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Abstract	
<p>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 (1977-2022), 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 5 years (2018-2022). Information through 2021 is compiled based on logbooks, and information for 2022 is tentatively compiled from scientific observer data and may be revised next year.</p>	

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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 46 years (1977-2022) (Fig. 1). i.e. trawl fisheries and bottom longline fisheries. Fig. 1 shows the number of vessels (trawl and bottom longline fisheries) operated in the SIOFA CA during 1977-2022 (3 vessels maximum). There were no operations for 24 years (1979-2000 and 2003). Table 1 shows the number of vessels and their total tonnages (trawl and bottom longline fisheries) that operated in the SIOFA CA in recent 5 years (2018-2022). Map 1 shows major fishing grounds of Japanese trawl and bottom longline fisheries.

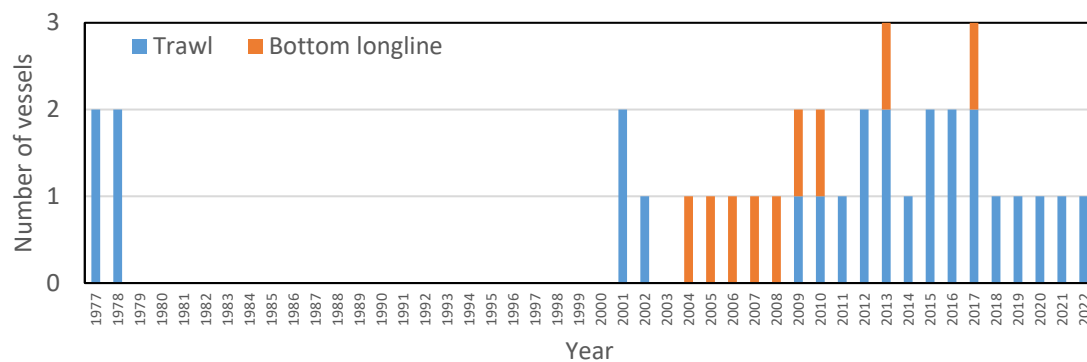
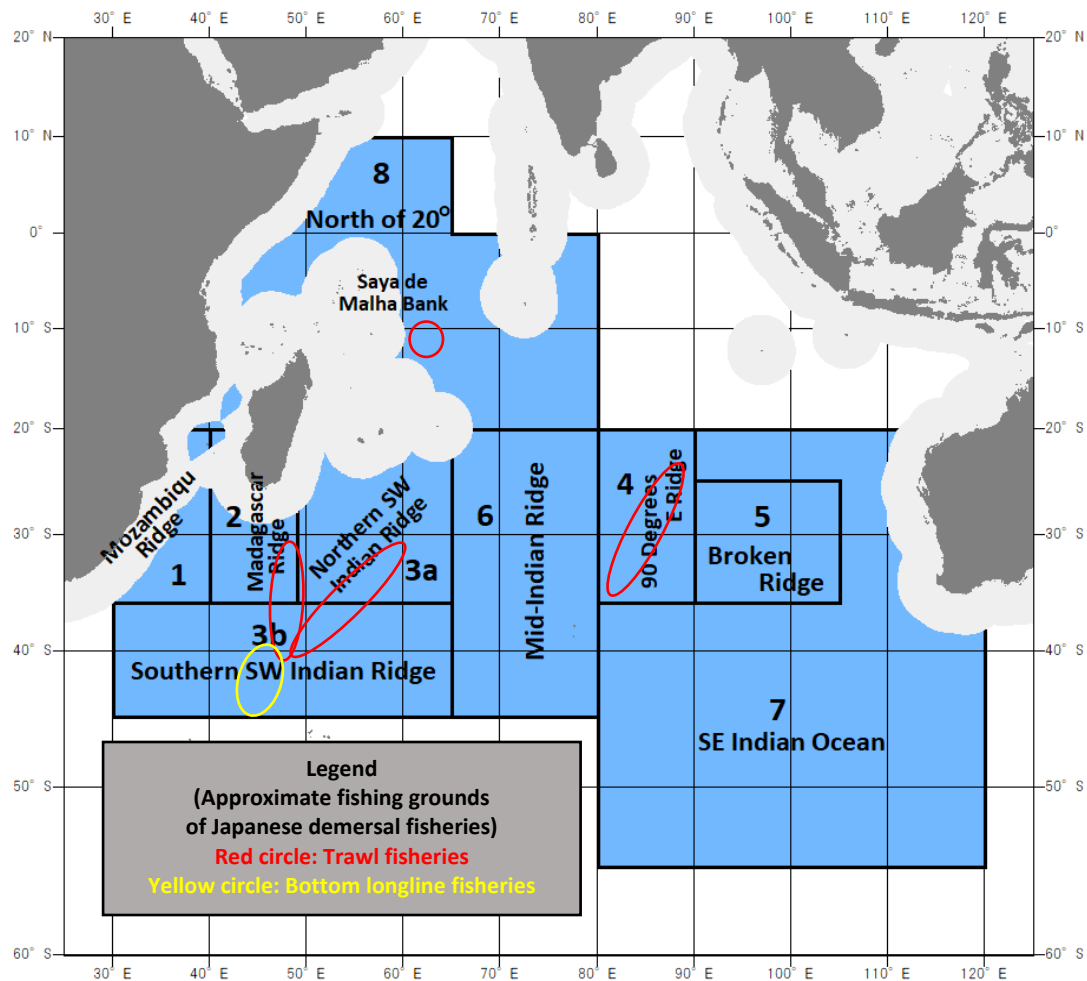


Fig. 1. Number of Japanese vessels (trawl and bottom longline fisheries) operated in the SIOFA convention area (1977-2022) including exploratory fishing.

Table 1: Fleet composition over the recent five years (number of vessels by gear type and size and how this has changed by year).

Year	Vessels that actively fished	
	Trawl	Bottom longline
2018	1 (1,204 tonnes)	0
2019	1 (1,204 tonnes)	0
2020	1 (1,204 tonnes)	0
2021	1 (1,204 tonnes)	0
2022	1 (1,204 tonnes)	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 18 years of trawl fisheries operations (including exploratory fishing) in three separate periods, i.e. 1977-1978, 2001-2002 and 2009-2022. The total catch of trawl fisheries (1977-2022) ranges 353-4,416 tonnes (1,610 tonnes 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). Tables 2 and 3 show the annual fishing effort and catches by sub-area of trawl fishery for recent 5 years, respectively.

Table 2: Summary table of trawl effort (hours trawled).

Year	Sub-areas for reporting catch and effort data								
	1	2	3.a	3.b	4	5	6	7	8
2018		7	250	566	268				
2019		13	300	1250	220				
2020			253	562					
2021			220	521	180				
2022		9	226	551	136				

(Note 1) Blanks: no operations

(Note 2) Data sources: logbook (2018-2021) and scientific observer data (2022)

Table 3: Summary table of trawl catches (tonnes).

Year	Sub-areas for reporting catch and effort data								
	1	2	3.a	3.b	4	5	6	7	8
2018		0.6	349	1,080	329				
2019		21	300	1,559	193				
2020			513	836					
2021			352	906	177				
2022		10	504	1,454	131				

(Note 1) Blanks: no operations

(Note 2) Data sources: logbook (2018-2021) and scientific observer data (2022)

(Note 3) Catch includes retained and discarded catch

(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 tonnes (26 tonnes 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). Summary tables of the annual fishing effort and catches by sub-area of bottom longline fishery are not shown here since there were no operations in recent 5 years.

2. CATCH, EFFORT AND CPUE SUMMARIES

(1) Fishing efforts

Figures 2 and 3 show the annual trends in nominal fishing effort for trawl and bottom longline fisheries operated in the SIOFA convention area during 1977-2022 and 2004-2022, respectively.

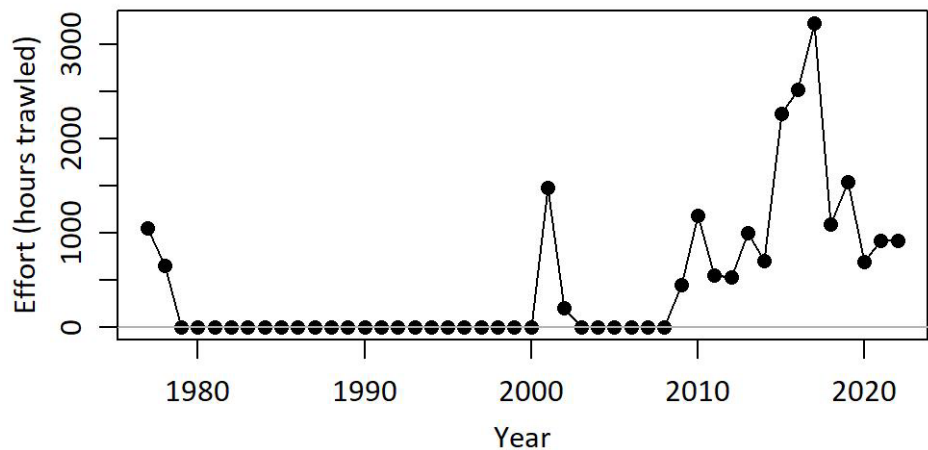


Fig. 2. Annual trend in fishing effort (hours trawled) for trawl fishery during 1977-2022 (Data sources: logbook (1977-2021) and scientific observer data (2022)).

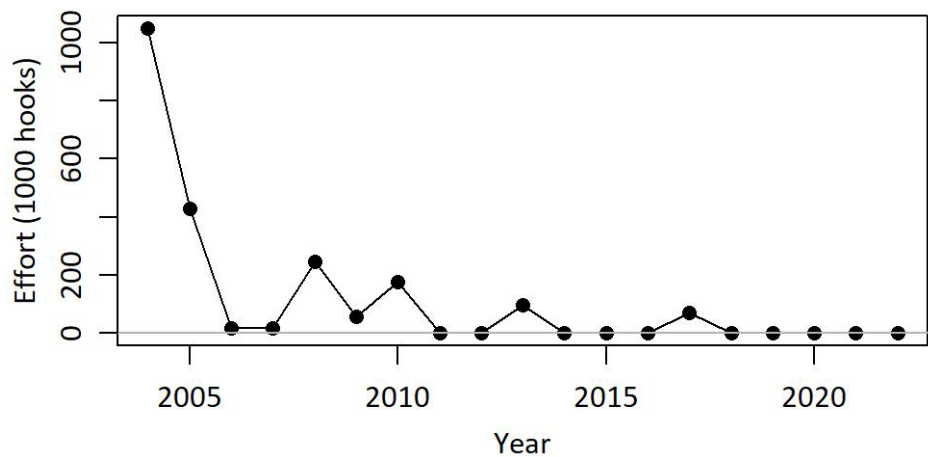


Fig. 3. Annual trend in fishing effort (1,000 hooks) for bottom longline fishery during 2004-2022 (Data sources: logbook).

(2) Catch

Figures 4 and 5 show the annual trends in catch (including retained and discarded catch) of the main target and bycatch species for trawl and bottom longline fisheries, respectively. Table 4 shows the annual catch (retained and discarded) of main target and bycatch species for trawl fishery in recent 5 years. Table of the annual catches for bottom longline fishery is not shown here since there were no operations in recent 5 years.

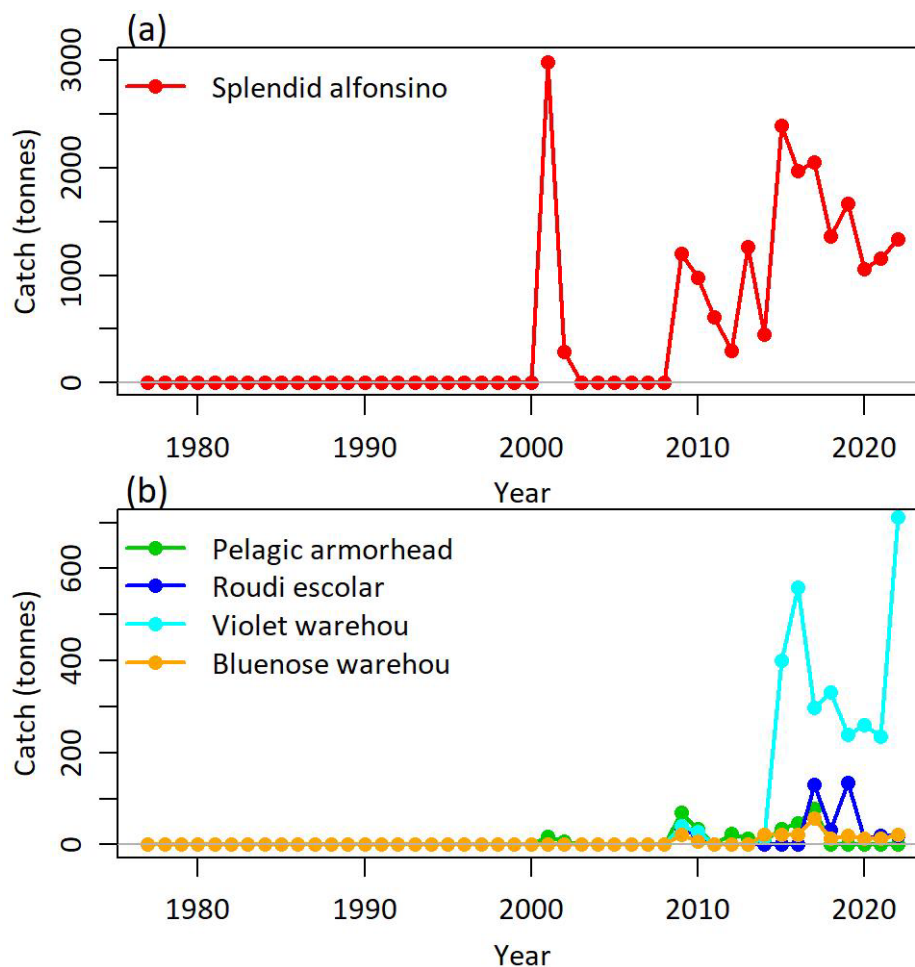


Fig. 4. Annual trends in catch (tonnes) of (a) main target and (b) bycatch species for trawl fishery during 1977-2022

(Data sources: logbook (1977-2021) and scientific observer data (2022)).

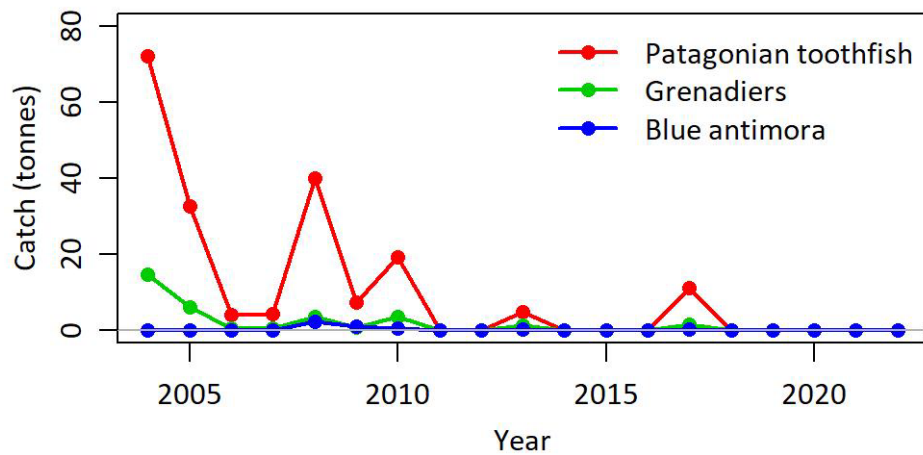


Fig. 5. Annual trends in catch (tonnes) of main target and bycatch species for bottom longline fishery during 2004-2022 (Data sources: logbook).

Table 4: Catch (tonnes) by species for main target, bycatch, associated and depended species for trawl fishery (R: retained, D: discarded).

Year	Splendid alfonso (BYS)		Pelagic armorhead (EDR)		Roudi escolar (PRP)		Violet warehouse (SEY)		Bluenose warehouse (BWA)		Others		Total	
	R	D	R	D	R	D	R	D	R	D	R	D	R	D
2018	1,366	-	0	-	31	-	330	-	13	-	18	-	1,758	-
2019	1,667	0	0	0	135	0	240	0	20	0	8	4	2,070	4
2020	1,056	2	0	0	14	0	261	0	12	0	2	4	1,344	6
2021	1,152	2	0	0	20	0	235	0	13	0	9	5	1,430	6
2022	1,330	4	0	0	20	0	712	0	22	0	1	10	2,085	14

(Note) Data sources: logbook (2018-2021) and scientific observer data (2022)

(3) CPUE

Figures 6 and 7 show the annual trends in nominal CPUE of the main species over the history of the trawl and bottom longline fisheries, respectively.

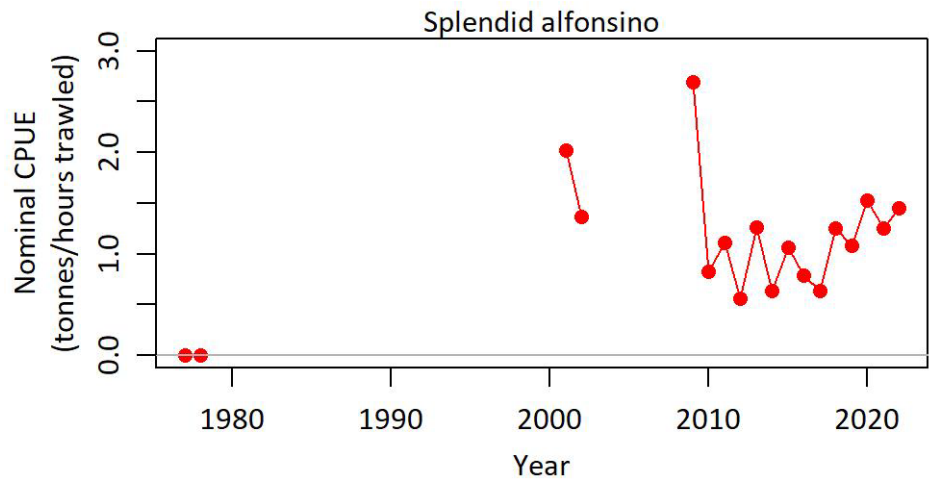


Fig. 6. Annual trend in nominal CPUE of main species (Splendid alfonsino) for trawl fishery during 1977-2022 (Data sources: logbook (1977-2021) and scientific observer data (2022)).

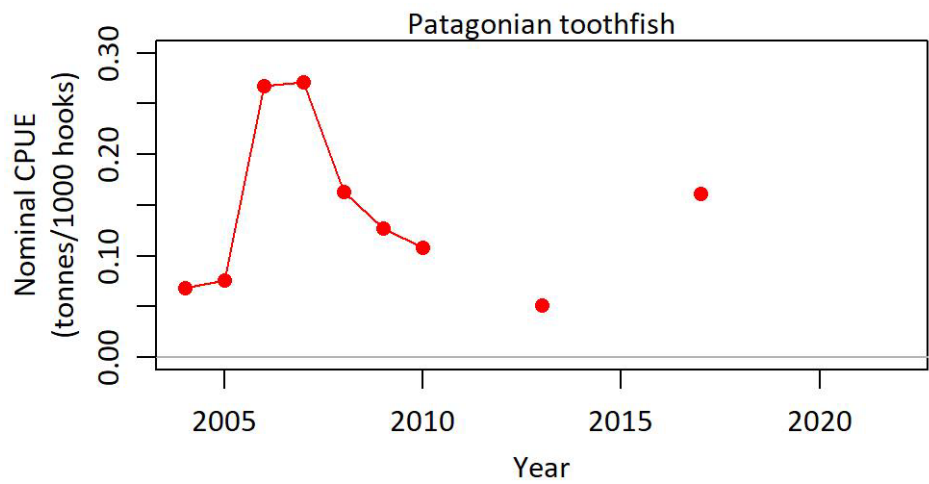


Fig. 7. Annual trend in nominal CPUE of main species (Patagonian toothfish) for bottom longline fishery during 2004-2022 (Data sources: logbook).

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) Scientific observer data collection

The SIOFA scientific observer program started in January 2017 and both trawl and bottom longline fishing vessels collect scientific information according to Annex B of the CMM, which specifies data collection for scientific observers (currently CMM 2022/02).

(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).

(4) Resolution of the data

Table 5 shows tempo-spatial resolutions of the data for trawl fishery in recent 5 years. Table of the data resolution for bottom longline fishery is not shown here since there were no operations in recent 5 years.

Table 5: Details on the scales and resolutions of the fishery data collection for trawl fishery.

Year	Trawl fishery data collection items							
	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
2018	Aggregated	Set by set	Daily	Set-tow hauling time (minute)	30' × 30'	Tow/set (second)	*	*
2019	Set by set	Set by set	Set-tow hauling time (minute)	Set-tow hauling time (minute)	30' × 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)	*	*
2022	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) * means that non-reported species are aggregated as "Other species" in both logbook & the observer data.

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 2020/01, 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 in 2022 for trawl and bottom longline fisheries.

Table 6: Threshold levels for encounters with VMEs and move-on protocols.

Gear/fishery	Thresholds	Move-on protocols description
Trawl	60 kg of live corals and/or 300 kg of sponges	Move 2 miles
Bottom longline	10 or more VME-indicator units	Move 1 mile

4.2 VME species bycatch

Table 7 shows a summary of VME Taxa (wet) weight (kg), exceeding thresholds in trawl fishery in recent 5 years. Table 8 (VME taxa bycatch quantities per gear) is not shown since no VME indicators was caught in 2022. Tables 7 and 8 for bottom longline fishery are not shown here since there were no operations in recent 5 years.

Table 7: Summary VME Taxa (wet) weight (kg), operations exceeding thresholds and effort for trawl fishery.

Year	VME taxa	Unit	Sub-areas for reporting catch and effort data								
			1	2	3.a	3.b	4	5	6	7	8
2018	All VME indicators	Weight (kg)		0	0	0	0				
		Nb of Operations		2	48	141	62				
		Effort (hours trawled)		7	240	572	272				
2019	All VME indicators	Weight (kg)		0	0	0	0				
		Nb of Operations		3	66	266	45				
		Effort (hours trawled)		6	249	1,103	178				
2020	All VME indicators	Weight (kg)			0	0					
		Nb of Operations			62	137					
		Effort (hours trawled)			202	487					
2021	All VME indicators	Weight (kg)			0	0	0				
		Nb of Operations			63	151	40				
		Effort (hours trawled)			168	431	159				
2022	All VME indicators	Weight (kg)		0	0	0	0				
		Nb of Operations		3	77	206	32				
		Effort (hours trawled, Table 2)		9	226	551	136				

(Note 1) Data sources: Scientific observer data

(Note 2) Blank cells mean no operations.

(Note 3) Effort by subarea during 2018-2021 is not consistent with Table 2, which is based on logbooks.

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.

Figure 8 shows length frequency distribution of splendid alfonsino (*Beryx splendens*) collected during 2018-2022. 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.

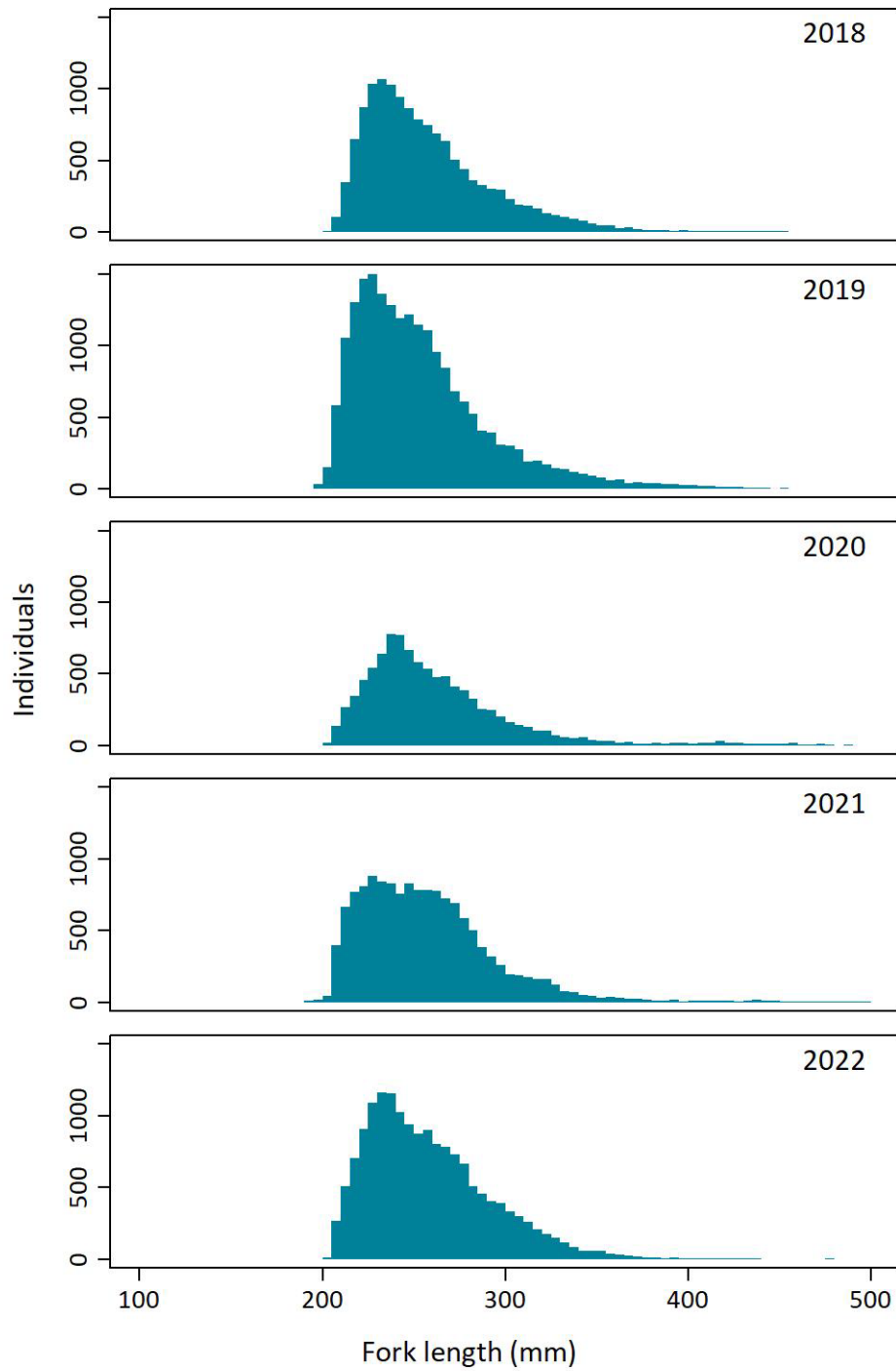


Fig. 8. Length frequency distribution of splendid alfonsino (*Beryx splendens*) observed by scientific observers during 2018-2022 trawl fishery.

(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. The length frequency distribution of Patagonian toothfish collected in 2013 and 2017 is shown in the previous national report of Japan (SC-07-13-Annual-National-Report-JAPAN-rev1). 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.

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 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 have collected items listed in Annex B of the CMM (currently CMM 2022/02), which specifies data collection for 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 scientific observers are deployed to all operating vessels, and they cover all activities in fishing operations (100% coverage) since 2017.

The scientific observer trainings have been held annually since 2016. 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 scientific observer collects scientific data in both CCAMLR and SIOFA CAs.

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) with the CCAMLR data collection forms in 2017, because it is not efficient to use different data collection forms in both CCAMLR and SIOFA CAs.

There are no port sampling programs.

(3) Summary

Table 9 is a summary of the scientific observer program coverages for trawl fishery in recent 5 years (2018-2022). Table 10 is a summary of the bycatch information for trawl fishery in 2022. Table 11 is a summary of numbers of fish sampled in trawl fishery in recent 5 years. Note that there were no bottom longline operations since 2018.

Table 9: Scientific observer program design and coverage summary table.

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)
2018	100	253	253	100	100
2019	100	380	380	100	100
2020	100	199	199	100	100
2021	100	254	254	100	100
2022	100	318	318	100	100

Table 10: Reporting of observed bycatch in 2022.

bycatch	Trawl fishery
seabirds	0
mammals	0
sharks	1
All VME indicators (kg)	0
other	0

Table 11: Summary numbers of fish sampled per species and year.

	Years				
Species (FAO code)	2018	2019	2020	2021	2022

BYS	L/F: 13716 BS: 180	L/F: 20416 BS: 300	L/F: 9897 BS: 119	L/F: 14302 BS: 239	L/F: 16209 BS: -
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(Note) Biological sampling for 2022 has not been completed. The results will be shared in the annual data submission

8. RELEVANT SOCIAL AND ECONOMIC INFORMATION (OPTIONAL)

No information is prepared for this time.