

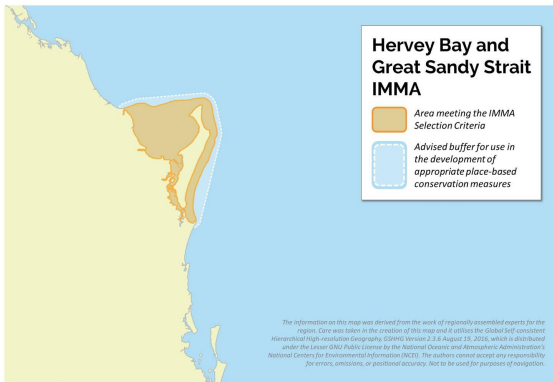
Hervey Bay and Great Sandy Strait IMMA

Description

The Hervey Bay and Great Sandy Strait IMMA, located between latitudes 24.7°S and 25.9°S and longitudes 152.6°E and 153.1°E, is a transition zone between temperate and tropical ecosystems with extensive mangrove zones, islands and banks. This region is the most extensive seagrass area in south-east Queensland. The Mary River which opens into Great Sandy Strait supports the southernmost barramundi gillnet fishery in Queensland. The entire area is protected under the Great Sandy Marine Park and includes a Dugong Protection Area level A.

Criterion A: Species or Population Vulnerability

The Hervey Bay and Great Sandy Strait IMMA contains habitat important for the survival and recovery of several threatened species: the Australian humpback dolphin (*Sousa sahalensis*) and the dugong (*Dugong dugon*) both listed as Vulnerable by IUCN (Parra et al. 2017a, Parra et al. 2017b, Marsh and Sobtzick 2019). In Australia, all these species are considered a Matter of National Environmental Significance under the *Environment Protection and Biodiversity Act 1999* (EPBC Act) and both the Australian humpback dolphin, and the dugong are also listed as Vulnerable in Queensland under the *Nature Conservation Act 1992*. The population of dugongs (~2000, Sobtzick et al. 2017) is the largest on the east coast of Australia in a single bay, south of remote Cape York and is adjacent to the southern Great Barrier lining (Marsh et al. 2019), indicating the importance of the population for the survival of dugongs south of the remote regions of Australia.



Area

6,926km²

Qualifying Species and Criteria

Dugong– *Dugong dugon*

Criterion A, C2

Australian humpback dolphin – *Sousa sahalensis*

Criterion A, B1, C2

Humpback whale – *Megaptera Novaeangliae*

Criterion B2, C1

Marine Mammal Diversity

Tursiops aduncus, *Tursiops truncatus*

Summary

Four primary species are present in the Hervey Bay and Great Sandy Strait IMMA: Australian humpback dolphins, dugongs, Indo-Pacific bottlenose dolphins, and humpback whales. In the IUCN Red List Australian humpback dolphins and dugongs are listed as Vulnerable Concern. This IMMA supports a small resident population of humpback and Indo-Pacific bottlenose dolphins and one of the larger populations of dugongs in Australia. During winter and spring Hervey Bay is an important resting area for migrating humpback whales. For dolphins and dugongs, Hervey Bay and Great Sandy Strait include areas important for feeding, mating and calving. The protection of this area will help the long-term conservation of these threatened species in southern Queensland.

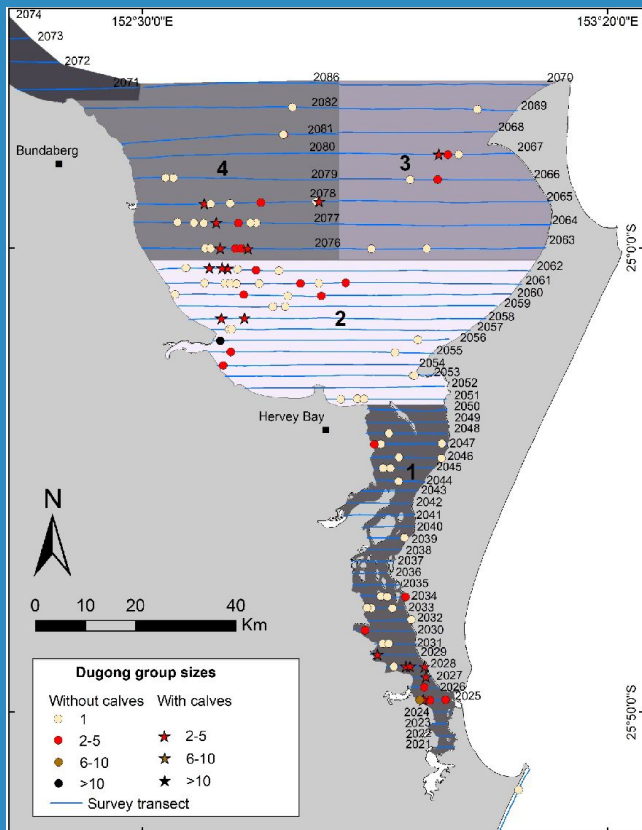


Figure 2 –Distribution of dugong sightings in Hervey Bay in 2016 based on the results of an aerial survey.

Criterion B: Distribution and Abundance

Sub-criterion B1: Small and Resident Populations

The Hervey Bay and Great Sandy Strait IMMA supports small resident populations of Australian humpback dolphins, displaying a strong site fidelity within the IMMA with 80% of the individuals identified during each season (Cagnazzi et al. 2011). Analysis of biopsy samples collected from Australian humpback dolphins in Hervey Bay and Great Sandy Strait suggested that this population is genetically isolated from nearby populations, and it is largely composed of resident individuals (Parra et al. 2018). Socio-sexual interactions and calves have been observed on multiple occasions for Australian humpback dolphins. This, together with the high residency patterns reported for this species indicate that these areas are important for mating, giving birth, and/or caring for young until weaning (Cagnazzi et al. 2011). In addition, this area includes many river mouths, large estuarine habitats and seagrass

meadows that promote the presence of fish and cephalopod prey for humpback dolphins to feed on (Parra and Jedensjö 2014).

Sub-Criterion B2: Aggregations

Hervey Bay is a major southbound stopover site and resting area for east Australian/ Breeding Stock E1 humpback whales returning to Antarctic waters from over-wintering in the vicinity of the Great Barrier Reef (Forestell et al. 2011). The upper part of Hervey Bay accommodates several hundred humpbacks at any time during given months, most of these being females with young calves who may reside in the bay for up to two weeks (Franklin et al., 2017).

Criterion C: Key Life Cycle Activities

Sub-criterion C1: Reproductive Areas

Several hundred dugongs have been seen in the IMMA on every aerial survey that has been conducted since the 1980s suggesting that there is a large resident population in the area. The proportions of dugongs that were classified as calves during these aerial surveys has fluctuated between 1.5% in 1994 and 22.1% in 1988 with 2016 in the mid-range at 13.1%. These proportions reflect changes in the status of seagrass in the area because dugongs postpone breeding when seagrass is scarce (see Preen and Marsh 1995; Fuentes et al. 2016; Sobztick et al. 2017). Dugongs have not been seen calving in the area but calving has rarely been seen anywhere (Marsh et al. 2011). Seddon et al. (2014) detected genetic differences between the Moreton Bay and Hervey Bay dugong populations, even though pedigree analysis (Cope et al. 2015) and satellite tracking (Zeh et al. 2016) indicates movement between these regions. Sheppard et al. (2006) also tracked dugongs moving between Hervey Bay and the Hinchinbrook to Round Hill Network IMMA. Collectively these analyses suggest that even though some dugongs move between Hervey Bay and other areas along the Queensland coast, they return to Hervey Bay to breed. During the humpback whale northern

migration, Hervey Bay is primarily visited by mature females and by mother and calves in the southern migration suggesting that this area is important for caring for young. Although humpback whales have not been seen calving in the area, it is likely that they do as calving is cryptic and the whales are known to calve along the migratory route as well as in the core breeding area (Franklin et al. 2017).

Sub-criterion C2: Feeding Areas

Dugongs are seagrass community specialists (Marsh et al. 2018) and the loss of more than 1000 km² of seagrass in the region in 1992 after two floods and a cyclone was associated with significant dugong mortality, decline in fecundity and temporary emigration of some animals from the area (Preen and Marsh 1995) demonstrating that Hervey Bay is an important dugong feeding area. Similar for humpback dolphins, mortality was also observed during cyclones and floods, indicating these inshore areas are critical for the survival of humpback dolphins (pers. comms D.Cagnazzi).

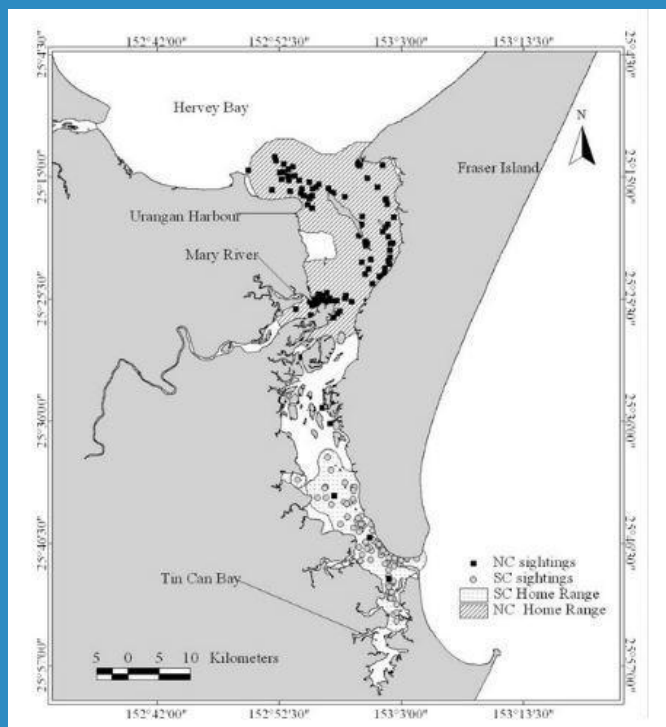


Figure 3 - Sightings of Australian humpback dolphins collected between 2008 and 2010 as reported in Cagnazzi et al (2011)

Supporting Information

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We would like to thank the participants of the 2020 IMMA Regional Expert Workshop for the identification of IMMAs in the Australia, New Zealand and South East Indian Ocean 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.

Suggested Citation: IUCN-MMPATF (2022). Hervey Bay and Great Sandy Strait IMMA Factsheet. IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force, 2022.

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