,130
1994	819	21	110	198	675	1,823	23	33	56	1,830	3	124	10	48	2,015
1995	738	20	92	187	667	1,704	20	31	51	481	3	104	20	46	654
1996	711	17	91	155	640	1,614	21	32	53	512	3	89	29	43	676
1997	698	11	88	145	631	1,573	20	35	55	436	2	76	39	45	598
1998	712	11	80	129	623	1,555	20	35	55	382	2	73	40	46	543
1999	703	6	78	119	567	1,473	22	36	58	416	1	62	54	46	579
2000	732	3	76	111	496	1,418	23	37	60	357	1	56	57	47	518
2001	777	4	76	110	494	1,461	19	36	55	285	1	49	59	47	441
2002	780	4	69	110	484	1,447	18	36	54	251	1	45	58	48	403
2003	764	3	64	99	460	1,390	17	36	53	292	1	44	56	44	437
2004	702	2	55	77	455	1,291	17	36	53	284	1	38	57	43	423
2005	694	2	46	59	432	1,233	17	36	53	247	1	36	58	45	387
2006	709	1	43	54	401	1,208	16	36	52	213	1	27	58	36	335

*1 Longline vessels larger than 50 GRT include those operated in the area other than the Pacific.
*2 50-199 GRT class vessels only include those operated in the Pacific side of northern Japan.
*3 1–19 GRT class vessels before 1995 include those engaged in trolling.

B. Number of Japanese tuna fishing vessels operated in the North Pacific Ocean by type of fisheries and vessel size based on logbook. Values in 2023 and 2024 are provisional.

	Longline fishery					Purse seine fishery				Pole-and-line fishery			
Year	10-49 GRT	50-99 GRT	100-199 GRT	200- GRT	Total	50-199 GRT[*4]	200-499 GRT	500- GRT	Total	20-49 GRT	50-199 GRT	200- GRT	Total
2006	277	44	52	113	486	31	35	1	67	1	83	30	114
2007	279	42	48	89	458	34	36	1	71	1	77	29	107
2008	277	42	40	90	449	35	37	1	73	1	69	29	99
2009	277	38	33	81	429	33	36	3	72	1	68	28	97
2010	290	29	28	98	445	31	35	4	70	1	66	28	95
2011	273	24	25	99	421	33	36	4	73	0	63	28	91
2012	265	21	21	92	399	34	37	4	75	0	60	27	87
2013	260	20	23	87	390	34	37	4	75	0	55	25	80
2014	250	18	21	90	379	33	37	3	73	1	54	25	80
2015	239	18	24	80	361	30	35	5	70	1	51	24	76
2016	234	16	16	64	330	38	33	4	75	1	50	25	76
2017	233	15	15	50	313	37	34	4	75	1	48	31	80
2018	230	14	16	63	323	35	30	4	69	1	44	25	70
2019	230	13	17	51	311	35	31	5	71	1	42	24	67
2020	228	11	15	42	296	34	31	6	71	1	38	22	61
2021	204	10	17	48	279	33	29	7	69	1	36	22	59
2022	215	6	16	41	278	36	33	8	77	1	33	22	56
2023	198	6	13	38	255	36	29	9	74	1	35	20	56
2024	190	5	13	37	245	37	26	12	75	1	34	20	55

*4 50-199 GRT class vessels only include those operated in the Pacific side of northern Japan.

Table 2. Catch in weight (t) by species by fisheries in the North Pacific.

A. Pacific bluefin tuna

	Purse Seine		Dist. & Off. Longline*5		Coastal		Pole-and-			
Year	Tuna PS	Small PS	Noth Pcific	South Pacific	Long line*5	Troll	Pole-and-line	Set-net	Others*7	Total
2018	3,225	825	21	0	679	375	9	645	434	6,212
2019	3,213	1,251	25	0	977	700	0	951	370	7,488
2020	3,208	752	75	0	1,341	759	1	1,342	531	8,008
2021	3,185	1,014	80	0	1,432	661	0	1,742	513	8,626
2022	3,671	1,031	80	0	1,519	1,051	13	2,126	591	10,082
2023	3,800	770	80	0	1,477	1,171	24	1,889	602	9,811
2024 *6	4,058	556	80	0	1,470	1,370	6	1,537	649	9,726

*5: Distant-water and Offshore longline vessels are mainly 20 GRT or larger, and most of coastal longline vessels are smaller than 20 GRT.

*6: Most recent year's catch value is provisional.

*7: Others include drift net, handline, trawl, other longline, and unclassified fisheries.

B. Albacore

	Longline		Pole-and-line								
Year	Distant Water + Offshore*8	Coastal	Distant Waters	Offshore	Coastal	Drift-net	Purse seine	Troll	Set-net	Others	Total
2019	2,845	9,371	4,669	3,662	177	9	1,045	543	27	95	22,443
2020	2,443	10,251	23,802	12,578	254	7	5,961	784	25	159	56,264
2021	3,110	15,217	6,869	4,043	224	3	92	428	11	232	30,228
2022	2,450	8,583	2,234	1,770	86	31	726	216	18	159	16,273
2023	2,948	11,253	8,615	5,210	181	8	3,098	1,038	34	231	32,616
2024	(2,948)	(11,253)	(8,615)	(5,210)	(181)	(8)	(3,098)	(1,038)	(34)	(231)	(32,616)

*8 Category Distant Warter + Offshore LL includes training/research vessels

( ) different data source or carry over from previous year

C. Swordfish

	Longline								
Year	Distant Water + Offshore	Coastal	Others	Drift-net	Bait fishing	Net fishing	Trap-net	Others	Total
2019	2,593	1,189	2	242	210	0	6	339	4,582
2020	3,798	1,205	4	290	305	0	7	179	5,788
2021	2,497	807	8	301	251	0	4	270	4,137
2022	1,959	839	4	459	283	0	4	313	3,861
2023*9	3,119	1,032	1	631	225	0	4	234	5,246
2024*9	3,166	1,098	1	631	225	0	4	234	5,359

*9 Preliminary catches.

D. Striped Marlin

Year	Longline: Distant Water + Offshore	Longline: Coastal	Longline: Others	Drift-net	Bait fishing	Net fishing	Trap-net	Others	Total
2019	258	881	29	241	39	0	29	61	1,538
2020	212	836	49	155	25	0	37	32	1,347
2021	174	496	17	95	17	0	31	60	889
2022	138	363	15	138	23	0	27	71	775
2023*10	141	454	18	77	17	0	33	37	777
2024*10	245	646	18	77	17	0	33	37	1,073

*10 Preliminary catches.

E. Blue shark

Year	Longline: Distant Water	Longline: Offshore	Longline: Coastal	Longline: Others	Large mesh driftnet	Bait fishing	Trapnet	Others	Total
2018	4,081	4,608	263	159	1,236	1	40	0	10,388
2019	3,726	4,351	209	162	1,149	1	35	0	9,634
2020	3,134	3,540	213	185	1,119	2	59	1	8,252
2021	3,655	3,471	416	232	1,484	1	25	1	9,285
2022	3,685	2,396	605	215	1,062	1	27	0	7,992
2023	5,243	2,410	724	108	1,058	1	31	1	9,576

F. Shortfin mako

Year	Longline: Offshore and Distant water (Shallow set)	Longline: Offshore and Distant water (Deep set)	Coastal and other	Large mesh drift-net	Trap-net and others	Total
2018	893	83	19	223	28	1,247
2019	785	83	15	214	3	1,100
2020	488	57	4	194	16	759
2021	406	51	16	133	23	630
2022	589	23	6	161	41	819
2023	647	48	23	142	17	877

G. Bigeye

Year	Longline	Pole-and-line	Purse seine	Gillnet	Set-net	Troll	Other	Total
2019	10,937	548	1,444	1	0	110	113	13,153
2020	8,667	1,125	1,622	0	1	69	135	11,619
2021	6,680	1,576	1,548	0	3	78	81	9,966
2022	5,673	1,363	927	0	1	80	100	8,144
2023	7,757	2,918	1,656	0	2	181	108	12,622
2024	8,627	2,012	1,015	0	2	181	108	11,945

H. Skipjack

Year	Longline	Pole-and-line	Purse seine	Gillnet	Set-net	Troll	Other	Total
2019	38	73,592	84,054	96	246	1,387	110	159,523
2020	23	48,804	55,352	70	335	949	86	105,619
2021	67	84,837	82,805	144	580	2,161	148	170,742
2022	36	53,236	65,789	125	219	900	71	120,376
2023	37	70,073	67,936	67	545	1,964	110	140,732
2024	124	82,093	99,476	67	545	1,964	110	184,379

I. Yellowfin tuna

Year	Longline	Pole-and-line	Purse seine	Gillnet	Set-net	Troll	Other	Total
2019	10,424	2,930	27,039	4	208	2,070	778	43,453
2020	6,324	3,070	18,224	13	125	2,008	846	30,610
2021	6,404	3,717	17,980	7	206	2,160	767	31,241
2022	5,549	2,520	13,872	4	378	2,180	818	25,321
2023	7,915	3,005	15,669	9	766	1,960	1,050	30,374
2024	10,355	3,164	8,178	9	766	1,960	1,050	25,482

FIGURES

Longline fishery

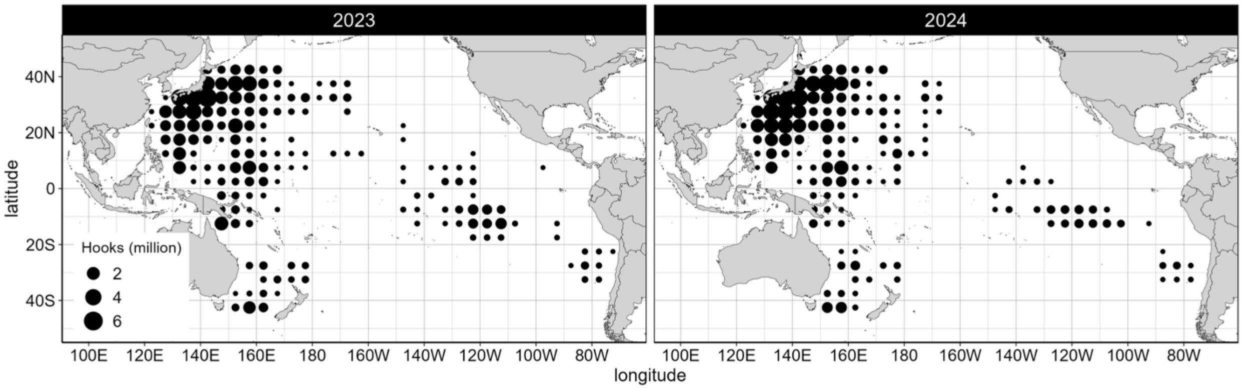

Fig 1. Distribution of fishing effort (Number of hooks) for the Japanese distant water and offshore longline fisheries in the Pacific, 2023-2024.

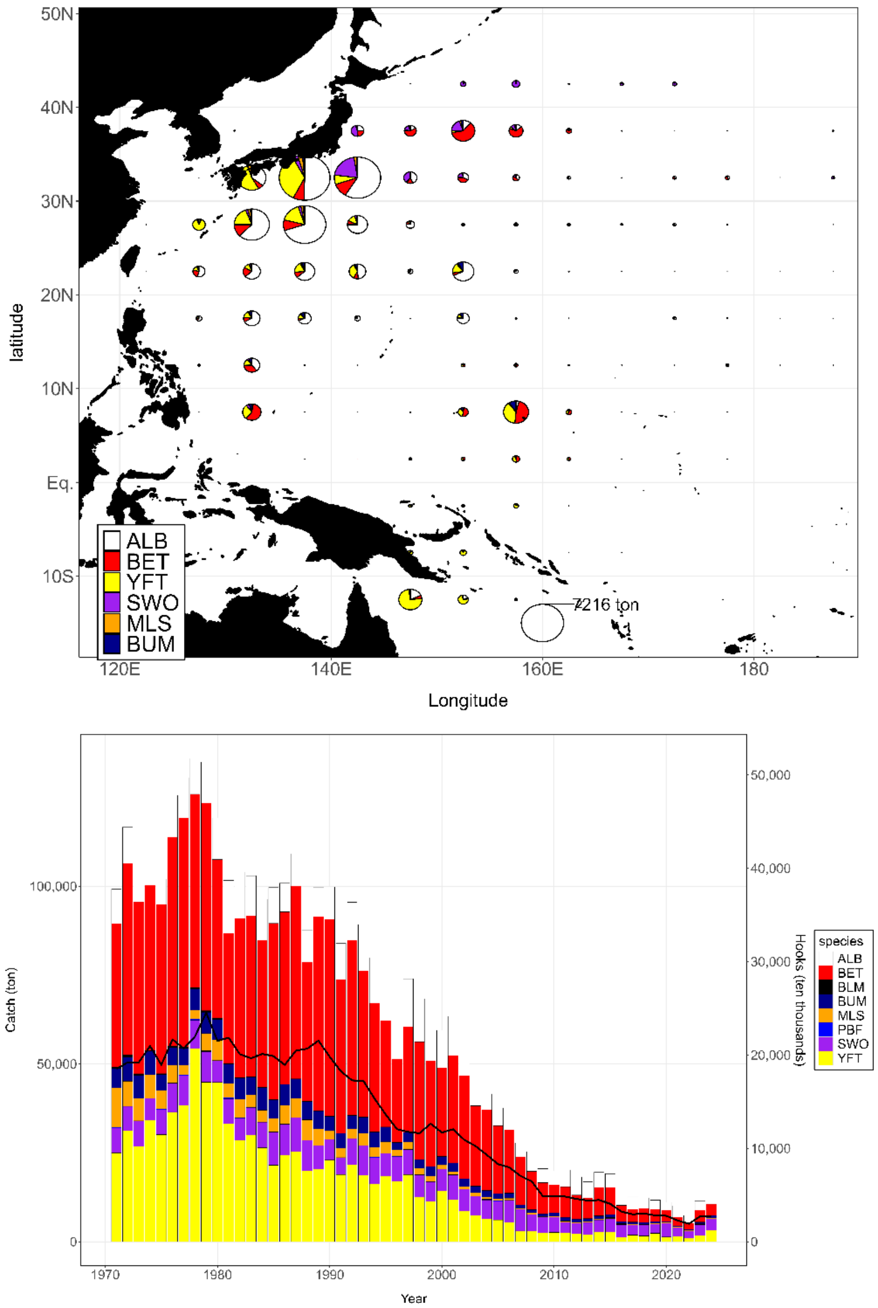

Fig 2. Average catches during 2022-2024 and historical catches in weight (t) for major species and fishing effort (Number of hooks in million) of the Japanese distant water and offshore longline fisheries (not including small offshore fishery) in the North Pacific. PBF: Pacific bluefin tuna, ALB: albacore, BET: bigeye, YFT: yellowfin tuna, SWO: swordfish, MLS: striped marlin, BUM: blue marlin, BLM: black marlin. The black solid line indicates number of hooks. Values in 2023 and 2024 are provisional.

Purse seine fishery

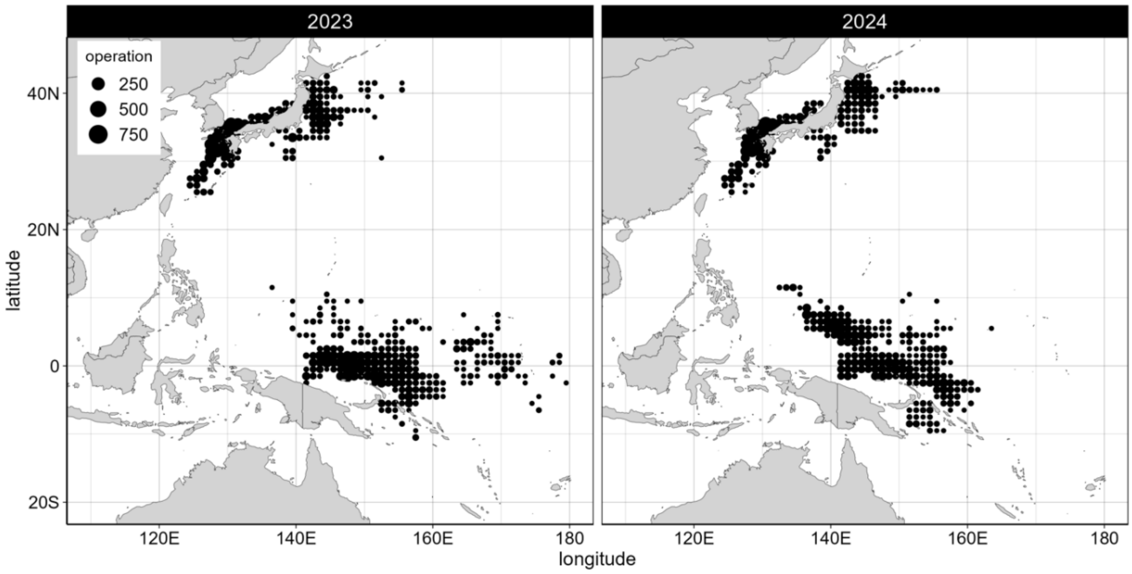

Fig 3. Distribution of fishing effort (number of sets) for the Japanese purse seine fishery in the Pacific, 2023-2024.

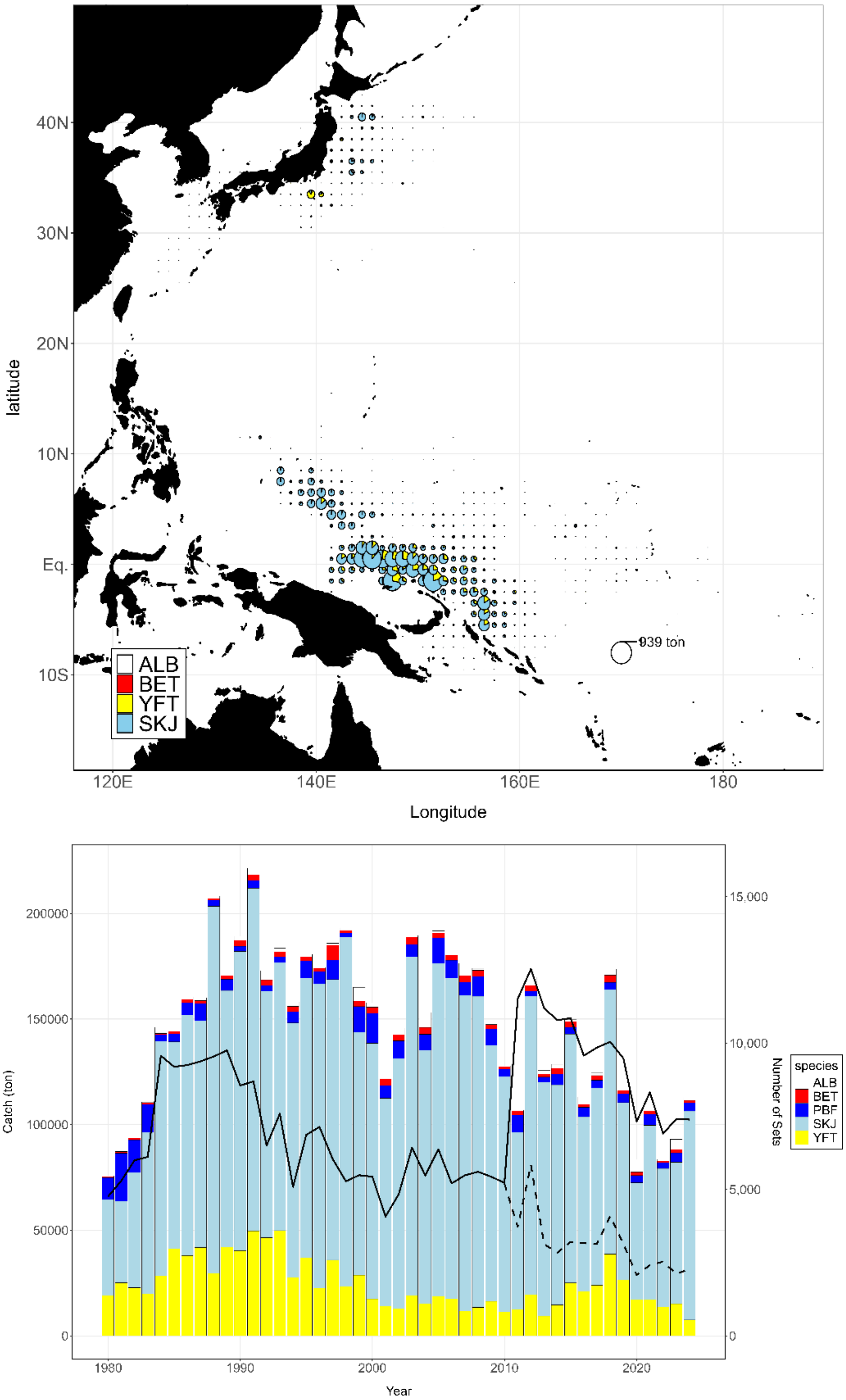

Fig 4. Average catches during 2022-2024 and historical catches in weight (t) for major species and fishing efforts (number of sets) of the Japanese purse seine fishery in the North Pacific. SKJ: skipjack, YFT: yellowfin tuna, BET: bigeye, PBF: Pacific bluefin tuna, ALB: albacore. Since 2011, Japanese logbook data has included records of purse seine operations that do not specifically target tunas. The black solid line represents the overall number of sets by target and non-target tunas. The black dashed line denotes the total number of sets by targeting vessels since 2011. The statistics for 2024 are still provisional.

Pole-and -line fishery

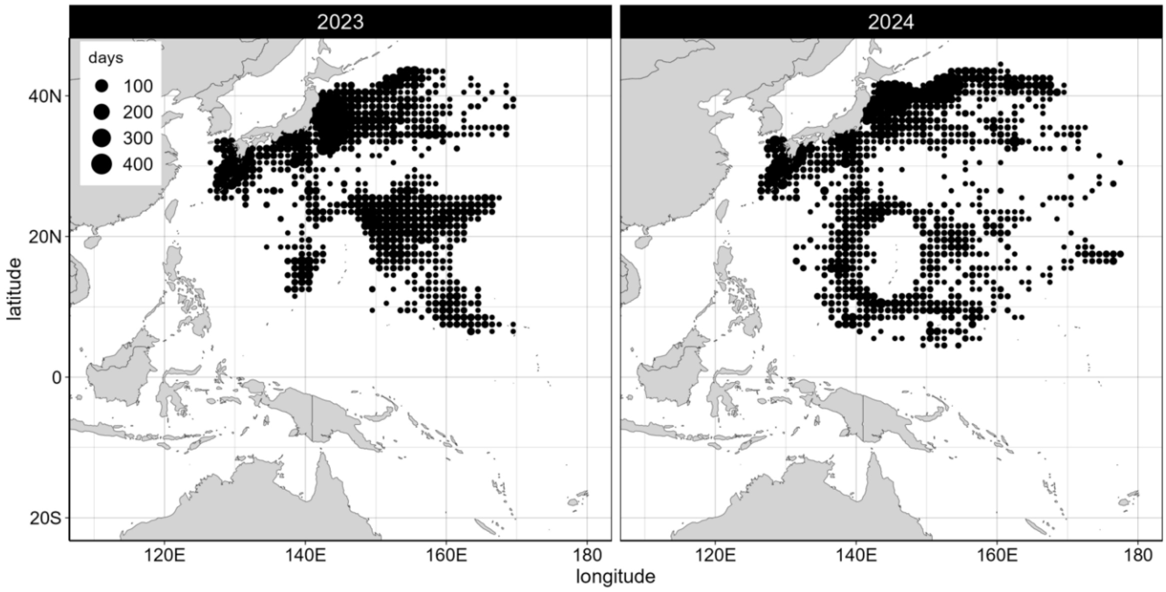

Fig 5. Distribution of fishing effort (number of days) of the Japanese pole-and-line fishery (larger than 20 GRT vessels) in the Pacific, 2023-2024. Distribution of fishing effort in 2024 is provisional (right panel).

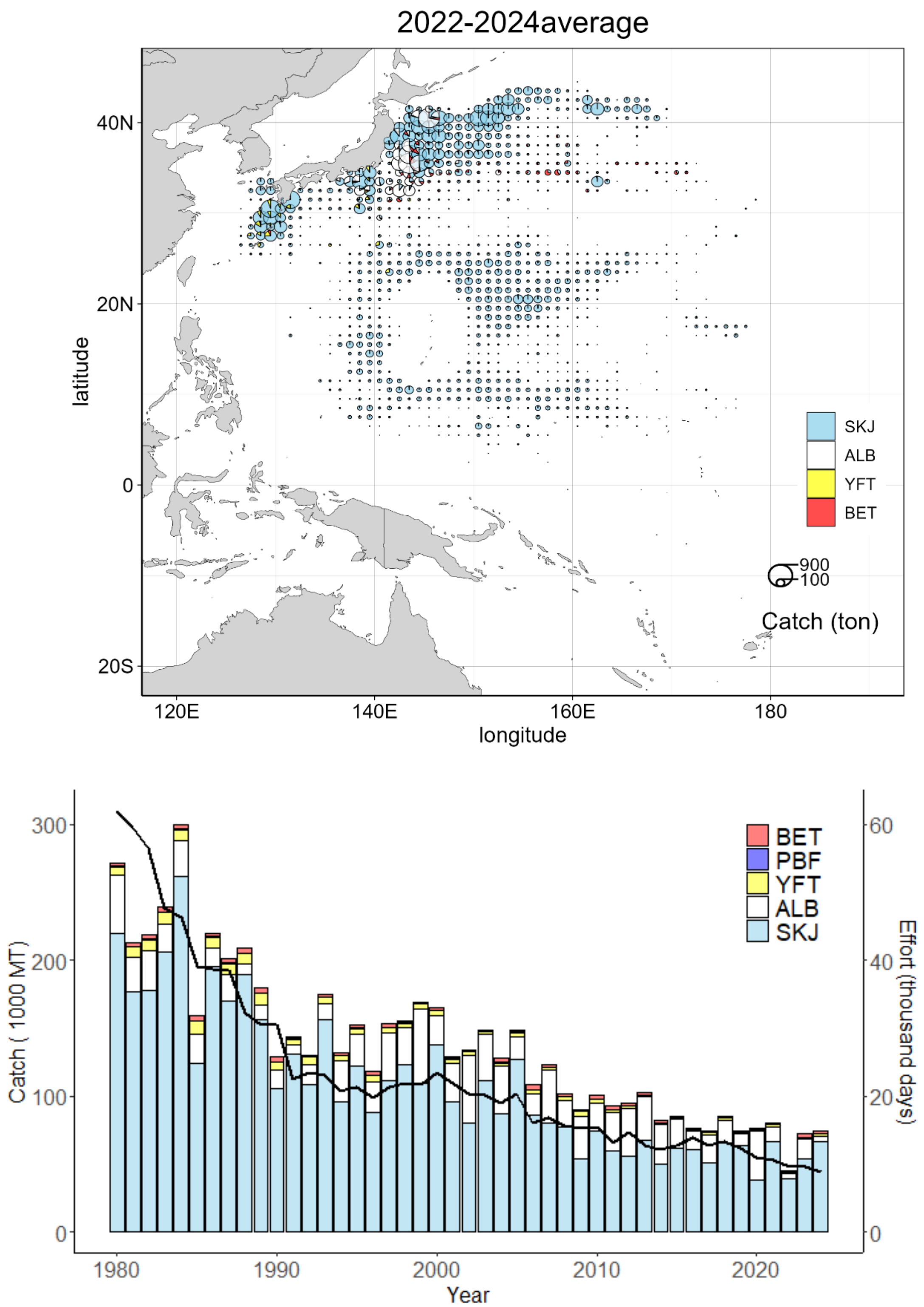

Fig.6. Average catches during 2022-2024 and historical catches in weight (t) for major species and fishing effort (Number of fishing days) of Japanese distant water and offshore fisheries in the North Pacific. SKJ: skipjack, ALB: albacore, YFT: yellowfin tuna, PBF: Pacific bluefin tuna, BET: bigeye. The catch for PBF includes the catch by coastal pole-and-line (less than 20 GRT vessels) fishery. Values in 2024 are provisional.

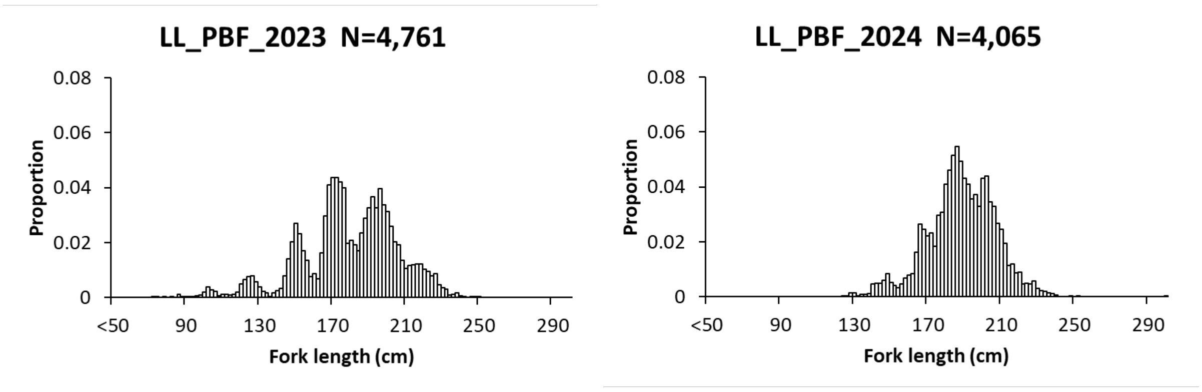

Fig.7. Annual relative length frequency distribution (simply summing up all measurements) for Pacific bluefin tuna (PBF) caught by longline in 2023 (left) and 2024 (right). Texts in each graph indicate gear, species, year, and the number of fish measured.

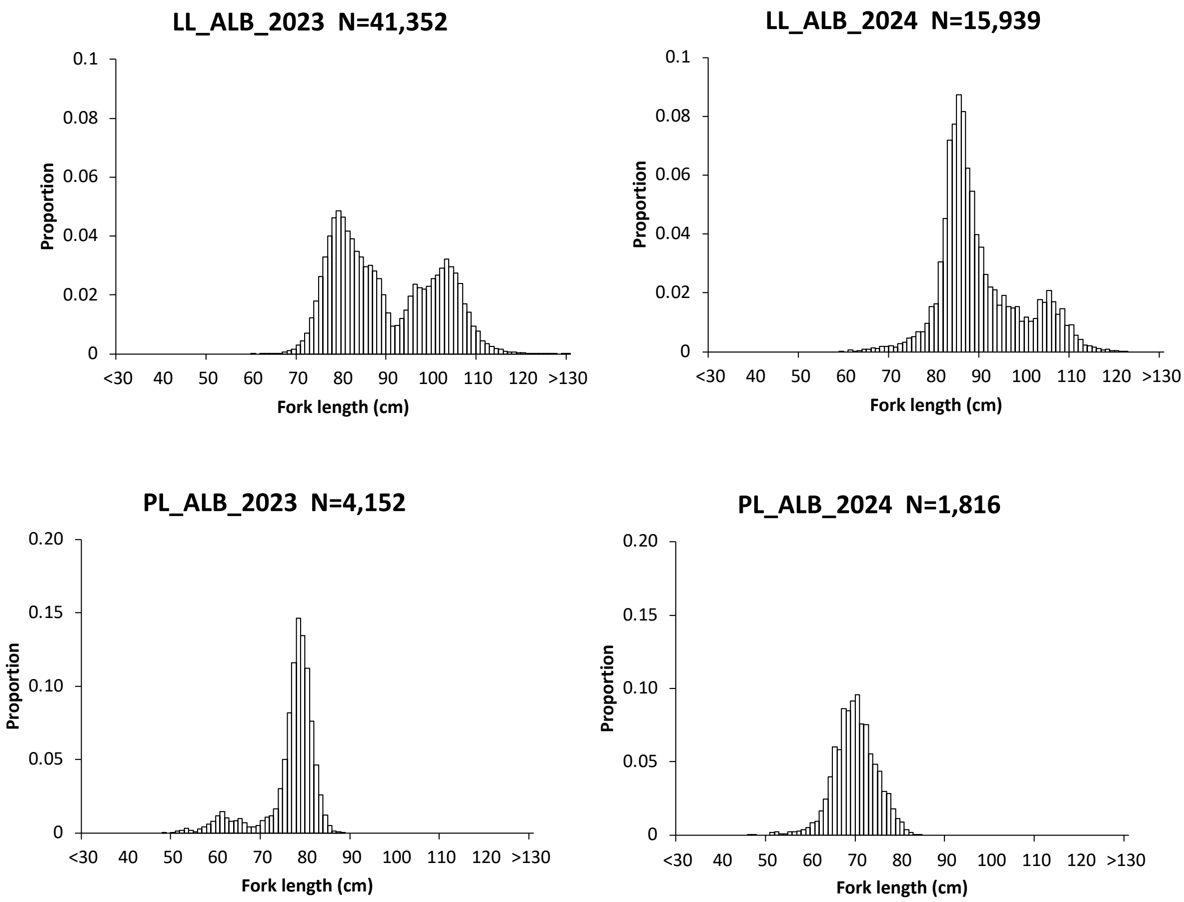

Fig.8. Annual relative length frequency distribution (simply summing up all measurements) for albacore (ALB) caught by longline (upper two panels) and pole-and-line (lower two panels) in 2023 (left) and 2024 (right). Texts in each graph indicate gear, species, year, and the number of fish measured.

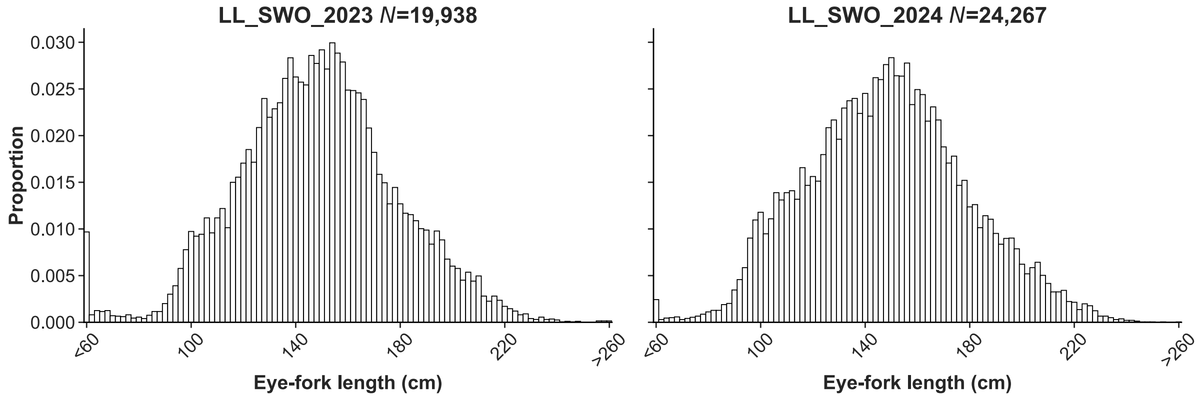

Fig.9. Annual relative length frequency distribution (simply summing up all measurements) for swordfish (SWO) caught by longline in 2023 (left) and 2024 (right). Texts in each graph indicate gear, species, year, and the number of fish measured.

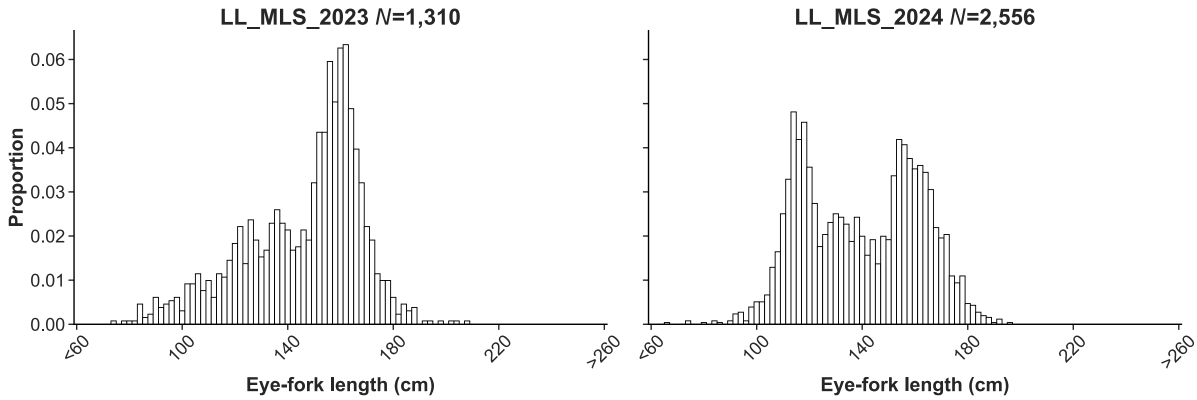

Fig.10. Annual relative length frequency distribution (simply summing up all measurements) for striped marlin (MLS) caught by longline in 2023 (left) and 2024 (right). Texts in each graph indicate gear, species, year, and the number of fish measured.