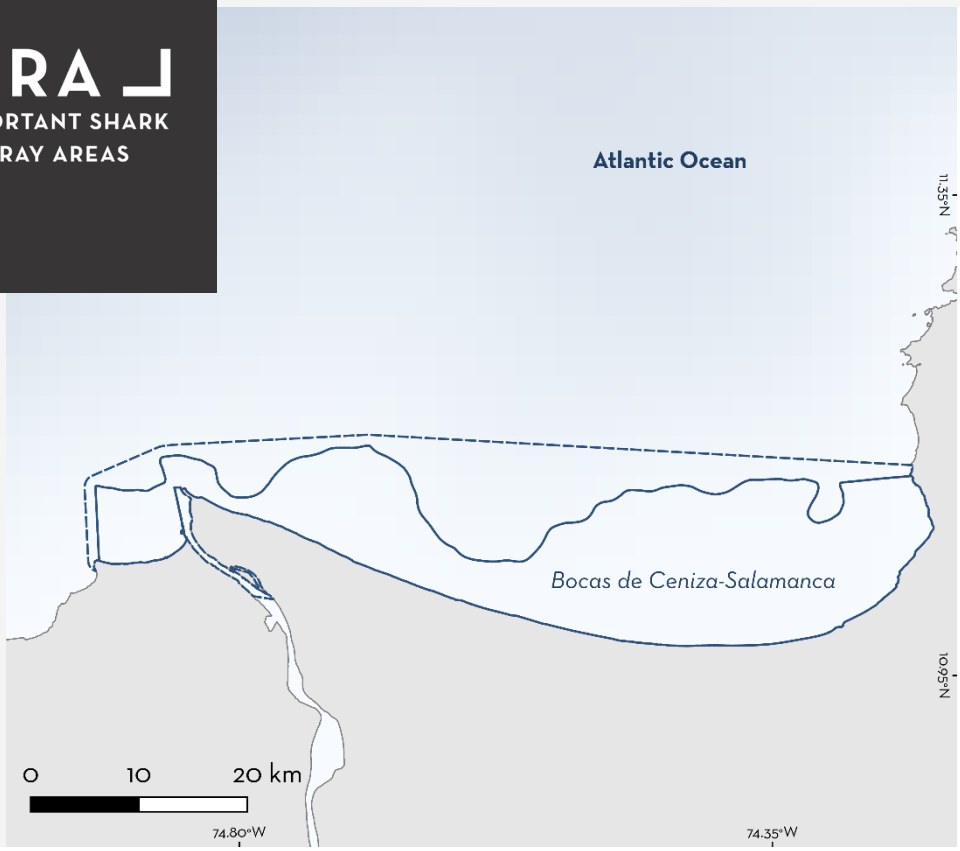
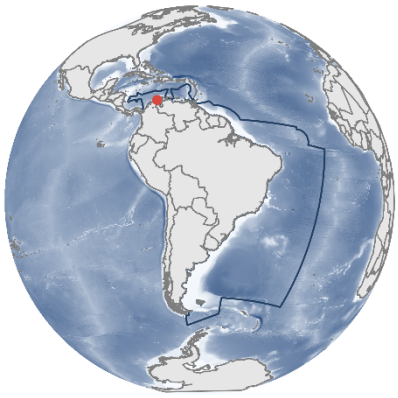
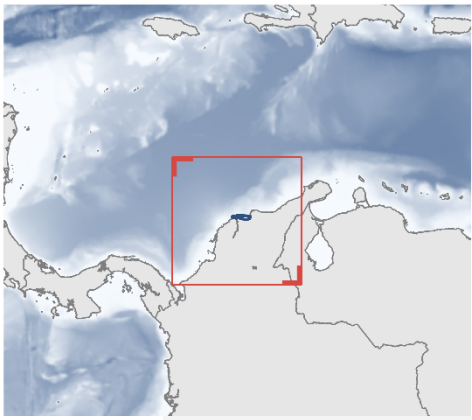
ISRA
IMPORTANT SHARK AND RAY AREAS







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

BOCAS DE CENIZA-SALAMANCA ISRA

South American Atlantic Region

COLOMBIA

0–50 metres

702.6 km²

SUMMARY

Bocas de Ceniza-Salamanca is located in the central Colombian Caribbean. The area is a shelf habitat with sandy and muddy substrates. It is characterised by a dry season with strong trade winds, upwelling, higher salinity, and cooler temperatures and a rainy season with turbid waters and reduced salinity due to freshwater inputs from nearby rivers. The area overlaps with the Ciénaga Grande, Isla de Salamanca and Sabana Grande RAMSAR biosphere reserve Key Biodiversity Area. Within this area there are: **threatened species** (e.g., Silky Shark *Carcharhinus falciformis*); **reproductive areas** (e.g., Scalloped Hammerhead *Sphyrna lewini*); and **distinctive areas** (Smalltail Shark *Carcharhinus porosus*).

CRITERIA

Criterion A – Vulnerability; Sub-criterion C1 – Reproductive Areas; Sub-criterion D1 – Distinctiveness

DESCRIPTION OF HABITAT

Bocas de Ceniza-Salamanca is located in the central Colombian Caribbean. The area is part of the Atlántico and Magdalena departments. It extends from Bocas de Ceniza in the west, where the Magdalena River flows into the sea, to the region around Don Jaca. It is a shelf habitat with sandy and muddy substrates. The area is influenced by a semi-arid tropical climate with two main seasons: a dry season (December–April), marked by strong trade winds, upwelling, higher salinity, and cooler temperatures (21–25°C), and a rainy season (September–November), characterised by turbid waters and reduced salinity due to freshwater inputs from nearby rivers (Magdalena, Toribio, Cordoba, Gaira, and Manzanares) and the Ciénaga Grande de Santa Marta (Arévalo-Martínez & Franco-Herrera 2008; García et al. 2013).

The area overlaps with the Ciénaga Grande, Isla de Salamanca and Sabana Grande RAMSAR biosphere reserve Key Biodiversity Area (KBA 2025).

This Important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 50 m based on the bathymetry of the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

Three 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 Smalltail Shark (Pollom et al. 2020) and Scalloped Hammerhead (Rigby et al. 2019); and the Vulnerable Silky Shark (Rigby et al. 2021).

SUB-CRITERION C1 – REPRODUCTIVE AREAS

Bocas de Ceniza-Salamanca is an important reproductive area for three shark species.

Neonate and young-of-the-year (YOY) Silky Shark have been recorded regularly from artisanal fisheries operating in the area (Anguila-Gómez & Hernández-Beracasa 2011; Garzón-Peña 2018; Navia et al. 2021; Forero 2022). Between February and July 2010, Silky Sharks (n = 35) with an average size of 81.8 ± 22 cm total length (TL) were recorded (Anguila-Gómez & Hernández-Beracasa 2011). The reported size-at-birth for the species is ~56–87 cm TL (Ebert et al. 2021), confirming that the average individuals sampled were neonates/YOY. Between 2017–2018, 19 individuals measuring 78.5–252 cm TL were recorded. All but one individual was immature and seven (36%) were neonates/YOY, measuring 79–110 cm TL (Garzón-Peña 2018). Additionally, at Bocas de Ceniza (mouth of the Magdalena River), five YOY (81–100 cm TL) were recorded in February and March 2021 (Navia et al. 2021). Of 53 Silky Sharks (74–150 cm TL) recorded in the area between 2020–2021, 29 (54.7%) were YOY (74–110 cm TL) while the rest were juveniles (Forero 2022). Between 2012–2021, the Colombian fisheries statistical system recorded the regular catches of Silky Sharks in the area year-round confirming the regular presence of the species in the area (De La Hoz et al. 2014, 2015, 2017; Duarte et al. 2018, 2019, 2020, 2021).

Between September 2016 and August 2017, 133 Smalltail Sharks were recorded in landings from fisheries operating in the area (Ávila 2018). Of these, three were pregnant females and 103 were YOY, measuring <45 cm TL. The reported size-at-birth for this species is 30–40 cm TL (Ebert et al.

2021). Additionally, a pregnant female (153 cm TL) with 11 embryos was recorded in 2018 around the Las Flores area (Garzón-Peña et al. 2020). Smalltail Sharks were regularly caught year-round in the area between 2012–2021 according to the Colombian fisheries statistical system (De La Hoz et al. 2014, 2015, 2017; Duarte et al. 2018, 2019, 2020, 2021).

Between February and July 2010, 18 Scalloped Hammerheads were recorded from landings of artisanal fisheries operating in the area (Anguila-Gómez & Hernández-Beracasa 2011). Individuals measured 84.5 ± 30.2 cm TL on average. The reported size-at-birth for the species is 31–57 cm TL (Ebert et al. 2021), confirming that the average individuals sampled were YOY. Between July 2017 and March 2018, 15 Scalloped Hammerheads measuring between 48–203 cm TL were recorded in landings from artisanal fisheries operating in the area (Garzón-Peña 2018). Five individuals (33.3%) were classified as neonates, measuring <57 cm TL and only two individuals were mature. Further, in February, March, and May 2021, 22 Scalloped Hammerheads were recorded at Bocas de Ceniza (mouth of the Magdalena River) (Navia et al. 2021). Of these, seven (31.8%) were considered YOY based on their size (64–85 cm TL) while the others were juveniles (85–101 cm TL; Navia et al. 2021). Scalloped Hammerhead catches have been reported year-round in the area between 2012–2021 according to the Colombian fisheries statistical system confirming the regular presence of the species in the area (De La Hoz et al. 2014, 2015, 2017; Duarte et al. 2018, 2019, 2020, 2021).

SUB-CRITERION D1 – DISTINCTIVENESS

Bocas de Ceniza–Salamanca is an important area for distinctive behaviour of one shark species.

Smalltail Sharks exhibit a globally distinct behaviour in this area. Smalltail Sharks are suspected to travel upstream into the freshwater habitat of the Magdalena River. This is because stomach content analyses of 133 individuals collected between September 2016 and August 2017 revealed the presence of freshwater fishes as part of their diet (Ávila 2018). Tetra *Astyanax magdalenae* and Hatched Characin *Triportheus magdalenae* were present in four of the stomachs analysed and represented 3.4% of the index of relative importance. These species are restricted to freshwater habitats (Jiménez-Segura et al. 2016; García-Alzate & Morales 2022) which indicates that Smalltail Sharks move up in the Magdalena River to feed on freshwater prey. This behaviour has not been previously recorded for the species anywhere else in the world.

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QUALIFYING SPECIES

Scientific Name	Common Name	IUCN Red List Category	Global Depth Range (m)	ISRA Criteria/Sub-criteria Met								
				A	B	C1	C2	C3	C4	C5	D1	D2
SHARKS												
Carcharhinus falciformis	Silky Shark	VU	0–1,112	X		X						
Carcharhinus porosus	Smalltail Shark	CR	0–84	X		X					X	
Sphyrna lewini	Scalloped Hammerhead	CR	0–1,043	X		X						

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
SHARKS		
Carcharhinus leucas	Bull Shark	VU
Galeocerdo cuvier	Tiger Shark	NT
Mustelus canis	Dusky Smoothhound	NT
Rhizoprionodon lalandii	Brazilian Sharpnose Shark	VU
Sphyrna mokarran	Great Hammerhead	CR
RAYS		
Aetobatus narinari	Whitespotted Eagle Ray	EN
Hypanus americanus	Southern Stingray	NT
Hypanus guttatus	Longnose Stingray	NT

IUCN Red List of Threatened Species Categories are available by searching species names at www.iucnredlist.org 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 is an important area for reproductive purposes of one ray species.

Between August 2008 and February 2009, ~200 Longnose Stingrays were recorded from landings of artisanal fisheries operating in the area (Salas-Castro & Tejeda-Rico 2009). Of these, three individuals measured 10–32 cm disc width (DW). The reported size-at-birth is ~15 cm DW (Last et al. 2016) suggesting these individuals were neonates/YOY. Additionally, seven Longnose Stingrays were pregnant females containing 23 embryos in advanced stages of development (9–16 cm DW) and were collected between September and January (Salas-Castro & Tejeda-Rico 2009). Between December 2020 and May 2021, four pregnant females and 14 embryos were recorded (Vasquez 2021). Additional information is needed to confirm the contemporary reproductive importance of the area.

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