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Complementing information about Japanese bottom fishery for gap analysis of CCP BFIAs against BFIA standards

Relates to agenda item: 4 Working paper ☐ Info paper ☒

Delegation of Japan

Abstract

MoP6 indicated that the SC had identified a range of gaps in several BFIS's and encouraged other CCPs to update and resubmit their BFIAs to address the gaps identified by the SC (SIOFA MoP6 report, para.75). Gap analysis of CCP BFIAs against BFIA standards (SIOFA SC4 report ANNEX R) indicated issues about Japanese bottom fishery as summarized in Table 1. This paper complements information about Japanese bottom fishery for the gap analysis

Complementing information about Japanese bottom fishery for gap analysis of CCP BFIAs against BFIA standards

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Table 1. Gap in Japanese bottom fishery against SIOFA BFIA standards (modified from SIOFA SC4 report ANNEX R).

BFIAs section	Requirement	Comments
5.2 Mapping and description of proposed fishing areas	Maps of the (intended) fishing areas, at the appropriate resolution in relation to the most recent SIOFA maps of historically fished areas	Resolution required not defined but 20' is the minimum specified requirement. Is important to specify if this is not used for whatever reason. Some JPN fishing intentioned reported by 30' resolution.
	Mapping of all known VMEs, or evidence of VMEs	JPN can make map available.
5.3 Impact assessment	Interactions with VMEs: Impacts likely to result from the fishing gears to be used	
	Interactions with VMEs: Characteristics of the habitats and benthic communities that may be impacted	JPN longline fishery had insufficient data.
	Interactions with VMEs: Diversity of the ecosystem in the proposed fishing areas, and will fishing reduce this biodiversity?	JPN longline fishery had insufficient data.

1) Maps of the fishing areas

As Japanese delegation have explained during SIOFA PAEWG and SC, Japanese commercial trawl fishery recorded daily spatial location information on fishing log book at a resolution of 30 minutes until 2016 (Delegation of Japan 2017a, b). It is difficult to make a footprint map for all effort data at 20 minutes resolution without adequate data transform procedures.

For Japanese bottom longline fishery, all footprints were indicated spatial location with 20 minutes resolution (Delegation of Japan 2017c).

2) Mapping of all known VMEs, or evidence of VMEs

For Japanese bottom trawl and longline fishery, SIOFA SC-03-06.2(01) and (03) reported "There is not enough information to evaluate that these benthic invertebrates forming VMEs." Fig. 1 indicates the maps of VME indicator species caught by Japanese bottom trawl fishery in 2012. Fig. 2 indicates the maps of VME indicator species caught by Japanese longline fishery in 2013 and 2017.

For Japanese midwater trawl fishery, bycatch of VME indicator species has never been observed at SIOFA area since 2017.

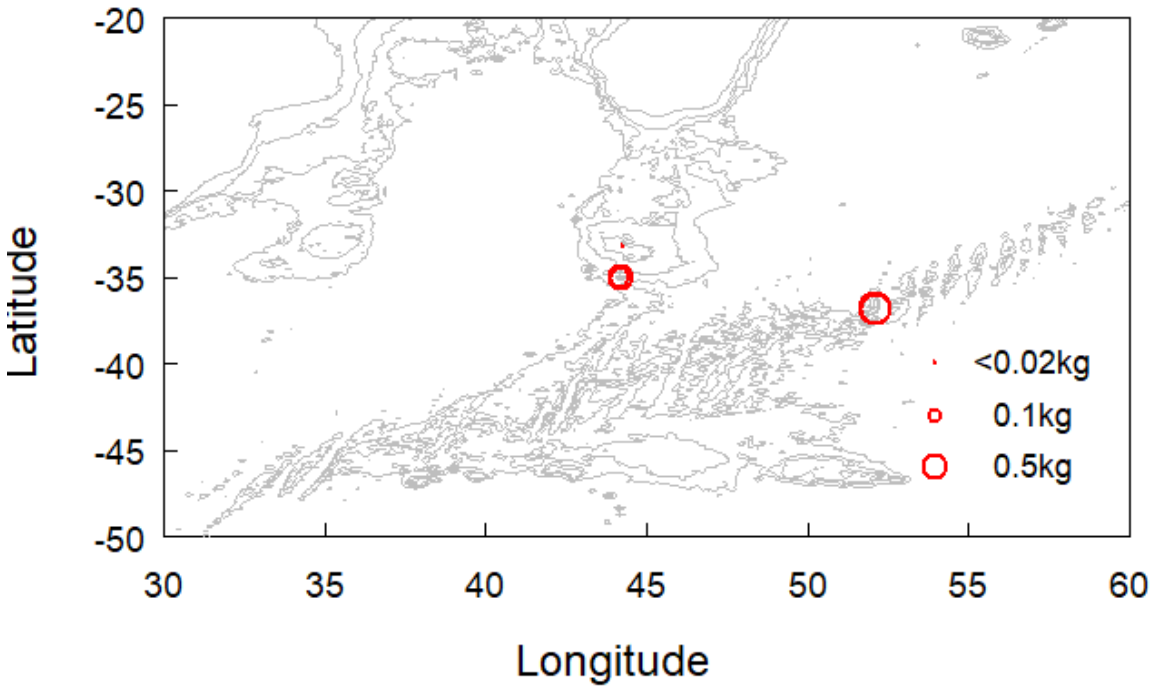

Fig. 1. Map of observed VME indicator species hauled by Japanese bottom trawl fishery at SIOFA area in 2012. The weight of VME indicator species is aggregated and recorded for each haul. Size of rings represent the weight of VME indicators. Grey line is bathymetry contours 1000, 2000, and 3000 m obtained by ETOPO1.

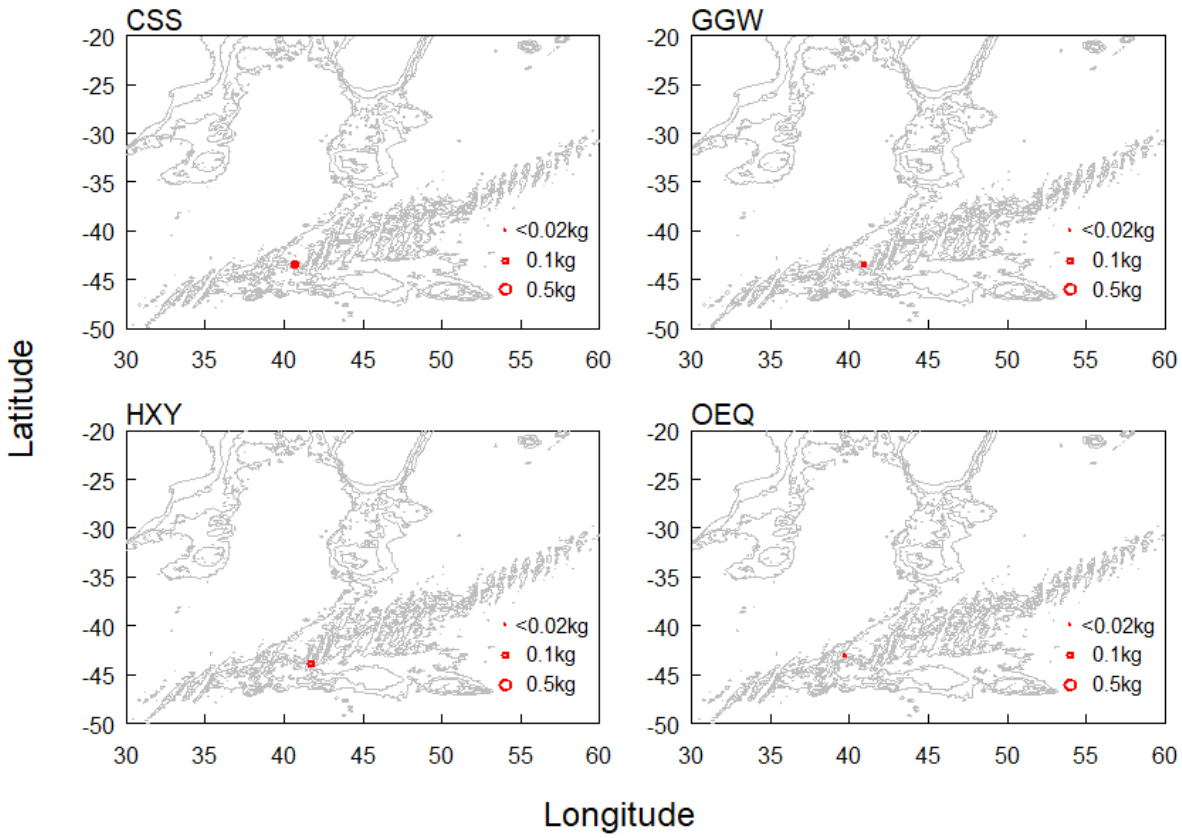

Fig. 2. Map of observed VME indicator species hauled by Japanese bottom longline fishery at SIOFA area in 2013 and 2017. Size of rings represent the weight of VME indicators. Grey line is bathymetry contours 1000, 2000, and 3000 m obtained by ETOPO1.

3) Interactions with VMEs

Appendix 1 is BFIA on VME in CCAMLR. The longline vessel described Appendix 1 is identical the longline vessel operating in SIOFA area. Although there is not enough information to conduct BFIA on VME in SIOFA area, Appendix 1 indicates Japanese bottom longline vessel could be assumed to have low impact on VME.

VME indicators observed by Japanese fishing vessels (longline: 0.02-0.15 kg/line, bottom trawl: 0.01-1.66 kg/haul) are significantly lower than threshold level for encounters with VMEs (CMM 2019/01 para.12).

Reference

Delegation of Japan (2017a) Provisional Bottom Fishing Impact Assessment for Japanese bottom trawl fisheries in SIOFA convention area. SIOFA SC-03-06.2(01).

Delegation of Japan (2017b) Provisional Bottom Fishing Impact Assessment for Japanese midwater trawl fisheries in SIOFA convention area. SIOFA SC-03-06.2(02).

Delegation of Japan (2017c) Provisional Bottom Fishing Impact Assessment for Japanese bottom longline fisheries in SIOFA convention area. SIOFA SC-03-06.2(03).

Appendix 1.

CCAMLR ANNEX 22-06/A

PRO FORMA FOR SUBMITTING PRELIMINARY ASSESSMENTS OF THE POTENTIAL FOR PROPOSED BOTTOM FISHING ACTIVITIES TO HAVE SIGNIFICANT ADVERSE IMPACTS ON VULNERABLE MARINE ECOSYSTEMS (VMES)

Preliminary assessment of bottom fishing activities – Required Information
1. Scope
1.1 Fishing method(s) no
Longline type (Trotline)
1.2 Subarea/division where fishing has been notified
Subarea 48.6 and 88.1, Division 58.4.1, 58.4.2 and 58.4.4
1.3 Period of notification
One Year (2020/2021 fishing year)
1.4 Names of fishing vessels
Shinsei Maru No.8
2. Proposed fishing activity – *please complete separately for each fishing gear method*
2.1 Fishing gear details *– refer to CCAMLR fishing gear library for examples noted below.*
(i) Fishing gear configuration *Provide a detailed description of each fishing gear type and its deployment process including diagrams of the different components of the gear and their dimensions – include line type, weight, anchors, size, spacing, material properties (e.g. breaking strain), sink rates in water etc. – so that the fishing footprint can be estimated separately for each gear component. This description can simply cross reference gear descriptions included in the CCAMLR fishing gear library (see examples or the diagrams available in the CCAMLR observer logbooks).* (See Fig.1) Shinsei Maru No.8 will use the same trot line system of Shinsei Maru No.3, and the system has been using consists of a main line (9000m -18000m in length and 16mm in diameter) and between 200 and 601 drop lines (length 5m) attached at intervals of more than 20m. The distance between the bottommost cluster to the bottom weight is around 1m. The length of each hook line is 50cm. As each cluster has 0 ~ 5 hooks, each drop line has 1〜6 clusters at intervals of 40cm approximately. The total number of hooks attached to a main line is 3,500 ~ 5000.

The bottle test conducted by Shinsei Maru No.3 in December 2013 in accordance with the Conservation Measure 24-02 for 2013/2014 season resulted in the average sink rate of 0.78m/s. Since 2014/15 season, the bottle test has been exempted by Shinsei Maru No.3 under the conservation measure 24-02 and 25-02.

(ii) Expected behaviour of fishing gear

Provide a detailed description of the fishing process and the known or expected interaction of the gear with the seafloor, including gear movement (e.g. movement in contact with the seafloor) during the setting, soaking and hauling processes. This description can reference other gear performance descriptions in documents previously adopted and available in the CCAMLR fishing gear library.

In setting process, trot lines sink vertically, and their sink rate is higher than the other gear types, including Spanish lines, as weights are attached to the bottom of all drop lines. In hauling process, the line moves vertically. Since the amount of scientific data on possible lateral movements of drop lines on the seafloor is limited, we assume the extent of this movement as 2.5 meters, with reference to the analysis conducted by the United Kingdom in 2010 on autoline movements on the seafloor.

A: Circumferential movement of one drop line = 0.0000785 km^2 (=0.005 km x 0.005 km x π).

B: Lateral movement of one drop line = 0.0000250 km^2 (=0.010km x 0.0025km).

A + B= 0.0001035 km^2 per drop line.

Interaction of one kilo meters of Trot line with the seafloor would be between 0.00230 and 0.00346 km^2 (=(A+B) x 200or 601 drop lines ÷ 9km or 18km/ Trot line).

(iii) Estimated footprint associated with possible unusual fishing events

Provide a description of other fishing gear deployment events (e.g. line breakage, gear loss) that can be expected to have a footprint size or impact level associated with fishing activity, with estimates of how frequently such events occur and their associated footprint as in (ii) above. This estimate may reference other gear performance description documents previously adopted and available in the CCAMLR fishing gear library.

Shinsei Maru No.8 has not been engaged in fishing activity so far, but it was rare for Shinsei Maru No.3 to lose main lines, and loss rate of drop lines was lower than 0.13% for 2009-2015 according to the observer reports.

Since then, the loss of fishing gear has been reported by the observer report as follows.

* Sep 2015 to Dec 2015, about 100 weights were lost in 58.4.4&58.4.3a,

* Dec 2015 to March 2016, 2338 hooks lost out of 462300 and no large (main line) lost occurred in 48.6.

* Dec 2016 to June 2017, two main lines with 8,194 hooks were lost in 48.6 .

* Oct 2017 to Nov 2017, 363 hooks lost in 58.4.3a&58.4.4b.

* June 2018 to March 2019, 976 hooks and 856 weight stones, 7 drop lines, 7 fishing lines was lost in 48.6.

∗ June 2019 to Nov 2020, 351 hooks lost out of 403970 and 420m main line, 14 weight lost in 58.4.4b.

∗ Dec 2019 to March 2020, the observer's report in 48.6 states that “There was no major loss, individual hooks and stones were sometimes broken off.”.

This very low loss rate will give us a suggestion that there is very few possibility of large amount of gear lost.

(iv) Estimated footprint index (km^2 per unit of fishing effort)

Using the description of fishing gear configuration (i) and the expected behaviour of the fishing gear (ii), provide an estimate of the footprint index – i.e. the estimated maximum area within which contact with the seafloor may occur per unit of fishing effort (e.g. km^2 impacted per km mainline deployed or other unit defined in the fishing gear configuration description, or see examples). Describe uncertainties used in estimating the fishing gear footprint (e.g. extent of gear movement in contact with the seafloor). This estimate may reference other footprint estimation documents previously adopted and available in the CCAMLR fishing gear library.

Between 0.00230 and 0.00346k㎡ /km of Trot line as described in (ii).

(v) Estimated ‘impact index’

Estimate the impact index per standard unit of fishing gear (i.e. the footprint index multiplied by the composite mortality rate expected within the footprint, see examples).

For the Trot line with 200 drop lines, "Estimated Impact index" is 0.000286902km^2/km, which is multiplied by the "Footprint Index" (0.00378 km^2/km) and the "Composite Mortality Rate" (7.59%). "Composite Mortality Rate" is calculated by "Number of line caught VME"/" Number of total line" according to Table 1.

2.2 Scale of proposed fishing activity

Please provide proposed estimated effort within each subarea/division in which activities have been notified, including the expected depth range of fishing activities (e.g. expected effort in units used in (iv) – total km of mainline).

48.6: 2.484 km^2(=120 lines, 1,080,000 m), 550 – 2,000 m

88.1: 1.656 km^2 (=80 lines, 720,000 m), 550 - 2,000 m

58.4.1: 2.070 km^2(=100 lines. 900,000m), 550 - 2,000 m

58.4.2: 0.828 km^2(=40 lines, 360,000 m), 550 - 2,000 m

58.4.4: 2.070 km^2(=100 lines, 900,000 m), 550 - 2,000 m

3. Methods used to avoid significant impacts on VMEs

Please provide details of modifications (if any) to gear configuration or methods of deployment aimed at preventing or reducing significant impacts on VMEs during the course of fishing.

As the impacts of the gear on VMEs are estimated to be small as shown on Table 1. We will continue to implement methods to avoid impacts on VMEs in accordance with the relevant Conservation Measures. If we observe any increase in the impacts on VME from the operations of Shinsei Maru No.8, we will consider countermeasures, possibly including gear modifications and changes in methods of deployment.

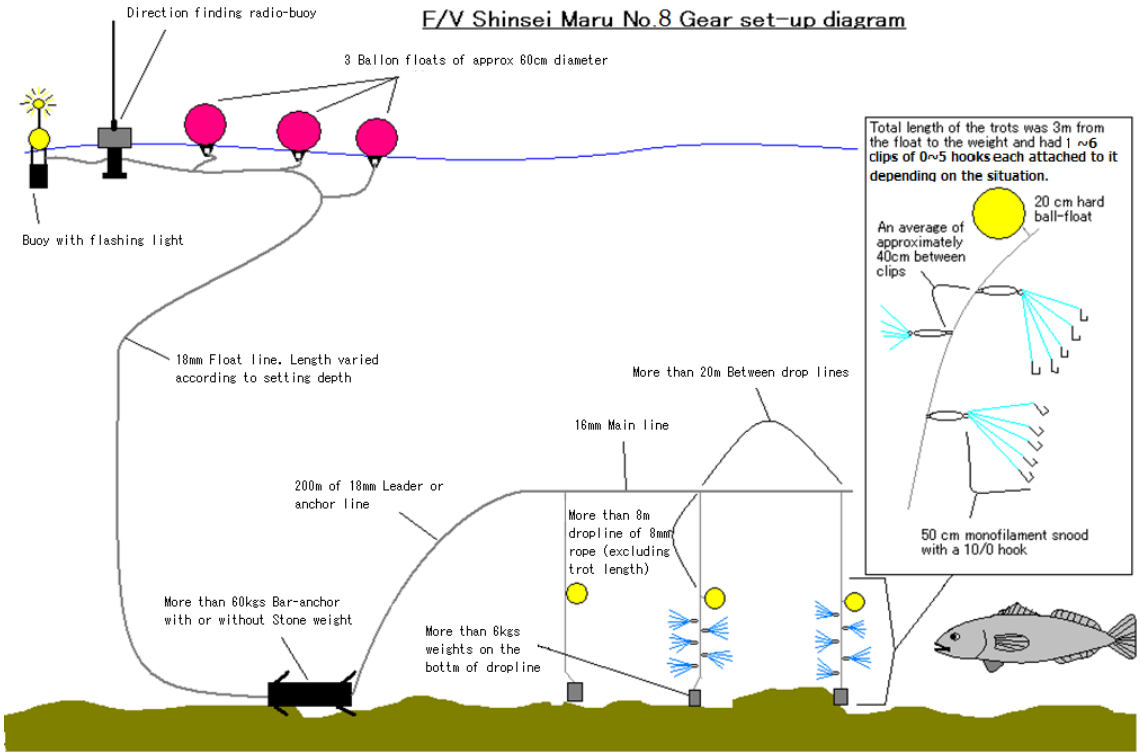

Fig.1 Configuration of Trot line