

# Gulf of Kutch IMMA

## Description

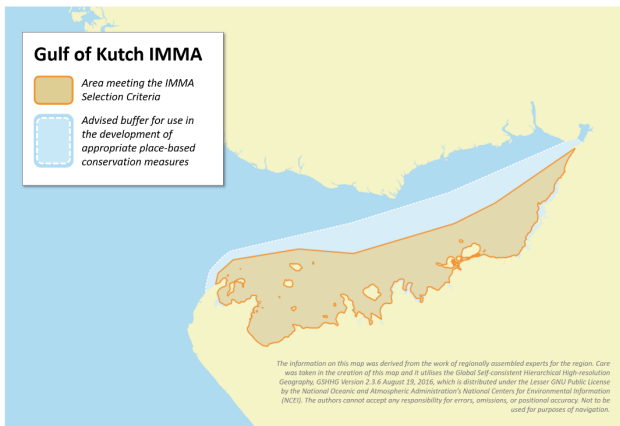
The Gulf of Kutch Marine National Park and Marine Sanctuary (22°39'N, 69°38'E), off the coast of Gujarat State on the western coast of India, has the largest area of coastal wetlands of all maritime states in India. It has a marine protected area of 457 km<sup>2</sup> which extends along approximately 200 km of coastline. It lies in a dry tropical zone and includes sandy, muddy, and rocky shores. The coastal topography is highly irregular, with islands, creeks, bays, seagrass beds, and reefs. During the monsoons, some of the major rivers, such as the Ghi, Sinhan, and Sasoi Rivers, reach the marsh and mudflats. The water depth across the Gulf varies from 5–60m, with the average being 30 m. Tidal fluctuations vary, with a maximum amplitude of 6 m. Water temperature averages 26° C, while salinity is about 37 ppt. Even though the region has been declared a marine protected area, the coastline is marked with three large shipping ports and at least six major industrial areas.

## Criterion A: Species or Population Vulnerability

Dugongs are listed as globally Vulnerable and Indian Ocean humpback dolphins are globally Endangered on the IUCN Red List . The population sizes are probably very low (in the twenties for dugongs and fewer than 100 for Indian Ocean humpback dolphins). Two dugongs, stranded on Ajad island and Positra Bay in 2018-19, likely died due to fishing net entanglement (Pathan Sameeha, pers. comm.). Fishing entanglement, vessel traffic, habitat fragmentation and degradation due to anchoring, docking, and dredging are the major threats to dugongs and cetaceans in this IMMA (Sivakumar and Nair, 2013; Sutaria and Jefferson 2004; MMRCNI, 2019).

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

In the Gulf of Kutch line transect survey of 2002 (Sutaria and Jefferson 2004), 21 groups of *S. plumbea*



**Area Size**  
2,677 km<sup>2</sup>

## Qualifying Species and Criteria

Dugong – *Dugong dugon*

Criteria A, B1, C2

Indian Ocean humpback dolphin – *Sousa plumbea*

Criterion A

## Marine Mammal Diversity

*Dugong dugon*, *Neophocaena phocaenoides*,  
*Sousa plumbea*

## Summary

The Gulf of Kutch Marine Protected area is home to small and declining populations of dugongs (*Dugong dugon*), Indian Ocean humpback dolphins (*Sousa plumbea*) and finless porpoises (*Neophocaena phocaenoides*). While very few dedicated cetacean studies have been carried out to cover the entire IMMA, the seagrass beds and dugong populations have been assessed intensely since 2012. Dugong grazing trails and recent sightings and stranding events have been documented in this area, where seagrass beds are under constant pressure from industrial growth along the coast. Dugongs were locally hunted in the past, though this has now stopped, however, fisheries entanglement is still a serious threat. Scattered groups of Indian Ocean humpback dolphins are present in the IMMA throughout the year; calves have been documented; and stranding events of both Indian Ocean humpback dolphins and finless porpoises have been reported in the area.



Figure 1: Examples of dugong grazing trails in the Gulf of Kutch. Photos: Sameeha Pathan

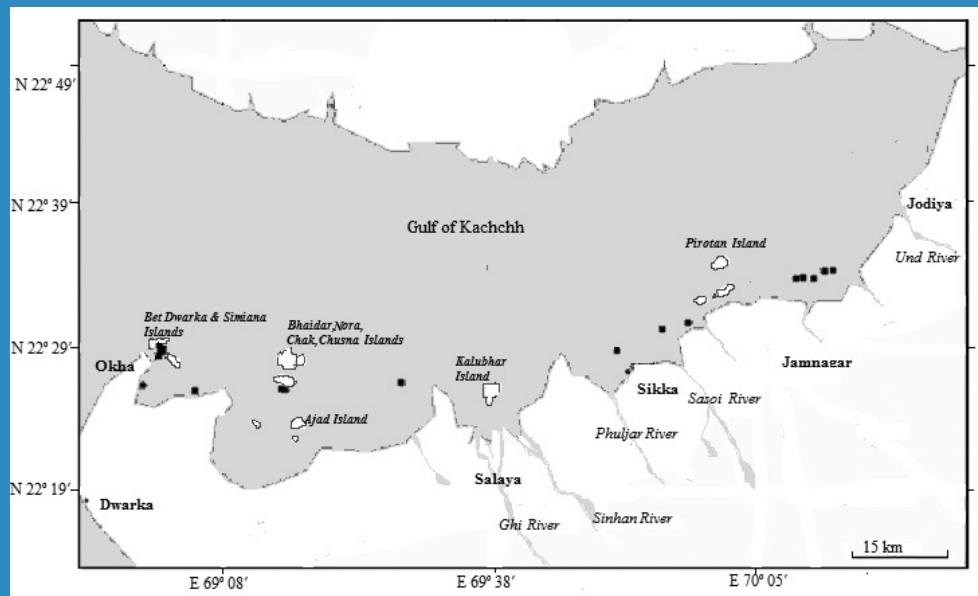


Figure 2: Distribution of *Sousa plumbea* in the Gulf of Kutch from systematic surveys carried out in 2002 (From: Sutaria and Jefferson, 2004)

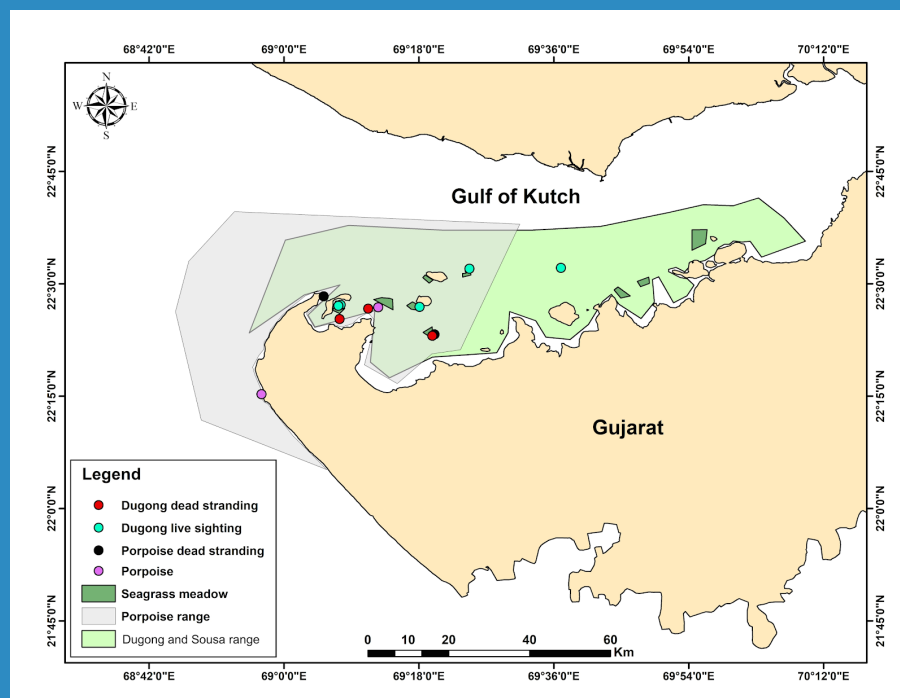


Figure 3: A map showing sea grass beds, probable dugong range, Indian Ocean Humpback dolphin range and finless porpoise range in the Gulf of Kutch (From: Sameeha Pathan, 2019, unpublished data).

were sighted during a search effort of 570 km. This gives a very low sighting rate of 0.037 groups/km. A total of 15 groups were sighted along the coast, and six groups were sighted around the islands with an estimate of fewer than 80 animals. Since then, no other systematic survey of the Gulf for *Sousa* has been carried out. Dugong populations as stated above are small, declining and resident in the Gulf of Kutch. Quantitative data on the size of the dugong population is not available but interview-based surveys conducted by the GEER Foundation suggested that 10 to 15 dugongs might still be using the Gulf of Kutch. Local extirpation of the dugong population is very likely in the near future if their habitat is not protected and entanglement in fishing gear is not mitigated.

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

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

The IMMA is recognized as a 'Critical Dugong Habitat' in Gujarat. Grazing trails have been observed or documented in six seagrass beds showing that the area is a particularly important feeding habitat for the small remaining population of dugongs in the region. All of the foraging grounds have young stands of *Halophila* and *Halodule* sp. of seagrasses growing.

## **Supporting Information**

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Apte, D., D. Parasharya & B. Patel. 2019. Feeding trails of Dugong *Dugong dugon* (Müller, 1776) (Mammalia: Sirenia: Dugongidae) in the Gulf of Kachchh, western coast of India. *Journal of Threatened Taxa* 11(1): 13151–13154; <https://doi.org/10.11609/jott.4315.11.1.13151-13154>

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Sutaria, D., Panicker, D., Jog, K., Sule, M., Muralidharan, R., and Bopardikar, I. 2015. Humpback Dolphins (Genus *Sousa*) in India: An Overview of Status and Conservation Issues. In 'Conservation status of Humpback Dolphins (*Sousa* spp.)'. T.A. Jefferson and B.E. Curry (Ed.) *Advances in Marine Biology Series*. Vol. 72. Elsevier/Academic Press.

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Sutaria, D., and Jefferson, T. A. 2004. Records of Indo-Pacific Humpback Dolphin (*Sousa chinensis* Osbeck, 1765) along the coast of India and Sri Lanka – An Overview. *Aquatic Mammals Special Issue* 30(1) 125-136

MMRCNI 2019. Database on *Sousa plumbea* and *Neophocaena phocaenoides* from Gujarat: [www.marinemammals.in](http://www.marinemammals.in)

## Acknowledgements

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**MARINE MAMMAL  
PROTECTED AREAS  
TASK FORCE**

**IMMA**

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