

Northern Rio de Janeiro IMMA

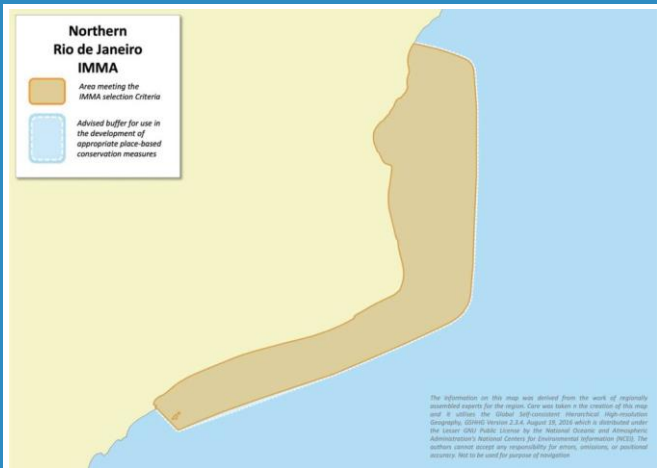
Summary, continued.

(*Eubalaena australis*).

Description:

The northern coast of Rio de Janeiro State, Brazil encompasses the range of a small and isolated population of the franciscana dolphin (*Pontoporia blainvillei*) (Siciliano et al., 2000; Cunha et al., 2014; Amaral et al., 2018). This area is known as Franciscana Management Area Ib (*sensu* Secchi et al., 2003; Cunha et al., 2014) and comprises only 170 km of coastline between Macaé (22.37° S; 41.76° W) and Itabapoana (21.34° S; 40.95° W). Two distributional gaps of 180 and 290 km with no known historical or recent records exist between the limits of FMA Ib and the next northern and southern franciscana populations (FMA Ia and FMA IIa), respectively (Siciliano et al., 2002; Amaral et al., 2018; Danilewicz et al., 2020).

The region is characterized by three water masses: the salty and oligotrophic Tropical Water (TW) in the upper mixing layer (200 m) of the Brazilian Current, the cold and nutrient-rich South Atlantic Central Water (SACW) flowing below the TW, and the Coastal Water (CW), low-salinity water resulting from the mixing of fresh water from small to medium-sized estuaries along the coast (Campos et al., 2000; Silveira et al., 2000). The ocean off Cape São Tomé (an important geographic feature in this IMMA) is known to feature transient coastal upwelling and intense mesoscale activity associated with the Brazil Current (Paloczky et al., 2014). The coastal upwelling off Cape São Tomé has great relevance to ocean productivity and, therefore, to the local megafauna.



Area Size

3 910 km²

Qualifying Species and Criteria

Franciscana dolphin – *Pontoporia blainvillei*

Criterion A; B (1); D (1)

Summary

This IMMA encompasses the range of an isolated and small population of the threatened franciscana dolphins (*Pontoporia blainvillei*) off the northern coast of Rio de Janeiro State, Brazil. The population is estimated at approximately 1,200 individuals (CV=43), and currently bycatch mortality is higher than the Potential Biological Removal level. This franciscana population is among the smallest and one of those with the most restricted distribution. Feeding and reproductive behaviour of franciscana dolphins have been consistently recorded in this area. The coastal upwelling off Cape São Tomé has great relevance to ocean productivity and, therefore, to the local megafauna. Multiple records of other cetacean species such as Guiana dolphins (*Sotalia guianensis*), rough-toothed dolphins (*Steno bredanensis*), and common bottlenose dolphins (*Tursiops truncatus*) have been documented, as well as the seasonal occurrence of baleen whales such as humpback whales (*Megaptera novaeangliae*) and right whales

Port construction and dredging have been matters of concern for marine conservation in this area (e.g. Goldberg et al., 2015). A joint Inter Ministerial Regulation (INI 12/2012) was issued in 2012 and does not allow gillnetting in waters off the Jutubatiba National Park up to a maximum distance of 15 nautical miles from shore (Ott et al., 2022), an area that partially overlaps this IMMA.

Criterion A: Species or Population Vulnerability

The franciscana is endemic to coastal waters from Brazil to Argentina. The species is currently listed as “Vulnerable” in the IUCN Red List of Threatened Species (Zerbini et al., 2017) and “Critically Endangered” nationally in Brazil (MMA/ICMBio 2022). The Potential Biological Removal level for the population in Franciscana Management Area (FMA) 1b was set as 2 or 8 individuals (depending on the Recovery Factor applied). This is interpreted as indicating that the current level of human-induced annual mortality (IBJ, 2020) risks further depleting this isolated dolphin population (Danilewicz et al., 2020).

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

Multiple lines of evidence suggest that the franciscana population inhabiting this area is geographically and demographically isolated and resident (Secchi et al., 2022). Abundance, corrected to account for visibility and group size bias, was estimated at 1,280 franciscanas in 2017 (CV=0.43, 95% CI: 566-2,445) (Danilewicz et al., 2020). Aerial surveys indicate that franciscanas range to maximum distance from the coast of only 16 and 28 km south and north of Cape São Tomé, respectively, result in an estimated area of occurrence of 4,000km². Because of the isolation and year-round residency,

the entire reproductive cycle of FMA 1b franciscanas occurs within the IMMA (Di Benedetto & Ramos, 2001; Danilewicz et al., 2022). The dolphins also feed within the IMMA (Di Benedetto & Ramos, 2001; Bittar & Di Benedetto, 2009).

Criterion D: Special Attributes Sub-criterion D1: Distinctiveness

Based on the available mitochondrial and nuclear DNA data related to stock structure across the range of the franciscana, Cunha et al. (2020) proposed the existence of 11 Franciscana Management Areas (FMAs). These areas have been recognized as appropriate units for assessment and conservation of the species by the International Whaling Commission (IWC *in press*). The northern coast of Rio de Janeiro corresponds to the range of a geographically, demographically, and genetically isolated population distinct from all the others (Siciliano et al., 2002; Danilewicz et al., 2020; Cunha et al., 2014; Nara et al., 2022). Moreover, the FMA1a and 1b dolphins together are considered to comprise an Evolutionarily Significant Unit (Cunha et al., 2014).

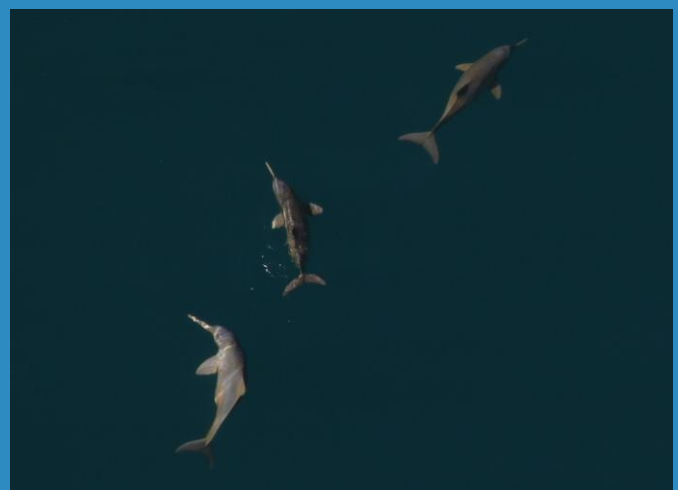


Figure 1: Franciscana dolphins (*Pontoporia blainvillei*).
Photo credit: Daniel Danilewicz

Supporting Information

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