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Climate Change and the South Pacific RFMO

Observer briefing to the 12th SPRFMO Commission Meeting, 2024

7 January 2024

Introduction

The Commission's adoption of Decision 13-2023 is a welcome step toward developing and implementing effective management mechanisms to address the projected impacts of climate change within the Convention Area. In particular, DSCC draws attention to the following paragraphs:

- *climate change is leading to shifts in the distribution and abundance of fisheries, altering ecosystems, affecting livelihoods, destabilizing food systems and challenging economic security worldwide* (preambular para 4),

- *the urgency of developing a comprehensive approach to understanding and addressing the impacts of climate on fishery resource in the Convention Area'* (preambular para 7),

and the action-oriented substantive paragraphs 1 and 2 which call on the SC and the CTC to provide recommendations on how existing CMMs could be amended or new CMMs established to respond to climate change impacts and build adaptation and resilience. This briefing provides some background to the steps that RFMOs are taking to address climate change and makes some specific suggestions. The DSCC welcomes the efforts made by the USA prior to SC-11 (SC11-inf01) to solicit views on mechanisms to 'identify key area and management implications of climate change on VMEs and main fisheries in the SPRFMO Area'.

In 2021, the DSCC noted in COMM10-Obs02 Annex 2 the research relating to observed and projected impacts of climate change and ocean acidification of relevance to SPRFMO, and several suggestions to address climate change. These included: the implementation of a highly precautionary approach in the absence of certainty around the effects of climate change on individual species and broader ecosystems and possible feedback loops; utilising an ecosystem approach to incorporate possible climate-related changes in the relationships between harvested species and dependent and related species and habitats; proactive research and monitoring to enhance early detection and understanding of climate change effects, including international cooperative projects; incorporation of climate impact statements in all proposals; the closure of

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fishing in vulnerable marine ecosystem areas; and consideration of climate change in all decisions.

The Science

Observed and projected impacts of climate change on the global ocean

The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (IPCC 2022) strengthened earlier projections with significant observations and projections of impacts of climate change on the world's oceans, including sea level rise, acidification, more frequent and severe extreme marine events, marine heatwaves, loss of marine biodiversity, and impacts on fisheries and marine-based economies. Heron et al (2018) suggested that 'half of the world's marine species may stand on the brink of extinction by 2100' and that 'an estimated 60 percent of the world's marine ecosystems have already been degraded or are being used unsustainably'. Sweetman et al (2017) suggested that benthic habitats could experience increased temperatures and acidification and decreased oxygen concentrations and nutrient loadings, leading to significantly deleterious impacts on deep-sea benthic ecosystems.

Observed and projected climate impacts within the SPRFMO Area

There is little published climate impact research specific to the SPRFMO Area. However, there are a growing number of observations and projections relating to the broader south and west Pacific Ocean and thus of interest to SPRFMO. These include observed and projected sea-level rise faster than the global mean rise, ocean acidification, marine heatwaves, coral bleaching, intensification of tropical cyclones, shifts in ocean currents and decline in marine biodiversity (WMO 2023; IPCC 2022). In response to growing concerns, partnerships and research programmes have also been established to monitor impacts, share knowledge and develop measures which can build resilience (for example, the South Pacific Regional Environment Programme or SPREP and the Regional Climate Consortium for Asia and the Pacific or RCCAP).

These reports and actions collectively suggest that the SPRFMO Area can expect significant impacts on fisheries and ecosystems over the coming years and decades, and that indications of climate impacts may already be evident.

Actions taken by other Regional Fisheries Bodies

RFMOs and regional fisheries bodies are increasingly taking measures to address climate change which can be drawn from by SPRFMO, including addressing the movement of fish stocks due to climate change.[1]

[1] See Goodman C, Davis R, Azmi K, Bell J, Galland GR, Gilman E, Haas B, Hanich Q, Lehodey P, Manarangi-Trott L, Nicol S, Obregon P, Pilling G, Senina I, Seto K and Tsamenyi M (2022) Enhancing

Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)

CCAMLR has a well-established process for receiving regular scientific updates relating to observed and projected climate impacts in its area of competency. It has adopted two Resolutions relating to climate change Resolution 30/XXVIII in 2009 and Resolution 36/41 in 2022. The latter Resolution encourages Members to integrate climate change science across all CCAMLR activities and supports additional science and scientific collaboration.

CCAMLR's approach to fisheries management is based on a precautionary and ecosystem-based approach using the best science available. It has adopted a review process for active finfish fisheries which allows for bi/annual adjustment in response to changes in targeted stock health and/or bycatch, and has frozen krill catch limits at a highly precautionary level until measures are adopted that can take into account rapid changes in krill populations and related ecosystems. CCAMLR fishery reports now contain a section on climate change, there is a work plan associated with the impacts of climate change on a fishery, and the Scientific Committee has incorporated climate change into its advice to the Commission It has also included 'the protection of areas to maintain resilience or the ability to adapt to the effects of climate change' as one objective for establishing marine protected areas (Conservation Measure 91-04 para 2(VI)), and subsequently incorporated into the objectives of the Ross Sea marine protected area Conservation Measure (Conservation Measure 91-05 para 3(ii)).

The International Convention for the Conservation of Atlantic Tunas (ICCAT)

ICCAT adopted a resolution on climate change in 2022 and held a joint experts meeting in October 2023. The meeting discussed strategies and tools to promote climate-resilient fisheries management, including how enhanced climate modelling data could be better incorporated scientific work and how existing tools could play a role in helping fisheries managers adapt to climate change. Another joint meeting is planned for 2024.

The Indan Ocean Tuna Commission (IOTC)

The IOTC[2] in 2021 adopted Resolution 22/01 on climate change[3] which takes an holistic approach to addressing climate change. The IOTC Scientific Committee is, upon request, to consider and where possible, advise on the potential impacts of climate change on highly migratory fish stocks and any related impacts on the economies, food security and livelihood of CPCs in particular developing States among them Least Developing States and Small Island Developing States. The

cooperative responses by regional fisheries management organisations to climate-driven redistribution of tropical Pacific tuna stocks. Front. Mar. Sci. 9:1046018. doi: 10.3389/fmars.2022.1046018

[2] See Md Saiful Karim, Indian Ocean Tuna Commission Climate Change Resolution: A quiet interaction of ocean and climate change legal regimes. 148 Marine Policy. 2023. https://doi.org/10.1016/j.marpol.2022.105434

[3]/https://faolex.fao.org/docs/pdf/mul213093.pdf

IOTC Scientific Committee is to consider how climate change and fishing activities may be related and provide advice to the Commission on the potential implications for these relationships for the conservation and management of tuna and associated stocks.

Notably, the resolution also proposes specific steps for IOTC to reduce climate change impacts, including holding more virtual meetings.

The Inter-American Tropical Tuna Commission (IATTC)

The IATTC in 2023 adopted Resolution C-2023-10 on climate change which established climate change as a standing agenda item of the Commission, Scientific Advisory Committee (SAC) and Working Group on Ecosystem and Bycatch (EBWG). It provides for the EBWG to provide advice to the SAC and Commission regarding amendments to existing resolutions or proposed new resolutions that may be necessary because of climate change impacts on fisheries in the Convention Area and for the SAC to highlight and consider the best scientific information available on the relationships between climate change, target stocks, non-target species, and species belonging to the same ecosystem or associated with the target stocks. To the extent feasible, the IATTC scientific staff will endeavour to take into consideration climate change in stock assessments and management strategy evaluations. As a result of these discussions, the SAC should make recommendations to the Commission on how existing resolutions and proposed new resolutions can best promote resilience to climate change impacts on fisheries in the Convention Area.

Like the IOTC, the IATTC takes a holistic approach to climate change. The IATTC Commission is to consider climate-related SAC and EBWG Recommendations in its deliberations, as well as any other considerations regarding climate change impacts on species under the purview of the Antigua Convention and any related impacts on the economies of CPCs, and the Director and Commission is to consider and present options to reduce the environmental and climate impacts of the activities of the Commission and its subsidiary bodies, such as by providing hybrid options for meetings.

The North Atlantic Fisheries Organisation (NAFO)

NAFO includes the latest ocean climate status information provided by its Scientific Council Standing Committee on Fisheries Environment (STACFEN) on its website.[4] In 2023 it adopted a proposal to address the impact of climate change on NAFO fisheries (COM Doc. 23-13 Annex 21). Actions include considering current and future impacts of climate change on NAFO-managed stocks, non-target species and associated ecosystems, including in its decision-making and through its Ecosystem Roadmap, using the best science available when developing CMMs, evaluating the effect of climate change on target and non-target NAFO-managed stocks and

[4] see https://www.nafo.int/Science/Ocean-Climate

associated ecosystems, as well as fishing activities, considering possible mitigation actions, and requesting annual updates on the latest science from the Scientific Committee.

The Western and Central Pacific Fisheries Commission (WCPFC)

In 2019, the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC) adopted a non-binding 'Resolution on Climate Change as it relates to the Western and Central Pacific Fisheries Commission' (Resolution 2019-01). This resolution noted work already undertaken to assess the impacts of climate change on target stocks and non-target species, and species belonging to the same ecosystem or dependent or associated with the target stocks in the Convention Area, the threat to the livelihoods, security and wellbeing of many of its Pacific Island Members, the importance of addressing potential climate change and other environmental degradation on target, non-target, dependent and related species. Actions included consideration of potential impacts on highly migratory fish stock and the potential impacts on the economies of Members, and ongoing science designed to improve understanding of the impact of climate change on species, interrelationships with other factors that affect these species, estimates of uncertainties, and interrelationships between climate change and fishing activities.

The Commission has since: established a standing climate change agenda item for the consideration of proposals to incorporate climate change considerations into the management and conservation of its fisheries and ecosystems, and has applied climate change issues to the development of a skipjack harvest strategy framework (CPFC20-2023-12); developed an ***Ecosystem and Climate Indicator Report Card***, which is to be updated and reviewed annually by the Commission and its subsidiary bodies; directed its Scientific and Compliance Committees to submit an annual update on available climate change data; initiated consideration of requirements to undertake an assessment of active CMMs to determine specific CMM provisions that may be susceptible to be impacted by climate change; and initiated the development of a Commission work plan for addressing climate change on WCPFC fisheries in the Convention Area (WCPFC 2023).

International Workshop for Regional Fisheries Bodies

The Food and Agriculture Organisation (FAO) held a workshop in October 2023 entitled 'Mainstreaming climate change into international fisheries governance - the case of Regional Fisheries Bodies in the Indo-Pacific region'. As noted at that workshop, most such bodies have only recently initiated discussions on climate change. This workshop gave participating regional fishery bodies (RFBs) an opportunity to identify initiatives to progress those discussions. These included:

- Having a dedicated working group on climate change or adding climate change as a permanent agenda item;
- Incorporation of climate change considerations into stock assessment workshops;

- Adopting fisheries-specific CMMS that must be regularly reviewed;
- Developing overarching climate change policy or strategy;
- Building climate change into MoUs between RFBs to encourage cooperation and share experience;
- Implementing projects with a focus on climate change; and
- Building cooperation between RFBs and Regional Seas Organizations.

Decisions to be agreed prior to the updated scientific data

Implementation of precautionary and ecosystem-based decisions:

DSCC strongly supports the Scientific Committee Habitat Monitoring Working Group's plans to develop an inventory of available climate-related data and existing models applicable for SPRFMO fisheries and to identify gaps. However, it is also conscious of the time and resources required to undertake these tasks and subsequently develop advice for consideration and decision by the Commission. The significant projected impacts on high seas ocean and ecosystem health and the growing observed impacts in other regions support SPRFMO adopting a highly precautionary approach to ensure ongoing sustainable fisheries management and protection of vulnerable marine ecosystems while waiting for such advice.

In particular, DSCC supports Chile's argument, as reflected in the SPRFMO SC11-Report (para 255) '*that one of the most effective approaches to address climate issues in fisheries is nature-based solutions, including the ecosystem protection and restoration as a critical step to enhance the ocean as a carbon sink and to increase ocean resilience to other threats, as well as an instrument for adaption'* and their proposal to SPRFMO COMM 12 (Prop 20) to protect the unique and vulnerable ecosystems of Salas y Gomez and Nazca Ridges.

Further, consistent with climate projections of a significant loss of marine biodiversity and the various United Nations General Assembly resolutions calling for avoidance of significant and adverse impacts on vulnerable marine ecosystems, fisheries practices that are known to substantially disrupt or destroy habitat, such as bottom trawling, should be halted on all known vulnerable marine ecosystems, including seamounts and seagrasses and other biodiversity hotspots.

SPRFMO should aim to protect species and habitats identified as vulnerable to climate change. This would require the identification of such species and habitats and discussions on how to deliver such protection.

SPRFMO should also be cognizant of the need for a highly precautionary approach when setting catch limits for both targeted and bycatch species, given the current lack of scientific data on the impact of climate change on such species and the relationships between them.

SPRFMO should immediately implement an ecosystem approach to its assessment and development of appropriate sustainable fisheries management measures that acknowledge the potential changed relationships between targeted species and dependent and related species as well as the broader habitats within which these species are located.

Increased research and monitoring initiatives to build ongoing understanding and allow for dynamic response:

The inventorying of existing climate knowledge and identification of gaps is an essential step in building strong response actions to climate change. However, climate change is dynamic; a strong research and monitoring program will be necessary to allow for rapid response to changes being experienced in fisheries.

Inclusion of climate impact statements and integration of climate considerations into all decisions:

An intersessional review of all CMMs by the Commission to incorporate climate impact statements into existing fisheries plans would facilitate a considered approach to consideration of climate impacts going forward.

DSCC welcomes the directive to CTC to consider climate impacts in its consideration of implementation and compliance issues and looks forward to the adoption of a work plan that will also facilitate the review of existing CMMs.

Recommendations

Implementation of the precautionary approach across all decisions:

- Review of CMMs to incorporate specific consideration of climate impacts.
- All new fishery proposals to include climate impact statements.
- The Bottom Fishing Impact Assessment Standard be amended to include the requirement to undertake climate impact statements, and existing BFIAs be reviewed to include climate impact statements.
- Prohibition of the use of destructive gear types in vulnerable areas, including seamounts.
- Protection of the Nazca and Salas y Gomez Ridges.
- Intersessional scientific working group to undertake a systematic identification of species and habitats particularly vulnerable to climate change impacts.

Implementation of ecosystem approach into all existing and new CMMs relating to management of species:

- Consideration of potential climate impacts (including potential changes in relationships between targeted and other species) when establishing catch limits and other controls for targeted and bycatch species.
- Review of all fisheries management CMMs to identify where the ecosystem-based approach should be strengthened.

Inclusion of climate impact statements and integration of climate considerations into all decisions:

- Intersessional review of all existing CMMs and fisheries plans to identify where specific consideration of climate impact should be included and to consider if these CMMs are sufficient to deliver the SPRFMO objective in a climate-changing world.
- Incorporation of climate impact statements in all relevant new CMMs and fisheries plans, and harvest rules and management strategies.
- Holding virtual and hybrid meetings to reduce carbon footprint and costs to participants and hosts.

Increased research and monitoring initiations to build ongoing understanding and allow for dynamic response:

> **Establish an intersessional working group to develop research and monitoring programs to support dynamic management responses to observed changes in the future.**

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