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Provisional Bottom Fishing Impact Assessment for Japanese bottom longline fisheries in SIOFA convention area

Relates to agenda item: 6.2 Working paper ☒ Info paper ☐

Delegation of Japan

Abstract

This document reports the provisional Bottom Fishing Impact Assessment for Japanese bottom longline fishery in the SIOFA convention area in accordance with CMM 2017/01 para. 14 and SIOFA BFIAS (Annex I, SC2 Report). In SIOFA convention area, there were 9 years of operations in 2004-2010, 2013 and 2017 by the same vessel. Based on best available information, Japan conducted the impact assessment on Japan's bottomed longline fishing operations.

Recommendations *(working papers only)*

There is no specific recommendation.

Provisional Bottom Fishing Impact Assessment for Japanese bottom longline fisheries in SIOFA convention area

Delegation of Japan (edited by Takehiro Okuda and Tsutomu Nishida)

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1) Description of the Proposed Fishing Activities

1-1) Details of the vessels to be used

- Vessel name: Shinsei-maru No.3
- Flag state: Japan
- Vessel owner: TAIYO A & F CO., LTD.
- Port of registration and registration number: Yaizu-Japan
- IMO number: 128862
- Radio call sign: JAAL
- Vessel type: Commercial bottom Longline fishing vessel
- Fishing gear type: Bottom long line
- Vessel length overall: 47.2 m
- Beam length: Unreported
- Vessel gross registered tonnage: 735 tonnes
- Power of main engine: Unreported
- Processing capacity: 10 tonnes/day
- Storage capacity: Frozen hold capacity 502.4 m3
- Equipment used for determining position: GPS FURUNO GP500MK2

1-2) Detailed description of fishing methods

- Longline type: Trot Line
- Leader or anchor line diameter: 18 mm
- Leader or anchor line length: 200m
- Main line diameter: 16 mm Polyester/Nylon
- Main line Length: 9000 m
- Number of hooks per main line: between 3500 and 5625

- Distance between droppers: 40 m

- Length of dropper: 18 m

- Number of droppers per main line: between 140 and 225

- Number of hooks per dropper: 25

- Hook type and size: APO Straight 10/0 hook and 70 mm length

- Anchor weight: 60 kg Bar-anchor for main line; 10 kg weight on bottom of dropline

- Bait species: Flying squid and South American pilchard

1-3) Seabed depth range to be fished

The seabed depth was ranging from 657 to 1960 m in 2013 and 2017 cruises. Before 2010, there is no available information to describe seabed depth range of bottom longline fishery at SIOFA area.

1-4) Target species, and likely or potential by-catch species

1-4-1) Target species

Target species of Japanese bottom longline fishery at SIOFA area is Patagonian toothfish (*Dissostichus eleginoides*).

1-4-2) Likely or potential by-catch species

In Japanese bottom longline fishery at SIOFA area, major by-catch species with FAO 3-Alpha Species Codes (ASFIS) are as follows;

- ANT: Blue antimora (*Antimora rostrata*)

- GRV: Grenadiers (*Macrourus* spp.)

- EMT: Rubyfishes (Emmelichthyidae)

- ETF: Blackbelly lanternshark (*Etmopterus lucifer*)

- GSK: Greenland shark (*Somniosus microcephalus*)

- MRL: Moray cods (*Muraenolepis* spp)

- SRX: Skates and rays (Rajiformes)

1-5) Intended period and duration of fishing

In SIOFA area, Japanese bottom longline fishing was operated as following periods.

2004: 22 Jan.–12 Feb., 20 Jul. – 11 Aug., and 24 Aug.–6 Oct.

2005: 22 Jun. –27 Aug.,

2006: 22 Dec.

2007: 23 Dec.

2008: 1–9 Mar., and 1–10 Oct.

2009: 12 Jan., and 10–12 Aug.

2010: 25–27 Apl., and 25 Jun. –7 Jul.

2013: 9–24 Jun.

2017: 8–15 Oct.

1-6) Effort indices

Effort indices of Japanese bottom longline fishery are summarized in Table 1.

Table 1 Effort indices in Japanese bottom longline fishery. "-" means no information for this table.

Year	Vessels	Hauls	Days	Total hooks	Total line length (km)
2004	1	-	81	1,050,000	-
2005	1	-	61	428,620	-
2006	1	-	1	15,650	-
2007	1	-	1	16,050	-
2008	1	-	19	245,050	-
2009	1	-	4	58,132	-
2010	1	-	16	176,775	-
2013	1	24	12	96,480	216
2017	1	17	7	68,340	153

1-7) Estimated total catch and discard quantities by target and bycatch species

In Japanese bottom longline fishing at SIOFA area, only Patagonian toothfish (TOP) is retained as main target species. Catch and discard amount reported in fishing logbook are summarized in Table 2.

Table 2 Catch and discard amount (kg) in Japanese bottom longline fishing at SIOFA area. In Patagonian toothfish (TOP, *Dissostichus eleginoides*), parenthesized value is discard amount. For other species, discard amounts are indicated. ANT: Blue antimora (*Antimora rostrata*), GRV: Grenadiers (*Macrourus* spp.), EMT: Rubyfishes (Emmelichthyidae), ETF: Blackbelly lanternshark (*Etmopterus lucifer*), GSK: Greenland shark (*Somniosus microcephalus*), MRL: Moray cods (*Muraenolepis* spp), SRX: Skates and rays (Rajiformes). "-" means no information (i.e., not recorded on fishing logbook) for this table.

Year	TOP	ANT	GRV	EMT	ETF	GSK	MRL	SRX
2004	72,099	0	14,801	-	-	-	-	-
2005	3,260	0	6,173	-	-	-	-	-
2006	4183	15	514	-	-	-	-	-
2007	4,347	56	402	-	-	-	-	-
2008	39,957	2,402	3,449	-	-	-	-	-
2009	7,407	944	759	-	-	-	-	-
2010	19,114	630	3,637	-	-	-	-	-
2013	4,917	257	1,314	-	-	-	-	0
2017	11,019 (407)	160	1,469	34	76	38	36	19

2) Mapping and Description of Proposed Fishing Areas

2-1) Maps of the intended fishing areas

Footprint of Japanese bottom longline fishery is indicated in the Figure 1. The foot prints (red squares) are indicated as grid blocks of 20 minutes resolution as defined by CMM2017/01.

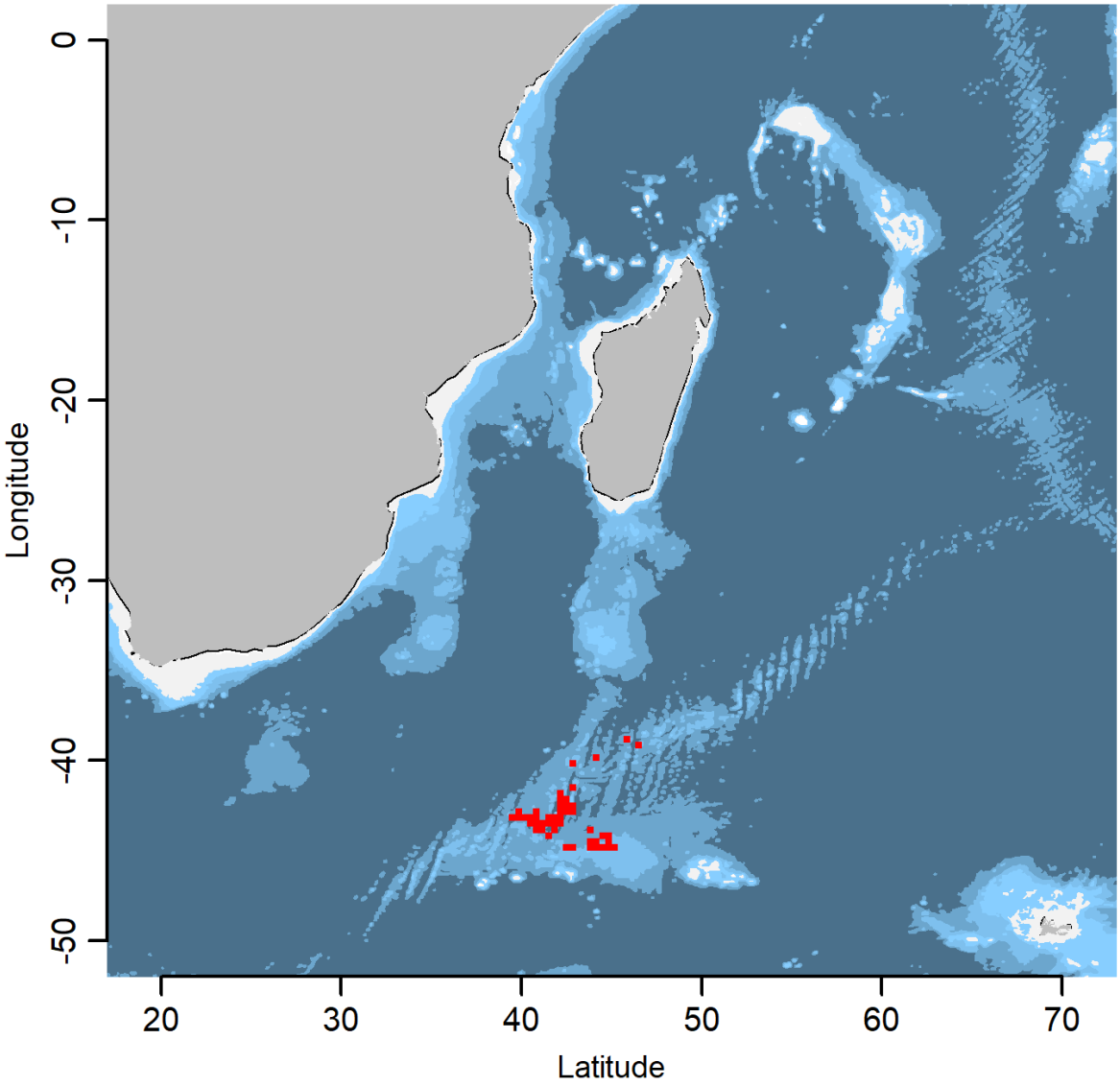

Fig. 1 The footprints of Japanese bottom longline fishery for 9 years (2004-2010, 2013 and 2017). Red squares indicate the foot prints which are described as grid blocks of 20 minutes resolution.

2-2) Area, or topographic features likely to support VMEs

The fishing logbook and scientific observer data collected by Japanese bottom longline fishery did not record any detailed information which support any VMEs management; e.g., detailed topography of the ocean floor to conducted habitat model analysis.

2-3) Mapping of all known VMEs, or evidence of VMEs, in the proposed fishing areas

Small bycatch amount of VME indicators (max. <150 g/haul) have been reported by scientific observer during 2013 and 2017 cruises. There is not enough information to evaluate that these benthic invertebrates forming VMEs.

2-4) Mapping of the results of predictive habitat modelling for VMEs in the SIOFA area

There are no available data about benthic invertebrates including VME indicator collected by the Japanese bottom longline fishery to conduct habitat modelling for VMEs in the SIOFA area.

2-5) Baseline data and description of the proposed fishing areas

Shinsei-maru No.3 mainly operates in the CCAMLR area and opportunistically operates in a small area in SIOFA CA in the southern southwestern Indian Ridge adjacent to the northern part of the CCAMLR CA. Current footprint of bottom longline fishery is the maximum proposed fishing area, except when a new exploratory fishing will be implemented according to CMMs regarding "new fishery" in SIOFA CA. There is not enough information and data to describe other base line data within the bottom longline fishing grounds at SIOFA CA.

3) Impact assessment

3-1) Risk assessment

3-1-1) The level of risk posed by each activity

3-1-1-1) Intensity

There seems to be negligible risks on intensity of fishing efforts to impact deep-sea ecosystems because areas and durations of operations are very limited.

3-1-1-2) Duration

Since Japanese bottom longline vessel opportunistically operates in the SIOFA Area (Southwestern Indian Ridge) in very short periods, risks to impact deep-sea ecosystems in duration are low.

3-1-1-3) Spatial extent

Since Japanese bottom longline vessel opportunistically operates in the SIOFA Area (Southwestern Indian Ridge) in small areas, risks to impact deep-sea ecosystems in spatial extent are low.

3-1-1-4) Cumulative impact

Risks on cumulative impact are likely small because operations take place in small area and short durations.

3-1-2) Overall risk (Low/Medium/High)

Low: Spatio-temporal Japanese bottom longline operations are very limited thus the over-all risk is likely low.

3-2) Interactions with VMEs

3-2-1) What impacts are likely to results from the fishing gears to be used?

There is no information collected by Japanese bottom longline fishery to evaluate any actual impacts on seabed ecosystems including VMEs. However, trot line bottom longline method used by the Japanese bottom longline vessel is the least bottom contact gear amongst all other bottom fishing methods, thus impacts on VME are likely minimal.

3-2-2) What will the probability, likely extent (% of habitat targeted) and intensity of the interaction between the proposed fishing gear/targeting practices on the VMEs

The trot line bottom longline method used by the Japanese bottom longline vessel is the least bottom contact gear amongst all other bottom fishing methods, thus impacts on VME are likely minimal.

3-2-3) What are the characteristics of the habitat and benthic communities which may be impacted?

There is no information collected by Japanese bottom longline fishery which evaluate any actual impacts on seabed ecosystems including VMEs.

3-2-4) How diverse is the ecosystem in the proposed fishing areas and will the fishing activity reduce this biodiversity?

There is no information collected by Japanese bottom longline fishery to evaluate diversity in the proposed fishing (foot print) area. However, Japanese bottom longline fishery will not reduce biodiversity because the trot line bottom longline method (the least bottom contact gear amongst all other bottom fishing methods) are used, thus impact on biodiversity are likely minimal.

3-2-5) What is the likely spatial scale and duration of the impacts?

Japanese bottom longline fishing was operated at limited fishing grounds (Figure 1) with low frequency (Table 1).

3-2-6) Any other threats or issues: gear loss, ghost fishing, incidental bycatch discards, protected or endangered species mortalities, effects on ecosystem functioning.

Loss of bottom longline fishing gear causing ghost fishing, incidental bycatch on seabird and marine mammals is recorded by scientific observer. In 2013 and 2017, there is no report of both loss of fishing gear and incidental bycatch of birds and mammals. For other years, there were no investigation.

4) Information on status of the deep-sea stocks to be fished

4-1) A list of the intended target and likely by-catch species

See 1-4-1) and 1-4-2).

4-2) Tables of historic catches and catch trends of these species in the intended fishing area

See table 2 and 3 in 1-7).

4-3) Tables, figures of analyses of historic nominal and/or standardized CPUE trends in these species

Two types of nominal CPUEs (catch/hook and catch/line length) of Patagonian toothfish is shown in Figure 2. It is noted that fishing season and grounds are differ among years and fishing efforts are relatively low, hence CPUE of Japanese bottom longline fishery does not necessarily reflect actual stock abundances. For Japanese bottom longline fishery, there is not enough information and data to conduct standardizing CPUEs.

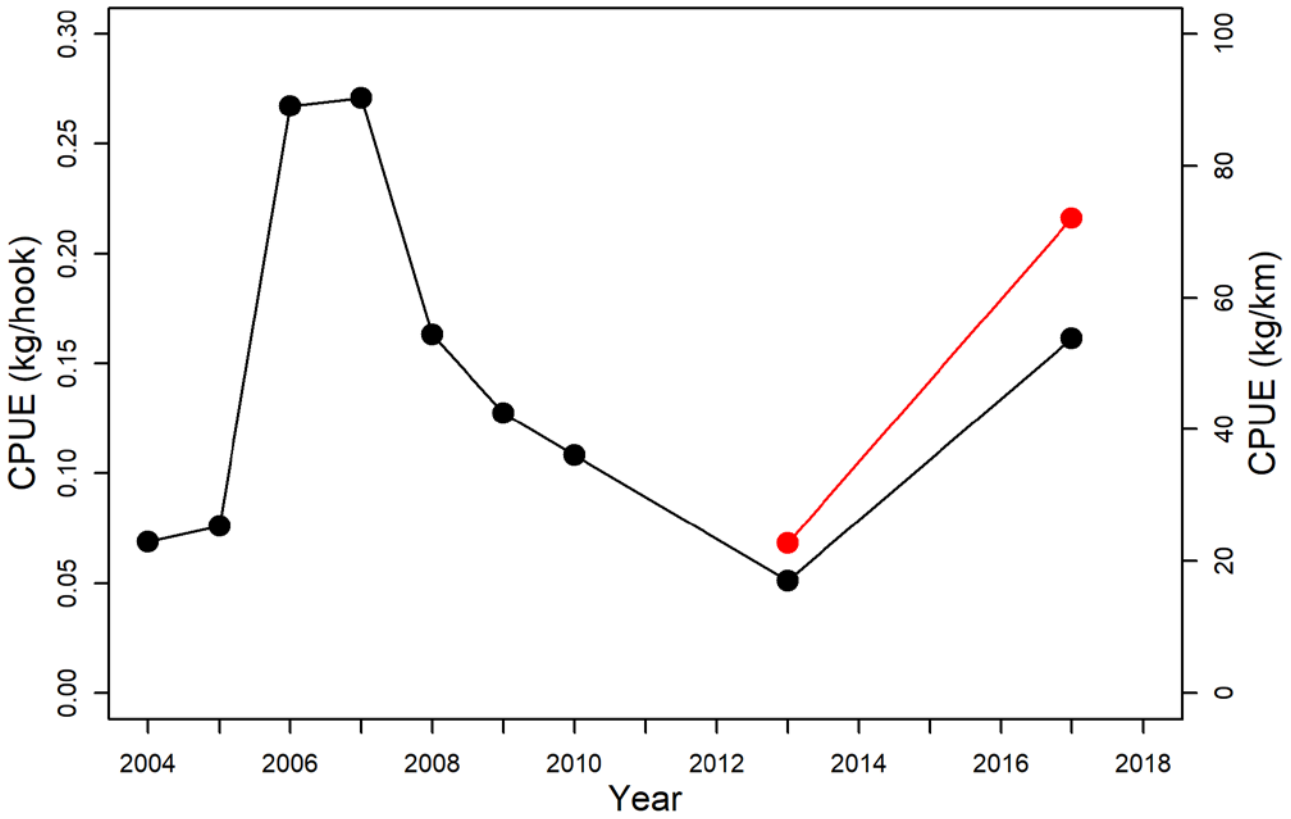

Fig. 2 Nominal CPUE of Japanese bottom longline fishery in the SIOFA area. Black circles are catch/ per hook (kg/hook). Red circles are catch per line length (kg/km).

4-4) Results of any surveys conducted on the stocks to be fished

No Japanese bottom longline surveys are conducted for Patagonian toothfish stock.

4-5) Results of the most recent stock assessments that have been conducted for the stocks to be fished

To now, no stock assessments for Patagonian toothfish are conducted in SIOFA. It will take place in the 2nd SAWG (Stock Assessments Working Group) in 2019.

4-6) Any other information

There is no relevant information about the stock status on Patagonian toothfish targeted by Japanese bottom longline fishery.

5) Monitoring, Management and Mitigation Measures

5-1) VMS positional information

Fisheries Agency of Japan verifies locations of vessels through the Vessel Monitoring System (VMS).

5-2) Details of catch and effort data collection systems

All fishing vessels for both commercial and exploratory fisheries have been collecting fisheries data for each operation including dates, locations, depth, catch/effort data and other relevant information. This information is recorded in logbooks and submitted to Fisheries Agency of Japan.

The Japanese bottom longline fishing vessel also collects scientific data such as detail information of operations (haul-by-haul fishing effort, catch/bycatch by species) and biological information including size data.

5-3) Details of any scientific observer coverage

One vessel operating mainly in the CCAMLR area, occasionally moves up to the SIOFA and the same observer collects scientific data in both CCAMLR and SIOFA areas. Hence the observer coverage is 100%.

5-4) Description of the data that will be provided to the SIOFA secretariat for the fishing activity

Japan will provide logbook information and scientific observer data according to the conservation measure.