SWG VME: 2024 Tasks

NPFC-2024-SSC BFME05-IP05

1. Use data-based methods applied to Japan and Korea's indicator taxa bycatch to further refine **encounter thresholds that are taxon and gear specific**

2. Work toward completing **objectives of VME data sharing**

3. Provide a table that translates between **common and scientific names of corals** that can be updated as taxonomic changes are implemented

4. Consider adding **hydrocorals** to the list of VME indicator taxa

5. Discuss methods for **defining VMEs using other FAO criteria** (in addition to density-based criteria)

6. Continue to work to develop a **synchronized approach for assessing and managing the risk of SAI** and determine data requirements and spatial/temporal resolution for SAI assessment

SWG VME – Meeting dates and email correspondence

Participants:

- Canada, China, Japan, Korea, Russia, USA, Secretariat
- Dr. Tony Thompson (FAO - observer) and Dr. Amy Baco-Taylor (DSCC - observer)

Meetings:

- 20 June (NPFC-2024-SSC BFME05-RP01)
- 27 September (NPFC-2024-SSC BFME05-RP02)

Email correspondence:

- Japan and Canada corresponded about spatial/temporal resolution for SAI assessment

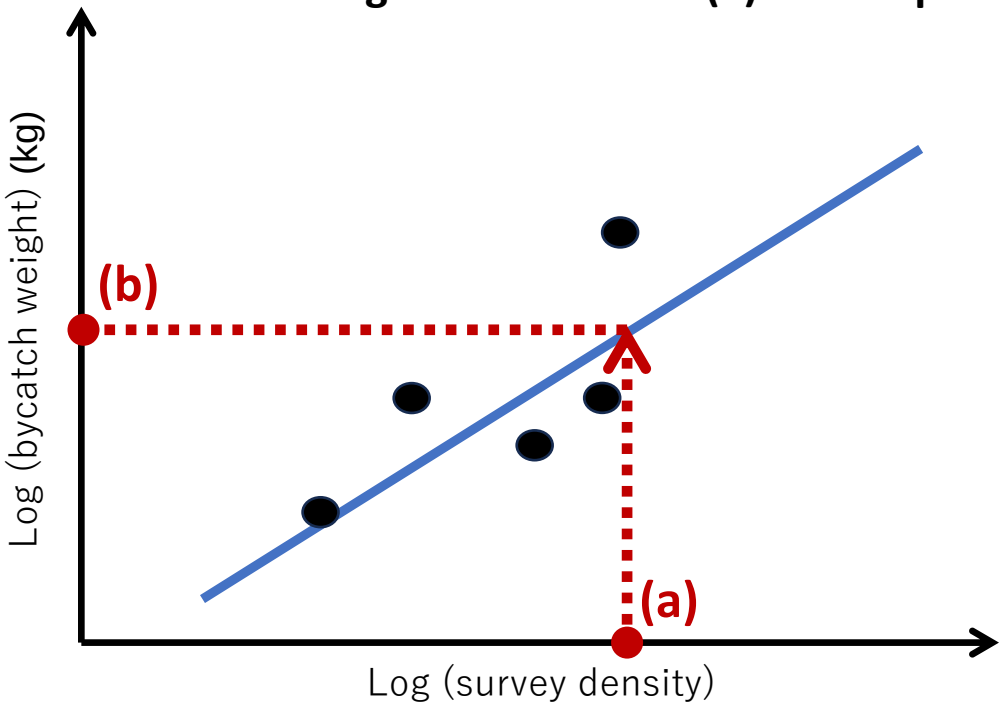
Task: Use data-based methods applied to **Japan's** indicator taxa bycatch to further refine **encounter thresholds that are taxon and gear specific**

See **20240927_threshold_recalculation_JPN.pptx** on the SWG VME Collaboration Site
Posted on 26 September 2024

Approach:

1. **Fitting a linear model to the percentiles of bycatch weights and the percentiles of stereo-camera survey densities.**

2. **Defining VME threshold (a) for the potential encounter threshold (b).**



Conclusions:

- the method may be problematic (model quality and different distributions in the survey and fishery data).
- Requires further consideration of approaches and analysis.
- Data limitations for most taxa mean that encounter thresholds that are taxon-specific may not be appropriate at this stage

Task: Use data-based methods applied to **Korea's** indicator taxa bycatch to further refine **encounter thresholds that are taxon and gear specific**

From the Summary of SWG VME02 in 2024:

● 2013-2019: VME indicator taxa byatch data were collected by scientific observers from Korean trawl fisheries only.

● 2013-2017: Specimens were identified by coral taxonomy experts from the USA and Korea under the NOAA-MOF Project Agreement.

● 2013-2017: Available data include only four orders of cold-water corals, and there is significant annual variation in the weight of each order.

● 2018-2019: Specimens were not identified by experts.

Korea believes that this small dataset has limitations in refining encounter thresholds.

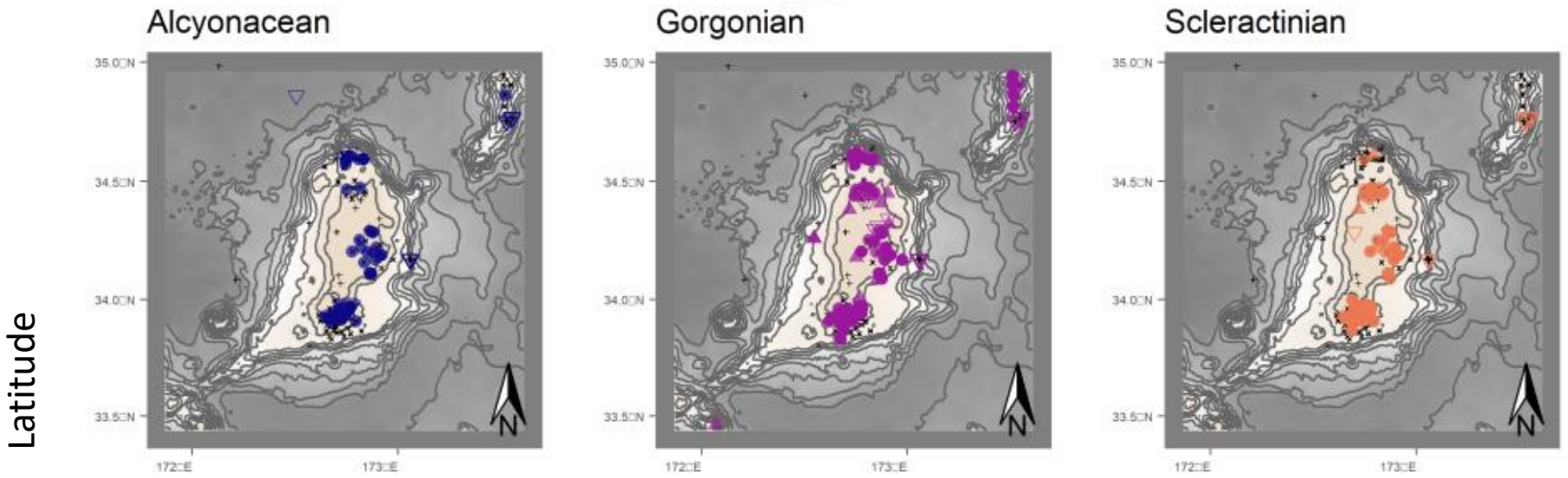
Task: Work toward completing **objectives of VME data sharing:** Objective 1. Use the data to learn where VME indicator taxa are known to be present and absent.

See **Mapping_the_VME.pdf** file posted on the SWG VME Collaboration Site by Chris Rooper on 29 April

Members shared 14,162 observations from transect and point data on 17 seamounts

- Alcyonacean
- Antipatharian
- Gorgonian
- Scleractinian
- Hexactinellid
- Demosponge
- Pennatulacean
- Porifera

Koko Seamount



The code and larger versions of the figures are available at https://github.com/rooperc4/ BFME_VME_Distribution

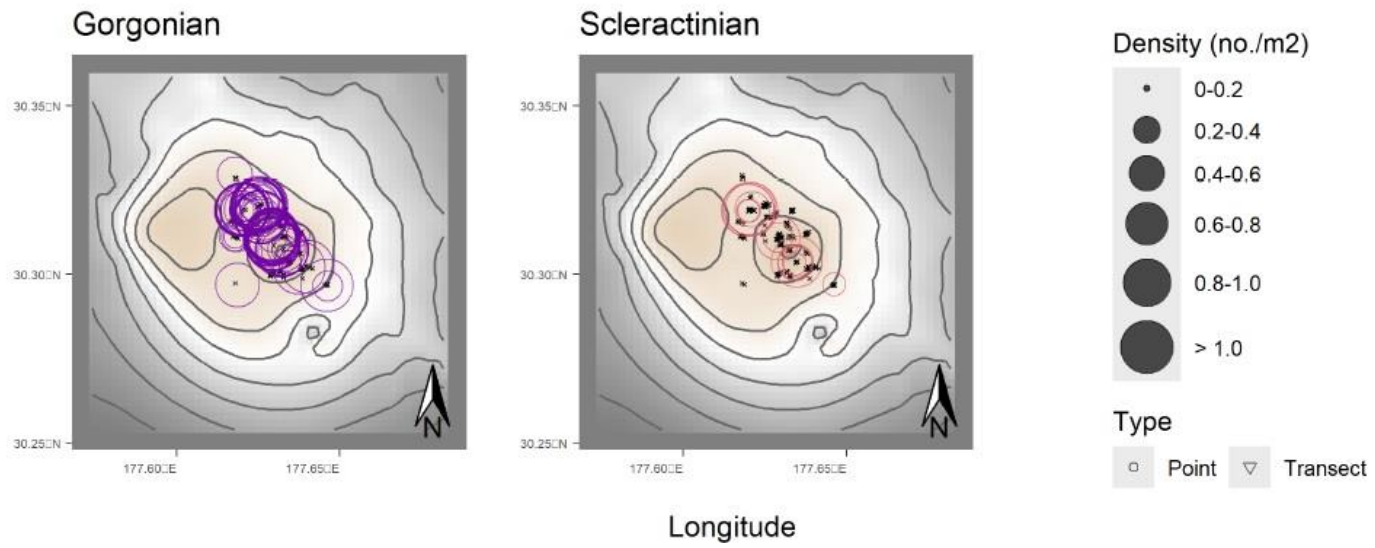
Task: Work toward completing **objectives of VME data sharing:** Objective 2a. Use the data to determine where there are elevated densities (hotspots) of VME indicator taxa: Map the densities

See **Mapping_the_VME_Density.pdf** file posted on the SWG VME collaboration site by Chris Rooper on 29 October 2024 and included as WP19 of this meeting.

There were 4013 observations of density from 17 seamounts

- Alcyonacean
- Antipatharian
- Gorgonian
- Scleractinian
- Hexactinellid
- Demosponge
- Pennatulacean
- Porifera

C-H Seamount



The code and larger versions of the figures will be available at **https://github.com/rooperc4/BFME_VME_Distribution**, the NPFC Github repository and the NPFC Collaboration Website. The data will be on the Collaboration Website only.

Task: Work toward completing **objectives of VME data sharing:** Objective 2c. Model Validation Using VME Observations

See **VME_Model_Testing.pdf** file posted on the SWG VME collaboration site by Chris Rooper on 23 September

There were 4185 observations from transects and point data

Five commonly used measures of goodness-of-fit were used to evaluate each of the models using the predictions and observations of presence or absence.

Conclusions

1) With the exception of the Tong et al. 2023 model for Scleractinians, none of the global models predicted the observed presence or absence data compiled by Members
2) The models by Chu et al. (2019), were regional models that only performed well in predicting observations of both Scleractinians and Gorgonians.
3) Global models tend to perform poorly in most cases when compared to region-specific data.
4) This implies that regional models should be developed to best inform managers/scientists about where there are likely to be VME indicator taxa present.

The code is available at https://github.com/rooperc4/BFME_VME_Distribution and will be available on the NPFC Github repository and the NPFC Collaboration Website.

Task: Provide a table that translates between common and scientific names that can be updated as taxonomic changes are implemented

See **ESMCorals_WoRMS_2024_JPN_CAN (2).xlsx** file posted on the SWG VME collaboration site by Osawa-san on 26 September 2024

- Japan presented a draft translation table based on corals in the Emperor Seamounts during SWG VME01 in June 2024
- Canada crossed-referenced the taxa in Japan's table with corals in the Cobb-Eickelberg seamount chain intersessionally.
- Japan presented a revised table that included changes from both Canada and Japan during the SWG VME02 in September 2024.

Task: Consider adding hydrocorals to the list of VME indicator taxa

NPFC-2024-SSC BFME05-RP01 SWG VME01 meeting summary.pdf

- Japan and Canada's bottom fisheries and visual surveys indicate low retention in gear and that currently there is limited or no high risk of interaction of hydrocorals with fisheries

- Participants recognized that hydrocorals have some conservation concerns because of their reproductive life history, and in some cases because of low connectivity and high endemicity.

- SWG VME is not recommending to list hydrocorals as VME indicator taxa although some participants expressed concern because life-history traits that make them vulnerable.

Discuss methods for defining VMEs using other FAO criteria (in addition to density-based criteria)

NPFC-2024-SSC BFME05-RP01 SWG VME01 meeting summary.pdf
NPFC-2024-SSC BFME05-RP02 SWG VME02 meeting summary.pdf

- Participants noted that VME definitions based on density are related to the criterion of structural complexity but such definitions may overlook the other four VME criteria.

- Participants recalled that Japan's approach draws on expert opinion but takes into account all five of the FAO criteria.

- Each criterion was discussed during SWG VME01 in June and SWG VME02 in September.

- Members will continue to discuss this issue at SSC BF-ME05.

Continue to work to develop a synchronized approach for assessing and managing the risk of SAI and determine data requirements and spatial/temporal resolution for SAI assessment

NPFC-2024-SSC BFME05-RP01 SWG VME02 meeting summary.pdf

● Canada and Japan communicated intersessionally by email about data requirements and spatial/temporal resolution for SAI assessment.

spatial resolution
- for the SAI assessment should match the spatial extent of VMEs (a habitat patch, or a series of neighboring survey points that host similar benthic fauna)

temporal resolution
- evaluation should be with the best available temporal scale data that can ensure the spatial resolution required for SAI evaluation
- ideally there would be data on the entire historical distribution of fishing so you can see where SAI have likely occurred

Small Working Group on Vulnerable Marine Ecosystems