Japan National Report
to the Scientific Committee of the Indian Ocean Tuna Commission, 2018

National Research Institute of Far Seas Fisheries, Japan Fisheries Research and Education Agency
and
Fisheries Agency, Government of Japan

Executive Summary

This Japanese national report describes following 8 issues in recent five years (2013-2017), i.e., (1) tuna fisheries (longline fishery and purse seine fishery) (2) fleet information, (3) catch and effort by species and gear, (4) recreational fishery, (5) ecosystem and bycatch, (6) national data collection and processing systems including "logbook data collection and verification", "vessel monitoring system", "scientific observer program", "port sampling program" and "unloading and transshipment", (7) national research programs and (8) Implementation of Scientific Committee recommendations & resolutions of the IOTC relevant to the Scientific Committee and (9) working documents.

INFORMATION ON FISHERIES, RESEARCH AND STATISTICS

In accordance with IOTC Resolution 15/02, final scientific data for the previous year was provided to the IOTC Secretariat by 30 June of the current year, **for all fleets other than longline** [e.g. for a National Report submitted to the IOTC Secretariat in 2018, final data for the 2018 calendar year must be provided to the Secretariat by 30 June 2018)	YES 29/June/2018
In accordance with IOTC Resolution 15/02, provisional **longline data** for the previous year was provided to the IOTC Secretariat by 30 June of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2018, preliminary data for the 2018 calendar year was provided to the IOTC Secretariat by 30 June 2018). **REMINDER:** Final longline data for the previous year is due to the IOTC Secretariat by 30 Dec of the current year [e.g. for a National Report submitted to the IOTC Secretariat in 2018, final data for the 2018 calendar year must be provided to the Secretariat by 30 December 2018).	YES 29/June/2018
If no, please indicate the reason(s) and intended actions:	

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1. BACKGROUND/GENERAL FISHERY INFORMATION

Longline and purse seine fisheries are two types of Japanese tuna fisheries currently operating in the Indian Ocean. Longline fishery started its operation in 1952 when the limitation of operational area imposed by the GHQ*[1], was removed. On the other hand, commercial purse seine fleet commenced fishing in the Indian Ocean in 1991 after several years of experimental fishing.

The total fishing effort (the number of hooks) of Japanese longliners in the Indian Ocean had been keeping at similar level with fluctuation since 1971, i.e., around 100 million hooks, until 2007. Thereafter, it has been decreasing down to about 28 million hooks in 2011 due to piracy activities. It kept in a low level with slight decrease after that and was 23 million hooks in 2017. Percentage of effort used in this Ocean in the total effort in all oceans fluctuated around 20% until 2003 after when it increased to 35% in 2006 and 2007. Thereafter it has drastically decreased to 16% in 2010 and kept in a low level after that, mainly because of piracy activities off Somalia.

As for the purse seine fishery, fishing took place mainly in the tropical western Indian Ocean until 1993 after when fishing effort shifted almost completely to the eastern Indian Ocean mainly because of economic problem derived from rise of Japanese Yen during that time.

2. FLEET STRUCTURE

All Japanese longline vessels operating in the Indian Ocean have been the distant water category (120-500GRT) with some exceptional offshore vessels (10-120GRT). Historical change in the number of longline vessels from 1987 to 2017 is shown in Table 1. In the last 20 years, the number of vessels operated in this Ocean was around 170-250 per year until 2008. Although the number of operating vessels was relatively large in number (224-251) during 1995-1999, after that it decreased to less than 200 except for 228 in 2002. Although the number of vessels in 2007 increased to 250, it decreased rapidly year by year until 2011 due to effect of piracy activities. The number of longline vessels in 2017 was 41.

Japanese purse seine vessels operating in the Indian Ocean are 350-700 GRT class (700-1000 carrying capacity). Historical change in the number of purse seine vessels from 1987 to 2017 is shown in Table 1. Although more than 10 Japanese purse seiners operated during 1991-1994, it decreased year by year and commercial purse seiner retreated from the Indian Ocean in 2001 leaving only one vessel “Nippon-Maru”, the research vessel of Fisheries Research Agency (FRA), which was replaced by another research vessel “No.1 Taikei-Maru” in 2013. Since 2015 commercial vessels also have been operating and the number of total vessels operated in 2017 was 3.

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* *GHQ (General Headquarters) of the occupying forces of the Allies after the World War II*

Table 1. Number of vessels operating in the IOTC area of competence, by gear type

Fleet/Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Longliners	272	235	245	216	184	181	206	206	224	251	243	242	223	192
Purse seiners	1	1	3	4	11	12	11	11	8	5	3	4	3	2

Fleet/Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Longliners	199	228	172	189	184	188	250	173	130	84	72	75	57	53
Purse seiners	2	1	1	1	1	3	3	3	2	1	1	1	1	1

Fleet/Year	2015	2016	2017
Longliners	52	45	41
Purse seiners	3	3	3

3. CATCH AND EFFORT (BY SPECIES AND GEAR)

3.1 Longline fishery

The latest available longline data is that of 2017 (data for 2017 are preliminary).

Fishing effort

The longline fishery commenced in 1952 in the eastern equatorial waters in the Indian Ocean. In the late 1960s, the effort covered entire fishing ground of the longline in the Indian Ocean. The annual amount of the effort has increased until the late 1960s and fluctuated after that. However, fishing effort had been dramatically decreasing since 2008 and then kept in a low level (Table 2) because of the effect of piracy activities off Somalia. Fishing effort in 2017 (23 thousand hooks) was only about 20% of that in 2007.

Table 2. Annual catch and effort and primary species in the IOTC area of competence (longline fishery, 2013-2017) as of November 2018.

(catch in mt and hooks in thousand)

Year	Set	Hooks	SBF	ALB	BET	YFT	SWO	MLS	BLZ	BLM	SFA	SPF	SKJ
2013	8,926	29,127	953	2,273	5,582	4,157	657	94	195	51	56	87	24
2014	9,800	31,786	1,272	3,737	5,310	3,640	770	56	173	51	72	112	26
2015	9,181	28,958	1,864	2,917	4,875	3,138	706	23	137	49	60	109	14
2016	8,583	27,049	1,616	2,367	4,039	2,967	722	98	122	48	33	61	8
2017	7,346	23,355	1,251	1,668	3,739	3,290	566	61	139	48	56	66	8

Geographical distributions of longline effort for 2017 and average of 2013-2017 are shown in Fig. 1. In 2017, the effort in African offshore area from off Cape Town to Mozambique and in the eastern part west off Australia and Indonesia seems relatively larger than that for 2013-2017. The effort in the northwestern area has dramatically decreased since 2008 and the effort in 2017 is still almost nothing because the threat of activity of piracy still remains off Somalia.

Catch

Historical catch in weight by species and catch statistics for 2013-2017 by Japanese longliners in the Indian Ocean are shown in Fig. 2 and Table 2, respectively, and geographical distributions of catch in 2017 and average of 2013-2017 for major tuna and billfish species are shown in Fig. 3. Catch of albacore, yellowfin and southern bluefin tunas were very high during 1950s and 1960s, and then sharply decreased. After mid 1990s bigeye and yellowfin tunas have been main components of the catch.

Total catch (the catch of southern bluefin tuna, albacore, bigeye, yellowfin, swordfish, striped marlin, blue marlin, black marlin, sailfish, shortbill spearfish, and skipjack) in 2016 and 2017 was 12,081MT and 10,892MT, respectively. It should be noted that the catch of yellowfin and bigeye drastically decreased during 2007-2010, although the catch of albacore was roughly at the same level during this period. Furthermore, bigeye catch in 2011 and yellowfin catch in 2016 were lowest after 1980s, and this decrease was mainly derived from decrease in effort especially in the tropical area.

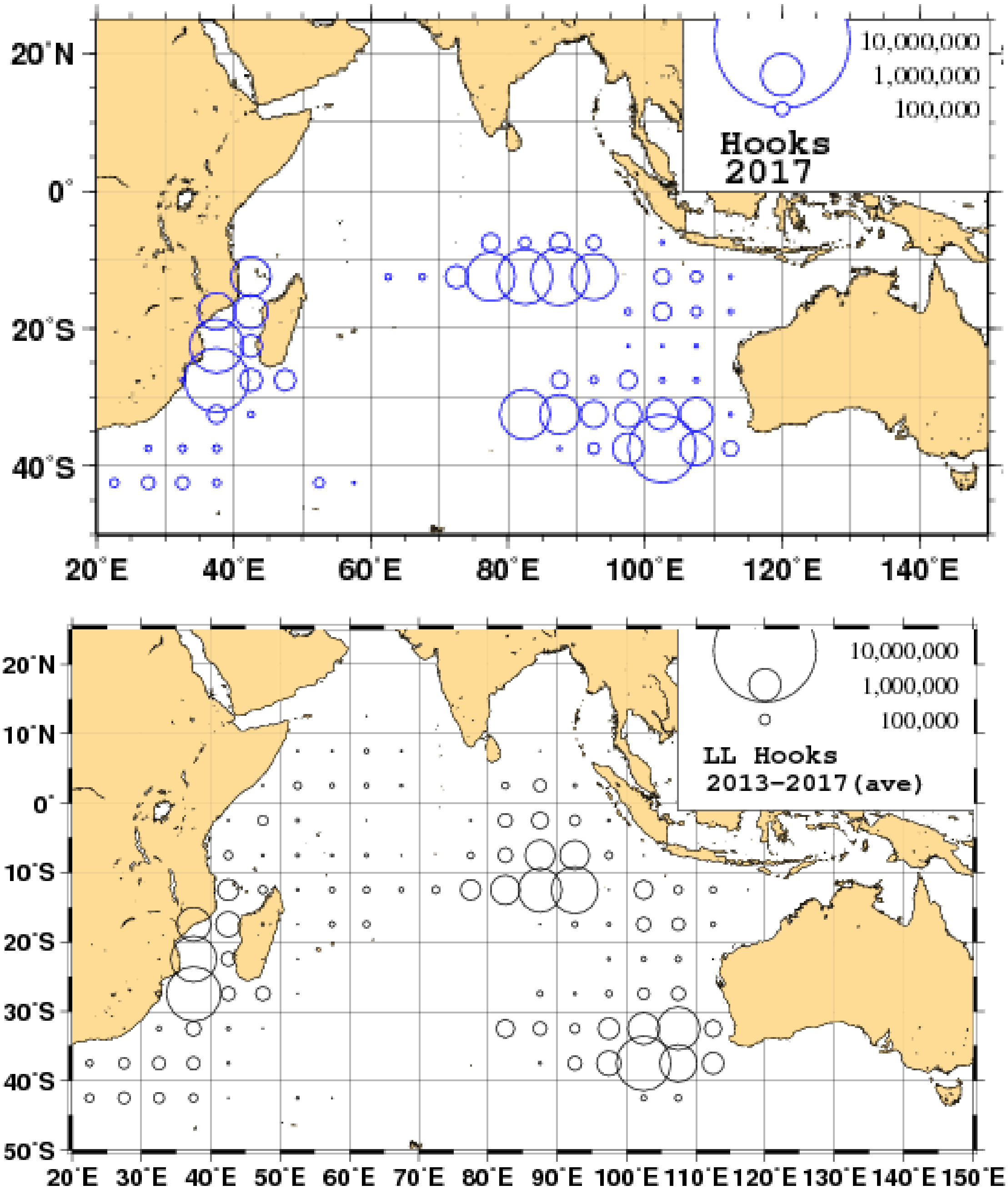


Fig 1. Geographical distributions of longline effort for 2017 (above) and average of 2013-2017 (below).

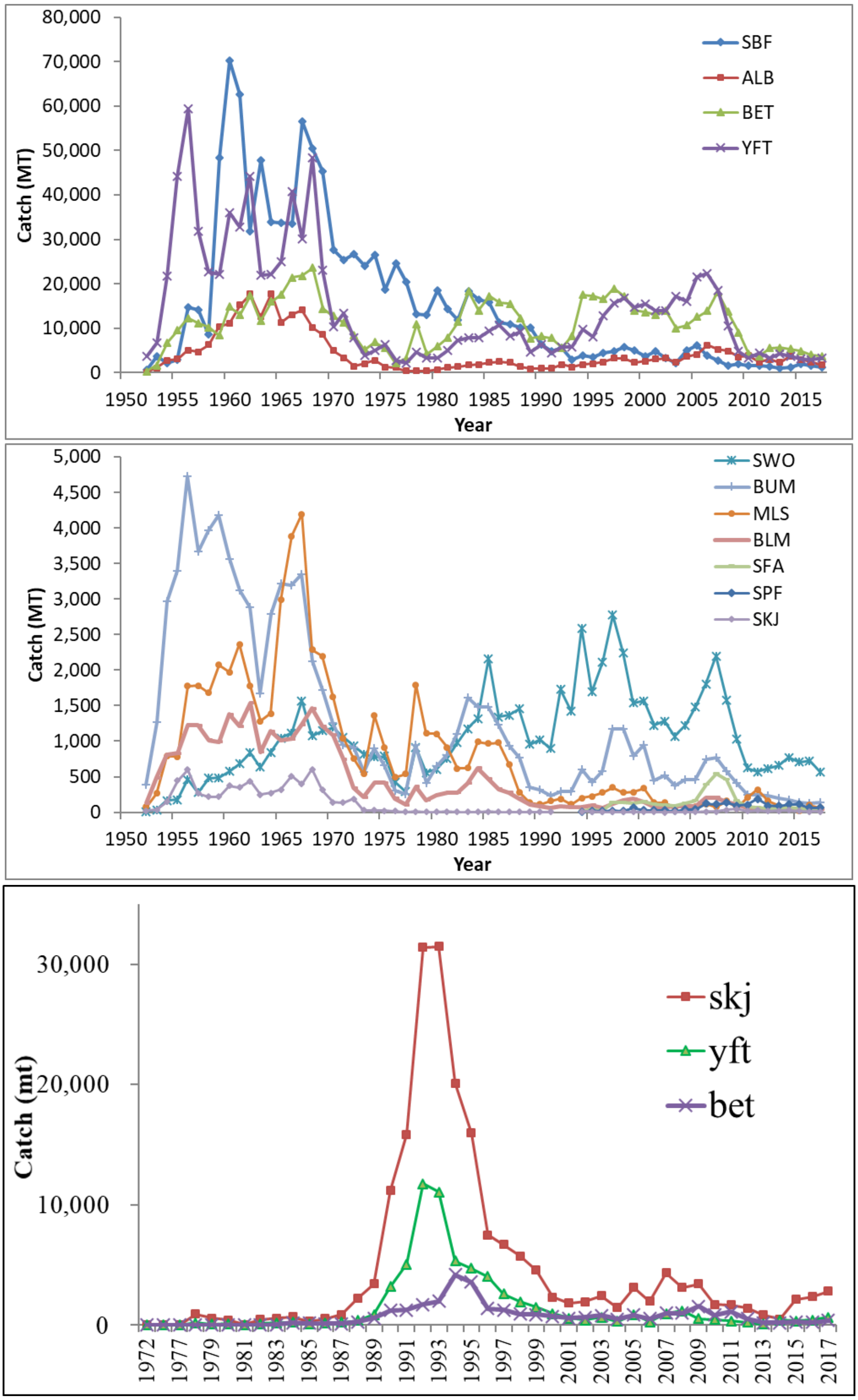
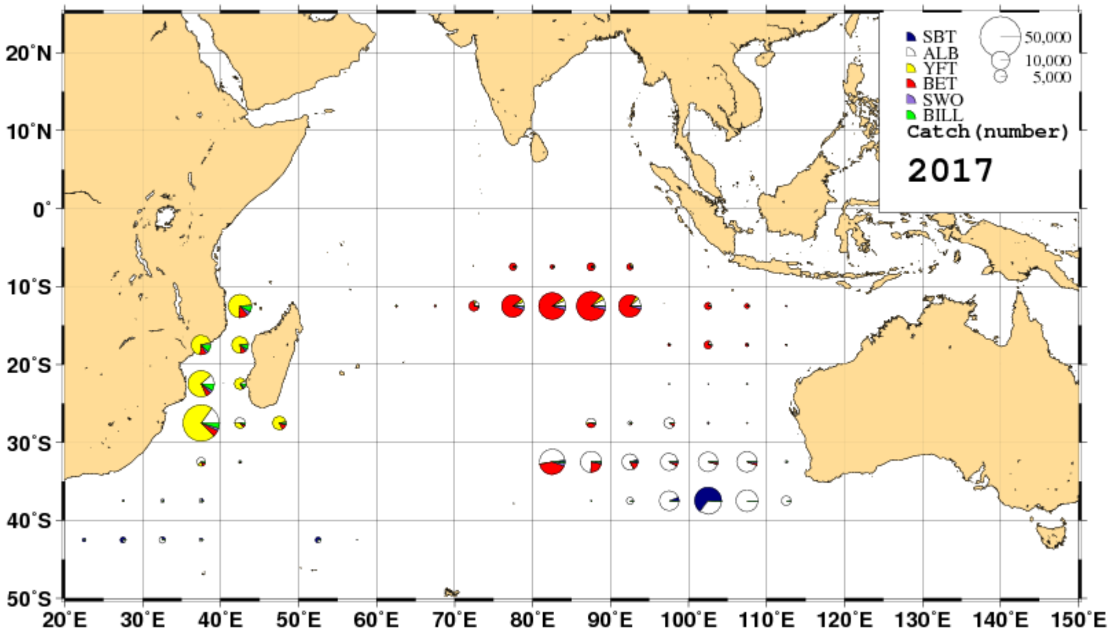


Fig. 2. Historical change in longline and purse seine catch of main tuna and tuna-like species in the Indian Ocean. Upper: longline (tuna species), middle: longline (skipjack and billfish species), lower: purse seine.



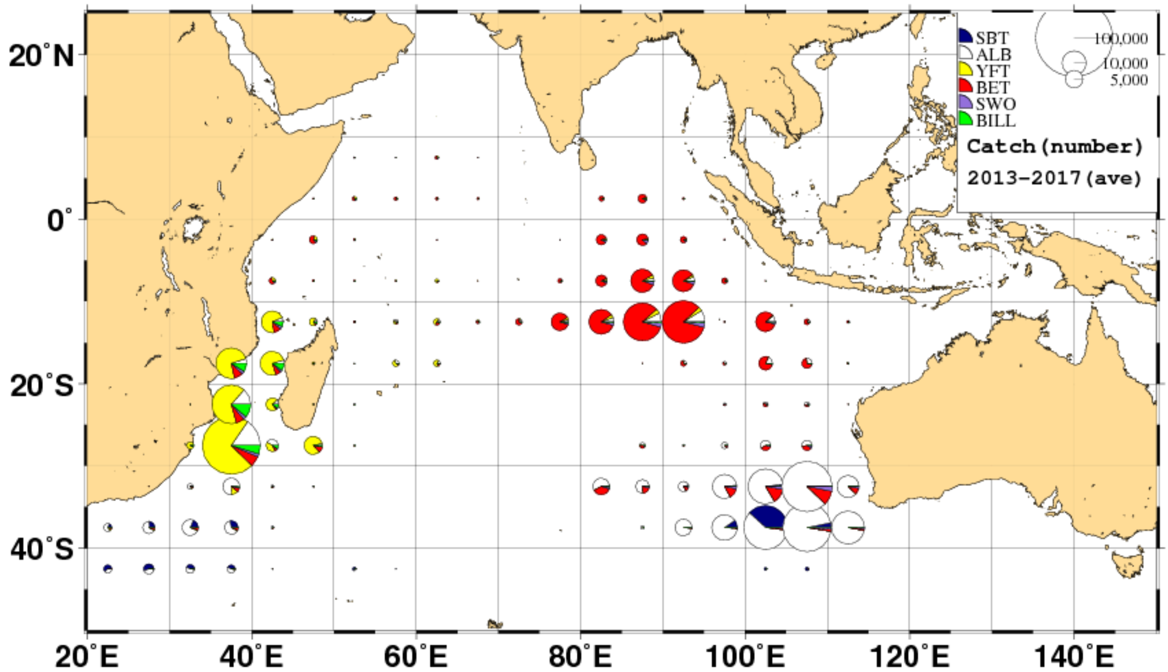


Fig. 3 Geographical distributions of longline catch (in number) of major species in 2017 (upper) and in average of 2013-2017 (lower). Southern bluefin tuna (SBT), albacore (ALB), bigeye tuna (BET), yellowfin tuna (YFT), swordfish (SWO) and billfishes (BILL).

Seeing geographical distribution of the catch, yellowfin and bigeye tunas are mainly caught in the western and eastern part, respectively. Albacore is mainly caught in the temperate area west off Australia and subsequently around South Africa, where this species is one of main components of the catch. In 2017 there was almost no effort in the northwestern area and so yellowfin was mainly caught in the area around Madagascar.

3.2 Purse seine fishery

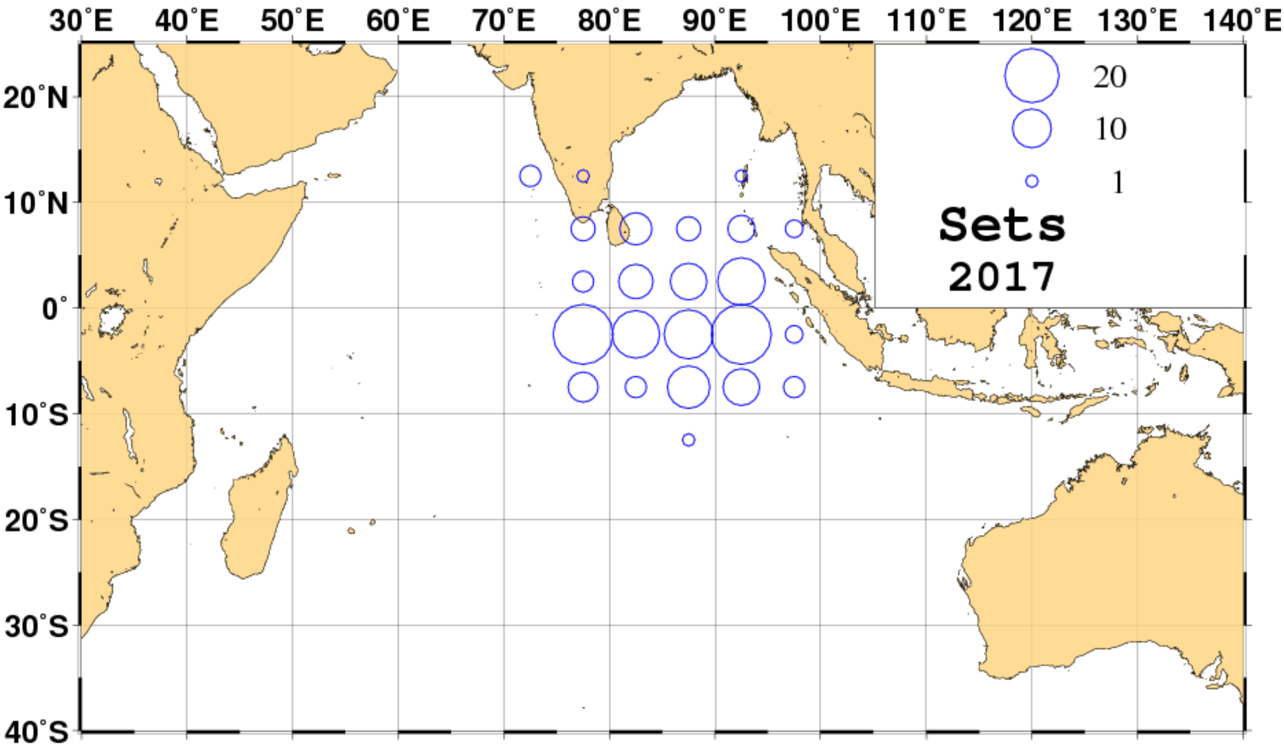
The latest available data for Japanese purse seine fishery is that for 2017.

Fishing Effort

Total fishing effort (number of set) was 147 in 2016 and 177 in 2017 (Table 3). These are larger than those in the early 2010s due to increase in the number of vessels. Geographical distributions of effort for 2017 and the average of 2013-2017 are shown in Fig. 4. Operations were conducted almost only in the eastern part in recent years.

Table 3. Annual catch and effort and primary species in the IOTC area of competence (2013-2017) (purse seine fisheries).

Year	Number of set	Catch (mt)				
		SKJ	YFT	BET	others	Total
2013	27	861	95	197	0	1,153
2014	51	496	433	192	0	1,121
2015	154	2,140	338	294	0	2,772
2016	147	2,357	422	258	0	3,037
2017	177	2,843	657	392	0	3,892



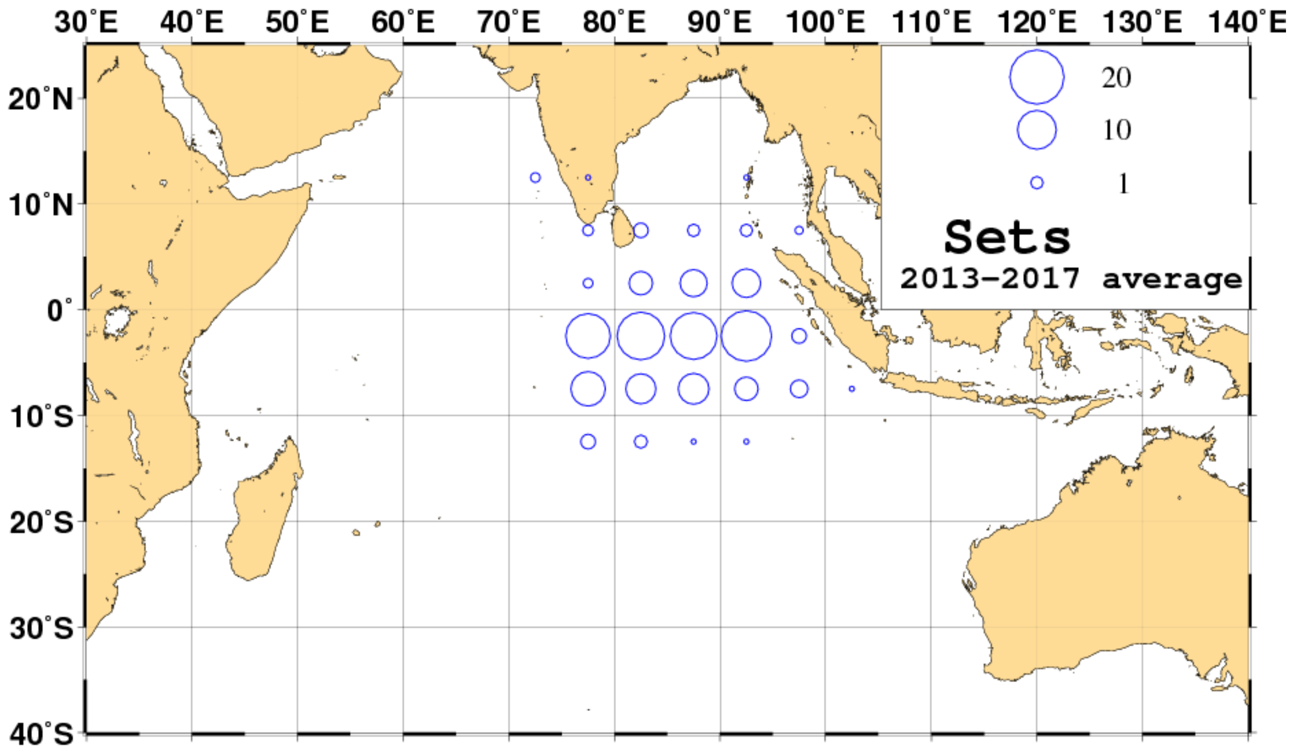


Fig. 4. Distributions of purse seine fishing effort in the Indian Ocean in 2017 (upper) and average of 2013-2017 (lower).

Catch

Total catch was low (around 1,000 MT or less) until mid-1980s, then increased rapidly to about 45 thousand MT in 1992 and 1993 after when it decreased to 10 thousand MT in 1997 and 10 thousand MT in 1999 (Fig. 1). Thereafter it has fluctuated between 2.0 and 8.6 thousand MT until 2012 and total catch in 2013 and 2014 decreased to approximately 1 thousand MT. Total catch in 2015 increased to 2.8 thousand MT because of increase in the number of vessels operated, and further increased after that (3.9 thousand MT in 2017). Catch in weight of skipjack, yellowfin and bigeye in 2017 (2016) was 2,843 (2,357) MT, 657 (422) MT and 392 (258) MT, respectively. Geographical distributions of catch in 2017 and average of 2013-2017 for major tuna species are shown in Fig. 5. Main component of the catch was usually skipjack tuna in all the area operating, and was partly yellowfin and/or bigeye tuna.

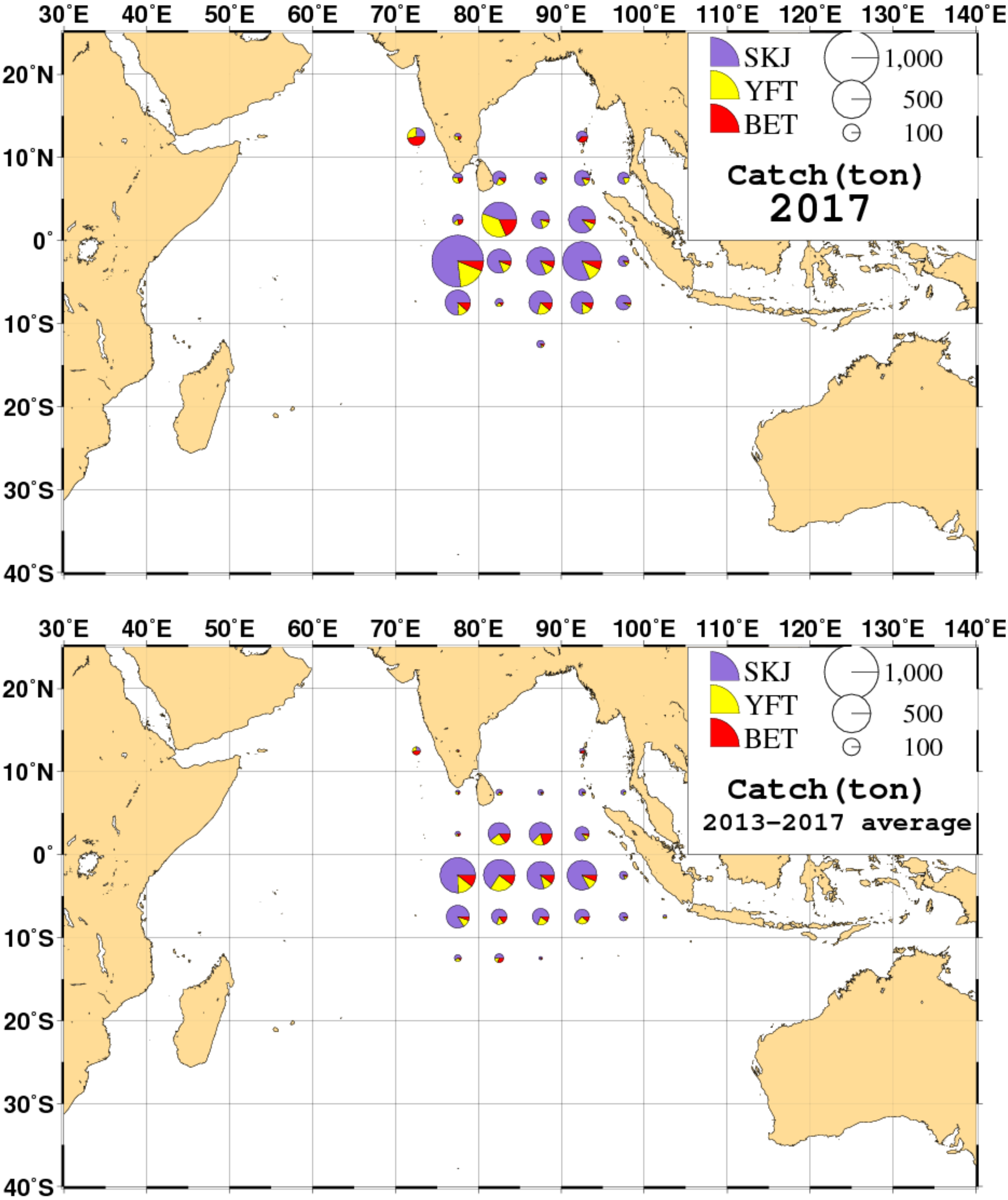


Fig. 5 Geographical distributions of purse seine catch of major species in 2017(upper) and average of 2013-2017 (lower).

4. RECREATIONAL FISHERY

None

5. ECOSYSTEM AND BYCATCH ISSUES

5.1 National Action Plans

In accordance with FAO International Action Plans on sharks and seabirds, Japan established the National Action Plans on sharks and seabirds in 2001 then revised in 2009 and 2016. In addition, Japan has been taking actions in accordance with the FAO Guidelines on sea turtle by-catch. Japan has been taking actions in accordance with IOTC conservation and management measures on by-catch of sharks, sea turtles and seabirds.

5.2 Logbooks information (Sharks)

Table 4 shows annual catch of three major shark species by Japanese tuna longliners (1994-2017). These catch data were collected through the logbook and compiled in the National Research Institute of Far Seas Fisheries (NRIFSF). In August 2008, the Japanese government obliged Japanese distant water longliners to land all the parts of sharks (although heading, gutting and skinning are allowed) and the quantities given in Table 4 represents the whole weight including the weight of fins. These figures are based on the new conversion factors introduced in 2013 (for details on the new conversion factors, refer to National Report in 2013).

Table 4. Reported annual catch (tons) of three major sharks species caught by Japanese tuna longliners in the Indian Ocean (1994 -2017). (*) 2017 is preliminary.

Year	Blue shark	Porbeagle	Shortfin mako
1994	414	145	425
1995	724	47	328
1996	736	51	666
1997	805	62	494
1998	645	48	283
1999	557	37	372
2000	530	39	310
2001	477	33	246
2002	433	25	224
2003	355	10	126
2004	330	10	297
2005	577	20	276
2006	398	24	216
2007	790	12	162
2008	2,240	53	208
2009	2,657	26	154
2010	1,503	13	170
2011	1,390	18	155
2012	1,557	8	148
2013	1,101	2	99
2014	832	2	112
2015	974	4	111
2016	495	4	99
2017	592	13	102

5.2 Observer data

Under the IOTC ROS staring July 1, 2010, scientific observers have been deployed to the Japanese tuna longliners and collecting catch and bycatch data in the Indian Ocean mainly as a part of the southern bluefin tuna observer program. Observers take photos of bycatch species according to the procedures given in the observer manual made by the NRIFSF scientists. Bycatch experts in the NRIFSF identified species using these photos. Table 5 shows the summary of retained bycatch information (2010-2016).

Table 5 Summary of bycatch (retained) information recorded by scientific observers on board to Japanese tuna longline vessels (number of individuals).

IOTC code	English name	2010	2011	2012	2013	2014	2015	2016
Sharks								
BSH	Blue shark	1,033	1,803	1,897	807	2,809	320	1,144
BTH	Bigeye thresher	159	0	2	0	0	0	0
FAL	Silky shark	18	2	7	6	13	18	35
LMA	Longfin mako	0	1	2	13	22	7	18
OCS	Oceanic whitetip shark	10	1	3	2	0	0	0
POR	Porbeagle	181	171	123	55	277	28	159
PSK	Crocodile shark	0	12	33	48	225	381	522
RSK	Unidentified requiem sharks	0	0	0	1	5	0	0
SMA	Shortfin mako	69	162	81	81	204	31	97
SPL	Scalloped hammerhead	2	0	1	3	0	0	0
TIG	Tiger shark	2	0	0	0	0	0	0
Pelagic stingray								
PSL	Pelagic stingray	2	18	166	73	656	83	94
Sharks, Rays and Skates (unidentified)								
SKH	Sharks, rays, skates, nei	4	2	17	0	3	1	0
Sea Turtle (for specimen)								
	Un-identified	0	0	3	24	2	0	2
Sea bird (for specimen)								
DCU	Shy-type albatrosses	0	0	5	4	21	1	22
TQH	Indian yellow-nosed albatross	0	0	5	5	30	14	22

6. NATIONAL DATA COLLECTION AND PROCESSING SYSTEMS

6.1 Logbook data collection and verification

Longline

In the logbook of longline, 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 and time of starting and setting the gear are included. The number of hooks per basket is important information as it suggests the depth of the gear and target species. As for tuna and tuna-like fishes, six tunas (bluefin, southern bluefin, albacore, bigeye, yellowfin and skipjack), and six billfishes (swordfish, striped marlin, blue marlin, black marlin, sailfish and shortbill spearfish) are recorded by species in the logbook. Additionally, information on the cruise (date and port of departure and arrival of the cruise), vessel (name, size, license number and call sign), number of crew and the configurations of the fishing gear (material of main and branch lines) are asked to fill on the top part of the sheet by each cruise. Japan revised the logbook format for distant water fishing vessels in accordance with IOTC Resolution 12/03,13/03 and 15/01.

Submitted logbooks are processed into electronic data files. Various error checks, such as date, location, range of weight of the fish, CPUE, are conducted before these data are finalized. Vessel characteristics (call sign, name, license number, etc) are verified with a register.

Purse seine

The logbooks of purse seiners are required to be submitted every month to the Japanese government. 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).

6.2 Vessel Monitoring System

VMS installation on all distant water and offshore longline and distant water purse seine vessels is obligated since 1st August in 2007.

6.3 Scientific Observer programme

In July 2010, Japan started the observer programs under IOTC ROS. During 2010-2016, 8, 11, 10, 6, 14, 12 and 9 observers were dispatched to the IOTC area respectively. The average observer coverage based on hooks (2010-2016) was 6.6% (Table 6 and Fig. 7). Japanese observer program in the IOTC area is a part of the southern bluefin tuna one. Data in 2010-2016 have been submitted to the IOTC Secretariat. Fig. 6 shows areas where observers covered in 2010-2016 and also shows number of sets covered by 5^{o}x5^{o} area by year.

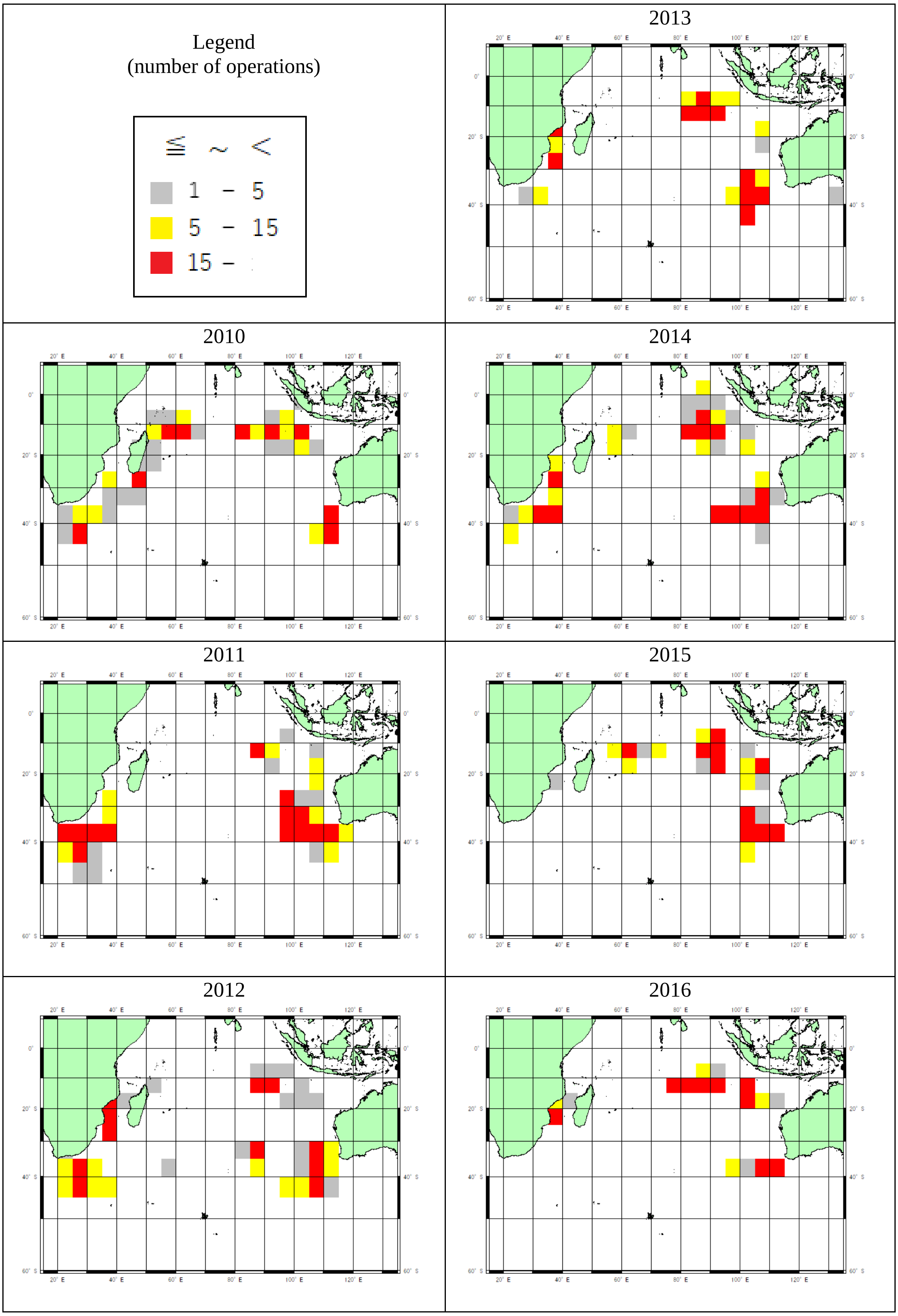


Fig. 6 $5^{o}x5^{o}$ areas covered by scientific observers in the Japanese tuna longline fisheries (2010/July-Dec - 2016)

(Red: 15 operations or more, Yellow: 5-14 operations and Grey: 1-4 operation)

6.4 Port sampling program

Because catch in the Indian Ocean is mainly unloaded abroad, the port sampling in Japanese ports was held only once in 2006 recently.

6.5 Unloading/Transhipment

Unloading

The owners of fishing vessels are required to submit relevant documents to the Japanese Government 10 days before the planned landing date including unloading abroad. In case of unloading abroad the owner of fishing vessels are required to obtain approval from the Government of Japan in advance.

Transshipment

The owners of fishing vessels are required to obtain approval from the Government of Japan for at port transhipments in advance. To apply for at port transhipment, fishers have to submit relevant documents to the Government of Japan 10 days before the planned transhipment date. Fishers shall complete the IOTC transshipment declaration and transmit it to the Government of Japan not later than 15 days after the transshipment. Japan also controls at sea transhipments by its vessels in accordance with the Resolution 08/02 on establishing a programme for transhipment by large-scale fishing vessels.

7. NATIONAL RESEARCH PROGRAMS

7.1 Research cruises by Marine Fisheries Research and Development Center (JAMARC), Fisheries Research Agency (2014-2018)

In recent 5 years, JAMARC has been conducting the experimental purse seine fishing in the eastern Indian Ocean. RV Taikei Maru No.1 were used for the study. The main object of the research program is to mitigate bycatch of juvenile yellowfin and bigeye tunas in purse seining with FADs. Two kinds of study have been conducted; (a) Study on how large mesh size affect the catch size distribution of skipjack, yellowfin and bigeye tunas and (b) Study on preset estimation of species and size composition of schools associated with FADs using wide band echo sounder. With accurate estimation, sets on FADs with larger concentration of juvenile tunas could be avoided and would lead to protection of juveniles.

7.2 IOTC-OFCF projects (2002-2018)

The IOTC-OFCF joint project to improve tuna fisheries statistics in the developing countries in the IOTC waters have been implemented for last 17 years in five phases, i.e., 1st phase (5 years: 2002-2006), 2nd phase(3 years: 2007-2009), 3rd phase (3 years: 2010-2012), 4th phase(1st 3 years :2013-2015 and last 1 year: follow up activities in 2016) and 5th phase (tentatively for 3 years: 2017-2019).

8. IMPLEMENTATION OF SC RECOMMENDATIONS & RESOLUTIONS OF THE IOTC RELEVANT TO THE SC.

Progress on the implementation of recommendations of the past SCs relating to Japan is as below:

8.1 Observer coverages

In accordance with the Resolution 11/04 (IOTC ROS: Regional Observer Scheme), Japan started to deploy observers from July 2010. Table 6 and Fig. 7 show the observer coverages based on hooks (2010-2016) (as of April 2018). The average observer coverages based on hooks (2010-2016) are 6.6 % (Table 6). In 2012-2013, the coverages rates were less than 5% (compliance level).

Table 6 Observer coverage rates of the Japanese tuna longline fisheries (2010-2016) (as of April, 2018).

Color legend of coverage	5% <	< =5%

Based on number of hooks			
	[A] Total	[B] from observer data	[C] Coverage (%) = [A]*100/[B]
2010 (July–Dec)	15,387,925	1,197,302	7.8
2011	27,659,048	2,431,206	8.8
2012	31,147,805	1,487,299	4.8
2013	29,062,742	1,387,765	4.8
2014	31,743,773	2,773,266	8.7
2015	28,901,875	1,528,028	5.3
2016	26,970,237	1,548,100	5.7
Average			6.6

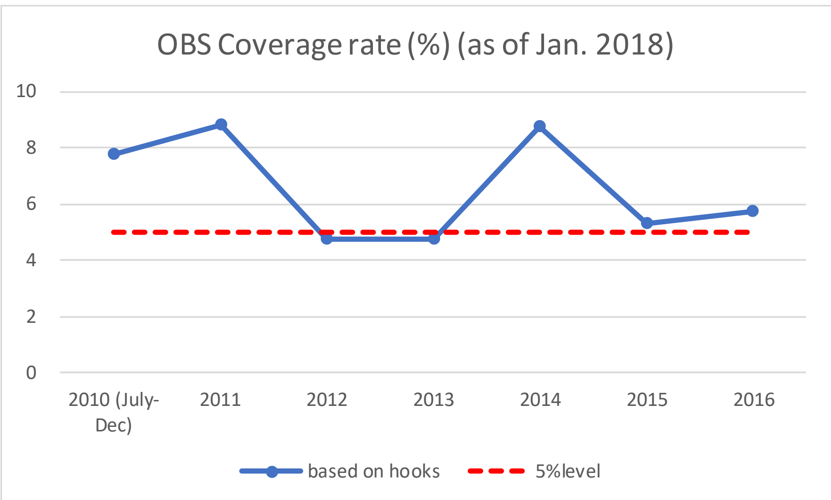


Fig. 7 Observer coverage rates of the Japanese tuna longline fisheries (2010-2016) (as of April 2018).

8.2 Collection of size data

Tuna longliners in Japan have been collecting size data voluntary basis to now, except the observer program under the IOTC Regional Observer Scheme (ROS) started in July 2010. In 1960-70's, size data were covered up to 20% of the total catch, afterwards the coverage decreased to a few %. In 1980-1990's, high school training vessels off Java Island, Indonesia collected size data in high coverage rates. For example, as for bigeye tuna, its coverage of size data was 10-20% of the total catch in the Indian Ocean before 1992. But, afterwards it sharply decreased to only a few %. This is mainly because these training vessels shifted their operations to the Pacific Ocean due to the pirate problems in the Strait of Malacca. Under such situation, size data sampled have been limited.

(1) Major tuna and tuna like species

After the IOTC ROS started in July 2010, Japanese observer started to collect more size data (Table 7). In average, bigeye tuna and albacore tuna satisfy 1 fish measurement/1 ton compliance criteria, while not for yellowfin tuna and swordfish.

Table 7 Number of size measured (4 major species) in 2010- 2016 under the IOTC ROS.

( ) Numbers recommended by IOTC (1 fish per ton in the annual catch) and (%) coverage

Color legend of coverage < 60% 60%-100% 100% <

Year	No of observers (vessels)	Yellowfin	Bigeye	Albacore	Swordfish
2010 (July-December)	6	2,195	2,794	2,628	232
2011	8	452 (4,415) (10%)	2,501 (3,696) (68%)	5,904 (2,427) (243%)	95 (571) (17%)
2012	8	1,781 (3,562) (50%)	4,091 (6,010) (68%)	3,277 (2,918) (112%)	233 (619) (38%)
2013	11	2,807 (4,253) (66%)	3,672 (5,779) (64%)	3,524 (2,276) (155%)	219 (658) (33%)
2014	10	1,207 (4,072) (30%)	9,844 (5,502) (179%)	16,384 (3,737) (438%)	879 (770) (114%)
2015	14	626 (3,478) (18%)	7,923 (5,170) (153%)	1,995 (2,919) (68%)	420 (707) (59%)
2016	9	1,698 (3,398) (50%)	11,997 (4,289) (280%)	3,658 (2,337) (157%)	808 (720) (112%)
Average (%)		43%	149%	187%	71%

(2) Sharks

Table 8 shows number of size measured (3 major shark species) by the observer program. Porbeagle satisfied 1 individual/ton (compliance level), while Blue and shortfin mako sharks partially complied.

Table 8 Number of size measured by the observer program (3 major shark species) (as of April 2018)

(green => 1 individual measured/ton) (yellow < 1 individual measured/ton)

	ヨシキリザメ Blue shark			アオザメ Shortfin mako			ニシネズミザメ Porbeagle		
	(A) catch (t)	(B) no of individuals measured	rate(%) (B)*100/(A)	(A) catch (t)	(B) no of individuals measured	rate(%) (B)*100/(A)	(A) catch (t)	(B) no of individuals measured	rate(%) (B)*100/(A)
2012	1,557	609	39	148	84	57	8	113	1,413
2013	1,102	829	75	99	79	80	2	58	2,900
2014	832	1,886	227	112	198	177	2	264	13,200
2015	974	429	44	111	35	32	4	86	2,150
2016	496	1,141	230	99	93	94	4	143	3,575

8.3 Modification of log-sheet collection system

The owners of fishing vessels larger than or equal to 10 GRT are required to submit the logbook on their operations and catch information to the Japanese government within three months after each cruise was finished. As the duration of one cruise for distant water longliners is long, sometimes longer than one year, it used to take about two years to complete compiling statistics of longline fishery. Starting in August 2008, distant water longliners are required to submit it every ten days. This change in submission rule of logbook has facilitated earlier compilation of tuna statistics.

8.4 Improvement to speed up to submit fisheries data to the IOTC

From August 1, 2008 Japan has mandated that all the long-distance longline vessels submit the logbook more quickly by revising the ministerial ordinance. This change facilitates more speedy data submission to the IOTC secretariat.

9. WORKING DUCUMENTS (total 14 Documents)

WPB16 (Billfish)(Cape Town) (September 2018) (2)

IOTC-2018-WPB16-25 Standardized CPUE of the Indian Ocean striped marlin (Tetrapturus audax) caught by Japanese longline fishery: Update analysis between 1994 and 2017 (Hirotaka Ijima)

IOTC-2018-WPB16-26 Standardized CPUE of the Indian Ocean black marlin (Istiompax indica) caught by Japanese longline fisheries (Hirotaka Ijima)

WPEB14 (Ecosystem and Bycatch) (Cape Town) (September 2018) (2)

IOTC–2018–WPEB14–24 Preliminary assessment of the risk of albatrosses by longline fisheries (Daisuke Ochi, Edward Abraham, Yukiko Inoue, Kazuhiro Oshima, Nathan Walker, Yvan Richard and Sachiko Tsuji)

IOTC-2018-WPEB14-27 A progress report on the implementation of the IOTC bigeye thresher shark post-release mortality study project (IOTC BTH PRM Project) (IOTC BTH PRM Project Team (in alphabetic order): Pascal Bach, Sylvain Bonhommeau, Rui Coelho, Sarah Martin, Hilario Murua, Evgeny V. Romanov (Project co-ordinator), Philippe S. Sabarros, Yasuko Semba, Charlene da Silva, Wen-Pei Tsai)

WPM09 (Method) (Seychelles) (October 2018) (1)

IOTC-2018-WPM09-12 Collaborative study of yellowfin tuna CPUE from multiple Indian Ocean longline fleets in 2018 (Simon D. Hoyle, Emmanuel Chassot, Dan Fu, Doo Nam Kim, Sung Il Lee, Takayuki Matsumoto, Kaisuke Satoh, Sheng-Ping Wang, Yu-Min Yeh, and Toshihide Kitakado)

WPTT20 (Tropical tuna) (Seychelles) (October 2018) (6)

IOTC-2018-WPTT20-18 Preliminary attempt incorporating oceanographic conditions into CPUE standardization using HSI (Habitat Suitability Index) (Tom Nishida, Takayuki Matsumoto, Keisuke Satoh, Toshihide Kitakado and Hiroshi Matsuura)

IOTC–2018–WPTT20–29 Japanese longline CPUE for bigeye tuna in the Indian Ocean standardized by GLM (Takayuki Matsumoto)

IOTC–2018–WPTT20–37 Standardization of bigeye and yellowfin tuna CPUE by Japanese longline in the Indian Ocean which includes cluster analysis (Takayuki Matsumoto, Keisuke Satoh and Simon Hoyle)

IOTC–2018–WPTT20–38 Japanese longline CPUE for yellowfin tuna in the Indian Ocean standardized by generalized linear model (Takayuki Matsumoto)

IOTC-2018-WPTT20-41 Preliminary stock assessment of yellowfin tuna (Thunnus albacares) in the Indian Ocean by SCAA (Statistical-Catch-At-Age) (1950-2017) (Tom Nishida, Toshihide Kitakado, Keisuke Satoh and Takayuki Matsumoto)

IOTC–2018–WPTT20–42 Diagnoses for stock synthesis model on yellowfin tuna in the Indian Ocean (Takayuki Matsumoto, Hiroki Yokoi, Keisuke Satoh and Toshihide Kitakado)

WPDCS14 (Data collection and statistics) (Seychelles) (November 2018) (1)

IOTC-2018-WPDCS14-24 Comments on Proposals for new IOTC ROS data collection and reporting templates (Japan)

SC21 (Scientific Committee) (Seychelles) (November-December 2018) (2)

IOTC-2017-SC20_NR__ National Report of Japan (Matsumoto, Semba and Nishida)

IOTC-2017-SC__ Requests to the joint CPUE standardization (Nishida, Kitakado and Matsumoto)