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Above: A dugong at the then Underwater World Singapore on Sentosa in 2009. A study by National University of Singapore scientists found that out of 60 observations detailing the specific locations that dugongs were spotted near Singapore, 42 occurred around Changi Beach, Pulau Tekong and Pulau Ubin. ST FILE PHOTO

Left: Dugong feeding trails at Cyrene Reef. The study found that unprotected reef-associated seagrass meadows act as refuges for dugongs in the western part of the Singapore Strait. PHOTO: SIRIUS NG

VIABLE HABITATS

The most surprising aspect of our findings is that the Johor and Singapore straits remain viable habitats for dugongs despite being among the busiest shipping channels globally.

CO-AUTHORS OF THE STUDY FROM THE NATIONAL UNIVERSITY OF SINGAPORE

Endangered dugongs frequent waters near Ubin, Tekong despite shipping traffic: Study

Ang Qing

Despite high shipping traffic and land reclamation works over the decades, the eastern end of the Johor Strait continues to be a hot spot for critically endangered dugongs in the region, a recent study has found.

Drawing on records of dugong sightings near Singapore over more than 200 years, the study by National University of Singapore (NUS) scientists found that 65 per cent of dugong observations in the last 25 years – 31 of 48 records – occurred in the eastern part of the Johor Strait, one of the busiest shipping channels in the world.

The study noted that the mild marine mammals frequent the area despite the presence of two international ports, Pasir Gudang in Malaysia and Sembawang Wharves in Singapore, and a significant number of sea-based mariculture farms in the waters – which were first identified as a hot spot for dugongs by Sir Stamford Raffles in 1820.

Of 60 observations detailing the specific locations that dugongs were spotted near Singapore, 42 occurred around Changi Beach, Pulau Tekong and Pulau Ubin.

Coastal development, such as land reclamation, and high human activity in sea spaces have driven the decline of dugongs across South-east Asia. In the region, loss of coastal habitat has been the most extreme in Singapore.

The enduring popularity of the eastern Johor Strait is "the most pressing finding", and could be due to the many shallow bays that are suitable for birthing and raising offspring, as well as the availability of seagrass meadows for foraging, study co-authors Sirius Ng, Ow Yan Xiang and Zeehan Jaafar told The Straits Times.

Their research on the impact of coastal development and increased human use of sea spaces on dugong populations along hyper-urbanised coastlines of the Johor Strait and the Singapore Strait was published in scientific journal Frontiers on Sept 20.

"The most surprising aspect of our findings is that the Johor and Singapore straits remain viable habitats for dugongs despite being among the busiest shipping channels globally," said the co-authors, who are from the NUS Department of Biological Sciences and NUS Tropical Marine Science Institute.

The study also found that unprotected reef-associated seagrass meadows act as refuges for dugongs in the western part of the Singapore Strait.

Dugong feeding trails, for instance, were recorded along Cyrene Reef, mere metres from international shipping lanes.

Yet, only two dugong carcasses have been recovered from these waters, despite the active and sustained use of seagrass meadows there.

The researchers thus called for the unprotected seagrass meadows associated with reefs to receive more scientific and conservation attention.

They said the most direct method will be to gazette key seagrass meadows as protected areas.

"Besides acting as a key habitat for dugongs, seagrass meadows are known as nursery sites for many economically and ecologically important marine organisms," they said.

Both developers and agencies overseeing coastal development projects should also look at the cumulative and longer-term impact on their sites and vicinity beyond the projects' duration, given that Singapore has a small sea space, and coastal development projects can take place in close proximity to one another, they added.

Dugongs, also known as sea cows, help maintain coastal ecosystems as their grazing on seagrass encourages regrowth, ensuring key habitat and feeding sites for other marine species such as turtles, according to WWF-Australia.

However, these gentle creatures are challenging to study because they are difficult to spot.

Said the study's authors: "Unlike other marine mammals such as dolphins and whales that exhibit flamboyant displays of breaching, dugongs are rather elusive – often surfacing just enough to expose their nostrils above the water.

"This behaviour, and the lack of a dorsal fin, makes it difficult to ascertain their position along the turbid coastal waters where they are commonly found."

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