

1st joint meeting of the Small Working Groups on JFS, JS, and BM

July 3, 2024 (9 am – 1 pm Tokyo time)

WebEx

Summary

Agenda Item 1. Opening of the Meeting

The 1st joint meeting of the Small Working Groups on JFS, JS, and BM in 2024 commenced at 9am on 3 July 2024 Tokyo time in the format of video conferencing via WebEx. The meeting was attended by Members from Canada, China, Japan, and Russia as well as the Secretariat. The list of participants is attached.

The meeting was opened by Dr. Janelle Curtis (SC Chair, Canada) who served as the Chair of this joint meeting and was supported by the Leads of the SWGs: Dr. Hajime Matsui (Japan), Dr. Chris Rooper (Canada) and Dr. Shota Nishijima / Dr. Kazunari Higashiguchi (Japan).

Agenda Item 2. Adoption of Agenda

There were no amendments to the agenda.

Dr. Nishijima stepped down from the role of the Lead of the SWG BM and nominated Dr. Kazunari Higashiguchi for this position. Participants supported the nomination.

The Chair thanked Dr. Nishijima for his dedicated work and leadership and welcomed Dr. Higashiguchi.

Agenda Item 3. Japanese Flying Squid

Dr. Hajime Matsui led discussions of the SWG JFS. The presentation from the Lead is available on the Collaboration website under SC / [Japanese Flying Squid](#).

3.1 Sharing data, including unpublished data if possible

The Lead noted that JFS migrates northward from the spawning area in the East China Sea to the nursery area in the Oyashio region. It would be helpful for Japan's domestic stock assessment to receive more biological information from the nursery area from China and Russia.

China (Heng Zhang) responded that data on JFS may be collected by the Shanghai Ocean University (SHOU). Dr. Zhang will forward this request to his colleagues from SHOU who will **report** on data availability at the 2nd SWG meeting.

Russia (Dmitriy Antonenko) responded that JFS catch had been very small in the last two years, and no biological data had been collected in those years. However, some biological information up to 2022 is available (see Data availability table in the [JFS Species Summary](#)).

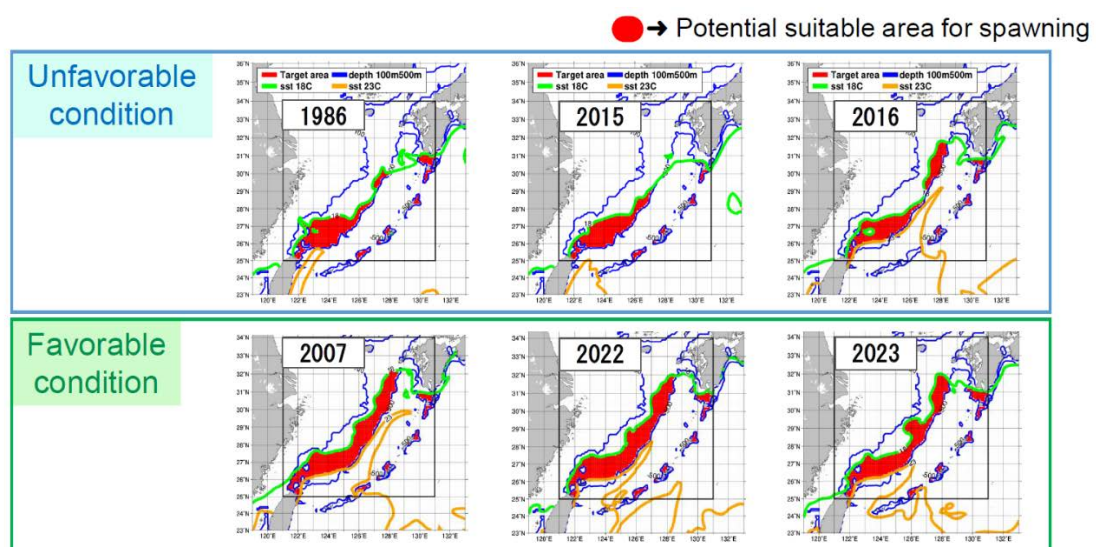
3.2 Updating catch and effort data and discussing potential data sharing needs

The Lead informed participants that the [summary footprint table](#) for squid fisheries had been updated up to 2023.

China commented that the Chinese fleet did not catch JFS in 2023.

3.3 Evaluating the influence of environmental variables on life history, biology, and population dynamics

The Lead introduced a monitoring program of the oceanographic conditions in the JFS spawning grounds conducted by Japan. The purpose of this monitoring program is to estimate the size of the potential suitable area for spawning and thus forecast recruitment of JFS which is largely affected by oceanographic conditions in the spawning grounds. The Lead pointed out that although the potential suitable area for spawning was relatively large in recent years, there was no significant increase in biomass of JFS. Other factors such as spawning stock biomass or ocean currents might also affect the stock dynamics.



China commented that the El Niño-Southern Oscillation (ENSO) events may affect the size of the suitable area for spawning. Canada commented that changes in the abundance of species which prey on JFS paralarvae may also affect the JFS stock. Japan replied that it had not analyzed these effects in its study.

3.4 Identifying climate-related analyses that could be undertaken to underpin development of climate-resilient fisheries management

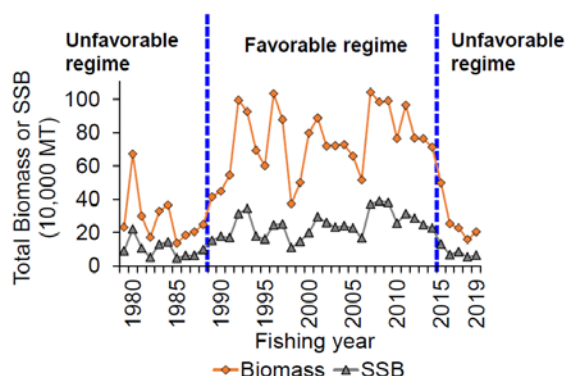
The Lead presented a study to examine the effect of fisheries management when the stock-recruitment (SR) relationship could change with the regime shift (regime-based fisheries management). Two types of SR relationships were used: a SR relationship in the unfavorable regime and one normal SR relationship. Future projections were conducted under 2 scenarios: unfavorable regime and normal regime.

Future projections under 2 scenarios based on SR relationships

(FRA-SA2020-BRP04-1)

➤ SR relationships under each regime between 1980~2019 were estimated

- **Unfavorable regime:** 1980~1988
2015~2019
- **Favorable regime:** 1989~2014



In summary, if the normal SR relationship is mistakenly applied during unfavorable regimes, it could cause a small decrease in catch (slight loss of fishing opportunities). If the SR relationship under unfavorable regime is mistakenly applied during normal regimes, it could cause a great decrease in biomass. Regime-based fisheries management was not adopted by Japan because of its higher risk. Instead, future projections considering the recent recruitment status are conducted.

In addition, the Lead identified the following issues with the regime-based fisheries management based on the review of other studies:

Szuwalski and Punt 2013; Punt et al. 2014; Szuwalski et al. 2023

- The regime-based harvest control rule (HCR) could increase catch at the cost of a higher probability of overfishing in regime-based systems
- Identifying changes in productivity that are definitely driven by environmental regime rather than fishing pressure is the largest difficulty in implementing regime-based HCRs

King et al. 2015

- Biological reference points should not be regime specific, but should be based on the fit of the SR relationship if catch and survey data do not span multiple regime states and shifts

- Regime shifts should not be integrated directly in the stock assessments or in estimating biological reference points, but rather are used as supporting information to stock assessment advice

The Chair referred to the NPFC Resolution on Climate Change and asked if Japan envisions any work on the incorporation of climate change-related information into their domestic stock assessment, future projections and implications for fisheries management. Japan responded that it had not included climate change effects in stock assessment directly but considered this indirectly.

Canada (Chris Rooper) commented that inclusion of climate-related variables in stock assessment is difficult and perhaps there are just a few examples where this was successfully applied. A better approach would be to conduct analyses on the impact of climate changes on fish stocks outside the stock assessment process.

Agenda Item 4. Japanese Sardine

Dr. Chris Rooper led discussions of the SWG JS. The presentation from the Lead is available on the Collaboration website under SC / [Japanese Sardine](#).

4.1 Sharing data, including unpublished data if possible

4.2 Updating catch and effort data and discussing potential data sharing needs

The Lead presented the JS catch and effort statistics up to 2023 and Japan's domestic stock assessment as described in the JS [Species Summary](#). He outlined future issues for stock assessment such as the necessity to reflect actual age composition outside of the Japanese EEZ, consideration of how to treat regimes for future projection and biological reference points, and the need to conduct CPUE standardization. The Lead summarized data sharing needs as follows:

- | | |
|---|------------------|
| • Catch and effort data by month in the Convention Area | Shared |
| • Size frequency (age) of catch in the Convention Area | Partially shared |
| • Length-weight relationship | Partially shared |
| • CPUE Standardization | Not conducted |
| • More analysis of environmental effects | Not conducted |
| • Code sharing for assessment model | Partially shared |
| • Non-target catch from other Members | Partially shared |

CPUE standardization

Participants discussed how to move forward with CPUE standardization. They agreed to develop a CPUE standardization protocol that could be based on the one used for Pacific saury or chub mackerel. Participants also noted that there is no need to share data among Members for CPUE standardization.

Japan informed participants that it had already conducted CPUE standardization for some abundance indices. Japan will **present** standardized CPUEs as part of its report on the updated domestic stock assessment at the next meeting.

China and Russia **were requested** to conduct CPUE standardization and present it to the SWG JS next year.

Stock assessment update

The results of the domestic stock assessments of JFS, JS and BM conducted by Japan were observed at SC08, incorporated in the species summary documents, and submitted to the Commission. Japan informed participants about its plan to update and enhance its domestic stock assessment of JS, and that China had already agreed to provide length frequency data, length-weight relationship and catch-at-length data to Japan.

Russia **was requested** to provide size composition data up to 2023 in accordance with the template by **1 August 2024**.

The Secretariat **was requested** to circulate the data sharing template for use by this SWG and SWG BM.

On the request to share the code for its domestic stock assessment of JS, Japan responded that it uses a VPA model, and the VPA code is available on GitHub.

[4.3 Evaluating the influence of environmental variables on life history, biology, and population dynamics](#)

[4.4 Identifying climate-related analyses that could be undertaken to underpin development of climate-resilient fisheries management](#)

The Lead noted that currently there are no management measures for JS in the Convention Area except a few provisions in the CMM 2024-11 saying that Members shall refrain from expanding their fisheries and that new harvest capacity should be avoided.

The Lead pointed out that there is a large body of work showing links between JS and climate. He proposed a joint work (review paper) to examine climate change impacts on JS.

In summary, the Lead proposed the following workplan of SWG JS in 2024:

1. Update shared data (monthly catch and effort, biological data)
2. New shared data (assessment code, other Members catch)
3. Joint project to complete initial CPUE standardization
4. Start on review paper
5. Update species summary document

6. Japan: provide a summary of its 2024 stock assessment at SC09
7. Chairs and Leads: provide slide(s) to SC Chair for presentation to COM

Participants **agreed** with the workplan.

China (Heng Zhang and Yongchuang Shi) presented a review of Japanese sardine fishery data and research activities in China (presentation is available on the Collaboration site under SC / [Japanese Sardine](#)). China updated participants on the catch and effort statistics in 2023 and presented a length-weight relationship and an age-length key for JS. On the research activities, China collects and analyzes all fishing logbooks every year and also scientists collect data onboard fishing vessels or in ports.

In summary, China increased data collection from its large pelagic trawl fishery from 2023. The fork length frequency in trawl nets was very similar to the purse seine fishery, however further analysis is needed. It should be noted that mackerels and sardine are both target species in China's fisheries. Fishermen prefer to catch chub mackerel because of its slightly higher price.

China (Yongchuang Shi) presented nominal CPUEs of Japanese sardine fishery from 2014 to 2023. The nominal CPUEs showed an increasing trend from 2 tons/day/vessel in 2014 to 17 tons/day/vessel in 2023.

[Agenda Item 5. Blue Mackerel](#)

Dr. Kazunari Higashiguchi led discussions of the SWG BM. The presentation from the Lead is available on the Collaboration website under SC / [Blue Mackerel](#).

[5.1. Distinguishing between Chub Mackerel \(CM\) and Blue Mackerel \(BM\)](#)

The Lead reminded participants about the methodology of distinguishing between chub mackerel and blue mackerel and presented an updated ratio of BM in the mackerel catch by China and Japan.

China and Russia **were requested** to provide/update data on the ratio of CM and BM in their mackerel catches.

The Lead suggested to add this ratio to the species summary for BM.

[5.2. Sharing data, including unpublished data if possible](#)

Following the SC's decision to review Japan's domestic stock assessment of BM at SC09, Japan intends to further develop BM stock assessment with inclusion of catch-at-age and biological data from other Members. Japan will make an official request for China's data for

stock assessment, including a length–weight relationship, catch tonnage by length, catch number by length, an age-length key, catch-at-age, and CM-BM ratio.

China confirmed that it will prepare the requested data up to 2023 **by the end of September 2024**. China will provide data in accordance with the template from SWG JS and, if needed, other templates developed by the Lead.

Russia commented that it had no BM catch in the Russian EEZ.

5.3. Updating catch and effort data and discussing potential data sharing needs

Participants reviewed catch and effort data from the [summary table for mackerels](#) noting that these statistics are not separated between CM and BM.

5.4. Evaluating the influence of environmental variables on life history, biology, and population dynamics

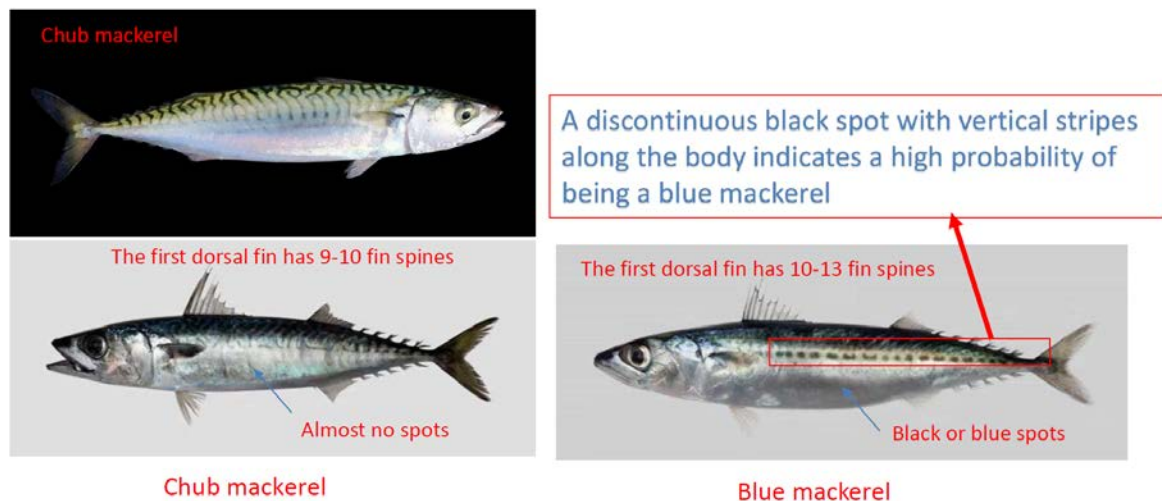
The Lead presented a paper of Watai et al. (2024, <https://doi.org/10.1111/fog.12675>) on *Interspecific and intraspecific difference in egg size of two mackerel (Scomber spp.) species in relation to sea surface temperature in the western North Pacific: A new approach to species identification*. He noted that the egg size of blue mackerel is larger than that of chub mackerel, and that the SST and the mean egg size of chub and blue mackerel were negatively correlated.

5.5. Identifying climate-related analyses that could be undertaken to underpin development of climate-resilient fisheries management

The Lead introduced the results of the egg survey conducted by Japan from February to July each year. There were no significant changes in the location of BM spawning grounds. The Lead pointed out that Japan does not include any climate related information in its domestic stock assessment of BM.

China (Heng Zhang and Yongchuang Shi) presented a review of blue mackerel fishery data and research activities in China (presentation is available on the Collaboration site under SC / [Blue Mackerel](#)). China informed participants about data availability and sample size for length composition and otoliths and also presented a length-weight relationship and age-length key for BM. On the research activities, China collects and analyzes all fishing logbooks every year and also scientists collect data onboard fishing vessels or in ports.

China explained that spots in the downside and spots in the central part of fish body are used to distinguish BM from CM.



Participants agreed to talk more about separation of CM and BM catches in the summary table at future meetings of SWG BM and TWG CMSA.

Agenda Item 6. Focus and date of a 2nd intersessional meeting

6.1. Selection of date (sometime from September 4-7 or September 9-10)

Participants agreed to hold the next joint meeting of the SWGs JS, JFS, and BM on **6 November 2024** from 9am – 1pm Tokyo time.

6.2. Outstanding SWG JFS, SWG JS, and SWG BM tasks

6.2.1 Identifying scientific objectives of a regional observer program (ROP)

6.2.2 Discussing data that would need to be collected and the level of observer coverage needed on fishing vessels to achieve the scientific objectives of a ROP

6.2.3 Observing domestic stock assessment of these three species

6.2.4 Updating the species summary documents

The Chair outlined the tasks for the next joint meeting, i.e. agenda items 6.2.1 – 6.2.4 above. She added that Japan will present standardized CPUEs as part of a report on Japan's domestic stock assessments. Also, the Chair informed participants about the request from the TCC Chair, Alisha Falberg, to answer the following questions so that TCC can consider SC's answers in their development of a regional observer program (ROP):

- Are there different needs for the different fisheries regarding data collection?
- What new data would the SC prioritize/need from a ROP?
- What new data would be nice to have (i.e. not needed/priority)?
- Whether this data could be collected through electronic monitoring (EM)?
- Whether the observer needs to be a scientist, or can data be collected by a non-scientist?

To facilitate discussions, the Chair will **draft** scientific objectives for review by Members intersessionally and further discussion at the 2nd joint meeting.

China expressed its view that there is no need for a ROP for NPFC species as there is sufficient data available for their assessment and each Member has its own way of collecting data, which is sufficient to meet the data requirements.

Agenda Item 7. Discussing a process for monitoring Japanese stock assessments of JFS, JS, and BM and providing relevant advice to the Commission, as needed

The co-Lead of SWG Milestones, Dr. Chris Rooper, posed questions and suggested potential options for monitoring Japanese stock assessments of JFS, JS, and BM and advising the Commission. This will be discussed in detail at the 1st SWG Milestones meeting on 12 July.

1. What type of review?
 - Information paper – Current process
 - Peer-review of results?
 - External review (independent)?
 - Review at SC and transfer information on status only?
2. How to advise Commission?
 - Species summary document – Current process
 - More detailed/explicit presentation during COM?
3. Future work
 - Continue monitoring – Current process
 - Work towards development of NPFC assessment (capacity, timeline, priority)?
 - Develop reference points based on Japan's assessment?

China asked if other RFMOs use domestic stock assessments to inform management of their fisheries and specifically noted the fact that NPFC Members are not involved in drafting the TOR of Japan's domestic stock assessment models, or in their development or results.

Japan (Kazuhiro Oshima) clarified that their domestic stock assessments are reviewed every 5 years by external experts from NOAA. Stock assessment [reports](#) and [data](#) are available online. Japan plans to share stock assessment code on the NPFC GitHub repository.

The co-Lead summarized discussions on the above questions as follows:

1. What type of review?

There is a need for some transparency and a need for review by this group every year. The results will then be sent to SC for review.

2. How to advise Commission?

The co-Lead suggested that each Chair/Lead would provide more detailed information to the SC Chair for presentation to COM.

3. Future work?

The co-Lead suggested to continue monitoring and, if capacity allows, try to work toward NPFC assessments including the development of reference points.

Agenda Item 8. Close of the Meeting

The meeting closed at 13:00pm on 3 July 2024 Tokyo time.



List of Participants

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