

Final Evaluation Report

Your Details	
Full Name	Wong Jieyi
Project Title	Population Status of Common Seahorse, <i>Hippocampus kuda</i> , in The Urban Seagrass Meadow of Merambong Shoal
Application ID	42720-1
Date of this Report	7 th July 2025

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
To estimate the key biological and population parameters of <i>Hippocampus kuda</i> in Merambong Shoal according to the tagging experiments conducted from 2007 to 2014			/	<p>We managed to analysed the data and estimated the population of the seahorses. The manuscript titled "<i>Baseline Population Status of Spotted Seahorse Hippocampus kuda in an Urban Tropical Seagrass Meadow, Southern Peninsular Malaysia</i>" has been accepted by <i>Regional Studies in Marine Science</i> (Elsevier) and is currently under revision.</p> <p>702 seahorses were encountered with 651 of these measured and 519 tagged. The estimated survival rate was 0.35 ± 0.04 (S.E.), and the capture probability was 0.30 ± 0.05 (S.E.). The estimated annual seahorse population was (mean \pm SD):</p> <ul style="list-style-type: none"> - 2007: 265 ± 160 - 2008: 82 ± 45 - 2009: 58 ± 40 - 2010: 31 ± 26 - 2011: 31 ± 18 - 2012: 30 ± 14 - 2013: 47 ± 18
To assess the spatial and temporal abundance of <i>Hippocampus kuda</i> in relation to			/	We successfully conducted surveys to assess seagrass density by placing quadrats semi-randomly along transects and calculating percentage cover

seagrass density in Merambong Shoal, Johor				<p>from photographs. We discovered that seahorses are present in the denser regions of the seagrass bed, particularly in the southern section. This was achieved using a customised pull net, which allowed access to previously under-surveyed areas.</p> <p>Manuscript is in preparation to submit to the <i>Coastal management</i> (Taylor and Francis).</p>
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2. Describe the three most important outcomes of your project.

a) Seahorse population analysis and historical comparison.

We successfully assessed and analysed the current seahorse population and compared it with historical data from before the coastal development. This comparison provides important insights into population trends and the potential impacts of urbanisation on seahorse abundance and distribution.

b) Discovery of seahorses in denser seagrass areas

Seahorses were found in the denser southern part of the seagrass bed—an area previously under-surveyed due to the limitations of visual census methods. By using a pull net, we confirmed the presence of seahorses in this region, suggesting that the population is larger and more widely distributed. This finding raises new research questions, including whether the northern and southern seahorse populations are genetically connected, given that the seagrass meadow is fragmented into two sections.

c) Observation of invertebrates on seahorses

We documented the presence of invertebrates on several seahorses. It is currently unknown whether these organisms are parasitic or commensal. This opens a new approach for further study to identify these invertebrates and assess their relationship with the seahorse, which may have implications for seahorse health and conservation.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

We experienced delays in developing and testing a suitable non-invasive pull net. It took approximately two months to identify local manufacturer who could customise the net to our specifications. The initial prototype did not function effectively, requiring a second round of modifications and testing, which extended the delay by another two months. Despite these challenges, the refined pull net proved essential for accessing denser seagrass areas.

Although the Merambong shoal is located near the coast, we remain cautious due to several safety concerns—particularly the presence of residual construction materials around the former sand bund site. To mitigate these risks, we avoid bringing volunteers into the affected area. When access is necessary, our team is accompanied by experienced personnel to minimise the risk of injury. Additionally, we refrain from using the pull net in that zone to prevent potential damage. To further ensure safety, several team members certified in first aid are present during our activities to respond to any unforeseen incidents.

4. Describe the involvement of local communities and how they have benefited from the project.

We engaged the local community by hiring boat operators from nearby villages to transport our team, to and from the sampling site. This not only supported local livelihoods but also fostered community awareness of the seahorse population and the importance of seagrass conservation. Public participation included individuals, families, schools, and corporate groups, who joined as volunteers or paid participants. They contributed by spotting seahorses and assisting with data collection. Beyond generating local income, the project also laid the foundation for future community involvement in citizen science and marine conservation.

5. Are there any plans to continue this work?

Yes, there are clear plans to continue the project. Ongoing monitoring of the seahorse population is critical to understanding long-term trends and ensuring effective conservation. The discovery of seahorses in previously unstudied areas and the observation of potential parasitic relationships highlight the need to expand both spatial coverage and research scope. Continued study will inform future conservation actions and management strategies for the Merambong shoal seagrass ecosystem. With additional support, we hope to strengthen our monitoring capacity, deepen scientific understanding, and engage more stakeholders in safeguarding this unique marine habitat.

6. How do you plan to share the results of your work with others?

We plan to share our findings by collaborating with both state and national government agencies. The data collected will be shared with relevant authorities to support evidence-based decision-making and inform conservation and management strategies for seahorses and their habitat. In addition, we aim to publish our results in scientific reports and journals, and present them at conferences and stakeholder meetings to reach a broader audience. The findings will also be shared with the IUCN SSC Seahorse, Pipefish & Seadragon Specialist Group during official meetings, contributing to species status evaluations and global conservation efforts. Furthermore, we will continue showcasing our work through various media platforms, including social media, radio, and television, to raise public awareness and engage a wider community in marine conservation.

7. Looking ahead, what do you feel are the important next steps?

The next crucial steps include:

- a) Public engagement:** Raising awareness through education and outreach initiatives to promote seahorse and seagrass conservation among local communities and the general public.

- b) Government collaboration and commitments:** Strengthening partnerships with government bodies to ensure long-term support and implementation of conservation actions.
- c) Policy development:** Advocating for the creation or enhancement of policies and regulations that protect seahorses and seagrass ecosystems in Malaysia.

8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

Yes, The Rufford Foundation logo was used in presentation slides during my Master's proposal presentation. The Rufford Foundation was also mentioned in the social media posts of Save Our Seahorses (SOS) Malaysia.

9. Provide a full list of all the members of your team and their role in the project.

No.	Name	Role	Comments
1.	Wong Jieyi	Project Leader	Conduct data collection and manuscript writing. Lead citizen science survey trips.
2.	Dr. Wee Hin Boo	Main Supervisor	Main academic supervision.
3.	Dr. Amy Then Yee Hui	Co-supervisor	Co-academic supervision.
4.	Dr. Adam Lim Chee Ooi	Co-supervisor	Field supervision and Co-academic supervision.
5.	Aqilah Huda Binti Norazli	Field Assistant	Assists with field surveys, including data collection and guiding participants.
6.	Tan Tze Ying	Field Assistant	Assists with field surveys, including data collection and guiding participants.
7.	Farah Ameerah Binti Azman	Field Assistant	Assists with field surveys, including data collection and guiding participants.
8.	Lyvia Chong	Field Engagement Manager	Manage participants with field activities and build awareness.
9.	Kok Wai Khei	Supporting Volunteer	Assists with guiding and managing participants.
10.	Scott Nishiki	Voluntary Professional Photographer	Capture photos and videos throughout the survey for documentation.

10. Any other comments?

We would like to express our sincere gratitude to The Rufford Foundation for their generous support. The grant has played a significant role in the success of this project, enabling us to carry out our work smoothly and effectively. It is through this support that we were able to contribute meaningful data to the field of marine conservation, particularly in understanding and protecting seahorse populations and their seagrass habitats. Thank you for believing in and supporting our work.

Supporting evidence of our research findings and public outreach efforts can be found in the attachment files provided in the email accompanying this report.

ANNEX – Financial Report

[Intentionally deleted]