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Update on the ecological risk assessment of deepwater chondrichthyan species

Delegation of Australia

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Abstract

Threats to populations of deepwater chondrichthyans (sharks, rays, and chimaeras) from fishing are poorly understood, especially in areas outside national jurisdiction. Ecological Risk Assessment (ERA) tools, such as Sustainability Assessment for Fishing Effects (SAFE), are useful for identifying populations that may be vulnerable to fishing-induced mortality when data is limited. This study assessed how the availability attribute (i.e., horizontal overlap between a species' distribution and fishing effort) within the SAFE methodology may be sensitive to the underlying distribution mapping source used. Vulnerability scores for 94 deepwater chondrichthyan species in the Southern Indian Ocean Fisheries Agreement (SIOFA) area were compared across demersal trawl, midwater trawl, and demersal longline gears using three species distribution mapping sources: AquaMaps, FAO GeoNetwork and IUCN Red List where data was available. The choice of distribution mapping source was found to have a significant effect on the SAFE vulnerability score across all three gears, with results using the IUCN Red List having a greater number of high or extreme vulnerability species than results using the other two mapping sources. Given potential implications for subsequent fishery management, these findings highlight the importance of considering the appropriateness of predicted distributions from these mapping sources when conducting an ERA.

[1] Restricted documents may contain confidential information. Please do not distribute restricted documents in any form without the explicit permission of the SIOFA Secretariat and the data owner(s)/provider(s).
[2] Documents available only to members invited to closed sessions.

Recommendations

That the Scientific Committee:

- **Notes** that Australia has updated the chondrichthyan ERA by investigating the different mapping sources (AquaMaps, FAO GeoNetwork and IUCN RedList) to assess the underlying reliability of their predicted distributions.
- **Notes** that the choice of distribution mapping source was found to have a significant effect on the SAFE vulnerability score across all three gears, with results using the IUCN Red List having a greater number of high or extreme vulnerability species than results using the other two mapping sources.
- **Notes** that these findings highlight the importance of considering the appropriateness of predicted distributions from these mapping sources when conducting an ERA.
- **Notes** that in this paper the nomenclature of Plunket's shark (*Centroscymnus plunketi*) has been updated to *Scymnodon macracanthus* following the official name change in 2023 (see document SC-09-14).
- **AGREES** that comparing SIOFA catch data against each of the mapping sources (at 20' scale) would assist future risk assessments choose the most appropriate mapping source for each species.
- **AGREES** to add the above task to scientific workplan