



## Conservation of the Dugong

Before dawn on Jan 14, the laboratory of the Universiti Malaya Maritime Research Centre (UMMReC) in Kuala Lumpur was abuzz with anticipation. Several marine scientists were waiting anxiously for the arrival of a dugong carcass – the first specimen to be received by the centre for necropsy.

The scientists could not believe their luck when the lorry which had travelled overnight from Tanjung Pengelih in Johor unloaded the fairly intact 2.6m marine mammal.

The animal was reported to have stranded near the Tanjung Pengelih naval base in south-east Johor.

“It was a magnificent carcass. It had a full anatomy and was only slightly decomposed,” recalled Dr Affendi Yang Amri, who recently concluded a study of dugong (*Dugong dugon*) in Johor with other colleagues of the three-year-old centre.

To these scientists who are embarking on a project to save the dugong, a fresh carcass is worth as much as a live specimen. They collected tissue samples and stomach contents from the carcass for analyses. These would shed light on the animal’s biology and cause of death, among others.

Head of UMMReC Prof Phang Siew Moi said the dead dugong was an adult that had enjoyed a long spell of sexual maturity. Old scars across its body indicated injuries sustained in defending its territory during mating. Confirmation of its age will be done through examination of the growth layers deposited on its tusks.

“It appeared to be feeding up to the moment it died. The intestine was filled with seagrasses,” she said.

It was estimated to weigh no less than 350kg. Eight men could not lift the carcass and a crane was brought in to lower it from the lorry.

Prior to this, UMMReC undertook a six-month survey in Johor on the distribution of the dugong and its habitat, the seagrass meadows. Phang is one of six scientists in the multi-disciplinary study team for the dugong conservation programme initiated by the United Nations Development Programme (UNDP). Funding for the first phase came from Titan Chemicals Corp Bhd. The Si Tenang saga – the young male dugong that captured



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national attention in 1999 that was rescued by a fisherman but then died – brought public attention to the marine mammal.

A string of fatal stranding incidents in the same year gave hope that the dugong was not extinct in Johor as previously thought. But the interest was unsustainable and all conservation talk lapsed into oblivion. The marine creature remains a mystery due to the lack of research.



The dugong carcass found at Tanjung Pengelih in Johor.

A brief aerial survey led by Australian dugong researcher Dr Helene Marsh was the last known study of the marine mammal. Over in Borneo, the Borneo Marine Research Institute of Universiti Malaysia Sabah has carried out a far more extensive research in Sabah waters.

Using aerial, boat and field surveys between April and September, the UMMReC team has some uplifting news: there were positive sightings of the animals, evidence of feeding and anecdotal accounts of sightings from locals.

“In the beginning, we doubted that we could find them but we were pleasantly surprised,” said project leader Affendi.

During the four aerial surveys, eight adults and one calf were recorded around Pulau Sibul and Pulau Tinggi, one of three survey sites.

Dives in seagrass meadows provided proof of dugong presence in Sungai Johor. With its highly adapted mouth that is shaped like a lawn-mover, dugongs dig up the whole seagrass plant when feeding, thereby producing a distinctive, serpentine-like feeding trail.

Sungai Johor, it seems, is a haven for dugongs, with its extensive seagrass beds occurring in exposed areas on the tidal flats. Three sites were surveyed. Feeding trails were documented in Tanjung Surat at the estuary of Sungai Lebam, a tributary of Sungai Johor and at Pasir Gogok, south of Tanjung Surat. The seagrass meadows here are dominated by *Halophila ovalis*, the soft, small-leaved seagrass which is a good food species for dugongs.

“Sightings were not recorded at the third site at Tanjung Kopok but we believe that dugongs are present there. We need to do more surveys, hopefully in the project’s second phase,” said Affendi.

The scientists mapped the distribution of seagrass meadows and collected eight species of seagrass and 70 species of seaweeds for identification.

Surveys in villages on both banks of Sungai Johor brought the team to the burial site of a female carcass and the skeleton was retrieved and kept by the centre. The bones can provide information on the species through DNA analyses.

The villager who buried the carcass claimed that the ill-fated female was pregnant as a foetus was found in its body.

The study identified habitat loss, sedimentation, incidental catches in fishing nets and kelong, boat-strikes, acoustic pollution, chemical pollution and diseases as threats to the dugong. The Sungai Johor basin is vulnerable to land clearance for plantation, industrial development and contamination from shipping activities.

While it is not widely known that dugongs are hunted for its meat, oil, skin and tusk, interviews with villagers revealed that the animal was actively hunted in the past and the practice has not ceased.

To protect the dugong, one also has to secure its larder – the seagrass beds. And it is not just the quantity that matters but also the quality.

The 90-page project report titled Dugongs in Peril: The Conservation and Protection of Dugongs in Johor noted that seagrass beds may be smothered under high silt loads in the environment. The strictly herbivore marine mammal can consume as much as 30kg of seagrasses a day.

The scientists outlined short-, medium- and long-term plans to execute their conservation recommendations over 60 months. Actions include protecting seagrass beds, addressing land-based pollution, restoring degraded seagrass beds and satellite-tagging to determine the dugong population size and home range. An eco-tourism plan and the setting up of a research station were also conceived.

Judging from the results of a social survey among the local communities, there is hope for the gentle mammal. The respondents displayed a high level of awareness of the threats to the marine mammal and agreed that the animal should be protected and that it was possible for humans and dugongs to co-exist in this backwater region of Johor.