

# Manta and Devil Rays (Mobulids) of the Eastern Tropical Pacific:

**Giant Manta Ray** *Manta birostris*  
**Spinetail Devil Ray** *Mobula japonica*  
**Bentfin Devil Ray** *Mobula thurstoni*

**Chilean Devil Ray** *Mobula tarapacana*  
**Munk's Devil Ray** *Mobula munkiana*

**Proposed action:** Prohibit retention and prevent harmful handling  
**Proponent:** European Union (EU)



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## Overview

Manta and devil ray species (family Mobulidae) are facing heavy targeted and incidental fishing pressure around the world, increasingly driven by escalating Chinese demand for their gill plates. These large, migratory rays are inherently vulnerable to overexploitation due to exceptionally low productivity and aggregating behavior. Largely unregulated fishing mortality risks the depletion of populations as well as the substantial revenue possible through tourism. Protections through the Inter-American Tropical Tuna Commission (IATTC) are warranted to preserve ecological and economic benefits, bolster existing national safeguards, and prevent long-standing depletion. Such action will also complement and fulfill obligations for these species associated with listings under the Convention on Migratory Species (CMS) and the Convention on International Trade in Endangered Species (CITES).



## Biology and Distribution

Mobulid rays occur in tropical, subtropical, and temperate seas in fragmented, sparsely distributed populations. They migrate across national boundaries, feeding on small fish and plankton, which they filter through pre-branchial appendages known as gill plates. Mobulids are thought to be among the world's least fecund marine fish. Their vulnerability to overexploitation is due to late maturity (at up to 10 years of age), lengthy gestation (up to approximately one year), exceptionally small number of offspring (as few as one pup every two to three years), and long life (estimated at 40 years for reef mantas).

## Fisheries and Population Status

Mobulid rays are used for human consumption and bait, taken in substantial numbers as incidental catch, and increasingly sought for their gill plates, which are used to make a Chinese health tonic. Demand for gill plates, which can sell for hundreds of USD/kg, is driving targeted yet largely unregulated fisheries. Mobulids' large size and tendency to move slowly in predictable aggregations can make them easy targets. While highly susceptible to purse seines and gillnets, mobulid rays are also caught on longlines. Landings data and anecdotal reports indicate significant declines in mobulid populations around the world, including off Mexico and Peru. IATTC catch data (1998-2009) for *Mobula* species taken in Eastern Pacific purse seine fisheries show a slow increase from 1998 to a peak in 2006 at >80t, followed by a subsequent steep decline, with just 40t reported in 2009 (Hall & Roman, 2013).



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The giant manta ray is classified as Vulnerable on the IUCN Red List. The remaining Eastern Pacific *Mobula* rays are currently listed in the Near Threatened or Data Deficient categories based on assessments that were conducted before the surge in gill plate demand. Because of concern over the exceptional vulnerability of the entire family, the IUCN Shark Specialist Group is currently working on updated Red List assessments for these species as well as a comprehensive global strategy for mobulid ray conservation.

## Alternative Uses

The giant manta ray is a popular species for divers and snorkelers. Substantial revenue from manta-based tourism has been documented for communities around the world, including Ecuador, Mexico, and the US, with an estimated global value of 140 million USD annually. Tourist activities focused on devil rays are being developed in many places including the Azores, Costa Rica, Mexico, and Peru. Mobulid rays are also popular attractions for a few large, public aquariums.

## Current Conservation Measures

All manta and devil rays are listed on CMS Appendix I and II, which carry obligations for Parties (including Costa Rica, Ecuador, EU, Panama, Peru) to strictly protect the species and cooperate regionally toward their conservation. CITES Appendix II listings for the giant manta (and reef mantas) -- which were proposed by Ecuador, Brazil, and Colombia, and came into force in September 2014 -- obligate Parties (including Belize, Canada, China, Colombia, Costa Rica, Ecuador, El Salvador, EU, France, Guatemala, Japan, Korea, Mexico, Nicaragua, Panama, Peru, US, Vanuatu, Venezuela) to allow international trade only under permits based on findings that demonstrate the legality and sustainability of catches.

Mexico, Ecuador, and the US are among the countries with specific protections for mobulid rays. The General Fisheries Commission for the Mediterranean is so far the only Regional Fisheries Management Organization (RFMO) to agree protection specific to a mobulid species (*Mobula mobular*).

## Expert Advice

Family Mobulidae has been highlighted by the CITES Animals Committee as a "taxonomic group that contains a significant proportion of species subjected to unregulated, unsustainable fishing pressures, leading to severe stock depletion."

The IATTC staff recommendations for incidentally caught manta and devil rays form the basis of the EU proposal. Prohibiting retention as well as gaffing, lifting by the gill slits or spiracles, and punching holes in the wings is advised. Specific guidance for safe handling and release has also been offered.

## Need for Action

A particularly cautious approach is warranted with respect to both the handling of individual mobulid rays and the management of fishing mortality. IATTC protections, as proposed by the EU, are urgently needed and have great potential to:

- prevent population depletion and associated negative effects on ecosystems and economies;
- promote national conservation efforts and inspire similar action at other RFMOs;
- facilitate regional cooperation in protection of shared populations and key habitats;
- enhance the potential for tourism in many island and coastal communities; and
- help fulfill commitments under CMS and CITES listings.

We urge IATTC Parties to support the EU proposal to prohibit retention of manta and devil rays, and ensure the use of best practices for safe, live release.

## References

Information in this fact sheet is based on the relevant IUCN Red List Assessments ([iucnredlist.org](http://iucnredlist.org)), and the following:  
Dulvy, N., Pardo, S., Simpfendorfer, C., and Carlson, J. 2014. Diagnosing the dangerous demography of manta rays using life history theory. PeerJ PrePrints 162/v1: 1-26.  
Hall, M.; Roman, M. 2013. Bycatch and non-tuna catch in the tropical tuna purse seine fisheries of the world. FAO Fisheries and Aquaculture Technical Paper No. 568. Rome, FAO. 249 pp.  
O'Malley MP, Lee-Brooks K, Medd HB (2013) The Global Economic Impact of Manta Ray Watching Tourism. PLoS ONE 8(5): e65051. doi:10.1371/journal.pone.0065051.