

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

TRIBUGÁ GULF ISRA

Central and South American Pacific Region

SUMMARY

Tribugá Gulf is located on the northern Colombian Pacific coast. It overlaps with the Golfo de Tribugá-Cabo Corrientes Marine Protected Area (MPA) and is located between the Utría MPA and the Ecanto de Manglares del Bajo Baudó MPA. The area is characterised by sandy beaches and rocky formations with patches of mangrove forest. The continental shelf is relatively narrow with a rapid decline to 200–300 m close to shore (~3 km). Within this area there are: **threatened species** (e.g., Largetooth Sawfish *Pristis pristis*); **reproductive areas** (e.g., Pacific Smalltail Shark *Carcharhinus cerdale*); **feeding areas** (Whale Shark *Rhincodon typus*); areas important for **movement** (Scalloped Hammerhead *Sphyrna lewini*); and the area sustains a **high diversity of sharks** (22 species).

CRITERIA

Criterion A - Vulnerability; Sub-criterion C1 - Reproductive Areas; Sub-criterion C2 - Feeding Areas; Sub-criterion C4 - Movement; Sub-criterion D2 - Diversity

— —
COLOMBIA
 — —
0-300 metres
 — —
1,410.5 km²
 — —





DESCRIPTION OF HABITAT

Tribugá Gulf is located on the northern Colombian Pacific coast in the Chocó Department. Situated within the Pacific Central-American Large Marine Ecosystem, the area overlaps with the Golfo de Tribugá-Cabo Corrientes Marine Protected Area (MPA) and is located between the Utría MPA and the Ecanto de Manglares del Bajo Baudó MPA. It is characterised by rocky coastlines with cliffs, mangrove forests, sedimentary coastlines (sandy, muddy, and rocky beaches), pelagic environments, as well as many inlets and estuaries (ANLA 2020). The benthos is mainly soft with the presence of some coral reefs. The sea surface temperature is relatively warm between 27–30°C with medium-low salinities due to terrestrial freshwater input. The continental shelf in this part of the Pacific coast is relatively narrow with a rapid decline to 200–300 m close to shore (~3 km) (INVEMAR 2009; ANLA 2020) and then dropping to 2,367 m offshore of the area.

This Important Shark and Ray Area is delineated from surface and inshore waters (0 m) to a depth of 300 m based on the depth range of Qualifying Species in the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

Nineteen Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species™ regularly occur in the area. Threatened sharks comprise four Critically Endangered species, three Endangered species, and four Vulnerable species; threatened rays comprise one Critically Endangered species, one Endangered species, and six Vulnerable species (IUCN 2022).

The Red Book of Marine Fishes of Colombia (Chasqui et al. 2017) does not provide assessments for all Qualifying Species occurring in the area, hence a lower number of species are considered threatened. However, eight Qualifying Species considered threatened with extinction according to the Red Book of Marine Fishes of Colombia regularly occur in the area. Threatened sharks comprise five Vulnerable species; threatened rays comprise one Critically Endangered species and two Vulnerable species.

Two of the Vulnerable sharks according to the Red Book of Marine Fishes of Colombia are globally Least Concern on the IUCN Red List. Therefore, a total of 21 Qualifying Species considered threatened with extinction according to the IUCN Red List and/or the Red Book of Marine Fishes of Colombia regularly occur in the area.

SUB-CRITERION C₁ – REPRODUCTIVE AREAS

Tribugá Gulf is an important reproductive area for nine shark and five ray species. Studies and monitoring carried out since 2008 show that the following species undertake reproductive activities in the area: Pacific Eagle Ray, Pacific Smalltail Shark, Blacktip Shark, Bull Shark, Mazatlán Butterfly Ray, Longtail Stingray, Brown Smoothhound, Sicklefin Smoothhound, Cortez Numbfish, Whitesnout Guitarfish, Pacific Sharpnose Shark, Scalloped Bonnethead, Scalloped Hammerhead, and Bonnethead Shark. Evidence of this originates from monitoring and research documenting gravid females or neonates of each of these species in the area (Navia et al. 2009, 2012, 2013, 2020; Villate et al. 2022; Fundación Malpelo unpubl. data 2022; Squalus Fundación unpubl. data 2022). For example, Brown Smoothhound presented proportions of mature individuals above 50% throughout the year, with neonates and gravid females with near-term embryos recorded in the second half of



the year with an average fecundity of five offspring per uterus (Navia et al. 2020). For Longtail Stingray, neonates and gravid females with near-term embryos were concentrated between January and June (Navia et al. 2020).

Different stages of juvenile Scalloped Hammerheads (from neonates) can be found in the area (Villate et al. 2022). Neonates (<70 cm total length) aggregate in the northern zone, mainly in July and August (Bessudo et al. 2018; Fundación Malpelo unpubl. data 2022). Gravid female Scalloped Hammerheads arrive from oceanic environments to give birth in the coastal waters of Colombia including Tribugá Gulf (Quintanilla et al. 2015).

SUB-CRITERION C2 - FEEDING AREAS

Tribugá Gulf is an important feeding area for one shark species. Juvenile Whale Shark have been observed aggregating to feed in the area between February and May every year (Melany Villate pers. obs. 2022; Fundación MarAdentro unpubl. data 2022). Whale Sharks were observed to feed on sardines and other small fishes and are usually associated with aggregations of small-sized tuna. Fishers in the area have also observed feeding aggregations of up to 10 Whale Sharks (Fundación MarAdentro unpubl. data 2022).

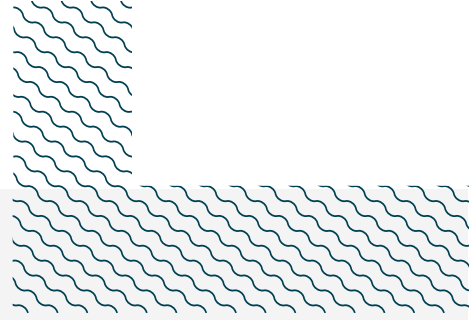
SUB-CRITERION C4 - MOVEMENT

Tribugá Gulf is an important area for the movement of one shark species. Scalloped Hammerheads were acoustically tagged and documented moving throughout Tribugá Gulf (Bessudo et al. 2018). Furthermore, results from a genetic analysis of Scalloped Hammerheads from Colombian waters indicate that oceanic adult Scalloped Hammerheads from Malpelo Island show genetic connectivity (i.e., parenthood) with juveniles found in continental shallow waters, including Tribugá Gulf (Quintanilla et al. 2015).

SUB-CRITERION D2 - DIVERSITY

Tribugá Gulf sustains a high diversity of Qualifying Species (22 species). This exceeds the regional diversity threshold (17 species) for the Central and South Pacific American region.

The regular presence of these Qualifying Species has been documented through scientific studies and monitoring of fisheries and is supported through the literature and unpublished data sources including Tobón et al. (2008); Navia et al. (2009, 2012, 2013, 2020); Bessudo et al. (2018); Mejía-Falla & Navia (2019); Ágreda et al. (2022); Duarte et al. (2022); Villate et al. (2022); Fundación MarAdentro unpubl. data (2022); Fundación Malpelo unpubl. data (2022); Marviva Foundation unpubl. data (2022); Squalus Fundación unpubl. data (2022); Melany Villate pers. obs. (2022). For the highly threatened Largetooth Sawfish, the most recent record from the area was photographed in 2021 (Squalus Fundación unpubl. data 2022).



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QUALIFYING SPECIES

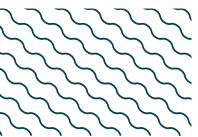
Scientific Name	Common Name	IUCN Red List Category / Red Book Colombia	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met								
				A	B	C1	C2	C3	C4	C5	D1	D2
SHARKS												
<i>Carcharhinus cerdale</i>	Pacific Smalltail Shark	CR/DD	0-40	X		X						X
<i>Carcharhinus leucas</i>	Bull Shark	VU/--	0-164	X		X						
<i>Carcharhinus limbatus</i>	Blacktip Shark	VU/VU	0-140	X		X						
<i>Ginglymostoma unami</i>	Pacific Nurse Shark	EN/VU	0-13	X								
<i>Mustelus henlei</i>	Brown Smoothhound	LC/VU	1-281	X		X						
<i>Mustelus lunulatus</i>	Sicklefin Smoothhound	LC/VU	9-200	X		X						
<i>Rhincodon typus</i>	Whale Shark	EN/DD	0-1,928	X			X					
<i>Rhizoprionodon longurio</i>	Pacific Sharpnose Shark	VU/--	0-100	X		X						
<i>Sphyrna corona</i>	Scalloped Bonnethead	CR/NT	0-100	X		X						
<i>Sphyrna lewini</i>	Scalloped Hammerhead	CR/VU	0-1,043	X		X		X				
<i>Sphyrna media</i>	Scoophead Shark	CR/--	0-100	X								
<i>Sphyrna tiburo</i>	Bonnethead Shark	EN/--	0-90	X		X						
<i>Sphyrna zygaena</i>	Smooth Hammerhead	VU/--	0-200	X								

Scientific Name	Common Name	IUCN Red List Category / Red Book Colombia	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met								
				A	B	C1	C2	C3	C4	C5	D1	D2
RAYS												
<i>Aetobatus laticeps</i>	Pacific Eagle Ray	VU/NT	0-60	X		X						X
<i>Gymnura crebipunctata</i>	Mazatlán Butterfly Ray	NT/--	0-30			X						
<i>Hypanus dipterurus</i>	Diamond Stingray	VU/--	0-150	X								
<i>Hypanus longus</i>	Longtail Stingray	VU/VU	0-118	X		X						
<i>Mobula birostris</i>	Oceanic Manta Ray	EN/DD	0-1,000	X								
<i>Narcine entemedor</i>	Cortez Numbfish	VU/--	0-100	X		X						
<i>Pristis pristis</i>	Largetooth Sawfish	CR/CR	0-60	X								
<i>Pseudobatos leucorhynchus</i>	Whitesnout Guitarfish	VU/VU	0-50	X		X						
<i>Rostroraja velezi</i>	Rasptail Skate	VU/--	30-300	X								

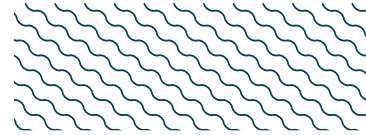
SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
<i>Echinorhinus cookei</i>	Prickly Shark	DD
RAYS		
<i>Pseudobatos prahli</i>	Gorgona Guitarfish	VU
<i>Rhinoptera steindachneri</i>	Pacific Cownose Ray	NT
<i>Zapteryx xyster</i>	Southern Banded Guitarfish	VU

IUCN Red List categories: *CR*, Critically Endangered; *EN*, Endangered; *VU*, Vulnerable; *NT*, Near Threatened; *LC*, Least Concern; *DD*, Data Deficient.



SUPPORTING INFORMATION



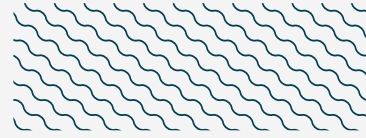
There are additional indications that this area is important for feeding, movement, and aggregations.

It is likely that at least the following species feed in the area: Pacific Smalltail Shark, Bull Shark, Blacktip Shark, Longtail Stingray, Brown Smoothhound, Sicklefin Smoothhound, Cortez Numbfish, Scalloped Bonnethead, and Scalloped Hammerhead. Feeding is inferred from their residency and continuous records throughout all months over multiple years (Navia et al. 2020; Marviva Foundation unpubl. data 2022; Squalus Fundación unpubl. data 2022) but detailed dietary studies have not been undertaken.

Movement data were only available for Scalloped Hammerhead, although it is recognised that Pacific Eagle Rays, Bull Sharks, Blacktip Sharks, Whale Sharks, and Oceanic Manta Rays possibly carry out migratory movements through the area.

Fishing data have also shown a large number of individuals of the same species caught in a single fishing operation within the area (i.e., at the same location), indicating that those species (Longtail Stingray, Brown Smoothhound, and Sicklefin Smoothhound), may form aggregations in the area, although their functions are unknown (Navia et al. 2020; Duarte et al. 2022). Alternatively, this may represent high densities rather than actual aggregations and further information is therefore required.





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