

press release

Manta Ray Study reveals Southeast Asia's first nursery, confirms risky migration across hunting grounds *Findings to aid Indonesia in managing World's Largest Manta Ray Sanctuary*

SINGAPORE, 28 OCTOBER 2015 – Southeast Asia's first manta ray nursery has been discovered in Raja Ampat, Indonesia, through the largest satellite tagging project ever conducted in the region. Carried out by Resorts World Sentosa's S.E.A. Aquarium, Conservation International (CI), and the Indonesian government, the project has provided valuable insights to aid their conservation in Indonesia.

Of concern, the project also confirmed that manta rays from Bali and likely Komodo regularly pass through known hunting grounds, putting Indonesia's highly valuable manta tourism industry, worth US\$15 million each year, at risk. The study also revealed several new manta ray aggregation areas, fine-scale migration patterns in each of the study regions, and the deepest reef manta ray dive ever recorded (624m).

This new data is currently being analyzed with the Indonesian government and marine tourism industry. Based on the results of this study, the Indonesian Ministry of Marine Affairs and Fisheries (MMAF) will discuss the next five-year National Plan of Action on manta ray management with stakeholders in December 2015. This seminar will revolve around the topics of manta biology, management and law enforcement to better develop conservation and tourism management policies in Indonesia, which was designated the world's largest manta ray sanctuary in [February of 2014](#).

The 10-month study (Sep 2014 – June 2015), involved 33 manta rays, including eight pregnant reef manta rays, which were tagged with custom made GPS-enabled satellite tags in four regions of Indonesia – Bali, Raja Ampat, East Kalimantan, and the Komodo National Park. The team, which included staff from S.E.A. Aquarium, CI and officials from the MMAF's elasmobranch (sharks and rays) conservation initiative and the Indonesian Institute of Sciences (LIPI), tracked the movements and behaviour of 29 reef and four oceanic manta rays.

Dr. Mark Erdmann, Vice President of Asia Pacific Marine Programmes for Conservation International who led the effort explained, "This project with S.E.A. Aquarium has allowed us to acquire extremely valuable data on the behaviour and ecology of Indonesian manta rays. The data has now been shared with the Indonesian government to inform better management and conservation policy and provide even stronger justification to stop the unsustainable hunting – not only for the mantas but also for the benefit of the thousands of Indonesians who depend on manta ray tourism for livelihoods."

"S.E.A. Aquarium's support in this project has been invaluable as they are a link between conservation and visitors, who otherwise would not be educated on the threats to manta rays. However, our work is not done. We plan to expand this work into other regions of Indonesia and to focus specifically on elucidating key nursery areas, while also working with local and national

government and NGO partners to better manage and protect these economically-valuable populations,” added Dr. Erdmann.

Professor Hari Eko Irianto, Director of Center for Fisheries Research and Development of the MMAF said, “The findings of this survey provide great insights to managing our manta ray sanctuary and will allow Indonesia to flourish as an ecotourism destination. We are now certain that manta rays migrate across hunting grounds and can increase enforcement in those areas accordingly. Through collaborating with local authorities and NGOs including CI, we plan to undertake continuous monitoring and surveillance to protect mantas, especially juveniles and pregnant females, and their habitats.”

Mathilde Richer de Forges, Senior Manager of Conservation at Resorts World Sentosa shared, “The conservation outcomes of this collaborative project are indeed outstanding, as it will certainly benefit manta rays and the sustainable development of Indonesian communities. Marine conservation, research and education have been the key pillars of S.E.A. Aquarium and we are committed in furthering these efforts in Southeast Asia. Many people, for various reasons, are unable to see manta rays in their natural habitat. At S.E.A. Aquarium, we bridge this gap and allow large numbers of visitors to see manta rays up close, understand the threats they face, and most importantly, inspire visitors to conserve them for generations to come.”

Southeast Asia's First Manta Nursery

By tagging and tracking the movements of a pregnant female, as well as juvenile manta rays, the study revealed aggregations of newborns and juveniles in Wayag Lagoon in Raja Ampat, which led to the realization that the area is used by reef manta rays as a primary nursery and pupping ground. Juvenile manta rays in the nursery made occasional forays outside of the lagoon and into surrounding deeper waters, but invariably returned quickly to the safety of the shallow Wayag lagoon.

Already leading to a direct conservation action, the Raja Ampat Marine Protected Area Authority is currently instituting new regulations to curtail speedboat use within the lagoon to prevent injury and disturbance to baby manta rays, which tend to stay close to the surface and are at risk of propeller strikes from speedboats. The new regulations are expected to be implemented within the next 6 to 12 months.

Stopping the Manta Ray hunt

In Southern Indonesia, the tagging project helped confirm that mantas are regularly moving between tourism viewing areas in Bali and Komodo National Park and through regions where manta rays have been hunted in the past. The team recorded one manta ray that swam between South Bali, Nusa Penida, Lombok and Western Sumbawa. Similar (but opposite) movements by several other manta rays tagged in Komodo, which swam westward into Sumbawa waters and towards Bali further supported this pattern.

Manta movements between Bali and Komodo had previously been documented through photographic identification work by local environmental organizations. The current tagging project complements and reinforces this evidence - having further detailed the routes taken by the manta rays - and highlighted that they were moving across known hunting grounds in South Lombok and off Southern Sumbawa. This data provides compelling evidence for the government to increase enforcement efforts in these regions to stop manta ray hunting, in line with the 2014 national law protecting all manta rays in Indonesian waters.

Need for Conservation

Both species of manta rays are hunted for their gill plates, which are used in traditional Chinese medicine despite the lack of evidence on their efficacy. Manta rays are exceedingly vulnerable to overfishing due to their low population numbers, slow growth and reproduction, which more closely resembles that of humans than most other fish. Individuals can live for 50 years or more, and take eight to 10 years to mature. They normally give birth to a single pup once every two to five years after a 12-month gestation period.

According to a study by [O'Malley et al \(2013\)](#), one manta ray is worth US\$1million in tourism value over its lifetime, versus US\$40-\$500 if it is hunted and sold for its body parts.

Manta-focused tourism is now providing important benefits to local communities in all four of the tagging study regions. Community members now hold these gentle giants in high esteem, and are strongly committed to their protection. Some villages have even adopted the manta as their local icon. In Raja Ampat, for example, a large manta statue has been erected at Arborek village's entrance, in honour of the marine creatures that have provided the community with better livelihoods.

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Manta Ray Fast Facts

Size: Reef mantas up to 5m in wingspan, Oceanic mantas up to 8m

Lifespan: At least 50 years

Diet: Zooplankton

Feeding method: Filter feeding with their gill plates

Reproduction: Averaging one pup every 2-5 years.

Colors: "Chevron" individuals have black backs and a white underside with black markings, while

"Melanistic" individuals are black all over (with occasional white markings on belly)

Good to know:

- Scientists only confirmed there are two species of manta ray in our region, reef and oceanic, in 2009.
- Manta rays are one of the most intelligent species of fish, with the largest brain to body mass ratio of any fish. They are believed to be able to recognize individual divers by sight.
- Each manta ray's colouration is unique and can be identified by the pattern on its underside – like a human's fingerprint.
- Manta rays are harmless. They do not have a barb on their tail and cannot sting.



About Resorts World Sentosa



Resorts World Sentosa (RWS), Asia's ultimate destination resort, is located on Singapore's resort island of Sentosa. 2015 marks the resort's fifth anniversary, and RWS will celebrate with a line-up of new offerings and special promotions. Spanning 49 hectares, RWS is home to key attractions including the region's first-and-only Universal Studios theme park, S.E.A. Aquarium (one of the world's largest aquariums), Adventure Cove Waterpark and Dolphin Island. Other attractions include a Maritime Experiential Museum, an award-winning destination spa, a casino, six unique hotels, the Resorts World Convention Centre, celebrity chef restaurants, and specialty retail outlets. The resort also offers world-class entertainment, from original resident productions to concerts and public shows such as the Crane Dance and the Lake of Dreams. RWS has been named "Best Integrated Resort" since 2011 for five consecutive years at the TTG Travel Awards which recognises the best of Asia-Pacific's travel industry.

RWS is wholly owned by Genting Singapore, a company of the Genting Group. For more information, please visit www.rwsentosa.com.

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About Conservation International

Since 1987, Conservation International has been working to improve human well-being through the care of nature. With the guiding principle that nature doesn't need people, but people need nature for food, water, health and livelihoods—CI works with more than 1,000 partners around the world to ensure a healthy, more prosperous planet that supports the well-being of people. [Learn more about CI](#) and the "[Nature Is Speaking](#)" campaign, and follow CI's work on [Facebook](#), [Twitter](#) and [YouTube](#).

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Note to Editors

High-resolution photos can be downloaded from link:
<https://ci.tandemvault.com/lightboxes/FgLm12I5q?t=BH94DJcS>