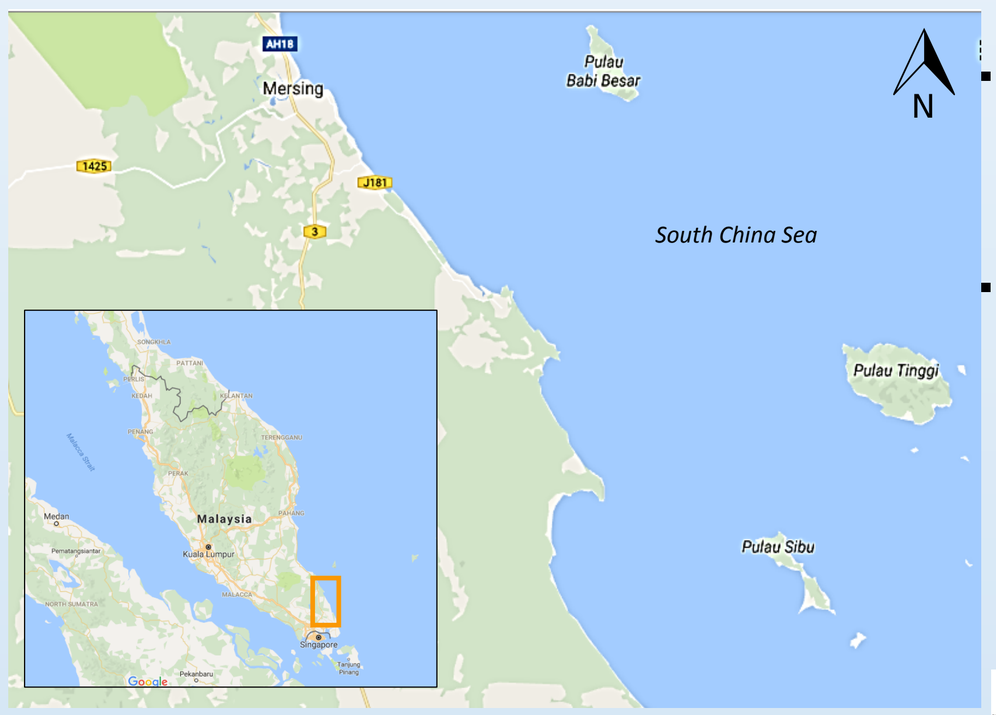
Discovering And Protecting Dugongs And Seagrass In The Last Dugong Stronghold Of Peninsular Malaysia

Project Summary

MareCet has conducted research on dugongs and their habitat around the Sibu-Tinggi Archipelago in Johor, Malaysia since 2014. Our project MY4 combines ecological and social science research to better our understanding of dugongs, the subtidal seagrass habitat and the people who use the area, all of which are for a science-based approach to develop habitat protection plans for the dugongs. Aerial surveys were conducted to study the distribution and encounter rates of dugongs and human activities, while seagrass mapping is ongoing, using an underwater towed video system to determine seagrass extent and location of feeding trails. Dugong feeding trails and seagrasses are sampled for the study of dugong feeding preferences. Interviews with local communities and other stakeholders are conducted to study their awareness and perceptions of dugongs and seagrass, and opinions on conservation participation. The results are furnished to the drafting of the delineation and management plan of a proposed dugong sanctuary.



Main Activities

The project's main activities are focused around Sibu and Tinggi Islands and the adjacent mainland east coast of Johor, Malaysia. The activities are centred on scientific research, stakeholder consultations and outreach, and engagements with the management authorities. These activities are:

- Systematic aerial surveys using line transects to study the distribution and encounter rates of dugongs and human activities
- Mapping of the seagrass habitat around the core dugong areas of the Sibu Archipelago and study of dugong feeding trails and feeding preferences
- Interview surveys with local stakeholders (fishermen, villagers, tour and resort operators) to understand their perceptions on dugongs and seagrass, their willingness to participate in dugong and seagrass conservation, and their suggestions for the development of the dugong sanctuary.

Results

Aerial surveys (2014 – 2016) amounting approximately 145.4 h and 23,748.2 km of search effort found that dugongs are primarily distributed around the Sibu Archipelago, particularly off the south and southwest of the island chain. It was also found that most mother-calf dugong pairs are sighted in the south and southwest of Sibu Hujung Island. This "hotspot" area of the dugongs fall within and outside of existing Marine Park boundaries, therefore in need of further protection. The distribution of dugongs also overlaps with numerous human activities, namely fishing (artisanal and trawling) and marine transportation (speedboats and commercial cargo vessels). We've recorded approximately 24 h of towerd underwater video recordings of seagrass and identified the main feeding areas of dugongs, which appears to coincide well with our aerial survey sightings. Eighteen feeding trails were sampled and to date, the dugongs mostly fed on *Halodule uninervis* and *Halophila* sp. A total of 271 stakeholder individuals were interviewed to date and in general, most are supportive of dugong conservation so long their economic welfares are not overlooked or ignored.

(L) Parallel line transects flown during aerial surveys; (R) Distribution of dugongs around the Johor Islands based on aerial survey data from 2014 to April 2016. The green patches denote seagrass

The underwater towed video used for mapping the seagrass habitats of the dugong

Collecting seagrass samples for nutrient analyses as part of studying the dugong's feeding preferences

Interview surveys with local stakeholders to gather information conservation perception and participation

Sharing our work with the students at the Sibu Island Primary School

Next Steps & Lessons Learned

The project's activities for this year will focus on monitoring of dugong presence and human activities through safe and cost-effective means, continuation of our seagrass and social science/socio-economic studies, and ensuring that our research is relevant and application to the real conservation needs on the ground, reaching all stakeholders and attaining their support. We will continue with the drafting of the management and implementation plan for the proposed dugong sanctuary, working closely with the local communities and government agencies. We will also conduct education and outreach/ stewardship activities with the local communities on both islands and adjacent mainland and provide capacity training for Johor National Parks personnel. A livelihood project for Sibu Island is also tentatively planned. We've learned that while the locals are not opposed to dugong conservation, our efforts must not ignore or overlook their plights and economic welfare, which is central to their ability to actively partake in conservation.

About Our Organization

MareCet is the first and only Malaysian non-profit, non-governmental organization established in 2012 committed to increasing scientific knowledge, implementing conservation actions, strengthening policies, and generating awareness on marine mammals and the greater marine environment. A brainchild of Dr. Louisa Ponnampalam and Fairul Izmal Jamal Hisne, MareCet is built upon the concepts of applying marine science to real world conservation issues, engaging all-rounded approaches to those issues (top-down, bottom-up, public engagement), building local capacity for marine mammal science and grooming the next generation of Malaysian marine conservation leaders. Aside from the dugong project, MareCet currently runs two cetacean conservation-based research projects and numerous public outreach programmes.