

## Proposal #44

# Devil rays (*Mobula* spp.)

- Sicklefin devil ray *Mobula tarapacana*
- Spinetail devil ray *Mobula japonica*

### Look-alike species

- Shortfin devil ray
- Giant devil ray
- Bentfin devil ray

*Mobula kuhlii*  
*Mobula mobular*  
*Mobula thurstoni*

- Smoothtail devil ray *Mobula munkiana*
- Atlantic devil ray *Mobula hypostoma*
- Lesser Guinean devil ray *Mobula rochebrunei*
- Pygmy devil ray *Mobula eregoodootenkee*

### Proposed action

Include in CITES Appendix II the sicklefin devil ray (*Mobula tarapacana*) and spinetail devil ray (*Mobula japonica*), as well as the seven other “look-alike” species of the genus *Mobula*.

### Proponents

Bahamas, Bangladesh, Benin, Brazil, Burkina Faso, the Comoros, Costa Rica, Ecuador, Egypt, the European Union, Fiji, Ghana, Guinea, Guinea-Bissau, Maldives, Mauritania, Palau, Panama, Samoa, Senegal, Seychelles, Sri Lanka, and the United States of America.



*Mobula*, Mexico. © Andrea Marshall

### Overview

The world’s devil rays (genus *Mobula*) – particularly *M. tarapacana* and *M. japonica* – are subject to high fishing pressure driven by international trade in their gill plates for use in a Chinese tonic. These large, migratory rays are inherently vulnerable to overexploitation due to exceptionally low productivity and aggregating behavior.

Poorly monitored, largely unregulated fishing is putting populations and associated tourism potential at great risk. CITES listing is warranted to improve fisheries and trade data, establish science-based export limits, bolster existing protections, complement commitments for devil and manta rays (family Mobulidae) under the Convention on Migratory Species (CMS), and facilitate implementation of the CITES Appendix II listing for manta rays.

## Biology & Distribution

The genus *Mobula* currently comprises nine species that grow to disc widths of one to over five meters. Devil rays are among the world's least fecund marine fish, typically producing just one pup every two to three years, after a lengthy gestation period of approximately one year.

Estimates specific to *M. japanica* and *M. tarapacana* put

age at maturity at five to six years, and generation times at approximately 10 years.

Devil rays occur in tropical and temperate ocean waters, often in fragmented, sparsely distributed populations. *Mobula japanica* and *M. tarapacana* are circumglobal in their range. Devil rays feed on plankton and small fish, which they filter through pre-branchial appendages known as gill plates.

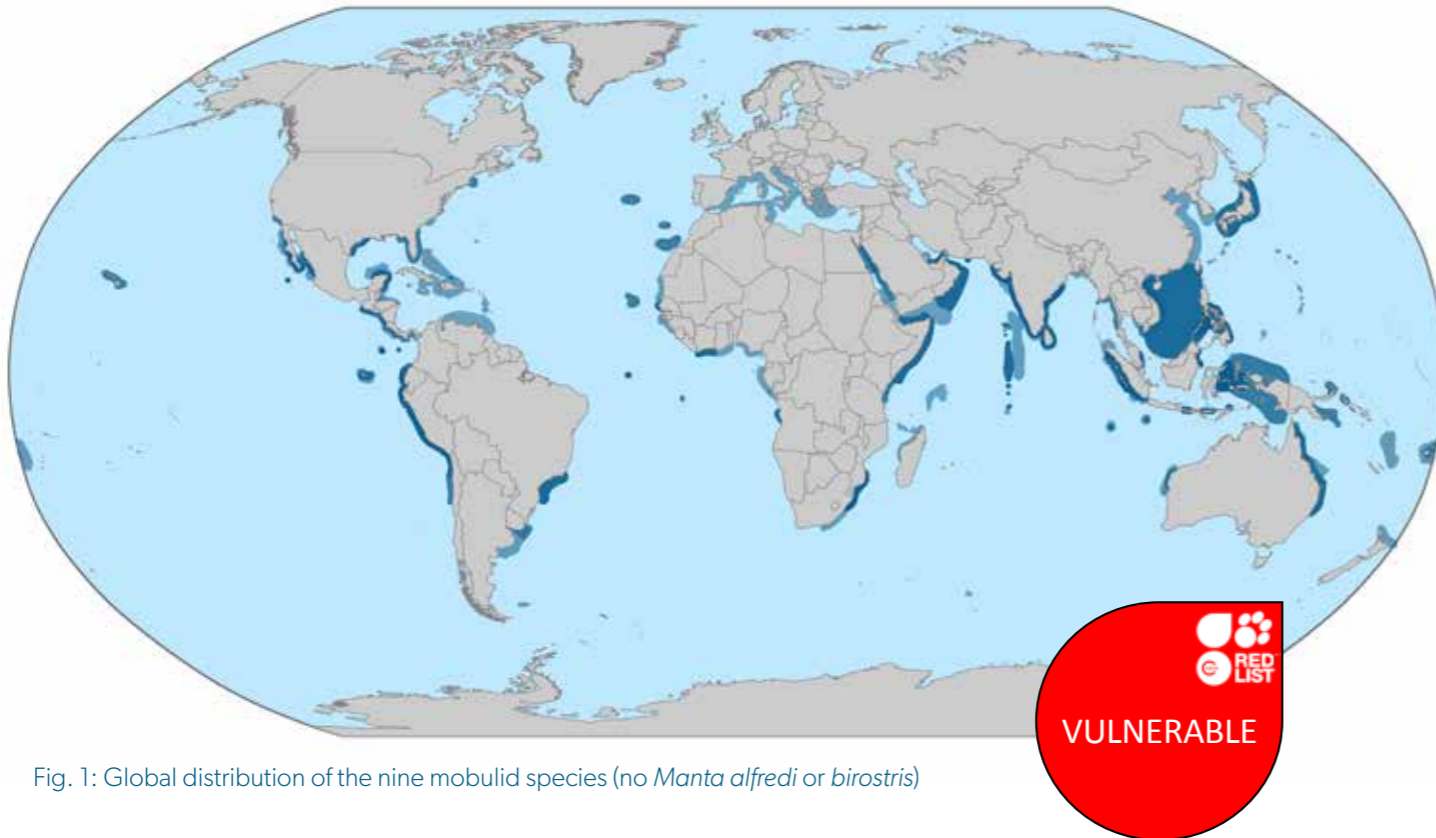


Fig. 1: Global distribution of the nine mobulid species (no *Manta alfredi* or *birostris*)

## International Trade

The dried gill plates of devil rays can sell for hundreds of USD/kg and are traded globally for use in a Chinese medicinal tonic. Researchers have estimated that the number of mobulid rays represented in gill plate markets nearly tripled between 2011 to 2013. Most trade data do not distinguish between devil and manta rays, but plates from *M. japanica* and *M. tarapacana* are currently considered the most important *Mobula* products in trade. In 2013, the global mobulid market was estimated to comprise 83% *M. japanica* and other “black gill” devil ray species, 13% *M. tarapacana*, and 4% *Manta* species.

In the face of persistent demand, ongoing implementation of the Appendix II listing and national prohibitions for manta rays is expected to put greater pressure on devil rays.

It can be difficult to distinguish between the dried gill plates of the different mobulid species. In particular, those from large species like *M. japanica* can appear very similar to those

of *M. thurstoni*, and *M. kuhlii*, as well as small manta rays. *Mobula tarapacana* is known for its bi-colored gill plates, which can resemble those of *M. thurstoni* and *M. hypostoma*.

## Fisheries

Whereas devil rays have long been used for their meat, gill plate demand is the primary driver of today's targeted fisheries and retention as incidental catch that once may have been released. Devil rays are highly susceptible to purse seines and gillnets, but also caught on longlines. Their large size and tendency to move slowly in predictable aggregations can make them easy targets. The vast majority of global devil ray catch is attributed to five countries (Sri Lanka, India, Peru, Indonesia and China). Food and Agriculture Organization (FAO) catch data are incomplete and do not distinguish between manta and devil rays. Total reported catches for this category increased from ~2400t in 2009 to ~5,600t in 2013. *Mobula japanica* and/or *M. tarapacana* are known to be targeted in Indonesia, Malaysia, Sri Lanka, the Philippines, China, Taiwan, Myanmar, India, Oman, and Senegal.

## Population Status

Whereas devil ray population size and structure are unknown, landings data and anecdotal reports indicate significant declines around the world, including off Indonesia, Sri Lanka, India, Guinea, and Peru. The 21 year time series of SCUBA diving encounters that shows a 78% decline in mobula rays (including *M. tarapacana*) from 1993–2013 off Cocos Island, Costa Rica is among the most striking and reliable examples of depletion.

On the International Union for Conservation of Nature (IUCN) Red List of Threatened Species™, the sicklefin devil ray (*M. tarapacana*) and the spintail devil ray (*M. japanica*) are classified as *Vulnerable* and *Near Threatened*, respectively, based on assessments conducted before the surge in gill plate demand.

## Conservation Measures

All devil rays are listed on CMS Appendix I and II; Parties are thus obligated to strictly protect these species and cooperate regionally toward their conservation. Devil rays are also covered under the CMS Memorandum of Understanding for Migratory Sharks.

To date, only one Regional Fishery Management Organization (RFMO) has acted to protect more than one species of devil ray. In 2015, the Inter-American Tropical Tuna Commission (IATTC) adopted a binding measure (effective in August 2016) to prohibit mobula (and manta) rays caught by large scale fisheries in the IATTC Convention Area from being retained, transshipped, landed, stored, sold, or offered for sale, and to ensure prompt, careful release; exceptions for small-scale Eastern Pacific fisheries are

meant to allow only domestic consumption. The General Fisheries Commission for the Mediterranean was the first RFMO to adopt protections specific to a devil ray (*Mobula mobular*); the 2012 ban is based on the species' 2001 listing under Annex II (Endangered or Threatened Species) of the Barcelona Convention's *Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean*.

The Maldives, New Zealand, Australia, Israel, Brazil, Ecuador, Mexico, US, and the European Union have enacted domestic regulatory protections specific to devil rays. There are no devil ray assessment, monitoring, or management programs in the countries with the largest devil ray fisheries.

## Expert Advice

In 2004, the CITES Animals Committee highlighted family Mobulidae as a taxonomic group that contains “a significant proportion of species subjected to unregulated, unsustainable fishing pressures, leading to severe stock depletion, and whose high value products enter international trade in large numbers” and recommended particular attention to management and trade in these taxa. In 2015, the Animals Committee flagged problems associated with species identification, traceability, and look-alike issues for *Manta* and *Mobula* rays.

The FAO expert advisory panel convened in 2016 to assess CITES proposals concerning commercially exploited aquatic species concluded that *M. tarapacana* and *M. japanica* are low productivity species, and that associated decline data meet the CITES Appendix II listing criteria.



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The IUCN-TRAFFIC analyses conclude that, given the species' very low productivity, marked increase in the international market, and evidence of declining catches, "it is possible that at least some species meet the criteria for inclusion in Appendix II in Annex 2a of Res. Conf. 9.24 (Rev. CoP16)" and that if any mobula ray "in either category (bi-coloured or black) were to be listed under the criteria in Annex 2a, the others in that category would meet the criteria in Annex 2b" (look-alike criteria). TRAFFIC recommends that CITES Parties accept the devil ray listing proposal.

Because of concern over the exceptional vulnerability of the entire family, the IUCN Shark Specialist Group is prioritizing updated mobula ray Red List assessments, and developing a global mobulid ray conservation strategy that covers the benefits of CITES Appendix II listing.

## References

Information in this factsheet is based on the relevant listing proposals, the report of the FAO expert panel, IUCN Red List Assessments ([www.iucnredlist.org](http://www.iucnredlist.org)), analyses by IUCN and TRAFFIC, FAO catch data, the reports from Animals Committee 20 and 28, and:

Lawson, J.M., Walls, R.H., Fordham, S.V., O'Malley, M.P., Heupel, M.R., Stevens, G., Fernando, D., Budziak, A., Simpfendorfer, C.A., Davidson, L.N., Ender, I., Francis, M.P., Notarbartolo di Sciara, G., and Dulvy, N.K. (2016) Sympathy for the devil: a conservation strategy for devil and manta rays. PeerJ PrePrints 4:e1731v1 <https://doi.org/10.7287/peerj.preprints.1731v1>

White, E. R., Myers, M. C., Flemming, J. M. and Baum, J. K. 2015. Shifting elasmobranch community assemblage at Cocos Island, an isolated marine protected area. Conservation Biology. 29:4,1186-1197. doi: 10.1111/cobi.12478.

## Call for Action

Listing devil rays under CITES Appendix II would be:

- in line with the listing criteria, expert advice, and the precautionary approach;
- essential to ensuring that international trade is held to sustainable levels;
- pivotal for improving data on fisheries and trade;
- complementary to national, regional, and global conservation commitments;
- helpful for proper implementation of the Appendix II listing for manta rays; and
- beneficial in preventing depletion and associated negative effects on ecosystems and economies.

*Our coalition urges CITES Parties at CoP17 to:*  
**Support Proposal 44 to include all devil rays (*Mobula* spp.) in CITES Appendix II.**

*This document was produced with funding from*

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