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

**WCPFC-SC17-AR/CCM-10 (Rev.02)**

**JAPAN**

# ANNUAL REPORT TO THE COMMISION
## PART1: INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

# National Tuna Fisheries Report of Japan

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|---|---|
| Scientific data was provided to the Commission in accordance with the decision relating to the provision of scientific data to the Commission by 30 April, 2021 | YES<br><br>Annual catch data, April 26.<br>Catch by EEZ data, April 26.<br>Catch and effort data, April 26.<br>Size data, April 30. |
| If no, please indicate the reason(s) and intended actions: | |

**SUMMARY**

This paper describes recent trends in the Japanese tuna and billfish fisheries, e.g., longline, pole-and-line, purse seine and other miscellaneous coastal fisheries in the WCPFC Convention Area (WCP-CA), including fleet size, catch and fishing effort statistics. During the 2015-2020, the number of Japanese commercial longline vessels shows a declining trend, and the total number of pole-and-line vessels (larger than 20 GRT) has also decreased, while the total number of purse seine vessels which are engaged in tuna fishery shows no clear trend. The total 2020 WCP-CA catch of tunas (Pacific bluefin, albacore, bigeye, yellowfin and skipjack) by the Japanese fishery was still provisional and estimated to be 257,845mt, and this is corresponding to 80% of 2019 total tunas catch (312,368mt). In 2020, the total tuna catch by the purse seine fishery was 160,680 mt (62% of the total), with 55,717 mt (22%) by the pole-and-line fishery, 33,156 mt (13%) by the longline fishery, and the remaining (3%) by the other gears. Japan has conducted several research activities in relation to biological and stock assessment studies on tunas, tuna like species and other bycatch species in the WCP-CA in 2020 and early 2021 such as several research cruises on larvae/juvenile sampling for Pacific bluefin and tropical tunas, and mitigation studies for bycatch species.

## 1. Introduction

This paper describes recent trends in the Japanese tuna and billfish fisheries, e.g., longline, pole-and-line, purse seine and the other fisheries in the WCPFC Convention Area (WCP-CA), including fleet size, catch and fishing effort statistics. With respect to the recent research activities, a brief explanation was given at section 6 of this report.

The catch statistics is given not only in WCP-CA but in the other areas, depending on species, according to the section on "Annual Catch Estimates" contained in the document "Scientific Data to be provided to the Commission". The catch estimates for bigeye, yellowfin, blue marlin, black marlin and skipjack in the portion of the WCP-CA east of the 150˚ meridian of west longitude, which is the duplicating area with IATTC, is shown in Appendix Table 1. This is requested by Attachment N of the report of the SC4. Note that there are some catches in the portion of the WCP-CA east of the 150˚ meridian of west longitude only by the distant-water and offshore longline fisheries. The catch estimates for Pacific bluefin, albacore, swordfish and striped marlin in other broad ocean areas are shown in Appendix Table 2. In addition to this, several tables which are requested by CMMs were given in the Appendix Tables.

## 2. Data source

The Fisheries Research Institute (FRI) is responsible for compiling catch and effort statistics for major fisheries (pole-and-line vessels larger than 20 GRT, longliners larger than 10 GRT, and tuna purse seiners). The other minor fisheries are referred to in the publication of the Statistics Department, Minister's Secretariat, Ministry of Agriculture, Forestry and Fisheries for 2015-2019 data (MAFFJ 2016-2020, MAFFJ 2021), and presented in this paper.

## 3. Trends in fleet size

Table 1 shows the number of Japanese tuna fishing vessels by fishery and vessel size class, which actually fished in the WCP-CA during the 2015-2020 period (coastal longline vessels were not included). As this number of active vessels is estimated based on logbook submitted, some vessels which actually operated but did not submit logbook yet were not included. The research and training vessels of longline and pole-and-line are not included.

The number of Japanese commercial longline vessels shows a declining trend, from 350 vessels in 2015 to 290 in 2020 in total. The number of vessels for each category, 11-50 GRT, 50-100 GRT, 100-200 GRT and over 200GRT, generally decreased.

The total number of pole-and-line vessels (larger than 20 GRT) has decreased during the 2015-2020. The number of vessels for category 50-200 GRT decreased from 51 in 2015 to 36 in 2020, corresponding to 39% decrease. The number of vessels for category over 200 GRT ranged from 22 to 31 without apparent trend during the period.

The total number of purse seine vessels which are engaged in tuna fishery ranged from 70 to 75 without apparent trend during the 2015-2020 period. The number of vessels of 50-200 GRT ranged from 30 to 38 without apparent trend during the period. The number of vessels of 200-500 GRT shows a decreasing trend during the period and was 30 in 2020. Note that the number of distant water purse seiners which are allowed to operate in the tropical waters in the Pacific Ocean by government regulation was 35 and has been stabilized since 1995.

## 4. Trends in catch and effort

The total 2020 WCP-CA catch of tunas (Pacific bluefin, albacore, bigeye, yellowfin and skipjack) by the Japanese fishery was still provisional and estimated to be 257,845mt, and this is corresponding to 80% of 2019 total tunas catch (312,368mt). In 2020, the total tuna catch by the purse seine fishery was 160,680 mt (62% of the total), with 55,717 mt (22%) by the pole-and-line fishery, 33,156 mt (13%) by the longline fishery, and the remaining (3%) by the other gears, whereas, in 2019, the total tuna catch by the purse seine fishery was 176,067 mt (56% of the total), with 88,302 mt (28%) by the pole-and-line fishery, 40,169 mt (13%) by the longline, and the remaining (3%) by the other gears. The following is the description of each fishery in more details including tables of their catch and effort in the WCP-CA.

### 4.1. Longline fishery

Japanese longline vessels are classified into three categories (coastal, offshore and distant water longline fisheries) according to the operation area and vessel size. Coastal longliners, whose size is 1-20 GRT, are allowed to fish only in Japan's EEZ. Offshore longline vessels are further divided into two categories, small offshore ones, 10-20 GRT, and offshore ones, 10-120 GRT, both of which are able to go beyond Japan's EEZ in the Pacific Ocean with some restricted areas in the eastern Pacific Ocean. Although the vessel size of two offshore categories is duplicated in the range of 10-20 GRT, most vessels of the latter category are larger than 50 GRT. Distant water longliners are over 120 GRT and basically can fish in all oceans but need to follow the various domestic regulations that will ensure the management measures imposed by each tuna RFMO.

Most recent statistics available are 2020 data, though the 2019 and 2020 data are still preliminary. Catches in

weight of tuna species (Pacific bluefin, albacore, yellowfin, bigeye and skipjack), swordfish and billfishes (striped marlin, blue marlin, black marlin, sailfish and shortbill spearfish) caught by the Japanese distant water and offshore (not including small offshore) longliners in the WCP-CA from 2015 to 2020 are shown in Table 2A. Historical changes in fishing effort and catch by species for this fishery are shown in Figs. 1 and 2, respectively, for the years 1971-2020. The total effort (in number of hooks) of distant water and offshore longline fisheries in all oceans decreased from 556 million hooks in 1981 to 495 million in 1983 and increased again to 557 million in 1988 after which it decreased steadily to less than 400 million since 1999. The ratio of the fishing effort exerted in the Pacific Ocean to that of the total fishing effort was about 40-50% in the latest decade. In the WCP-CA, around 60% of the total Pacific effort has been deployed since the middle of the 1980s. The fishing effort of distant water and offshore longlines in the WCP-CA was more than 200 million hooks during the 1971-1990 period, and then decreased to less than 100 million hooks in 2005, furthermore decreased to less than 50 million hooks in 2015. (Table 2A). Primary species for the longline catch are yellowfin and bigeye historically. Among the species caught, yellowfin catch was around 60,000 mt at a peak during the late 1970s and the early 1980s and has since declined continuously to about 10,000 mt or less in the recent years (Fig. 2). Bigeye catch which had been relatively stable during the 1970s and 1980s ranging between 30,000 and 50,000 mt, and then decreased to between 20,000 and 30,000 mt during the mid-1990s to early 2000s. Further, bigeye catch continued to decrease less than 20,000 mt after 2005, was less than 10,000 mt after 2009. The yellowfin catch continued to decrease since the end of 1970s. Table 2A shows fishing effort and catch by species for the distant water and offshore longline fisheries during the 2015-2020 period. The bigeye catch shows a declining trend in the recent years. The bigeye catch was 3,318 mt in 2020 which is 73% of that in the average of the previous 5 years (2015-2019). The yellowfin catch increased from 4,196 mt in 2015 to 5,987 mt in 2019 but dropped to 3,211 mt in 2020. The yellowfin catch in 2020 is 60% of that in the average of previous 5 years. (Table 2).

The average quarterly effort distribution of distant water and offshore longline vessels during the 2018-2020 is shown in Fig. 3. The fishing grounds are located in east-west direction off Japan to Hawaii, equatorial area between 10˚S and 15˚N and off Australia. Distribution patterns of the effort do not show remarkable seasonal changes, but in the overall area, the fishing effort appeared to decrease in the second quarter than in the other quarters. Distribution of the catch by species by this fleet is shown in Fig. 4. They are classified into several clear patterns, swordfish is dominant species near Japan, albacore in the middle latitudes between 15-30˚N and 25-40˚S, and tropical tuna (mostly bigeye and yellowfin) in the equatorial waters.

As for the small offshore longline fishery, catch by species in the WCP-CA during the 2015-2020 period is shown in Table 2B. The total number of hooks deployed by the small offshore longline fishery decreased from 70,546 thousand hooks in 2015 to 65,984 thousand hooks in 2019 but increased to 68,540 thousand hooks in 2020. Bigeye catch for the small offshore longline show no apparent trend in this period. The bigeye catch was 8,638 mt in 2020, which is 87% of that in the average of previous 5 years. Yellowfin catches for the small offshore longline shows an increasing trend in this period. The yellowfin catch was 4,232 mt in 2020 which is 84% of that in the average of previous 5 years. Geographical distributions of fishing efforts and catches by species by the small offshore longline fishery are shown in Figs. 5 and 6, respectively. At the area between 130˚E and 150˚E and north of 15˚N, albacore is dominant in the catch while bigeye catch is dominant from 140˚E to 160˚E and from 30˚N to 40˚N. In the south of 15˚N, bigeye and yellowfin are primary target species.

**4.2. Pole-and-line fishery**

The catch and effort statistics in the WCP-CA by the Japanese pole-and-line fishery (larger than 20 GRT in vessel size) are shown in Table 3 during the 2015-2020. In addition to this, historical changes in catch by species and effort are shown in Fig. 7 for the period of 1972-2020. The data for 2019 and 2020 are preliminary. Both the catch and effort which were at a peak around the late 1970s gradually decreased throughout 1980s. After 1991, the total catch and effort had been relatively stable until the mid-2000s, though the catch showed some fluctuations. After that, the catch decreased though the effort was relatively stable. Total annual catches which ranged from 250,000 to 300,000 mt in the 1970s and early 1980s, decreased to around 150,000 mt in the 1990s and around 100,000 mt in 2009 and 2010. Skipjack occupied a major part of catches followed by albacore and yellowfin. The number of fishing days exceeded 60,000 in the 1970s, but it is about 15,000-17,000 days from 2006 onward.

During the 2015-2020 period, the number of fishing days (including no catch days) for this fishery shows no apparent trend. The number of fishing days was 7,972 in 2020 which is 60% of that in the average of the previous 5 years. (Table 3). The total catch of tunas (skipjack, bigeye, yellowfin and albacore) in 2020 was 43,673 mt, which is 55% of that in the average of the previous 5 years. The skipjack catch was 34,527 mt in 2020, which is 56% of that in the average of the previous 5 years.

Seasonal distributions of fishing effort (fishing days in 1x1 degree area) of the pole-and-line fishery are shown in Fig 8 as the average of 2018-2020. The fishing ground in the temperate waters (north of around 25˚N) moved from southwest of Japan toward northeast as time progresses. In addition to these fishing grounds, in subtropical waters, north of the North Equatorial Current area was also the important fishing ground for this fishery in first, second, and fourth quarters of the year. In the third quarter fishing grounds off northern Japan expanded to further

east of 170˚E. There were few operations in the tropical waters south of 15˚N in the third quarter.

Typical seasonal fishing grounds by vessel type are as follows. The distant water vessels (larger than 300 GRT) fish skipjack in the tropical waters and the North Equatorial Current area from the late 4th quarter to the early 2nd quarter, and turn to north of around 35˚N, east of 150˚E where they target on albacore from June to October. The offshore vessels (smaller than 300 GRT) primarily catch skipjack, and its fishing starts at sub-tropical area east of Northern Mariana Islands in February. This fishing ground gradually moves northward, and then reaches areas just close to Japan, south and/or east of Tokyo in May and June. The fishing ground of this fleet moves further northeastward to off northern Japan 35˚N-42˚N, west of 155˚E, so-called the Tohoku area. Other than these offshore vessels, some of small sized offshore vessels operate around the Nansei Islands, southwest of Japan, with anchored FADs almost all year around. The other smaller size vessels in the offshore vessel category operate around the Izu Islands, south of Tokyo, almost all year round.

In most of the fishing grounds of the pole-and-line fishery, skipjack dominated among species, except for in some regions off north-east Japan, in which albacore dominated (Fig. 9). Most of yellowfin catch was made in the waters around the Nansei Islands located in the southern part of Japan.

**4.3. Purse seine fishery**

The catch and effort statistics in the WCP-CA by the Japanese tuna purse seine fishery (larger than 50 GRT in vessel size) are shown in Table 4 from 2015 to 2020. In addition to this, historical changes in catch by species and effort are shown in Fig. 10 for the period of 1970-2020. The data for 2020 are preliminary. The fishing effort was less than 5,000 days in the 1970s, rapidly increased in the early 1980s, then the effort fluctuated between 7,500 to 9,500 days (Fig. 10). The total catch of this fishery showed rapid increase in the early 1980s, then, gradually increased until the late 2000s. Skipjack occupied a major part of catches followed by yellowfin.

During the 2015-2020 period, the number of fishing days (including only searching) for this fishery shows a declining trend, while the number of fishing days was 5,948 in 2020 which is 103% of the that in the average of previous 5 years (Table 4). The total catch of the purse seine fishery shows a decreasing trend during the period. The total catch in 2020 was 155,091 mt which is 90% of the average of previous 5 years. Skipjack catch for this fishery was 119,047 mt in 2020, which is 90% of that in the average of the previous 5 years. Yellowfin catch for this fishery was 33,640 mt in 2020, which is 89% of that in the average of the previous 5 years.

The fishing effort (fishing and searching days) for the purse seine fishery distributed in two regions: tropical waters and northern waters. They are clearly separated by the border of 20˚N (Fig. 11). The fishing grounds in the tropical waters were developed widely between 10˚N, 130˚E and 10˚S, 180˚ with some seasonal fishing ground shifts. In the northern waters, the skipjack fishing season starts in April and continues until the third quarter in the vicinities of Japan in the Pacific Ocean. Geographical distributions of catches for skipjack, yellowfin and bigeye are shown in Fig. 12. In most regions, skipjack was the largest part of the catch among these three species in each 1˚ x 1˚ block as shown in Fig. 11.

This fishery utilizes tuna schools in association with FADs mainly in equatorial fishing grounds (Fig. 13). However, the operations for free swimming schools were dominant both in the equatorial waters and northern waters.

Number of purse seine sets that encircled cetaceans is currently being added up. According to the reports of the master of a vessel/observer, the number of cases that Japanese tuna purse seine encircled a cetacean unintentionally was 18 times.

**4.4. Other coastal fisheries**

Besides the major tuna fisheries described above, there are miscellaneous coastal fisheries, which also catch tunas and tuna like species such as troll, setnet and gillnet fisheries. The catch by species and fishery during the 2015-2020 is shown in Table 5. The figures in 2020 are preliminary.

There used to be two kinds of large-scale gillnet (driftnet) fisheries. One is a large-mesh driftnet fishery, which fished billfishes and tunas, and the other is a squid driftnet fishery, which fished flying squid. Those fisheries used to operate in the wide area of high seas in the Pacific Ocean, however, stopped the operations on the high seas of the North Pacific in January 1993 due to a UN moratorium on the use of large-scale driftnets on the high seas. After 1993, the former gillnet fishery started operating within the Japanese EEZ targeting tunas and billfishes. Swordfish, striped marlin and skipjack are primary target species in the fishing ground. The annual catch by the fishery has been less than 1,500 mt since 1993.

The troll fishery takes various pelagic species including tunas. The size of troll vessels is generally small, mostly less than 10 GRT, and they make one-day trip. All catches by the troll gear are made within territorial seas. Skipjack is very important resources for the troll fishermen in the local communities, but skipjack catch by troll along the Pacific coast in the western Japan has been very low in recent years.

The setnet (also called as “trap net”) fishery also catches pelagic species including tunas.

**4.5. Total catch for tropical tunas for all gears combined**

The total catch of tropical tunas by all gears combined, including coastal fisheries (longline, pole-and-line, troll

and other miscellaneous gears), are shown in Table 6 for 2015-2020. The data in 2019 and 2020 are preliminary. The total catch of skipjack shows a declining trend during this period from 219,457 mt in 2015 to 164,404 mt in 2020. The total catch of bigeye shows a declining trend during this period from 19,345 mt in 2015 to 13,841 mt in 2020. The total catch of yellowfin shows an increasing trend during this period from 52,193 mt in 2015 to 48,978 mt in 2020.

## 5. Status of tuna fishery data collection systems

### 5.1. Logbook data collection and verification

Longline

The owners of fishing vessels larger than or equal to 10 GRT are required to submit the log sheet on their operations and catch information to the Japanese government. Coastal, small offshore and offshore vessel must submit it by each cruise within 30 days after the end of cruise while distant water longliners are required to submit it every ten days. The log sheet of longline contains set by set data on catch number and weight in each species, and other information data such as fishing date and location, fishing effort (the number of basket and hooks used), water temperature. Catch weight information was not included in the logbook till 1993. The number of hooks per basket is essential information as it suggests the depth of the gear and target species. As tuna and tuna-like fishes, six tunas (Pacific bluefin, southern bluefin, albacore, bigeye, yellowfin and skipjack), and six billfishes (swordfish, striped marlin, blue marlin, black marlin, sailfish and shortbill spearfish) are separately recorded in the log sheets. Additionally, information on the cruise (date and port of departure and arrival of the cruise), vessel (name, size, license number and call sign), the number of crew and the configurations of the fishing gear (material of main line and branch line) are asked to fill in on the top part of the sheet by each cruise.

Submitted log sheets are processed into electronic data files. Error checks for several types of information, such as date, location, range of weight, CPUE, are conducted before these data are finalized. Vessel characteristics (call sign, name, license number, etc.) are verified with the corresponding register.

Because the coverage rate of log sheets is not necessarily 100% for longline fisheries, it is necessary to raise the sample values to represent 100 %. The coverage rate for the combined both of distant water and offshore longline fisheries (20-120 GRT, excluding 10-20 GRT vessels that operate outside of the Japanese EEZ) has been about 90 - 95% of total operation since 1994, The coverage rate by fishery category for recent years is shown in Table 7. In the case of the distant water longline fishery, information on the total number of operations aggregated by sub-areas and month provided by the fishermen's association was used to raise the log sheet data to the total catch. For the offshore longline vessels larger than 20 GRT, the total number of operations by prefecture (which the vessel belongs to) by year given by MAFFJ has been used to raise the log sheet data to the total catch. Since 2008, Vessel Monitoring System (VMS) information is utilized to raise the log sheet data. As for the small offshore longline, although reliable information of coverage rate had been available until 2007, it became possible to raise for the data of 2008 onward due to the utilize of VMS. But reliable information of coverage rate is not available for the coastal longline yet.

Since the catch in weight in log sheet is in processed weight, so that conversion factors by species are used to convert processed weight to whole weight.

An electric logbook system had been available since November 2016 for only distant water longline fishery. It allows for fishermen to fill out logbook in electric file and submit the electric file of logbook through web site to the server running by the Fishery Agency of Japan. Fishermen is moving to change from the ordinary log sheet by paper to the electric logbook system.

Pole-and-line

The license holders of the distant water pole-and-line or the offshore pole-and-line (mostly vessel larger than 20 GRT) are required to submit a log sheet on their operations and catch information to the Japanese government within 30 days after the end of cruise. The log sheets submitted to the government are forwarded to the FRI and are then compiled. Although the log sheet submission is mandate, the submission rate for the pole-and-line is not necessarily 100%. The coverage is likely to be around 80% in the beginning of the history of the pole-and-line log sheet system (1970s), but the submission rate was improved after that, to nearly 100% in 1990s. The coverage rate in Table 7 for the pole-and-line was calculated by

(Number of the vessels which submitted log sheet at least once) / (Number of vessels which actually operated).

Similar error check processes to the longline are also conducted. In case there is significant omission or errors, the NRISFS staff will contact the owner or other relevant person to obtain information to revise.

Purse seine

The logbooks of 50 – 200 GRT class and greater than 200 GRT vessels were reported when fishermen caught tuna species. The coverage of the latter class was 100 % and the reported catch by species could be verified by comparing with the landing data, which were obtained from market receipts of three major unloading ports (Yaizu,

Makurazaki, and Yamagawa).

In 2011, the reporting system from fishermen to the government was changed for the cruises for which purse seine vessels operates in the Sea of Japan or the East China Sea. Such fishermen used to submit the log sheets designed for tunas when they operated targeting tunas or submit the log sheets designed for small pelagics, such as mackerel sardines and anchovies, when they operated targeting small pelagics. The FRI used to compile the logbook data only for the tuna caught operation. After implementation of the new system, fishermen submit a single kind of log sheets regardless of target species. As a result, the logbook data used for fishing operations in the Sea of Japan or the East China Sea now have a large quantity of zero catch records of tuna, so care should be given when interpreting the fishing effort for tunas using the data coming from the new log sheets.

**5.2. Size data collection and compilation**

The FRI has collected size data for tuna and tuna like species to use for biological study and to provide to stock assessments. There are several kinds of data source for the size data such as at-sea sampling and port sampling for the fish caught by commercial fisheries and onboard sampling by training and research vessels.

5.2.1. At-sea sampling on commercial fishing vessels

Length data had been voluntarily collected for all tunas and billfishes by fishermen who were on board distant water longline vessels. Fishermen recorded the data in the field note which was provided by the FRI, and sent the field note back to the FRI after the completion of the cruise. The length data reported by the at-sea sampling was compiled on a daily basis as temporal resolution and 1˚x1˚block basis as geographical resolution and is stored in a specific database for size data for tunas and billfishes. In some cases, fishermen took measurement at an interval of 2cm or 5cm though the FRI encouraged measurement at an interval of 1cm. The length data provide from fishermen in this way is available until 2014.

5.2.2. At-sea sampling on training and research vessels

Size data is collected for not only tunas and billfishes but also all animals caught by training and research vessels using longline gears. The crew and/or students measured the length and weight of the animals retrieved on board and reported the data to the FRI. Size data is collected for skipjack (and the other species sometimes) by training and research vessels using pole-and-line gears. The crew and/or students measured the length and weight of skipjack retrieved on board and reported the data to the FRI. Size data received from training/research vessels is compiled and stored in the same manner as the at-sea sampling on commercial fishing vessels.

5.2.3. Port sampling

Port sampling is an important way to collect size data and occupies the largest percentage of size sampling which the FRI has been conducting. Measurement is done at a timing between unloading from fishing vessels and starting of auction. Samplers randomly conduct measurement in general but conduct measurement for all individuals in some cases. In general, size data collected by port sampling is compiled on a monthly basis as temporal resolution and by specific blocks of 1˚x1˚, 5˚x5˚, 5˚x10˚ or 10˚x20˚ as geographical resolutions, depending on the width of the range of fishing position at the cruise. The temporal and geographical resolution is determined by the range of each cruise in which size sampling is done based on the information in the interview with the captain or fishing master of the fishing vessel at unloading sites and/or logbook data reported by fishermen.

As a special case, skipjack unloaded as unfrozen fish is recorded in a unique way from the above even in measurements by port sampling. In most cases of measurement of such skipjack, information of the fishing dates on a daily basis and fishing positions on a minute basis (finer than 1˚x1˚ block) are recorded on the size database for skipjack, since fishing dates and fine positions can be specified by the interview.

The followings are species, types of gear/fishery and locations of sampling site for port sampling conducted in 2020.

- Size data was collected for albacore and skipjack caught by distant water pole-and-line vessels by the FRI staff at Yaizu.
- Size data was collected for skipjack caught by the middle-sized pole-and-line vessels which unload unfrozen fishes at Kesennuma by the FRI staff.
- Size data was collected for albacore, swordfish and striped marlin and sharks caught by the offshore longline and pole-and-line vessels at Kesennuma by the FRI staff.
- Size and sex data were collected for blue shark, shortfin mako, salmon shark and other species caught by offshore, small-scale offshore and coastal longline vessels and gillnet fishing vessel at Kesennuma by FRI staff. Majority of measurement was for blue shark and shortfin mako (details are described in FRI 2020). For blue shark, subsampling (about 5 individuals) was conducted for each container and shortfin mako was landed by individuals and measurement was conducted as much as possible.
- Size data was collected for Pacific bluefin caught by the vessels of most of fishing gears at most of prefectures where bluefin is unloaded under the nationwide port sampling project. Also, size data was collected for albacore,

yellowfin, bigeye and swordfish and billfishes caught by offshore and small offshore and coastal longline vessels, for skipjack caught by mid-sized pole-and-line at major landing ports under the same project.

## 6. Research activities related to tuna and tuna-like species in the WCPFC Convention Area

### 6.1. Observer program

Two kinds of national observer programs have been conducted in the WCP-CA, one for purse seiners and the other for longliners.

The observer program for purse seine boats has been implemented in the tropical Pacific Ocean since 1995. The details of time and position at each operation, type of association, and the length frequencies of samples were taken by scientific observers in each operation. After 2012, the observer program for tuna purse seiners in the vicinity of Japan's waters has been started. In 2020, the observer program for the purse seiners was temporarily suspended due to the COVID-19 pandemic.

The observer program for longliners in the WCP-CA started in 2008. The information on fishing vessels, fishing operations and almost all the catches in each operation were identified and measured as much as observer could. Six cruises of distant water and offshore longline vessels and one cruises of small offshore longline vessels were observed in the 2020 calendar year. The data from six distant water cruises and one small offshore cruise were inputted to the database and the number of operations and number of catches by species and species group are shown in Table 8.

The number of observer deployment in 2020 had also been temporarily reduced compared to pre-2019 due to COVID-19 pandemic. Therefore, it should be noted that the data reported were very small and care should be given when interpreting those data.

### 6.2. Tagging

Skipjack tagging

The FRI has been conducting skipjack tagging research mainly to investigate migration patterns to the fishing ground off Japan. One offshore pole-and-line vessel (20-119 GRT) and one distant water pole-and-line vessel (> 199 GRT) were fully chartered to conduct the research off Japan in October 2020 and in tropical areas (5°-25°N, 140°-180°E) in December 2020, respectively. A total of 10,074 skipjack tuna (2,774 off Japan and 7,300 in tropical areas) were released including 491 individuals (160 off Japan and 331 in tropical areas) with archival tags (Lotek LAT2910). In addition, skipjack tagging has been conducted in cooperation with Ajinomoto Co., Inc. in the coastal area of southwestern Japan since 2009. In 2020, however, the tagging was postponed due to the COVID-19 pandemic.

Besides above studies, five research/training cruises on pole-and-line vessels conducted skipjack tagging in 2020 around Japanese water. A total of 500 skipjack tuna including 116 individuals with archival tags were released in the south off Japan, around Izu Islands, around Hachijo Island (33˚N, 139˚E), and Wakayama (33.15˚N, 135.75˚E).

Shark tagging

In 2020, FRI and NOAA (Pacific Islands Fisheries Science Center) launched a collaborative study on the seasonal migration of blue sharks in the central North Pacific Ocean using popup satellite archival tags (PSATs). At present, five PSATs were attached to the blue sharks caught in the water near Hawaii. In another domestic research cruises, conventional tags were attached to 258 blue sharks and 21 shortfin makos.

### 6.3. Research cruise conducted

PBF larval/juvenile sampling

Since 2011, larval surveys have been conducted to estimate current main spawning area and period of PBF. In 2020, research cruises were designed to focus on ecological studies of larval/juvenile PBF by R/Vs Shunyo-Maru, Yoko-Maru, Hokko-Maru and five prefectural R/Vs. Larval surveys were conducted in the south of Japan around Nansei Islands area, where is a major spawning ground of PBF, from May to August and also in the Sea of Japan, which is another spawning ground of PBF, from July to August. In addition to these two spawning grounds, larval survey was conducted in Joban area in the coastal area of northeastern Japan in July and August. In 2020, approximately over 650 of PBF larvae were captured in the spawning grounds. Small juveniles of PBF around 2-5 cm FL were also captured in Nansei Island area and Joban area by small surface-trawl net, which size of PBF are supposed to be important to examine the recruitment process. Juvenile surveys were also conducted nursery areas in the Sea of Japan in September. Over 430 of PBF juveniles were captured in the Sea of Japan in 2020.

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.

Skipjack larval/juvenile sampling

In order to better understand the relationship between recruitment variability and growth during the early life stage of tropical tunas, a cruise was conducted with the aims to (1) describe the variations of the early life stage growth among areas and (2) describe the horizontal distribution of skipjack and the other tropical tunas. The research cruise was conducted from 6 Nov. 2020 to 23 Dec. 2020 around subtropical areas. This research cruise conducted CTD (XCTD) observations, mid-water trawl, 2-m ring plankton net and tucker trawl net tows and NORPAC. These sampling gears collected larvae and juveniles of skipjack and other tuna species as well as water to measure chlorophyll-a concentration.

Tagging research for swordfish and sharks

A research cruise was conducted from April to May 2021 using a longline fishing vessel of Den-Maru No. 37 (167 GRT), covering an area of 20º-35ºN and 137º-170ºE of the North Pacific Ocean. The objective of this research cruise was to investigate the migration and habitat use of blue shark, shortfin mako, and swordfish in the Northwestern Pacific. During the cruise, popup satellite archival tag (PSAT) was attached to one blue shark, one shortfin mako, and four swordfish and SPOT were attached to two blue sharks. In addition, character for aging (such as otolith and anal fin) and reproductive organ were collected from 55 swordfishes and 12 striped marlins (including whole body of 49 swordfishes and 10 striped marlins) in order to improve the accuracy of life history parameters (i.e., growth curve, maturity size and age etc.). Regarding sharks, muscle tissue, reproductive organ and stomach were collected from 3 blue sharks and 8 shortfin makos (whole body for 3 makos) for the use of reproductive and ecological study of these two species.

### 6.4. Bycatch species related research

Mitigation studies for seabirds

A research cruise was conducted from April to May 2021 using a longline fishing vessel of Den-Maru No. 37 (167 GRT), covering an area of 20º-35ºN and 137º-170ºE of the North Pacific Ocean. The objective of this research cruise was to investigate practical use of lure bait for bycatch mitigation and protocols of video image collection during longline operation.

The WCPFC CMM of 2015-03 became effective since January 1st, 2017, including application of tori-line for small longline vessels operated north of 23ºN. A research cruise using Hanei-Maru No. 188 was carried out in June 2021. Effectiveness of two designs of tori-line were examined in respect to aerial extent and bait-attacking behavior during the research cruise.

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FRI 2021. National Report of Japan (Japanese Tuna and Tuna-like Fisheries in the North Pacific Ocean in 2020). Submitted for 21st Meeting of the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean.

MAFFJ 2017-2020. Annual report of catch statistics on fishery and aquaculture, 2015-2018. Statistics Department, Minister's Secretariat, the Ministry of Agriculture, Forestry and Fisheries of Japan.

MAFFJ 2021. Annual report of catch statistics on fishery and aquaculture 2019, on the portal site for governmental statistics "e-Stat" (published in March 8, 2021). https://www.e-stat.go.jp/stat-search/files?page=1&layout=datalist&toukei=00500216&tstat=000001015174&cycle=7&year=20190&month=0&tclass1=000001015175&tclass2=000001148733

Table 1. Number of fishing vessels engaged in tuna fisheries in the WCPFC Convention Area by gear and size of vessel. Figures in parentheses indicate provisional data. NA indicates not available. In the number of longline vessels, coastal longliner and training/research vessels are not included. In the number of pole-and-line vessel, research and training vessels are not included.

Longline

| | 10-50 ton | 50-100 ton | 100-200 ton | 200- ton | Total |
|---|---|---|---|---|---|
| 2015 | 239 | 18 | 24 | 69 | 350 |
| 2016 | 234 | 16 | 16 | 64 | 330 |
| 2017 | 233 | 15 | 16 | 59 | 323 |
| 2018 | 229 | 14 | 16 | 63 | 322 |
| 2019 | (230) | (13) | (17) | (51) | (311) |
| 2020 | (223) | (11) | (15) | (41) | (290) |

Pole-and-line

| | 20-50 ton | 50-200 ton | 200- ton | Total |
|---|---|---|---|---|
| 2015 | 1 | 51 | 24 | 76 |
| 2016 | 1 | 50 | 25 | 76 |
| 2017 | 1 | 48 | 31 | 80 |
| 2018 | 1 | 44 | 25 | 70 |
| 2019 | (1) | (42) | (24) | (67) |
| 2020 | (1) | (36) | (22) | (59) |

Purse Seine

| | 50-200 ton | 200-500 ton | 500- ton | Total |
|---|---|---|---|---|
| 2015 | 30 | 35 | 5 | 70 |
| 2016 | 38 | 33 | 4 | 75 |
| 2017 | 37 | 34 | 4 | 75 |
| 2018 | 37 | 30 | 4 | 71 |
| 2019 | (38) | (31) | (5) | (74) |
| 2020 | (35) | (30) | (6) | (71) |

Table 2. Fishing effort (in 1000 hooks) and catch (MT) in the WCPFC Convention Area by species for the Japanese distant and offshore (top table) and small offshore (bottom table) longline fisheries. Figures in the parentheses indicate provisional data.

A. Distant water (120- GRT) and offshore (10-120 GRT) longlines

| | #hooks | PBF | ALB | BET | YFT | SWO | MLS | BUM | BLM | SFA | SSP | SKJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 45,297 | 11 | 3,907 | 5,945 | 4,196 | 3,594 | 280 | 715 | 25 | 41 | 54 | 87 |
| 2016 | 46,927 | 14 | 3,431 | 4,684 | 5,487 | 3,724 | 270 | 847 | 44 | 134 | 66 | 45 |
| 2017 | 45,882 | 21 | 3,710 | 3,867 | 5,660 | 3,066 | 181 | 804 | 53 | 72 | 55 | 64 |
| 2018 | 47,143 | 21 | 3,070 | 4,565 | 5,408 | 3,429 | 149 | 719 | 57 | 75 | 47 | 36 |
| 2019 | (43,956) | (25) | (2,906) | (3,795) | (5,987) | (2,699) | (229) | (676) | (31) | (96) | (37) | (43) |
| 2020 | (38,518) | (75) | (1,658) | (3,318) | (3,221) | (4,081) | (236) | (417) | (23) | (35) | (27) | (41) |

| | BSH | LMD | POR | SMA | OCS | THR | FAL | SPN | RHN | O-shk | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 10,270 | 642 | 1 | 642 | 0 | 44 | 0 | 1 | 0 | 0 | 30,456 |
| 2016 | 10,921 | 54 | 0 | 827 | 0 | 64 | 0 | 0 | 0 | 1 | 30,611 |
| 2017 | 10,140 | 128 | 0 | 640 | 0 | 61 | 0 | 0 | 0 | 1 | 28,525 |
| 2018 | 9,687 | 241 | 0 | 682 | 2 | 18 | 0 | 0 | 0 | 0 | 28,206 |
| 2019 | (8,711) | (151) | (0) | (674) | (0) | (35) | (0) | (0) | (0) | (0) | (26,093) |
| 2020 | (6,791) | (67) | (0) | (463) | (0) | (32) | (0) | (0) | (0) | (0) | (20,484) |

B. Small offshore longline (10-20 GRT)

| | #hooks | PBF | ALB | BET | YFT | SWO | MLS | BUM | BLM | SFA | SSP | SKJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 70,546 | - | - | 8,046 | 4,643 | 1,243 | 883 | 827 | 16 | 51 | 0 | 7 |
| 2016 | 69,360 | - | - | 6,783 | 4,679 | 2,005 | 577 | 964 | 19 | 28 | 1 | 4 |
| 2017 | 66,682 | - | - | 7,613 | 4,451 | 1,884 | 541 | 789 | 14 | 39 | 0 | 4 |
| 2018 | 65,322 | - | - | 7,461 | 4,743 | 1,732 | 471 | 769 | 14 | 47 | 0 | 3 |
| 2019 | (65,984) | - | - | (8,032) | (6,806) | (1,289) | (762) | (835) | (14) | (48) | (0) | (2) |
| 2020 | (68,540) | - | - | (6,638) | (4,232) | (1,351) | (777) | (656) | (20) | (61) | (1) | (3) |

| | BSH | LMD | POR | SMA | OCS | THR | FAL | SPN | RHN | O-shk | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 581 | 448 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 16,749 |
| 2016 | 1,036 | 1,272 | 0 | 55 | 0 | 6 | 0 | 0 | 0 | 0 | 17,428 |
| 2017 | 1,571 | 3,092 | 0 | 66 | 0 | 47 | 0 | 0 | 0 | 1 | 20,112 |
| 2018 | 2,026 | 2,287 | 0 | 88 | 0 | 31 | 0 | 0 | 0 | 0 | 19,671 |
| 2019 | (1,609) | (2,185) | (0) | (67) | (0) | (11) | (0) | (0) | (0) | (0) | (21,659) |
| 2020 | (1,045) | (1,380) | (0) | (21) | (0) | (19) | (0) | (0) | (0) | (0) | (16,206) |

* The catches for PBF and ALB are not appropriate to show here as the category "small offshore". See also Appendix Tables 2 for PBF and ALB catches by longline.

Table 3. Fishing effort (Days fished and number of poles) and catch by species (mt) for the Japanese offshore and distant water pole-and-line fishery in the WCPFC Convention Area. Figures in parentheses indicate provisional data.

| year | #days | #pole | SKJ | YFT | BET | PBF | ALB | Total |
|---|---|---|---|---|---|---|---|---|
| 2015 | 12,806 | 243,353 | 63,152 | 1,261 | 6 | - | 21,208 | 85,627 |
| 2016 | 14,126 | 258,159 | 61,921 | 1,667 | 26 | - | 14,402 | 78,016 |
| 2017 | 12,913 | 236,713 | 52,255 | 1,747 | 85 | - | 20,861 | 74,947 |
| 2018 | 13,445 | 249,145 | 65,740 | 1,577 | 8 | - | 17,756 | 85,081 |
| 2019 | (12,663) | (233,758) | (66,960) | (1,360) | (2) | - | (8,331) | (76,652) |
| 2020 | (7,972) | (142,052) | (34,527) | (773) | (18) | - | (8,355) | (43,672) |

* PBF catches for offshore and distant water pole-and-line were not estimated separately. See also Appendix Table 2 to see statistics for PBF catch.

Table 4. Fishing days including searching days and catch (mt) by species for the Japanese tuna purse seine fishery in the WCPFC Convention Area based on logbook data.

| | #days | SKJ | YFT | BET | PBF* | ALB | Total |
|---|---|---|---|---|---|---|---|
| 2015 | 5,743 | 146,375 | 35,499 | 3,970 | - | - | 185,844 |
| 2016 | 6,355 | 126,400 | 38,073 | 2,116 | - | - | 166,589 |
| 2017 | 6,083 | 128,122 | 34,475 | 2,645 | - | - | 165,242 |
| 2018 | 5,232 | 132,838 | 40,673 | 3,626 | - | - | 177,137 |
| 2019 | 5,532 | 128,082 | 39,767 | 2,125 | - | - | 169,974 |
| 2020 | (5,948) | (119,047) | (33,640) | (2,404) | - | - | (155,091) |

* PBF and ALB catches for tuna purse seine were not estimated separately. See also Appendix Table 2 to see statistics for PBF and ALB catches.

Table 5. Japanese catches (mt) for miscellaneous coastal fisheries by species and gear in the WCPFC Convention Area. Figures in parentheses indicate provisional data. SKJ: skipjack tuna, YFT: yellowfin tuna, BET: bigeye tuna, PBF: Pacific bluefin tuna, ALB: albacore. SWO: swordfish, MLS: striped marlin, BLZ: blue marlin, BLM: black marlin. Figures in parentheses indicate provisional data.

Coastal longline

| | SKJ | YFT | BET | PBF* | ALB* | SWO | MLS | BUM+BLM | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2015 | 11 | 1,765 | 343 | - | - | 100 | 248 | 130 | 2,597 |
| 2016 | 4 | 2,018 | 280 | - | - | 89 | 201 | 113 | 2,705 |
| 2017 | 6 | 1,666 | 291 | - | - | 91 | 223 | 83 | 2,360 |
| 2018 | 6 | 1,611 | 298 | - | - | 69 | 240 | 83 | 2,307 |
| 2019 | 3 | 1,987 | 298 | - | - | 54 | 222 | 84 | 2,648 |
| 2020 | (3) | (1,987) | (298) | - | - | (54) | (222) | (84) | (2,648) |

Coastal pole-and-line

| | SKJ | YFT | BET | PBF* | ALB | Total |
|---|---|---|---|---|---|---|
| 2015 | 8,251 | 1,710 | 165 | - | 86 | 10,212 |
| 2016 | 8,438 | 1,554 | 63 | - | 33 | 10,088 |
| 2017 | 10,441 | 1,456 | 203 | - | 30 | 12,130 |
| 2018 | 13,418 | 1,942 | 156 | - | 119 | 15,635 |
| 2019 | 9,343 | 1,583 | 118 | - | 177 | 11,221 |
| 2020 | (9,343) | (1,583) | (118) | - | (177) | (15,635) |

Coastal purse seine

| | SKJ | YFT | BET | PBF* | ALB | Total |
|---|---|---|---|---|---|---|
| 2015 | 18 | 439 | 0 | - | 4 | 461 |
| 2016 | 62 | 342 | 2 | - | 3 | 409 |
| 2017 | 467 | 376 | 1 | - | 17 | 861 |
| 2018 | 57 | 144 | 0 | - | 2 | 203 |
| 2019 | 102 | 482 | 0 | - | 274 | 858 |
| 2020 | (102) | (482) | (0) | - | (274) | (858) |

Gillnet

| | SKJ | YFT | BET | PBF* | ALB | Total |
|---|---|---|---|---|---|---|
| 2015 | 119 | 12 | 4 | - | 138 | 273 |
| 2016 | 111 | 16 | 0 | - | 19 | 146 |
| 2017 | 61 | 7 | 1 | - | 40 | 109 |
| 2018 | 91 | 6 | 1 | - | 35 | 133 |
| 2019 | 96 | 4 | 1 | - | 9 | 110 |
| 2020 | (96) | (4) | (1) | - | (9) | (110) |

Troll

| | SKJ | YFT | BET | PBF | ALB | Total |
|---|---|---|---|---|---|---|
| 2015 | 1,238 | 2,014 | 140 | 413 | 239 | 4,044 |
| 2016 | 1,642 | 2,250 | 87 | 778 | 148 | 4,905 |
| 2017 | 1,615 | 1,877 | 119 | 605 | 107 | 4,323 |
| 2018 | 1,154 | 1,738 | 80 | 371 | 78 | 3,421 |
| 2019 | 1,387 | 2,070 | 110 | 720 | 543 | 4,828 |
| 2020 | (1,387) | (2,070) | (110) | (760) | (543) | (4,845) |

Setnet

| | SKJ | YFT | BET | PBF | ALB | Total |
|---|---|---|---|---|---|---|
| 2015 | 153 | 56 | 3 | 1,242 | 17 | 1,471 |
| 2016 | 264 | 120 | 1 | 1,228 | 28 | 1,641 |
| 2017 | 401 | 135 | 0 | 2,221 | 48 | 2,805 |
| 2018 | 494 | 77 | 0 | 645 | 13 | 1,229 |
| 2019 | 246 | 208 | 0 | 941 | 27 | 1,422 |
| 2020 | (246) | (208) | (0) | (1,234) | (27) | (1,693) |

* PBF catches for coastal longline, coastal pole-and-line, coastal purse seine and gillnet were not estimated separately. See also Appendix Table 2 to see statistics for PBF catch. ALB catches for coastal longline was not estimated separately. See also Appendix Table 2 to see statistics for ALB catch.

Table 6. Japanese catches (mt) for tropical tuna species by gear in the WCPFC Convention Area. Figures in parentheses indicate provisional data. LL: longline, PL: pole-and-line, PS: purse seine.

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|
| Skipjack | | | | | | |
| Total | 219,457 | 198,943 | 193,517 | 213,969 | (206,372) | (164,904) |
| Distant water and Offshore LL | 87 | 45 | 64 | 36 | (43) | (41) |
| Distant water and Offshore PL | 63,152 | 61,921 | 52,255 | 65,740 | (66,960) | (34,527) |
| Tuna PS | 146,375 | 126,400 | 128,122 | 132,838 | 128,082 | (119,047) |
| Small offshore LL | 7 | 4 | 4 | 3 | (2) | (3) |
| Coastal LL | 11 | 4 | 6 | 6 | 3 | (3) |
| Coastal PL | 8,251 | 8,438 | 10,441 | 13,418 | 9,343 | (9,343) |
| Coastal PS | 18 | 62 | 467 | 57 | 102 | (102) |
| Gill net | 119 | 111 | 61 | 91 | 96 | (96) |
| Troll | 1,238 | 1,642 | 1,615 | 1,154 | 1,387 | (1,387) |
| Set net | 153 | 264 | 401 | 494 | 246 | (246) |
| Unclassified | 46 | 53 | 81 | 133 | 110 | (110) |
| Yellowfin | | | | | | |
| Total | 52,193 | 57,012 | 52,540 | 58,506 | (61,031) | (48,978) |
| Distant water and Offshore LL | 4,196 | 5,487 | 5,660 | 5,408 | (5,987) | (3,221) |
| Distant water and Offshore PL | 1,261 | 1,667 | 1,747 | 1,577 | (1,360) | (773) |
| Tuna PS | 35,499 | 38,073 | 34,475 | 40,673 | 39,767 | (33,640) |
| Small offshore LL | 4,643 | 4,679 | 4,451 | 4,743 | (6,806) | (4,232) |
| Coastal LL | 1,765 | 2,018 | 1,666 | 1,611 | 1,987 | (1,987) |
| Coastal PL | 1,710 | 1,554 | 1,456 | 1,942 | 1,583 | (1,583) |
| Coastal PS | 439 | 342 | 376 | 144 | 482 | (482) |
| Gill net | 12 | 16 | 7 | 6 | 4 | (4) |
| Troll | 2,014 | 2,250 | 1,877 | 1,738 | 2,070 | (2,070) |
| Set net | 56 | 120 | 135 | 77 | 208 | (208) |
| Unclassified | 599 | 806 | 690 | 587 | 778 | (778) |
| Bigeye | | | | | | |
| Total | 19,345 | 15,074 | 16,069 | 17,546 | (15,022) | (13,841) |
| Distant water and Offshore LL | 5,945 | 4,684 | 3,867 | 4,565 | (3,795) | (3,318) |
| Distant water and Offshore PL | 615 | 949 | 1,241 | 1,276 | (431) | (841) |
| Tuna PS | 3,970 | 2,116 | 2,645 | 3,626 | 2,125 | (2,404) |
| Small offshore LL | 8,046 | 6,783 | 7,613 | 7,461 | (8,032) | (6,638) |
| Coastal LL | 343 | 280 | 291 | 298 | 298 | (298) |
| Coastal PL | 165 | 63 | 203 | 156 | 118 | (118) |
| Coastal PS | 0 | 2 | 1 | 0 | 0 | (0) |
| Gill net | 4 | 0 | 1 | 1 | 1 | (1) |
| Troll | 140 | 87 | 119 | 80 | 110 | (110) |
| Set net | 3 | 1 | 0 | 0 | 0 | (0) |
| Unclassified | 114 | 109 | 89 | 84 | 113 | (113) |

Table 7. Coverage rate of logbook for longline, pole-and-line and Purse seine fisheries. The calculation methods among fishery are not the same. N/A indicates not available.

| Type of fishery | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|
| Distant water longline | 100% | 100% | 100% | 100% | 100% | 97% |
| Offshore longline | 96% | 96% | 96% | 97% | 92% | 85% |
| Small offshore longline | 90% | 93% | 88% | 87% | 88% | 72% |
| Coastal longline | N/A | N/A | N/A | N/A | N/A | N/A |
| Offshore pole-and-line (20-120 GRT) | 100% | 100% | 100% | 100% | 100% | 100% |
| Distant water pole-and-line (over 120 GRT) | 100% | 100% | 100% | 100% | 100% | 100% |
| Purse seine (>200GRT) | 100% | 100% | 100% | 100% | 100% | 100% |

Table 8. Number of operations and catch number for longline observer program in the western central Pacific in 2020.

| Fishery | Small offshore longline | Distant water and offshore longline |
|---|---|---|
| Number of Cruises | 6 | 1 |
| Number of Operation | 51 | 121 |
| Number of Catch Observed | 91,291 | 338,322 |
| Catch by species | | |
| Albacore | 874 | 6385 |
| Yellowfin tuna | 151 | 294 |
| Southern bluefin tuna | 0 | 1377 |
| Bigeye tuna | 413 | 411 |
| Pacific bluefin tuna | 0 | 0 |
| Skipjack tuna | 23 | 382 |
| Sailfish | 3 | 1 |
| Black marlin | 0 | 0 |
| Blue marlin | 6 | 1 |
| Shortbill spearfish | 3 | 31 |
| Striped marlin | 9 | 21 |
| Swordfish | 42 | 52 |
| Lancetfishes | 306 | 211 |
| Opah | 24 | 266 |
| Pomfrets | 121 | 74 |
| Dolphinfishes | 5 | 14 |
| Escolar | 69 | 133 |
| Other fish | 44 | 110 |
| Thresher sharks | 47 | 8 |
| Shortfin mako | 9 | 36 |
| Blue shark | 201 | 636 |
| Other sharks | 21 | 159 |
| Stingray | 56 | 110 |
| Other rays | 0 | 0 |
| Seabirds | 30 | 13 |
| Sea turtles | 1 | 0 |
| Mammals | 3 | 0 |

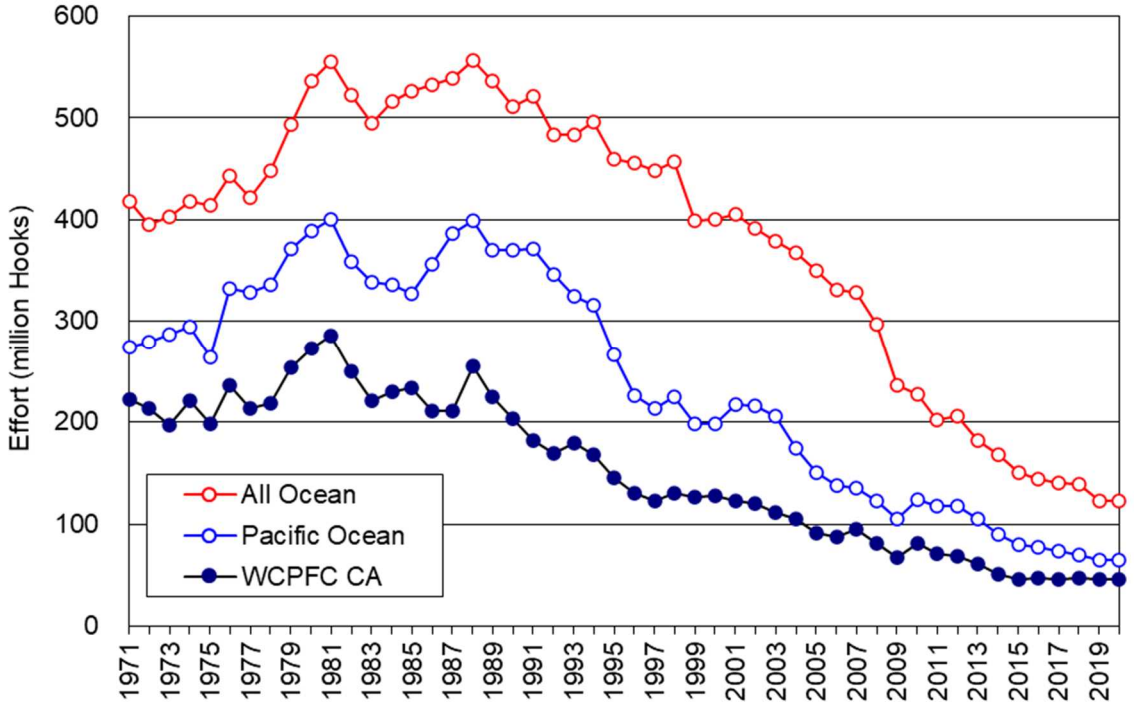


Fig. 1. Historical change in fishing effort of the Japanese distant water and offshore longline fishery (not including small offshore) in the WCPFC Convention Area. Values in 2019 and 2020 are provisional.

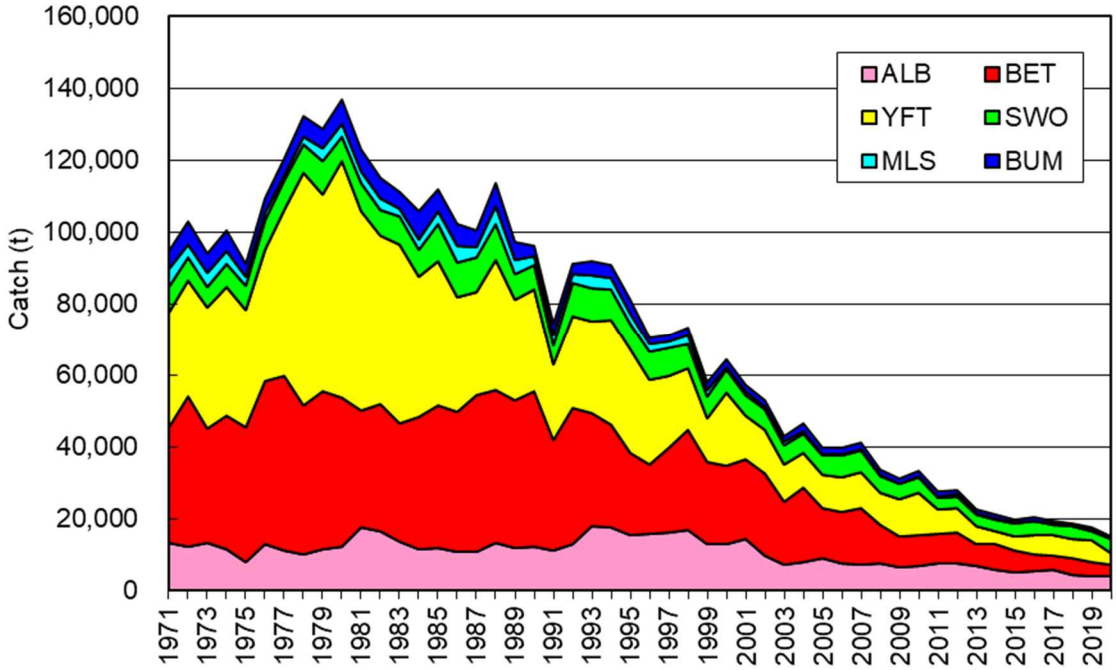


Fig. 2. Historical change of catches for major species for the Japanese distant water and offshore longline fishery (not including small offshore) in the WCPFC Convention Area. ALB: albacore, BET: bigeye, YFT: yellowfin, SWO: sword fish, MLS: striped marlin, BUM: blue marlin. Values in 2019 and 2020 are provisional.

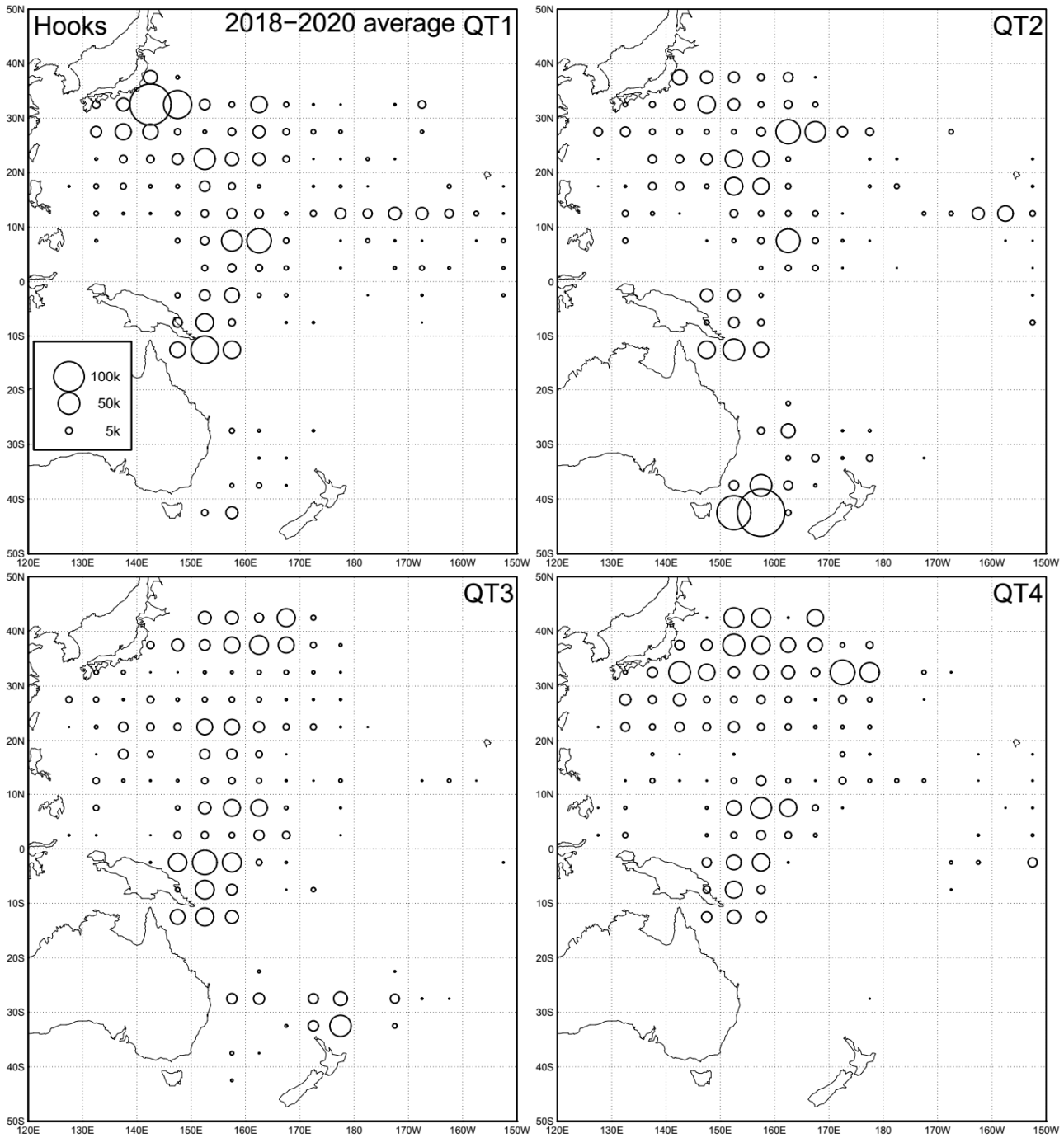


Fig. 3. Quarterly distribution of fishing effort for the Japanese offshore and distant water longline fisheries in the western and central Pacific Ocean in average of 2018-2020.

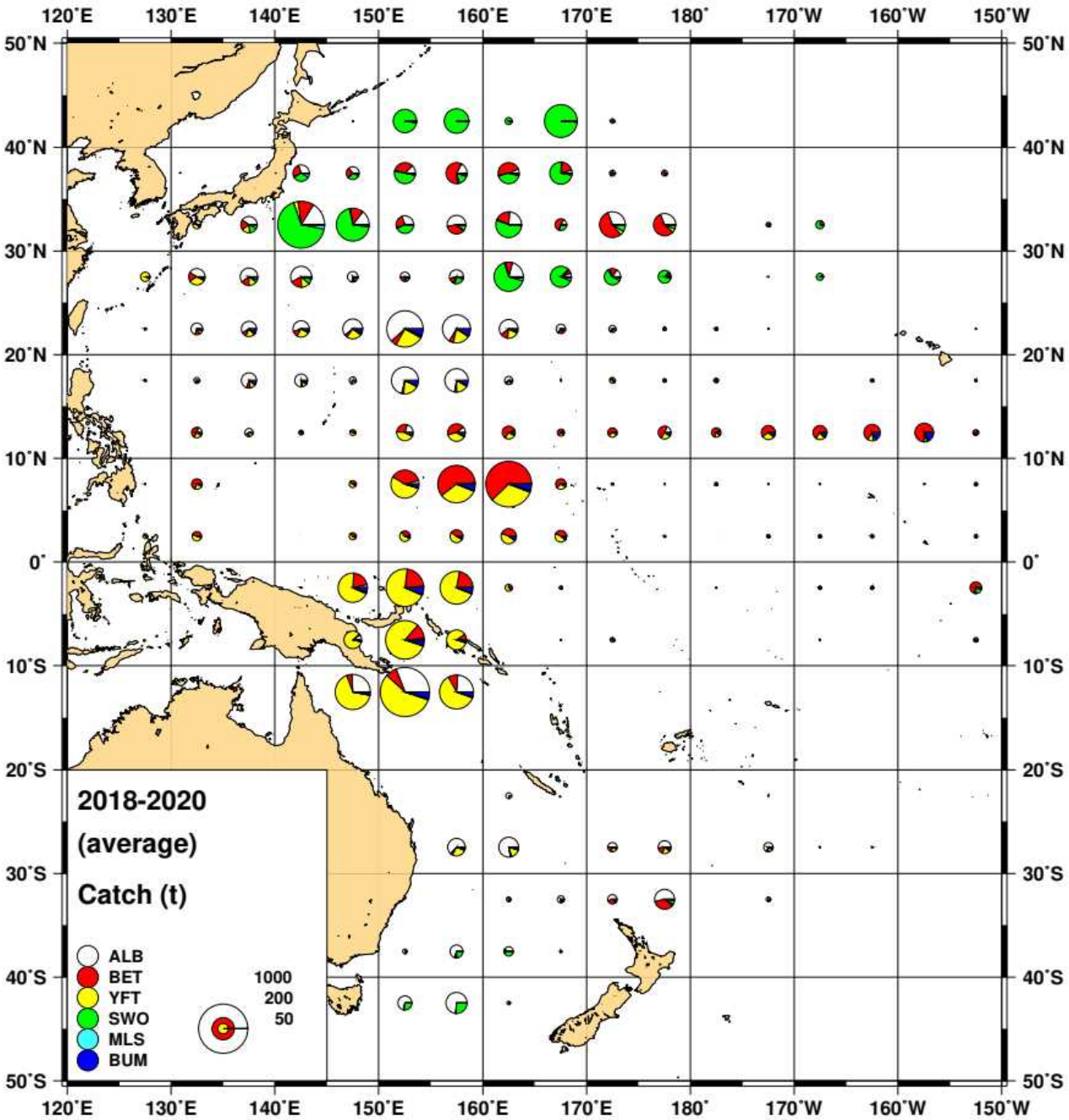


Fig. 4. Distributions of offshore and distant water longline catch (in weight) by species in average of 2018-2020 for six main species (ALB: albacore, BET: bigeye tuna, YFT: yellowfin tuna, SWO: swordfish, MLS: striped marlin and BUM: blue marlin).

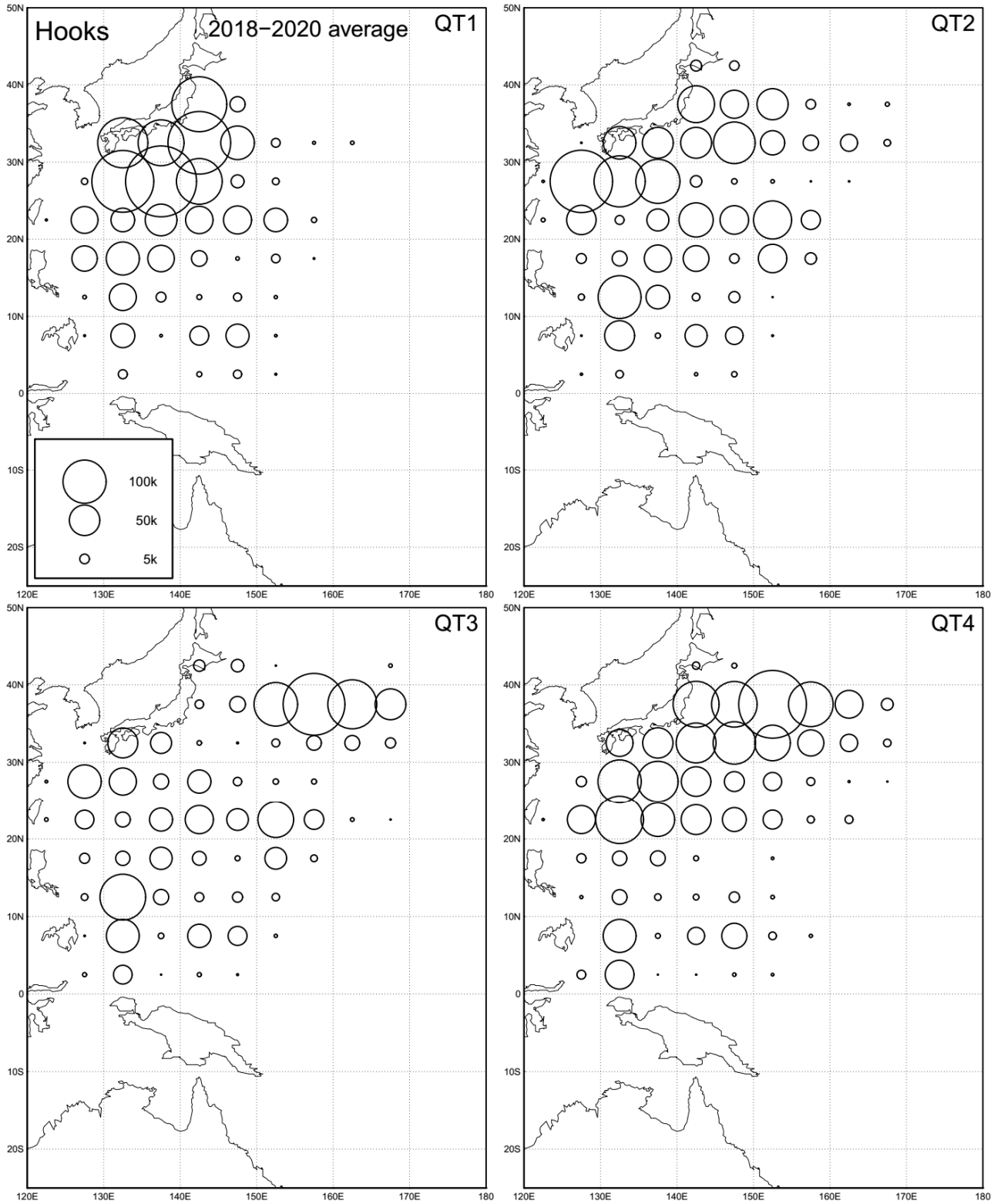


Fig. 5. Quarterly distribution of fishing effort for the Japanese small offshore longline fishery (10- 20 GRT) in the western and central Pacific Ocean in average of 2018-2020.

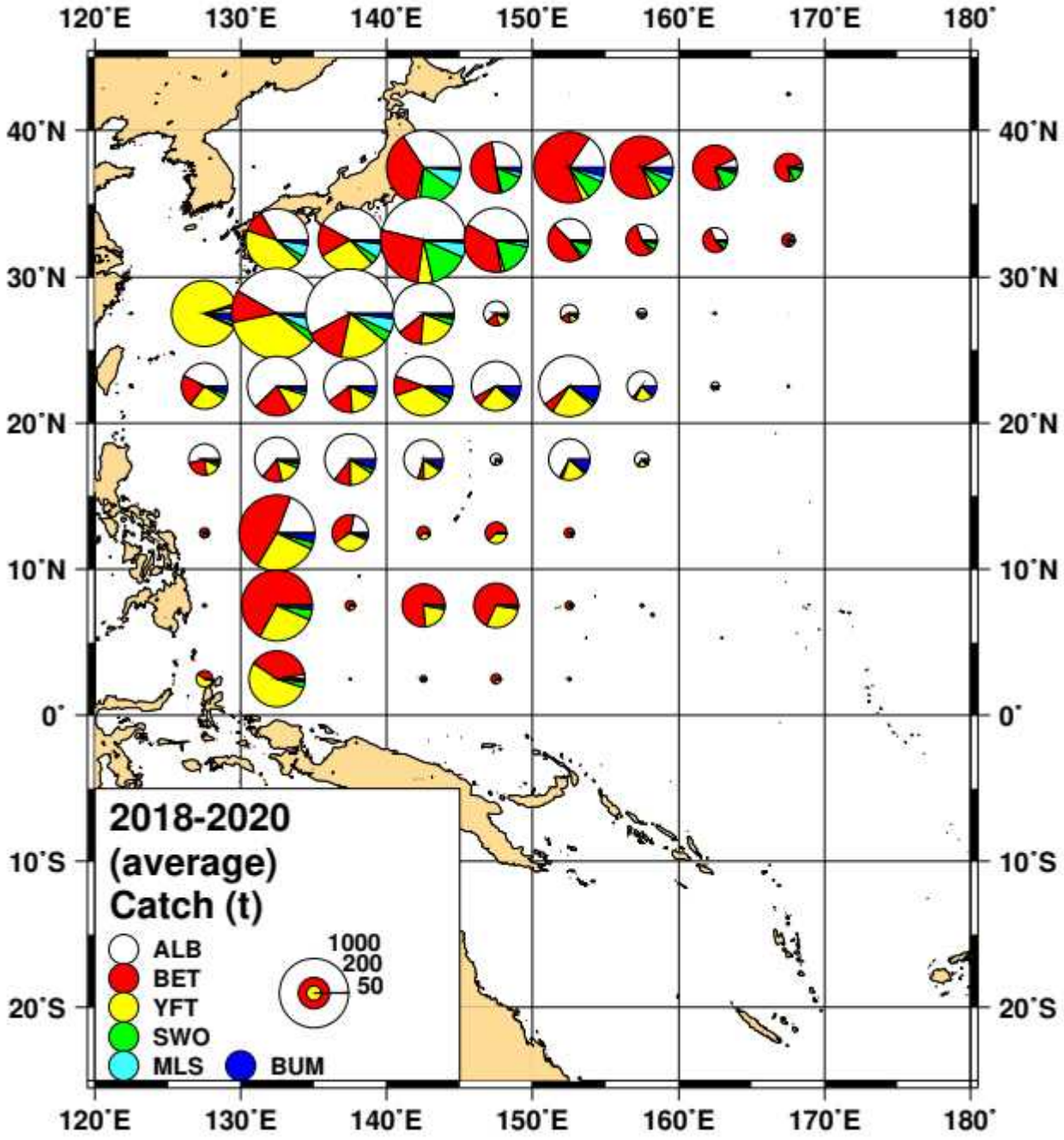


Fig. 6. Distributions of small offshore longline catch (in weight) by species in average of 2018-2020 for six main species (ALB: albacore, BET: bigeye tuna, YFT: yellowfin tuna, SWO: swordfish, MLS: striped marlin and BUM: blue marlin).

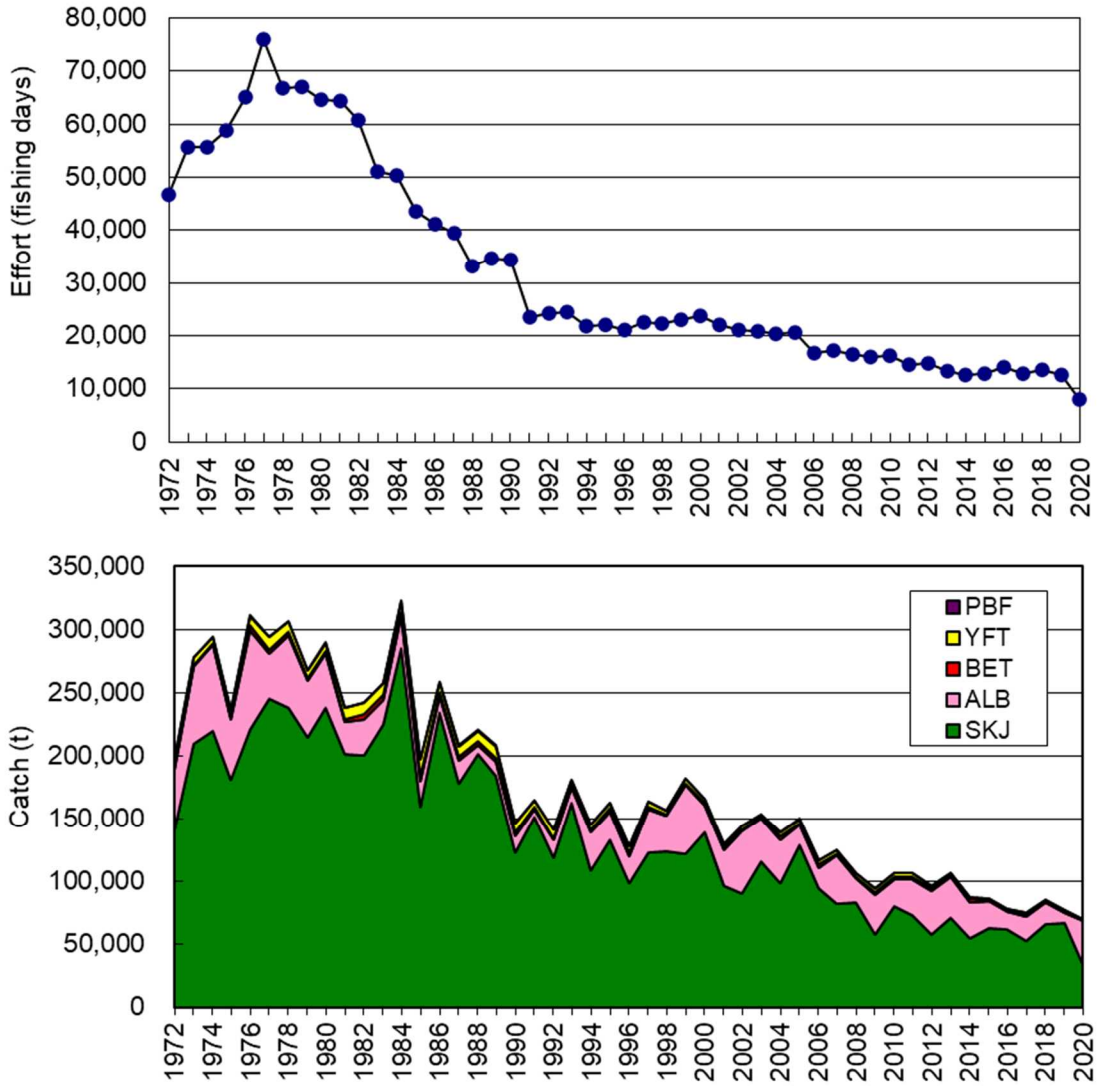


Fig. 7. Historical change of fishing effort and catches by species for the Japanese pole-and-line fishery (>20GRT) in the WCPFC Convention Area. Values in 2019 and 2020 are provisional.

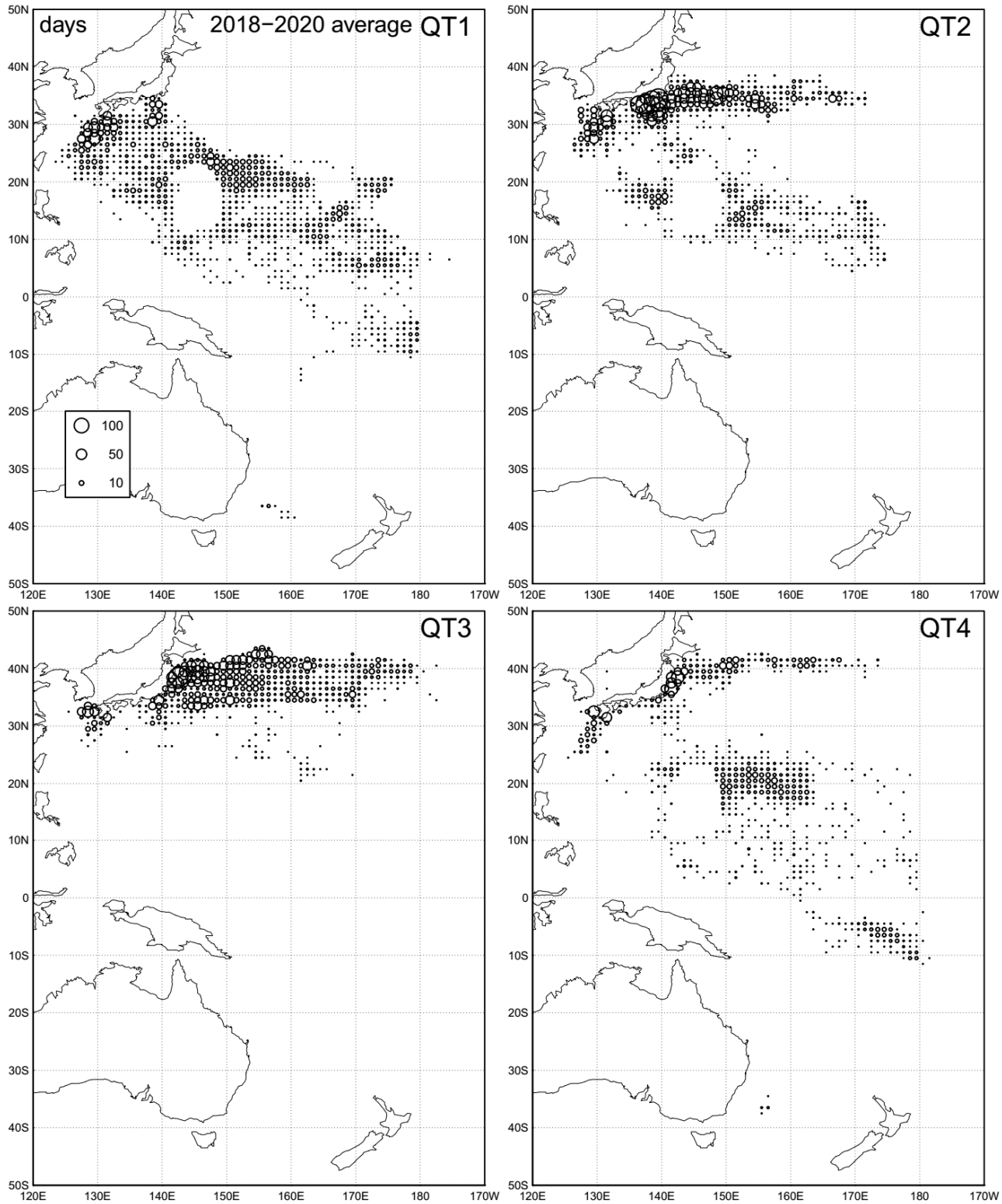


Fig. 8. Quarterly distribution of fishing effort (days) for the Japanese pole-and-line fishery (offshore and distant water licenses) in the Pacific Ocean in average of 2018-2020.

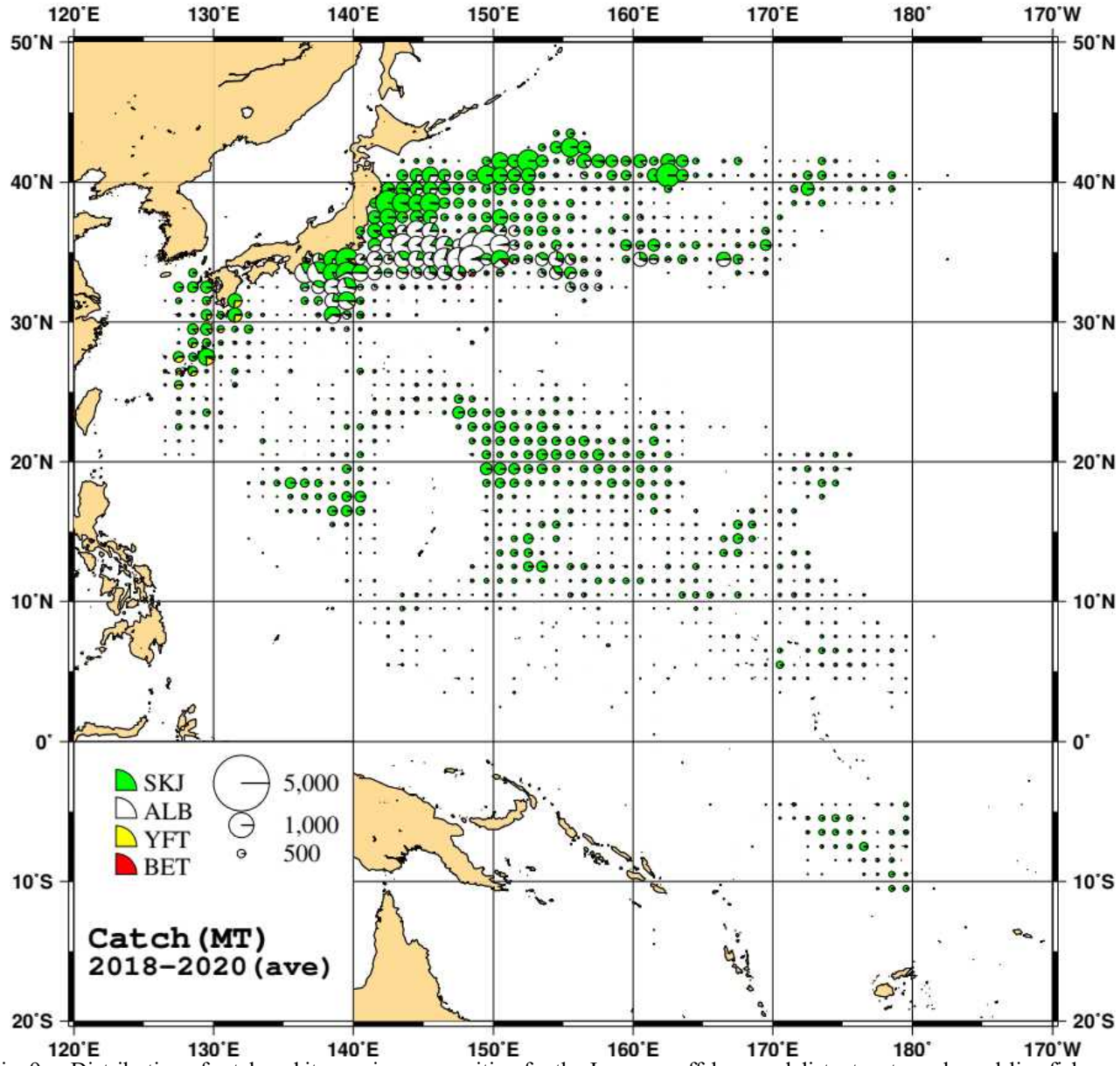


Fig. 9. Distribution of catch and its species composition for the Japanese offshore and distant water pole-and-line fishery in average of 2018-2020

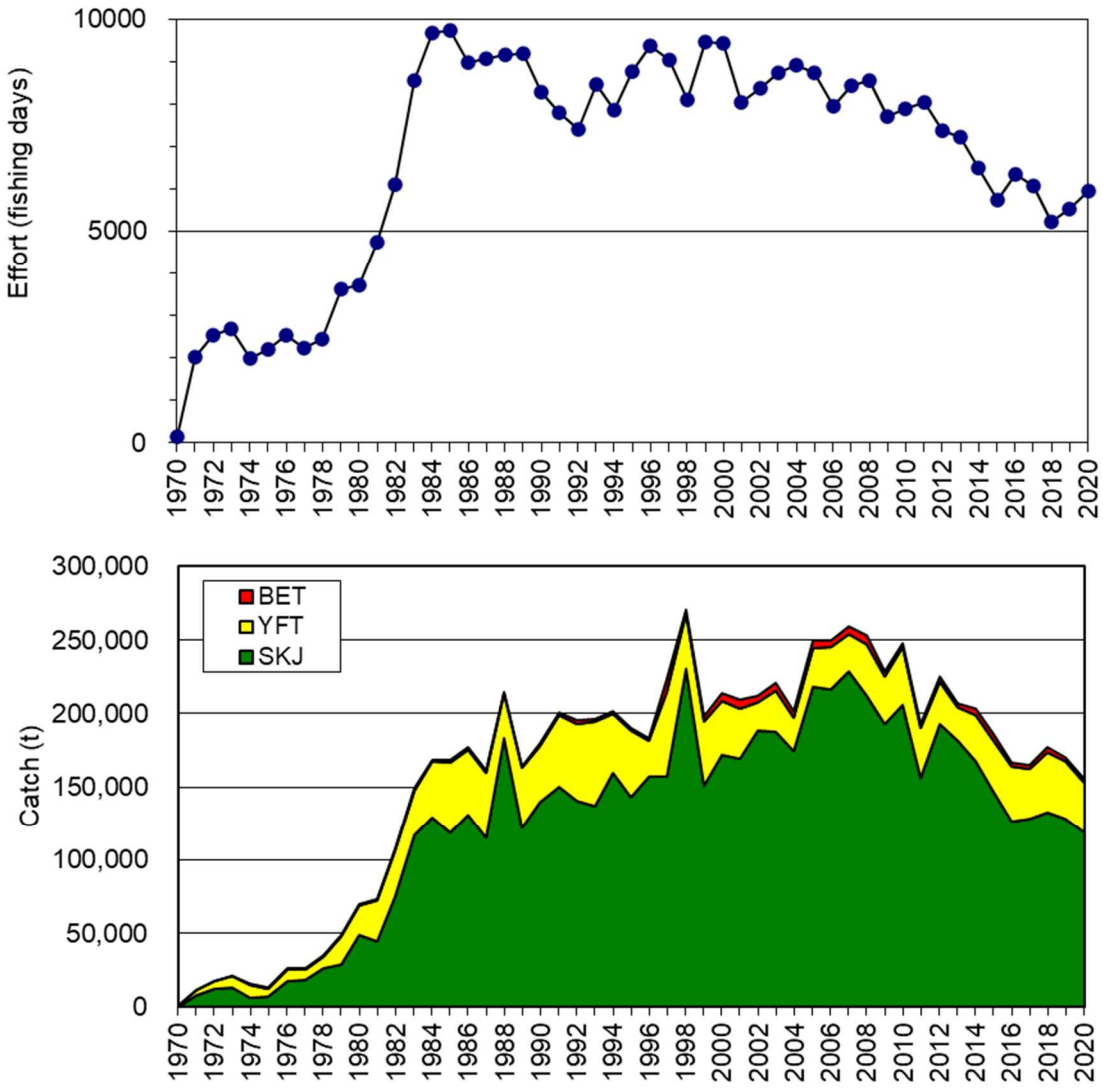


Fig. 10. Trends of fishing effort and catches by species for the Japanese tuna purse seine fishery in the WCPFC Convention Area. Values in and 2019 and 2020 are provisional.

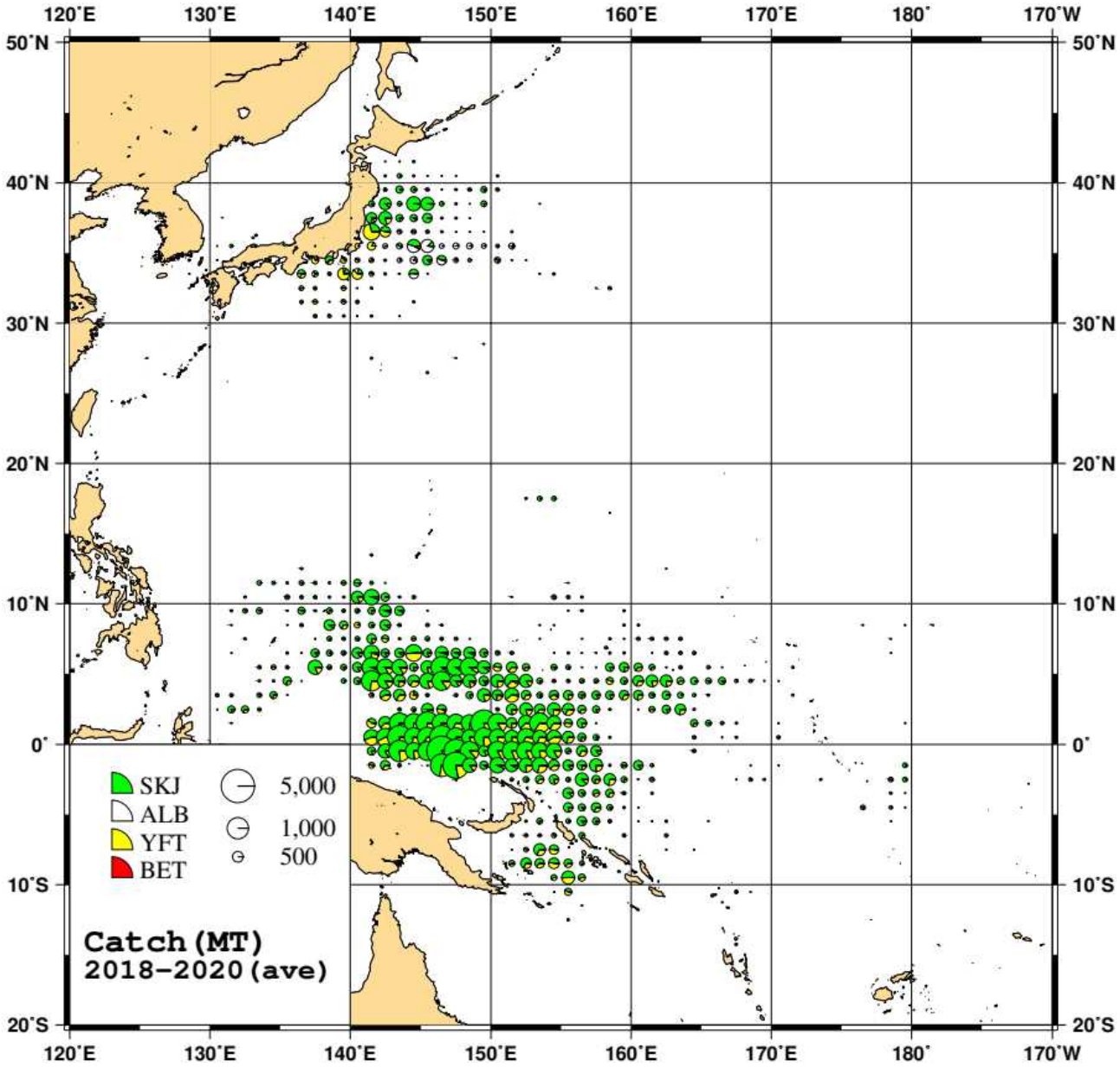


Fig. 11. Distribution of tuna purse seine catch (t) by species (skipjack, yellowfin and bigeye) combined for 2018-2020

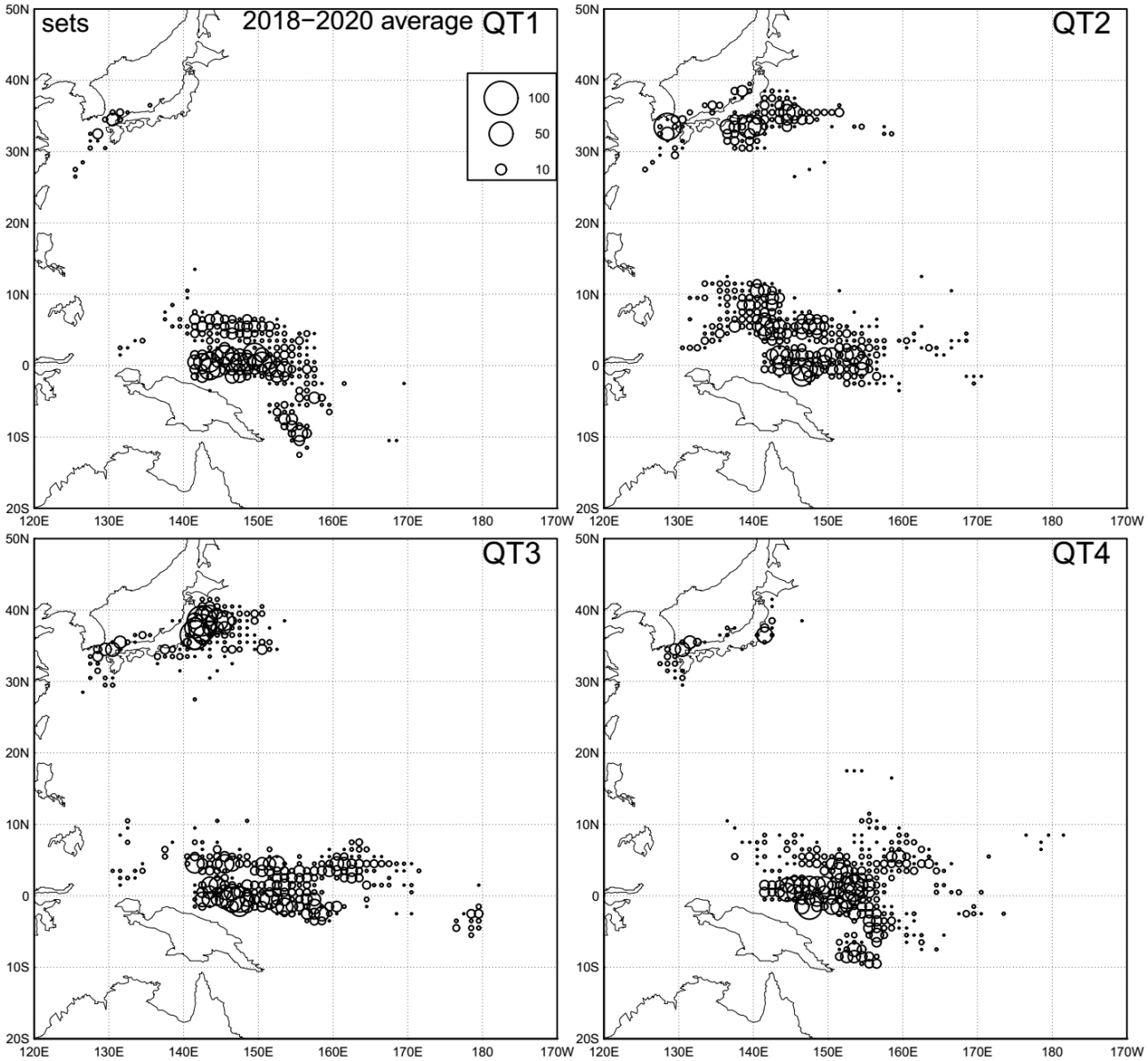


Fig. 12. Quarterly distributions of fishing effort (number of set) for the Japanese tuna purse seine fishery in the Pacific Ocean for 2018-2020.

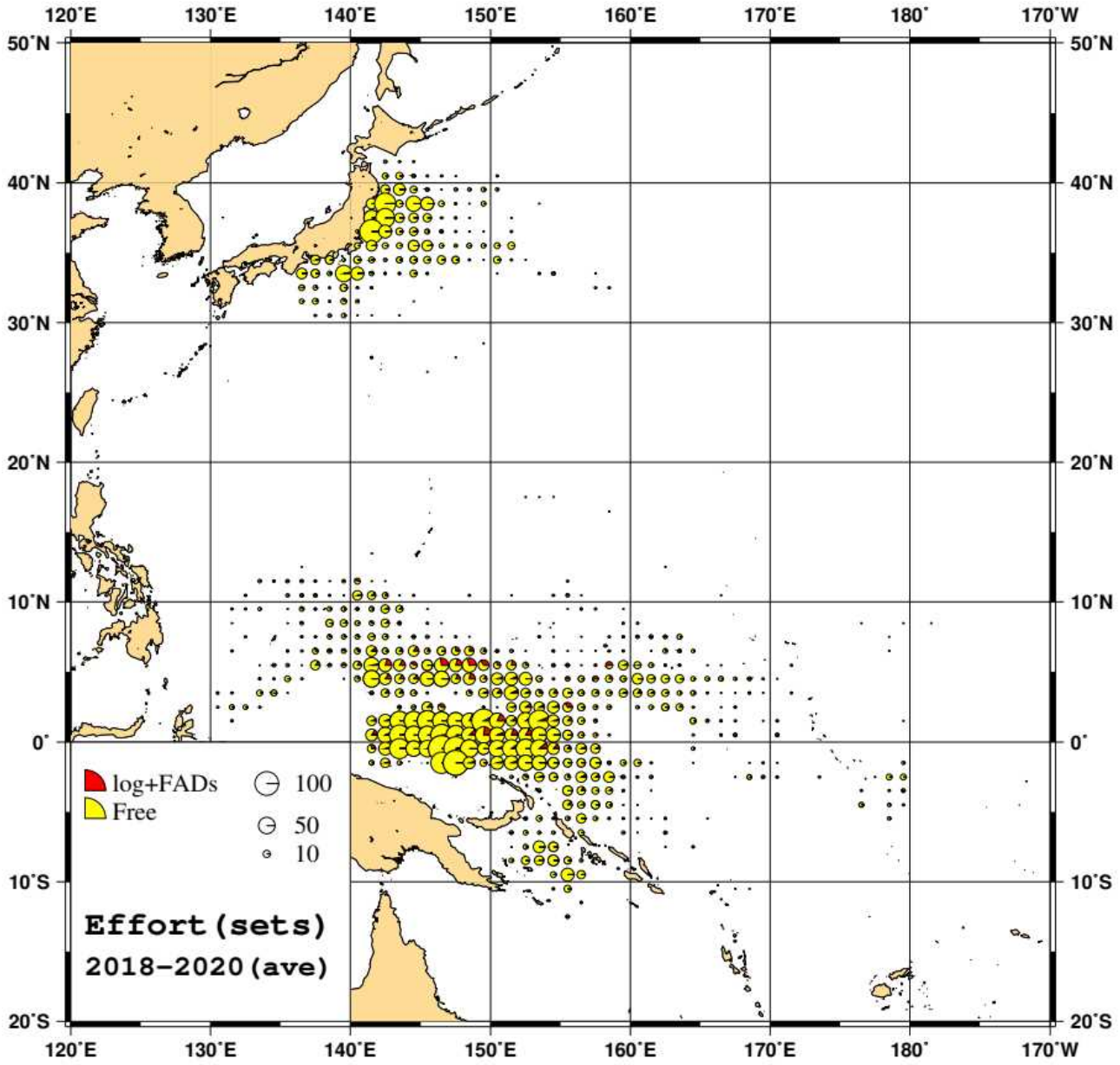


Fig. 13. Distribution of sets by type of school for 2018-2020 deployed by the tuna purse seine fishery by Japan.

Appendix Table 1. Catches (t) for tunas, billfishes and sharks in the portion of the WCPFC Convention Area east of the 150˚ meridian of west longitude caught by distant-water and offshore longline fisheries.

| Year | BET | YFT | SKJ | BUM | BLM | BSH | LMD | POR | SMA | OCS | THR | FAL | SPN | RHN | oSHK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 425 | 65 | 1 | 36 | 1 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 272 | 70 | 2 | 51 | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 224 | 43 | 0 | 24 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 429 | 76 | 0 | 31 | 2 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | (30) | (17) | (0) | (4) | (0) | (0) | (0) | (0) | (0) | (0) | (0) | (0) | (0) | (0) | (0) |
| 2020 | (3) | (2) | (0) | (1) | (0) | (0) | (0) | (0) | (0) | (0) | (0) | (0) | (0) | (0) | (0) |

Appendix Table 2. Catches (t) for Pacific bluefin, albacore, swordfish and striped marlin in the Pacific Ocean north of the Equator, the Pacific Ocean south of the Equator, the WCPFC Convention Area north of the Equator and the WCPFC Convention Area south of the Equator. Parenthesis represents provisional. In this table, definition of "Coastal longline" is vessel size less than 20 GRT, which is different from that in Table 5. Values in 2019 and 2020 are provisional.

**Pacific bluefin tuna (1) in the Pacific Ocean north of the Equator**

| Year | LL | LL | PL | PS | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | (unspecified) | (unspecified) | | | |
| 2015 | 637 | 11 | 8 | 3645 | 413 | 1242 | 431 |
| 2016 | 677 | 14 | 54 | 5095 | 778 | 1228 | 508 |
| 2017 | 892 | 21 | 49 | 4540 | 605 | 2221 | 665 |
| 2018 | 679 | 21 | 9 | 4050 | 371 | 645 | 431 |
| 2019 | 977 | 25 | 0 | 4464 | 720 | 941 | 372 |
| 2020 | 1341 | 75 | 1 | 3960 | 760 | 1234 | 502 |

**Pacific bluefin tuna (2) in the Pacific Ocean south of the Equator**

| Year | LL | LL | PL | PS | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | (unspecified) | (unspecified) | | | |
| 2015 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 6 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Pacific bluefin tuna (3) in the WCPFC Statistical Area north of the Equator**

| Year | LL | LL | PL | PS | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | (unspecified) | (unspecified) | | | |
| 2015 | 637 | 11 | 8 | 3645 | 413 | 1242 | 431 |
| 2016 | 677 | 13 | 54 | 5095 | 778 | 1228 | 508 |
| 2017 | 892 | 16 | 49 | 4540 | 605 | 2221 | 665 |
| 2018 | 679 | 14 | 9 | 4050 | 371 | 645 | 431 |
| 2019 | 977 | 21 | 0 | 4464 | 720 | 941 | 372 |
| 2020 | 1341 | 72 | 1 | 3960 | 760 | 1234 | 502 |

**Pacific bluefin tuna (4) in the WCPFC Statistical Area south of the Equator**

| Year | LL | LL | PL | PS | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | (unspecified) | (unspecified) | | | |
| 2015 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 6 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Pacific bluefin tuna (5) the portion of the WCPFC Statistical Area east of the 150°meridian of west longitude**

| Year | LL | LL | PL | PS | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | (unspecified) | (unspecified) | | | |
| 2015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Appendix Table 2. (Continued)

**Albacore (1) the Pacific Ocean north of the Equator**

| Year | LL | LL | PL | PL | PS | Gillnet | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Coastal | Offshore and distant-water | (unspecified) | | | | |
| 2015 | 17106 | 3907 | 86 | 21208 | 1072 | 138 | 239 | 17 | 170 |
| 2016 | 13118 | 3431 | 33 | 14402 | 3679 | 19 | 148 | 28 | 128 |
| 2017 | 13598 | 3710 | 30 | 20861 | 1250 | 40 | 107 | 48 | 119 |
| 2018 | 10121 | 3070 | 119 | 17756 | 3039 | 35 | 78 | 13 | 70 |
| 2019 | 9310 | 2906 | 177 | 8331 | 1045 | 9 | 543 | 27 | 95 |
| 2020 | 10341 | 1658 | 177 | 8355 | 1045 | 9 | 543 | 27 | 95 |

**Albacore (2) the Pacific Ocean south of the Equator**

| Year | LL | LL | PL | PL | PS | Gillnet | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Coastal | Offshore and distant-water | (unspecified) | | | | |
| 2015 | 0 | 1892 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 2753 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 3217 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 2537 | 0 | 39 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 2242 | 0 | 25 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 2141 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

**Albacore (3) the WCPFC Statistical Area north of the Equator**

| Year | LL | LL | PL | PL | PS | Gillnet | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Coastal | Offshore and distant-water | (unspecified) | | | | |
| 2015 | 17106 | 3849 | 86 | 21208 | 1072 | 138 | 239 | 17 | 170 |
| 2016 | 13118 | 3397 | 33 | 14402 | 3679 | 19 | 148 | 28 | 128 |
| 2017 | 13598 | 3673 | 30 | 20861 | 1250 | 40 | 107 | 48 | 119 |
| 2018 | 10121 | 3004 | 119 | 17756 | 3039 | 35 | 78 | 13 | 70 |
| 2019 | 9310 | 2819 | 177 | 8331 | 1045 | 9 | 543 | 27 | 95 |
| 2020 | 10341 | 2537 | 177 | 8355 | 1045 | 9 | 543 | 27 | 95 |

**Albacore (4) the WCPFC Statistical Area south of the Equator**

| Year | LL | LL | PL | PL | PS | Gillnet | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Coastal | Offshore and distant-water | (unspecified) | | | | |
| 2015 | 0 | 1175 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 1874 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 2141 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 1437 | 0 | 39 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 1244 | 0 | 25 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 1299 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

**Albacore (5) the portion of the WCPFC Statistical Area east of the 150°meridian of west longitude**

| Year | LL | LL | PL | PL | PS | Gillnet | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Coastal | Offshore and distant-water | (unspecified) | | | | |
| 2015 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Appendix Table 2. (Continued)

**Swordfish (1) the Pacific Ocean north of the Equator**

| Year | LL | LL | LL | Gillnet | Setnet | Others |
|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Others | | | |
| 2015 | 1343 | 3755 | 1 | 277 | 3 | 485 |
| 2016 | 2094 | 3509 | 2 | 303 | 2 | 425 |
| 2017 | 1975 | 2860 | 2 | 291 | 3 | 563 |
| 2018 | 1801 | 3212 | 2 | 230 | 5 | 747 |
| 2019 | 1343 | 2611 | 2 | 242 | 6 | 549 |
| 2020 | 1471 | 3266 | 2 | 242 | 6 | 549 |

**Swordfish (2) the Pacific Ocean south of the Equator**

| Year | LL | LL | LL | Gillnet | Setnet | Others |
|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Others | | | |
| 2015 | 0 | 3770 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 3778 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 3081 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 2203 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 1325 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 1543 | 0 | 0 | 0 | 0 |

**Swordfish (3) the WCPFC Statistical Area north of the Equator**

| Year | LL | LL | LL | Gillnet | Setnet | Others |
|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Others | | | |
| 2015 | 1343 | 3237 | 1 | 277 | 3 | 485 |
| 2016 | 2094 | 3310 | 2 | 303 | 2 | 425 |
| 2017 | 1975 | 2779 | 2 | 291 | 3 | 563 |
| 2018 | 1801 | 3073 | 2 | 230 | 5 | 747 |
| 2019 | 1343 | 2549 | 2 | 242 | 6 | 549 |
| 2020 | 1471 | 3950 | 2 | 242 | 6 | 549 |

**Swordfish (4) the WCPFC Statistical Area south of the Equator**

| Year | LL | LL | LL | Gillnet | Setnet | Others |
|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Others | | | |
| 2015 | 0 | 357 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 414 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 287 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 357 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 149 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 131 | 0 | 0 | 0 | 0 |

**Swordfish (5) the portion of the WCPFC Statistical Area east of the 150°meridian of west longitude**

| Year | LL | LL | LL | Gillnet | Setnet | Others |
|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Others | | | |
| 2015 | 0 | 90 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 126 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 56 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 95 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 3 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 1 | 0 | 0 | 0 | 0 |

Appendix Table 2. (Continued)

**Striped marlin (1) the Pacific Ocean north of the Equator**

| Year | LL | LL | LL | Gillnet | Setnet | Others |
|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Others | | | |
| 2015 | 1131 | 267 | 43 | 287 | 37 | 64 |
| 2016 | 778 | 245 | 33 | 308 | 25 | 73 |
| 2017 | 764 | 160 | 53 | 241 | 28 | 51 |
| 2018 | 711 | 147 | 28 | 278 | 28 | 88 |
| 2019 | 984 | 255 | 29 | 241 | 29 | 100 |
| 2020 | 970 | 268 | 29 | 241 | 29 | 100 |

**Striped marlin (2) the Pacific Ocean south of the Equator**

| Year | LL | LL | LL | Gillnet | Setnet | Others |
|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Others | | | |
| 2015 | 0 | 336 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 327 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 271 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 229 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 217 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 228 | 0 | 0 | 0 | 0 |

**Striped marlin (3) the WCPFC Statistical Area north of the Equator**

| Year | LL | LL | LL | Gillnet | Setnet | Others |
|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Others | | | |
| 2015 | 1131 | 190 | 43 | 287 | 37 | 64 |
| 2016 | 778 | 186 | 33 | 308 | 25 | 73 |
| 2017 | 764 | 130 | 53 | 241 | 28 | 51 |
| 2018 | 711 | 106 | 28 | 278 | 28 | 88 |
| 2019 | 984 | 198 | 29 | 241 | 29 | 100 |
| 2020 | 970 | 206 | 29 | 241 | 29 | 100 |

**Striped marlin (4) the WCPFC Statistical Area south of the Equator**

| Year | LL | LL | LL | Gillnet | Setnet | Others |
|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Others | | | |
| 2015 | 0 | 90 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 84 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 51 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 43 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 31 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 30 | 0 | 0 | 0 | 0 |

**Striped marlin (5) the portion of the WCPFC Statistical Area east of the 150°meridian of west longitude**

| Year | LL | LL | LL | Gillnet | Setnet | Others |
|---|---|---|---|---|---|---|
| | Coastal less than 20 GRT | Offshore and distant-water | Others | | | |
| 2015 | 0 | 6 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 5 | 0 | 0 | 0 | 0 |
| 2017 | 0 | 2 | 0 | 0 | 0 | 0 |
| 2018 | 0 | 7 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 | 0 |

Appendix Table 3. Catch in weight, of swordfish at south of 20° South of WCPFC statistical area by year with vessel statistics. "Vessel number" means number of vessels who caught at least one fish in this area in each year. Figures in parentheses indicate provisional data. That was request written in paragraph 8 of CMM-2009-03.

| Year | Japan-flagged vessels south of 20S | | Chartered vessels | | Other vessels fishing within the Japan's waters south of 20S | | |
|---|---|---|---|---|---|---|---|
| | Catch (mt) | Vessel numbers | Catch (mt) | Vessel numbers | Flag | Catch (mt) | Vessel numbers |
| 2015 | 225 | 26 | 0 | 0 | -- | -- | -- |
| 2016 | 239 | 26 | 0 | 0 | -- | -- | -- |
| 2017 | 172 | 26 | 0 | 0 | -- | -- | -- |
| 2018 | 175 | 27 | 0 | 0 | -- | -- | -- |
| 2019 | 101 | 27 | 0 | 0 | -- | -- | -- |
| 2020 | 112 | 21 | 0 | 0 | -- | -- | -- |

Appendix Table 4. Observer coverage for the Japanese longline fishery. Values in 2019 and 2020 are provisional. This table was request written in **paragraph 4 of CMM-2007-01**.

| Year | Fishery | No. of Hooks | | | Days Fished | | | Days at Sea | | | No. of Trips | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T. | O. | % | Total | Observer | % | T. | O. | % | T. | O. | % |
| 2015 | Ice/Fresh, short-trip | *** | *** | *** | 28176 | 1226 | 4.35% | *** | *** | *** | *** | *** | *** |
| | Frozen, long-trip | *** | *** | *** | 7996 | 651 | 8.14% | *** | *** | *** | *** | *** | *** |
| 2016 | Ice/Fresh, short-trip | *** | *** | *** | 26256 | 874 | 3.33% | *** | *** | *** | *** | *** | *** |
| | Frozen, long-trip | *** | *** | *** | 8392 | 690 | 8.22% | *** | *** | *** | *** | *** | *** |
| 2017 | Ice/Fresh, short-trip | *** | *** | *** | 24166 | 919 | 3.80% | *** | *** | *** | *** | *** | *** |
| | Frozen, long-trip | *** | *** | *** | 8110 | 586 | 7.23% | *** | *** | *** | *** | *** | *** |
| 2018 | Ice/Fresh, short-trip | *** | *** | *** | 24688 | 938 | 3.80% | *** | *** | *** | *** | *** | *** |
| | Frozen, long-trip | *** | *** | *** | 8508 | 614 | 7.22% | *** | *** | *** | *** | *** | *** |
| 2019 | Ice/Fresh, short-trip | *** | *** | *** | 24945 | 1473 | 5.90% | *** | *** | *** | *** | *** | *** |
| | Frozen, long-trip | *** | *** | *** | 7394 | 888 | 12.01% | *** | *** | *** | *** | *** | *** |
| 2020 | Ice/Fresh, short-trip | *** | *** | *** | 25440 | 51 | 0.20% | *** | *** | *** | *** | *** | *** |
| | Frozen, long-trip | *** | *** | *** | 5775 | 232 | 4.02% | *** | *** | *** | *** | *** | *** |

Appendix Table 5-1. The total quantity (mt) of highly migratory fish stocks transshipped by fishing vessels. That was request written in **paragraph 11 of CMM-2009-06**.

(1) The total quantities in 2020, by weight, of highly migratory fish stocks covered by this measure that were transhipped by fishing vessels the CCM is responsible for reporting against, with those quantities broken down by:

| a) offloaded and received; | b) transhipped in port, transhipped at sea in areas of national jurisdiction, and transhipped beyond areas of national jurisdiction | c) transhipped inside the Convention Area and transshipped outside the Convention Area; | d) caught inside the Convention Area and caught outside the Convention Area; | e) Species | f) Product Form | g) Fishing gear | Quantity (mt) |
|---|---|---|---|---|---|---|---|
| Offloaded | | | | | | | 918 |
| | At sea beyond NJ | | | | | | 251 |
| | | Inside CA | | | | | 162 |
| | | | Inside CA | | | | 18 |
| | | | | BET | | | 2 |
| | | | | | GG | Longline | 2 |
| | | | | YFT | | | 4 |
| | | | | | GG | Longline | 4 |
| | | | | SWO | | | 8 |
| | | | | | DR | Longline | 8 |
| | | | | Others | | | 3 |
| | | | | | GG | Longline | 2 |
| | | | | | Others | Longline | 1 |
| | | | Outside CA | | | | 145 |
| | | | | BET | | | 71 |
| | | | | | GG | Longline | 71 |
| | | | | YFT | | | 36 |
| | | | | | GG | Longline | 36 |
| | | | | SWO | | | 17 |
| | | | | | GG | Longline | 1 |
| | | | | | FL | Longline | 9 |
| | | | | | DR | Longline | 8 |
| | | | | Others | | | 20 |
| | | | | | GG | Longline | 0 |
| | | | | | Whole | Longline | 15 |
| | | | | | Others | Longline | 5 |
| | | Outside CA | | | | | 88 |
| | | | Inside CA | | | | 88 |
| | | | | BET | | | 5 |
| | | | | | GG | Longline | 5 |
| | | | | YFT | | | 43 |
| | | | | | GG | Longline | 43 |
| | | | | SWO | | | 1 |
| | | | | | FL | Longline | 1 |
| | | | | | DR | Longline | 0 |
| | | | | Others | | | 40 |
| | | | | | GG | Longline | 0 |
| | | | | | DR | Longline | 6 |
| | | | | | Whole | Longline | 34 |
| | In port | | | | | | 667 |
| | | Inside CA | | | | | 667 |
| | | | Outside CA | | | | 667 |
| | | | | BFT | | | 236 |
| | | | | | GG | Longline | 236 |
| | | | | BET | | | 246 |
| | | | | | GG | Longline | 246 |
| | | | | YFT | | | 147 |
| | | | | | GG | Longline | 147 |
| | | | | SWO | | | 13 |
| | | | | | FL | Longline | 7 |
| | | | | | DR | Longline | 6 |
| | | | | Others | | | 25 |

| a) offloaded and received; | b) transhipped in port, transhipped at sea in areas of national jurisdiction, and transhipped beyond areas of national jurisdiction | c) transhipped inside the Convention Area and transshipped outside the Convention Area; | d) caught inside the Convention Area and caught outside the Convention Area; | e) Species | f) Product Form | g) Fishing gear | Quantity (mt) |
|---|---|---|---|---|---|---|---|
| | | | | | GG | Longline | 10 |
| | | | | | DR | Longline | 1 |
| | | | | | Whole | Longline | 14 |
| | | | | | Others | Longline | 0 |
| | | | | | | | |
| Received | | | | | | | 667 |
| | In port | | | | | | 667 |
| | | Inside CA | | | | | 667 |
| | | | Outside CA | | | | 667 |
| | | | | BFT | | | 236 |
| | | | | | GG | Longline | 236 |
| | | | | BET | | | 246 |
| | | | | | GG | Longline | 246 |
| | | | | YFT | | | 147 |
| | | | | | GG | Longline | 147 |
| | | | | SWO | | | 13 |
| | | | | | FL | Longline | 7 |
| | | | | | DR | Longline | 6 |
| | | | | Others | | | 25 |
| | | | | | GG | Longline | 10 |
| | | | | | DR | Longline | 1 |
| | | | | | Whole | Longline | 14 |
| | | | | | Others | Longline | 0 |

Appendix Table 5-2. The number of transshipments involving highly migratory fish stocks. That was request written in **paragraph 11 of CMM-2009-06**.

(2) The number of transhipments in 2020 involving highly migratory fish stocks covered by this measure by fishing vessels that is responsible for reporting against, broken down by:

| a) offloaded and received | b) transhipped in port, transhipped at sea in areas of national jurisdiction, and transhipped beyond areas of national jurisdiction | c) transhipped inside the Convention Area and transhipped outside the Convention Area | d) caught inside the Convention Area and caught outside the Convention Area | e) fishing gear | number of transhipments |
|---|---|---|---|---|---|
| Offloaded | | | | | 6 |
| | At sea beyond NJ | | | | 4 |
| | | Inside CA | | | 3 |
| | | | Outside CA | Longline | 2 |
| | | | Inside CA & Outside CA | Longline | 1 |
| | | Outside CA | | | 1 |
| | | | Inside CA | Longline | 1 |
| | In port | | | | 2 |
| | | Inside CA | | | 2 |
| | | | Outside CA | Longline | 2 |
| | | | | | |
| Received | | | | | 2 |
| | In port | | | | 2 |
| | | Inside CA | | | 2 |
| | | | Outside CA | Longline | 2 |

Appendix Table 6-1. Effort, observed and estimated seabird captures by the longliners larger than 20 GRT (approximately >= 24m) by years for Japan [South of 30˚S, 23˚N - 30˚S, or North of 23˚N]. For each year, the table gives the total number of hooks; the number of observed hooks; observer coverage (the percentage of hooks that were observed); the number of observed captures (both dead and alive); the capture rate (captures per thousand hooks). This table was request written in **paragraph 9 of CMM-2017-06**.

North of 23˚N

| Year | Fishing effort | | | | Observed seabird captures | |
|---|---|---|---|---|---|---|
| | Number of vessels | Number of hooks | Observed hooks | % hooks observed | Number | Rate |
| 2016 | 39 | 13,809,603 | 253,454 | 1.8% | 35 | 0.138 |
| 2017 | 39 | 11,593,499 | 194,758 | 1.7% | 63 | 0.324 |
| 2018 | 36 | 11,845,510 | 328,315 | 2.8% | 61 | 0.186 |

23˚N - 30˚S

| Year | Fishing effort | | | | Observed seabird captures | |
|---|---|---|---|---|---|---|
| | Number of vessels | Number of hooks | Observed hooks | % hooks observed | Number | Rate |
| 2016 | 81 | 21,411,574 | 999,718 | 4.7% | 2 | 0.002 |
| 2017 | 75 | 22,102,450 | 803,403 | 3.6% | 2 | 0.002 |
| 2018 | 78 | 22,433,422 | 900,841 | 4.0% | 0 | 0.000 |

South of 30˚S

| Year | Fishing effort | | | | Observed seabird captures | |
|---|---|---|---|---|---|---|
| | Number of vessels | Number of hooks | Observed hooks | % hooks observed | Number | Rate |
| 2016 | 26 | 6,454,799 | 989,091 | 15.3% | 936 | 0.946 |
| 2017 | 26 | 6,559,955 | 516,347 | 7.9% | 28 | 0.054 |
| 2018 | 27 | 7,003,023 | 170,738 | 2.4% | 37 | 0.217 |

Appendix Table 6-2. Effort, observed and estimated seabird captures by the longliners less than 20 GRT (approximately < 24m) by years for Japan [South of 30˚S, 23˚N - 30˚S, or North of 23˚N]. For each year, the table gives the total number of hooks; the number of observed hooks; observer coverage (the percentage of hooks that were observed); the number of observed captures (both dead and alive); the capture rate (captures per thousand hooks). This table was request written in **paragraph 9 of CMM-2017-06**.

North of 23˚N

| Year | Fishing effort | | | | Observed seabird captures | |
|---|---|---|---|---|---|---|
| | Number of vessels | Number of hooks | Observed hooks | % hooks observed | Number | Rate |
| 2016 | 219 | 53,229,832 | 978,687 | 1.8% | 371 | 0.379 |
| 2017 | 208 | 53,134,160 | 771,342 | 1.5% | 215 | 0.279 |
| 2018 | 208 | 5,0571,128 | 860,447 | 1.7% | 55 | 0.064 |

23˚N - 30˚S

| Year | Fishing effort | | | | Observed seabird captures | |
|---|---|---|---|---|---|---|
| | Number of vessels | Number of hooks | Observed hooks | % hooks observed | Number | Rate |
| 2016 | 153 | 21,418,736 | 363,360 | 1.7% | 3 | 0.008 |
| 2017 | 138 | 18,962,112 | 708,005 | 3.7% | 2 | 0.003 |
| 2018 | 153 | 20,765,428 | 630,881 | 3.0% | 7 | 0.011 |

Appendix Table 6-3. Effort, observed and estimated seabird captures by the longliners larger than 20 GRT (approximately >= 24m) by fishing year for Japan [South of 30˚S, 25˚S - 30˚S, 23˚N - 25˚S, or North of 23˚N]. For each year, the table gives the total number of hooks; the number of observed hooks; observer coverage (the percentage of hooks that were observed); the number of observed captures (both dead and alive); the capture rate (captures per thousand hooks). This table was request written in **paragraph 13 of CMM-2018-03**.

North of 23˚N

| Year | Fishing effort | | | | Observed seabird captures | |
|---|---|---|---|---|---|---|
| | Number of vessels | Number of hooks | Observed hooks | % hooks observed | Number | Rate |
| 2019 | 36 | 11,363,975 | 379,310 | 3.3% | 83 | 0.219 |
| 2020 | 42 | 13,840,473 | 0 | 0.0% | 0 | 0.000 |

23˚N - 25˚S

| Year | Fishing effort | | | | Observed seabird captures | |
|---|---|---|---|---|---|---|
| | Number of vessels | Number of hooks | Observed hooks | % hooks observed | Number | Rate |
| 2019 | 65 | 20,187,484 | 798,284 | 4.0% | 4 | 0.005 |
| 2020 | 48 | 12,151,560 | 0 | 0.0% | 0 | 0.000 |

25˚S - 30˚S

| Year | Fishing effort | | | | Observed seabird captures | |
|---|---|---|---|---|---|---|
| | Number of vessels | Number of hooks | Observed hooks | % hooks observed | Number | Rate |
| 2019 | 9 | 844,467 | 165,091 | 19.5% | 0 | 0.000 |
| 2020 | 14 | 1,617,568 | 132,871 | 8.2% | 0 | 0.000 |

South of 30˚S

| Year | Fishing effort | | | | Observed seabird captures | |
|---|---|---|---|---|---|---|
| | Number of vessels | Number of hooks | Observed hooks | % hooks observed | Number | Rate |
| 2019 | 27 | 5,388,415 | 962,377 | 17.9% | 1,140 | 1.185 |
| 2020 | 21 | 3,706,420 | 205,451 | 5.5% | 13 | 0.063 |

Appendix Table 6-4. Effort, observed and estimated seabird captures by the longliners less than 20 GRT (approximately < 24m) by fishing year for Japan [South of 30˚S, 25˚S - 30˚S, 23˚N - 25˚S, or North of 23˚N]. For each year, the table gives the total number of hooks; the number of observed hooks; observer coverage (the percentage of hooks that were observed); the number of observed captures (both dead and alive); the capture rate (captures per thousand hooks). This table was request written in **paragraph 13 of CMM-2018-03**.

North of 23˚N

| Year | Fishing effort | | | | Observed seabird captures | |
|---|---|---|---|---|---|---|
| | Number of vessels | Number of hooks | Observed hooks | % hooks observed | Number | Rate |
| 2019 | 208 | 51,303,376 | 1,570,492 | 3.1% | 437 | 0.278 |
| 2020 | 209 | 58,233,088 | 39,835 | 0.1% | 28 | 0.703 |

23˚N - 25˚S

| Year | Fishing effort | | | | Observed seabird captures | |
|---|---|---|---|---|---|---|
| | Number of vessels | Number of hooks | Observed hooks | % hooks observed | Number | Rate |
| 2019 | 148 | 20,898,128 | 792,447 | 3.8% | 1 | 0.001 |
| 2020 | 129 | 17,519,252 | 51,456 | 0.3% | 2 | 0.039 |

Appendix Table 7-1. Proportion of observed effort by seabird bycatch mitigation types used by longliners in 2016-2018. This table was request written in **paragraph 9 of CMM-2017-06**.

| Combination of mitigation measures | Proportion of observed effort using mitigation measures | | |
|---|---|---|---|
| | 2016 | 2017 | 2018 |
| No mitigation measure | 4.2% | 0.0% | 0.0% |
| TL + NS | 0.3% | 0.0% | 0.0% |
| WTL + NS | 0.7% | 0.0% | 0.0% |
| TL + NS + MOD | 4.0% | 3.0% | 1.1% |
| WTL + NS + MOD | 1.1% | 0.3% | 2.2% |
| TL + WB + MOD | 2.8% | 6.5% | 0.0% |
| WTL + WB + MOD | 0.0% | 3.2% | 0.0% |
| TL + WB + NS + MOD | 0.8% | 3.0% | 0.0% |
| WTL + WB + NS + MOD | 0.0% | 2.3% | 0.0% |
| NS | 0.3% | 0.0% | 0.0% |
| TL | 2.3% | 0.0% | 0.0% |
| WTL | 3.6% | 0.0% | 0.0% |
| TL + MOD | 30.6% | 26.4% | 20.5% |
| WTL + MOD | 6.5% | 1.2% | 12.9% |
| NS + MOD | 1.0% | 0.8% | 1.9% |
| WB + MOD | 0.0% | 6.7% | 0.0% |
| MOD | 41.8% | 46.7% | 61.4% |
| Total | 100.0% | 100.0% | 100.0% |

Appendix Table 7-2. Proportion of mitigation types used by the fleet in 2019-2020. This table was request written in **paragraph 13 of CMM-2018-03**.

| 2019 | Combination of mitigation measures | Proportion of observed effort using mitigation measures | | |
|---|---|---|---|---|
| | | South of $30^0$S | $25^0$S to $23^0$N | North of $23^0$N |
| Options required south of $30^0$S | TL + NS + MOD | 18.1% | 0.0% | 3.5% |
| | TL + WB + MOD | 13.0% | 0.0% | 0.0% |
| | WB + NS + MOD | 0.7% | 0.1% | 0.0% |
| | TL + WB + NS + MOD | 3.9% | 0.0% | 0.0% |
| Other options $25^0$S – $30^0$S | TL + MOD | 57.2% | 0.2% | 70.5% |
| | WB + MOD | 1.9% | 3.3% | 0.0% |
| Other options north of $23^0$N | NS + MOD | 1.4% | 0.3% | 0.6% |
| | MOD | 3.9% | 96.0% | 25.4% |
| Total | | 100.0% | 100.0% | 100.0% |

| 2020 | Combination of mitigation measures | Proportion of observed effort using mitigation measures | | | |
|---|---|---|---|---|---|
| | | South of $30^0$S | $25^0$S – $30^0$S | $25^0$S to $23^0$N | North of $23^0$N |
| Options required south of $30^0$S | TL + NS + MOD | 0.0% | 0.0% | 0.0% | 0.2% |
| | TL + WB + MOD | 28.0% | 1.9% | 0.0% | 0.0% |
| | WB + NS + MOD | 3.0% | 17.1% | 0.0% | 0.0% |
| | TL + WB + NS + MOD | 42.6% | 0.0% | 0.0% | 0.0% |
| Other options $25^0$S – $30^0$S | TL + MOD | 0.0% | 0.0% | 0.0% | 4.4% |
| | WB + MOD | 26.4% | 81.0% | 0.0% | 0.0% |
| Other options north of $23^0$N | NS + MOD | 0.0% | 0.0% | 0.2% | 0.6% |
| | MOD | 0.0% | 0.0% | 99.8% | 94.9% |
| Total | | 100.0% | 100.0% | 100.0% | 100.0% |

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

Appendix Table 8-1. Number of observed seabird captures in the longliners larger than 20 GRT (approximately >= 24 m), by year, species and area. This table was request written in **paragraph 9 of CMM2017-06**.

2016

| Species | South of 30S | 23N-30S | North of 23N | Total |
|---|---|---|---|---|
| Black-browed albatross | 1 | 0 | 0 | 1 |
| Black-browed albatross group | 10 | 0 | 0 | 10 |
| Black-footed albatross | 0 | 0 | 8 | 8 |
| Buller's albatross group | 110 | 1 | 0 | 111 |
| Campbell albatross | 43 | 0 | 0 | 43 |
| Flesh-footed shearwater | 1 | 0 | 0 | 1 |
| Gibson's albatross | 6 | 0 | 0 | 6 |
| Grey petrel | 2 | 0 | 0 | 2 |
| Grey-headed albatross | 3 | 0 | 0 | 3 |
| Large albatrosses | 10 | 0 | 0 | 10 |
| Laysan albatross | 0 | 0 | 14 | 14 |
| Light-mantled albatross | 3 | 0 | 0 | 3 |
| Northern giant petrel | 1 | 0 | 0 | 1 |
| Other albatrosses | 193 | 1 | 0 | 194 |
| Parkinson's petrel | 1 | 0 | 0 | 1 |
| Shy-type albatrosses | 121 | 0 | 0 | 121 |
| Southern Buller's albatross | 6 | 0 | 0 | 6 |
| Unidentified albatrosses | 285 | 0 | 12 | 297 |
| Unidentified birds | 1 | 0 | 0 | 1 |
| Unidentified gulls | 0 | 0 | 1 | 1 |
| Unidentified petrels | 60 | 0 | 0 | 60 |
| Wandering albatross | 13 | 0 | 0 | 13 |
| Wandering albatross group2 | 3 | 0 | 0 | 3 |
| Wandering albatross group3 | 9 | 0 | 0 | 9 |
| Wandering albatross group5 | 1 | 0 | 0 | 1 |
| White-chinned petrel | 53 | 0 | 0 | 53 |
| Total | 936 | 2 | 35 | 973 |

2017

| Species | South of 30S | 23N-30S | North of 23N | Total |
|---|---|---|---|---|
| Black-browed albatross | 1 | 0 | 0 | 1 |
| Black-footed albatross | 0 | 0 | 16 | 16 |
| Buller's albatross group | 14 | 0 | 0 | 14 |
| Campbell albatross | 2 | 0 | 0 | 2 |
| Laysan albatross | 0 | 0 | 22 | 22 |
| Masked booby | 0 | 2 | 0 | 2 |
| Shy-type albatrosses | 4 | 0 | 0 | 4 |
| Southern Buller's albatross | 1 | 0 | 0 | 1 |
| Unidentified albatrosses | 1 | 0 | 25 | 26 |
| Wandering albatross group3 | 1 | 0 | 0 | 1 |
| White-chinned petrel | 4 | 0 | 0 | 4 |
| Total | 28 | 2 | 63 | 93 |

2018

| Species | South of 30S | 23N-30S | North of 23N | Total |
|---|---|---|---|---|
| Black-browed albatross group | 4 | 0 | 0 | 4 |
| Black-footed albatross | 0 | 0 | 18 | 18 |
| Buller's albatross group | 14 | 0 | 0 | 14 |
| Campbell albatross | 4 | 0 | 0 | 4 |
| Gibson's albatross | 1 | 0 | 0 | 1 |
| Laysan albatross | 0 | 0 | 43 | 43 |
| Northern giant petrel | 1 | 0 | 0 | 1 |

| | | | | |
|---|---|---|---|---|
| Other albatrosses | 1 | 0 | 0 | 1 |
| Shy-type albatrosses | 5 | 0 | 0 | 5 |
| Sooty shearwater | 1 | 0 | 0 | 1 |
| Wandering albatross | 1 | 0 | 0 | 1 |
| Wandering albatross group3 | 1 | 0 | 0 | 1 |
| White-chinned petrel | 4 | 0 | 0 | 4 |
| Total | 37 | 0 | 61 | 98 |

Appendix Table 8-2 Number of observed seabird captures in the longliners less than 20 GRT (approximately < 24m), 2016- 2018, by species and area. This table was request written in **paragraph 9 of CMM 2017-06**.

2016

| Species | 23N-30S | North of 23N | Total |
|---|---|---|---|
| Black-footed albatross | 0 | 89 | 89 |
| Laysan albatross | 0 | 248 | 248 |
| Streaked shearwater | 1 | 4 | 5 |
| Unidentified albatrosses | 0 | 19 | 19 |
| Unidentified birds | 0 | 9 | 9 |
| Unidentified gulls | 0 | 1 | 1 |
| Unidentified petrels | 0 | 1 | 1 |
| Wedge-tailed shearwater | 2 | 0 | 2 |
| Total | 3 | 371 | 374 |

2017

| Species | 23N-30S | North of 23N | Total |
|---|---|---|---|
| Black-footed albatross | 0 | 19 | 19 |
| Laysan albatross | 0 | 169 | 169 |
| Streaked shearwater | 2 | 9 | 11 |
| Unidentified albatrosses | 0 | 18 | 18 |
| Total | 2 | 215 | 217 |

2018

| Species | 23N-30S | North of 23N | Total |
|---|---|---|---|
| Black-footed albatross | 0 | 15 | 15 |
| Flesh-footed shearwater | 1 | 0 | 1 |
| Laysan albatross | 0 | 40 | 40 |
| Streaked shearwater | 6 | 0 | 6 |
| Total | 7 | 55 | 62 |

Appendix Table 8-3 Number of observed seabird captures in Japan longline fisheries in the longliners larger than 20 GRT (approximately >=24m), 2019-2020, by species and area. This table was request written in **paragraph 13 of CMM 2018-03**.

2019

| Species | South of 30S | 25S-30S | 23N-25S | North of 23N | Total |
|---|---|---|---|---|---|
| Black-browed albatross | 4 | 0 | 0 | 0 | 4 |
| Black-browed albatross group | 39 | 0 | 0 | 0 | 39 |
| Black-footed albatross | 0 | 0 | 1 | 12 | 13 |
| Brown booby | 0 | 0 | 2 | 0 | 2 |
| Buller's albatross group | 339 | 0 | 0 | 0 | 339 |
| Campbell albatross | 51 | 0 | 0 | 0 | 51 |
| Gibson's albatross | 7 | 0 | 0 | 0 | 7 |
| Laysan albatross | 0 | 0 | 0 | 35 | 35 |
| Light-mantled albatross | 2 | 0 | 0 | 0 | 2 |
| Northern giant petrel | 4 | 0 | 0 | 0 | 4 |
| Other albatrosses | 2 | 0 | 0 | 0 | 2 |
| Parkinson's petrel | 2 | 0 | 0 | 0 | 2 |
| Red-footed booby | 0 | 0 | 1 | 0 | 1 |
| Shy-type albatrosses | 328 | 0 | 0 | 0 | 328 |
| Southern fulmar | 1 | 0 | 0 | 0 | 1 |
| Southern giant petrel | 1 | 0 | 0 | 0 | 1 |
| Unidentified albatrosses | 176 | 0 | 0 | 36 | 212 |
| Unidentified birds | 8 | 0 | 0 | 0 | 8 |
| Unidentified giant petrels | 1 | 0 | 0 | 0 | 1 |
| Unidentified petrels | 36 | 0 | 0 | 0 | 36 |
| Wandering albatross | 18 | 0 | 0 | 0 | 18 |
| Wandering albatross group2 | 2 | 0 | 0 | 0 | 2 |
| Wandering albatross group3 | 7 | 0 | 0 | 0 | 7 |
| Wandering albatross group5 | 10 | 0 | 0 | 0 | 10 |
| White-chinned petrel | 102 | 0 | 0 | 0 | 102 |
| Total | 1140 | 0 | 4 | 83 | 1227 |

2020

| Species | South of 30S | 25S-30S | 23N-25S | North of 23N | Total |
|---|---|---|---|---|---|
| Buller's albatross group | 2 | 0 | 0 | 0 | 2 |
| Parkinson's petrel | 6 | 0 | 0 | 0 | 6 |
| Shy-type albatrosses | 4 | 0 | 0 | 0 | 4 |
| Wandering albatross | 1 | 0 | 0 | 0 | 1 |
| Total | 13 | 0 | 0 | 0 | 13 |

Appendix Table 8-4 Number of observed seabird captures in the longliners less than 20 GRT (approximately < 24m), 2019-2020, by species and area. This table was request written in **paragraph 9 of CMM 2018-03**.

2019

| Species | 23N-25S | North of 23N | Total |
|---|---|---|---|
| Black-footed albatross | 0 | 82 | 82 |
| Laysan albatross | 0 | 338 | 338 |
| Streaked shearwater | 1 | 2 | 3 |
| Unidentified albatrosses | 0 | 15 | 15 |
| Total | 1 | 437 | 438 |

2020

| Species | 23N-25S | North of 23N | Total |
|---|---|---|---|
| Laysan albatross | 0 | 28 | 28 |
| Streaked shearwater | 2 | 0 | 2 |
| Total | 2 | 28 | 30 |

Appendix Table 9. Striped marlin catch for the Japanese offshore and distant water longline fishery in the WCPCA south of 15˚S. This table was request written in **paragraph 4 of CMM-2006-04**

| Year | Striped marlin catch (t) |
|---|---|
| 2015 | 79 |
| 2016 | 66 |
| 2017 | 30 |
| 2018 | 23 |
| 2019 | 20 |
| 2020 | 27 |

Appendix Table 10-1. Fishing effort and albacore catch for the Japanese offshore and distant water longline and pole-and-line fisheries in the south of 20˚S in the WCPCA. This table was request written in **paragraph 4 of CMM-2015-02**.

(a) Offshore and distant water longline

| Year | Albacore catch (mt) |
|---|---|
| 2015 | 851 |
| 2016 | 835 |
| 2017 | 974 |
| 2018 | 608 |
| 2019 | (567) |
| 2020 | (952) |

(b) Offshore and distant water pole-and-line

| Year | Vessels | Albacore catch (mt) |
|---|---|---|
| 2015 | 3 | 0 |
| 2016 | 3 | 7 |
| 2017 | 3 | 2 |
| 2018 | 2 | 39 |
| 2019 | (1) | (25) |
| 2020 | (0) | (0) |

Appendix Table 10-2. Catch (mt) by vessel for the Japanese offshore and distant water longline fishery in the south of 20˚S in the WCPCA. BIL: other billfishes, SHK: sharks. This table was request written in **paragraph 4 of CMM-2015-02**.

| Year | Vessel | ALB | BET | YFT | SWO | BIL | SHK |
|---|---|---|---|---|---|---|---|
| 2020 | A01 | 118 | 4 | 23 | 4 | 3 | 0 |
| 2020 | A02 | 35 | 1 | 3 | 3 | 2 | 0 |
| 2020 | A03 | 40 | 1 | 3 | 1 | 1 | 0 |
| 2020 | A04 | 6 | 0 | 0 | 3 | 0 | 0 |
| 2020 | A05 | 26 | 1 | 1 | 2 | 0 | 0 |
| 2020 | A06 | 71 | 1 | 5 | 4 | 3 | 0 |
| 2020 | A07 | 88 | 2 | 15 | 3 | 4 | 0 |
| 2020 | A08 | 26 | 0 | 0 | 3 | 0 | 0 |
| 2020 | A09 | 77 | 13 | 8 | 4 | 3 | 14 |
| 2020 | A10 | 52 | 8 | 5 | 3 | 1 | 17 |
| 2020 | A11 | 14 | 2 | 4 | 5 | 1 | 0 |
| 2020 | A12 | 43 | 8 | 2 | 5 | 2 | 5 |
| 2020 | A13 | 26 | 6 | 1 | 3 | 1 | 0 |
| 2020 | A14 | 73 | 8 | 36 | 5 | 6 | 0 |
| 2020 | A15 | 44 | 3 | 12 | 2 | 2 | 0 |
| 2020 | A16 | 92 | 4 | 18 | 3 | 5 | 3 |
| 2020 | A17 | 34 | 2 | 1 | 6 | 0 | 0 |
| 2020 | A18 | 7 | 0 | 0 | 2 | 0 | 0 |
| 2020 | A19 | 7 | 0 | 0 | 3 | 0 | 0 |
| 2020 | A20 | 29 | 0 | 0 | 4 | 0 | 0 |
| 2020 | A21 | 22 | 0 | 1 | 2 | 1 | 0 |

Appendix Table 11-1. Albacore catch by fishery in mt in the WCPCA north of the Equator. Figures in parentheses indicate provisional data. That was request written in **paragraph 4 of CMM-2005-03 and paragraph 3 of CMM2019-03**.

| Year | LL Coastal | LL Offshore & distant-water | PL Coastal | PL Offshore & distant-water | PS Coastal | PS Offshore & distant-water | Gillnet | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 17106 | 3849 | 86 | 21208 | 4 | 1068 | 138 | 239 | 17 | 167 |
| 2016 | 13118 | 3397 | 33 | 14402 | 3 | 3676 | 19 | 148 | 28 | 128 |
| 2017 | 13598 | 3673 | 30 | 20861 | 17 | 1233 | 40 | 107 | 48 | 119 |
| 2018 | 10121 | 3004 | 119 | 17756 | 2 | 3037 | 35 | 78 | 13 | 70 |
| 2019 | (9310) | (2819) | (177) | (8331) | (274) | (771) | (9) | (543) | (27) | (95) |
| 2020 | (10341) | (2537) | (177) | (8355) | (274) | (771) | (9) | (543) | (27) | (95) |

Appendix Table 11-2. Fishing effort in fishing days by fishery directed as albacore in the WCPCA north of the Equator. Figures in parentheses indicate provisional data. NA indicates data not available. That was request written in **paragraph 4 of CMM-2005-03**.

| Year | LL Coastal | LL Offshore & distant-water | PL Coastal | PL Offshore & distant-water | PS Coastal | PS Offshore & distant-water | Gillnet | Troll | Setnet | Others |
|---|---|---|---|---|---|---|---|---|---|---|
| 2015 | 37801 | 11763 | NA | 12743 | NA | 7326 | NA | NA | NA | NA |
| 2016 | 37308 | 10419 | NA | 13923 | NA | 6616 | NA | NA | NA | NA |
| 2017 | 35668 | 10154 | NA | 12797 | NA | 6766 | NA | NA | NA | NA |
| 2018 | 35037 | 10126 | NA | 13439 | NA | 6920 | NA | NA | NA | NA |
| 2019 | (35163) | (10125) | NA | (12321) | NA | (6297) | NA | NA | NA | NA |
| 2020 | (36354) | (10687) | NA | (7781) | NA | (5100) | NA | NA | NA | NA |

Appendix Table 11-3. Fishing effort in fishing days and vessel days by fishery directed as albacore in the WCPCA north of the Equator. Figures in parentheses indicate provisional data. NA indicates data not available. That was request written in **paragraph 3 of CMM2019-03**.

| CCM | Area | Fishery | 2002-04 Average | | 2019 | | 2020 | |
|---|---|---|---|---|---|---|---|---|
| | | | No. of vessels | Vessel days | No. of vessels | Vessel days | No. of vessels | Vessel days |
| Japan | WCPCA north of the Equator. | LL Coastal | 266 | 42292 | (230) | (35163) | (223) | (36354) |
| | | LL Offshore & distant-water | 198 | 22827 | (68) | (10125) | (62) | (10687) |
| | | PL Coastal | NA | NA | NA | NA | NA | NA |
| | | PL Offshore & distant-water | 135 | 18483 | (74) | (12321) | (66) | (7781) |
| | | PS Coastal | NA | NA | NA | NA | NA | NA |
| | | PS Offshore & distant-water | 25 | 4208 | (14) | (6297) | (14) | (5100) |
| | | Gillnet | NA | NA | NA | NA | NA | NA |
| | | Troll | NA | NA | NA | NA | NA | NA |
| | | Setnet | NA | NA | NA | NA | NA | NA |
| | | Others | NA | NA | NA | NA | NA | NA |