NOTES

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Distribution Extension

New records for the Manatee *Trichechus manatus manatus* Linnaeus, 1758 (Sirenia: Trichechidae) in the Departamento del Magdalena, Colombia

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Abstract

We report new records for the Greater Caribbean Manatee (*Trichechus manatus manatus*), for the Departamento del Magdalena based on direct and indirect observations and the reports of rescued stranded individuals. This threatened species inhabits wetlands and rivers within the department and uses marine coastal corridors as part of its habitat. Identifying the species distribution and understanding the basic aspects of its ecology may contribute to future conservation actions of this important aquatic gentle giant.

Key words: Manatee, rescues, sightings.

Resumen

Reportamos nuevos registros para el departamento del Magdalena del Manatí del Gran Caribe (*Trichechus manatus manatus*), basados en observaciones directas e indirectas además del reporte de rescates. Esta especie amenazada habita los humedales y ríos del departamento del Magdalena y utiliza corredores marinos costeros como parte de su hábitat. Identificar la distribución y entender aspectos básicos sobre su ecología, puede contribuir a la gestión de acciones para la conservación de este gentil gigante.

Palabras clave: Manatíes, avistamientos, rescates.

The Greater Caribbean Manatee (*Trichechus manatus manatus*) is Endangered according to IUCN (Deutsch et al. 2008). Protected in Colombia by the Threatened Species Act from the Ministerio de Agricultura - INDERENA, through resolution 574 (1969) that bans hunting on endangered wildlife, and by resolution 0126 (2024) of Ministerio de Ambiente y Desarrollo Sostenible. The species is been listed in Appendix I of the international CITES convention. It has been estimated that the worldwide population of the Greater Caribbean Manatee is composed of up to 6700 individuals, with fragmented subpopulations along its range that are exposed to human activities that severely threaten their survival (Castelblanco-Martínez et al. 2012). Hunting has caused the extinction of manatees along

their historical geographical range. The population from the Ciénaga Grande de Santa Marta (CGSM) wetland complex has undergone a rapid reduction, and currently has become a very rare species. Local fishermen point out that in past times it was very abundant (Trujillo et al. 2017).

The first published records for the species within the Departamento del Magdalena date to 1904 and include observations of the species for the eastern coastal border of the Sierra Nevada de Santa Marta (Allen 1904), later Ruthven (1922) commented on the presence of the species on the Aracataca River. Research on the distribution of the species in Colombia was carried out at the beginning of the 21th century (Montoya-Ospina et al. 2001; Caicedo-Herrera et al. 2004). Records from protected areas "Isla Salamanca" and "Santuario Fauna y Flora Ciénaga Grande de Santa Marta" were provided by Moreno-Bejarano & Álvarez-León (2003) and Guerrero-Sarmiento & Lugo-Camacho (2018). Later, Trujillo et al. (2017) published the Management Plan for the Aquatic mammals from Departamento del Magdalena, including marine localities where the species was observed. Recently, Debrot et al. (2022). identified present and past coastal-lowland hotspots for the species in coastal Colombia, including information on mortality reports within CGSM.

Here we present recent records (2021-2023) for the species collected during field monitoring surveys and data on rescue interventions performed over individuals tangled in fishnets, beached or stranded newborn that were attended by the Marine Wildlife Rescue Center of the governmental agency CORPAMAG in an alliance with Centro de Vida Marina (before Acuario El Rodadero). We included field observations of captured or photographed individuals, recovered carcasses, scats, and feeding marks, within the Magdalena department, Colombia.

We conducted nine field surveys from July to November 2022 in CGSM by motorboat, following the southeastern border of the CGSM, starting at Rio Sevilla and reaching Palenque Reten, Magdalena (Figure 1). And the northeastern margin from Tasajeras, Nueva Venecia, and the locality of Palermo (Sitio Nuevo), part of the buffer area for the protected area Via Parque Isla Salamanca. Individual counts were performed using binoculars from the boat using fixed point surveys as described by (Arévalo-González et al. 2014). We used observation points with 60-minute intervals, and individuals from a moving boat were also recorded. The time of the observation and the point position of the observed animal were recorded with a GPS. The estimation of its approximate age group (Adults, juveniles, and newborns) was based on the observation of exposed body parts, while feeding or breathing (Castelblanco-Martínez et al. 2009). Direct evidence on the occurrence of the species included the events where manatees have been rescued and attended by the Marine Wildlife Rescue Center of CORPAMAG and Centro de Vida Marina. Active searches for evidence of feeding and scats were performed during navigation periods, following the border of the water bodies surveyed. If direct observations on feeding or evidence of feeding marks were observed, the plants were identified using specialized literature such as aquatic plant field guides and local floras (Romero Castañeda, 1971; Madriñán et al. 2017).

A total of 16 direct sighting events were recorded, while animals reached the surface to breathe or to feed, being photographed on five occasions while feeding on aquatic vegetation (Figure 2). Direct detection of the species included 13 sightings of individual adults, including two sightings of a dyad (adult and a juvenile), and one observation on a single juvenile. Most of the obtained sightings consisted of a single individual, except for an adult and its calf, and two adults were observed while surfacing one next to another. From the 16 observations, eight occurred at the locality of Darsena, Sitio Nuevo. The

remaining observations took place in Santa Marta, and Ciénaga Grande de Santa Marta (Rio Sevilla, Trojas de Cataca, Palenque, Pancu, and Barra del Caimán- Tasajera). Additionally, reports collected by the local environmental authority CORPAMAG, from three dead adult individuals during 2021 and 2022 for the localities of Salamina, Puebloviejo, and Remolino were also included.

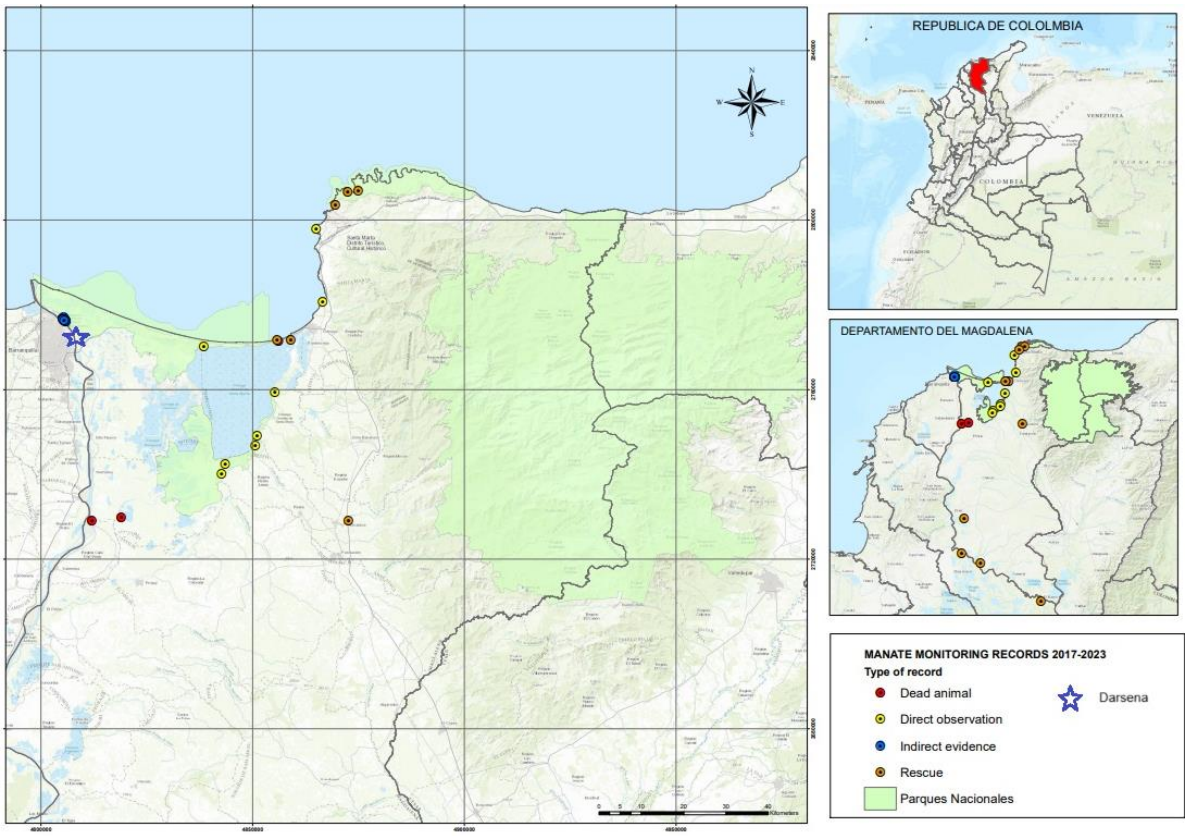

FIGURE 1. Records for *Trichechus manatus manatus* in Departamento del Magdalena based on direct and indirect observations, rescue of stranded individuals, and dead individuals.

The Marine Wildlife Rescue Center (Corpamag-Acuario del Rodadero) performed a total of 10 manatee rescues (Figure 3). The history of manatee rescues begins in 2016 with a stranded adult male in Ciénaga de Jaraba. It was aided because of the lack of food during a long dry period, and was transported to a rescue Center, in Lorica in Departamento de Córdoba, rehabilitated and released in Ciénaga de Jaraba in cooperation with NGO Omacha. During June 2021, an adult female was caught tangled in a fishing net in Bonito Gordo (Tayrona National Park), the animal was rehabilitated at the Marine wildlife Rescue Center in Santa Marta for a month and later released with a GPS tag, the individual was then tracked and observed during the next following eight days at the sea in front to The Manantial, Ecopetrol, Pozos Colorados, using coastal environments such as seagrass beds and could be photographed while surfacing during July 10 2021. Four days later, this individual entered the Cienaga Grande de Santa Marta lagoon and was detected by hunters from the locality of Tasajera, who chased and killed the animal. The body of this female could be retrieved back to the Rescue Center, where an autopsy was performed, which

included the analysis of its stomach content, showing the presence of sea grass and plastic debris.

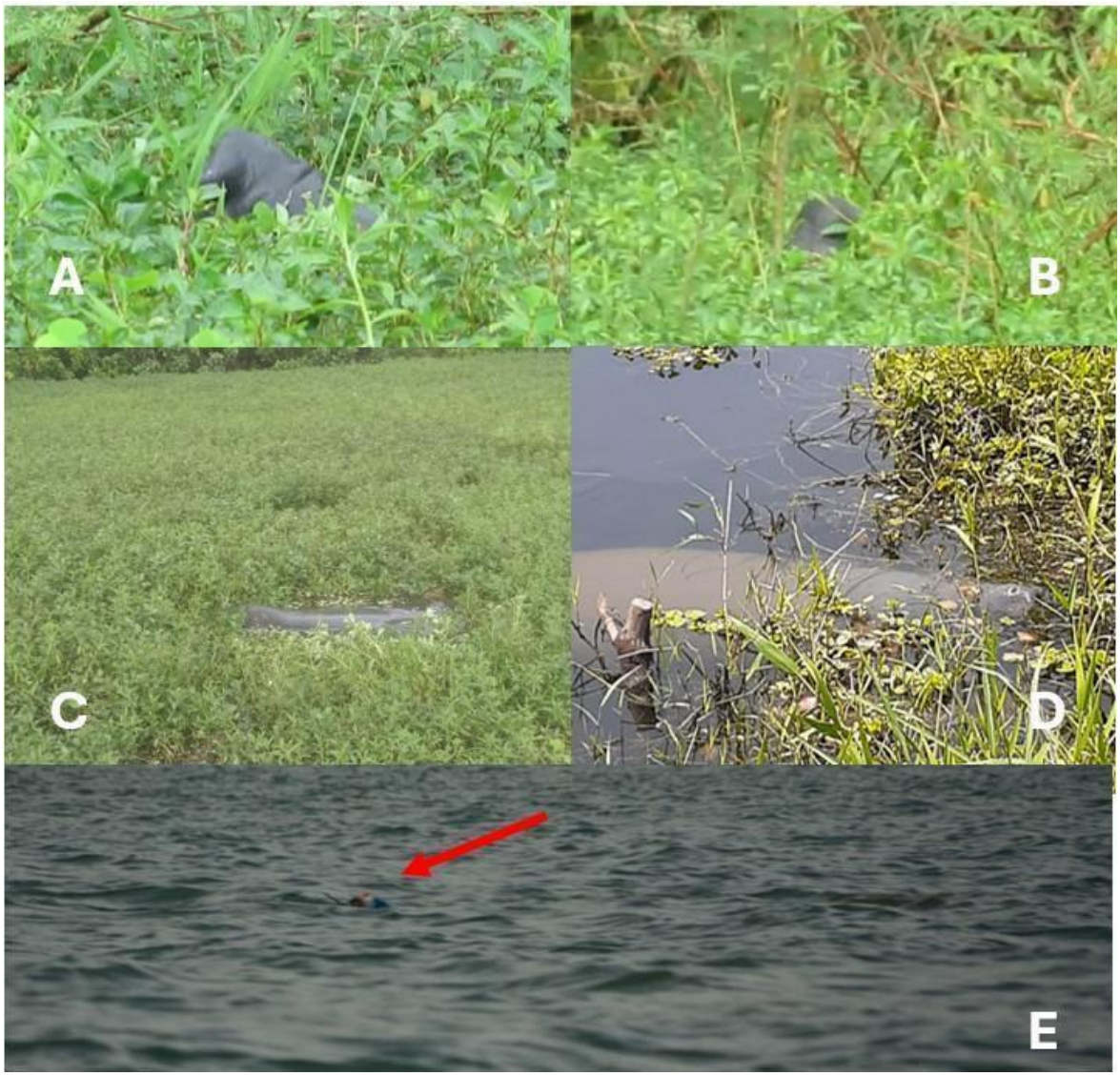

FIGURE 2. Photographic evidence of the presence of the species. A and B). Adult feeding on grasses and legumes (*Neptunia natans*), Darsena, July 30/2022; C). Adult feeding on guamacho (*Pacourina edulis)*, Darsena, November 11/2022. D). Adult Individual observed while feeding on grasses, Darsena, April 01/2023. E). Photograph of the tail GPS tag from Julieta, a week after her release, while moving along the coast of Santa Marta, July 10/2021

In September 2021, a male calf was rescued by fishermen in the CGSM. This individual was on the sandbar at the locality of Barrita del caiman, Tasajera. The individual was attended by the wildlife rescue center and satisfactorily rehabilitated. Later in September 2022, an adult female was found trapped and beached by fishermen in Santa Ana, Magdalena, and was transported to the rescue center, where it finally died because of severe kidney failure. In March 2023, a stranded male calf was rescued by a fisherman in San Miguel, and rehabilitated successfully in the rescue center. Later in May, a juvenile male was rescued while trapped in fishing nets at sea, in Parque Nacional Tayrona (Playa Ciruelo). This

individual had shark bite marks on its caudal fin and was rehabilitated in the rescue center. In September 2023, a juvenile female was rescued from fishing nets in Genemaka, near Tayrona National Park, and rehabilitated. Finally, in October 2023, a stranded female calf was found by a fisherman in Santa Barbara de Pinto. At the moment of the publication of this note, it remains at the wildlife rescue center at Santa Marta.

FIGURE 3. A) Rescue of Tasajerito, Tasajera, Magdalena. B) Feeding site with the presence of berro (*Ludwigia helminthorrhiza*), red circle indicates the presence of scats from *T. manatus*, Sitio Nuevo Magdalena.

We compiled 71 observations on *T. manatus*, at 11 localities. We report a total of 16 direct sightings, ten rescue events, three mortality events, and 41 records on indirect evidence of manatee presence (38 feeding sites; three scats), and one archeological evidence (Figure 3). Observations in marine environments involved adult individuals and juveniles, while rescued calves have only been reported for fresh and brackish water habitats (Table 1).

TABLE 1. Records for *Trichechus manatus* in Departamento del Magdalena (2016-2023). Full table with historical records as supplementary files.

Municipality	Locality	Type	Date	latitude	longitude
Santa Ana	Ciénaga de Jaraba	Rescue	2016-05-04	9.325451	-74.546514
Plato	Ciénaga de Zarate	Rescue	2020-02-15	9.730349	-74.696309
Santa Marta	Bonito gordo (Bahía Concha, PNN Tayrona)	Rescue	2021-06-03	11.296151	-74.168647
Santa Marta	Pozos colorados	Sighting	2021-07-10	11.062066	-74.222576
Puebloviejo	Tasajera	Rescue	2021-07-14	10.979838	-74.291153
Puebloviejo	Tasajera, barrita del caimán	Rescue	2021-09-01	10.59468	-74.16449
Santa Ana	Santa Barbara de pinto	Rescue	2021-09-16	9.416463	-74.717578
El Banco	San Miguel	Rescue	2023-03-11	8.979425	-73.996295
Santa Marta	Inca inca	Sighting	2023-05-05	11.217256	-74.237289
Santa Marta	Playa ciruelo (PNN Tayrona)	Rescue	2023-05-11	11.300560	-74.146752
Santa Marta	Taganga (Genemaka)	Rescue	2023-09-09	11.268251	-74.195490
Santa Ana	Santa Barbara de pinto	Rescue	2023-10-23	10.981075	-74.320276
Salamina	Compuertas del río	Dead	2021-02-02	10.977469	-74.317746

Puebloviejo	Tasajera	Dead	2022-05-15	10.592899	-74.718621
Remolino	Compuertas del Renegado	Dead	2022-07-12	10.600687	-74.655264
Puebloviejo	Tasajera (Barrita del caimán)	Sighting	2022-07-29	10.966922	-74.478972
El reten	Palenque (CGSM)	Sighting	2022-07-28	10.714565°	-74.431103°
El reten	Palenque (CGSM)	Sighting	2022-07-30	10.694900	-74.439650
Aracataca	Trojas de cataca (CGSM)	Sighting	2022-07-30	10.774754	-74.362805
Aracataca	Pancu (CGSM)	Sighting	2022-07-30	10.754820	-74.366444
Sitio nuevo	Dársena (Magdalena River)	Sighting	2022-10-09	11.021377	-74.782179
Sitio nuevo	Dársena (Magdalena River)	Sighting	2022-10-09	11.020690	-74.781303
Sitio nuevo	Dársena (Magdalena River)	Sighting	2022-10-09	11.021480	-74.781246
Sitio nuevo	Dársena (Magdalena River)	Sighting	2022-10-09	11.021127	-74.782335
Sitio nuevo	Dársena (Magdalena River)	Sighting	2022-10-09	11.022103	-74.782250
Sitio nuevo	Dársena (Magdalena River)	Sighting	2022-10-09	11.022359	-74.783125
Sevilla	Rio Sevilla	Sighting	2023-11-10	10.869363	-74.324843
Sitio nuevo	Dársena (Magdalena River)	Sighting	2023-02-01	11.020256	-74.778872
Sitio nuevo	Dársena (Magdalena River)	Sighting	2023-02-02	11.020822	-74.781887
Santa Marta	Betoma	Archeological data	NA	NA	NA
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-08-31	11.020571	-74.781405
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-08-31	11.020553	-74.781134
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-08-31	11.019422	-74.779160
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-08-31	11.020846	-74.781917
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-09-28	11.023782	-74.783888
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-09-28	11.023838	-74.783880
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-09-28	11.023943	-74.783866
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-09-28	11.023969	-74.783877
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-09-28	11.023976	-74.783879
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-09-28	11.023986	-74.783883
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-09-28	11.024151	-74.783926
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-09-28	11.019724	-74.779010
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-09-28	11.020225	-74.778876
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-09-28	11.019605	-74.779020
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-09-28	11.019761	-74.778913
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.023989	-74.783942
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.023993	-74.783942
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.024004	-74.783949
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.024052	-74.783949
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.024081	-74.783919
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.024132	-74.783929
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.024241	-74.783932
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.027469	-74.782620
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.025566	-74.782083
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.025555	-74.782090
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.024130	-74.781344
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.024174	-74.781326
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.023098	-74.780748
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2022-10-09	11.022201	-74.780181
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.018833	-74.777961
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.018814	-74.777964
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.018473	-74.777960
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.018413	-74.777774
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.018905	-74.777875
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.020219	-74.779283
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.020712	-74.781720
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.020727	-74.781729
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.022705	-74.784043
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.022885	-74.783960
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.023008	-74.783934
Sitio nuevo	Dársena (Magdalena River)	Indirect evidence	2023-02-10	11.020374	-74.780950

Our results show that the locality of Darsena, Sitio Nuevo (figure 1), is of great importance for the congregation of manatees, where they have an important habitat for feeding. We evidenced that the manatee diet in the Darsena was configured by 21 species of freshwater

plants. This locality shows not only the presence of adults but also juveniles and could be an important site for mating and nursing. We observe that for this locality, fishermen report some negative interactions with the species, including fish being stolen from fishing nets. This opportunistic behavior has been reported for other Caribbean manatee populations, and it may be a form of play, but it can be interpreted as direct competition between humans and this species that may pose a difficulty for the conservation of the species (Powell 1978; Ordoñez-Nieto et al. 2024). Mortality events reported in Salamina and Remolino are associated with animals that have been trapped in floodgates. Additionally, the necropsy performed over a hunted individual (Julieta) revealed that the stomach contained plastic bags in his stomach, which leads us to conclude that pollution by solid wastes may also affect health in resident populations.

The reports on rescued individuals from by-catch reveal important marine habitats for the species between Santa Marta, Taganga, and Parque Nacional Tayrona. These marine habitats include small patches of seagrass prairies (Moam 2019). Fragments of two genera of marine grasses (*Thalassia* and *Syringodium*) were recovered from the stomach of Julieta, an important food source for the species as it moves through coastal environments.

Increasing monitoring efforts of *T. manatus* in the Departamento del Magdalena may aid in conserving the species. We consider important sampling with complementary monitoring methods such as bioacoustics and side scan sonars (Sousa-Lima et al 2002; Gonzalez-Socoloske et al. 2012). Drone surveys and environmental DNA may help obtain data on behavior, ecology, and genetic diversity. The conservation of this unique herbivorous aquatic mammal in rivers, wetlands, and seas from the Departamento del Magdalena depends largely on environmental education efforts, as hunting may be the most important threat to the species' survival. Promoting ecotourism around the Greater Caribbean Manatee habitat may be an economic alternative of income for the fishers in CGSM.

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