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ADDENDUM TO THE PROPOSAL FOR THE INCLUSION OF ALL SPECIES OF MOBULA RAYS (GENUS *Mobula*) ON CMS APPENDIX I AND II

Summary:

Following the recommendation by the Scientific Council, the Government of Fiji has provided additional information to their proposal for the inclusion of all species of Mobula rays, Genus *Mobula*, in CMS Appendix I and II for the consideration of the 11th Meeting of the Conference of the Parties (COP11), 4-9 November 2014, Quito, Ecuador.

A revised Addendum was subsequently submitted by Fiji pursuant to Rule 11 of the COP Rules of Procedure.

ADDENDUM TO CMS PROPOSAL TO INCLUDE ALL NINE MOBULA SPECIES ON APPENDIX I AND II

During the meeting of the CMS Scientific Council in July, the Working Group recommended that all nine species of Mobula rays, as proposed by the government of Fiji, would qualify for listing in Appendix I and II of CMS. The Working Group recommended that the proponent provide more detailed evidence at the species level in order to justify a listing in Appendix I. It was noted by the Working Group that some of the proposed species were data deficient or near threatened accordance to IUCN, but that the last assessment was done 7-10 years ago. The Working Group assumed that the conservation status had likely changed in recent years, due to the high demand for gill plates which has rapidly increased.

The Government of Fiji has developed this addition to Proposal I/10 & II/11 in line with the advice of the CMS Scientific Council. The additional data provided clearly demonstrate that Appendix I listings for all *Mobula* species are justified and urgently needed. What follows is a compilation of the detailed relevant additional information that has become available since the outdated IUCN assessments of these species, which demonstrates the escalating threats they face, along with further information on their exceptional vulnerability.

The IUCN Shark Specialist Group (SSG) convened a Manta and Devil Ray Global Conservation Strategy Workshop in June to review the global conservation status of all species of manta and devil ray species and develop the detailed conservation actions required to conserve these species worldwide. The SSG considers manta and devil rays to be key target species for a Species Conservation Strategy as they are highly vulnerable to overexploitation and still inadequately understood.

Specifically, 2 of the *Mobula* species are currently assessed as Endangered or Vulnerable globally (*M. Mobular* - EN; *M. rochebrunei* - VU), 4 species are assessed as Near Threatened (*M. japanica*, *M. thurstoni*, *M. eregoodootenkee*, *M. munkiana*) and 3 as Data Deficient (*M. tarapacana*, *M. kuhlii*, *M. hypostoma*). All of these assessments, however, are outdated (7 to 11 years old).

Three of the NT or DD species are assessed as VU in SE Asia (*M. tarapacana* (2006), *M. japanica* (2006), M. thurstoni (2006)), and these assessments all noted that "VU listings may also be warranted elsewhere if future studies show declines in populations where fished." The NT assessment for *M. eregoodootenkee* (2003) noted that "Fishing pressure could severely impact this species, and given the lack of quantitative data available it is prudent to assign the species with an assessment of Near Threatened (close to Vulnerable A3d) until its population is otherwise proven to be stable", and the NT assessment for *M. munkiana* (2006) concluded that "Life history characteristics, limited distribution, and exposure to many fisheries due to its highly migratory nature will likely result in designation of the species as Vulnerable should additional fisheries details become available." The DD assessment for *M. kuhlii* (2007) noted "given that this species is of low reproductive potential and is exploited in intensive target and bycatch fisheries in parts of its range, further information is urgently required. Obtaining such information to enable reassessment of the species should be a priority."

While fishery data at the species level is still sparse for *Mobula* species, there is new evidence of increasing threats that was not available at the time of these assessments. Given the new evidence of escalating demand, increased fishing pressure and low post-release survival, it is likely that most, or all, of the *Mobula* species now meet the IUCN Red List criteria for Vulnerable or Endangered.

Increased demand: A new report released in June documents an alarming escalation in demand for mobulid gill plates in China with the estimated number of mobulids represented in Guangzhou, China gill plate markets increasing almost threefold from 2010 to 2013 (Whitcraft et al. 2014). The *Mobula* species most prevalent in the gill plate markets were *M. tarapacana* (~ 22,000 represented) and *M. japanica* and other unidentified *Mobula* species (~ 120,000 represented). (Note that the gill plates from *Manta* species and *M. tarapacana* are easily identifiable, while the smaller gill plates from *M. japanica* and other species are difficult to distinguish visually.) Prices for *M. tarapacana* gill plates increased by ~ 30% from an average of US$172 per kg in 2010 to US$223 per kg in 2013, while prices for *M. japanica* and other species increased by over 40% from an average of US$133 per kg in 2010 to US$189 in 2013. The study also reported intensified marketing efforts by gill plate traders and continued increasing consumer demand. In addition, the identification of high levels of heavy metal contamination including arsenic, cadmium, mercury and lead, in many of the samples tested, highlights the threat this trade poses to consumers, many of whom are children and breast-feeding mothers (the product is recommended as a remedy to improve lactation, to help children recover from chicken pox, and even for "hyperactive babies").

Increased fishery pressure: New data on the scale and impacts of mobulid fisheries in Sri Lanka, India, Indonesia, the Philippines, Peru, and Guinea strongly suggests inferred or projected declines of ≥30% or more for the *Mobula* species with migratory ranges within the reach of these fisheries. While the generation time for *Mobula* species is not known, it is estimated at 25 years for the closely related genus *Manta* species, suggesting the declines observed took place over only a fraction of one generation.

- Significant declines in the number and size of *Mobula spp*. caught in Indonesian target fisheries in Lombok are reported over the past decade (Heinrichs *et al.* 2011, Setiasih *et al.* in prep.) despite evidence of increased directed fishing effort (Setiasih *et al.* in prep). Surveys from 2007 to 2011 estimated annual landings of 908 (Heinrichs *et al*. 2011, Setiasih *et al.* in prep.), compared with 1244 during 2001-2005 surveys (White *et al*. 2006) (27% decline in 6 years), with catches comprising M. *japanica*, M. *tarapacana*, M. *thurstoni*, and M. *kuhlii*.
- In Sri Lanka, fishermen have reported declines in *Mobula spp*. catches over the past 5 to 10 years as targeted fishing pressure has increased (Fernando and Stevens in prep, Anderson *et al.* 2010). Data collected since 2011 shows a steady decline in both 2013 and 2014, although fishing pressure has either remained stagnant or increased (Fernando and Stevens, *in prep*). Anecdotal data from 2014 indicates fishermen reporting steep declines in mobulid landings when compared to 2013, without any decrease in fishing pressure (Fernando, *pers. comm.*).
- In India, *Mobulid* catches have declined in several regions, including Kerala, along the Chennai and Tuticorin coasts and Mumbai, despite increased fishing effort (Couturier *et al*. 2012, Mohanraj *et al*. 2009). A total of 1994 individuals were caught over 18 months of survey from July 2012 to December 2013, of which 95% were *M. japanica* (*Mohanraj et al., pers.comm.*)
- In Bohol, Philippines, mobulid fishing grounds expanded dramatically from small coastal waters within 5 km of shore from the 1900s to 1960s to offshore waters extending over the jurisdiction of municipal waters (15 km from the coastline) following fleet modernization (or motorization) in 1970s. By 2013-14, the mobulid fishing grounds from Bohol had contracted to a smaller area in the north west of the Bohol Sea, suggesting a decreased mobulid fishing effort lead by a possible depletion of fishing grounds and decrease in financial viability of the fishery, compared to historical records (A. Ponzo, unpublished data).
- In Peru, reported landings of *Mobula* species fluctuated considerably from year to year, but appear to show a significant downward trend with an apparent peak of 1,188t in 1999 (Llanos et al. 2010) to 135t in 2013 (IMARPE 2013 No. 9). The IMARPE landings report describe all the mobulas landed as *M. thurstoni*, but this information is likely incorrect.

Recent fishery surveys conducted by Planeta Oceano observed landings in northern Peru of *M. japanica* most frequently, followed by *M. munkiana* and *M. thurstoni*, with probable landings of *M. tarapacana* based on physical characteristics reported.

- In Guinea, West Africa, reported annual catch of mobulids, *M. rochebrunei, M. thurstoni and M. birostris*, based on 3 survey sites (Kassa, Kamsar and Katcheck) was 18t in 2004, and decreased significantly to 4t (2005), 3t (2006), 8t (2007), and 7t (2008) in subsequent years despite increased fishing efforts and fishermen adopting new techniques. In 2009, annual catch of mobulids was reported 17t, which could be explained by the fact that fishing fleets expanded their range to the waters of Sierra Leon*e and Liberia* (Doumbouya, 2009).
- Significant decline of 78% in the abundance of mobula rays at Cocos Island, Costa Rica, over the past 21 years. This is one of the world's oldest MPAs, yet faces pressures from multi-nation fisheries in the eastern tropical Pacific, which is well within the home ranges for these species (White *et al*., 2014).
- In Gaza, Palestine, a new report documents directed catch and bycatch of *M. mobular* with 370 recorded in 2013. While the mobulas are primarily utilized for their meat, this report confirms the emergence of a gill plate export trade in the past three years (Abudaya et al. 2014).
- Liberia reported 'Mantas, devil rays nei' catches of 1,470t to the FAO from 2002-11 in the Eastern Central Atlantic (Mundy-Taylor and Crook 2014).
- Mobulid gill plate traders in Guangzhou, China frequently reported Vietnam, Malaysia and China as source regions, suggesting the occurrence of undocumented and unregulated mobulid fisheries in these countries. Other source regions reported include the Middle East, South America, Brazil, South Africa and Japan, especially troubling since it suggests that the gill plate trade has begun to spread beyond SE Asia to areas in which it has not been previously reported (Whitcraft et al. 2014).

High vulnerability to bycatch mortality: New data available on mobulid bycatch in tuna purse seine fisheries estimates mobulid bycatch of ~ 14,000 annually (Croll et al. in prep).

- The *Mobula* species incidentally caught in IATTC region purse seine fisheries include *M. thurstoni*, *M. japanica*, *M. tarapacana*, and *M. munkiana*. While identification of mobulid bycatch at the species level has improved dramatically in IATTC fisheries, as of 2011 more than a third of the mobulid catch was still not identified to species level. IATTC catch and bycatch data of *Mobula* from purse seine fisheries in the Eastern Pacific between 1998-2009 shows a slow increase and peak in 2006 where >80t of *Mobula* were caught, and a subsequent steep decrease over three years until 2009, where the reported catch was 40t (Hall and Roman, 2013).
- Data from a New Zealand Department of Conservation study, which tagged *M. japanica* specimens released alive after being incidentally caught in a tuna purse seine fishery, suggests a very high post release mortality rate (Francis, 2014). Six individuals were tagged, yet only 4 tags transmitted information, and 3 of the 4 transmitting rays died within 2-4 days of release even though the released individuals were carefully selected to ensure high survivability upon release.
- New data from tagging *M. tarapacana* in the Azores provides the first evidence of large-scale movement and deep diving behaviour of these species (Thorrold *et al*, 2014). Tagged individuals traveled straight line distances up to 3,800km over 7 months, crossing through oligotrophic tropical and subtropical waters, which highlights their vulnerability to enter high fishing zones and regions of targeted fisheries during their migrations. The fact that *M. tarapacana* frequently descended below depths recorded for any *Mobula* species also shows how little is known about these species.
- In May 2014, the IATTC Scientific Committee issued a live release guidance for *Mobula*, recognizing and highlighting the vulnerability of these species, the need to release them alive and guidance on how to achieve this.

High non-consumptive value to tourism: *Mobula* species also have considerable existing and potential value through non-consumptive, sustainable tourism activities. *M. tarapacana* and other *Mobula* species are boosting tourism in the Azores (E. Villa, pers. comm.), Costa Rica (E. Herreño, pers. comm.) and Indonesia (M. Miners, pers. comm.), and schools of *M. munkiana*, which leap out of the water, thrill tourists in Mexico (J. Murrieta, pers. comm.) and are an important attraction for a marine tourism economic development program underway in Peru (K. Forsberg, pers. comm.).

In conclusion: Since fifty-four of the CMS parties are range states for one or more of the *Mobula* species, representing a majority of the global ranges for these species, the range state protections called for under a CMS Appendix I listing are urgently needed to avoid further population declines. Methods have already been developed to aid CMS Parties implement the listings by releasing bycaught rays alive. Collaborative management initiated under a CMS Appendix II listing would also greatly benefit these species by ensuring international cooperation to collect population data and identify the most critical habitats.

The current research provides troubling new evidence of increased threats from rapidly escalating demand for *Mobula* gill plates in China, expansion of targeted fisheries, as well as large incidental catch in industrial tuna fisheries with very low post release survival. In light of this new evidence combined with the extremely low reproductive capacity of these species, continued lack of population data, lack of conservation or management measures, and the potentially much higher value from sustainable non-consumptive ecotourism compared with fisheries, we strongly urge the Parties to act fast in the spirit of the precautionary approach to include these highly vulnerable species on Appendix I and II.