

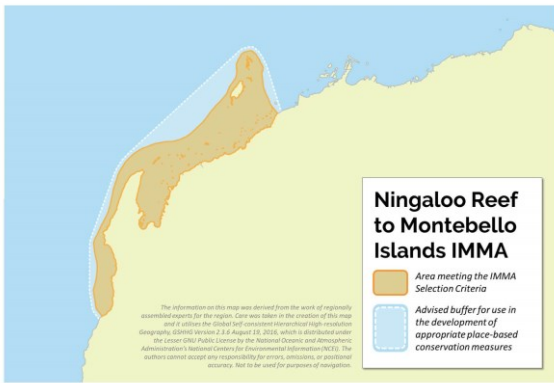
# Ningaloo Reef to Montebello Islands IMMA

## Description:

The Pilbara region of Western Australia encompasses a diverse array of marine habitats including coral reef, coastal islands, subterranean karst limestone waterways, extensive mangroves, seagrass beds, high intertidal cyanobacterial mats, macroalgae-dominated reef flats, intertidal sand flats, soft coral and sponge beds. This area has been recognized at a national and international level through designation of State and Commonwealth marine protected areas including Ningaloo Marine Park and Murion Islands Management Area, Barrow Island Marine Park and Montebello Islands Marine Park as well as the Ningaloo Coast World Heritage Area. Ningaloo reef is one of the world's longest fringing coral reefs and a biodiversity hotspot that includes resident populations of Australian humpback dolphins (*Sousa sahalensis*) (e.g. Hunt et al., 2017, Indo-Pacific bottlenose dolphins (*Tursiops aduncus*) (e.g. Haughey et al., 2020, Hanf et al. 2022) and dugongs (*Dugong dugon*) (e.g. Bayliss et al., 2018, Sobztik et al., 2014; Cleguer et al., 2021) and seasonally present humpback whales (*Megaptera novaeangliae*) (e.g. Chittleborough 1953, Jenner et al., 2001, Irvine et al., 2018). The sheltered waters of Exmouth Gulf are an



Figure 1 – Australian humpback dolphin in the Exmouth Gulf. Photo credit: Alexandra D'Cruz. Taken with a scientific permit whilst on survey with CEBEL from Flinders University.



## Area Size

18,437 km<sup>2</sup>

## Qualifying Species and Criteria

Dugong – *Dugong dugon*

Criterion A, B1, C2

Australian humpback dolphin – *Sousa sahalensis*

Criterion A, B1

Humpback whale – *Megaptera novaeangliae*

Criterion C1

## Other Marine Mammal Species Documented

*Balaenoptera acutorostrata*, *Balaenoptera musculus*,

*Balaenoptera omurai*, *Balaenoptera physalus*,

*Eubalaena australis*, *Orcaella heinsohni*, *Orcinus orca*,

*Pseudorca crassidens*, *Tursiops aduncus*

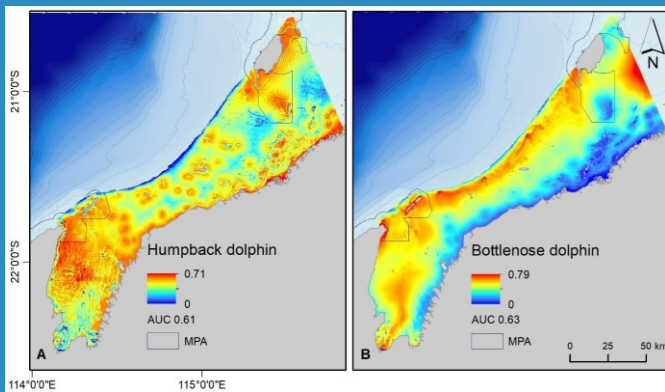


Figure 2 – Relative habitat suitability for Australian humpback and Indo-Pacific bottlenose dolphins across the western Pilbara, informed by aerial surveys conducted in 2012 (May, July, October and December), 2013, 2014 and 2015 (July and October each subsequent year) (Hanf et al., 2022).

important feeding and nursing/calving habitat for Australian humpback dolphin, dugongs, and Indo-Pacific bottlenose dolphins as well as an important nursery for humpback whales.

Key habitat prevalent throughout the region, from coastal waters out to nearshore islands, includes sand flats, seagrass beds, sponge gardens and coral communities. A large variety of marine mammal species have been recorded in this area, some seen regularly such as dolphins and dugongs while others are present seasonally such as minke whales, blue whales, false killer whales. Killer whales follow migrating humpback whales (Pitman et al., 2015), and southern right whales, present in very low numbers during their annual migration. Still others are sighted more opportunistically including Omura's whales (Ottewell et al., 2016, Cerchio et al., 2019) and snubfin dolphins (Allen et al., 2012).

The boundary for the IMMA follows the 100m bathymetry contour and aligns with existing marine protected area boundaries for the Commonwealth Ningaloo and Montebello Islands Marine Parks and the Ningaloo World Heritage Area.

## Criterion A – Species or Population Vulnerability

Dugongs and Australian humpback dolphins are both listed as Vulnerable by the IUCN and are resident in

the IMMA (Hunt 2018, Hunt et al., 2017, Allen et al., 2012, Hodgson 2007, Sobotzick et al., 2014, Bayliss et al., 2018, Marsh and Sobotzick, 2019). Furthermore, this area has been recognized at a national and international level through designation of State and Commonwealth marine protected areas including Ningaloo Marine Park and Murion Islands Management Area, Barrow Island Marine Park and Montebello Islands Marine Park as well as the Ningaloo Coast World Heritage Area.

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

The coastal waters of the North West Cape and Exmouth Gulf support resident populations of Vulnerable Australian humpback dolphins and Near Threatened Indo-Pacific bottlenose dolphins (Raudino et al., 2022; Sprogis and Parra, 2022; Raudino et al., 2023). Australian humpback dolphins inhabit the area with the highest density recorded for this species around North West Cape, with a population size estimated at 129 individuals within a 130 km<sup>2</sup> area (Hunt et al., 2017). Haughey et al. (2020) estimated a resident population of 141 (95% CI 121-161) Indo-Pacific bottlenose dolphins at the North West Cape, highlighting the importance of these coastal waters. Resident populations have also been recorded along the Pilbara coast and islands (Hanf et al., 2022, Raudino et al., 2018a) though no abundance



Figure 3 – Bottlenose dolphin with seaweed in mouth in the Exmouth Gulf. Photo credit: Alexandra D'Cruz. Taken with a scientific permit whilst on survey for CEBEL at Flinders University.

estimates have been made. There are early indications that the dolphins inhabiting island habitat may be geographically separate from the mainland coastal population (Raudino et al., 2018b). In particular, high levels of female residency of humpback dolphins (Hunt et al., 2019) suggest that these waters are important for breeding and nursing for this species and dolphin calves were sighted during this study (Hunt, 2017). Exmouth Gulf also contains a significant population of Vulnerable dugongs with estimates fluctuating over the years; 1062 ( $\pm 321$ ) individuals in 1989, 95 ( $\pm 62$ ) individuals in 2000, 1411 ( $\pm 561$ ) in 2007 and 4,599 (1,959) in 2018 (Preen et al., 1997, Prince 2001, Hodgson 2007, RPS 2010, Bayliss et al., 2019). Variation in dugong abundance and use of the Exmouth Gulf likely fluctuates in response to seagrass habitat with seagrass loss following tropical cyclones and marine heatwaves leading to movement of dugongs out of the Gulf and into areas where seagrass habitat is present (Bayliss et al., 2019, Gales et al., 2004). Aerial surveys of dugongs between 1989 and 2018 consistently identify the nearshore eastern waters of the Gulf as critical feeding and nursing habitat (Preen et al., 1997, Bayliss et al., 2019). Local-scale drone surveys coupled with in-situ assessments of the benthic habitat have shown that seagrass, particularly *Halophila* and *Halodule* species, are significant factors influencing dugong presence in south-eastern Exmouth Gulf (Christophe Cleguer pers comm).

## **Criterion C: Key Life Cycle Activities**

### **Sub-criterion C1: Reproductive Areas**

The sheltered waters of Exmouth Gulf have been suggested to have contributed to the recovery of the Breeding Stock D humpback whale population. The Gulf is the largest known resting area for this population, based on information initially from 1950's whaling data (Chittleborough, 1953) and more recently from boat-based and aerial surveys that

report resting behaviour occurring during the southern migration (Jenner et al., 2001, Jenner and Jenner, 2005, Braithwaite et al., 2012, Irvine and Salgado Kent, 2019), where adult females and calves have been recorded in the Gulf from several days up to 3 weeks (Jenner & Jenner, 2005). In addition, the area represents a southward extension of the breeding grounds for calving and mating (Irvine et al., 2018).

### **Sub-criterion C2: Feeding Areas**

The seagrass habitat of Exmouth Gulf is an important feeding ground for dugongs. Aerial surveys of dugongs between 1989 and 2018 consistently identify the nearshore eastern waters of the Gulf, Pilbara coastal waters and nearshore Pilbara islands as critical feeding and nursing habitat (Sobztick et al., 2014, RPS 2010).

Local-scale drone surveys coupled with in-situ assessments of the benthic habitat have shown that seagrass species such as *Halophila* and *Halodule* are good predictors of dugong presence and abundance in the south-east Gulf (Christophe Cleguer pers. comm.). Variation in dugong abundance and use of Exmouth Gulf and the broader Pilbara Region is likely a result of the seagrass loss following tropical cyclones and marine heatwaves and movement of dugongs to areas supporting seagrass (Gales et al., 2004, Sobztick et al., 2014). Safeguarding the seagrass in the Gulf will protect a feeding ground and allow dugongs to migrate from alternative feeding grounds when required.

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