

(English only / en inglés únicamente / Seulement en anglais)

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES  
OF WILD FAUNA AND FLORA



Nineteenth meeting of the Conference of the Parties  
Panama City (Panama), 14 – 25 November 2022

NOTES ON THE PROPOSAL FOR INCLUSION OF GUITARFISH (FAMILY: RHINOBATIDAE) IN  
APPENDIX II OF CITES IN RELATION TO GLOBAL MANAGEMENT DEFICIENCIES

1. This document has been submitted by Sri Lanka in relation to CoP19 Proposal 40\*.
2. This document was produced jointly with TRAFFIC and provides comments on the proposal for inclusion of guitarfish (Family: Rhinobatidae) in Appendix II of CITES from the perspective of the research done on their global management.

## Highlights

- M-Risk is a new framework to assess global fisheries management efficacy of sharks, rays, and chimaeras<sup>1</sup>
- Guitarfishes are **globally distributed and highly threatened (62%)** as per the IUCN Red List of Threatened Species.
- Globally, they are taken in **targeted fisheries as well as landed as retained incidental catch in fisheries** across the range of scales (subsistence, artisanal, commercial) and operating with many gears (for example, longline, trawl, hook and line, gillnet).
- A new study<sup>2</sup> finds that, globally, guitarfish are undermanaged with range states having less than half (45%) of the necessary management in place.

---

\* The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.

<sup>1</sup> Sherman, C.S., Sant, G., Simpfendorfer, C.A., Digel, E.D., Zubick, P., Johnson, G., Usher, M., and Dulvy, N.K. 2022a. M-Risk: A framework for assessing global fisheries management efficacy of sharks, rays and chimaeras. *Fish and Fisheries* 10.1111/faf.12695.

<sup>2</sup> Sherman, C.S., Digel, E.D., Zubick, P., Eged, J., Haque, A.B., Matsushiba, J.H., Simpfendorfer, C.A., Sant, G., and Dulvy, N.K. 2022b. Guitarfishes are plucked: undermanaged in global fisheries despite declining populations and high volume of unreported international trade. *bioRxiv* doi:10.1101/2022.10.05.510982.

- They are among the shark and ray families with the **lowest management scores** (similar to other Rhino Rays that are already listed on CITES Appendix II) despite being **internationally traded**.

## Background

The Guitarfishes (family Rhinobatidae) are a family of shark-like rays and part of the rhino ray group from the Rhinopristiformes Order. Rhino rays are highly valued for their fins and snouts, and their meat is considered to be good quality (Haque et al. 2021). As a result, catches over recent decades have increased, and many regularly enter the international trade (Moore 2017, Choy et al. 2022). The three families of rhino rays with the largest body sizes (Sawfishes - Pristidae, Giant Guitarfishes - Glaucostegidae, and Wedgefishes - Rhinidae) have already been added to Appendix II of CITES. However, as the larger species are depleted, the smaller Guitarfishes are increasingly being targeted and retained (Seidu et al. 2022).

We estimated risk due to overexploitation based on the current state of global fisheries management for all species from the family Rhinobatidae using a novel rapid assessment of management risk (M-Risk) (Sherman et al. 2022a). M-Risk assessments are completed by scoring the efficacy of 21 different attributes related to fisheries management under five classes; Management System [ $n=5$  attributes], Fishing Practices & Catch [ $n=5$ ], Compliance, Monitoring & Enforcement [ $n=5$ ], and two that were specific to either a country ( $n=4$ ) or RFMO (Regional Fisheries Management Organizations;  $n=2$ ), depending on the management unit being assessed. Attributes were scored in an ordinal manner on a Likert scale such that higher scores indicated management with a higher likelihood of sustainable outcomes (for full details see Sherman et al. 2022a). Assessments were independently completed using only publicly available data. The final management score was calculated as a percentage towards 'ideal' such that a higher score indicated better management.

In total, 99 assessments were completed across 28 countries. Countries were selected based on their proportional contribution to global shark catch, ensuring global representation of all FAO fishing areas. Assessments were completed for all species of Rhinobatidae in each management unit they occurred in. Therefore, species with larger distributions were assessed in more management units than species with more restricted distributions. In addition to management assessments, we completed a thorough literature search to find all evidence of catch and international trade of Rhinobatidae. These species may not be identified through DNA barcoding as there have been recent taxonomic changes that may mean reference samples are mislabeled, or reference samples may not exist.

## Findings

We found that overall, Rhinobatidae have less than half of the 'ideal' management globally (Sherman et al. 2022b). Guitarfishes, in addition to two other rhino ray families (Rhinidae and Glaucostegidae - both listed on CITES Appendix II) have the lowest management score of all shark and ray families. Countries with the lowest management score for guitarfishes were

among the top 20 shark and ray catching countries globally (Okes and Sant, 2019). By region, Africa had the lowest management score while Europe (where only a single species occurs, the Blackchin Guitarfish) and Oceania had the highest average regional management score. The species most at-risk due to lowest management scores were all assessed in just a single country. The Socotra blue-spotted guitarfish (*Acroteriobatus stehmanni*) was only assessed in Yemen and scored 31%. The Zanzibar guitarfish (*A. zanzibarensis*) and slender guitarfish (*Rhinobatos holcorhynchus*) were both only assessed in Tanzania and scored 33%. Finally, the Papuan guitarfish (*R. manai*) was only assessed in Papua New Guinea and scored 35%. Only slender guitarfish are not endemic to a single country. Two-thirds (67%, 22 of 33 species) of guitarfish have less than 50% of 'ideal' management across their geographic ranges. Of those species, 15 of the 18 data-sufficient species (83%) are listed in a threatened category as per the IUCN Red List, with seven as Critically Endangered (Dulvy *et al.* 2021).

Particular attributes that received low scores across Guitarfish species were the management units understanding of a species' stock status (average score: 7%), species-specific compliance measures to reduce fishing mortality (15%), and taxonomic resolution of landing limits in place, if any limits existed (24%), respectively (Sherman *et al.* 2022b). For requiem sharks (Family: Carcharhinidae), the same attributes had the lowest scores (Sherman *et al.* 2022c). However, Guitarfishes averaged less than half that of requiem sharks in the understanding of stock status, indicating that despite their catch and trade volumes, there is little focus on management of guitarfish or understanding of their stocks.

The global catch of guitarfishes is widely underreported and when reported is rarely reported to species-level. Despite their global distribution and high catchability in coastal fisheries, only 20 countries report any catch of guitarfish to the FAO and the catches of only four species are recorded at the species level (FAO, 2022). Yet, there is evidence of high catch and trade volume in countries that do not report any guitarfish catch to FAO including: India, Singapore, and Tanzania (Bineesh *et al.* 2017, Barrowcliff *et al.* 2017, Wainwright *et al.* 2018). Guitarfishes have been anecdotally identified as being exported from at least 33 countries and imported to at least 17 countries (Sherman *et al.* 2022b). Exports of guitarfish products have been noted from Bangladesh, Indonesia, and several countries in Africa (Haque and Spaet 2021, Jabado *et al.* 2021, Prasetyo *et al.* 2021). Some fishers in these countries have already noted the shift of their catch to smaller individuals and species, indicating serial depletions of guitarfish (Seidu *et al.* 2022). However, without species-specific catch and international trade data, the extent of these depletions globally is unknown.

## Conclusions

Listing on CITES Appendix II ensures that specimens cannot be traded unless they are legally acquired from a sustainable fishery as determined through an NDF, and the exporting country has permits. As many of these species are predominantly found in developing countries with limited resources and capacity for management, it is likely their catch and trade is underreported, if reported at all. Overly broad commodity codes for international trade make it impossible to know the true volume of these species that are traded, as they would be listed under broad categories of fresh or processed fish/shark/ray.

**We conclude that listing Guitarfishes on CITES Appendix II provides a mechanism for tackling the management deficits for these species, incentivising national management, and increasing our understanding of their catch and trade. Further, listing Guitarfishes on Appendix II will harmonise the CITES listing of all rhino rays which can only ensure ease of implementation ensuring the recovery of this iconic evolutionary distinct lineage of fishes.**

### **Literature cited**

Barrowclift, E., Temple, A.J., Stead, S., Jiddawi, N.S., and Berggren, P. 2017. Social, economic and trade characteristics of the elasmobranch fishery on Unguja Island, Zanzibar, East Africa. *Marine Policy*, 83:128-136. doi:10.1016/j.marpol.2017.06.002.

Bineesh, K.K., Gopalakrishnan, A., Akhilesh, K.V., Sajeela, K.A., Abdussamad, E.M., Pillai, N.G.K., Basheer, V.S., Jena, J.K., and Ward, R.D. 2017. DNA barcoding reveals species composition of sharks and rays in the Indian commercial fishery. *Mitochondrial DNA Part A*, 28(4):458-472. doi:10.3109/19401736.2015.1137900.

Choy, C. P. P., R. W. Jabado, N. Clark-Shen, D. Huang, M. Y. Choo, and M. Rao. 2022. Unraveling the trade in wedgefish and giant guitarfishes in Singapore. *Marine Policy* **136**:104914.

Dulvy, N. K., Pacoureau, N., Rigby, C. L., Pollom, R. A., Jabado, R. W., Ebert, D. A., Finucci, B., Pollock, C.M., Cheok, J., Derrick, D.H., Herman, K.B., Sherman, C.S., VanderWright, W.J., Lawson, J.M., Walls, R.H.L., Carlson, J.K., Charvet, P., Bineesh, K.K., Fernando, D., Ralph, G.M., Matsushiba, J.H., Hilton-Taylor, C., Fordham, S.V., and Simpfendorfer, C. A. 2021. Overfishing drives over one-third of all sharks and rays toward a global extinction crisis. *Current Biology*, 31:1-15. doi:10.1016/j.cub.2021.08.062.

FAO. 2022. FishStatJ (Version 4.02.07). Rome: FAO.

Haque, A.B. and Spaet, J.L.Y. 2021. Trade in threatened elasmobranchs in the Bay of Bengal, Bangladesh. *Fisheries Research*, 243:106059. doi:10.1016/j.fishres.2021.106059.

Jabado, R.W., Pacoureau, N., Diop, M., Dia, M., Ba, A., Williams, A.B., Dossa, J., Badji, L., Seidu, I., Chartrain, E., Leurs, G.H.L., Tamo, A., Porriños, G., VanderWright, W.J., Derrick, D., Doherty, P., Soares, A., De Bruyne, G., and Metcalfe, K. 2021. *Rhinobatos rhinobatos*. *The IUCN Red List of Threatened Species*, 2021:eT6313A124461877. doi:10.2305/IUCN.UK.2021-1.RLTS.T63131A124461877.en.

Moore, A. B. M. 2017. Are guitarfishes the next sawfishes? Extinction risk and an urgent call for conservation action. *Endangered Species Research* **34**:75-88.

Okes, N., & Sant, G. (2019). *An overview of major shark traders, catchers and species*. TRAFFIC. Cambridge, UK.

Prasetyo, A.P., McDevitt, A.D., Murray, J.M., Barry, J., Agung, F., Muttaqin, E., and Mariani, S. 2021. Shark and ray trade in and out of Indonesia: addressing knowledge gaps on the path to sustainability. *Marine Policy*, 133:104714. doi:10.1016/j.marpol.2021.104714.

Seidu, I., Cabada-Blanco, F., Brobbey, L.K., Asiedu, B., Barnes, P., Seidu, M., and Dulvy, N.K. 2022. "Every fish in the sea is meat and so are guitarfishes": Socio-economic drivers of a guitarfish fishery in Ghana. *Marine Policy*, 143:105159. doi:10.1016/j.marpol.2022.105159.

Sherman, C.S., Sant, G., Simpfendorfer, C.A., Digel, E.D., Zubick, P., Johnson, G., Usher, M., and Dulvy, N.K. 2022a. M-Risk: A framework for assessing global fisheries management efficacy of sharks, rays and chimaeras. *Fish and Fisheries*, doi:10.1111/faf.12695.

Sherman, C.S., Digel, E.D., Zubick, P., Eged, J., Haque, A.B., Matsushiba, J.H., Simpfendorfer, C.A., Sant, G., and Dulvy, N.K. 2022b. Guitarfishes are plucked: undermanaged in global fisheries despite declining populations and high volume of unreported international trade. *bioRxiv* doi:10.1101/2022.10.05.510982.

Sherman, C.S., Digel, E.D., Zubick, P., Eged, J., Haque, A.B., Matsushiba, J.H., Simpfendorfer, C.A., Sant, G., and Dulvy, N.K. 2022c. High overexploitation risk and management shortfall in highly traded requiem sharks. *bioRxiv* doi:10.1101/2022.06.09.495558.

Wainwright, B.J., Ip, Y.C.A., Neo, M.L., Chang, J.J.M., Gan, C.Z., Clark-Shen, N., Huang, D., and Rao, M. 2018. DNA barcoding of traded shark fin meat and mobulid gill plates in Singapore uncovers numerous threatened species. *Conservation Genetics*, 19:1393-1399. doi:10.1007/s10592-018-1108-1.