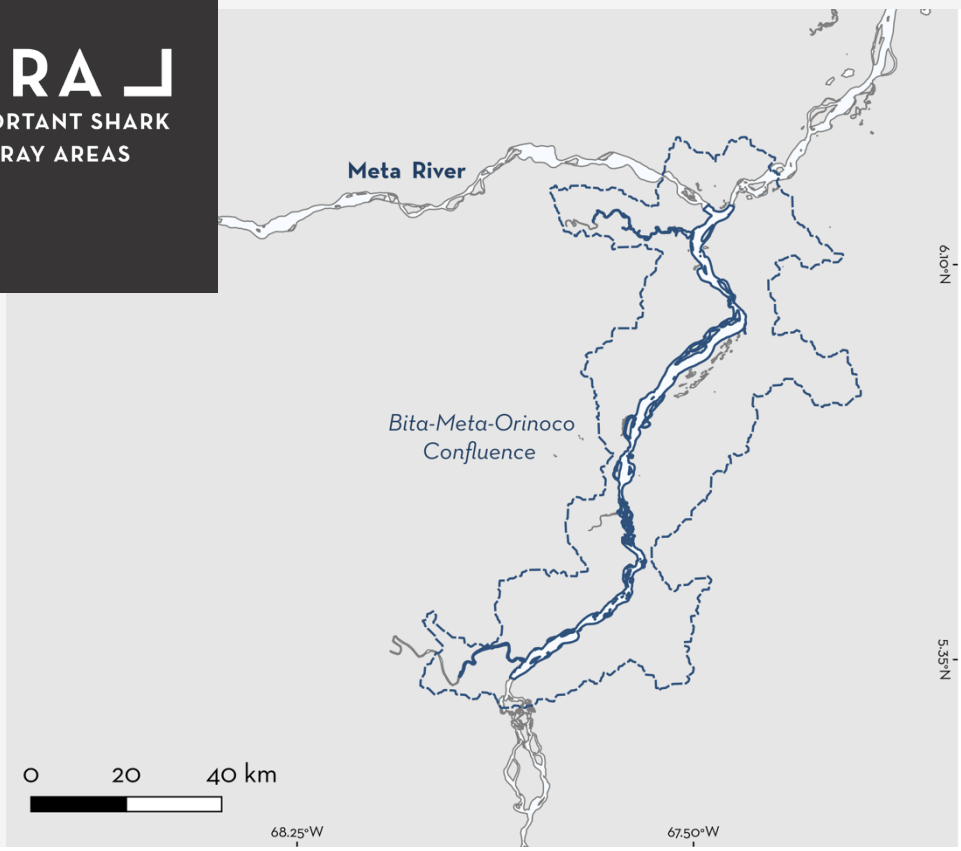
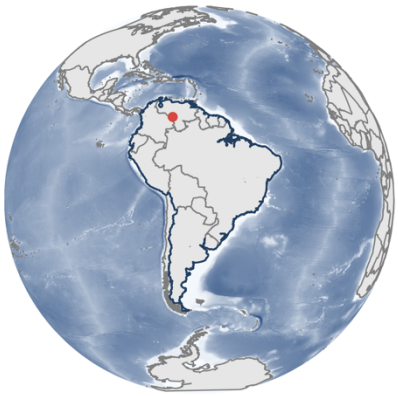
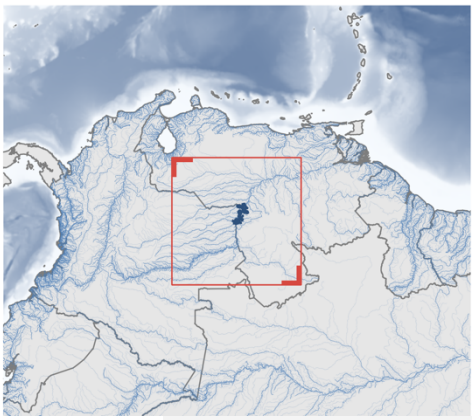
ISRA
IMPORTANT SHARK AND RAY AREAS







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. Buffers for freshwater areas are determined based on hydroBASINS to capture watershed boundaries.

BITA-META-ORINOCO CONFLUENCE ISRA

South American Inland Waters Region

COLOMBIA
VENEZUELA

0–50 metres

268 km²

SUMMARY

Bita-Meta-Orinoco Confluence is located in the middle section of the Orinoco Basin at the border between Colombia and Venezuela. This area is characterised by clearwater and whitewater rivers. It is influenced by the flow of the Bita River and Meta River into the Orinoco River. This area overlaps with the Bita River Ramsar Site and Parque Nacional Natural El Tuparro. Within this area there are: **threatened species** and **range-restricted species** (Orinoco Discus Stingray *Paratrygon orinocensis*).

CRITERIA

Criterion A – Vulnerability; Criterion B – Range Restricted

DESCRIPTION OF HABITAT

Bita-Meta-Orinoco Confluence is located in the middle section of the Orinoco Basin at the border between Colombia, in the Vichada Department, and Venezuela, in the Apure Department. In this area, the Bita River is characterised by clearwaters while the Meta River is characterised by whitewaters. They flow into the Orinoco River, characterised by whitewaters. Whitewater rivers are the most productive; their colour and turbidity are related to inorganic sediments, and clay, transported from the Andes to the alluvial plains (Sioli 1975). Clearwater rivers have a medium productivity and come from relatively flat areas, covered with forests that serve to attenuate the erosive effect of the rains, which then penetrate the soil without producing runoff (Sioli 1975). This area comprises wetlands, rivers, and lagoons that are under the influence of a unimodal rainfall regime, with higher precipitations between April–May to November and a drier period from December to March–April (Romero et al. 2017).

This area overlaps with the Bita River Ramsar Site (Ramsar 2025) and Parque Nacional Natural El Tuparro (UNEP-WCMC 2025).

This Important Shark and Ray Area is benthic and is delineated from surface waters (0 m) to 50 m based on the depth range of Qualifying Species in the area.

ISRA CRITERIA

CRITERION A – VULNERABILITY

One Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occurs in the area. This is the Vulnerable Orinoco Discus Stingray (Torres et al. submitted b).

CRITERION B – RANGE RESTRICTED

This area holds the regular presence of the Orinoco Discus Stingray as a resident range-restricted species. This species was only described in 2021 (Loboda et al. 2021) and its occurrence has been reported in only three studies (Muñoz-Osorio & Mejía-Falla 2013; Lasso et al. 2016; Loboda et al. 2021).

A pregnant Orinoco Discus Stingray was captured in March 2009 in this area (Muñoz-Osorio & Mejía-Falla 2013; Torres et al. submitted b). Between 2013–2014, another study examined 22 Orinoco Discus Stingrays, in which 16 (72%) were collected in this area with the other individuals recorded in the lower section of the Orinoco River (~700 km apart from this area) and upper section of Rio Apure (~250 km apart from this area) (Loboda et al. 2021). The individuals from this area measured 17.4–38.2 cm disc width (DW). Between 2011–2016, surveys were carried out during the dry season, in tributary rivers of the Colombian Orinoquia, at seven sampling points characterised by three different types of waters (i.e., clear, white, and black waters) (Lasso et al. 2016). Orinoco Discus Stingrays were captured using a variety of methods and fishing gears (daytime freediving, nighttime boat trips, shore-based fishing; using longlines, harpoon, hand nets) (Lasso et al. 2016). All Orinoco Discus Stingrays collected (reported as *Paratrygon* sp. 1) were from this area (females = 15, males = 5) measuring between 17.7–80 cm DW. The size-at-birth of this species is estimated to be ~23–24 cm DW (Torres et al. submitted b), with maturity size for females estimated at 45 cm DW and 40 cm DW for males (Loboda et al. 2021). Therefore, this area provides an important area for different life-stages of this species. Orinoco Discus Stingray is endemic to the Orinoco Basin in Colombia and Venezuela

(Torres et al. submitted b). It occurs in the mid-section of the Apure River, Bita River, and mid to lower section of the Orinoco River, downstream to its delta (Loboda et al. 2021).

Acknowledgments

Patricia Charvet (PPGSis, Universidade Federal do Ceará; Projeto Trygon), Yan Torres (Universidade Federal do Ceará), and Adriana Gonzalez-Pestana (IUCN SSC Shark Specialist Group – ISRA Project) contributed and consolidated information included in this factsheet. We thank all participants of the 2025 ISRA Region 13 – South American Inland Waters workshop for their contributions to this process.

This factsheet has undergone review by the ISRA Independent Review Panel prior to its publication.

This project was funded by the Shark Conservation Fund, a philanthropic collaborative pooling expertise and resources to meet the threats facing the world's sharks and rays. The Shark Conservation Fund is a project of Rockefeller Philanthropy Advisors.

Suggested citation

IUCN SSC Shark Specialist Group. 2025. Bita-Meta-Orinoco Confluence ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.

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
RAYS												
Paratrygon orinocensis	Orinoco Discus Stingray	VU	0–50	X	X							

SUPPORTING SPECIES

Scientific Name	Common Name	IUCN Red List Category
RAYS		
Paratrygon parvaspina	Smallspine Discus Stingray	VU
Potamotrygon motoro	Ocellate Freshwater Stingray	LC
Potamotrygon orbignyi	Reticulate Freshwater Stingray	LC
Potamotrygon schroederi	Schroeder's Freshwater Stingray	VU

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 area may be important for one range-restricted ray species.

Smallspine Discus Stingray is endemic to the mid Orinoco River Basin in Colombia and Venezuela and has only been recorded in the Bita and Tomo rivers and mid Orinoco River (Loboda et al. 2021). Between 2011–2016, surveys were carried out during the dry season, in tributary rivers of the Colombian Orinoquia (Lasso et al. 2016). From five Smallspine Discus Stingrays collected, four were collected in this area (reported as *Paratrygon* sp. 2). These individuals measured 25.4–47 cm DW (mean = 38.7 cm DW). The smallest individual was determined to be a neonate as an umbilical scar was still visible (Lasso et al. 2016). Between 2013–2014, five individuals were examined from this area with four females and one male with a body size between 21.2–45 cm DW (Loboda et al. 2021). Size-at-birth is unknown, and maturity size is estimated between 35–40 cm DW (Charvet et al. submitted). Therefore, this area provides an important area for different life-stages of this species.

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

In January, February, and March 2013, five pregnant female Reticulate Freshwater Stingray were recorded (Lasso et al. 2013). Between 2011–2016, surveys were carried out during the dry season, in tributary rivers of the Colombian Orinoquia, in the surroundings of Puerto Carreño and Inírida (Lasso et al. 2016). The individuals were captured using different methods and fishing gears, such as, free diving, harpoons or hand nets, night trips from the boat or walking from the shore, and longlines and hanging nets (Lasso et al. 2016). A total of 321 rays of eight species were collected. The Reticulate Freshwater Stingray was the most abundant species with 155 individuals. It was present in all environments, with whitewater systems having the highest representation (42% main channel), followed by clearwater rivers, where this area is located, with 41%. Fifty-four mature females were captured, of which 30% (n = 16) were pregnant at different stages of development, 11 with foetuses, two with foetuses and eggs, and three with only eggs (Lasso et al. 2016). From the 155 Reticulate Freshwater Stingrays, 24 were neonates (10–14.9 cm DW), and 21 were mostly young-of-the-year individuals (15–19.9 cm DW). The size-at-birth is between 8–14 cm DW (Torres et al. submitted a). Additional information is needed to confirm the reproductive importance of the area for this species.

There are additional indicates that this area may be important for undefined aggregations of one ray species.

A telemetry-based study was conducted to investigate the movements and habitat utilisation of the Ocellate Freshwater Stingray (Garrone-Neto et al. 2021). Thirteen individuals (six females and seven males, average 32.0 ± 5.1 cm DW) were tagged with acoustic transmitters and manually monitored between March–September 2017 in the Bita River, within this area. Monitoring duration varied among individuals, ranging from 1–187 days, with an average of 144.4 ± 57 days. Most rays remained near their release sites, with eight individuals staying in proximity while five moved several hundred meters upstream or downstream before returning after five to 39 days. The rays utilised areas ranging from 0.003–11.867 km^{2}·, with an average of 2.6 km^{2}. A high-activity zone, used by six of the 11 monitored individuals, was identified in a section with a low current and sandy bottom. During the day, stingrays remained mostly motionless or made short horizontal movements of ~10 m within the river channel at an average depth of 2.2 ± 2.0 m. At night, they moved to shallower waters near the margins, at an average depth of 1.7 ± 1.8 m. These findings suggest that the Ocellate Freshwater Stingray is a small-range species with strong site fidelity, consistently utilising specific habitats within this area. Additional information is needed to confirm the importance of the area for this species.

REFERENCES

Charvet P, Góes de Araújo ML, Torres YTP, Fernando E, Sayer C. Submitted. *Paratrygon parvaspina*. The IUCN Red List of Threatened Species.

Garrone-Neto D, de Souza GRS, Daros FAML, Novoa-Serna JF, Morales-Betancourt MA, Lasso CA. 2021. A small home range increases the vulnerability to fisheries of the ocellate river stingray, *Potamotrygon motoro*, in a biodiversity hotspot of the Neotropical region. *Biota Amazonia* 11 (2): 38–42. http://dx.doi.org/10.18561/2179-5746/biotaamazonia.v11n2p38-42

Lasso CA, Morales-Betancourt MA, Castañeda B, Ortiz-A L, Sierra-Quintero MT. 2016. Aspectos sobre la historia natural de las rayas de agua dulce (Potamotrygonidae) en el área de influencia de los municipios de Puerto Carreño (Vichada) e Inírida (Guainía), Orinoquia colombiana. In: Lasso CA, Rosa RS, Morales-Betancourt MA, Garrone-Neto D, Carvalho M, eds. *Rayas de agua dulce (Potamotrygonidae) de Suramérica. Parte II: Colombia, Brasil, Perú, Bolivia, Paraguay, Uruguay y Argentina*. Bogotá: Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, 325–358.

Lasso CA, Rosa RS, Sánchez-Duarte P, Morales-Betancourt MA, Agudelo-Córdoba E. 2013. *IX. Rayas de agua dulce (Potamotrygonidae) de Suramérica. Parte I. Colombia, Venezuela, Ecuador, Perú, Brasil, Guyana, Surinam y Guayana Francesa: diversidad, bioecología, uso y conservación*. Bogotá: Instituto de Investigación de Recursos Biológicos Alexander von Humboldt.

Loboda TS, Lasso CA, Rosa RDS, Carvalho MRD. 2021. Two new species of freshwater stingrays of the genus Paratrygon (Chondrichthyes: Potamotrygonidae) from the Orinoco basin, with comments on the taxonomy of *Paratrygon aiereba*. *Neotropical Ichthyology* 19: e200083. https://doi.org/10.1590/1982-0224-2020-0083

Muñoz-Osorio LA, Mejía-Falla PA. 2013. Primer registro de la raya manzana, *Paratrygon aiereba* (Müller & Henle, 1841) (Batoidea: Potamotrygonidae) para el río Bita, Orinoquía, Colombia. *Latin American Journal of Aquatic Research* 41(1): 189–193. http://dx.doi.org/103856/vol41-issue1-fulltext-18

Ramsar. 2025. Bita River. Available at: https://rsis.ramsar.org/ Accessed February 2025.

Romero M, Trujillo F, Lasso CA, Campo O. 2017. Area de estudio. In: Trujillo F, Lasso CA, eds. *Biodiversidad del río Bita, Vichada, Colombia*. Bogotá: Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, 29–45.

Sioli H. 1975. Tropical rivers as expressions of their terrestrial environments. In: Goley F, Medina E, eds. *Tropical Ecological System. Trend in terrestrial and aquatic research*. New York: Springer-Verlag, 275–288.

Torres YTP, Araujo ML, Sayer C, Charvet P. Submitted a. *Potamotrygon orbignyi*. The IUCN Red List of Threatened Species.

Torres YTP, Góes de Araújo ML, Sayer C, Charvet, P. submitted b. *Paratrygon orinocensis*. The IUCN Red List of Threatened Species.

UNEP-WCMC. 2025. Protected Area Profile for El Tuparro from the World Database on Protected Areas, April 2025. Available at: www.protectedplanet.net Accessed March 2025.