

# Dugongs are the sentinels of the seagrass



Image: Ahmed Shawky

The dugong is the world's only exclusively marine mammal that is herbivorous, a unique sea creature that unlike its relative the manatee - the dugong never enters freshwater. They can be found in the shallow and warm coastal waters of Australia from Shark Bay in the west around the north to Moreton Bay in the east.

The only living representative of the once-diverse Dugongidae family, the dugongs' closest modern relative, Steller's sea cow, was hunted to extinction centuries ago. The dugong is genetically distinct from the manatee which belong to a different family, although they are both in the same order – Sirenia, or sea cows.

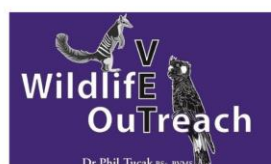
“Dugongs are very unique as a species and they tell us a lot about the health of the seagrass ecosystems that we rely on for food and carbon storage,” explained dugong researcher Dr Amanda Hodgson, a Research Fellow at Murdoch University's Harry Butler Institute.

## ***“...when the seagrass disappears, so do the dugongs...”***

“Dugongs can be regarded as the sentinels of their seagrass habitat. When the seagrass disappears, so do the dugongs. And we rely on seagrass as habitat for a huge proportion of the world's fisheries, for coastal sediment stability, and for storage of carbon - in some cases in higher rates than occurs in rainforests.”

According to the IUCN Red List of Threatened Species, dugongs are classified as vulnerable to extinction globally. In Australia, the dugong is categorised as a migratory species which offers them some of the same protections as other threatened species here.

Their lumbering size and preference to reside in the same shallow coast habitat that you often find boats makes the dugong at increased risk of boat strikes, however the biggest threat to the species is destruction of their seagrass habitat and food source.



“It’s hard to provide an estimate of the population of dugong for the whole of Australia, but it is in the tens of thousands. They appear to be relatively stable in most places, but are most at risk along the urban coast of Queensland where they have the greatest interaction with human activities and impacts,” said Dr Hodgson.

“Seagrass has multiple threats, including destruction and degradation as a result of coastal development and coastal activities, and from pollution. Climate change is already impacting seagrass through heating events which can cause the large-scale loss of seagrass, which takes years to recover.”

As a result, the most important action required to protect the dugong is protection of their seagrass habitat, and Dr Hodgson suggests that research needs to be focussed on gaining a deeper understanding of seagrass, to identify how and why dugong move in response to changes in seagrass availability.

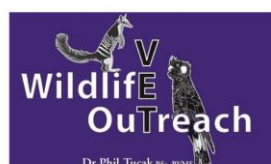
### ***“We need to love seagrass!”***

“We need to love seagrass! It’s easy to overlook the humble seagrass bed but there are so many marine animals that rely on seagrass and it provides such a service to people as well. We need to protect this hugely valuable resource, and think about how any activities in coastal areas affect seagrass – such as destruction of seagrass beds by boat anchors or dredging. And of course, any action we take to reduce our carbon emissions will ultimately help all ecosystems, including seagrass,” said Dr Hodgson.

“It would be great to get a better understanding of the habitat available to dugongs. We know they can move, but we don’t always know what their options are – such as what seagrass beds are within their cultural knowledge and what motivates them to move or stay.”



Dr Hodgson’s research involves the use of aerial drones and artificial intelligence (AI) data science to survey dugongs and improve our understanding of this gracious and quirky marine species.





“We are developing tools to enhance the surveying of dugongs by using aerial drone photography and developing custom software for processing the images, including using AI to automate the detection of animals within the images, and to extract information about the environmental conditions during the survey,” explained Dr Hodgson.

“My goal is for these tools to empower researchers and local communities throughout the dugongs’ range both within Australia and throughout the Indo-Pacific to conduct surveys and better understand dugongs and their habitat so they can afford them better protection.”



By making these tools user friendly and by automating as much of the process as possible, the hope is that this will allow non-experts to conduct dugong surveys in a standardised way so that the information gathered around the world is comparable and contributes to the global conservation of this unique species.

To learn more about the dugong and seagrass habitat visit: <https://www.seagrasswatch.org/> and for more information about the Harry Butler Institute visit: <https://www.murdoch.edu.au/research/hbi>

Article by Dr Phil Tucak, [Wildlife Outreach Vet](#). Images thanks to Ahmed Shawky and Amanda Hodgson.

