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Information note on climate change

The SIOFA Secretariat

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Abstract	<p>Climate change is altering fish stock distributions globally, challenging existing fisheries management organizations. Understanding its impact on cross-border stocks is crucial for effective international governance and livelihood sustainability. Integrating climate considerations into SIOFA's decision-making, drawing on global initiatives and proactive measures from other regional bodies, is vital for safeguarding marine ecosystems and fisheries resources in the Southern Indian Ocean.</p>

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Information note on climate change

Extensive scientific research demonstrates that climate change is elevating ocean temperatures and increasing acidity. These changes significantly impact the calcification processes of marine organisms, disrupt fish migration patterns, and have the potential to alter the entire marine food chain. This shifting of marine resources presents challenges for existing fisheries management approaches, especially concerning stocks that span multiple territories. Grasping the impact of climate change on cross-border fish stocks is vital for establishing strong, climate-resilient international fisheries governance. Such understanding is pivotal not just for preserving fishery resources but also for maintaining the livelihoods of numerous people reliant on them.

Addressing Climate Change Impacts within SIOFA Decision-Making

Numerous global initiatives underscore the urgency of addressing human-induced climate change and its repercussions on ecosystems. The Food and Agriculture Organization (FAO) has also set forth a Strategy on Climate Change for 2022-2031. Recent reports from the Intergovernmental Panel on Climate Change (IPCC) highlight escalating concerns regarding the ocean's response to climate change. These impacts include rising sea levels, acidification, extreme marine events, and biodiversity loss, all of which have profound implications for fisheries and marine-based economies. With a significant portion of the world's marine species facing extinction by 2100, urgent action is needed to mitigate these threats.

Furthermore, the FAO's engagement includes the DSF Project, a collaborative effort with SIOFA and other partners aimed at bolstering governance in deep-sea fisheries and tackling the impacts of climate change. This initiative encompasses diverse activities including stock assessments, monitoring changes, and educational programs. Participation involves SIOFA, RFMOs, industry associations, and research institutions. Recent discussions emphasized the necessity of integrating climate change factors into fisheries management, with a specific focus on implementing risk-based strategies and fulfilling capacity-building needs.

The SIOFA Scientific Committee (SC) emphasized the importance of informing the Meeting of the Parties (MoP) about the potential implications of climate change on science-based decisions. The SC also highlighted the ongoing work by other Regional Fisheries Management Organizations (RFMOs), the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), and the FAO in this area.

In light of this, the SC recommended that the MoP take the following actions:

- Integrate climate change as a standing item on its agenda.
- Clearly define the specific advice required from the SC concerning the potential implications of climate change.
- Ensure the allocation of funding to support climate change-related initiatives within the SC workplan, effective from 2025.

Moreover, the SC expressed appreciation for the DSF Project's offer to provide additional insights on climate change-related research being carried out by the DSF Project and other deep-sea RFMOs at the forthcoming SC10 meeting.

While limited literature specifically addresses climate impacts on fisheries resources within the Southern Indian Ocean area, broader studies across the Indian Ocean basin indicate rapid increases in sea surface temperatures and occurrences of marine heatwaves, particularly in the southeastern Indian Ocean. Projections suggest an escalation in extreme events, potential alterations to ocean

circulation patterns, and impacts on Antarctic currents. These findings underscore the need for proactive measures within the SIOFA region to address climate-related challenges.

Several regional fisheries management organizations have already taken significant steps to address climate change impacts. Bodies such as the CCAMLR, the International Convention for the Conservation of Atlantic Tunas (ICCAT), the Indian Ocean Tuna Commission (IOTC), and Northwest Atlantic Fisheries Organisation (NAFO) have incorporated climate change considerations into their management strategies and scientific advice. These efforts serve as valuable precedents for SIOFA in developing climate-resilient fisheries management practices.

In conclusion, integrating climate change considerations into SIOFA decision-making processes is suggested for ensuring the long-term sustainability of fisheries resources in the region.