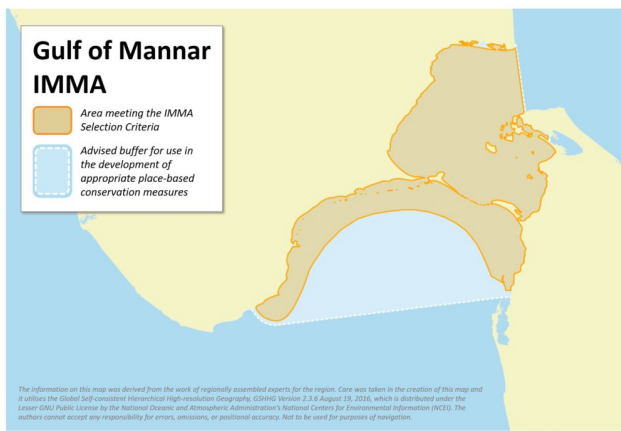


Gulf of Mannar and Palk Bay IMMA

Description

The Gulf of Mannar and Palk Bay IMMA is a transboundary area between India and Sri Lanka and is an area of high marine biodiversity including marine mammals (Choudhary and Sivakumar, 2009). The government of India has declared a part of this region as a UNESCO Biosphere Reserve and Marine National Park covering an area of 10500 sq.km and 540 sq.km respectively while Sri Lanka has a much smaller protected area, the Bar Reef Marine Sanctuary off its northwest coast. Both Palk bay and Gulf of Mannar are intensely fished by gill-netters, purse seiners and trawlers (Balaji, 2017).

This IMMA has an isolated and small dugong population with ~300 sq.km of seagrass beds that are important habitat for dugongs and sea turtles (Marsh, 1989; Marsh et al., 2002; Ilangakoon et al., 2007; Pande et al., 2010; Sivakumar and Nair, 2013; Balaji, 2017). Marsh (1989) based on the data of Silas and Fernando 1985 indicated that 250 dugongs were illegally caught and butchered at the Indian villages of Kilakarei and Peripattinum alone between April 1983 and August 1984. In Sri Lanka there was an organized dugong fishery as late as the 1950's and in the district of Mannar alone, fishers captured 265 dugongs in the 1958/1959 season (Norris, 1960). This is a clear indication that the Gulf of Mannar once had a much larger population of dugongs but the species is now threatened with local extirpation due to multiple anthropogenic threats. Though now legally protected in both countries resulting in reduced directed takes, illegal hunting still takes place to a certain extent. Meanwhile habitat destruction through destructive fishing methods and development activities still pose major threats in both countries



Area Size

20 663 km²

Qualifying Species and Criteria

Dugong – *Dugong dugon*

Criterion A; B (1); C (2)

Summary

The Gulf of Mannar and Palk Bay form a transboundary area within the waters off India and Sri Lanka. A remnant but still breeding population of dugongs (*Dugong dugon*) is found in this area, and large seagrass meadows occur within the IMMA. Historically the region harbored a much larger population of dugongs, but it is now small and likely to be vulnerable to declines. Fishery entanglements and historical hunting pressure for consumption have greatly diminished this population and it may be facing local extirpation. Interview surveys, seagrass bed surveys and boat-based surveys have been used to monitor this population. Both India and Sri Lanka have taken up dugong species recovery programs in their respective areas, with the highest level of legal protection offered in both countries.

(Ilangakoon et al., 2008; Ilangakoon, 2011; Balaji, 2017).

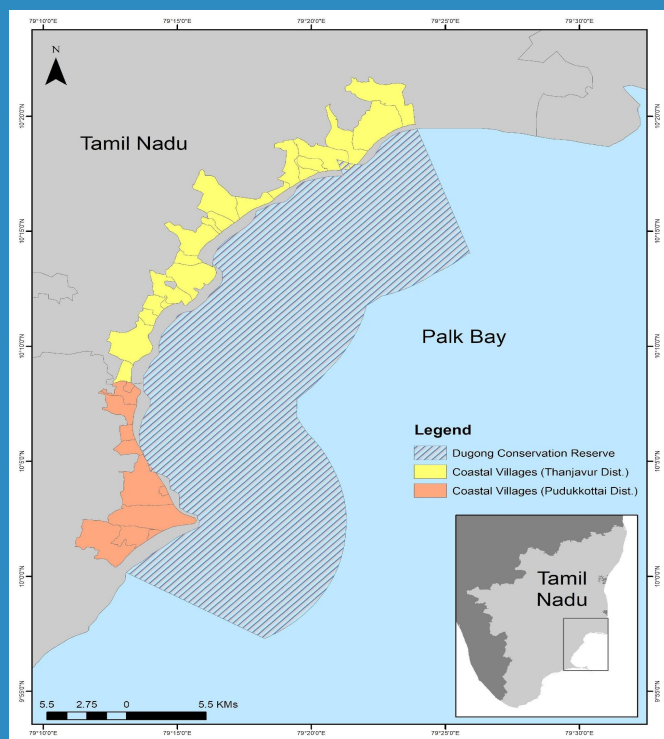


Figure 1: Dugong conservation reserve area map notified in 2021. Photo: Wildlife Institute of India

Palk Bay has reported more dugongs than the Gulf of Mannar, perhaps because the sea grass beds in Palk Bay have a wider distribution and diversity (Marsh, 2002; Sivakumar and Nair, 2013). In 2016, one dugong carcass was reported from Palk Bay and in 2017 three dugong carcasses were reported (www.marinemammals.in). In February 2017, three dugongs that were incidentally captured in fishing nets were rescued and released back to the sea in this region (Wildlife Institute of India Pers Comm, 2017).

Although dugongs, dolphins, porpoises and whales strand in Palk Bay, very few systematic surveys have been carried out in this region (Sutaria et al., 2015; Sutaria et al., 2017; Rahul Muralidharan, Pers Comm.). A boat survey with participation of local fishermen was carried out in February and March 2018 but no dugongs were sighted.

Cetacean sighting surveys, stranding surveys and bycatch studies in northwest Sri Lanka (Whitehead, 1985; Dayaratne and Joseph, 1993; Ilangakoon, 2006a, 2006b; Ilangakoon, 2008) and sighting records, stranding records, and interview surveys in India have revealed that at least 15 species of cetaceans use deeper water outside the IMMA area. These include at least three species of baleen whales (Bryde's whale, Blue whale and Humpback whale) and sperm whales other than small and medium-sized dolphins (listed in Section 15) (Alling, 1986; Pillai and Kasinathan, 1987; James and Mohan, 1987; Ilangakoon, 1997; Ilangakoon, 2006; Ilangakoon, 2008; Sathasivam, 2000; Sutaria et al., 2015; Sutaria et al., 2017; Rahul Muralidharan, Pers Comm).

Criterion A: Species or Population Vulnerability

The dugong is listed as Vulnerable on the IUCN Red List and its conservation status in South Asia is critical with no more than 300 individuals left. As a result the population in the Gulf of Mannar and Palk Bay is very important for the long-term survival of dugongs in South Asia (Marsh et al., 2002; Pandey et al., 2010; Sivakumar and Nair, 2013; Balaji, 2017). Although both the Government of India and the Government of Sri Lanka have legally protected dugongs, they still face multiple threats throughout this region and the IMMA.

Criterion B: Distribution and Abundance

Sub-criterion B1: Small and Resident Populations

The Gulf of Mannar and Palk Bay region holds a very small, resident and isolated population of dugongs, the population brought down to its present size mainly from hunting pressure in both countries. Population size is unknown but sightings are very rare. It is the only population along the east coast of India, and the only population throughout Sri Lanka's

waters. The loss of this population could make the species extinct from the east coast of India and from Sri Lanka. The dugong population here is likely to be resident year-round, solitary individuals make up 60% of the observations reported, and pregnant females have also been reported. A total of 409 interviews were carried out in the Gulf of Mannar and Palk Bay (Sivakumar and Nair, 2013), of which 70% of respondents had sighted dugongs in the Gulf of Mannar and 57% of respondents in Palk Bay. A total of 262 (158 in Gulf of Mannar and 104 in Palk Bay) dugong encounters were reported. Of these 29% and 16% were of mother-calf pairs in the Gulf of Mannar and Palk Bay, respectively (Sivakumar and Nair, 2013), and dugong calves have been reported as stranded in this region (www.marinemammals.in).



Figure 2: The rescue and release of an adult Dugong from fishing gear in Palk Bay, India. Photo: Wildlife Institute of India

Criterion C: Key Life Cycle Activities

Sub-Criterion C2: Feeding Areas

The Gulf of Mannar and Palk Bay support dense seagrass meadows, mainly in nearshore coastal waters (Balaji, 2017). Around the islands in the Gulf of

Mannar the seagrass beds extend approximately 2-3 km from the coastline towards the open sea. Dugong grazing trails have been observed in Palk Bay with seagrass patches extending to a depth of 18 m (Balaji, 2017).

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