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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 46 years (1977-2021), i.e., trawl fisheries targeting splendid alfonsino and bottom longline fisheries targeting Patagonian toothfish. Based on available information, seven items are described for trawl and bottom longline fisheries respectively, highlighting recent 7 years (2015-2021).

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1. DESCRIPTION OF FISHERIES

In the SIOFA convention area (CA), two different fishery types of Japanese vessels have operated discontinuously for 45 years (1977-2021) (Fig. 1). i.e. trawl fisheries and bottom longline fisheries. Fig. 1 shows that the number of vessels (trawl and bottom longline fisheries) operated in the SIOFA CA during 1977-2021 (3 vessels maximum). There were no operations for 24 years (1979-2000 and 2003). Table 1 shows that the number of vessels and their total tonnages (trawl and bottom longline fisheries) that operated in the SIOFA CA in recent 7 years (2015-2021). Map 1 shows major fishing grounds of Japanese trawl and bottom longline fisheries.

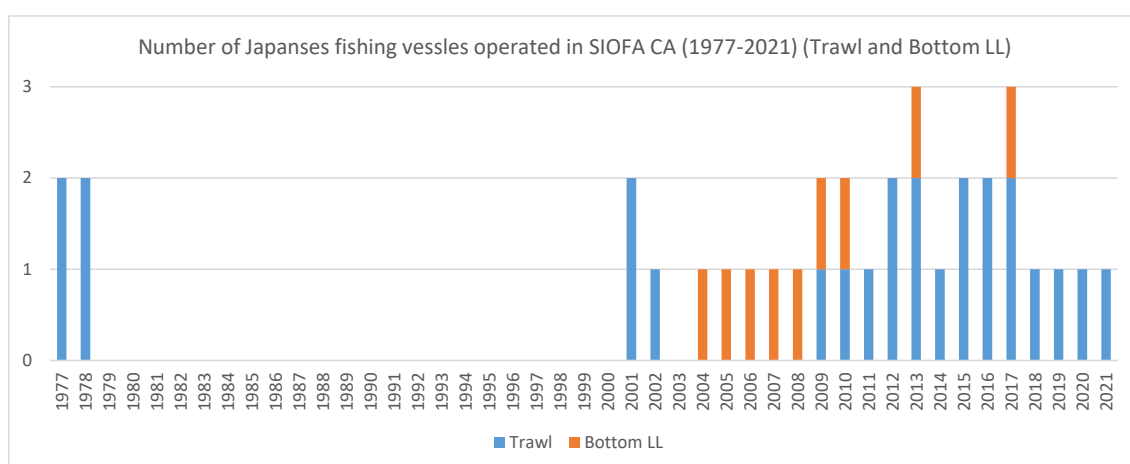
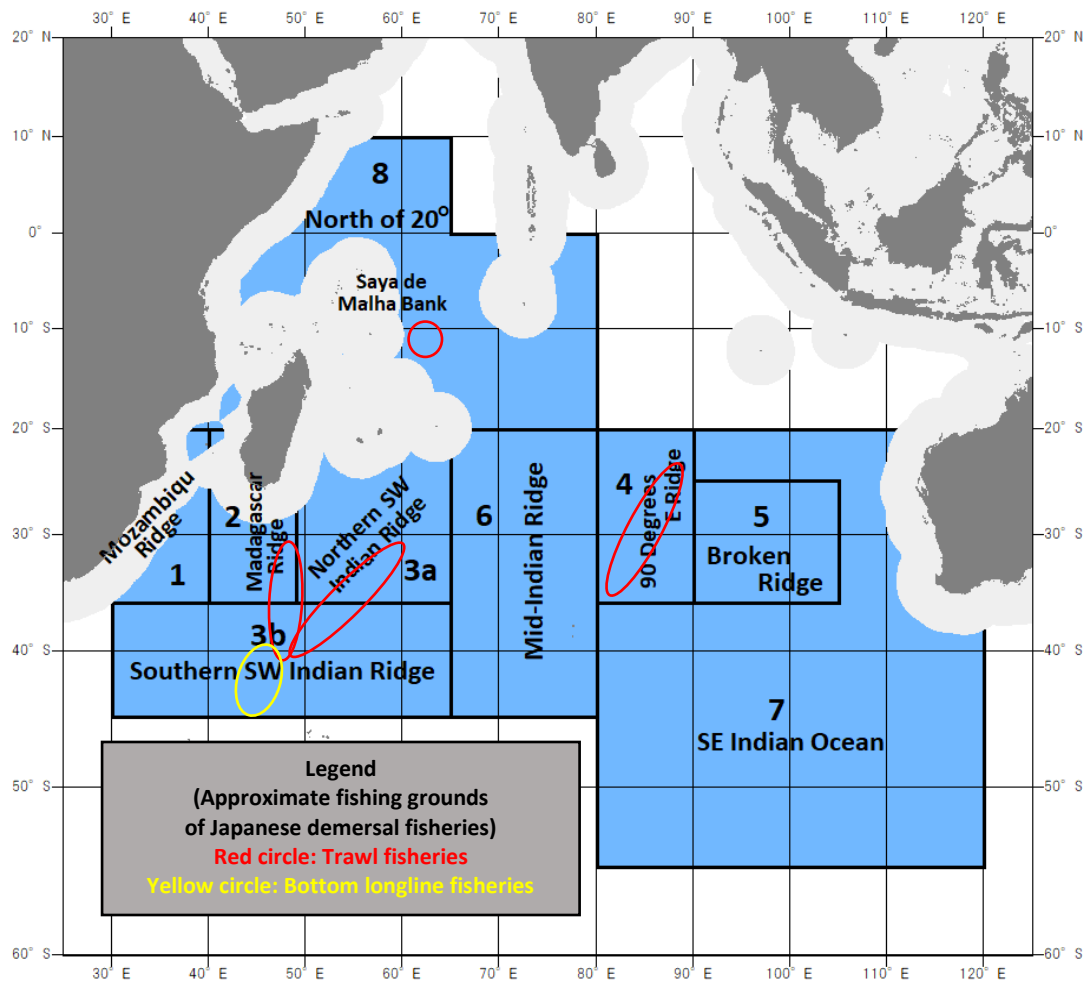


Fig. 1. Number of Japanese vessels (trawl and bottom longline fisheries) operated in the SIOFA convention area (1977-2021) including exploratory fishing.

Table 1 Number of active vessels and their capacities (tonnages) by gear type (2016-2021)

Year	Trawl (Total tonnage)	Bottom longline (Total tonnage)
2015	2 (2,802)	0
2016	2 (2,802)	0
2017	2 (2,802)	1 (735)
2018	1 (1,598)	0
2019	1 (1,598)	0
2020	1 (1,598)	0
2021	1 (1,598)	0



Map 1. SIOFA Statistical areas defined in the National Report Guideline (SIOFA, 2021) and approximate locations of Japanese trawl and bottom longline fisheries.

(1) Trawl fisheries

There were 17 years of trawl fisheries operations (including exploratory fishing) in three separate periods, i.e. 1977-1978, 2001-2002 and 2009-2021. The total catch of trawl fisheries (1977-2021) ranges 352-2,902 tons (1,582 tons in average) by 1-2 vessels. 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° E Ridge) and Saya de Malha Bank in Area 8 (North of 20°) (red-circled 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 single vessel. The total catch ranges 5-87 tons (26 tons in average). This vessel mainly operates in the CCAMLR CA and occasionally operates in the SIOFA Area 3 (Southwestern Indian Ridge) adjacent to the northern part of the CCAMLR area (yellow-circled area in Map 1).

2. CATCH, EFFORT AND CPUE SUMMARIES (2016-2021)

(1) Fishing efforts

Tables 2a and 2b show annual fishing efforts by sub-area for trawl and bottom longline fisheries respectively.

Table 2a Annual fishing efforts by sub-area (trawl minutes) (2015-2020)

Year	Sub-area								
	1	2	3.a	3.b	4	5	6	7	8
2015		39,770	19,030	67,740	9,080				
2016		48,200	41,270	61,650					
2017		49,740	38,090	99,770	5,860				
2018		420	15,010	33,960	16,100				
2019		500	18,212	80,815	13,220				
2020			12,090	29,245					
2021	<i>(Under preparation)</i>								

(Note 1) Blanks: no operations

(Note 2) Data sources: logbook (2015-2019) and observer data (2020)

Table 2b Annual fishing efforts (bottom longline fisheries) by sub-area (number of hooks)
(2015-2021)

Year	Sub-area for reporting catch and effort data								
	1	2	3.a	3.b	4	5	6	7	8
2015									
2016									
2017				64,320					
2018									
2019									
2020									
2021									

(Note 1) Blanks: no operations

(Note 2) Data source: logbook (2017)

(2) Catch

Tables 3a and 3b show annual catch by-sub-area for trawl and bottom longline fisheries respectively. Tables 4a and 4b show catch (Retain and Discard) of main target and bycatch species for trawl and bottom longline fisheries respectively.

Table 3a Annual catch (ton) (trawl fisheries) by-sub-area (2015-2020)

Year	Sub-area								
	1	2	3a	3b	4	5	6	7	8
2015		733	422	1,501	292				
2016		754	896	1,252					
2017		505	447	1,592	81				
2018		0.6	349	1,080	329				
2019		9	300	1,571	193				
2020			498	846					
2021	<i>(Under preparation)</i>								

(Note 1) Data sources: logbook (2015-2019) and observer data (2020)

(Note 2) Blanks: no operations

Table 3b Annual catch (ton) (bottom longline) by-sub-area (2015-2021)

Year	Sub-area								
	1	2	3a	3b	4	5	6	7	8
2015									
2016									
2017				13					
2018									
2019									
2020									
2021									

(Note 1) Data source: logbook (2017)

(Note 2) Blanks: no operations

Table 4a Catch (retain and discards) (tons) of main target and bycatch species
(2015-2021) (Trawl fisheries)

FAO-ASFIS(*) code	BYS		EDR		PRP		SEY		BWA		その他		合計		総計
Japanese	キンメダイ		ミナミクサカリツボダイ		クロシビカマス		ミナミクロメダイ		ナンキョクメダイ (ミナミメダイ)						
English	Splendid alfonso		Pelagic armorhead		Roudi escolar		Violet warehou		Bluenose warehou		Others		Total		Grand total
Scientific	<i>Beryx splendens</i>		<i>Pentaceros richardsoni</i>		<i>Promethichthys prometheus</i>		<i>Schedophilus velaini</i>		<i>Hypelogyphes antarctica</i>						
Retain/Discard	R	D	R	D	R	D	R	D	R	D	R	D	R	D	
2015	2,396		33		0		401		22		95		2,947		2,947
2016	1,977		48		0		560		22		295		2,902		2,902
2017	2,052		79		130		299		59		5		2,624		2,624
2018	1,366		0		31		330		13		18		1,758		1,758
2019	1,667	0	0	0	135	0	240	0	20	0	0	4	2,070	4	2,073
2020	1,056	2	0	0	14	0	261	0	12	0	4	1	1,344	6	1,350
2021	1,154	2	0	0	19	0	236	0	13	0	0	2	1,431	4	1,435

(Note 1) Data sources: logbook

(Note 2) Discards data before Oct. 2016 are not available.

(Note 3) Discards data (Nov. 2016-2018) are available, but they are not yet processed.

(Note 4) (*) ASFIS: Aquatic Sciences and Fisheries Information System

Table 4b Catch (retain and discards) (tons) of main target and bycatch species
(Bottom longline fisheries)(2015-2021)

FAO-ASFIS(*) code	TOP		GRV		ANT		その他		合計	
Japanese	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)					
English	Patagonian toothfish		Rattail (Grenadiers)		Roudi escolar		Others		Total	
Scientific	<i>Dissostichus eleginoides</i>		<i>Macrourus spp.</i>		<i>Antimora rostrata</i>					
Retain/Discard	R	D	R	D	R	D	R	D	R	D
2015										
2016										
2017	11.1	0.4	0	1.5	0	0.2	0	0.2	11.1	2.3
2018										
2019										
2020										
2021										

(Note 1) Data sources: Observer data (2017)

(Note 2) (*) ASFIS: Aquatic Sciences and Fisheries Information System

3. FISHERIES DATA COLLECTION AND RESEARCH ACTIVITIES

(1) Fishery data collection (logbook)

Commercial fishing vessels of both trawl and bottom longline fisheries collect information in each operation i.e., dates, locations, depth, catch/effort data and other relevant data. They are recorded in logbooks and submitted to Fisheries Agency of Japan.

(2) Observer data collection

The SIOFA observer program started in January 2017 and both trawl and bottom longline fishing vessels collect scientific information as stipulated in Annex B, CM2017/02, CM2018/02, CM2019/02 and CM2021/02.

(3) Research activities

Exploratory trawl fishing vessels operated for total of 4 years in the past (1977-1978, 2009 and 2012) in the SIOFA CA, and they collected both fisheries and scientific data such as fishing effort, catch/bycatch amount by species and biological information (size and other data).

(3) Resolution of the data

Tables 5a and 5b show tempo-spatial resolutions of the data for trawl and bottom longline fisheries respectively.

Table 5a. Tempo-spatial resolutions of the trawl fisheries data (2015-2021)

Year	Tow/set (Individual or some aggregation)		Time scale (Set-tow hauling time, daily, etc.)		Spatial scale (Tow/set exact position or grid, please provide grid resolution)		Species details (Any aggregation or species grouping)	
	Commercial (logbook)	Observer	Commercial (logbook)	Observer	Commercial (logbook)	Observer	Commercial (logbook)	Observer
2015	Aggregated		Daily		30' X 30'		*	
2016	Aggregated		Daily		30' X 30'		*	
2017	Aggregated	Set by set	Daily	Set-tow hauling time (minute)	30' X 30'	Tow/set (second)	*	*
2018	Aggregated	Set by set	Daily	Set-tow hauling time (minute)	30' X 30'	Tow/set (second)	*	*
2019	Set by set	Set by set	Set-tow hauling time (minute)	Set-tow hauling time (minute)	30' X 30'	Tow/set (second)	*	*
2020	Set by set	Set by set	Set-tow hauling time (minute)	Set-tow hauling time (minute)	Tow/set (second)	Tow/set (second)	*	*
2021	Set by set	Set by set	Set-tow hauling time (minute)	Set-tow hauling time (minute)	Tow/set (second)	Tow/set (second)	*	*

(Note 1) Set by set logbook data are available from Nov 2016, but data to 2018 have not been processed.

(Note 2) No SIOFA observer programs in place before 2016

(Note 3) * means that non-reported species are aggregated as "Other species" in both logbook & the observer data.

Table 5b. Tempo-spatial resolutions of the bottom longline fisheries data including both commercial fisheries and observer programs (2017)

Year	Tow/set (Individual or some aggregation)		Time scale (Set-tow hauling time, daily, etc.)		Spatial scale (Tow/set exact position or grid, please provide grid resolution)		Spatial details (Any aggregation or species grouping)	
	Commercial	Observer	Commercial	Observer	Commercial	Observer	Commercial	Observer
2015								
2016								
2017	Aggregated	Set by set	Daily	Set-tow hauling time (minute)	1' X 1'	Tow/set (second)	No	No
2018								
2019								
2020								
2021								

(Note 1) Blank cells: No operations

(Note 2) No SIOFA observer programs in place before 2016

4. VME THRESHOLDS (FOR BOTTOM FISHING ACTIVITY ONLY)

4.1 Progress of the VME thresholds values

(1) 2017 or before

Japanese trawl fisheries operated in the mid-water, and no threshold levels nor move-on-rule had been established.

(2) 2018

Japanese mid-water trawlers had operated under voluntary measures using temporarily established VME encounter threshold (50kg for corals) and the move-on rule (1 nautical miles) in accordance with Article 11, CMM 2018/01. When the observer recognizes that the trawl operations touch seafloor and bycatches of VME indicator species are caught, then the observer records such information. As for the bottom longline fisheries, Japan temporarily applied those used in CCAMLR.

(3) 2019 and after

From the middle of 2019 fishing season, Japanese fishing vessels have applied Article 12, CMM 2019/01, which establishes thresholds for bycatches of VME indicator species and move-on-rule in the encounter protocol, i.e., for trawl fisheries, 60 kg of live corals and 300 kg of sponges and for bottom longline fisheries, 10 or more VME-indicator units. If by-catch amount of VME indicator species reach the threshold level, Japanese fishing vessels will follow the protocols stipulated in Article 12 to 19, CMM 2019/01, i.e. fishing vessels move away 2 and 1 nm for trawl and longline fisheries respectively then report it to the Secretariat.

(4) Summary

Table 6 shows summary of the progress on VME species encounter threshold values and the move-on-rules applied in Japan (2015-2021) for trawl and bottom longline fisheries.

Table 6. Summary of the encounter threshold values for VME indicators species and the move-on rule applied to the Japanese fishing vessels (2015-2021)

Year	Threshold	Move-away distance	CMM
Trawl			
2015	None	None	
2016	None	None	
2017	None	None	
2018	60 kg of live corals, none for sponges	2 miles	Article 11, CMM 2018/01 (voluntary)
2019	60 kg of live corals and/or 300 kg of sponges	2 miles	Article 12 to 19, CMM 2019/01
2020	60 kg of live corals and/or 300 kg of sponges	2 miles	Article 12 to 19, CMM 2020/01
2021	60 kg of live corals and/or 300 kg of sponges	2 miles	Article 12 to 19, CMM 2021/01
Bottom longline			
2015	None	None	
2016	None	None	
2017	None	None	
2018	10 or more VME-indicator units	1 mile	Article 11, CMM 2018/01 (voluntary)
2019	10 or more VME-indicator units	1 mile	Article 12 to 19, CMM 2019/01
2020	10 or more VME-indicator units	1 mile	Article 12 to 19, CMM 2020/01
2021	10 or more VME-indicator units	1 mile	Article 12 to 19, CMM 2021/01

4.2 VME species bycatch

Tables 7a and 7b show summary of VME Taxa (wet) weight (kg), exceeding thresholds in trawl and bottom longline fisheries (2015-2021) respectively. Table 8 shows VME bycatch amounts in the bottom longline fishery (2017).

Table 7a. VME Taxa weight (kg) exceeding thresholds by sub-area in trawl fisheries

Year	1	2	3.a	3.b	4	5	6	7	8
2015		n/a	n/a	n/a	n/a				
2016		n/a	n/a	n/a					
2017		n/a	n/a	n/a	n/a	n/a			
2018		(No bycatch)	(No bycatch)	(No bycatch)	(No bycatch)	(No bycatch)			
2019		(No bycatch)	(No bycatch)	(No bycatch)	(No bycatch)	(No bycatch)			
2020			(No bycatch)	(No bycatch)					
2021									

(Note 1) Data sources: Observer data (2017-2021)

(Note 2) Blank cells mean no operations.

(Note 3) n/a means not applicable because bycatch threshold values for VME indicator species have not yet established in 2015–2017.

Table 7b. VME Taxa weight (kg) exceeding thresholds by sub-area in bottom longline fisheries

Year	1	2	3.a	3.b	4	5	6	7	8
2015									
2016									
2017				No such record					
2018									
2019									
2020									
2021									

(Note 1) Data sources: Observer data (2017)

(Note 2) Blank cell means no operations.

Table 8. Summary of VME taxa bycatch recorded by Japanese longline fishery (2017)

Year	FAO code	Scientific name	English name	Bycatch weight (kg)	Total weight (kg)
Bottom longline					
2017	OEQ	<i>Euryralida</i>	Basket stars	0.04	
2017	GGW	<i>Gorgoniidae</i>	Gorgonians	0.06	0.31
2017	CSS	<i>Scleractinia</i>	Hard corals	0.21	

(Note 1) No VME taxa bycatch in trawl fishery in the SIOFA Convention Area.

(Note 2) No operations in 2015–2016 and 2018–2021 for bottom longline fisheries

(Note 3) Data sources: Observer data

5. Biological sampling and length/age composition of catches

(1) Trawl fisheries

Biological samples and length/age composition of catches were collected under exploratory fishing operations. In addition, biological and size data of main target species (i.e., splendid alfonsino and pelagic armorhead) have been collected since January 2017 under the newly launched observer program.

Fig. 2 shows length frequency distribution of splendid alfonsino (*Beryx splendens*) collected during 2016-2021. In the 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. Aging of alfonsino and pelagic armorhead otolith has been conducted in Fisheries Resources Institute (FRI) (re-named from National Research Institute of Far Seas Fisheries (NRIFSF) in 2020) in Japan Fisheries Research and Education Agency (FRA). The preliminary results of otolith aging for splendid alfonsino were presented in the SIOFA SERA-WG2 (2020) after a certain progress has been accomplished.

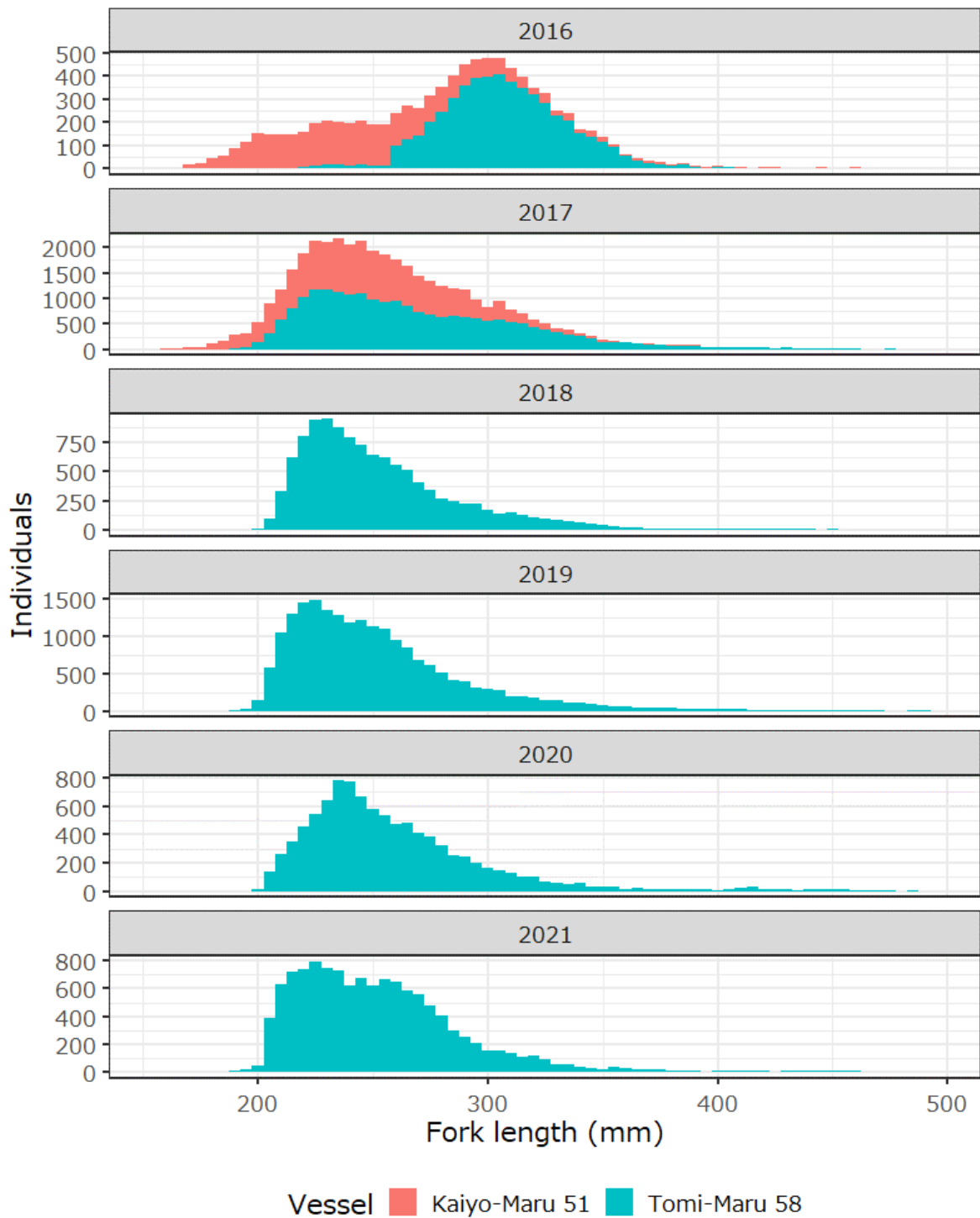


Fig. 2. Length frequency distribution of splendid alfonsino (*Beryx splendens*) observed by scientific observers during 2016-2020 trawl fishery.

(2) Longline fisheries

One bottom longline fishing vessel has been operating since 2004. The scientific observer on board has collected 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 individual fish are identified to the species level where possible, including those lost at the sea surface.

For all individuals of Patagonian toothfish caught, species and sex are identified then body length (mm) and weight (kg) are measured and recorded. Fig. 3 shows the length frequency distribution of Patagonian toothfish collected in 2013 and 2017. In addition, gonad stage is determined by visual inspection on board. If possible, all retained toothfish up to 40 per haul are sampled to measure their gonad weights. Physical and hooking conditions of fish are checked. Toothfish otolith is sampled up to 30 fish for each haul.

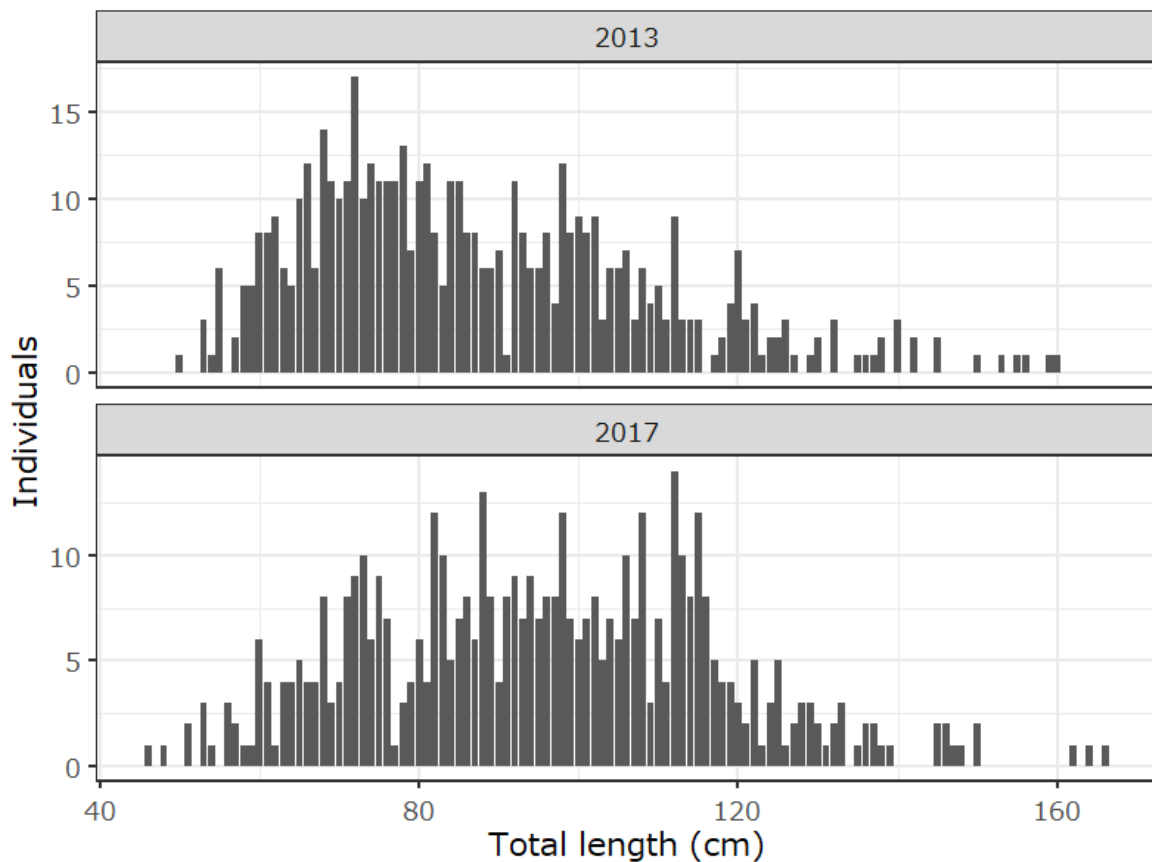


Fig. 3. Length frequency distribution of Patagonian toothfish (*Dissostichus eleginoides*) in 2013 and 2017. Total length was recorded according to the CCAMLR scientific observer scheme since 2013 for Japanese bottom longline fishery.

6. DESCRIPTION OF DATA VERIFICATION MECHANISMS

(1) Trawl fisheries data

Commercial fisheries data (logbook) are verified by Japan Overseas Fishing Association (JOFA) and Fishery Agency of Japan. Fisheries Agency of Japan also verifies locations of vessels through Vessel Monitoring System (VMS). Scientific observer data started in 2017 are verified by Fisheries Agency of Japan and FRI (formally NRIFSF) in Japan Fisheries Research and Education Agency. Exploratory fishing data are verified by Japan Marine Fishery Resources Research Centre (JAMARC), whose current name is Marine Fisheries Research and Development Centre (also JAMARC) in FRA.

(2) Bottom longline fisheries data

Both fisheries logbook and observer data are verified by Fishery Agency of Japan and FRI. Fisheries Agency of Japan also verifies locations of vessels through VMS.

7. SUMMARY OF OBSERVER AND PORT SAMPLING PROGRAMS

(1) Trawl fisheries

In accordance with Article 30, CMM 2016/01 (SIOFA interim observer program), Japan started the observer program from January 2017 (for details, see National Report of Japan in 2017, SIOFA-2017-SC02-04 (05)). This program is based on the Japanese scientific observer program for bottom trawl fisheries in North Pacific Fisheries Commission (NPFC) CA. The scientific observers collect items listed in Annex B, CMM2017/02, CMM2018/02, CMM2019/02, and CMM 2021/02, i.e., catch by species, effort, biological data, bycatch information by species including VME indicator species, non-target species (sharks, sea-bird, marine mammals, reptiles and other species of concern) and other requested information. The observers are deployed to all operating

vessels, and they cover all activities in fishing operations (100% coverage) since 2017.

The observer trainings have been held annually since 2016. Due to the COVID-19 pandemic, the training coursework in 2021 was held online. The scientific observer scheme and manuals are updated based on the feedbacks from the scientific observers through the debriefing taking place during the scientific observer trainings.

There are no port sampling programs in Japan.

(2) Bottom longline fisheries

One bottom longline 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. This is because 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).

During 2015-2021 (the reporting period in this National Report) , the operation took place only in 2017. The scientific observer in 2017 collected items listed in Annex B, CMM2017/02, i.e., catch by species, effort, biological data, bycatch information by species including VME indicator species, non-target species (sea birds, marine mammals, reptiles and other species of concern) and other requested information. The scientific observer covered all activities of fishing operations (100% haul coverage rate) in 2017.

There are no port sampling programs.

(3) Summary

Tables 9a and 9b are summary of the observer program coverages in trawl and bottom longline fisheries respectively. Table 10 is summary of the bycatch information in trawl and bottom longline fisheries.

Table 9a. Observer coverages of trawl fisheries (2015–2021).

Year	Trips coverage (%)	Total No. of sets/hauls	No. of sets/hauls covered	Within set/haul coverage (%)	Incidental bycatch (bird, mammal) observation coverage (% set/haul)
2015					
2016					
2017	100	735	735	100	100
2018	100	211	211	100	100
2019	100	380	380	100	100
2020	100	199	199	100	100
2021	100	216	216	100	100

(Note) Observer coverages 2015-2016 are not applicable because the SIOFA observer programs started from 2017.

Table 9b. Observer coverage of bottom longline fisheries (2015–2021).

Year	Trips coverage (%)	Total No. of sets/hauls	No. of sets/hauls covered	Within set/haul coverage (%)	Incidental bycatch (bird, mammal) observation coverage (% set/haul)
2015					
2016					
2017	100	17	17	100	100
2018					
2019					
2020					
2021					

(Note) No operations in 2015–2016 and 2018–2021 for bottom longline fisheries

Table 10. Reported bycatch number of individuals except for VME taxa (2015-2021)
(Trawl and bottom longline).

Year	Sharks	Sea birds	Mammals	Reptiles	Other concerned species
Trawl					
2015					
2016					
2017	6	0	0	0	0
2018	5	0	0	0	0
2019	10	0	0	0	0
2020	2	0	0	0	0
2021	2	0	0	0	0
Bottom longline					
2015					
2016					
2017	8	0	0	0	0
2018					
2019					
2020					
2021					

(Note 1) No SIOFA observer program in place before 2016.

(Note 2) No operations of bottom longline fisheries in 2015–2016, and 2018–2021.

8. RELEVANT SOCIAL AND ECONOMIC INFORMATION (OPTIONAL)

No information is prepared for this time.