



**CONVENTION ON  
MIGRATORY  
SPECIES**

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**CONCERTED ACTION FOR THE MOBULID RAYS (*MOBULIDAE*)**

Adopted by the Conference of the Parties at its 12<sup>th</sup> Meeting (Manila, October 2017)

<p><b>Proponent</b></p>	<p><b>The Manta Trust</b></p> <p>The Manta Trust is an international organisation that takes a multidisciplinary approach to the worldwide conservation of <i>Manta</i> spp. and <i>Mobula</i> spp. (mobulid rays) and their habitat through conducting robust science and research, while raising awareness and providing education to the general public and community stakeholders. The Manta Trust network extends across the globe and includes collaborations and affiliated projects in 22 countries and mobulid Range States. The Manta Trust is a Cooperating Partner to the CMS Sharks MOU.</p> <p><b>Wildlife Conservation Society (WCS)</b></p> <p>The Wildlife Conservation Society is an international conservation organization working to save wildlife and wild places worldwide through science, conservation action, education, and inspiring people to value nature. WCS works across the globe in more than 60 countries, and the WCS Marine Conservation Program works in more than 20 countries to protect key marine habitats and wildlife, end overfishing, and protect key species, including sharks and rays. WCS is a founding partner of the Global Sharks and Rays Initiative (GSRI), which is implementing a global ten-year strategy that aims to: save shark and ray species from extinction; transition shark and ray fisheries to sustainability; effectively control international trade in shark and ray parts and products; and reduce consumption of shark and ray products from illegal or unsustainable sources. WCS is a cooperating Partner to CMS Sharks MoU.</p>
<p><b>Target species, lower taxon or population, or group of taxa with needs in common</b></p>	<p>Class: Chondrichthyes  Order: Rajiformes  Family: Mobulidae  Species: <i>Manta alfredi</i> - Reef Manta Ray  <i>Manta birostris</i> – Oceanic Manta Ray  <i>Mobula mobular</i> - Giant Devil Ray  <i>Mobula japanica</i> - Spinetail Mobula  <i>Mobula thurstoni</i> - Bentfin Devil Ray  <i>Mobula tarapacana</i> - Chilean Devil Ray  <i>Mobula eregoodootenkee</i> - Pygmy Devil Ray  <i>Mobula hypostoma</i> - Atlantic Devil Ray  <i>Mobula rochebrunei</i> - Lesser Guinean Devil Ray  <i>Mobula munkiana</i> - Munk’s Devil Ray</p>

**Geographical range**

Mobulid rays have worldwide distributions in the tropical and temperate waters of the Pacific, Atlantic and Indian Oceans (Clark *et al.*, 2006; White *et al.*, 2006a; Couturier *et al.*, 2012; Bustamante *et al.*, 2012). Within this broad range, populations are sparsely distributed and highly fragmented (Clark *et al.*, 2006; White *et al.*, 2006a), likely due to their resource and habitat needs.

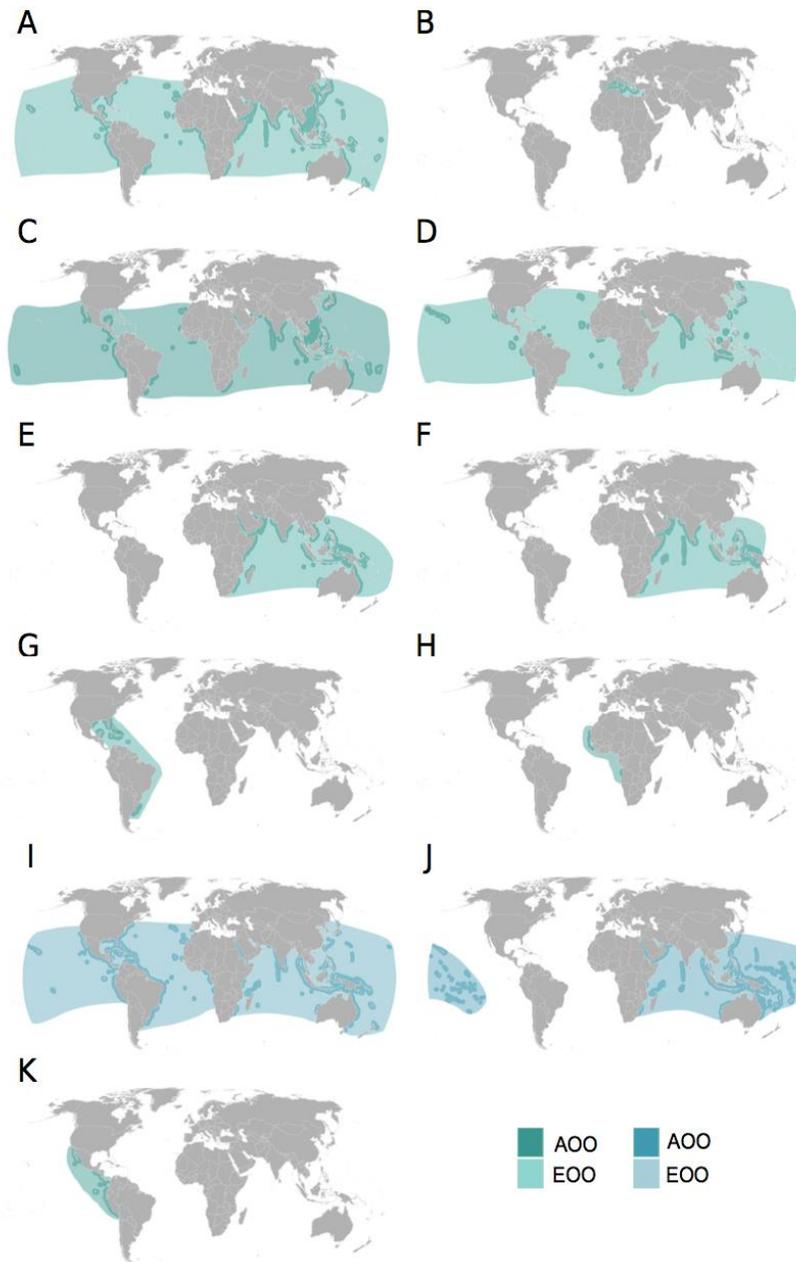


Figure by Lawson *et al.* (2017). **Distribution maps for manta and devil ray species.** Extent of Occurrence (EOO) and Area of Occupancy (AOO) maps for all nine species of devil ray and both species of manta ray.

Species are as follows: (A) *Mobula japonica*; (B) *Mobula mobular*; (C) *Mobula thurstoni*; (D) *Mobula tarapacana*; (E) *Mobula eregoodootenkee*; (F) *Mobula kuhlii*; (G) *Mobula hypostoma*; (H) *Mobula rochebrunei*; (I) *Manta birostris*; (J) *Manta alfredi*; (K) *Mobula munkiana*.

<p><b>Activities and expected outcomes</b></p>	<p>A comprehensive approach and strategic plan are crucial to ensure the long-term conservation and sustainable management of mobulid rays.</p> <p>CMS calls for effective national protections for mobulid rays. Some Parties have already declared national protection. Legislative changes and international obligations inevitably affect coastal communities that are dependent on mobulid fisheries and these impacts need to be addressed. Including coastal communities when designing conservation measures to ensure the interventions are effective, practical, and informed by stakeholders is of particular importance at this juncture in the work to protect mobulid rays.</p> <p>Empowering coastal communities and ensuring long term support for transition away from a dependence on unsustainable fishing practices and new income sources suitable for their context is needed. It is those who often have the least ability to absorb major regulatory changes that are most impacted by poorly implemented conservation measures. This also undermines the long term success of protection strategies for the species. To effectively achieve SDG 1 (No Poverty) and SDG 14 (Life below water), protection of mobulids and supporting alternative livelihoods of fishers will need to be simultaneously addressed.</p> <p>To ensure effective implementation of conservation strategies for mobulids that are also socially and culturally appropriate and ethical, we urge Parties to include community stakeholders fully in the process and assist affected communities in their transition away from mobulid catch to new income opportunities.</p> <p>It is proposed that Parties (see Table in Annex 1)</p> <ol style="list-style-type: none"> <li>1: Implement the Global Conservation Strategy for mobulid rays (Lawson <i>et al.</i> 2017), which provides a framework for and prioritizes conservation interventions for mobulid rays (<i>Manta spp.</i>; <i>Mobula spp.</i>) throughout their entire range</li> <li>2: Drive collaborative and community-based conservation and management for mobulid rays</li> <li>3: Reduce mobulid target and incidental catch</li> <li>4: Monitor, evaluate, and adapt conservation and management strategies</li> </ol>
<p><b>Associated benefits</b></p>	<p>It is the intention that the activities proposed in this document serve as a catalyst to deliver effective conservation for mobulid rays and assist Parties in the implementation of their obligations under international treaties (e.g., CITES and CMS). It is also intended that these activities serve as an opportunity for Parties to collaborate, share, and propagate conservation knowledge, generate coordinating actions, and monitor progress that will be applicable to other marine species.</p> <p>Many coastal communities that catch mobulid rays often also land other at-risk shark and ray species listed under CMS that will require protection. Understanding and documenting these fisheries and livelihood options in affected communities will also support coordinated, effective, and socially just management and conservation of marine resources. Support for diversified income opportunities will help alleviate pressure on marine resource and ensure long term economic sustainability.</p>

<p><b>Timeframe</b></p>	<p>Action 1: Open-ended to be initiated asap.</p> <p>Action 2: Activities 2.1, 2.2, and 2.3 undertaken at a minimum 6 months before implementation. Activity 2.4 requires long term commitment and support in place for affected communities.</p> <p>Action 3: Activities to be conducted during 2017 and 2018.</p> <p>Action 4: Open-ended and ongoing once Action 2 has begun.</p>
<p><b>Relationship to other CMS actions</b></p>	<p>All <i>Manta spp.</i> and <i>Mobula spp.</i> are listed on Appendix I and II of CMS. Parties that are a Range State to a migratory species listed in Appendix I shall endeavour to strictly protect them by: prohibiting the taking of such species, with very restricted scope for exceptions; conserving and where appropriate restoring their habitats; preventing, removing or mitigating obstacles to their migration and controlling other factors that might endanger them.</p> <p>The Memorandum of Understanding on the Conservation of Migratory Sharks (Sharks MOU) is the specialized agreement for chondrichthyan species in accordance with Article IV 1 of the Convention. It aims to guide international cooperation to maintain and achieve a sustainable conservation status for migratory sharks and rays included in its Annex 1 to this document.</p> <p>Mobulid rays have been included in Annex 1 of the Sharks MOU, which means they benefit from the agreed measures and actions under the MOU and its Conservation Plan as well as from technical guidance for its conservation, provided by the MOU's Advisory Committee and Conservation Working Group.</p> <p>The proposed concerted actions would support the implementation of the Sharks MOU and the aim of species listed under CMS Appendices I and II. In particular, with regards to encouraging Sharks MOU Signatories that are also CMS Parties to ensure that national, legally binding regulations are in place to prohibit targeting, retaining, landing, transshipping, selling, etc. of mobulid rays, in line with CMS Appendix I obligations, whilst safeguarding the livelihoods of Parties' coastal communities that are dependent on mobulid ray fishery..In addition, the proposed concerted actions would be in alignment with SDGs 1 and 14 (eliminating poverty and life below water).</p> <p>The CMS Scientific Council Bycatch Working Group reviews existing measures to mitigate or reduce bycatch of CMS species and aims to ensure that recommended measure benefit all taxa. The results of this proposed Concerted Action would also contribute to this work.</p>
<p><b>Conservation priority</b></p>	<p>The greatest threat to mobulid rays is excessive targeted and incidental take in fisheries. As a result of overfishing, some mobulid populations in Southeast Asia, the Indian Ocean, and Africa exhibit regional declines of over 80%. Of particular concern is exploitation of mobulids in critical habitats, where entire aggregations of animals can be captured relatively low fishing effort. For such intrinsically vulnerable species (low fecundity, small size of sub-populations, migratory and aggregating behavior), localized negative impacts are likely to have severe consequences for global population survival.</p> <p>Mobulids have been reported as bycatch in 21 small-scale fisheries in 15 countries and in nine industrial scale fisheries in 11 countries (Croll <i>et al.</i>, 2015). A recent study estimates global bycatch in tuna purse seine fisheries of ~ 13,000 mobulids annually (Croll <i>et al.</i>, 2015). Escalating demand for dried mobulid gill plates for use in Chinese medicine, as well as meat and cartilage, has also led</p>

	<p>to targeting of these vulnerable species through fisheries that are largely unregulated and unmonitored.</p> <p>Significant catch declines have been observed in a number of locations in the Indo-Pacific, Eastern Pacific, and Indian Ocean regions, often despite evidence of increased fishing effort. Population declines are likely occurring in other locations, but have gone unnoticed.</p> <p>Historically, subsistence fishing for mobulid rays occurred in isolated locations with simple gear, limiting the distance and time fishermen could travel to hunt. In recent years, however, fishers have begun targeting these rays with modern fishing gear and expanding their fishing range and season. (Dewar, 2002; White <i>et al.</i>, 2006b; Rajapackiam <i>et al.</i>, 2007; White and Kyne, 2010; Heinrichs <i>et al.</i>, 2011; Lewis <i>et al.</i>, 2015; Fernando and Stevens, 2011). Artisanal fisheries also target mobulids for food and local products (Ayala, 2014).</p> <p>For fishing communities, especially small-scale fishers, mobulid rays may represent a significant portion of their income. Mobulid rays are often caught with non-selective gear as part of multispecies fisheries. Small scale fishing communities are often in the poorest sector of their countries and have little capacity to absorb sudden income loss. Without working with affected communities as partners and ensuring support is in place before conservation strategies are implemented, said strategies are often not effective.</p> <p>At the core of alternative, sustainable livelihood initiatives is the focus on working in partnership, co-management, and recognition of local expertise to develop alternative means of making a living that reduce pressure on a particular element of biodiversity. Over the last decade, research into this field has greatly advanced. By working together with social scientists and experts, common errors can be avoided and the paths towards developing alternative incomes for communities can be smoothed.</p> <p>Livelihoods analysis provides a means by which to better understand the nature of small-scale fishery production systems, and helps to identify appropriate entry-points for development intervention or policy support for poverty reduction in fishing communities (Allison and Ellis, 2001).</p> <p>A systematic review and community consultation should be conducted before beginning investments (Roe <i>et al.</i>, 2015). Such a review can then inform both the decision to proceed as well as the nature of the initiative and investment. The review should be focused not only on the specific intervention planned, but also on understanding the system within which it operates and the role of the activities that they are attempting to substitute for within the livelihood strategy. The work should be constructed in an adaptive management framework that allows testing and learning (Roe <i>et al.</i>, 2015).</p>
<p><b>Relevance</b></p>	<p>Parties that are Range States of mobulid rays, which are listed on CMS Appendix I and II, agree, under CMS, to endeavour to strictly protect them by prohibiting the taking of such species, with very restricted scope for exceptions. However, public and fisher awareness of mobulid rays' threatened status and the existence of protective measures in range states is generally poor. Moreover, support for assisting communities in developing alternative livelihoods is lacking even in locations where protective measures have been established, which therefore questions the effectiveness of and compliance with those measures.</p> <p>Any national conservation initiatives intended to prevent mobulid rays from being driven further towards extinction is unlikely to be successful if the animals are not</p>

	<p>protected during their seasonal migrations into, and through other Range States' waters as well as areas beyond national jurisdiction. By agreeing to a listing on CMS, Range States also agree to endeavour conserving and where appropriate restoring their habitats; preventing, removing or mitigating obstacles to their migration and controlling other factors that might endanger them. Therefore, Parties need to work together in developing effective implementation measures, which incorporate considering the effect on coastal communities and engaging relevant development agencies as appropriate to develop alternative livelihoods.</p>
<p><b>Absence of better remedies</b></p>	<p>The CMS Network is the ideal platform for improving awareness and driving implementation of the Global Conservation Strategy for Devil and Manta Rays under this Concerted Action. A strategic and collaborative approach is needed to take the next steps for conserving migratory species, such as mobulid rays, and for this purpose it is essential that Parties work together on developing and implementing activities.</p> <p>In addition, all species in the genera <i>Mobula</i> and <i>Manta</i> are now included on CITES Appendix II, thereby requiring that all international trade in their parts and products be both legal and sustainable. Cooperation through CMS will greatly enhance the ability of CMS Parties to implement their CITES obligations.</p> <p>The partners to CMS, such as engaged NGOs and researchers, are able to support these actions once governments decide to go forward and adopt them, through the existing linkages that CMS has created.</p>
<p><b>Readiness and feasibility</b></p>	<p>A Devil and Manta Ray Conservation Network is already established and enabling effective sharing of data and information, sharing and propagating conservation knowledge, generating coordinating actions, and monitoring progress. The Network has published the comprehensive Global Devil and Manta Ray Conservation Strategy to support countries in planning and implementation for conservation and management of mobulid rays.</p> <p>There are engaged NGOs, researchers, and community organizations ready to support Range States to develop, fund and implement collaborative work. With the support of the partners involved in the Devil and Manta Ray Conservation Network, there is a very strong foundation from which Range States can implement the activities proposed. Furthermore, support will be requested from the Sharks MOU and Cooperating Partners, to support the development and implementation of the action plans.</p> <p>Some Range States have already implemented national protection for mobulid species, including the Philippines, Peru, Indonesia and others, and there is already collaborative work with NGOs and scientists on the ground to support affected communities and implementation. The groundwork exists, but further understanding, planning, and support from these Range States is needed to assist communities to transition away from mobulid fisheries.</p>
<p><b>Likelihood of success</b></p>	<p>The Devil and Manta Ray Conservation Network has provided the guidance and action steps, and the proposed activities are supported by engaged NGOs, researchers and community organisations. Approaching the livelihood challenge through the concerted action steps will pave the way for successful implementation of initiatives and incorporate communities as partners to ensure sustainability. No risk factors were identified that have the potential to significantly jeopardize the success of the proposed activities.</p>

<p><b>Magnitude of likely impact</b></p>	<p>The engagement of communities in co-management and planning activities for implementation helps to ensure that protection strategies will be effective and realistic. This is of benefit to all Range States where coastal communities depend on mobulid fisheries.</p> <p>The actions proposed here will also increase understanding and scientific data from the community level about catch and species information.</p>
<p><b>Cost-effectiveness</b></p>	<p>Costs for reviewing the Strategy and identifying objectives and activities that can be implemented by Parties are minimal. Cost of conducting socio-economic surveys and developing alternative income opportunities with communities will vary depending on location. However, the benefits far outweigh the costs of implementing initiatives that are not effective. Costs for sharing the learning through proposed Action 4 are minimal if activities are linked with regional or national fora and conferences.</p> <p>Resources required are funding to conduct the socio-economic baseline studies advised by experts, and to develop and pilot new sustainable alternative livelihood opportunities with affected communities. Funding will also be required for building capacities of community members to assist the transition towards alternative livelihoods. Access to long term capital, grants, or loans to support the new alternative income opportunities is also needed.</p>
<p><b>References</b></p>	<p>Allison E, Ellis F. 2001. The Livelihoods Approach and Management of Small-Scale Fisheries. <i>Marine Policy</i>, 25, 377-388.</p> <p>Ayala. 2014. First assessment of Mobulid rays fishery in Peru. Asociación Peruana para La Conservación de la Naturaleza (APECO). Final Project Report to the Save Our Seas Foundation.</p> <p>Bustamante C, Couturier L, Bennett M. 2012. First record of <i>Mobula japanica</i> (Rajiformes: Myliobatidae) from the south-eastern Pacific Ocean. <i>Marine Biodiversity Records</i>; Volume 5; e48; 4 pages.</p> <p>Clark TB, Smith WD, Bizzarro JJ. 2006. <i>Mobula tarapacana</i>. The IUCN Red List of Threatened Species. Version 2014.3. &lt;<a href="http://www.iucnredlist.org">www.iucnredlist.org</a>&gt;.</p> <p>Couturier LIE, Marshall AD, Jaine FRA, Kashiwagi T, Pierce SJ, Townsend KA, Weeks SJ, Bennet MB, Richardson AJ. 2012. Biology, Ecology and Conservation of the Mobulidae. <i>Journal of Fish Biology</i>, 80: 1075-1119.</p> <p>Dewar H. 2002. Preliminary report: Manta harvest in Lamakera. p. 3 p. Oceanside, USA: Report from the Pflieger Institute of Environmental Research and the Nature Conservancy. (Fernando &amp; Stevens 2011).</p> <p>Heinrichs S, O'Malley M, Medd H, Hilton P. 2011. Manta Ray of Hope 2011 Report: The Global Threat to Manta and Mobula Rays. WildAid, San Francisco, CA..</p> <p>Lawson JM, Fordham SV, O'Malley MP, Davidson LN, Walls RH, Heupel MR, Stevens G, Fernando D, Budziak A, Simpfendorfer CA, Ender I. Sympathy for the devil: a conservation strategy for devil and manta rays. <i>PeerJ</i>. 2017 Mar 14;5:e3027.</p> <p>Lewis SA, Setiasih N, Fahmi, Dharmadi, O'Malley MP, Campbell SJ, Yusuf M, Sianipar AB. 2015. Assessing Indonesian manta and devil ray populations through historical landings and fishing community interviews. <i>PeerJ PrePrints</i> 3:e1642  <a href="https://dx.doi.org/10.7287/peerj.preprints.1334v1">https://dx.doi.org/10.7287/peerj.preprints.1334v1</a>  <a href="https://dx.doi.org/10.7287/peerj.preprints.1334v1">https://dx.doi.org/10.7287/peerj.preprints.1334v1</a></p> <p>Rajapackiam S, Mohan S, Rudramurthy N. 2007. Utilization of gill rakers of lesser devil ray <i>Mobula diabolus</i> – a new fish byproduct. <i>Marine Fisheries</i></p>

	<p>Information Service, Technical and Extension Series, 191: 22-23.</p> <p>Roe D, Booker F, Day M, Zhou W, Allebone-Webb S, Hill N, Kumpel N, Petrokofsky G, Redford K, Russell D, Shepherd G, Wright J, Sunderland T. 2015. Are Alternative Livelihood Projects Effective at Reducing Local Threats to Specified Elements of Biodiversity and/or Improving or Maintaining the Conservation Status of Those Elements? <i>Environmental Evidence</i>, 4, 22.</p> <p>White WT, Clark TB, Smith WD, Bizzarro JJ. 2006a. <i>Mobula japanica</i>. In: IUCN 2011. IUCN Red List of ThreatenedCo Species. Version 2011.2. &lt;<a href="http://www.iucnredlist.org">www.iucnredlist.org</a>&gt;</p> <p>White WT, Last PR, Stevens JD, Yearsley GK, Fahmi, Dharmadi. 2006b. Economically important sharks and rays of Indonesia. Australian Centre for International Agricultural Research. 338 pp.</p> <p>White W, Kyne P. 2010. The status of chondrichthyan conservation in the Indo-Australasian region. <i>Journal of Fish Biology</i>, 76(9), 2090-2117.</p>
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**Annex 1. Concerted Actions for Conservation of Manta and Devil Rays (Family Mobulidae) under the Convention for the Conservation of Migratory Species of Wild Animals (CMS)**

Activity	Output/Outcome	Timeframe	Responsibility	Funding
<b>1. Implement global conservation strategy for mobulid rays</b>				
1.1. Review the Global Conservation Strategy (Lawson <i>et al.</i> 2017) and implement priority actions.	Strategy provides guidance to Parties.	2017-2018	Party Range States. Parties may invite the following to support with implementation:  Sharks MOU Signatories, CMS Sharks MoU Advisory Committee (AC), Sharks MOU Cooperating Partners, NGOs.	As required on a case by case basis.
<b>2. Drive collaborative and community-based conservation and management</b>				
2.1. Engage with local communities and fisheries sector to gather socio-economic information on mobulid catch, share information and develop collaborative conservation and management strategies.	Collaborative and informed management drives effective decision making and implementation of legislation.	2017-2020	Party Range States, NGOs. Parties may invite the following to support with implementation:  Sharks MOU Signatories, CMS Sharks MoU Cooperating Partners, NGOs, research bodies.	As required on a case by case basis.
2.2. Build capacities within local communities to support a transition towards alternative livelihoods.	Communities are able and willing to move away from mobulid fishing.	2017-2020	Parties may invite the following to support with implementation: Sharks MOU Signatories, CMS Sharks MoU Cooperating Partners, NGOs.	As required on a case by case basis.

Activity	Output/Outcome	Timeframe	Responsibility	Funding
<p>2.3 Consult and collaborate with communities and fisheries sector to design and plan for regulatory or legislative changes prior to implementation.</p>	<p>Communities are prepared for legislative changes, and legislation is appropriate for local conditions.</p>	<p>2017-2020</p>	<p>Party Range States, NGOs. Parties may invite the following to support with implementation: Sharks MOU Signatories, CMS Sharks MOU Cooperating Partners, NGOs.</p>	<p>As required on a case by case basis.</p>
<p><b>3. Reduce mobulid target and incidental catch</b></p>				
<p>3.1. Conduct participatory community research to improve knowledge on target and incidental mobulid catches and the distribution and occurrence of mobulid rays within Range States.</p>	<p>Improved knowledge that informs Parties on appropriate legislation and management.</p>	<p>2017-2020</p>	<p>Party Range States, NGOs. Parties may invite the following to support with implementation: Sharks MOU Signatories, CMS Sharks MOU Cooperating Partners, NGOs, research bodies.</p>	<p>As required on a case by case basis.</p>
<p>3.2. Develop, disseminate, and support implementation of best-practice approaches to reduce incidental catches of mobulid rays and for safe-handling and release to minimize post-capture mortality.</p>	<p>Increased capacity of fisheries sector and management bodies to reduce incidental fisheries catches and mortality of mobulid rays.</p>	<p>2017-2020</p>	<p>Party Range States, NGOs, Research Bodies, RFBs, RFMOs . Parties may invite the following to support with implementation: Sharks MOU Signatories, CMS Sharks MOU Cooperating Partners.</p>	<p>As required on a case by case basis.</p>

Activity	Output/Outcome	Timeframe	Responsibility	Funding
<p>3.3. Collaborate and coordinate research and management implementation with both local stakeholders and neighboring Range States, recognizing the need to address shared stocks conservation through coordinated approaches - e.g. via RFMOs and RFBs.</p>	<p>Coordinated actions drive the conservation of shared stocks.</p>	<p>2017-2020</p>	<p>Party Range States, NGOs, RFBs, RFMOs.</p> <p>Parties may invite the following to support with implementation:</p> <p>Sharks MOU Signatories, CMS Sharks MOU Cooperating Partners.</p>	<p>As required on a case by case basis.</p>
<p>3.4. Ensure effective implementation of complementary CITES requirements and regulations particularly if no strict national protection for mobulids exists.</p>	<p>CITES requirements are incorporated into national legislation and effectively implemented in Range and consumer States.</p>	<p>2017-2018</p>	<p>Party Range States, NGOs, RFBs, RFMOs.</p> <p>Parties may invite Sharks MOU Signatories, CMS Sharks MOU Cooperating Partners, Consumer State Parties.</p>	<p>As required on a case by case basis.</p>
<p>3.5 Expand enforcement against illegal fishing and illegal trade</p>	<p>Effective enforcement at all levels, including prosecutions, reduces illegal directed and incidental catches, strengthens compliance with regulations, supports responsible fisheries management, and rewards responsible fishing communities.</p>	<p>2017-2020</p>	<p>Range State Parties, Fishing Countries, Transit and Consumer State Parties, RFBs, RFMOs.</p>	<p>As required on a case by case basis</p>

Activity	Output/Outcome	Timeframe	Responsibility	Funding
<b>4. Monitor, evaluate, and adapt conservation and management strategies</b>				
4.1 Develop a plan to monitor and evaluate the effectiveness of interventions to reduce the socio-economic impact of protection measures.	Data and evidence collected ensures conservation and management strategies are being implemented, communities' economic well-being is maintained or improved.	2017-2020	Party Range States, NGOs. Parties may invite the following to support with implementation: CMS Sharks MOU Signatories, Cooperating Partners, NGOs, research bodies.	As required on a case by case basis.
4.2 Develop an ecological monitoring plan for mobulid rays to determine effectiveness of conservation and management measures.	Data and evidence collected ensures conservation and management strategies are having intended mortality reduction effects.	2017-2020	Party Range States, NGOs. Parties may invite the following to support with implementation: CMS Sharks MOU Signatories, Cooperating Partners, NGOs, research bodies.	As required on a case by case basis.
4.3 Collate and share findings and best practices at national and regional workshops.	Lessons learned and best practice can be shared across Range States and strategies can be adapted where needed.	2017-2020	Party Range States with support from the CMS Secretariat.  Parties may invite the following to support with implementation:  CMS Sharks MOU Signatories, Cooperating Partners, NGOs, research bodies.	As required on a case by case basis.

**Annex 2: Table by Lawson *et al.* (2017). International, national, and territory/state protections currently in place for devil and manta rays.** International, national, territorial, and state legal protection that restricts fishing and/or trade of a single or multiple species of devil (*Mobula spp.*) and/or manta (*Manta spp.*) ray. The term legal protection is used here to refer to protection obligation, legal or otherwise, and does not examine protection implementation success or effectiveness. The date that this legal protection was passed is included in brackets.

	<i>Mobula eregoodootenkee</i>	<i>Mobula hypostoma</i>	<i>Mobula kuhlii</i>	<i>Mobula japanica</i>	<i>Mobula mobular</i>	<i>Mobula munkiana</i>	<i>Mobula rochebrunei</i>	<i>Mobula tarapacana</i>	<i>Mobula thurstoni</i>	<i>Manta alfredi</i>	<i>Manta biro</i>
International Protections											
CITES (2016)	✓	✓	✓	✓	✓	✓	✓	✓	✓		
IATTC (2015)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
European Union (2015)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
GFCM (2015)					✓						
CMS Appendix I & II (2014)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CITES Appendix II (2013)										✓	✓
European Union (2012)											✓
CMS Appendix I & II (2011)											✓
Barcelona Convention SPA/BD Protocol Annex II (2001)					✓						
Bern Convention Appendix II (2001)					✓						
National Protections											
Peru (2016)											✓
Australia (2015)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Indonesia (2014)										✓	✓
Maldives (2014)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
United Arab Emirates (2014)										✓	✓
Brazil (2013)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Australia (2012)											✓
Ecuador (2010)				✓		✓		✓	✓		✓
New Zealand (2010)				✓							✓
Mexico (2007)		✓		✓		✓		✓	✓		✓
Croatia (2006)					✓						
Israel (2005)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Malta (1999)					✓						
Philippines (1998)											✓

	<i>Mobula eregoodootenkee</i>	<i>Mobula hypostoma</i>	<i>Mobula kuhlii</i>	<i>Mobula japanica</i>	<i>Mobula mobular</i>	<i>Mobula munkiana</i>	<i>Mobula rochebrunei</i>	<i>Mobula tarapacana</i>	<i>Mobula thurstoni</i>	<i>Manta alfredi</i>	<i>Manta birostris</i>
Territory and State Protections											
West Manggarai/Komodo, Indonesia Regency (2013)										✓	✓
Raja Ampat, Indonesia Regency (2012)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Guam, USA Territory (2011)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Christmas Island and Cocos (Keeling) Islands, Australian Indian Ocean Territories (2010)										✓	✓
Hawaii, USA State (2009) <sup>a</sup>										✓	✓
Yap, Federated States of Micronesia (2008)										✓	✓
Commonwealth of the Northern Mariana Islands, USA Territory (2007)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Florida, USA State (2006)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes.

<sup>a</sup>A bill is currently under consideration by Hawaii's state legislature to expand protection to include all sharks and rays.