

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

BOYACÁ & SERVIEZ ISRA

South American Inland Waters Region

SUMMARY

Boyacá & Serviez is located in the middle Magdalena River basin in Colombia. It is situated between the localities of Puerto Nare, Department of Antioquia, and Puerto Serviez, Department of Boyacá. This area is within the fluvial system with the highest production and transport of sediments worldwide. The climate is characterised by a bimodal rainfall regime. Within this area there are: **range-restricted species** (Magdalena Freshwater Stingray *Potamotrygon magdalenae*).

CRITERIA

Criterion B - Range Restricted

COLOMBIA

0-50 metres

32.02 km²



DESCRIPTION OF HABITAT

Boyacá & Serviez is located in the middle Magdalena River basin in Colombia. It is situated between the localities of Puerto Nare, Department of Antioquia, and Puerto Serviez, Department of Boyacá (125 m elevation). This area is found within the Tropical Moist Forest life zone (Holdridge 1987). The Magdalena River is the most important and extensive drainage system of the Andean-Caribbean region with one of the highest production and transport of sediments (710 t/km² per year) worldwide of any fluvial system (Graca et al. 2025).

This area is located in extensive lowland alluvial plains with many marginal lakes covering an estimated area of 22,000 km² which constitute temporary or permanent habitats for aquatic communities (Garzón & Gutiérrez 2013). The climate is characterised by a bimodal rainfall regime. December–March and June–September are dry periods, and April–May and October–November are rainy periods (IDEAM 2015, 2016). The two wet seasons are comparable in length and intensity. The mean annual precipitation is 2,917 mm, the mean annual temperature is 27.9°C (IDEAM 2016).

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.

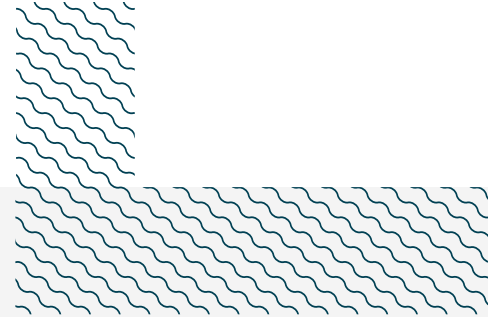
ISRA CRITERIA

CRITERION B – RANGE RESTRICTED

This area holds the regular presence of the Magdalena Freshwater Stingray as resident range-restricted species. This species occurs year-round in the area and is regularly encountered and captured in local fisheries (Márquez-Velásquez et al. 2019).

In Boyacá & Serviez, Magdalena Freshwater Stingrays were collected as the incidental catch of a local fishery during the dry (June–July and December) and rainy (October–November) seasons in 2015 and 2016 (Márquez-Velásquez 2017; Márquez-Velásquez et al. 2019). During this period, a total of 73 individuals (females = 40, males = 30, unidentified sex = 3) were collected. The body sizes ranged between 7.5–22.5 cm disc width (DW) (mean = 14.1 ± 3.9 SD) for females, and 7.6–21 cm DW (mean = 13.3 ± 2.7 SD) for males. Of the total, 44 were immature, and included 11 neonate or young-of-the-year individuals (7.5–10.5 cm DW), and 26 mature individuals. Males mature at a minimum size of 16 cm DW (Ramos-Socha & Grijalba-Bendeck 2011). In the middle Magdalena River, females mature at 14 cm DW, and the size-at-birth for this species is of 8.0–8.5 cm DW (Pedreros et al. 2016; Mejia-Falla et al. 2024).

Magdalena Freshwater Stingray is endemic to Colombia where it is restricted to three basins: Magdalena-Cauca basin including the Magdalena, Cauca, San Jorge rivers; Atrato basin composed of the Atrato River; and Sinú basin composed of the Sinú River (Mejia-Falla et al. 2024). This species is found in rivers, swamps, wetlands, and dams along these basins (Mejia-Falla et al. 2024).



Acknowledgments

Viviana Márquez-Velásquez (Universidade Federal da Paraíba), Paola A Mejia-Falla (Wildlife Conservation Society-WCS Colombia), Andres F Navia-Lopez (Fundación Squalus), 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

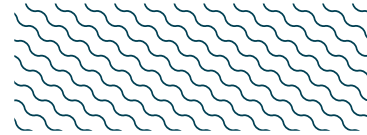
IUCN SSC Shark Specialist Group. 2025. Boyacá & Serviez ISRA Factsheet. Dubai: IUCN SSC Shark Specialist Group.

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												
<i>Potamotrygon magdalenae</i>	Magdalena Freshwater Stingray	NT	0-50		X							

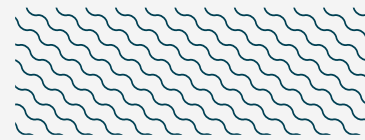
IUCN Red List of Threatened Species Categories are available by searching species names at www.iucnredlist.org. Abbreviations refer to: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient.

SUPPORTING INFORMATION



There are additional indications that Boyacá & Serviez may be an important feeding area for one ray species.

The diet of the Magdalena Freshwater Stingray was assessed based on 73 stomachs from individuals measuring 7.5–22.5 cm DW, including 40 females, 30 males, and three individuals of unidentified sex (Márquez-Velásquez et al. 2019). Chironomidae larvae and Ceratopogonidae larvae, both order Diptera, were the most frequent prey items (64.8% and 43.6% of frequency of occurrence, respectively) (Márquez-Velásquez et al. 2019). The results of the prey-specific index of relative importance (PSIRI) indicated that the diet of Magdalena Freshwater Stingray is based on insects, especially Chironomidae larvae (23.2% PSIRI). In the upper and middle Magdalena River basin, Diptera and Ephemeroptera predominate (Graca et al. 2025). Among the Diptera, the family Chironomidae is one of the most abundant (Graca et al. 2025). These suggest that males and females use this area along all life-stages to feed on an abundant prey item. Further information is required to understand the importance of this area for feeding compared to other areas.



REFERENCES

- Garzón NV, Gutiérrez JC. 2013.** Deterioro de humedales en el Magdalena medio: un llamado para su conservación. Bogotá: Instituto de Investigación de Recursos Biológicos Alexander Von Humboldt.
- Graca MAS, Callisto M, Teixeira de Mello F, Rodriguez-Olarte D. 2025.** *Rivers of South America, First Edition*. Amsterdam, London, Cambridge: Elsevier.
- Instituto de Hidrología, Meteorología y Estudios Ambientales, (IDEAM). 2015.** Boletín climatológico mensual 2015. Available at: <http://www.ideam.gov.co/web/tiempo-y-clima/climatologico-mensual> Accessed October 2018
- Instituto de Hidrología, Meteorología y Estudios Ambientales (IDEAM). 2016.** Promedios climatológicos. Instituto de Hidrología, Meteorología y Estudios Ambientales. <http://www.ideam.gov.co/> Accessed 12 January 2018
- Holdridge L. 1987.** Ecología basada en zonas de vida. San José: Instituto Interamericano de Cooperación para la Agricultura.
- Márquez-Velásquez V. 2017.** Avaliação da função ecológica da raia *Potamotrygon magdalenae* (chondrichthyes: potamotrygonidae) em uma rede trófica dos andes colombianos. Published Master thesis, Universidade Federal Da Paraíba, Paraíba.
- Márquez-Velásquez V, Rosa RS, Galindo E, Navia AF. 2019.** Feeding habits and ecological role of the freshwater stingray *Potamotrygon magdalenae* (Duméril 1865) (Myliobatiformes: Potamotrygonidae), combining gut-content and stable isotope analysis. *Environmental Biology of Fishes* 102(8): 1119–1136. <https://doi.org/10.1007/s10641-019-00897-0>
- Mejía-Falla PA, Márquez-Velásquez V, Navia AF. 2024.** *Potamotrygon magdalenae*. The IUCN Red List of Threatened Species 2024: e.T161385A124475262. <https://dx.doi.org/10.2305/IUCN.UK.2024-1.RLTS.T161385A124475262.en>.
- Pedrerós-Silva T, Arrieta D, Mejía-Falla PA. 2016.** Reproductive system of females of the Magdalena river endemic stingray *Potamotrygon magdalenae*: Anatomical and functional aspects. *Journal of Morphology* 277(5): 680–697. <https://doi.org/10.1002/jmor.20527>
- Ramos-Socha HB, Grijalba-Bendeck M. 2011.** Bioecología de la raya de agua dulce *Potamotrygon magdalenae* (Duméril, 1865) (Myliobatiformes) en la Ciénaga de Sabayo, Guaymaral, Colombia. *Revista U.D.C.A Actualidad & Divulgación Científica* 14(2): 109–118. <https://doi.org/10.31910/rudca.v14.n2.2011.781>