





Blue lines indicate the area meeting the ISRA Criteria; dashed lines indicate the suggested buffer for use in the development of appropriate place-based conservation measures

#### **BERTIOGA ISRA**

#### South American Atlantic Region

#### SUMMARY

Bertioga is located in São Paulo, southeastern Brazil. The area is characterised by sandy substrates and mangroves. It is partially influenced by the estuarine system of the Bertioga Channel which is adjacent to this area. Within this area there are: **threatened species** (e.g., Scalloped Hammerhead Sphyrna lewini) and **reproductive areas** (e.g., American Cownose Ray *Rhinoptera bonasus*).



#### CRITERIA

Criterion A - Vulnerability; Sub-criterion C1 - Reproductive Areas

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## DESCRIPTION OF HABITAT

Bertioga is located in São Paulo State, southeastern Brazil. The area is primarily characterised by sandy and rocky substrates (Soares et al. 2021). This area also includes mangroves near the opening of the Bertioga Channel, near Bertioga Bar (Eichler et al. 2006). It is partially influenced by the estuarine system of the Bertioga Channel which is adjacent to this area. This can create a tidal-dependant influx of freshwater into the area (Eichler et al. 2006). This area is influenced by the rainy season which runs between October and April.

This Important Shark and Ray Area is benthic and pelagic and delineated from inshore and surface waters (0 m) to 6 m based on the bathymetry of the area.

### **ISRA CRITERIA**

#### **CRITERION A - VULNERABILITY**

Two Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occur in the area. These are the Critically Endangered Scalloped Hammerhead (Rigby et al. 2019) and the Vulnerable American Cownose Ray (Carlson et al. 2020).

## SUB-CRITERION C1 - REPRODUCTIVE AREAS

This is an important reproductive area for one shark and two ray species.

Between November 2015 and January 2023, 79 Scalloped Hammerheads were recorded during beach trawl research surveys (Rodrigues 2024). Scalloped Hammerhead size data are available between 2018-2023 (from 503 fishing days, undertaken at depths between 3-6 m). All individuals were considered neonates/young-of-the-year (YOY), measuring 46-60 cm total length (TL) (Rodrigues 2024). The size-at-birth for this species is 42-55 cm TL (Ebert et al. 2021). The presence of Scalloped Hammerheads in this area may be seasonal, with catches peaking in austral spring (catch-per-unit-effort [CPUE] = 0.31) and summer [CPUE = 0.16]). These 79 individuals comprised ~91% of the sharks recorded during the surveys (Rangel et al. 2018) and the entire known catch of the species in the area. This area has national importance for this species as it is one of the only known locations with regular and predictable presence of neonate/YOY Scalloped Hammerheads.

For American Cownose Ray, 214 individuals were recorded during beach trawl surveys undertaken between November 2015 and January 2023. Of these, 107 (50%) were neonates/YOY, measuring <52 cm disc width (DW) (Rodrigues 2024). The known size-at-birth for this species is 38–48 cm DW (Last et al. 2016). American Cownose Rays were also recorded in surveys of incidental catch of beach seine fisheries operating in the area, undertaken between November 2015 and May 2017 (Rodrigues 2024). Of the 113 American Cownose Rays measured in these surveys, 50 were neonates/YOY, measuring <56 cm DW (Rangel et al. 2018). This included five individuals with visible umbilical scars. The importance of this area for reproduction is seasonal, with records of American Cownose Ray neonates/YOY only being reported in late spring and summer months.



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# QUALIFYING SPECIES

Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met								
		87		Α	В	Cı	C2	C3	C4	C5	Dı	D2
SHARKS												
Sphyrna lewini	Scalloped Hammerhead	CR	0-1,043	Х		Х						
RAYS												
Rhinoptera bonasus	American Cownose Ray	VU	0-60	Х		Х						

## SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category							
RAYS									
Aetobatus narinari	Whitespotted Eagle Ray	EN							
Gymnura altavela	Spiny Butterfly Ray	EN							
Hypanus guttatus	Longnose Stingray	NT							
Pseudobatos horkelii	Brazilian Guitarfish	CR							
Pseudobatos percellens	Chola Guitarfish	EN							
Rhinoptera brasiliensis	Brazilian Cownose Ray	VU							

IUCN Red List of Threatened Species Categories are available by searching species names at <u>www.iucnredlist.org</u> Abbreviations refer to: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient.



### SUPPORTING INFORMATION



There are additional indications that this area may be an important reproductive area for one ray species.

Between November 2015 and January 2023, 37 Brazilian Cownose Rays measuring 35.5–58.5 cm DW were recorded during beach trawl surveys. Half of these were neonates/YOY, measuring <49 cm DW (Rodrigues 2024). The size-at-birth for this species is 38–48 cm DW (Last et al. 2016). Brazilian Cownose Rays were also recorded in surveys of incidental catch from beach seine fisheries operating in the area, undertaken between November 2015 and May 2017 (Rangel et al. 2018). Of the 15 Brazilian Cownose Rays measured, seven were neonates/YOY, measuring <51 cm DW (Rangel et al. 2018). This included one individual with a visible umbilical scar. The potential importance of this area for reproduction may be seasonal, with records of Brazilian Cownose Ray neonates/YOY only being reported in late spring and summer months.

American Cownose Ray and the Brazilian Cownose Ray are sympatric - their ranges overlap in this area. There are additional genus-level reports including aggregations of up to 55 individuals (including neonates and YOY) from this area. The average reported aggregation size was  $34 \pm 12$  individuals (Rangel et al. 2018).

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