

Project Update: December 2023

With the Rufford Grant funding, we can recruit two Indonesian Research Assistants (RAs) and train them for manta ray data collection. Nathania is a 25-year-old divemaster from Surabaya, East Java, and has previously joined a Rufford-funded internship with MMF earlier in 2022. Ariq is a 23-year-old Advanced open-water diver from Jakarta. He has previously worked with the Ministry of Marine Affairs and Fisheries on their shark and ray population survey project and has experience working closely with private sectors to help manage their sustainability programs.



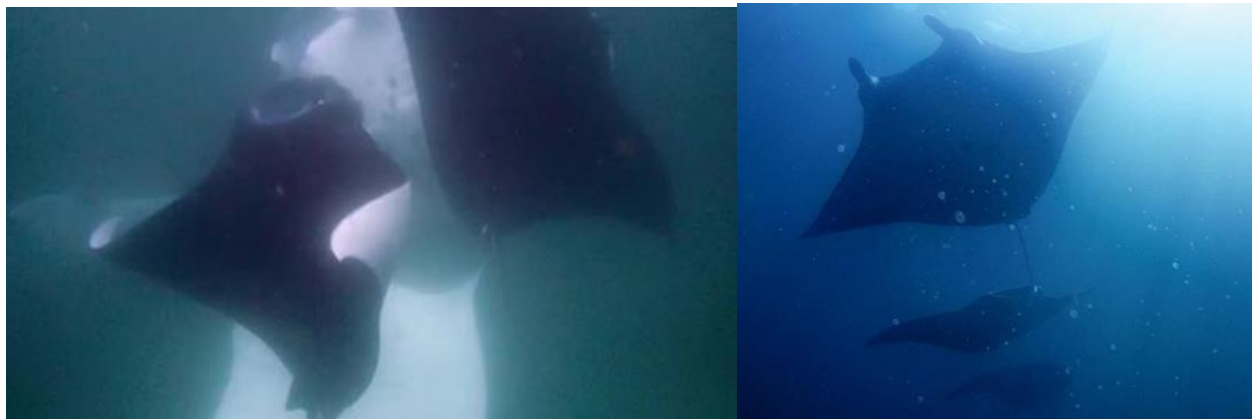
Figure 1a & 1b - Left: Nathania. Right: Ariq.

The RAs have been trained to conduct manta ray and sea turtle data collection and data processing and have been presenting the 40-minute-long Manta Talks to the public, in both English and Bahasa Indonesia. They are starting to learn about data analysis using the statistical software, 'R' Studio, and are involved in the writing of this mid-report. They will soon be trained to measure manta rays and sea turtles using our size measurement methods, paired laser and stereo photogrammetry.

In 2023, we went out for data collection for 45 days. We went to Manta Point, an identified cleaning station, for 26 days, and Manta Bay, an identified feeding ground, for eight days. During those days, we went diving 100 times at both sites. Based on our observations, we saw an estimated 21.34 boats present in each dive at Manta Point, peaking in May, with an average of 25 boats present in a dive. Meanwhile, Manta Bay peaked in June, with an average of 24.3 boats present within a dive. We also continued measuring the in-water temperature using the temperature loggers that were purchased during the first stage of the Rufford Grant funding (Figure 2D).

This year, we have identified a total of 114 manta ray individuals during our surveys, and 45 individuals during the Rufford Grant funding period. On average, we estimated three manta ray encounters per dive. When divided by month, we estimated the highest average for manta ray encounters was seven manta rays in November and the lowest encounter of one manta ray in March and August. During the encounters in Manta Point, a majority (56.91%) of the manta rays were seen cruising or swimming, followed by cleaning (34.04%), engaging in a mating train (3.72%), and engaging in courtship (3.19%). Meanwhile, manta rays seen in Manta Bay were mainly seen feeding on the water surface (75%) and cleaning (25%).

Reproductive events (Figure 2A-B), such as mating train, courtship, and mating, were mostly observed in October, where it has been seen in nine encounters. The size measurement data collected this year are still being analysed and are not ready for this mid-report. It will be included in the final report.



Figures 2a & 2b - Manta rays engage in courtship and mating train events.

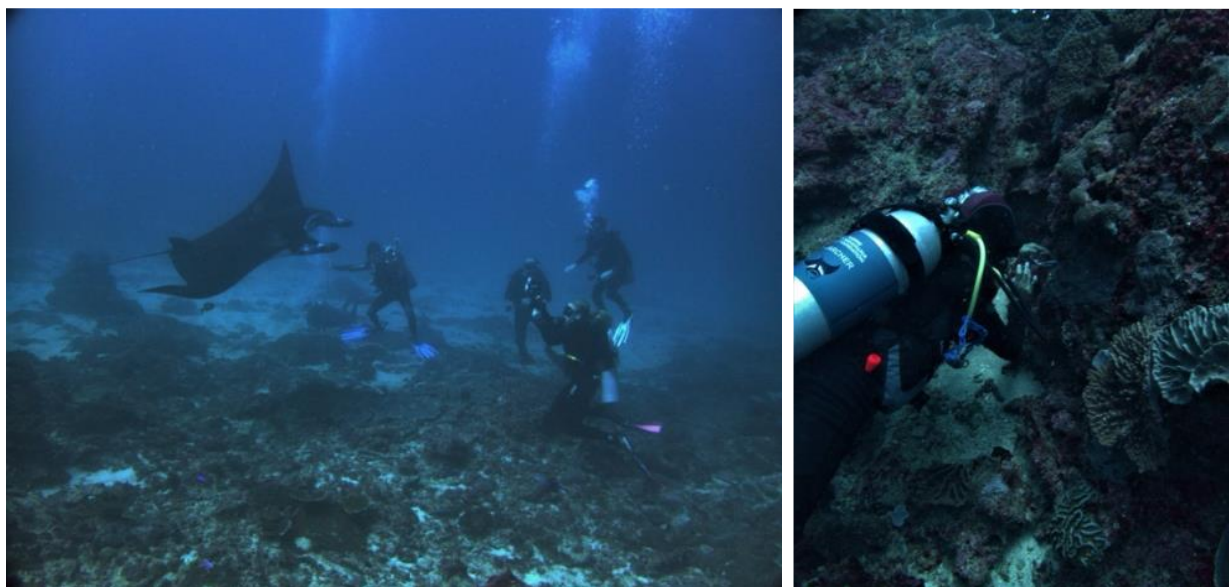


Figure 2c & 2d. Left: Manta rays and SCUBA divers. Right: Checking on the temperature loggers.

This year, we did 11 Manta Talks, both in English and Bahasa Indonesia. The audience consisted of tourism guests, Indonesian and foreign dive and snorkel operators, and Indonesian boat captains (Figure 3A, 3D). We also reached many people through our social media page, approximately over 6,500 people, where we shared our research and outreach activities. Through our pre-dive briefings (Figure 3C), where we give short briefings on manta rays and sea turtles and the code of conduct when encountering the animals, we estimated to reach over 300 dive and snorkel guests, with approximately seven people for each briefing. In our Manta Talks, where we typically have 15 to 30 people in the audience, we are estimated to reach over 200 people from all of our talks this year.

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Manta 101

Expand your knowledge about this majestic creature and learn how you can help protect them too!

Scuba Center Asia, Nusa Lembongan
Wednesday, 29 November 2023
17.30 / 5.30 pm

Open for public!
Presentation will be in English

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In the middle of the year, we did a presentation to BPSPL Denpasar (Figure 3B), the government entity that manages coastal resources in the Lesser Sunda islands, of the preliminary results of this project. We gave the results of our size measurement studies and tourism survey results that we conducted last year (funded by the first phase of The Rufford Grant) and gave inputs on the acts of recommendation. The presentation went well, with the government entity providing great feedback on our project. We will be giving another presentation to the government sometime next year. So far, this project has been going as planned.



Figures 3a & 3b – Left: Nathania giving a presentation to Indonesian tourism operators and boat captains. Right: Janis giving a presentation to BPSPL Denpasar on the project's preliminary results.



Figures 3c & 3d – Left: Ariq giving a pre-dive briefing on the Code-of-Conducts to dive guests. Right: Nathania giving a presentation to a group of college students.