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Scientific study takes a deeper look into the reproduction of mobulid rays in the Philippines

Bohol, Philippines, August 6, 2018, [A new scientific publication “Life History, Growth, and Reproductive Biology of Four Mobulid Species in the Bohol Sea, Philippines”](#) has been published in the Journal *Frontiers in Marine Science*. The study by Large Marine Vertebrates Research Institute Philippines (LAMAVE) was lead by researcher Joshua Rambahinarian and aimed to determine life history and reproductive parameters for several mobulids caught in the Philippines to provide vital information on the sustainability of the exploitation and consumptive use of these megafauna, at the country level and worldwide.



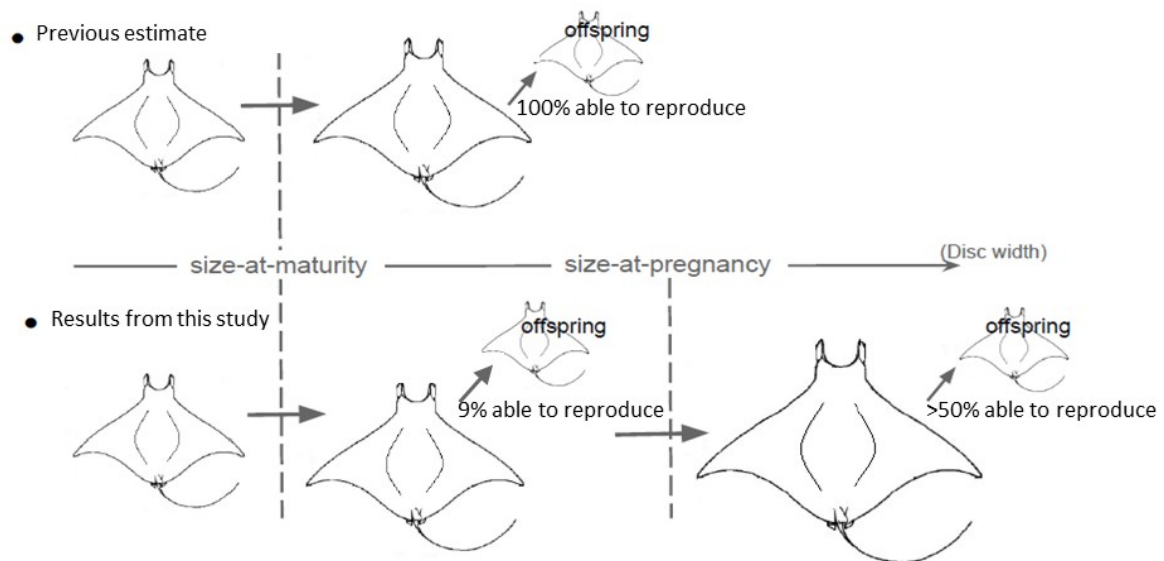
Spine tail devil rays (M. japonica cf. mobular) in the Philippines photographed by Duncan Murrell.

Mobulids (family Mobulidae), also known as devil rays, are cartilaginous fishes found circumglobally in tropical and warm temperate waters including the Philippines. Females are known to give birth to one large offspring every one to five years, with a gestation period of approximately one year. These characteristics in particular make the species vulnerable to high levels of fishing pressure.

The present study focused on four mobulid species' life-history and reproductive cycles: the bent fins devil ray (*Mobula thurstoni*), the spine tail devil ray (*M. japonica* cf *mobular*), the sickle fin devil ray (*M. tarapacana*), and the oceanic manta ray (*M. birostris*).

The study encompassed data collected from 1,508 specimens landed at a fishery, across two seasons in 2015 and 2016. Researchers from [LAMAVE](#) and [Marine Megafauna Foundation](#) collected specific data such as the size of the animals at birth and at maturity; information that allowed the team to create a model to predict how populations might recover after depletion through fisheries.

Key findings confirmed that females reach maturity at an older age than males. Researchers also found that more than 50% of sexually mature females were not carrying young. A finding that supports a resting period between pregnancies and highlights the slow population growth of these species. When put into a statistical model to estimate population growth rate, these findings revealed extremely low recovery potential, with up to 80 years for the population to double its size, without any fishing pressure, suggesting that any level of fishing pressure is unlikely sustainable.



The figure above illustrates the difference in numbers when predicting the population growth, using the % of reproductive females from previous estimates vs results from the current study.

In April 2017, the Bureau of Fisheries and Aquatic Resources (BFAR) in accordance with the Philippine Republic Act 10654 otherwise known as '[The Philippine Fisheries Code of 1998](#)', forbid the catching and selling of mobulids in the Philippines. This legislation was prompted by the up-listing of mobulids under CITES Appendices in 2016, a reaction to the global decline of mobulid populations.

Moving into the future, the results of this study, which highlight that the population recovery of mobulids is much more conservative than previously thought, will play an important role

worldwide, in deciding sustainable quotas for commercial fisheries and for creating a through recovery plan and conservation strategy for these species.



Lead Author Joshua Rambahiniarison from Large Marine Vertebrates Research Institute Philippines at work.

Notes to the Editor

Large Marine Vertebrates Research Institute Philippines (LAMAVE) is the largest independent non-profit non-governmental organization solely dedicated to the conservation of marine megafauna and their habitats in the Philippines. LAMAVE strives for conservation through scientific research, policy and education. www.lamave.org

The study can be viewed here:

https://www.frontiersin.org/articles/10.3389/fmars.2018.00269/full?utm_source=Email_to_authors&utm_medium=Email&utm_content=T1_11.5e1_author&utm_campaign=Email_publication&field=journalName=Frontiers_in_Marine_Science&id=373967

The study should be cited as: Rambahiniarison JM, Lamoste MJ, Rohner CA, Murray R, Snow S, Labaja J, Araujo G and Ponzo A (2018) Life History, Growth, and Reproductive Biology of Four Mobulid Species in the Bohol Sea, Philippines. *Front. Mar. Sci.* 5:269. doi:10.3389/fmars.2018.00269

If you would like more information about this topic, please contact **Sally Snow** at s.snow@lamave.org. Photos are available upon request.