

11th MEETING OF THE SCIENTIFIC COMMITTEE

11 to 16 September 2023, Panama City, Panama

SC11 – Inf01

Climate Change discussions at the SC11

United States of America

On July 5, 2023, SPRFMO Circular G89-2023 (attached) was circulated to Members, CNCPs, and the Scientific Committee asking for feedback to assist in the United States' development of an information paper to facilitate discussion at the upcoming 11th Meeting of the Scientific Committee under the relevant Climate Change agenda item.

In this paper, we summarize feedback received from three Members and one Observer. We look forward to continuing discussions at the upcoming SC meeting.

1) Prioritizing related research

- SPRFMO should monitor any developments regarding climate change strategy progress within other RFMOs. For example, WCPFC has put "Ecosystems and Climate Indicators" as a standing agenda item for climate related sessions, and mentions it provides a mechanism for SC to annually consider adopting candidate indicators presented to the Committee, but also review and respond to existing trends/triggers identified in adopted indicators. An integral aspect of its climate change strategy involves the development of functional indicators to assess the risk posed by climate change to specific fisheries. This process entails identifying appropriate indicators and evaluating their suitability for the targeted fishery.
- Model south Pacific Ocean current patterns at the surface mid-depths (500-1,000m) and deep (1,000m+). The model could include variables to predict changes associated with ENSO and as ocean and atmospheric warming continues.

2) Understanding the impact of environmental changes on species' populations

- To better understand the impact of environmental changes on species' populations, SPRFMO could evaluate the temperature preferences of the main target fish, crustaceans, and mollusk species in the Convention Area in addition to evaluating larval survivability and changes in ocean pH.
- One potential approach could be to track the center of gravity of fishes or leverage existing conventional methods like surveys, observers, and satellite tracking/tagging to gather crucial data on productivity and climate-related effects. Studying factors such as species vulnerability, adaptability, and potential impacts on ecosystem dynamics can help SPRFMO to create a scoring system which crystallizes the biological risk a species is under. Therefore helping to evaluate the level of risk a fishery faces. It could be helpful to analyze which States would be most affected by these risks and understand their capacity to adapt.

3) Anticipating shifts in habitat distributions

- Predicting the changes in distributions of adults and larvae could be helpful to understanding the shift in habitat distributions in the future. Related research including information on environmental variables could be used in models to better understand the future impacts.
- There have been useful habitat suitability models developed to predict future conditions for changes in taxa distribution (i.e., VME indicator taxa such as deep-water corals) and abundances using a variety of oceanographic and environmental variables. These models could be applied to the SPRFMO evaluated area to predict the occurrence and where data is available, abundance of VME indicator taxa under future climate conditions. Additionally, changes in distribution and abundance of commercially valuable fish would be an important consideration within the SPRFMO context.
- To ensure the effectiveness of indicators described under 1), it is essential to thoroughly understand the vulnerability of various species to the impacts of climate change. This could include but is not limited to studying factors such as migration patterns, reproductive success, survival rates, and anticipated shifts in habitat distribution. Additionally, taking into account the connectivity between habitats can provide useful insights into the resilience and adaptability of species to climate stressors. Recognizing the interdependence and relationships between different habitats can enhance our understanding of how species respond to changing environmental conditions.

4) Analyzing trends in response to ongoing climate change

- Changes in distribution and abundance of taxa under future climatic conditions would need to be developed for the SPRFMO area. Should these data be available, it would be possible to explore conservation benefits to current and future VME and explore the possible value to the fishery in these changing conditions, potentially using models developed by Members. In addition, using a life history traits analysis could result in guiding research on possible climate impacts on species or stocks and help decision-makers consider how to prepare for and respond to climate-related changes.

5) Assessing the implications on management performance

- An approach to assess the implications on management performance could be elaborated with numerous modeling exercises to assess the sensitivity of management responses to climate change. Modeling is a useful tool for simulating potential scenarios and their implications, and can help make decision-making processes more future proof.
- Assessing the implications of any changes in distribution and abundance of taxa on management performance is a crucial step in designing effective spatial management that is as resilient to climate change impacts as possible. Identifying locations where these

taxa may persist under future climate change conditions to inform conservation planning will be important given the ecological importance of VME indicator taxa for structuring benthic communities. Assessing the effectiveness of the current spatial management measures (e.g., the closed and open areas identified in CMM03-2023) could be undertaken using the post-accounting approach (e.g., as described in SC8-DW07 rev1), but using future predicted distribution layers of VME indicator taxa, VME indices, and commercially important species/value to the fishery.

6) Devising robust future decision-making processes

- Following any assessment of performance of current management, devising robust future decision-making processes could consider current and future distributions of fisheries resources and vulnerable marine ecosystems, and their potential interactions through fishing.

7) Identifying and addressing gaps in data collection or analyses

- The recommendations above to model distributions (leveraging existing data streams) and to predict under potential climate change scenarios point to existing gaps in analyses and, potentially, data collection.

In addition, an Observer proposed the creation of a climate change working group at SC (possibly within another established working group). This working group could be tasked with coordinating climate change analyses and promoting the update of climate change information into the work of the Commission on an ongoing basis. This Observer also suggested holding a SPRFMO Climate Symposium in 2024 as a venue to present and discuss relevant scientific research.

While there are still many facets of climate change strategy to discuss, this paper is a starting point for upcoming discussions at SC11. We thank Members and Observers for providing feedback and look forward to discussing more of this information in greater detail.

Ref: G89-2023
Wellington, 13 July 2023

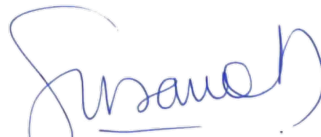
To: SPRFMO Members, CNCPs, and Scientific Committee

Subject: United States request regarding Climate Change and the SPRFMO SC workplan

Dear colleagues,

The Secretariat has received a request from the United States delegation to circulate the attached letter regarding Climate Change and the Scientific Committee multiannual workplan. Please note that your answers are invited no later than **1 August 2023**.

Best regards,



Susana Delgado Suárez
Coordination and Communications Officer

Attachment: U.S. Climate Change Solicitation Letter



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July 5, 2023

Dear SPRFMO Members,

The Scientific Committee Multiannual Workplan specifically tasks the Scientific Committee to “identify key area and management implications of climate change on VMEs and main fisheries in the SPRFMO area,” with the United States listed as the coordinator.

The United States plans to develop an information paper for submission to the upcoming Scientific Committee meeting and requests your feedback for development of the information paper. We kindly ask you to respond to the question below no later than **August 1, 2023**, and submit replies to john.syslo@noaa.gov. The information paper will help provide background information and facilitate the upcoming conversation in September.

The United States is looking forward to engaging with other Scientific Committee representatives on the important discussions surrounding climate change and to discuss how best to incorporate climate change information and analyses into the work of the Commission.

Please provide some thoughts on ways to develop a comprehensive climate change strategy for SPRFMO that includes:

- prioritizing related research;
- understanding the impact of environmental changes on species' populations;
- anticipating shifts in habitat distributions;
- analyzing trends in response to ongoing climate change;
- assessing the implications on management performance;
- devising robust future decision-making processes; and,
- identifying and addressing gaps in data collection or analyses.

Please also provide examples that may apply to the different facets of fisheries management within SPRFMO jurisdiction.

Thank you in advance for your time.

Sincerely,

Dr. John Syslo

SPRFMO Scientific Committee representative for the United States

