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Annual National Report of Japan

Relates to agenda item: 3 Working paper

Delegation of Japan

Abstract

This document describes following seven items requested by the National Report Template, i.e., "1. Fisheries", "2. Catch, effort and CPUE", "3. Fisheries data collection and research activities", "4. VME thresholds", "5. Biological sampling and length/age composition of catches", "6. Data verification mechanisms" and "7. Observer program". In the SIOFA convention area (CA), Japan has been operating two different types of fisheries discontinuously for 42 years (1977-2018), i.e., trawl fisheries targeting splendid alfonsino and bottom longline fisheries targeting Patagonian toothfish. Based on accumulated information, the seven items are described each for trawl and bottom longline fisheries.

Contents

1. Description of fisheries---------- 02-04
2. Catch, effort and CPUE summaries---------- 05-09
3. Fisheries data collection and research activities---------- 10
4. VME thresholds---------- 10
5. Biological sampling and length/age composition of catches---------- 11-14
6. Description of data verification mechanisms---------- 15
7. Summary of observer and port sampling programs---------- 15-16
8. Relevant social and economic information (optional)---------- 16

1. DESCRIPTION OF FISHERIES

In the SIOFA convention area (CA), Japan has been operating two different types of fisheries discontinuously for 42 years (1977-2018) (Figure 1). i.e., trawl fisheries and bottom longline fisheries. Figure 1 shows that the number of vessels (trawl and bottom longline fisheries) operated in the SIOFA CA during 1977-2018 ranging from 0 to 3 boats. There had been no operations for 23 years (1979-2000 and 2003). Table 1 shows the summary of the annual catch for trawl and bottom longline fisheries.

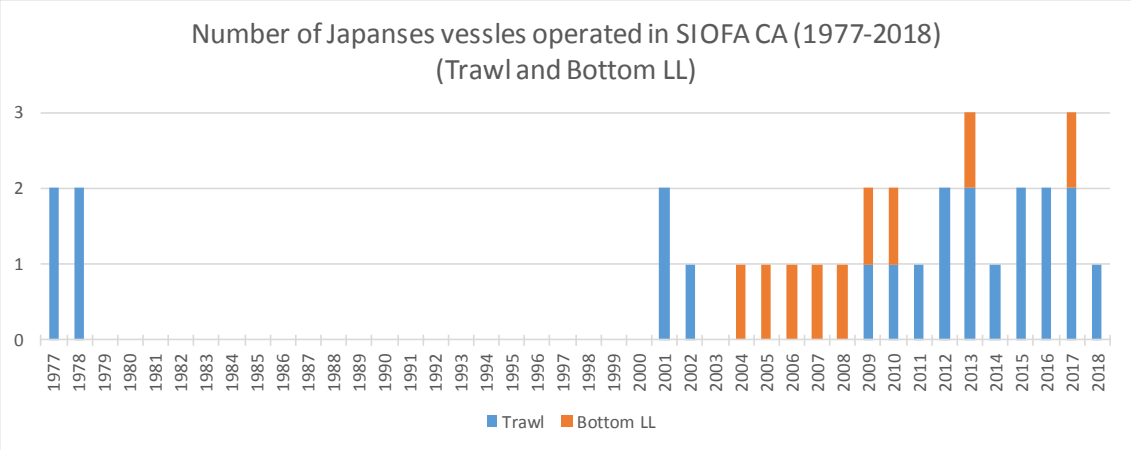


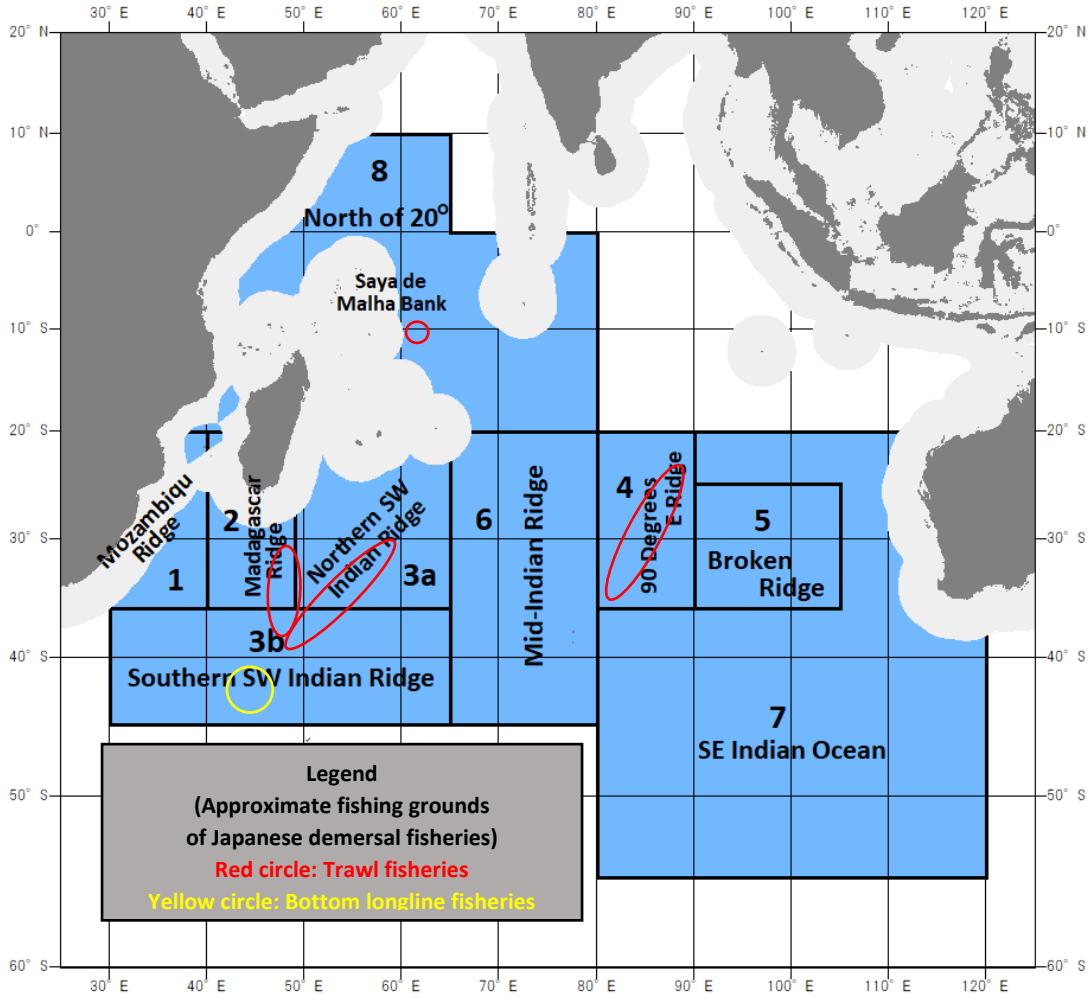
Figure 1. Number of Japanese vessels (trawl and bottom longline fisheries) operated in the SIOFA convention area (1977-2018).

(1) Trawl fisheries

There were 14 years of trawl fisheries operations (including exploratory fishings) in three separate periods, i.e. 1977-1978, 2001-2002 and 2009-2018. The total catch (without 2018 as data are in processing) of trawl fisheries ranges 352-4,416 tons (1,559 tons in average) with 1-2 vessels (Table 1). There are 4 major Japanese trawl fishing grounds in the SIOFA area, i.e., Area 2 (Madagascar Ridge), Area 3 (Southwestern Indian Ridge), Area 4(90^{o} E Ridge) and Saya de Malha Bank in Area 8 (North of 20^{o}) (red circle areas in Map 1).

(2) Bottom longline fisheries

As for bottom longline fisheries, there were 9 years of operations in 2004-2010, 2013 and 2017 by the same boat. The total catch ranges 5-87 tons (26 tons in average) (Table 1). This boat mainly operates in the CCAMLR CA and opportunistically operates in the SIOFA Area 3 (Southwestern Indian Ridge) adjacent to the northern part of the CCAMLR area (yellow circle area in Map 1).



Map 1 SIOFA Statistical areas defined in the National Report Guideline (SIOFA, 2019) and approximate locations of Japanese trawl (1977-2018) and bottom longline fisheries (2004-2017)

Table 1 Summary of annual total catch of Japanese demersal fisheries (Trawl and Bottom longline) in the SIOFA CA (1977-2018) (- no operation) (As of February, 2019)

Year	Japanese year		Trawl fisheries		Bottom longline fisheries	
			No. of vessels operated	Total catch (tons)	No. of vessels operated	Total catch (tons)
1977	Showa	52	2	721	-	-
1978		53	2	352	-	-
1979		54	-	-	-	-
1980		55	-	-	-	-
1981		56	-	-	-	-
1982		57	-	-	-	-
1983		58	-	-	-	-
1984		59	-	-	-	-
1985		60	-	-	-	-
1986		61	-	-	-	-
1987		62	-	-	-	-
1988		63	-	-	-	-
1989	Heisei	1	-	-	-	-
1990		2	-	-	-	-
1991		3	-	-	-	-
1992		4	-	-	-	-
1993		5	-	-	-	-
1994		6	-	-	-	-
1995		7	-	-	-	-
1996		8	-	-	-	-
1997		9	-	-	-	-
1998		10	-	-	-	-
1999		11	-	-	-	-
2000		12	-	-	-	-
2001		13	2	4,416	-	-
2002		14	1	412	-	-
2003		15	-	-	-	-
2004		16	-	-	1	72
2005		17	-	-	1	33
2006		18	-	-	1	4
2007		19	-	-	1	4
2008		20	-	-	1	40
2009		21	1	1,409	1	7
2010		22	1	1,233	1	19
2011		23	1	717	-	-
2012		24	2	360	-	-
2013		25	2	1,667	1	5
2014		26	1	508	-	-
2015		27	2	2,947	-	-
2016		28	2	2,902	-	-
2017		29	2	2,622	1	11
2018		30	1	*(in process)*	-	-

2. CATCH, EFFORT AND CPUE SUMMARIES

(1) Trawl fisheries

Table 2 shows annual catch (tons) by species (1977-2017). Target species during 2001-2017 is splendid alfonsino (286-2,987 tons and 1,319 tons in average). During 1977-1978 fishing operations were conducted in the shallow waters (depth less than 200m) in Saya de Malha Bank (Area 8, Map 1) targeting horse mackerels and lizardfish (snakefish). During 2001-2017, fishing operations were conducted in Area 2 (Madagascar Ridge), Area 3 (Southwestern Indian Ridge) and/or Area 4(90^{o} E Ridge) (Map 1).

In 2001, 600 tons of orange roughy was exploited in a single year, while nil catch in other years. The reasons are as follows: In 2001, 2 trawl vessels started operating in the virgin fishing ground hence they could exploit 600 tons suddenly. But later they did not intend to catch orange roughy due to no commercial interest under Japanese hygienic regulations not to allow for human consumption because of its unsafe chemical composition (high content of unsaponifiable fats).

Small amount of pelagic armorhead was exploited in 2001-2017 (0-79 tons and 30 tons in average). There were sudden high violet warehou catch (401 and 560 tons) in 2015 and 2016 respectively. Figure 2 shows historical trends of fishing efforts (1977-2017) (hours trawled). .

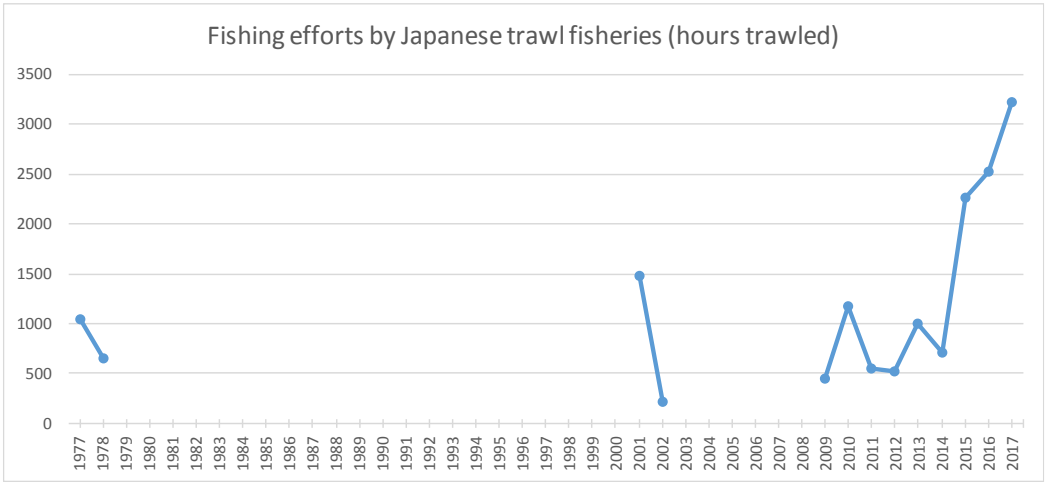


Figure 2 Trends of fishing efforts (hours trawled) of the Japanese trawl fisheries (1977-2017)
(Note) Trawl fishing operations in 1977-1978 were conducted in the shallower waters (depth less than 200m) in Saya de Malha Bank or Madagascar Bank (Map 1), while for all other years (2001-2002 and 2009-2016), Area 2 (Madagascar Ridge), Area 3 (Southwestern Indian Ridge) and/or Area 4(90^{o} E Ridge) (Map 1).

Table 2 Annual catch of Japanese trawl fisheries by species in the SIOFA CA (1977-1978, 2001-2002 and 2009-2017) (ton) (6 major species) (as of February, 2019)

Year	Japanese year		Number of vessels operated	Japanese name	オレンジラフィー	キンメダイ	ミナミクサカリツボダイ	ミナミクロメダイ	ナンキョクメダイ	ヤセムツ類	その他	Total
				English name	Orange roughy	Splendid alfonsino	Pelagic armorhead	Violet warehou	Bluenose warehou	Cardinal fish	Others (**) (***)	
				Scientific name	*Hoplostethus atlanticus*	*Beryx splendens*	*Pentaceros richardsoni*	*Schedophilus velaini*	*Hypeloglyphe antarctica*	*Epigonidae*		
				FAO-ASFIS(*) Code	ORY	BYS	EDR	SEY	BWA	EPI		
1977	*Showa*	52	2		0	0	0	0	0	0	721	721
1978		53	2		0	0	0	0	0	0	352	352
No operations for 24 years (1979-2000)												
2001	*Heisei*	13	2		600	2,987	17	0	0	0	813	4,416
2002		14	1		1	286	6	0	0	0	119	412
No operations for 8 years (2003-2008)												
2009	*Heisei*	21	1		0	1,204	69	40	21	36	39	1,409
2010		22	1		0	977	32	27	7	3	187	1,233
2011		23	1		0	612	0	0	0	0	104	717
2012		24	2		0	296	24	2	0	3	36	360
2013		25	2		0	1,265	14	0	1	0	387	1,667
2014		26	1		0	452	9	16	21	4	5	508
2015		27	2		1	2,396	33	401	22	35	61	2,948
2016		28	2		0	1,977	48	560	22	41	255	2,902
2017		29	2		0	2,052	79	298	58	1	134	2,622
2018		30	1		*(under processing)*							

(*) ASFIS: Aquatic Sciences and Fisheries Information System

(**) including other demersal fish (roudi escolar, wreck fish, spiky orero, red bait, alfonsino and john dory), meso pelagic fish (horse mackerel and lizardfish in 1977-78) and other species with negligible amount of catch.

(***) Fishing grounds in 1977-78 are Saya de Malha Bank (shallower waters in north) and more than 80% catch are meso pelagic fish (hoarse backread lizard fish), while for all other years, fishing grounds are deeper waters in south and majority of catch are demersal fish (see Map 1).

Figures 3-4 show historical trends of nominal catch for splendid alfonsino and pelagic armorhead respectively. The catch of splendid alfonsino ranges 0-2,987 tons (average 1,116 tons). There was a high splendid alfonsino catch in 2001 (2,987 tons) (2.7 times higher than the average) due to the virgin fishing grounds. The catch during most recent three years (2015-2017) was high (2,142 tons in 3 years average) (1.9 time higher than the overall average) due to higher efforts (Figure 2). The catch of pelagic armorhead ranges 0-79 tons (average 25 tons). There was a high pelagic armorhead catch in 2009 (69 tons).

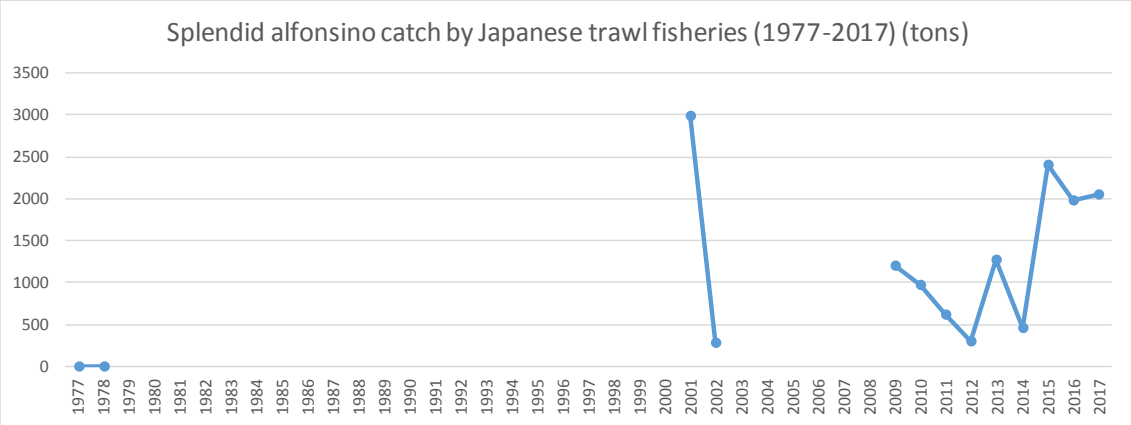


Figure 3 Annual trends of splendid Alfonsino catch (tons) by Japanese trawl fisheries

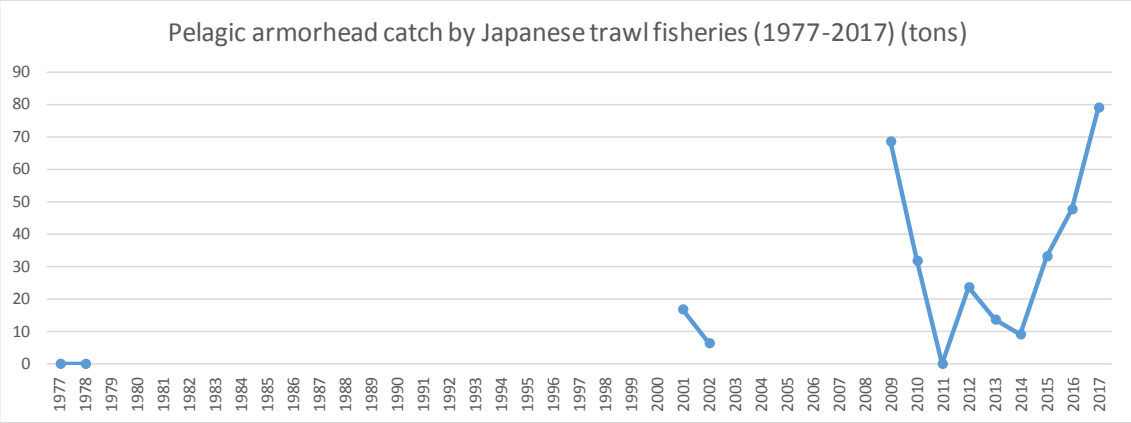


Figure 4 Annual trends of pelagic armorhead catch (tons) by Japanese trawl fisheries

(2) Bottom longline fisheries

Table 3 shows annual catch by species exploited by Japanese bottom longline fisheries in the SIOFA CA (2004-2010, 2013 and 2017) (tons).

Table 3 Annual catch of Japanese bottom longline fisheries by species in the SIOFA area (2004-2010, 2013 and 2017) (tons) (rounded off the 1st decimal) **(- no operations) (as of February, 2019)**

Year	Japanese year (Heisei)	Number of vessel operated	fishing effort (no of 1,000 hooks)	Japanese name	メロ(マジェランアイナメ)	ラットテール	チゴダラ(トガリカナダダラ)	その他	合計
				English name	Patagonian toothfish	Rattails (Grenadiers)	Blue antimora (deep sea cod)	Others	Total
				Scientific name	Dissostichus eleginoides	Macrourus spp.	Antimora rostrata		
				FAO-ASFIS* Code	TOP	GRV	ANT		
2004	16	1	1,050		72	15	0	0	87
2005	17	1	429		33	6	0	0	39
2006	18	1	16		4	1	0	0	5
2007	19	1	16		4	0	0	0	5
2008	20	1	245		40	3	2	0	46
2009	21	1	58		7	1	1	0	9
2010	22	1	177		19	4	1	0	23
2011	23	-	-		-	-	-	-	-
2012	24	-	-		-	-	-	-	-
2013	25	1	96		5	1	0	0	6
2014	26	-	-		-	-	-	-	-
2015	27	-	-		-	-	-	-	-
2016	28	-	-		-	-	-	-	-
2017	29	1	64		11	2	0	0	13
2018	30	-	-		-	-	-	-	-

(*) ASFIS: Aquatic Sciences and Fisheries Information System

Figure 5 shows annual catch of Patagonian toothfish. The average nominal annual catch is 22 tons and the catch in 2004 was quite high (72 tons) due to the intensive trial operations in the virgin fishing ground. There were bycatches including rattail (0-15 tons) and blue antimora (deep sea cod) (0-2.4 tons).

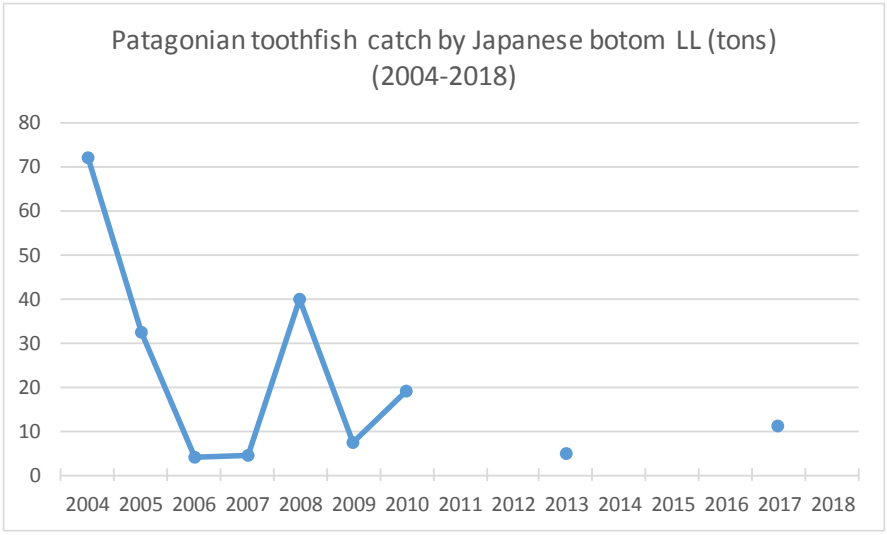


Figure 5 Annual trends of Patagonian toothfish catch by Japanese bottom LL (2004-2018)

Figure 6 shows annual trends of fishing effort. The annual average fishing effort is 0.24 million hooks and the number in 2004 was quite high (1.05 million hooks) due to the intensive trial operations in the virgin fishing ground.

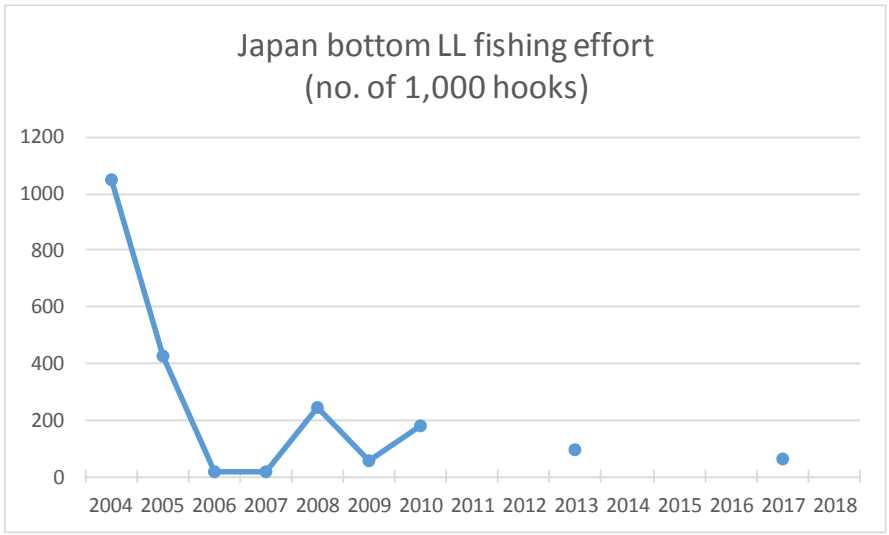


Figure 6 Annual trends of fishing efforts of Japanese bottom longline fisheries (2004-2018) (1,000 hooks)

3. FISHERIES DATA COLLECTION AND RESEARCH ACTIVITIES

Fishing vessels for both trawl and bottom longline fisheries have been collecting information in each operation, i.e., dates, locations, depth, catch/effort data and other relevant data. This information is recorded in logbooks and submitted to Fisheries Agency of Japan. Research activities in trawl and bottom longline fisheries are described as follows:

(1) **Trawl fisheries**

In the past, there are several exploratory fishing cruises in the SIOFA CA collecting both fisheries and scientific data such as fishing effort, catch/bycatch by species and biological information (size and other data). The observer program started in January 2017 to collect scientific information listed in Annex B, CMM 2018/02. Stock assessment of splendid alfonsino, main target species in Japanese trawl fisheries, is planned to be conducted in SERAWG2 (2020).

(2) **Bottom longline fisheries**

One bottom longline fishing vessel has been operating since 2004 (Figure 1 and Table 1). The observer on board used the CCAMLR observer forms and has been collecting various scientific information of Patagonian toothfish such as size, weight, otolith, sex, gonads condition/weight, tagging and other relevant information.

4. VME THRESHOLDS

Trawl fisheries operate in the mid-water hence no threshold levels nor the move-on-rule have been established. When the observer recognizes that the operations touch the seafloor and there are VME species bycatches, Japan will temporarily establish VME encounter threshold (50kg for corals) and the move-on rule (1 miles) following Article 11, CMM 2018/01. As for the bottom longline fisheries, Japan temporarily applies those used in CCAMLR.

5. BIOLOGICAL SAMPLING AND LENGTH/AGE COMPOSITION OF CATCHES

5.1 Overview summary of the coverage of biological and size-frequency sampling conducted.

(1) Trawl fisheries

Biological samples and length/age composition of catches were collected by exploratory fishing operations in the past. In addition, from January 2017, the newly launched observe program started collecting biological and size data of main target species (i.e., splendid alfonsino and pelagic armorhead).

In current scientific observer program, the fork length (FL) of 100 alfonsino individuals is recorded on board. For armorhead, FL and body height of 30 individuals are measured on board. These measurements are conducted for one haul a day. Splendid alfonsino and pelagic armorhead are randomly sampled from one haul.

In addition, liver, gonad, otolith, scale, muscle tissue and stomach contents for both species are collected for 30 individuals per month and species at onshore laboratories. Aging of alfonsino and armorhead otolith is underway at onshore laboratories. The results of otolith aging will be presented in the future SIOFA meetings after a certain progress has been obtained.

(2) Bottom longline fisheries

One bottom longline fishing vessel has been operating since 2004. The observer on board has been collecting various biological information (size and other data) using the CCAMLR observer data forms since 2013.

For every longline operation, catch and effort data are recorded and reported by following CCAMLR Conservation Measures. All fish are identified to species level where possible, including those lost at the surface.

For all individuals of Patagonian toothfish caught, species and sex are identified and body length (m) and weight (kg) is measured and recorded. Gonad stage is determined by visual inspection on board. If feasible, all retained toothfish up to 40 per haul are sampled to measure gonad weights. The physical and hooking conditions of fish are checked. Toothfish otolith is sampled up to 30 fish for each haul.

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5.2 Simple summary table or figure showing length and/or age-frequency distribution of the target species by gear, and how this has changed over the past five years.

Length frequency distributions of alfonsino caught by midwater trawl fishing are presented in Figure 7. Although there is no description of the measurement method before 2015, it is presumed that the fork length was likely measured for 50 individuals per day. From October 2016, fork length composition of 100 individuals per day was recorded according to the protocol of the SIOFA scientific observer program.

There are difficulties in interpreting changes of size composition across years in Figure 7, because trawl operations differ by fishing vessel, fishing location and season. To discuss spatio-temporal changes of size composition of splendid alfonsino, further analyses need to be conducted in the future.

From 2011 to 2015, length data (fork length?) was collected as a part of SIODFA voluntary scientific observation. From October 2016, fork length was recorded according to the protocol of the SIOFA scientific observer program. Since the quality check of scientific observer data in 2018 has not been completed, there is a possibility that it will be modified. Age-frequency distribution of splendid alfonsino and armorhead cannot be presented here because otolith of both species is still under processing.

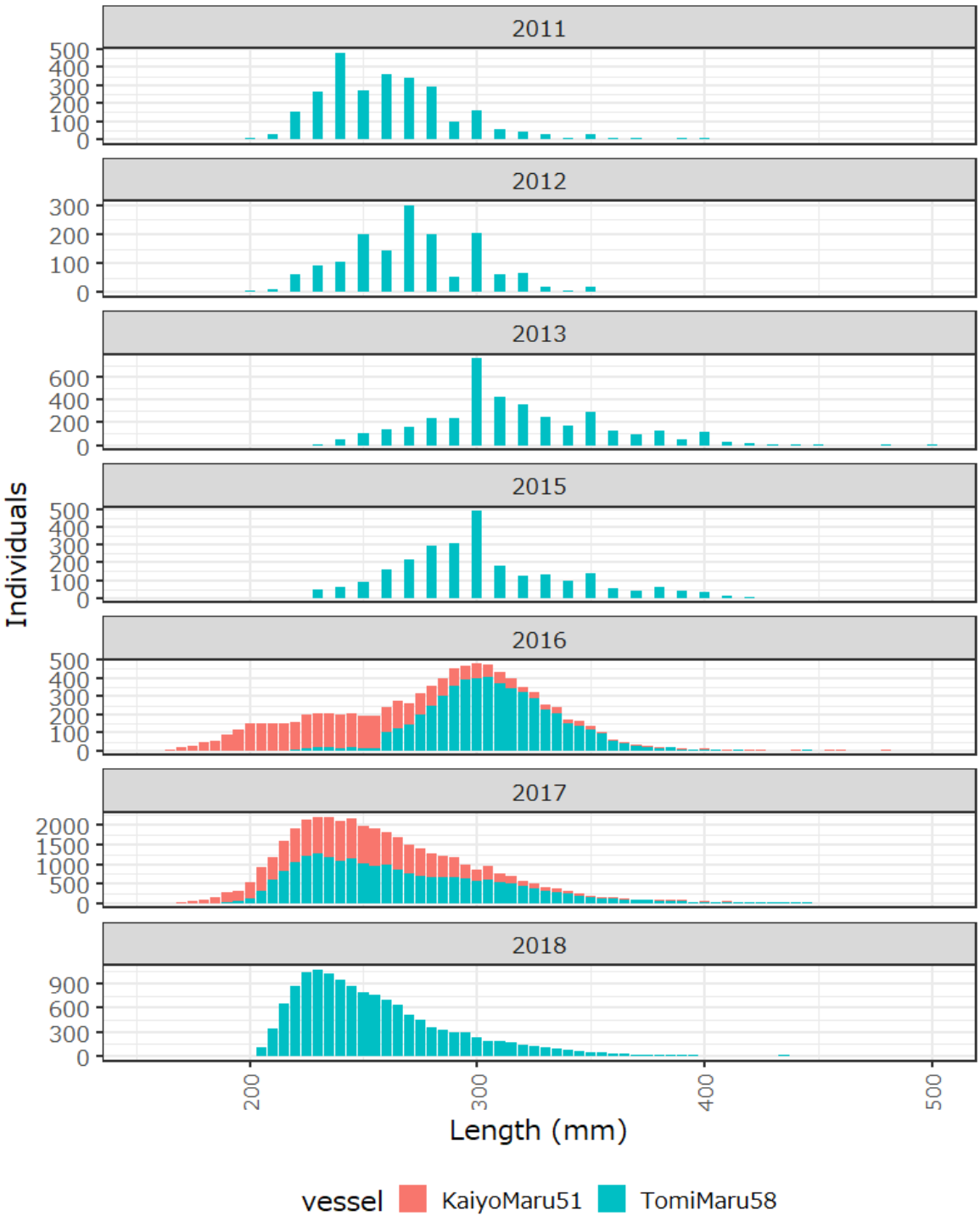

Figure 7 Length frequency distribution of splendid alfonsino (*Beryx splendens*).

(2011-2018)

Figure 8 shows length frequency distributions of Patagonian toothfish caught by bottom longline fishing. Total length of all catch was recorded according to the CCAMLR scientific observer scheme.

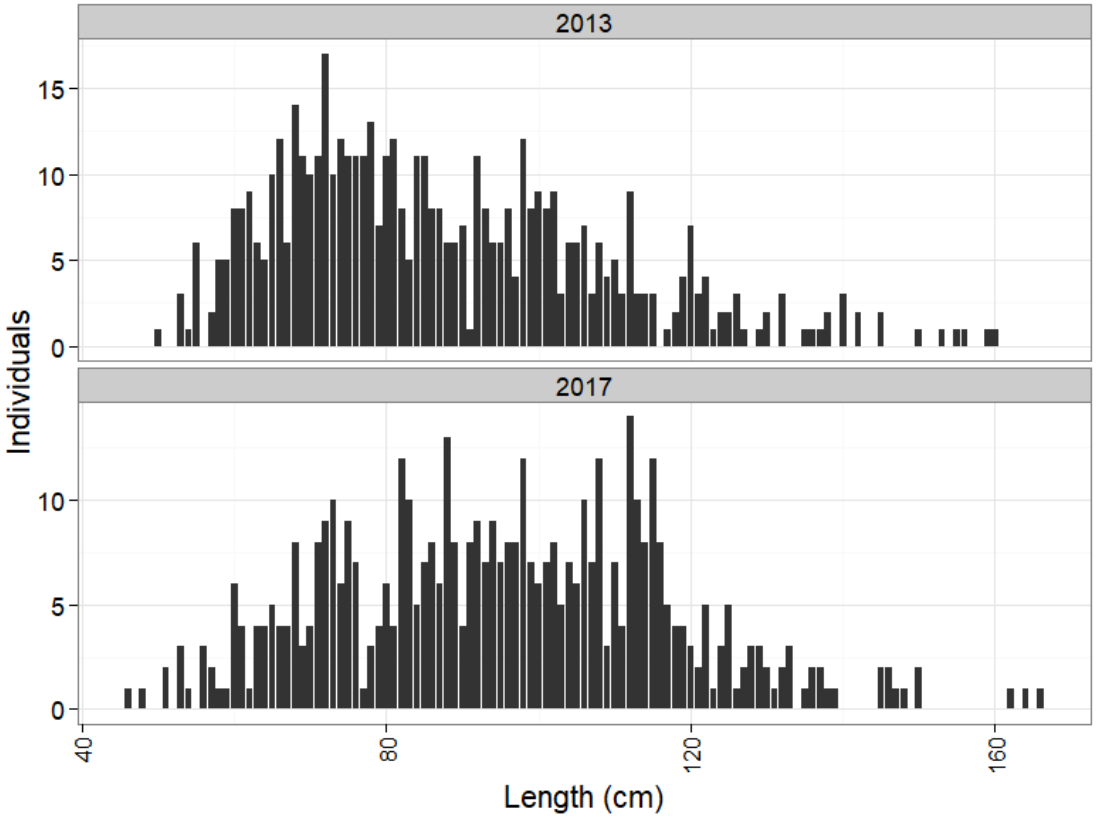

Figure 8. Length frequency distribution of Patagonian toothfish (*Dissostichus eleginoides*) (2013 and 2017)

Total length was recorded according to the CCAMLR scientific observer scheme.

6. DESCRIPTION OF DATA VERIFICATION MECHANISMS

(1) Trawl fisheries data

Commercial fisheries data (logbook) have been verified by Japan Overseas Fishing Association (JOFA) and Fishery Agency of Japan. Fisheries Agency of Japan has also verified locations of vessels through the Vessel Monitoring System (VMS). The observer data starting in 2017 has been verified by Fisheries Agency of Japan and National Research Institute of Far Seas Fisheries (NRIFSF). The exploratory fishing data has been verified by Japan Marine Fishery Resources Research Centre (JAMARC) (current name is Marine Fisheries Research and Development Centre with the same abbreviation).

(2) Bottom longline fisheries

Both fisheries logbook and observer data have been verified by Fishery Agency of Japan and NRIFSF. Fisheries Agency of Japan has also verified locations of vessels through VMS.

7. SUMMARY OF OBSERVER AND PORT SAMPLING PROGRAMS

7.1 Brief description of observer and port sampling programs conducted, and how these have changed or been improved over the past year.

(1) Trawl fisheries

Following Article 30, CMM 2016/01, Japan started the observer program from January 2017. Observers collect items listed in Annex B, CMM 2018/02. The observer trainings have been held annually since 2016. Details of the Japanese observer program were reported in SC2 (2017) (SIOFA-2017-SC02-04 (05)). There are no port sampling programs.

(2) Bottom longline fisheries

One vessel operating primarily in the CCAMLR area, occasionally moves up to the SIOFA CA. Hence, the same observer collects scientific data in both CCAMLR and SIOFA CAs. Under such situation, it is not efficient to use different observer data collection forms in these two areas. Thus, the observer in SIOFA uses the CCAMLR data collection forms (in excel). There are no port sampling programs.

7.2 Information on coverage rates achieved by observer programs, or sampling coverage achieved by port sampling programs, over the past year.

7.3 Information on the level of observer coverage focused on recording bycatch of seabirds, marine mammals, reptiles and other species of concern.

7.4 Reporting of observed bycatch by species and fishery for all seabirds, marine mammals, reptiles and other species of concern.

Japan deploys observers on all fishing vessels (100% of the coverage rates) since 2017 when the SIOFA interim observer program has started. Observers collect and report information on bycatch of seabirds, marine mammals, reptiles and other species of concern.

8. RELEVANT SOCIAL AND ECONOMIC INFORMATION (OPTIONAL)

There is no information for this time.