Con Dao IMMA

Description

Con Dao National Park is a nationally protected area in Ba Ria-Vung Tau Province. The Park is located about 100 km offshore of the southeast coast of Vietnam (Figure 1). This National Park includes 7 islands and 140 square kilometres of protected marine area. Located approximately 100 km from the Mekong River estuary, Con Dao National Park is affected by high nutrient discharges from the Mekong River. There are three main types of marine habitat in Con Dao National Park: coral reefs, seagrass beds and mangroves.

In Vietnam, the dugong is extremely rare, and little is known about the locally occurring dugongs in Con Dao National Park. Official records of dugongs on Con Dao Island can be dated back to 1977, when seven individuals were captured for biological specimen collections (Van Bree and Gallagher, 1977). There was also a recorded dugong sighting in Con Dao in 1995 (Lang Van Ken, 1997).

Sightings of dugongs in the Con Dao area were summarised in Pham (2003). However after 2003, there is a large gap of information on dugongs in the Con Dao archipelago (Hines et al., 2012). Since 2012, there have been no systematic dugong surveys conducted in the Park. However, the local Park staff records opportunistic sightings of dugongs during their routine patrols and seagrass bed monitoring (Con Dao National Park, 2013). In 2014, National Park staff reported a dugong calf entangled in a net (Con Dao National Park, 2014). In addition to dugong sightings, Con Dao rangers and staff mentioned the high frequency of opportunistic sightings of cetaceans (unidentified delphinids). Cetacean stranding events recorded by Con Dao rangers

Area Size

869 km²

Qualifying Species and Criteria

Dugong – *Dugong dugon*
Criterion A; B (1); C (2)

Marine Mammal Diversity

*Dugong dugon*

Summary

Con Dao is an archipelago located about 100 km offshore of the southeast coast of Vietnam. The Con Dao area is one of only two locations in Vietnam – the other being the island of Phu Quoc in the eastern Gulf of Thailand, that have had records of dugong sightings since the year 2000. The seagrass beds in Con Dao, which are mainly dominated by *Halophila ovalis*, *Halophila minor*, and *Halodule uninervis*, have been strictly protected from fishing and development by the National Park rangers. In combination with consistent dugong sightings reported by the park’s rangers, Con Dao National Park potentially contains important foraging habitat for this population of locally occurring and possibly resident dugongs.
been prioritized for conservation by three international conservation conventions including: The Convention on Biological Diversity (CBD); the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES); and the Convention on Migratory Species of Wild Animals (CMS) (Marsh and Sobtzick, 2015).

Coral Triangle Initiative also mentioned Dugongs as species whose habitats need to be protected (Marsh and Sobtzick, 2015). All conventions mention the lack of robust ecological data for dugong conservation.

**Criterion A: Species or Population Vulnerability**

The dugongs have been assessed as Vulnerable on a global scale in the IUCN Red List of Endangered species (Marsh and Sobtzick, 2015). The dugong (Dugong dugon) is a coastal marine mammal inhabitng tropical and subtropical coastal waters (Marsh et al. 2011, Hines et al. 2012). Dugongs have been prioritized for conservation by three international conservation conventions including: The Convention on Biological Diversity (CBD); the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES); and the Convention on Migratory Species of Wild Animals (CMS) (Marsh and Sobtzick, 2015).

The Con Dao area is one of only two locations in Vietnam – the other being Phu Quoc Island, that have had relatively recent dugong records (records made after year 2000) (Cox et al. 2003, Hines et al. 2012). The seagrass beds in Con Dao, which are mainly dominated by Halophila ovalis, Halophila minor, and Halodule uninervis, have been strictly protected from fishing and development by the National Park rangers (Con Dao National Park, 2013).

**Criterion B: Distribution and Abundance Sub-criterion B1: Small and Resident Populations**

Since 2002, no systematic research has been conducted on the dugong in the Con Dao archipelago, which results in enormous gaps of information on the abundance and distribution of dugongs as well as anthropogenic threats. Cox (2002), reported observing a total of 33 individuals,
including several calves between 2000-2002. Cox believed there were about 10 dugongs in the Con Dao area but this estimate was mainly based on his observations in one location, not a formal survey of the whole archipelago (Cox, 2002). The World Wildlife Fund (WWF) also conducted an interview survey in Con Dao and Phu Quoc islands but only to document inadequate information on the dugong (Adulyanukosol, 2002; Hines et al., 2005). From 2010 until October 2018, several opportunistic sightings of dugongs were made by the marine patrolling team of the Con Dao National Park. In addition, the Park is located approximately 100 km offshore of the southeast coast of Vietnam. It is inferred that the individuals in the locally occurring population are an isolated group. In summer 2018, two dugongs were found dead in the Park. Necropsies performed by trained veterinarian of Con Dao National Park showed signs of interactions with fishing gear, such as rope marks on the flukes, and intestine perforations potentially caused by shallow remnant fishing hooks in a seagrass bed. For such a small population, two mortalities within two weeks could be a significant threat to what we assume is a small group of animals (Marsh and Sobtzick, 2015).

**Criterion C: Key Life Cycle Activities**  
**Sub-Criterion C2: Feeding Areas**

Without a systematic survey, there is limited information on the abundance and distribution patterns of dugongs in this area. The seagrass beds in Con Dao, which are mainly dominated by *Halophila ovalis*, *H. minor*, and *Halodule uninervis*, have been strictly protected from fishing and development by the National Park ranger, and their presence and the number of dugong sightings around Con Dao National Park has been frequently used to argue that dugongs are foraging in the Park (Pham, 2003). This...
was backed up by the historical occurrence and consistency of dugong sightings. We suggest, based on the consistency of sightings over time, that the seagrass meadows in this area are important feeding grounds for the dugong, especially as the Park is isolated from the mainland. Additionally, the necropsy of two freshly stranded dugongs found in Con Dao in August 2018 revealed a stomach full of seagrass, implying that these dugongs could have foraged in nearby seagrass.

Supporting Information


Acknowledgements

We would like to thank the participants of the 2018 IMMA Regional Expert Workshop for the identification of IMMAs in the Northeast Indian Ocean and Southeast Asian Seas region. Funding for the identification of this IMMA was provided by the Global Ocean Biodiversity Initiative funded by the German government’s International Climate Initiative (IKI). Support was also provided by Whale and Dolphin Conservation and the Tethys Research Institute.