REVISTA DE LA ACADEMIA
COLOMBIANA DE CIENCIAS
EXACTAS, FÍSICAS Y NATURALES

www.raccefyn.co

Supplementary material

Fishes in the Ciénaga Grande de Santa Marta:

Bibliographic review

Peces de la Ciénaga Grande de Santa Marta: Revisión bibliográfica

Horst Salzwedel, Arturo Acero P, Efraín Viloria Maestre

Correspondence: Arturo Acero, aacerop@unal.edu.co

Text S1. Chronological record of fish species
Text S2. Fisheries Biology, Ecology and Resource Assessment Studies
Text S3. Complete References

Table S1. Fish species reported from the Ciénaga Grande de Santa Marta (CGSM) based on historical and recent literature.
Table S2. Fish taxa recorded by José Nicolás de la Rosa (ca. 1746; published 1820)
Table S3 Steindachner
Table S4 Dahl

Text S1. Chronological record of fish species

Records are presented in chronological order according to known or inferred sampling dates. Species-level identifications are preferred throughout. Genus-level records (sp.) and records designated as cf. are included only in those cases where they provide unique taxonomic information not otherwise represented in the dataset. Duplicate records resulting from repeated citation of the same primary sources were excluded.

José Nicolás de la Rosa (ca. 1746; published 1820), a Spanish-born military officer (ensign), in Chapter X of his chronicle entitled “Sea, rivers, and fish of the province of Santa Marta” (pp. 266–272), records the vernacular names of numerous fishes from the region. Only those species or genera that could be identified with confidence were included in the following list, although the text does not specify whether the fishes originated from marine, riverine, or lagoonal environments. *Carcharhinus* spp. were not included because species-level records of the genus are already available in the literature, namely *Carcharhinus leucas* (Dahl, 1971; Franky & Rodríguez, 1976) and *Carcharhinus porosus* (Santos-Martínez & Acero, 1991). Including the generic designation would not add taxonomic value and could result in double counting. De la Rosa (ca. 1746/1820) mentioned “caballetas” in his manuscript, which we interpreted as *Decapterus* spp. However, these records were excluded from our checklist because species of this genus are marine rather than estuarine, and their occurrence within the Ciénaga Grande de Santa Marta proper appears highly unlikely. *Xiphias gladius* was excluded as an oceanic shelf-slope species with no plausible occurrence within the

shallow, enclosed CGSM lagoon complex. Likewise, *Mobula* sp. and *Coryphaena hippurus* were excluded, as both are oceanic pelagic species whose occurrence within the enclosed, shallow waters of the CGSM is considered highly unlikely. In total, 37 of the 42 fish taxa recorded by de la Rosa were incorporated into the species inventory, of which 21 are confirmed by subsequent authors and 16 represent unique taxa (see Table S2).

Franz Steindachner (1879), an Austrian zoologist, examined material collected in 1876 and 1877 and described 46 fish species based on more than 200 specimens originating from the Ciénaga Grande de Santa Marta region. In the introductory section of his work (p. 20), he states: “In 1876 and 1877, I acquired … more than 200 fish from the large, lake-like Cienega…”. In his concluding remarks (p. 75), he further clarifies that “…the species listed in this treatise [originate] only from the Cienega…”.

Although 19 of the 46 species descriptions explicitly refer to either the “Ciénaga” or the “Magdalena River,” and the provenance of the remaining species is not specified, Steindachner’s own statements clearly indicate a common origin within the Ciénaga system. This interpretation is strongly corroborated by specimen records from the Natural History Museum Vienna associated with Steindachner, which document 144 specimens representing 42 of the 46 species and overwhelmingly refer to Ciénaga-related localities. In particular, the most frequently cited locality is the “large, lake-like Ciénaga formed by the Magdalena River shortly before it flows into the sea,” while strictly riverine or marginal localities along the Magdalena River are mentioned only sporadically. Taken together, these lines of evidence support the conclusion that the species treated by Steindachner (1879) originate from the Ciénaga Grande de

Santa Marta lagoon complex rather than from the Magdalena River proper (see table S3 in the Supplementary Material).

Auchenipterus insignis and *A. magdalenae* are currently considered conspecific according to FishBase and are treated today as *Trachelyopterus insignis*. Steindachner also described both *Mugil brasiliensis* and *M. liza*, although *M. brasiliensis* is now regarded as a junior synonym of *M. liza*. We further propose that his *M. elongatus* corresponds to the species currently known as *M. muyscorum*, and that his *C. argenteus* represents *C. magdalenae*. In addition, we assume that the reported *Gerres zebra* corresponds to *Eugerres plumieri*. After taxonomic standardization, 43 species are recognized from Steindachner's account, five of which are recorded exclusively by this source in the present inventory (Table S3).

George Dahl (1971), a Swedish ichthyologist, compiled a comprehensive and systematic account of the fish fauna of northern Colombia for INDERENA, then the national authority for natural resources prior to the creation of the Ministry of Environment in 1993. His synthesis traces the historical record back to the earliest documented marine fishes reported by Nicolás de la Rosa (ca. 1746/1820). Of the 453 species included in Dahl's compilation, nineteen can be attributed to the Ciénaga Grande de Santa Marta (CGSM) based on textual reference. Eighteen of these species have been confirmed by at least one additional author, whereas *Rachovia brevis* remains an isolated historical record; see table S4 in Supplementary Material. Because Dahl (1971) did not provide explicit sampling years for these records, a representative

reference year of 1960 was assigned in order to position these occurrences within the chronological species compilation table.

Jorge Mercado Silgado (1971) documented the fish fauna of the Ciénaga Grande de Santa Marta based on sampling conducted in 1970–1971 using gill nets of various mesh sizes, cast nets, hand lines, spears, and traps. In total, 33 fish taxa were reported, including 11 records identified only at the genus level (sp.). *Achirus achirus* is restricted to USA and México waters. The species is replaced in the south by *A. lineatus*, whereas *Achirus* sp. and Lutjanus sp. were excluded from the species count because other species of these genera were already listed, while the remaining nine unidentified records were provisionally assigned to the most likely genera, resulting in a total of 31 validated taxa. The study also includes the earliest documented record of *Gobioides broussonnetii* for the system — also reported by Álvarez León (2003) — and preceding the occurrence reported by Acero and Arenas Granados (1990), who recorded 29 specimens in January 1989 from Boca de la Barra (one specimen) and adjacent northeastern areas of the Ciénaga Grande de Santa Marta; these records were subsequently cited by Santos-Martínez and Acero (1991).

Guerly Ávila de Tabarés (1975) conducted monthly zooplankton surveys at eight stations from January 1970 to May 1972 using a standard nylon plankton net (mesh 444) in 5-minute surface circular tows. She reported nine fish larvae. *Trinectes maculatus*, the hogchoker, is restricted to USA and Mexico waters, and hence was

excluded from our species list. The species is replaced in the south by the southern hogchoker, *T. paulistanus.*

Simón Max Franky Vásquez and Pedro I. Rodríguez Guerrero (1976) present a broad synthesis of the origin, value, and management of national parks, using Isla de Salamanca as a Colombian case study. The book outlines the historical development of the national park concept and Colombia's institutional adoption through agencies such as INDERENA, emphasizing the roles of parks in conservation, research, environmental education, and recreation, while warning that poorly managed tourism can undermine protection goals.

Within this framework, the fish species list with 55 taxa is presented as part of a descriptive biodiversity overview and appears to be primarily a compiled inventory rather than the result of a single standardized survey. The authors acknowledge the foundational work of Dahl (1971) on the ichthyofauna of northern Colombia and note that many of those species occur in the park. Only selected representative fishes are discussed in detail, with the full list provided in an appendix. Overall, the inventory was likely assembled from regional literature, institutional studies (CVM/INDERENA), and park observations, with limited explicit documentation of systematic sampling methods or effort. Because Franky Vásquez & Rodríguez Guerrero (1976) do not indicate the specific years of sampling or compilation for the fish inventory, a representative reference year of 1975 was assumed for the 55 taxa in order to position these records within the chronological species compilation table. *Leporellus vittatus* was excluded

because its known geographic distribution does not include northern Colombia, reducing the reported total to 54 taxa.

Thomas B. Thorson *et al.* (1983) conducted surveys obtaining rays during the summers of 1975 and 1976 using a wide range of collection methods, including baited hook and line, throw nets, seines, gill nets, otter trawls, and occasionally harpoons and other artisanal techniques. These surveys recorded the stingrays *Dasyatis guttata*, *Himantura schmardae*, and *Urotrygon venezuelae*, with the latter species being observed only once.

María Lupe Galeano and María Romero (1979a) surveyed fish parasites between January 1978 and June 1979 and reported 19 host species. Because the subsequent publication presents only a subset of the thesis results restricted to digenean trematodes (Galeano & Romero, 1979b), the present compilation is based primarily on the more comprehensive thesis.

Edith González Afanador (1984) conducted 132 juvenile fish surveys between May 1979 and June 1980 using a manual nylon beach seine, collecting 14,249 specimens representing 52 species from 40 genera and 25 families. Sampling was carried out at a total of 11 stations in the Golfo de Salamanca and around Boca de la Barra. For the present study, only the records reported for Boca de la Barra (1 column of their Table 3) were considered, comprising 27 species, three of them unique reports.

Manuel Julian Barrios (1981) conducted monthly sampling from August 1979 to July 1980, comprising two daytime and two nighttime surveys per month using four gillnets

per sampling event. The nets were artisanal monofilament nylon (#5 or #6), 30 m long and 2 m deep, with mesh sizes of 5–7 cm (knot to knot); industrial multifilament gillnets of similar dimensions were occasionally used. Sampling locations, selected according to fishermen's criteria based on recent catch abundance, were restricted to the estuarine area. Fishing operations were carried out between 07:00–15:00 and 18:00–06:00. In total, 3,015 fish representing 34 species were reported. In our compilation, the unidentified records *Arius* sp. and *Stellifer* sp. were assigned to *Ariopsis canteri* (already reported by Barrios as *A. bonillai*) and *Stellifer venezuelae*, respectively. The most abundant species were *Elops saurus* (15%) and *Cathorops spixii* (14%).

Octavio Galvis Cortés (1983) investigated the biology and fishery aspects of the ariid catfishes *Cathorops spixii*, *Ariopsis bonillai*, and *Arius proops* based on 81 surveys conducted between September 1981 and November 1982 in six sectors of the Ciénaga Grande de Santa Marta (CGSM). Sampling was carried out day and night using gill nets, cast nets, hook-and-line (palangre), and hand nets. A total of 1,270 *C. spixii*, 3,477 *A. bonillai*, and 309 *A. proops* were collected. The associated bycatch comprised 28 additional fish taxa, bringing the total to 31 species reported. In the present compilation, the unspecified records *Hyporhamphus* sp., *Trachinotus* sp., and *Oligoplites* sp. are interpreted as *Hyporhamphus unifasciatus*, *Trachinotus falcatus*, and *Oligoplites saurus*, respectively.

Ricardo Álvarez León (2003) documented the fish fauna of the Ciénaga Grande de Santa Marta fluvio–lagunar–estuarine complex prior to the civil works aimed at restoring the tidal channels. Sampling was conducted at eight stations between October 1984

and December 1985, covering mangrove-dominated habitats. Fishes were collected using a small semicircular trawl (20 m length; 0.5 cm mesh) and a cast net (0.5 cm mesh). Based on 1,326 specimens, the assemblage comprised 22 families, 37 genera, and 41 species**.** The study provides an important pre-restoration baseline of the CGSM ichthyofauna associated with mangrove environments.

Adriana Santos-Martínez and Arturo Acero (1991) collected 60 samples between February 1987 and January 1988 using three daytime methods and one nighttime method across four areas, complemented by specimens obtained from local fishermen. In addition, they examined fourteen further species from the CGSM preserved in the Invemar collection, collected in different years and identified in our Table 1 by their Invemar PEC catalogue numbers: 1975 (*Lobotes surinamensis*), 1976 (*Lupinoblennius dispar*), 1979 (*Odontognathus compressus*), 1983 (*Antennarius striatus*), 1988 (*Eleotris amblyopsis*, *Hoplosternum thoracatum*, *Myrophis punctatus*), and 1989 (*Atherinella brasiliensis*, *Ctenolucius hujeta*, *Gobioides broussonnetii*, *Prionotus punctatus*, *Pterygoplichthys undecimalis*). Two additional species (*Lagocephalus laevigatus* and *Oostethus brachyurus*) were also indicated as originating from one of these years; however, the corresponding specimens were not available for verification as of February 2026. In total, their Table 1 reported 130 species, comprising 87 species recorded during the sampling program, 14 from the Invemar collection, and 29 cited from earlier literature. The latter were not incorporated into Table 1, nor was *Lutjanus* sp., as four other species of *Lutjanus* were already reported. Consequently, a total of 100 fish taxa were recognized from this source, of which nine species were recorded exclusively by Santos-Martínez and Acero. The sampling program and most of the analyzed material

derive from the thesis work of Santos Martínez (1989), while the earlier technical report (Santos, 1988b), later congress abstracts (Santos Martínez, 1993, and others), and the summary in Botero *et al.* (1988, Table 18) all refer to the same dataset.
Lutjanus spp. has been reassigned to *Lutjanus griseus*, a species that had already been reported and was therefore not counted separately.

Tadeo Castaño Echeverry (1989) analyzed the feeding habits of fishes in the Ciénaga Grande de Santa Marta based on 40 daytime surveys (August 1987–May 1988) conducted at Boca de la Barra, Caño Grande, and the Fundación and Sevilla rivers using cast nets and a small bottom trawl. He reported 19 taxa.

The Comité Institucional de la Ciénaga Grande de Santa Marta (1990) presented a list of 13 commercially important species, citing Jaime Garzón, J. M. Díaz, J. Blanco, A. Pérez, A. Santos, and T. Castaño (1987) as the source, but without providing the complete reference; in order to position the records within the chronological species compilation table, we assumed 1986 as the year for sampling.

Lilian Lamprea Ochoa (1990) examined the composition, distribution, and feeding ecology of juvenile fishes based on sampling conducted from November 1988 to December 1989 at five stations—Boca de la Barra, Caño Clarín–Rinconada, and the lagoons Redonda, Luna, and Pajaral—and recorded 53 species. The study showed that juvenile fish abundance and distribution were mainly influenced by rainfall seasonality, food availability, and water turbidity, with most species acting as occasional visitors while a smaller group used the lagoon system as a nursery and feeding area. Diet

analysis indicated that about 70% of the species were carnivorous, 20% omnivorous, and about 5% herbivorous, with benthic organisms such as ostracods, harpacticoid copepods, foraminiferans, and polychaetes forming an important part of juvenile fish diets. Because one taxon was reported only as *Stellifer* sp., it was not included in the species count used here, resulting in a total of 52 species. *Eleotris* cf. amblyopsis counted as *Eleotris amblyopsis.*

Leonor Botero Arboleda and Michael J. Marshall (1995) examined mangrove condition and associated fauna in the Ciénaga Grande de Santa Marta during the dry season (July–August 1992) and the wet season (December 1992–February 1993). Severe hypersalinization in the western sector of the lagoon complex had caused near-total mangrove mortality and pronounced shifts in associated fauna. Fish surveys were conducted at 15 stations in each of the two seasons (30 samples in total) using beach seines (4 and 6 cm mesh), rotenone, gill nets (7 cm mesh), and traps (5 mm mesh). In total, 51 fish taxa were reported. Species richness was markedly lower in degraded hypersaline mangrove areas, which were often dominated by *Poecilia cf. gillii*, whereas healthier zones showed higher diversity and seasonal dominance of *Anchovia clupeoides*, reflecting the strong environmental gradient across the system.

After taxonomic standardization and the exclusion of indeterminate records, 39 species are confirmed for the present compilation. Ten records reported only at higher taxonomic level or as unspecified taxa were therefore not considered: *Atherinella* sp., *Centropomus* sp., *Anchoa* spp., *Gerreidae* sp., *Lutjanus* sp., *Gambusia* sp., *Sciaenidae* spp., *Anchoa* sp.1 and sp.2, and *Engraulidae* spp. *Gobiosoma* cf. *spes* was treated as *Gobiosoma spes*, and *Lutjanus* cf. j*ocu* was standardized as *Lutjanus jocu*, a species

already present in the list, thereby reducing the count by one duplicate entry. The undetermined record *Stellifer* sp. was assigned to *Stellifer venezuelae* for the purposes of the compilation. *The record of Poecilia vivipara was tentatively reassigned to P. cf. gillii, as its occurrence in the CGSM is considered biogeographically unlikely and misidentification with the morphologically similar P. gillii cannot be excluded*. Overall, the standardized species list corresponds to the ichthyofaunal inventory presented in the symposium contribution by Santos-Martínez (1996), which was based on the same underlying sampling material.

Claudia Sánchez Ramírez and Mario Rueda (1999), largely based on the thesis of Sánchez Ramírez (1996), analyzed spatial and temporal variation in the diversity and abundance of dominant fish species in the Magdalena River delta. Their study was based on monthly sampling conducted between March 1995 and February 1996 at 15 stations distributed across three subregions of the Ciénaga Grande de Santa Marta system: the western Salamanca complex, the Pajarales complex, and the Ciénaga Grande de Santa Marta proper. Each subregion was sampled with standardized cast-net hauls (3 cm and 6.3 cm mesh) to reduce gear selectivity. Their Table 1 lists 57 fish taxa, three identified only to genus level. The very scarce *Mugil* sp., *Anchoa* sp., and Engraulidae sp. were excluded due to extremely low abundance and negligible CPUE values, and because species-level representatives of *Mugil* and *Anchoa* were already present in the dataset. After removing these marginal records, the inventory retained for analysis comprises 54 species, of which only two (*Anchoa hepsetus* and *Batrochoglanis raninus*) were recorded exclusively by this study. Sánchez Ramírez and

Santos Martínez (1998) presented a brief summary of the same research within a project report.

Natalia Bateman Vargas (1998) studied the fish community of the external Magdalena River delta lagoons between March 1996 and February 1997, sampling monthly at 15 stations across three subregions: the Ciénaga Grande de Santa Marta, the Pajarales complex, and the western Salamanca complex. Using cast nets and measuring key environmental variables, the study analyzed community patterns and compared them with data from 1995–1996 to evaluate potential effects of the reopening of the Clarín Channel. A total of 4,161 fish belonging to 59 species were recorded (not counting Engraulidae nor *Anchoa* sp.). The community was dominated by *Mugil incilis*, and unusually low salinity—especially in Pajarales—favored several freshwater species. Differences among the three subregions were stronger than interannual differences, and most changes were attributed to regional flooding dynamics of the Magdalena River rather than to the local hydrological effects of the Clarín Channel.

María Mercedes Criales *et al.* (2002) conducted night sampling at Boca de la Barra using a moored 800-µm channel net (1.5 m² mouth, 5.5 m long) deployed at 0.5–1.5 m depth during new and full moons from February 1998 to February 1999 (1900–0700 h). The material obtained formed the basis for the first Caribbean records of Microdesmus carri (Amaya, Acero & Criales, 2002) and Akko dionaea (Acero et al., 2005).

INVEMAR has issued an annual report since 2002 entitled "*Monitoring of Environmental Conditions and Structural and Functional Changes in Plant Communities and Fishery Resources during the Rehabilitation of the Ciénaga Grande de Santa Marta*." These

reports systematically include a table presenting the scientific and vernacular names of the commercial fish species associated with the CGSM ecoregional fishery. The titles of the 24 reports published to date exhibit a high degree of similarity, which may lead to ambiguity. To ensure clarity and consistency throughout this manuscript, we have standardized their citation as Rep01-2002 to Rep23-2024.

In Table 1, we rely on the Rep23-2024 dataset, which remains unchanged throughout the report series from Rep14-2016 to Rep23-2024. This dataset comprises 91 fish taxa, including 11 identified only to genus level. Rep23-2024 was selected because the most recent edition, Rep24-2025, no longer reports the species previously listed under the vernacular name “Rey bocachico”. In earlier reports (through Rep11-2012), this taxon lacked a scientific designation, but it is herein assigned to *Abramites eques* based on identification by the second author of the present paper. Rep11-2012 through Rep13-2014 each reported a total of 94 species, reflecting the additional inclusion of *Sphyraena guachancho* as a distinct taxon.

From Rep01-2002 onward, 16 species were listed under the heading “New species incorporated as a fishery resource after the reopening of the channels (caños)”: *Agonostomus monticola*, *Andinoacara pulcher*, *Astyanax fasciatus*, *Ctenolucius hujeta*, *Cynoscion* sp., *Cyphocharax magdalenae*, *Hemibrycon* sp., *Oreochromis* sp., *Plagioscion magdalenae*, *Pomatomus saltatrix*, *Rachycentron canadum*, *Rhamdia sebae*, *Sardinella aurita*, and *Sorubim lima*. All of these taxa continued to be reported in subsequent editions through Rep24-2024, except for *Andinoacara pulcher* and *Sardinella aurita*, both of which were listed only up to Rep10-2011. We excluded

Sardinella aurita from our checklist because it is a marine species and its occurrence within the CGSM proper is unlikely.

The information on fishery sampling presented in the 23 reports provides a general methodological framework for the monitoring program, but only limited detail regarding the specific procedure used to compile the table entitled “Commercial fish species of the CGSM ecoregion fishery”. The methodological descriptions primarily refer to aspects of artisanal fisheries monitoring, including CPUE, fishing effort, and catch volume, and indicate that these data were generated with the support of trained fishers.

According to the reports, the monitoring system has operated since 1994 at five landing sites representing different sectors of the CGSM, generally during three days per week and mainly between January and September of each year, although temporal coverage and sampling intensity varied among years.

Nevertheless, the available methodological descriptions provide limited information on the criteria and procedures used for inclusion of species in the aforementioned table. In particular, the reports do not specify how species considered non-commercial were treated, despite the inclusion of several taxa not usually regarded as strictly commercial. Likewise, the comparatively limited variation in the total number of reported species (between 81 and 94 species) over more than 25 years of monitoring suggests a relatively stable species composition, although the methodological basis underlying this consistency is not discussed in detail in the reports.

Additional statistics from the same monitoring program are available through SIPEIN, the Invemar Fisheries Information System (Invemar-SIPEIN 2026). Following

consultation of this database, we added *Echeneis naucrates* and *Isopisthus parvipinnis* to the species list.

Taxonomic remarks on species records reported by Invemar

Synodus sp. and *Hemibrycon* sp. were retained in the dataset since they appeared consistently in all Invemar reports.

Within the Ariidae, the *Ariopsis* and *Cathorops* species occurring in the CGSM were later described as new species because the previously used names were found not to apply to these lagoon populations. Accordingly, the species present in the CGSM are herein treated as *Ariopsis canteri* Acero P., Betancur-R. & Marceniuk, 2017, and *Cathorops mapale* Betancur-R. & Acero P., 2005. *Cathorops* sp. 9 (Rep01–03) was attributed to *Cathorops mapale*.

Records of *Loricaria* spp. in the Invemar monitoring series (Rep08–Rep24) were not included in the species inventory, as they almost certainly represent one or both of the loricariid species already documented by Steindachner (1879) — most likely *Dasyloricaria filamentosa* or *Rineloricaria magdalenae* — and would therefore constitute redundant entries rather than additional taxa.

Epinephelus sp. was aggregated to *E. itajara* as recorded earlier by Steindachner (1879) and Santos-Martínez and Acero (1991).

The records of *Lutjanus* spp. and *Menticirrhus* sp. (Rep01–24) were assigned to *Lutjanus griseus* and *Menticirrhus americanus*, respectively.

Selene spp. was omitted because two species of *Selene* were already explicitly recorded in the checklist, rendering the generic designation uninformative.

For *Cynoscion*, we propose retaining only *Cynoscion acoupa* and excluding *C.* cf. *leiarchus*. The principal rationale is that *C. acoupa* was independently reported by at least two sources (Galeano & Romero, 1979a; Galvis Cortés, 1983), whereas the record of *C.* cf. *leiarchus* (Ávila de Tabarés, 1975) was based on larval material and has not been reported again during the subsequent five decades. Additionally, the INVEMAR monitoring series (Rep01-2002 to Rep24-2025) consistently included records of *Cynoscion* sp., which are herein referred to *C. acoupa*.

Because *Dormitator maculatus*, the only species of *Dormitator* currently recognized from the Caribbean region, is already included in the checklist, the record of *Dormitator* sp. in Rep01–02 was not considered a separate taxonomic entity.

Likewise, the isolated record of *Gymnotus* sp. in Rep01 was not retained separately, as Franky & Rodríguez (1976) documented *Gymnotus carapo* for the CGSM, rendering the later generic-level record taxonomically uninformative.

In the first five reports (Rep01-2002 to Rep05-2006), *Oreochromis* was recorded as cf. *niloticus*, whereas from Rep06-2007 onward the species was consistently reported as *Oreochromis niloticus*. The concurrent inclusion of *Oreochromis* sp. throughout the series introduces ambiguity regarding the distinction between identified and unidentified congeners. For the sake of taxonomic consistency, all *Oreochromis* cf. *niloticus* and *Oreochromis* sp. records are herein standardized as *O. niloticus*.

González Afanador (1984) reported *Anchoa spinifer*, whereas Santos-Martínez & Acero (1991) and Botero Arboleda & Marshall (1995) recorded *A.* cf. *spinifer*. Examination of material from the CGSM by the second author of the present contribution supports the identification as *A. spinifer*, thereby justifying removal of the cf. designation.

Poecilia cf. *gilli* and *Poecilia sphenops* belong to a taxonomically complex species group within *Poecilia*, requiring comprehensive revision of material from across the Colombian Caribbean region. Herein, *Poecilia* cf. *gilli* is retained, whereas *P. sphenops* is excluded, as the latter was reported only by Álvarez León (2003), who did not report *P.* cf. *gilli*.

The record of *Diodon* sp. was herein attributed to *D. hystrix*, following Steindachner (1879).

Juan Carlos Narváez Barandica *et al*. (2009) assessed fish community composition in marshes and lagoons of the Vía Parque Isla de Salamanca based on monthly sampling from September 2004 to April 2005 (eight field surveys) across five lagoons, each treated as a sampling station. At each visit, 24 cast-net throws were performed (12 with 4-cm mesh and 12 with 6.5-cm mesh), complemented by two encircling gillnet ("boliche") sets with 7-cm mesh per station. All captures were pooled as one representative monthly sample per lagoon, and specimens were labeled by date, site, and gear.

A total of 658 individuals representing 37 species and 21 families were recorded. The assemblage was dominated by *Oreochromis niloticus* and *Mugil incilis*. Marine–estuarine species comprised 59% of the fauna and freshwater species 41%; notably, 24% of species are listed as threatened in Colombia. By occurrence, species

were categorized as occasional (46%), frequent (30%), or resident (24%). *Gobiomorus dormitor* represents a unique taxon recorded exclusively by this source.

Daninso Gámez Barrera, Eliana Morón Granados & Juan Fuentes Reines (2014) analyzed feeding habits of 12 fish species from the southeastern Ciénaga Grande de Santa Marta based on 2,035 specimens, being *Lycengraulis batesii* recorded for the first time. Fish were sampled in March, April, June, July, October, and November 2009 at three habitats (mangrove edge, macrophyte edge, and open water), considering hourly (06:00, 12:00, 19:00) and seasonal (dry vs. rainy) variation. Standardized effort consisted of six cast-net throws with two mesh sizes (2 and 3 cm) per sampling event, totaling 216 throws per site. Specimens were identified using regional keys, counted, measured, and weighed.

Diet composition varied significantly with size, time, and location, especially in *Ariopsis* sp., *Cathorops mapale*, *Lycengraulis batesii*, *Astyanax magdalenae*, and *Aequidens pulcher*. Two main trophic groups were distinguished: (1) insect/zooplankton feeders and piscivores, and (2) phytoplankton–detritus feeders including *Oreochromis niloticus* and mullets.

Invemar-SIPEIN (2026), the Invemar Fisheries Information System into which data collected by locally trained staff via mobile surveys are entered, provided additional statistics from the CGSM commercial fisheries monitoring program. Consultation of this database led to the addition of two species to the list: *Echeneis naucrates*, recorded at Isla del Rosario in 2012 and 2014, and *Isopisthus parvipinnis*, documented at the same site in 2026.

Text S2. Fisheries Biology, Ecology and Resource Assessment Studies

Numerous studies on commercially important fish species, fisheries ecology, biomass distribution, fisheries statistics, and resource assessments were conducted particularly during the 1990s, many of them within the framework of the Colombian–German technical cooperation project for the Rehabilitation of the Ciénaga Grande de Santa Marta (Pro-Ciénaga). These works are summarized briefly below for completeness and contextual relevance, although they do not contribute additional species records to the present checklist.

Ariopsis canteri. Galvis Cortés (1983, 1984) examined the biology and population parameters of the species (MS: ***Ariopsis bonillai***) based on 3,477 specimens collected in 81 surveys (1981–1982) using artisanal and experimental fishing gears. Campos Campos (1992) analyzed monthly variation of trace metals (Cd, Zn, Cu) in specimens collected between July 1987 and June 1988, finding highest concentrations—especially in liver tissue—during low-salinity months (November–February).

Anchovia clupeoides* & *Anchoa parva. Caselles Osorio and Acero (1996) studied the reproductive biology of both species (February 1992–March 1993) at four sites using cast nets, gill nets, and a manual seine; *A. clupeoides* was the most abundant year-round, and both species were most frequent in Caño Grande. Duque and Acero (2003, 2006), based on monthly 24-h sampling (Oct 1995–Jun 1996; n = 4,389), showed that *A. clupeoides* is primarily planktophagous, feeding mainly on copepods and detritus, with seasonal intake of diatoms, zoea, rotifers, and eggs, indicating trophic flexibility.

Bairdiella ronchus. Torres Castro, Santos-Martínez and Acero (1999) examined the biology of the species based on 890 specimens (1993–1994). It is estuarine and euryhaline (7.3–37.3), reproduces nearly year-round with seasonal peaks, shows a female-biased sex ratio (2.7:1), and reaches maturity at ~158 mm TL (females) and ~154 mm TL (males). The species is a third-order carnivore feeding mainly on fishes and decapod crustaceans. Using the same material, Torres Castro, Acero and Santos-Martínez (2004) confirmed its estuarine, euryhaline and carnivorous character, with seasonal shifts between fish and crustacean prey.

Cathorops mapale (MS: ***Cathorops spixii***). Galvis Cortés (1983) examined biological and fishery parameters based on 1,270 specimens collected in 81 surveys (1981–1982) using artisanal and experimental fishing gears. Campos Campos (1988) analyzed trace metals (Cd, Cu, Zn, Ag, Pb) in muscle tissue (Jan–Mar 1987), finding relatively elevated Cu levels and variable Zn, with metal concentrations partly correlated with fish weight. Tíjaro, Rueda and Santos-Martínez (1998), using catch statistics (1994) and swept-area surveys (1993–1994), assessed population dynamics and recommended reducing fishing mortality and increasing the minimum capture size to 23 cm. Grijalba Bendeck (1998), based on swept-area surveys (1993–1994; 1997), reported an aggregated distribution with highest abundance in the central lagoon, associated with *Mytilopsis sallei* and marked spatial–temporal variability.

***Centropomus undecimalis*.** Morales Pérez (1976) investigated biological aspects of the species based on material collected between November 1972 and September 1973 during 2–4 monthly field trips. Specimens were obtained primarily from the IDEMA landing center and from local fishermen in Tasajera, with additional sampling conducted

at El Morro, Buena Vista, and Trojas de Cataca. Santos Martínez (1994) later addressed biological and ecological aspects of *C. undecimalis* in the CGSM; however, the original document could not be reviewed and no further details were available.

Cetengraulis edentulus. Gallo Nieto (1983) conducted weekly sampling between February and December 1982 and analyzed morphometric and meristic characters. Comparisons with Venezuelan material revealed notable variation, particularly in the number of longitudinal scales.

Elops smithi (MS: ***E. saurus***). Santos-Martínez and Arboleda (1993) analyzed biological and ecological aspects based on 1,535 specimens collected between 1987–1988 and 1990–1992. Most individuals (96%) were immature, indicating that juveniles inhabit the lagoon while adults occur mainly in marine waters and likely spawn year-round. The authors recommended limiting the continuous capture of juveniles to protect the population.

Eugerres plumieri. Rubio Gómez (1975) examined biological aspects based on 2,123 specimens from commercial catches and surveys (1974). Arango and Rodas López (1978), analyzing 368 specimens (1977–1978), described a prolonged spawning period during the first half of the year, although spawning within the lagoon was not confirmed. Rueda and Santos-Martínez (1999), using fishery data (1993–1994), reported declining biomass and signs of overexploitation, recommending reduced fishing effort and larger capture size. Olaya-Nieto and Appeldoorn (2004) confirmed high exploitation rates (E = 0.53–0.57) from 1997 data. Viloria *et al.* (2012) attributed the fishery collapse mainly to ecosystem changes—especially loss of Mytilopsis sallei—rather than fishing pressure

alone, emphasizing the need for ecosystem-based management. For heavy metal assessments in this species, see Hernández Reyes and Campos (2004) below.

Arenas Granados and Acero (1992), based on 365 specimens (November 1988–August 1989), analyzed feeding habits of eight gerreids—***Eugerres plumieri, Gerres cinereus, Diapterus rhombeus, Diapterus auratus, Eucinostomus melanopterus, Eucinostomus harengulus, Eucinostomus argenteus***, and ***Eucinostomus gula***.

Megalops atlanticus. Cataño Molina and Garzón Ferreira (1994) investigated the bioecology and feeding ecology of the species based on stomach analyses of 582 specimens (120–530 mm FL) collected between February and December 1990. The tarpon was predominantly piscivorous, feeding mainly on juvenile mullets (*Mugil* spp., probably *M. incilis*) and mollies (likely *Poecilia* cf. *gillii*), with seasonal dietary shifts linked to mullet recruitment and increasing piscivory in larger individuals.

Micropogonias furnieri and ***Stellifer venezuelae***. Escobar Arias (1994) analyzed the biology and ecology of *M. furnieri* (789 specimens) and *S. venezuelae* (65 specimens) based on 50 surveys carried out between 1992 and 1993. Both species spawn year-round, show female-biased sex ratios, and function as third-order carnivores feeding mainly on polychaetes, mollusks, crustaceans, and fishes; *M. furnieri* showed higher abundance and biomass during the rainy season and an aggregated distribution. Cancio Mozo, Narváez Barandica and Blanco Racedo (2006), using fishery-independent surveys conducted in 1997, evaluated population dynamics of *M. furnieri*, reporting size at maturity of 20.7 cm TL, year-round spawning with a November

peak, and an exploitation rate of E = 0.61, indicating overexploitation and the need for management measures.

Mugil incilis. Perdomo Nuñez (1973) examined biological aspects of the species based on 4,211 specimens collected in 1971. Blanco Racedo (1983) analyzed seasonal variation in condition factor using monthly sampling conducted between 1979 and 1980. Sánchez Ramírez *et al*. (1998), based on fisheries data and surveys carried out between 1993 and 1996, identified the stock as overexploited and recommended reductions in fishing effort and increases in minimum capture size. Mármol (2008) investigated associations between reproductive and fisheries-related aspects of the species using monthly samples collected from commercial catches between December 2006 and November 2007, complemented with fisheries monitoring data generated by Invemar between 1995 and 2007. Mármol Rada *et al*. (2010) subsequently confirmed declining catches and decreasing mean size, with many individuals captured below the size at sexual maturity (~23.8 cm TL), indicating growth overfishing and the need for management measures.

Mugil liza (MS: ***Mugil brasiliensis***). Suárez Guerrero (1976) examined biological characteristics and aquaculture relevance of *M. brasiliensis* (= *M. liza*) based on material collected in 1974–1975. Martínez Rivera (1981) investigated the biology and fishery of *M. liza* using 979 specimens collected between 1979 and 1980.

Mugil liza (MS: ***Mugil brasiliensis***). Suárez Guerrero (1976) examined biological characteristics and the aquaculture relevance of *M. brasiliensis* (= *M. liza*) based on material collected in 1974–1975. Martínez Rivera (1981) investigated the biology and

fishery of *M. liza* using 979 specimens collected between 1979 and 1980. Mercado Silgado and Suárez (1978), studying biological aspects of *M. brasiliensis* based on material collected between September 1974 and October 1975 at several sites including Ciénaga Cuatro Bocas (Isla Salamanca), reported seven ichthyofaunal predators of juvenile mullets; these records were not incorporated into the species inventory compiled here because they do not represent additional species records for the system.

Mugil curema. Flórez Urbina (1986) assessed biological, fisheries, and ecological aspects based on regular sampling conducted between 1985 and 1986.

Multi-species studies addressing three ***Mugil*** species and ***Eugerres plumieri*****.** Lamprea Ochoa (1987) examined reproductive biology and fecundity of *Mugil liza* (205 specimens) and compared results with *M. curema* (17) and *M. incilis* (77). Osorio Dualiby (1988) analyzed stomach contents of the three species, showing trophic differentiation: *M. curema* mainly herbivorous (diatoms), *M. liza* detritivorous (meiofauna), and *M. incilis* more omnivorous, with distinct spatial distributions in the lagoon. Alonso *et al.* (2000) measured total mercury in muscle tissue of ***M. incilis*** and *E. plumieri* across four sampling periods (March–November 1996), finding concentrations near background levels (up to 68 µg/kg dry weight) and below international consumption advisory limits; the omnivorous *E. plumieri* consistently showed higher values than the detritivorous *M. incilis*, reflecting trophic position differences. Hernández Reyes and Campos (2004), based on four quarterly surveys conducted between September 1999 and June 2000, evaluated seasonal variation of heavy metals (Cd, Cu, Zn, As) in muscle tissue of *Mugil incilis* and *Eugerres plumieri*. Significant seasonal and interspecific differences were detected—particularly for Zn and

Cu—but concentrations did not exceed national or international safety limits, and no clear bioaccumulation was observed.

Oligoplites saurus* & *Oligoplites palometa. Duque Nivia, Acero and Santos Martínez (1995), based on 440 and 104 specimens collected between May 1992 and April 1993, examined trophic ecology and reproduction; Duque Nivia *et al.* (1996) subsequently analyzed feeding habits using the same material. Acero, Duque Nivia and Santos Martínez (1996) reported twenty juvenile *O. palometa* (<50 mm) from red mangrove roots—mostly in December 1992—and documented allometric growth.

Oreochromis niloticus. Narváez Barandica, Acero and Blanco (2005), based on 392 specimens (2002–2003), documented strong phenotypic plasticity and identified three environmentally driven ecomorphotypes. Leal-Flórez, Rueda and Wolff (2008), using CPUE data (1994–2003), reported temporary post-introduction dominance (>60% around 1999–2001) but overall stability of native fish abundance. They concluded that environmental variability currently limits impacts, while warning of potential risks under prolonged low salinity.

Pterois volitans. Viloria & Acero (2016) documented a taxonomically confirmed occurrence of the invasive lionfish *Pterois volitans* in the Ciénaga Grande de Santa Marta, based on an adult specimen captured in September 2013. While the species had previously been reported in the Invemar monitoring series (Rep06-2007 to Rep24-2025), the record of Viloria & Acero (2016) represents the first published account supported by an examined specimen. The finding confirmed that the lionfish invasion had reached all Colombian Caribbean ecoregions.

Resource assessment and fisheries management studies. Beginning in the early 1990s, a series of interconnected ecological and fisheries-oriented investigations focused on the artisanal fishery of the Ciénaga Grande de Santa Marta (CGSM) and the Pajarales complex within the framework of the Pro-Ciénaga rehabilitation project. These studies emphasized fish community structure, catch composition, fishing effort, biomass estimation, gear selectivity, hydrological variability, and the ecological consequences of restoration measures, rather than the documentation of additional species records.

Santos-Martínez *et al*. (1998) presented one of the most comprehensive ecological analyses of the fish community of the CGSM, the Pajarales complex, and the Western Salamanca Complex (CSO), combining standardized fish-community sampling, fisheries information, and environmental monitoring. The study identified salinity as the principal factor influencing fish distribution and documented important shifts associated with increased freshwater inflow following the reopening of Caño Clarín. Estuarine euryhaline species such as *Mugil incilis*, *Eugerres plumieri*, and *Anchovia clupeoides* continued to dominate the system, whereas freshwater-associated species including *Oreochromis niloticus*, *Caquetaia kraussii*, and *Andinoacara pulcher* increased in abundance in sectors with stronger Magdalena River influence. The rapid expansion of the introduced tilapia *O. niloticus* was highlighted as a potential ecological concern. The study further documented marked declines in fisheries production during the mid-1990s, possibly associated with ecosystem degradation and mass fish mortality events. Principal commercial species recorded between Nov/1993 and Oct/1996 included *Anchovia clupeoides*, *Ariopsis canteri*, *Bairdiella ronchus*, *Caquetaia kraussii*, *Cathorops spixii*, *Centropomus undecimalis*, *Diapterus rhombeus*, *Elops smithi*,

Eugerres plumieri, *Megalops atlanticus*, *Micropogonias furnieri*, *Mugil incilis*, *Mugil liza*, *Oreochromis niloticus*, and *Prochilodus magdalenae*.

Complementing these ecological investigations, Viloria Maestre *et al*. (1998) evaluated the principal fishery resources of the CGSM and Pajarales complex using fisheries monitoring data on commercial catches and fishing effort collected between 1993 and 1995 together with exploratory biomass surveys based on swept-area sampling. Closely related studies by Viloria Maestre and Santos-Martínez (1998a, 1998b) focused on the structure and performance of the artisanal fishery, including analyses of gill-net and boliche fisheries, catch-per-unit effort, fishing gears, and fishing economic units (UEPs) in surrounding communities. These studies consistently showed that the fishery was strongly dominated by a relatively small number of species, particularly *Mugil incilis*, *Eugerres plumieri*, and *Cathorops spixii*, and documented the high efficiency—but also potential ecological impact—of boliche fisheries due to the frequent capture of immature individuals. The authors repeatedly recommended management measures including increased mesh sizes, minimum capture sizes, restrictions on boliche fishing in nursery areas, and continued long-term monitoring.

Viloria Maestre *et al.* (2004), analyzing approximately a decade of fisheries monitoring data, further demonstrated that fluctuations in fishery production and species composition were closely associated with hydrological variability and salinity dynamics within the lagoon system. Following severe declines in catches during the mid-1990s, fishery production increased temporarily after the reopening of natural channels reconnecting the lagoon system with the Magdalena River. Nevertheless, the fishery remained consistently dominated by a few key commercial species, especially *Mugil*

incilis, *Eugerres plumieri*, and *Cathorops spixii*. The study emphasized the strong dependence of fishery productivity on hydrological connectivity and highlighted the importance of adaptive fisheries management.

More recently, Viloria-Maestre *et al.* (2025) expanded these earlier fisheries assessment approaches into a participatory ecosystem-based fisheries management framework under the Ecosystem Approach to Fisheries (EAF/EEMP). Based on monitoring data spanning 2000–2024, the study integrated scientific information and traditional ecological knowledge to develop co-management strategies and identify 15 principal fishery resources currently forming the core of the CGSM fishery: *Ariopsis canteri*, *Caquetaia kraussii*, *Cathorops mapale*, *Centropomus undecimalis*, *Elops smithi*, *Eugerres plumieri*, *Hoplias malabaricus*, *Megaleporinus muyscorum*, *Megalops atlanticus*, *Micropogonias furnieri*, *Mugil incilis*, *Mugil liza*, *Oreochromis niloticus*, *Prochilodus magdalenae*, and *Triportheus magdalenae*.

Rueda & Defeo (2003), based on Rueda (2001), analyzed the spatial and seasonal structure of estuarine fish assemblages using four comprehensive surveys conducted in November 1993, March, June, and August 1994, and 1997 (no month stated). Geostatistical and multivariate analyses were applied to evaluate spatial patterns of species richness and their relationship with abiotic factors.

A total of 11,075 individuals representing 39 species were recorded. Assemblages were consistently dominated by a few species, particularly *Eugerres plumieri*, along with *Diapterus rhombeus*, *Micropogonias furnieri*, *Mugil incilis*, *Cathorops spixii*, *Elops*

saurus, and *Anchovia clupeoides*. Species richness showed clear seasonal shifts, with patchy spatial patterns in 1993–1994 and more pronounced gradients in 1997.

Results indicated that abiotic variability—especially salinity regimes—primarily structured the assemblages, while evidence of species saturation (≈50 individuals per 5000 m²) suggested additional density-dependent biotic interactions. Overall, fish assemblages differed between seasons but remained dominated by a small core of estuarine species.

Their species list was not considered here, as it was compiled from previously published sources, particularly Santos-Martínez & Acero (1991) and Bateman Vargas (1998), both of which were already incorporated into the present analysis.

Sciades proops (MS: ***Arius proops***). Galvis Cortés (1983) analyzed biological and fishery parameters based on 309 specimens collected in the same 81 surveys (1981–1982) as used for *Cathorops mapale* and *Ariopsis bonillai* (Galvis Cortés, 1983, 1984).

Sphoeroides greeleyi & Sphoeroides testudineus*.* Londoño Jaramillo (1994) analyzed trophic ecology and reproduction based on 537 and 575 specimens, respectively (February 1993–January 1994). Both species function as second-order consumers: *S. greeleyi* fed mainly on organic matter, crustaceans, and bivalves, whereas *S. testudineus* fed primarily on bivalves and crustaceans. Spawning peaked from November to January in *S. greeleyi* and occurred apparently year-round in *S. testudineus*. Both were euryhaline, with *S. greeleyi* most abundant in Caño Grande and Río Fundación and *S. testudineus* near Boca de la Barra.

Text S3. Complete References

NOTE: This supplementary reference list is complete and includes all sources consulted in the preparation of this study. References printed in smaller font and indented to the right are considered redundant: these works most likely rely on the same underlying data, material, or primary sources as the normally cited references and therefore do not contribute independent information to the analysis. They are included here for completeness and historical context but are not treated as separate, original sources in the main text.

Acero P., A., & Arenas Granados, P. (1990). *Gobioides broussonnetii* Lacepede (Pisces: Gobiidae) en el Caribe colombiano. *An. Inst. Invest. Mar. Punta Betín, 19-20*, 197-200.

Acero P., A., Duque Nivia, G., & Santos Martínez, A. (1996). Allometric growth of *Oligoplites palometa* (Perciformes: Carangidae) in Colombia. *Revista de Biología Tropical*, *44*, 927–928.

Acero P., A., Richards, W. J., Criales, M. M., & Amaya, F. (2005). First Caribbean record of *Akko dionaea* (Pisces: Gobiidae), another South American endemic. *aqua, Journal of Ichthyology and Aquatic Biology, 9*(4), 133-138.

Álvarez-León, R. (2003). Ictiofauna del complejo fluvio-lagunar-estuarino de la Ciénaga Grande de Santa Marta (Colombia), antes de las obras civiles de recuperación de los caños. *Dahlia: Revista de la Asociación Colombiana de Ictiología*, (6), 91–97.

Álvarez-León, R., & Blanco Racedo, J. (1985). Composición de las comunidades ictiofaunísticas de los complejos lagunares de la bahía de Cartagena, Ciénaga de Tesca y Ciénaga Grande de Santa Marta. En: A. Yañez-Arancibia (Ed.), *Fish community ecology in estuaries and coastal lagoons: Towards an ecosystem integration* (pp. 535–656). UNAM Press.

Amaya, F., Acero, A., & Criales, M. M. (2002). Taxonomy and zoogeography of *Microdesmus carri* Gilbert (Microdesmidae). *Bulletin of Marine Science, 70*, 33-39.

Arango R., M. L., & Rodas López, E. (1978). *Fecundidad, maduración y ciclo anual de los oocitos de la mojarra rayada* Eugerres plumieri *(Cuv. Et Val.) 1830 (Pisces: Gerreidae) en la Ciénaga Grande de Santa Marta* [Tesis de pregrado no publicada]. Universidad de Bogotá Jorge Tadeo Lozano.

Arenas Granados, P., & Acero P., A. (1992). Organización trófica de las mojarras (Pisces: Gerreidae) de la Ciénaga Grande de Santa Marta (Caribe Colombiano). *Revista de Biología Tropical*, *40*(3), 287–302.

Ávila de Tabarés, G. (1975). Ictioplancton y características de la Ciénaga Grande de Santa Marta. En R. Pérez-Rodríguez (Ed.), *Memorias del Simposio Latinoamericano sobre Oceanografía Biológica* (pp. 3–18). Secretaría de Marina.

Ávila de Tabarés, G. (1971). Variación de grupos planctónicos presentes en la Ciénaga Grande de Santa Marta durante el período comprendido entre diciembre de 1969 y mayo de 1971. *Boletín Informativo Proyecto Desarrollo Pesca Marina en Colombia PNUD Fondo Especial Inderena-FAC, 1*, 31-47.

Ávila de Tabarés, G. (1973). *Ictioplancton y características de la Ciénaga Grande de Santa Marta* (p. 18). Inderena.

Barrios D., M. J. (1981). *Estudio bioecológico de las capturas de peces con redes agalleras en la Ciénaga Grande de Santa Marta.* Universidad Nacional de Colombia, Bogotá, Facultad de Ciencias, Departamento de Biología.

Bateman Vargas, N. (1998). *Estructura de la comunidad íctica de las lagunas del Delta Exterior del Río Magdalena, en relación con la reapertura del Canal Clarín (Caribe Colombiano)*. [Proyecto de Grado]. Universidad Nacional de Colombia.

Bateman Vargas, N. (1999). Estructura de la comunidad íctica de las lagunas del Delta Exterior del Río Magdalena, en relación con la reapertura del Canal Clarín (Caribe Colombiano). *Acta Biológica Colombiana, 4*(2), 1.

Blanco Racedo, J. (1983). The condition factor of *Mugil incilis* Hancock (Pisces: Mugilidae) and its seasonal changes in the Ciénaga Grande de Santa Marta (Colombia). *Anales del Instituto de Investigaciones Marinas de Punta de Betín*, *13*, 133–142.

Blanco Racedo, J. (1980). *Algunos aspectos ecológicos y biológico-pesqueros de la lisa,* Mugil incilis *Hancock 1830, en la Ciénaga Grande de Santa Marta (Colombia) (Pisces: Mugilidae)*. Universidad Nacional de Colombia, Bogotá, Facultad de Ciencias, Departamento de Biología.

Botero, L., & Salzwedel, H. (1999). Rehabilitation of the Ciénaga Grande de Santa Marta, a mangrove-estuarine system in the Caribbean coast of Colombia. *Ocean & Coastal Management*, *42*(2), 243–256. https://doi.org/10.1016/S0964-5691(98)00056-8

Botero Arboleda, L., & Marshall, M. J. (1995). *Biodiversity within the living, dying, and dead mangrove forests of the Ciénaga Grande de Santa Marta, Colombia* (Final Report 366; Mote Marine Laboratory Technical Report, p. 55). Mote Marine Laboratory.

Santos-Martínez, A. (1996). La diversidad íctica asociada a raíces de manglar en diferentes estados de conservación en la Ciénaga Grande de Santa Marta, Caribe colombiano [Resumen]. En *Memorias del III Simposio Colombiano de Ictiología* (pp. 33–33). Asociación Colombiana de Ictiólogos (ACICTIOS).

Santos-Martínez, A. (1998b). La diversidad íctica asociada a raíces de manglar en diferentes estados de conservación en la Ciénaga Grande de Santa Marta, Caribe colombiano. En *Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta, costa Caribe colombiana: Informe final* (Código 2105-09-028-94, Vol. 2, p. 231). Colciencias-Invemar; GTZ-ProCiénaga.

Botero, L., Acosta, I., Flórez, C., Hernández, C., Vidal, A., Carmona, G., López, R., Guzmán, Á., Santos, A., Arboleda, S., Castaño, T., Lamprea, L., Lasso, P., Ordoñez, V., Manjarrés, G., Ochoa, G., Escobar, A., Ramírez, G., Estrada, M., & Campos, N. (1988). *Estudio ecológico de la Ciénaga Grande de Santa Marta* (p. 159) [Programa Lagunas Costeras]. Invemar.

Campos Campos, N. H. (1988). Contenido de metales pesados en el Chivo Mapalé *Cathorops spixi* de la Ciénaga Grande de Santa Marta. *Memorias VI Seminario Nacional de Ciencias y Tecnologías del Mar*, Bogotá, Diciembre 5-6 y 7 de 1988, 305-313.

Campos Campos, N. H. (1992). Concentraciones de metales traza en Ariopsis bonillai (Pisces: Siluriformes) de Santa Marta, Caribe colombiano. *Revista de Biología Tropical*, *40*(2), 179–183.

Cancio Mozo, E., Narváez Barandica, J. C., & Blanco Racedo, J. (2006). Dinámica poblacional del coroncoro *Micropogonias furnieri* (Pisces: Sciaenidae) en la Ciénaga Grande de Santa Marta, Caribe Colombiano. *Boletín de Investigaciones Marinas y Costeras, 35*(1), 37-58.

Caselles Osorio, A., & Acero P., A. (1996). Reproducción de *Anchovia clupeoides* y *Anchoa parva* (Pisces: Engraulidae) en dos ciénagas del Caribe colombiano. *Revista de Biología Tropical*, *44*(2), 781–793.

Castaño Echeverry, T. L. (1989). *Hábitos alimentarios de peces de la Ciénaga Grande de Santa Marta, Caribe colombiano.* Facultad de Ciencias Básicas., Universidad Javeriana.

Castro-Cubillos, M. L., Taylor, J. D., Mastretta-Yanes, A., Benítez-Villalobos, F., & Islas-Villanueva, V. (2022). Monitoring of benthic eukaryotic communities in two tropical coastal lagoons through eDNA metabarcoding: A spatial and temporal approximation. *Scientific Reports*, *12*(1), Article 10089. https://doi.org/10.1038/s41598-022-13653-9

Cataño Molina, S. A., & Garzón Ferreira, J. (1994). Ecología trófica del sábalo *Megalops atlanticus* (Pisces: Megalopidae) en el área de Ciénaga Grande de Santa Marta, Caribe colombiano. *Revista de Biología Tropical*, *42*(3), 673–684.

Cataño Molina, S. A. (1991). *Contribución al conocimiento bioecológico del sábalo* Megalops atlanticus *Valenciennes (Pisces: Megalopidae) en Ciénaga Grande de Santa Marta, Caribe colombiano*. Dep. Biología, Fac. Ciencias Exactas y Naturales, Universidad de Antioquia.

Comité Institucional de Ciénaga Grande de Santa Marta. (1990). *Informe de avance subcomité técnico Ciénaga Grande de Santa Marta* (p. 90). CORPES C. A. https://repositorio.unimagdalena.edu.co/handle/123456789/12295

Criales, M. M., Yeung, C., Amaya, F., López, A. C., Jones, D. L., & Richards, W. J. (2002). Larval supply of fishes, shrimps, and crabs into the nursery ground of the Ciénaga Grande de Santa Marta, *Caribbean Journal of Science*, *38*(1–2), 52–65.

Criales, M. M. (2000). *Patrones de reclutamiento y mecanismos de transporte costero de estadios tempranos de desarrollo de peces y crustáceos decápodos en el área de Santa Marta, Caribe colombiano.* Código 2105-09-689-96. (p. 12) [Informe Técnico].

Dahl, G. (1971). *Los peces del norte de Colombia*. Ministerio de Agricultura, Instituto de Desarrollo de los Recursos Naturales Renovables, (Inderena).

de la Rosa, J. N. (ca. 1746 / 1820). *Floresta de la Santa Iglesia Catedral de la ciudad de Santa Marta.* Manuscript published posthumously by Imprenta de D. José Esteran, 287 p.

Duque, G., & Acero P., A. (2003). Food habits of *Anchovia clupeoides* (Pisces: Engraulidae) in the Ciénaga Grande de Santa Marta, Colombian Caribbean. *Gulf of Mexico Science, 21*(1), 1-9.

Duque Nivia, G. (1997). *Hábitos alimentarios y relaciones tróficas de Anchovia clupeoides (Pisces: Engraulidae) en la Ciénaga Grande de Santa Marta, Caribe colombiano* [Magister]. Universidad Nacional de Colombia Facultad de Ciencias, Departamento de Biología.

Duque, G. & Acero P., Arturo. (2003). Feeding Selectivity of *Anchovia clupeoides* (Pisces: Engraulidae) in the Ciénaga Grande de Santa Marta, Colombian Caribbean. *Gulf and Caribbean Research, 15*(1), 21-26.

Duque, G., & Acero P., A. (2006). Ración diaria y consumo de alimento de la población de *Anchovia clupeoides* (Pisces: Engraulidae) en la Ciénaga Grande de Santa Marta, Caribe Colombiano. *Boletín de Investigaciones Marinas y Costeras*, *35*, 207–221.

Duque Nivia, G., Acero P., A., & Santos Martínez, A. (1995). Aspectos reproductivos *Oligoplites saurus* y *O. palometa* (Pisces: Carangidae) de la Ciénaga Grande de Santa Marta—Caribe colombiano. Caribbean Journal of Science, 31(3-4), 317-326.

Duque Nivia, G. (1993). *Ecología trófica y aspectos reproductivos de las especies del género Oligoplites (Pisces: Carangidae) de la Ciénaga Grande de Santa Marta, Caribe colombiano*. Fac. de Ciencias, Universidad del Valle.

Duque Nivia, G., Acero P., A., Santos-Martínez, A., & Rubio, E. R. (1996). Food habits of the species of the genus Oligoplites (Carangidae) from the Ciénaga Grande de Santa Marta-Colombian Caribbean. *Cybium, 20*(3), 251-260.

Eigenmann, C. H. (1922). The fishes of western South America. Part I. The fresh-water fishes of northwestern South America, including Colombia, Panama and the Pacific

slopes of Ecuador and Peru, together with an appendix upon the fishes of the Rio Meta in Colombia. *Memoirs of the Carnegie Museum*, *9*(1).

Escobar Arias, M. M. (1994). *Aspectos biológicos y ecológicos, con énfasis en reproducción y alimentación, de* Micropogonias furnieri *(Desmarest) y* Stellifer venezuelae *(Schultz) (Pisces: Sciaenidae), Ciénaga Grande de Santa Marta, Caribe colombiano* [Grado]. Dep. de Biología, Facultad de Ciencias Básicas, Universidad Javeriana.

Espinosa-Díaz, L. F., Zapata-Rey, Y.-T., Ibarra-Gutierrez, K., & Bernal, C. A. (2021). Spatial and temporal changes of dissolved oxygen in waters of the Pajarales complex, Ciénaga Grande de Santa Marta: Two decades of monitoring. *Science of the Total Environment, 785*, 147203. https://doi.org/10.1016/j.scitotenv.2021.147203

Fernández, S., Monteiro, P., Gonçalves, J. M. S., Garcia-Vazquez, E., & Erzini, K. (2026). Environmental DNA as a complementary tool for monitoring fish assemblages in coastal lagoons: Insights for conservation. *Marine Pollution Bulletin*, *223*, Article 118951. https://doi.org/10.1016/j.marpolbul.2025.118951

Flórez Urbina, C. R. (1986). *Algunos aspectos biológicos pesqueros y ecológicos de la anchoveta* Mugil curema *Valenciennes, 1836 (Pisces: Mugilidae) en la Ciénaga Grande de Santa Marta y el mar adyacente. (Departamento del Magdalena, Colombia).* Facultad de Ciencias Básicas, Universidad Javeriana.

Fowler, H. W. (1942). Lista de peces de Colombia. *Revista de la Academia Colombiana de Ciencias exactas, físicas y naturales, 5*(17), 128-138.

Franco, A. M., & Bravo, G. A. (2005). Áreas importantes para la conservación de las aves en Colombia. En **K. Boyla & A. Estrada** (Eds.), *Áreas importantes para la conservación de las aves en los Andes tropicales: Sitios prioritarios para la conservación de la biodiversidad* (pp. 117–282). BirdLife International (Serie de Conservación de BirdLife No. 14).

Franky Vásquez, S. M., & Rodríguez Guerrero, P. I. (1976). *Parque Nacional Isla de Salamanca.* Min. Agricultura INDERENA Div. Parques Nac. y Vida Silvestre.

Fricke, R., Eschmeyer, W. N. & Van der Laan, R. (eds) 2026. *Eschmeyer's Catalog of Fishes* (http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp). Electronic version accessed 22 April 2026.

Froese, R. and D. Pauly (eds) (2026). *FishBase.* World Wide Web electronic publication. www.fishbase.org, version (02/2026).

Galeano, M. L., & Romero, M. (1979a). Contribución al conocimiento de parásitos de peces de la Ciénaga Grande de Santa Marta: I. Familia Acanthocolpidae (Trematoda: Digenea). *Anales del Instituto de Investigaciones Marinas de Punta de Betín*, *11*, 195–217.

Galeano, M. L., & Romero, M. (1979b). *Parásitos de peces de la Ciénaga Grande de Santa Marta.* Facultad de Ciencias, Dep. Biología, Universidad Nacional de Colombia, Bogotá.

Gallo Nieto, J. (1983). *Estudio biológico-pesquero de la bocona* Cetengraulis edentulus *Cuvier, 1820 en la Ciénaga Grande de Santa Marta y el mar adyacente (Colombia)*. Universidad Nacional de Colombia, Bogotá. Facultad de Ciencias.

Galvis Cortés, O. D. (1983). *Los áridos de la Ciénaga Grande de Santa Marta.* Fac. de Ciencias, Universidad Nacional de Colombia.

Galvis Cortés, O. D. (1984). Estimación del crecimiento y mortalidad del chivo cabezón *Ariopsis bonillai* (Miles, 1945) (Pisces: Siluriformes: Ariidae), en la Ciénaga Grande de Santa Marta, Colombia. *Anales del Instituto de Investigaciones Marinas de Punta de Betín*, *14*, 67–83.

González Afanador, E. (1984). Los hábitats costeros de los juveniles de peces en la región de Punta Gloria a la Isla de Salamanca, Caribe colombiano. *Anales del Instituto de Investigaciones Marinas de Punta de Betín*, 14, 133-155.

González Afanador, E. (1981). *Estudio bioecológico de los estadios juveniles de peces en la Ciénaga Grande de Santa Marta y zonas adyacentes.* Dep. Biología, Facultad de Ciencias, Universidad Nacional de Colombia.

Gallo Viveros, E. (1986). *Contribución al conocimiento de los hábitos alimentarios de juveniles de Engraulidae en la Ciénaga Grande de Santa Marta y su área de influencia.* Dep. Biología, Facultad de Ciencias, Universidad Nacional de Colombia. Note: Gallo Viveros examined the same material collected by González Afanador.

Grijalba Bendeck, L. M. (1998). *Distribución y abundancia del chivo mapalé* Cathorops spixii *(Agassiz, 1829), (Pisces: Ariidae) en la Ciénaga Grande de Santa Marta, Caribe colombiano* (Resumen) (1; Proyecto: Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta, costa Caribe colombiana código 2105-09-028-94, p. 11).

Grijalba-Bendeck, M., Bustos-Montes, D., Posada Pelaéz, C., & Santafé-Muñoz, A. (Eds.). (2012). *La pesca artesanal marítima del departamento del Magdalena. Una visión desde cuatro componentes.* Universidad de Bogotá Jorge Tadeo Lozano, Ministerio de Agricultura y Desarrollo Rural, Proyecto Transición de la Agricultura.

Gámez Barrera, D., Morón Granados, E., & Fuentes Reines, J. (2014). Descripción del hábito alimentario de doce especies de peces asociados a la Ciénaga Grande de Santa Marta, Colombia. *Boletín de Investigaciones Marinas y Costeras - Invemar, 43*(1), 23-42.

Gámez Barrera, D. F., & Morón G., E. (2016). *Variación espacio-temporal en la alimentación de los peces en la zona suroriental de la Ciénaga Grande de Santa Marta.* Editorial Académica Española.

Gocke, K., Mancera Pineda, J. E., & Vallejo, A. (2003). Heterotrophic microbial activity and organic matter degradation in coastal lagoons of Colombia. *Revista de Biología Tropical, 51*(1), 85–98. https://www.scielo.sa.cr/scielo.php?pid=S0034-77442003000100007&script=sci_arttext

Hernández Reyes, R. D., & Campos, N. H. (2004). Variaciones estacionales de los metales pesados Cd, Cu, Zn y As en la Lisa (*Mugil incilis*) y en la mojarra rayada (*Eugerres plumieri*) en la Ciénaga Grande de Santa Marta. (Caribe colombiano). En N. H. Campos Campos & A. Acero P. (Eds.), *Contribuciones en ciencias del mar en*

Colombia: Investigación y desarrollo de territorios promisorios. (pp. 155-168). Universidad Nacional de Colombia.

Incora – Instituto Colombiano de la Reforma Agraria, Junta Directiva. (1964). *Resolución No. 191 del 31 de agosto de 1964, por la cual se reservan y declaran como Parques Nacionales Naturales, tres sectores de tierras baldías en el Departamento del Magdalena*. http://www.parquesnacionales.gov.co/portal/wp-content/uploads/2014/06/RESOLUCION-191-DE-1964.pdf

Invemar technical reports 2002 - 2025: *Monitoreo de las Condiciones Ambientales y los Cambios Estructurales y Funcionales de las Comunidades Vegetales y de los Recursos Pesqueros durante la Rehabilitación de la Ciénaga Grande de Santa Marta.* Link to page with all reports, for specific reports please refer to the URL in the following table.

No.	Name / URL	Year(s)	Published	Author	Pages / PDF
1	Rep01 – 2002	1999-2002	12 – 2002	Invemar	232 & ann. / 323
2	Rep02 – 2003	2003	11 – 2003	Invemar	70 / 73
3	Rep03 – 2004	2004	02 – 2005	Invemar	105 & ann. / 112
4	Rep04 – 2005	2005	12 – 2005	Invemar	83 & ann. / 91
5	Rep05 – 2006	2006	12 – 2006	Invemar	95 & ann. / 111
6	Rep06 – 2007	2007	12 – 2007	Invemar	105 & ann. / 122
7	Rep07 – 2008	2008	11 – 2008	Invemar	123 & ann. / 129
8	Rep08 – 2009	2009	12 – 2009	Cadavid *et al.*	103 & ann. /121
9	Rep09 – 2010	2010	12 – 2010	Bautista *et al.*	113 & ann. / 131
10	Rep10 – 2011	2011	12 – 2011	Cadavid *et al.*	128 & ann. / 150
11	Rep11 – 2012	2012	12 – 2012	Ibarra *et al.*	131 & ann. / 154

12	Rep12 – 2013	2013	12 – 2013	Ibarra *et al.*	138 & ann. / 163
13	Rep13 – 2014	2014	12 – 2014	Ibarra *et al.*	141 / 158
14	Rep14 – 2015	2015	04 – 2016	Invemar	177 & ann. / 215
15	Rep15 – 2016	2016	01 – 2017	Invemar	139 & ann. / 181
16	Rep16 – 2017	2017	02 – 2018	Invemar	174 & ann. / 203
17	Rep17 – 2018	2018	12 – 2018	Invemar	178 & ann. / 187
18	Rep18 – 2019	2019	12 – 2019	Invemar	214 & ann. / 243
19	Rep19 – 2020	2020	01 – 2021	Invemar	193 & ann. / 204
20	Rep20 – 2021	2021	12 – 2021	Invemar	178 / 178
21	Rep21 – 2022	2022	12 - 2022	Invemar	168 / 169
22	Rep22 – 2023	2023	12 - 2023	Invemar	193 & ann. / 197
23	Rep23 – 2024	2024	12 - 2024	Invemar	176 & ann. / 185
24	Rep24 – 2025	2025	12 - 2025	Invemar	219 & ann. / 224

Invemar-SIPEIN (2026). *Sistema de Información Pesquera SIPEIN* [web application] https://sipein.invemar.org.co/informes/captura_estimada/externos/. Revised July 6, 2026.

Lamprea Ochoa, L. T. (1987). *Aspectos reproductivos y fecundidad del lebranche* Mugil liza *(Valenciennes, 1836) y su comparación con otros mugílidos de la Ciénaga Grande de Santa Marta, Caribe colombiano*. Departamento de Biología, Facultad de Ciencias, Universidad Nacional de Colombia.

Lamprea Ochoa, L. T. (1990). *Aspectos ecológicos de los juveniles de peces en la Ciénaga Grande de Santa Marta con énfasis en las ciénagas menores del margen occidental*. Universidad Nacional de Colombia, Bogotá. Facultad de Ciencias.

Leal-Flórez, J., Rueda, M., & Wolff, M. (2008). Role of the non-native fish *Oreochromis niloticus* in the long-term variations of abundance and species composition of the native ichthyofauna in a Caribbean estuary. *Bulletin of Marine Science*, *82*(3), 365–380.

Leal-Flórez, J. (2007). *Impacts of non-native fishes on the fish community and the fishery of the Ciénaga Grande de Santa Marta estuary, northern Colombia* [PhD Thesis, Faculty of Biology and Chemistry, Bremen University, Bremen, Germany]. http://webdoc.sub.gwdg.de/ebook/dissts/Bremen/Leal2007.pdf

Londoño Jaramillo, S. (1994). *Ecología trófica y aspectos reproductivos de* Sphoeroides greeleyi *Gilbert, 1900 y* Sphoeroides testudineus *(Linnaeus, 1758) en la Ciénaga Grande de Santa Marta, Caribe colombiano*. Dep. de Biología, Facultad de Ciencias Básicas, Universidad Javeriana.

Mármol, D. P. (2008). *Asociaciones entre aspectos reproductivos y pesqueros de la lisa* Mugil incilis *(PISCES: MUGILIDAE) en la Ciénaga Grande de Santa Marta y Complejo Pajarales, Caribe Colombiano*. Fac. Ing. Pesquera, Universidad del Magdalena.

Mármol Rada, D., Viloria Maestre, E., & Blanco R., J. A. (2010). Efectos de la pesca sobre la biología reproductiva de la lisa *Mugil incilis* (Pisces: Mugilidae) en la Ciénaga Grande de Santa Marta, Caribe colombiano. *Boletín de Investigaciones Marinas y Costeras*, *39*(2), 215–231.

Martínez Rivera, J. (1981). *Algunos aspectos bioecológicos y pesqueros del lebranche* Mugil liza *(Valenciennes, 1836) en la Ciénaga Grande de Santa Marta (pisces: Mugilidae)*. Dep. Biología, Facultad de Ciencias, Universidad Nacional de Colombia.

McBride, R. S., C. R. Rocha, R. Ruiz-Carus & B. W. Bowen. (2010). A new species of ladyfish, of the genus Elops (Elopiformes: Elopidae), from the western Atlantic Ocean. Zootaxa No. 2346: 29-41.

Mercado Silgado, J. E. (1971). *Inventario preliminar de la fauna y flora de la Ciénaga Grande de Santa Marta* (Proyecto para el desarrollo de la pesca marítima en Colombia (INDERENA - PNUD - FAO), p. 8). Inderena-PNUD-FAO.

Mercado-Silgado, J. E. (1975, 22–26 de octubre). *Inventario preliminar de la fauna y flora de la Ciénaga Grande de Santa Marta* [Artículo en conferencia]. II Seminario Nacional de Piscicultura, Cartagena, Colombia.

Mercado Silgado, J. E., & Suárez, C. H. (1978). Autoecología y algunos aspectos bioestadísticos del *Mugil brasiliensis* Agassiz, 1829 de la costa atlántica en Colombia. Cartagena 1975. *INDERENA - Divulgación Pesquera, 12*(4), 40.

Ministerio de Agricultura. (1977). *Resolución Ejecutiva No. 168 del 6 de junio de 1977, por la cual se aprueba el Acuerdo 0029 del 2 de mayo de 1977, por el cual se reserva, alinda y declara como Santuario de Flora y de Fauna un área ubicada en el Departamento del Magdalena*.
https://www.parquesnacionales.gov.co/PNN/portel/libreria/pdf/R0168AGR.pdf

Morales Pérez, J. (1976). *Estudio biológico pesquero del róbalo (*Centropomus undecimalis *Bloch, 1792) en la Ciénaga Grande de Santa Marta* [Tesis profesional]. Universidad Jorge Tadeo Lozano, Fac. Ciencias del Mar.

Narváez Barandica, J. C., Acero P., A., & Blanco R., J. (2005). Variación morfométrica en poblaciones naturalizadas y domesticadas de la tilapia del Nilo *Oreochromis niloticus* (Teleostei: Cichlidae) en el norte de Colombia. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales*, *29*(112), 383–394.

Narváez Barandica, J. C., Rueda, M., Viloria Maestre, E., Blanco Racedo, J., Romero, J. A., & Newmark Umbreit, F. (2005). *Manual del sistema de información pesquera del INVEMAR: Una herramienta para el diseño de sistemas de manejo pesquero.* Invemar. http://siam.invemar.org.co/siam/sipein/manuales/manualsipein3.0.pdf

Narváez Barandica, J., Zubiría, W., Lacayo, A., & Acero, A. (2009). Composición y estructura de la ictiofauna en las lagunas costeras de la Vía Parque Isla de Salamanca, Caribe colombiano. *Memoria de la Fundación La Salle de Ciencias Naturales, 170*, 125-139.

Olaya-Nieto, C. W., & Appeldorn, R. S. (2004). Edad y crecimiento de la Mojarra Rayada, *Eugerres plumieri* (Cuvier), en la Ciénaga Grande de Santa Marta. Colombia. *Gulf and Caribbean Fisheries Institute, 55*, 337-347.

Osorio Dualiby, D. (1988). Ecología trófica de *Mugil curema*, *M. incilis* y *M. liza* (Pisces: Mugilidae) en la Ciénaga Grande de Santa Marta, Caribe colombiano. I. Análisis cualitativo y cuantitativo. *Anales del Instituto de Investigaciones Marinas de Punta de Betín*, *18*, 113–126.

Osorio Dualiby, D. (1985).*Ecología trófica de* Mugil curema *Valenciennes, 1836,* Mugil incilis *Hancock, 1830 y* Mugil liza *Valenciennes, 1836 (Pisces: Mugilidae) en la Ciénaga Grande de Santa Marta,*

Caribe colombiano. Universidad Nacional de Colombia, Bogotá. Facultad de Ciencias. Dep. Biología.

Osorio Dualiby, D. (1986, 24–27 de noviembre). Ecología trófica de Mugil curema, Mugil incilis y Mugil liza (Pisces: Mugilidae) en la Ciénaga Grande de Santa Marta, Caribe colombiano: Análisis cualitativo y cuantitativo [Resumen]. En *Memorias del V Seminario Nacional de Ciencias y Tecnologías del Mar* (pp. 257–257). Colciencias.

Osorio Dualiby, D. (1989). Ecología trófica de Mugil curema, Mugil incilis y Mugil liza (Pisces: Mugilidae) en la Ciénaga Grande de Santa Marta, Caribe colombiano: Análisis bioquímico. *Trianea: Actas Científicas y Técnicas INDERENA*, (3), 27–36.

Perdomo Nuñez, J. M. (1973). *Contribución al estudio biológico pesquero de la lisa* Mugil incilis *Hancock* [Tesis profesional, Fac. Ciencias del Mar, Universidad Jorge Tadeo Lozano]. Catálogo en Línea Sistema de Bibliotecas Universidad Jorge Tadeo Lozano (ujtl.137073). http://search.ebscohost.com/login.aspx?direct=true&db=cat00809a&AN=ujtl.137073&site=eds-live

Perdomo-Trujillo, L. V., Mancera-Pineda, J. E., Medina-Calderón, J. H., Sánchez-Núñez, D. A., & Schnetter, M.-L. (2021). Effect of restoration actions on organic carbon pools in the lagoon—delta Ciénaga Grande de Santa Marta, Colombian Caribbean. *Water, 13*(9), 1297. https://doi.org/10.3390/w13091297

Pro-Ciénaga (1995). *Plan de manejo ambiental de la subregión Ciénaga Grande de Santa Marta 1995-1998*, (Versión 06.95).

Rivera Gutiérrez, M., & Caicedo, D. (1998). *Information sheet on Ramsar wetlands: Sistema Delta Estuarino del Río Magdalena, Ciénaga Grande de Santa Marta*.

Ministerio del Medio Ambiente, Dirección General de Ecosistemas. https://rsis.ramsar.org/RISapp/files/RISrep/CO951RISformer1998_EN.pdf

Rodríguez-Rodríguez, J. A., Mancera Pineda, J. E., Perdomo Trujillo, L. V., Rueda, M., & Ibarra-Gutiérrez, K. P. (2016). Ciénaga Grande de Santa Marta: The largest lagoon-delta ecosystem in the Colombian Caribbean. In C. M. Finlayson, G. R. Milton, R. C. Prentice, & N. C. Davidson (Eds.), *The wetland book* (pp. 1–16). Springer. https://doi.org/10.1007/978-94-007-6173-5_126-1

Rubio Gómez, C. E. (1975). *Sobre el crecimiento, sexualidad y desarrollo gonadal de la mojarra rayada* Eugerres plumieri *(Cuvier), de la Ciénaga Grande de Santa Marta con anotaciones sobre su biología* [Fac. Ciencias del Mar. Universidad Jorge Tadeo Lozano]. https://centrodocumentacion.invemar.org.co/cgi-bin/koha/opac-detail.pl?biblionumber=250

Rueda, M., & Defeo, O. (2003). Spatial structure of fish assemblages in a tropical estuarine lagoon: Combining multivariate and geostatistical techniques. *Journal of Experimental Marine Biology and Ecology, 296*, 93-112.

Rueda, M. (2001). Spatial distribution of fish species in a tropical estuarine lagoon: A geostatistical appraisal. *Marine Ecology Progress Series, 222*, 217-226.

Rueda, M., & Santos-Martínez, A. (1999). Population dynamics of the striped mojarra *Eugerres plumieri* from the Ciénaga Grande de Santa Marta, Colombia. *Fisheries Research, 42*(1-2), 155-166. https://doi.org/10.1016/S0165-7836(99)00033-8

Salzwedel, H. (2022). *Ecorregión CGSM*. Sí-CGSM: Sistema de Información – Ciénaga Grande de Santa Marta. Retrieved October 4, 2026, from https://cgsm.cemarin.org/ecorregion-cgsm/

Sánchez Ramírez, C., & Rueda, M. (1999). Variación de la diversidad y abundancia de especies ícticas dominantes en el Delta del Río Magdalena; Colombia. *Revista de Biología Tropical 47*(4): 1067-1079.

Sánchez Ramírez, C. (1996). *Variación espacial y temporal de la ictiofauna de Ciénaga Grande de Santa Marta, complejo de Pajarales y ciénagas del costado occidental de la Isla de Salamanca, Caribe colombiano* [Tesis Biólogo]. Universidad Nacional de Colombia Facultad de Ciencias, Departamento de Biología.

Sánchez Ramírez, C., & Santos Martínez, A. (1998). *Composición y dinámica de la ictiofauna del Delta Exterior del Río Magdalena, Caribe colombiano* (Resumen) (2; Proyecto: Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta, costa Caribe colombiana código 2105-09-028-94, p. 237).

Sánchez Ramírez, C., Rueda Hernández, M. E., & Santos Martínez, A. (1998). Dinámica poblacional y pesquería de la lisa, *Mugil incilis* Hancock, en la Ciénaga Grande de Santa Marta, Caribe colombiano. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales*, *22*, 507–517.

Santos Martínez, A. (1994). Aspectos biológicos y ecológicos del Robalo *Centropomus undecimalis* (Bloch, 1972), de la Ciénaga Grande de Santa Marta, Caribe colombiano. Congreso Colombiano de Ecología, *Primer Simposio Colombiano de Ictiología*, 16-20 de mayo de 1994, Melgar, Colombia, 31.

Santos Martínez, A. (1995). *Aspectos biológicos y ecológicos del Robalo* Centropomus undecimalis *(Bloch, 1972), de la Ciénaga Grande de Santa Marta, Caribe colombiano* (Estudio ecológico de la Ciénaga Grande de Santa Marta - Delta Exterior del Río Magdalena, 3a Etapa, p. 1).

Santos-Martínez, A., & Acero P., A. (1991). Fish community of the Ciénaga Grande de Santa Marta (Colombia): Composition and zoogeography. *Ichthyological Exploration of Freshwaters*, *2*(3), 247–263.

Santos Martínez, A. (1988a). *Aspectos ecológicos de la comunidad íctica capturada con red de arrastre en la Ciénaga Grande de Santa Marta* (Resumen). 99.

Santos Martínez, A. (1989). *Estudio biológico y ecológico de la ictiofauna de la Ciénaga Grande de Santa Marta, Caribe colombiano* [Trabajo de grado, Universidad Nacional de Colombia, Facultad de Ciencias Bogotá..

Santos, A. (1988b). *Contribución al estudio biológico y ecológico de la ictiofauna de la Ciénaga Grande de Santa Marta.* Informe Final. Proyecto Estudio Ecológico de la Ciénaga Grande de Santa Marta. la. Etapa. Invemar. Note: The author later changed her surname to Santos Martínez.

Santos-Martínez, A., & Acero P., A. (1991). Composición de la ictiofauna de la laguna costera Ciénaga Grande de Santa Marta, Caribe colombiano [Resumen]. En *Memorias del XI Congreso Latinoamericano de Zoología* (52).

Santos Martínez, A., & Acero P., A. (1992). Fish community of the Ciénaga Grande de Santa Marta (Colombia): Composition and zoogeography (Resumen). 40.

Santos Martínez, A. (1993). Composición de la ictiofauna capturada en jornadas nocturnas en la Ciénaga Grande de Santa Marta, Caribe colombiano (Resumen). *Congreso Latinoamericano de Ciencias del Mar* (5 : 27 Septiembre - 1 Octubre, 1993 : La Paz, B.C.S., México).

Santos-Martínez, A., & Arboleda, S. (1993). Aspectos biológicos y ecológicos del Macabí *Elops saurus* Linnaeus (Pisces: Elopidae) en la Ciénaga Grande de Santa Marta y costa adyacente, Caribe colombiano. *Boletín de Investigaciones Marinas y Costeras*, *22*(1), 77–96.

Santos Martínez, A., & Arboleda, S. (1995). *Aspectos biológicos y ecológicos del Macabi* Elops saurus *Linnaeus (Pisces: Elopidae) en la Ciénaga Grande de Santa Marta y Costa adyacente, Caribe colombiano* (2; Estudio ecológico de la Ciénaga Grande de Santa Marta - Delta Exterior del Río Magdalena, 3a Etapa, p. 20).

Santos-Martínez, A., Bateman, N., Sánchez Ramírez, C., Viloria M., E., Grijalba B., L. M., Tíjaro R., R., & Narváez, J. C. (1998). *Componente recursos hidrobiológicos. Evaluación de los principales recursos pesqueros en la Ciénaga Grande de Santa Marta, costa Caribe colombiana*. Invemar, Programa CAM, Proyecto DELTA, Informe II semestre 1997, 47 p.

Santos-Martínez, A. (1998a). *Informe Proyecto Evaluación de los Principales Recursos Pesqueros de la Ciénaga Grande de Santa Marta, Costa Caribe colombiana.* Invemar - Colciencias.

Santos Martínez, A. (1998b). *Evaluación de los recursos pesqueros de la Ciénaga Grande de Santa Marta y Complejo de Pajarales (nov-1993 a oct-1994), Caribe colombiano* (Proyecto: Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta, costa Caribe colombiana código 2105-09-028-94, p. 1). Invemar.

Santos Martínez, A., & Bateman Vargas, N. (1998). *Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta* (2; Proyecto: Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta, costa Caribe colombiana código 2105-09-028-94, pp. 176-223).

Santos Martínez, A., Mendo, J., Mancera, E., Giraldo, R., Botero, L., Viloria, E., & Rueda, M. (1995). Biomasa íctica total y su distribución espacial, en la Ciénaga Grande de Santa Marta, Caribe colombiano (Resumen). *Congreso Latinoamericano de Ciencias del Mar* (6 : 23 al 27 de Octubre de 1995 : Mar del Plata, Argentina), 179-179.

Santos Martínez, Adriana. . . [*et al*.]. (1998). Biomasa íctica total y su distribución espacial, en la Ciénaga Grande de Santa Marta, Caribe colombiano (Resumen) (2; Proyecto: *Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta, costa Caribe colombiana* (Código 2105-09-028-94, p. 226).

Santos-Martínez, A., Viloria, E. A., Sánchez, C., Rueda, M., Tíjaro, R., Grijalba, M., & Narváez-B, J. C. (1998). *Evaluación de los principales recursos pesqueros en la Ciénaga Grande de Santa Marta, costa Caribe colombiana* (Informe de proyecto, Invemar, Santa Marta).

Santos-Martínez, A. y Viloria, E. (1998). Evaluación de los recursos pesqueros de la CGSM y CP, Caribe colombiano. Estadística pesquera nov/93–dic/96. En Santos-Martínez A, E. Viloria, C. Sánchez, M. Rueda, R. Tíjaro, M. Grijalva y J.C. Narváez. 1998. *Informe final Proyecto Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta y Complejo Pajarales, Caribe colombiano* (Código 2105-09-028-94, Tomo I, pp. 1–62). Colciencias; INVEMAR, GTZ, Prociénaga.

Schnetter, M.-L., Elster, C., Perdomo, L., & Ensminger, I. (1998). *Contribuciones al conocimiento de la ecología del bosque de manglar en la Ciénaga Grande de Santa Marta, Colombia* (Serie de documentos técnicos, No. 6). CORPAMAG–GTZ, Programa Ciénaga Grande.

Servicio de Información sobre Sitios Ramsar. (s. f.). *Sistema Delta Estuarino del Río Magdalena, Ciénaga Grande de Santa Marta* (Sitio Ramsar No. 951). https://rsis.ramsar.org/es/ris/951

Specchia, V., Saccomanno, B., Zangaro, F., Tzafesta, E., & Pinna, M. (2022). Exploring the biodiversity of a European NATURA 2000 Mediterranean lagoon through eDNA metabarcoding. *Diversity, 14*(11), Article 991. https://doi.org/10.3390/d14110991

Steindachner, F. (1879). Zur Fisch-Fauna des Magdalenen-Stromes. *Denkschriften der Kaiserlichen Akademie der Wissenschaften / Mathematisch-Naturwissenschaftliche Classe, 39*(1), 19–78. https://www.biodiversitylibrary.org/part/193323

Stinson, S. A., Baerwald, M. R., Yamahara, K., *et al.* (2026). Locating little larvae: Environmental DNA methods can detect a rare fish species under field estuarine conditions. *Environmental DNA, 8*(2), Article e70287. https://doi.org/10.1002/edn3.70287

Suárez Guerrero, C. H. (1976). *Contribución al conocimiento biológico e importancia en la piscicultura del lebranche* Mugil brasiliensis *Agassiz 1829* [Tesis profesional]. Fac. Cienc. del Mar, Univ. Jorge Tadeo Lozano.

Suárez-Menéndez, M., Planes, S., Garcia-Vazquez, E., & Ardura, A. (2020). Early alert of biological risk in a coastal lagoon through eDNA metabarcoding. *Frontiers in Ecology and Evolution, 8*, Article 9. https://doi.org/10.3389/fevo.2020.00009

Thorson, T. B., Brooks, D. R., & Mayer, M. A. (1983). The evolution of freshwater adaptation in stingrays. *National Geographic Society Research Reports, 15*, 663–694.

Tíjaro, R., Rueda, M., & Santos-Martínez, A. (1998). Dinámica poblacional del chivo mapalé *Cathorops spixii* en la Ciénaga Grande de Santa Marta y Complejo de Pajarales, Caribe colombiano. *Boletín de Investigaciones Marinas y Costeras*, *27*(1), 87–102.

Torres Castro, L., Santos-Martínez, A., & Acero P, A. (1999). Reproducción de *Bairdiella ronchus* (Pisces: Sciaenidae) en la Ciénaga Grande de Santa Marta, Caribe Colombiano. *Revista de Biología Tropical, 47*(3), 553-560.

Torres Castro, L. (1994). *Aspectos biológicos y ecológicos de la carurra* Bairdiella ronchus *(Cuvier, 1830) (Pisces: Sciaenidae) en la Ciénaga Grande de Santa Marta, Caribe colombiano*. Universidad Javeriana. Facultad de Ciencias. Dep. de Biología.

Torres Castro, L. T., Acero, A., & Santos-Martínez, A. (2004). Ecología trófica de la Carrura Bairdiella ronchus (Pisces: Sciaenidae) en la Ciénaga Grande de Santa Marta, Caribe Colombiano. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales, 109*, 529-534.

Unesco – Programa sobre el Hombre y la Biosfera. (2000). [Certificado de inclusión de la Ciénaga Grande de Santa Marta, Colombia, en la Red Mundial de Reservas de la Biosfera].

Viloria, E. A., & Acero P., A. (2016). Aparición del Pez León, *Pterois volitans* (Actinopterygii: Scorpaenidae), en la Ciénaga Grande de Santa Marta: Caída del último reducto. *Bulletin of Marine and Coastal Research, 44*(2), 391-394. https://doi.org/10.25268/bimc.invemar.2015.44.2.31

Viloria M., E. A., Narváez B., J. C., Blanco R., J. A., & Rueda, M. (2004). Cambios ocurridos en los últimos 10 años en la producción pesquera de la Ecorregión Ciénaga Grande de Santa Marta (CGSM). *Revista Electrónica de Ingeniería en Producción Acuícola, 1*(1), Article 1. https://revistas.udenar.edu.co/index.php/reipa/article/view/1448

Viloria Maestre, E., Acero P., A., & Blanco, J. (2012). The collapse of the striped mojarra *Eugerres plumieri* (pisces: Gerreidae) fishery in the Ciénaga Grande de Santa Marta: Fishing, environmental or biological causes? / El colapso de la pesquería de la mojarra rayada *Eugerres plumieri* (pisces: Gerreidae) en la Ciénaga Grande de Santa Marta: ¿Causas pesqueras, ambientales o biológicas? *Boletín de Investigaciones Marinas y Costeras*, *41*(2), 399–428.

Viloria Maestre, E., Escobar-Toledo, F., & Rueda Hernández, M. (2025). *La Ciénaga Grande, la pesca y el pescador: Un modelo de ordenamiento pesquero*. https://n2t.net/ark:/81239/m92x55

Viloria Maestre, E., & Santos Martínez, A. (1998a). Caracterización de la estructura de la pesquería artesanal de la Ciénaga Grande de Santa Marta y Complejo Pajarales, Caribe colombiano (Proyecto: Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta, costa Caribe colombiana. En *Informe final Proyecto Evaluación principales recursos pesqueros de la CGSM, Costa Caribe colombiana*, código 2105-09-028-94, Vol. 1., pp. 197-236). Colciencias-Invemar y GTZ-ProCiénaga.

Santos Martínez, A., & Viloria Maestre, E. (1998a). Evaluación de los recursos pesqueros (Nov-1993 a Oct-1995) de la Ciénaga Grande de Santa Marta y Complejo de Pajarales, Caribe colombiano. XII COLACMAR *Congreso Latino-Americano sobre Ciencias do Mar*, Vol 2, p. 2.

Santos Martínez, A., & Viloria Maestre, E. (1998b). *Evaluación de los recursos pesqueros (nov-1993 a oct-1995) de la Ciénaga Grande de Santa Marta y Complejo de Pajarales, Caribe colombiano* (Resumen) (2; Proyecto: Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta, costa Caribe colombiana código 2105-09-028-94, p. 240).

Viloria Maestre, E., & Santos Martínez, A. (1998b). Evaluación de captura y esfuerzo de las redes de enmalle con énfasis en el método del bolicheo en la Ciénaga Grande de Santa Marta y Complejo de Pajarales, Caribe colombiano (Resumen). Proyecto: *Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta, costa Caribe colombiana* (Código 2105-09-028-94, Vol. 2, p. 235). Colciencias-Invemar; GTZ-ProCiénaga.

Viloria Maestre, E., & Santos Martínez, A. (1998c). Evaluación de la captura de la mojarra rayada *Eugerres plumieri* (Cuvier, 1830) en la Ciénaga Grande de Santa Marta y Complejo de Pajarales (Nov/93-Oct/95), Caribe colombiano (Resumen) Proyecto: *Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta, costa Caribe colombiana* (Código 2105-09-028-94, Vol. 2, p. 239).

Viloria Maestre, E., & Santos Martínez, A. (1997). Evaluación de la captura de la mojarra rayada *Eugerres plumieri*. (Cuvier, 1830) en la Ciénaga Grande de Santa Marta y Complejo de Pajarales (Nov/93-Oct/95), Caribe colombiano (Resumen). 78.

Viloria Maestre, E., Santos-Martínez, A., Rueda H., M. E., Tijaro R., R., & Narváez, J. C. (1998). *Componente recursos hidrobiológicos. Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta.* (Proyecto: Evaluación de los principales recursos pesqueros de la Ciénaga Grande de Santa Marta, costa Caribe colombiana código 2105-09-028-94, pp. 155-175) [Semestre 1997]. Invemar.

Wiedemann, H. U. (1973). Reconnaissance of the Ciénaga Grande de Santa Marta, Colombia: Physical parameters and geological history. *Mitteilungen aus dem Instituto Colombo-Alemán de Investigaciones Científicas Punta de Betín, 7*, 85–119. https://doi.org/10.25268/bimc.invemar.1973.7.0.549

Wilson, C. (1916). Some marine fishes from Colombia and Ecuador. *Annals of the Carnegie Museum*, *10*(1–2), 57–70.

Table S1. Fish species reported from the Ciénaga Grande de Santa Marta (CGSM) based on historical and recent literature.

Taxa are arranged by order and family following current systematic classification according to Eschmeyer's Catalog of Fishes and FishBase. Numbers following each order (O) indicate the number of families (F), genera (G) and species (S) recorded in the present compilation. Species counts include entries reported as sp. and cf. Scientific names are hyperlinked to FishBase for reference purposes. Original manuscript names cited by the source authors are indicated as MS where applicable. English and Colombian Spanish common names are provided when available. Source abbreviations:

Aal05 = Acero et al. (2005)
AL03 = Álvarez León (2003)
AAC02 = Amaya, Acero & Criales (2002)
AT75 = Avila de Tabarés (1975)
BA81 = Barrios (1981)
BM95 = Botero Arboleda and Marshall (1995)
BV98 = Bateman Vargas (1998)
CE89 = Castaño Echeverry (1989)
CI90 = Comité Institucional (1990)
DA71 = Dahl (1971)
FR76 = Franky and Rodríguez (1976)
GA84 = González Afanador (1984)
GB14 = Gámez Barrera et al. (2014)
GC83 = Galvis Cortés (1983)
GR79 = Galeano and Romero (1979a)
Inv-SIP26 = Invemar-SIPEIN (2026)
LO90 = Lamprea Ochoa (1990)
MS71 = Mercado Silgado (1971)
NB09 = Narváez *et al.* (2009)
R1746 = de la Rosa (ca. 1746/1820)
Rep01... = Invemar Rep01-2002 to Rep24-2025
S1879 = Steindachner (1879)
SA91 = Santos-Martínez & Acero (1991)
SA91-PEC-0000 = Invemar Fish Coll. Cat. No.
SA91-PEC-NA = Not located in 2026
SR99 = Sánchez-Ramírez and Rueda (1999)
Tal83 = Thorson *et al*. (1983)

Elasmobranchii - 3O, 8F, 9G, 12S			
Carcharhiniformes - 3F, 3G, 4S			
1	Carcharhinidae	*Carcharhinus leucas* (Valenciennes, 1839) | Bull shark, Tiburón gris	DA71, FR76
2	Carcharhinidae	*Carcharhinus porosus* (Ranzani, 1839) | Smalltail shark, Tiburón tollo	SA91
3	Galeocerdonidae	*Galeocerdo cuvier* (Péron & Lesueur, 1822) | Tiger shark, Tintorera	R1746
4	Sphyrnidae	*Sphyrna lewini* (Griffith & Smith, 1834) | Scalloped hammerhead, Pez martillo	R1746
Myliobatiformes - 4F, 5G, 6S			
5	Aetobatidae	*Aetobatus narinari* (Euphrasen, 1790) | Whitespotted eagle ray, Chucho pintado	R1746, SA91
6	Dasyatidae	*Hypanus americanus* (Hildebrand & Schroeder, 1928) | Southern stingray, Raya	R1746
7	Dasyatidae	*Hypanus guttatus* (Bloch & Schneider, 1801) MS: *Dasyatis guttata* | Longnose stingray, Raya	MS71, BA81, Tal83, SA91, Rep01-24
8	Potamotrygonidae	*Potamotrygon magdalenae* (Duméril, 1865) MS: *Taeniura magdalenae* | Magdalena river stingray, Raya de río	S1879, DA71, BA81, Tal83

Table S1 continued - 1

9	Potamotrygonidae	*Styracura schmardae* (Werner, 1904) MS: *Himantura schmardae* | Chupare stingray, Raya raspadera	R1746, S1879, DA71, FR76, SA91
10	Urotrygonidae	*Urotrygon venezuelae* Schultz, 1949 | Venezuela round stingray, Raya venezolana	Tal83
Rhinopristiformes - 1F, 1G, 2S			
11	Pristidae	*Pristis pectinata* Latham, 1794 | Smalltooth sawfish, Pez peine	FR76
12	Pristidae	*Pristis pristis* (Linnaeus, 1758) MS: *Pristis perotteti* | Common sawfish, Pez sierra	FR76

Teleostei - 34O, 78F, 152G, 192S			
Acanthuriformes - 1F, 1G, 1S			
13	Chaetodontidae	*Chaetodon ocellatus* Bloch, 1787 | Spotfin butterflyfish, Mojarra piedra	Rep08-24
Albuliformes - 1F, 1G, 1S			
14	Albulidae	*Albula vulpes* (Linnaeus, 1758) | Bonefish, Ratón, Pejegato	R1746, AT75, Rep01-24
Anabantiformes - 1F, 1G, 1S			
15	Osphronemidae	*Trichopodus pectoralis* Regan, 1910 MS: *Trichogaster pectoralis* | Snakeskin gourami, Gurami	LO90, SR99, Rep01-24
Anguilliformes - 2F, 2G, 3S			
16	Muraenidae	*Gymnothorax funebris* Ranzani, 1839 | Green moray, Morena	R1746, BM95, Rep01-24
17	Ophichthidae	*Myrophis platyrhynchus* Breder, 1927 | Broadnose worm eel, Tieso chato	BM95
18	Ophichthidae	*Myrophis punctatus* Lütken, 1852 | Speckled worm-eel, Tieso gusano	MS71, SA91-PEC-1883, LO90
Atheriniformes - 1F, 1G, 1S			
19	Atherinopsidae	*Atherinella brasiliensis* (Quoy & Gaimard, 1825) MS: *Xenomelaniris brasiliensis* | Brazilian silversides, Tinícalo común	GA84, SA91-PEC-1848, LO90, BM95, BV98
Aulopiformes - 1F, 1G, 1S			
20	Synodontidae	*Synodus* sp. | Lizardfish, Guabina	R08-24
Batrachoidiformes - 1F, 1G, 2S			
21	Batrachoididae	*Batrachoides manglae* Cervigón, 1964 | Cotuero toadfish, Guasa lagunar	SA91
22	Batrachoididae	*Batrachoides surinamensis* (Bloch & Schneider, 1801) | Pacuma toadfish, Peje sapo	R1746

Table S1 continued - 2

Beloniformes - 2F, 4G, 6S			
23	Belonidae	*Ablennes hians* (Valenciennes, 1846) | Flat needlefish, Carajota	GA84
24	Belonidae	*Strongylura marina* (Walbaum, 1792) | Atlantic needlefish, Chonga	SA91, BM95, BV98, SR99, Rep01-24, NB09
25	Belonidae	*Strongylura timucu* (Walbaum, 1792) MS: *Tylosurus timucu* (misspelled: *T. tirauce*) | Timucu, Lechero, Carajota	MS71, BA81
26	Belonidae	*Tylosurus acus* (Lacepède, 1803) MS: *Tylosurus acus acus*, *Tylosurus crocodilus* | Agujon needlefish, Lechero, Aguja	R1746, GC83, Rep06-24
27	Hemiramphidae	*Hyporhamphus roberti* (Valenciennes, 1847) | Slender halfbeak, Marao	SA91, LO90, BV98
28	Hemiramphidae	*Hyporhamphus unifasciatus* (Ranzani, 1841) | Common halfbeak, Agujeta, Chonga	AT75, GC83, GA84
Blenniiformes - 1F, 1G, 1S			
29	Blenniidae	*Lupinoblennius vinctus* (Poey, 1867) MS: *Lupinoblennius dispar* | Mangrove blenny, Blenio de mangle	SA91-PEC-219, BM95
Carangiformes - 6F, 13G, 23S			
30	Carangidae	*Caranx bartholomaei* Cuvier, 1833 | Yellow jack, Jurelete	AT75
31	Carangidae	*Caranx crysos* (Mitchill, 1815) | Blue runner, Cojinúa negra, Coginoa	R1746, Rep08-24
32	Carangidae	*Caranx hippos* (Linnaeus, 1766) | Crevalle jack, Jurel	R1746, MS71, FR76, GR79, AL03, SA91, CE89, LO90, BV98, SR99, Rep01-24, NB09
33	Carangidae	*Caranx latus* Agassiz, 1831 | Horse-eye jack, Jurelito	GR79, BA81, SA91, SR99, BV98, NB09
34	Carangidae	*Chloroscombrus chrysurus* (Linnaeus, 1766) | Atlantic bumper, Dulcina	SA91, BV98, Rep06-24
35	Carangidae	*Hemicaranx amblyrhynchus* (Cuvier, 1833) | Bluntnose jack	SA91
36	Carangidae	*Oligoplites palometa* (Cuvier, 1832) | Maracaibo leatherjacket, Meona	BA81, SA91, LO90, BM95, BV98, SR99, Rep01-24
37	Carangidae	*Oligoplites saurus* (Bloch & Schneider, 1801) | Leatherjacket, Meona	MS71, GR79, BA81, GC83, GA84, AL03, SA91, CE89, LO90, BM95, BV98, SR99, Rep01-24, NB09
38	Carangidae	*Selar crumenophthalmus* (Bloch, 1793) | Bigeye scad, Ojogordo	R1746

Table S1 continued - 3

Carangiformes continued - 6F, 13G, 23S			
39	Carangidae	*Selene brownii* (Cuvier, 1816) MS: *Selene spixii* | Caribbean moonfish	AL03, SA91
40	Carangidae	*Selene vomer* (Linnaeus, 1758) | Lookdown, Jorobado	FR76, GA84
41	Carangidae	*Seriola rivoliana* Valenciennes, 1833 | Longfin yellowtail, Esmedregal, Medregal	R1746
42	Carangidae	*Trachinotus carolinus* (Linnaeus, 1766) | Florida pompano, Pámpano amarillo	BA81, Rep01-24
43	Carangidae	*Trachinotus falcatus* (Linnaeus, 1758) | Permit, Pámpano, Palometa	R1746, MS71, GC83, SA91, BM95, Rep01-24
44	Centropomidae	*Centropomus ensiferus* Poey, 1860 | Swordspine snook, Róbalo pipón	S1879. MS71, FR76, GR79, BA81, GC83, GA84, CE89, CI90, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09
45	Centropomidae	*Centropomus parallelus* Poey, 1860 | Smallscale fat snook, Róbalo	GA84
46	Centropomidae	*Centropomus pectinatus* Poey, 1860 MS: *Centropomus pedimacula* | Tarpon snook, Róbalo pluma, Baileta	S1879, LO90, SA91, BM95, Rep06-24
47	Centropomidae	*Centropomus undecimalis* (Bloch, 1792) | Common snook, Róbalo largo	R1746, S1879, MS71, BA81, GC83, CE89, CI90, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09
48	Echeneidae	*Echeneis naucrates* Linnaeus, 1758 | Live sharksucker, Remora	Inv-SIP26: 2012, 2014
49	Polynemidae	*Polydactylus virginicus* (Linnaeus, 1758) | Barbu, Pez gato, Lambé	BA81, AL03, SA91, LO90, BV98, Rep01-24
50	Rachycentridae	*Rachycentron canadum* (Linnaeus, 1766) | Cobia, Bacalao	Rep01-24
51	Sphyraenidae	*Sphyraena barracuda* (Edwards, 1771) | Great barracuda, Barracuda, Picúa	R1746, Rep01-24
52	Sphyraenidae	*Sphyraena guachancho* Cuvier, 1829 | Guachanche barracuda, Picúa	Rep11-13

Table S1 continued - 4

Characiformes - 13F, 21G, 22S			
53	Acestrorhamphidae	*Astyanax bimaculatus* (Linnaeus, 1758) MS: *Tetragonopterus maculatus* | Twospot astyanax, Sardina	S1879
54	Acestrorhamphidae	*Astyanax caucanus* (Steindachner, 1879) Cauca astyanax	DA71, FR76, LO90
55	Acestrorhamphidae	*Ctenobrycon magdalenae* (Eigenmann & Henn, 1916) MS: *Astyanax magdalenae* | Chango astyanax, Chango	DA71, GB14
56	Acestrorhamphidae	*Psalidodon fasciatus* (Cuvier, 1819) MS: *Astyanax fasciatus*, *Astianax fasciatus* | Banded astyanax, Viejita	DA71, FR76. LO90, SA91, BV98, SR99, Rep01-24, NB09
57	Acestrorhynchidae	*Gilbertolus alatus* (Steindachner, 1879) MS: *Anacyrtus alatus*, *Raestes alatus* | Magdalena smallscale pike characin, Boquiancha	S1879, FR76, LO90, BV98
58	Anostomidae	*Abramites eques* (Steindachner, 1879) MS: *Leporinus eques* | Magdalena headstander, Totumito, Rey bocachico	S1879, Rep11-23
59	Anostomidae	*Brevidens striatus* Kner, 1858 MS: *Leporinus striatus* | Striped headstander, Rayado	S1879
60	Anostomidae	*Megaleporinus muyscorum* (Steindachner, 1900) MS: *Megaleporinus elongatus* | *Leporinus elongatus*, *Leporinus muyscorum* | Muysca headstander, Dientón, Cuatro ojos	S1879, FR76, BV98, SR99, Rep01-24, NB09
61	Bryconidae	*Brycon moorei* Steindachner, 1879 | Dorada brycon characin, Dorada	S1879, AL03, Rep01-24
62	Bryconidae	*Salminus affinis* Steindachner, 1880 | Rubia brycon characin, Rubia	FR76
63	Characidae	*Cynopotamus magdalenae* (Steindachner, 1879) MS: *Anaecyrtus Magdalenae*, *Anacyrtus argenteus*, *Cynopotamus argenteus* | Magdalena characin, Chango	S1879, Rep01-24
64	Characidae	*Nanocheirodon insignis* (Steindachner, 1880) | Dwarf characin, Sardinata	FR76
65	Characidae	*Roeboides dayi* (Steindachner, 1879) MS: *Anacyrtus Dayi*, *Rhaeboides Dayi* | Changuito characin, Changuito	S1879, LO90, BV98, SR99, NB09, GB14
66	Ctenoluciidae	*Ctenolucius hujeta* (Valenciennes, 1850) MS: *Luciocharax insculptus* | Gar characin, Agujeta	S1879, MS71, FR76, LO90, SA91-PEC-1827, BV98, SR99, AL03, Rep01-24, NB09
67	Curimatidae	*Curimata mivartii* Steindachner, 1879 MS: *Curimatus Mivartii* | Vizcaina toothless characin, Vizcaina	S1879, DA71, FR76, GC83, SR99, Rep01-24

Table S1 continued - 5

Characiformes continued - 13F, 21G, 22S			
68	Curimatidae	*Cyphocharax magdalenae* (Steindachner, 1879) MS: *Curimata magdalenae* | Magdalena toothless characin, Viejita, Madre del bocachico	S1879, FR76, LO90, SA91, BV98, SR99, AL03, Rep01-24, NB09, GB14
69	Erythrinidae	*Hoplias malabaricus* (Bloch, 1794) MS: *Hoplias microlepis*, *Macrodon trahira* | Trahira, Moncholo	S1879, FR76, GC83, LO90, SA91, BV98, AL03, Rep01-24
70	Gasteropelecidae	*Gasteropelecus maculatus* Steindachner, 1879 | Spotted hatchetfish, Pechona	FR76
71	Prochilodontidae	*Prochilodus magdalenae* Steindachner, 1879 MS: *Prochilodus asper*, *P. reticulatus magdalenae* | Magdalena flannel-mouth characiform, Bocachico	S1879, DA71, MS71, FR76, GC83, SA91, BV98, SR99, AL03, Rep01-24, NB09
72	Serrasalmidae	*Colossoma macropomum* (Cuvier, 1816) | Cachama, Cachama	Rep01-24
73	Stevardiidae	*Hemibrycon* sp. | Viejita	Rep01-24
74	Triportheidae	*Triportheus magdalenae* (Steindachner, 1879) MS: *Chalcinus Magdalenae* | Magdalena hatchet characin, Arenca	S1879, DA71, LO90, SA91, BV98, SR99, AL03, Rep01-24, NB09
Cichliformes - 1F, 5G, 5S			
75	Cichlidae	*Andinoacara pulcher* (Gill, 1858) MS: *Andinoacara coeruleopunctata var*. latifrons, *Aequidens pulcher*, Blue acara, Mojarra	S1879, MS71, FR76, LO90, SA91, BV98, SR99, AL03, Rep01-10, NB09, GB14
76	Cichlidae	*Caquetaia kraussii* (Steindachner, 1879) MS: *Petenia kraussii* | Mojarra cichlid, Mojarra peña	S1879, MS71, FR76, GC83, LO90, SA91, BV98, SR99, AL03, Rep01-24, NB09, GB14
77	Cichlidae	*Geophagus steindachneri* Eigenmann & Hildebrand, 1922 MS: *Geophagus hondae* | Redhump eartheater	SA91, AL03
78	Cichlidae	*Kronoheros umbrifer* (Meek & Hildebrand, 1913) MS: *Caquetaia umbrifera* | Turquoise cichlid, Mojarra azul	AL03
79	Cichlidae	*Oreochromis niloticus* (Linnaeus, 1758) MS: *Oreochromis cf. niloticus* | Nile tilapia, Mojarra lora	BV98, SR99, Rep01-24, NB09, GB14

Table S1 continued - 6

Clupeiformes - 3F, 8G, 13S			
80	Dorosomatidae	*Harengula jaguana* Poey, 1865 | Scaled herring, Sardineta	SA91, BV98
81	Dorosomatidae	*Opisthonema oglinum* (Lesueur, 1818) | Atlantic thread herring, Machuelo	R1746, GR79, BA81, SA91, BM95, SR99, AL03, Rep01-24
82	Engraulidae	*Anchoa colonensis* Hildebrand, 1943 | Narrow-striped anchovy, Manjúa	SA91
83	Engraulidae	*Anchoa hepsetus* (Linnaeus, 1758) | Broad-striped anchovy, Manjúa	GA84, LO90, BM95, BV98, SR99
84	Engraulidae	*Anchoa cf. lamprotaenia* Hildebrand, 1943 | Big-eye anchovy, Manjúa	LO90, SA91, BM95
85	Engraulidae	*Anchoa parva* (Meek & Hildebrand, 1923) | Little anchovy, Manjúa	CE89, SA91, BM95, BV98, SR99
86	Engraulidae	*Anchoa spinifer* (Valenciennes, 1848) | Spicule anchovy	GA84, SA91, BM95
87	Engraulidae	*Anchoa trinitatis* (Fowler, 1915) | Trinidad anchovy, Manjúa	GA84, LO90, SA91, BM95, BV98, SR99, NB09
88	Engraulidae	*Anchovia clupeoides* (Swainson, 1839) | Zabaleta anchovy, Arenca, Bocona	MS71, BA81, GC83, CE89, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09
89	Engraulidae	*Anchoviella cf. lepidentostole* (Fowler, 1911) | Broadband anchovy, Camiguana	SA91
90	Engraulidae	*Cetengraulis edentulus* (Cuvier, 1829) MS: *Engraulis edentulus* | Atlantic anchoveta, Bocona, Pelona, Rascona	BA81, GC83, CE89, LO90, SA91, BV98, AL03, Rep01-24
91	Engraulidae	*Lycengraulis batesii* (Günther, 1868) | Bates' sabretooth anchovy, Manjúa dientona	GB14
92	Pristigasteridae	*Odontognathus compressus* Meek & Hildebrand, 1923 | Caribbean longfin herring, Sardina cuchilla	SA91-PEC-350, AL03
Cyprinodontiformes - 2F, 2G, 3S			
93	Poeciliidae	*Poecilia caucana* (Steindachner, 1880) MS: *Mollienesia caucana* | Cauca molly, Pipón	MS71, GA84
94	Poeciliidae	*Poecilia cf. gillii* (Kner, 1863) | Gill's molly, Olomina, Pipón	LO90, SA91, BM95, SR99, AL03
95	Rivulidae	*Rachovia brevis* (Regan, 1912) | Pipon rivuline, Pipón	DA71
Dactylopteriformes - 1F, 1G, 1S			
96	Dactylopteridae	*Dactylopterus volitans* (Linnaeus, 1758) | Flying gurnard, Pez volador	SA91, Rep04-24

Table S1 continued - 7

Elopiformes - 2F, 2G, 2S			
97	Elopidae	*Elops smithi* McBride, Rocha, Ruiz-Carus & Bowen, 2010 MS: *Elops saurus*, Malacho, Macabí	R1746, MS71, AT75, FR76, GR79, BA81, GC83, GA84, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09
98	Megalopidae	*Megalops atlanticus* Valenciennes, 1847 MS: *Megalops thrissoides*, *Tarpon atlanticus* | Tarpon, Sábalo	R1746, S1879, MS71, AT75, FR76, GR79, BA81, GC83, CE89, CI90, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09
Ephippiformes - 1F, 1G, 1S			
99	Ephippidae	*Chaetodipterus faber* (Broussonet, 1782) | Atlantic spadefish, Palometa, Paguara	MS71, GR79, BA81, SA91, Rep01-24
Eupercaria incertae sedis - 1F, 10G, 13S			
100	Sciaenidae	*Bairdiella ronchus* (Cuvier, 1830) MS: *Corvina* (*Homoprion*) *acutirostris* | Ground croaker, Carrura, Corvineta	S1879, BA81, GC83, CE89, CI90, LO90, SA91, BM95, BV98, SR99, Rep01-24
101	Sciaenidae	*Cynoscion acoupa* (Lacepède, 1801) MS: *Cynoscion* sp. | Acoupa weakfish, Corvina	GR79, GC83, Rep01-23
102	Sciaenidae	*Isopisthus parvipinnis* (Cuvier, 1830) | Bigtooth corvina, Melito	Inv-SIP26: 2026
103	Sciaenidae	*Larimus breviceps* Cuvier, 1830 | Shorthead drum, Boquita de sábalo	GR79, BA81, GC83, SA91, BV98, Rep01-24
104	Sciaenidae	*Menticirrhus americanus* (Linnaeus, 1758) MS: *Menticirrhus martinicensis* | Southern kingcroaker, Coroncoro perro	GR79, SA91, SR99, Rep01-24
105	Sciaenidae	*Micropogonias furnieri* (Desmarest, 1823) | Whitemouth croaker, Coroncoro, Pacora	MS71, BA81, GC83, AL03, SA91, CE89, CI90, SR99, BV98, Rep01-24
106	Sciaenidae	*Paralonchurus brasiliensis* (Steindachner, 1875) | Banded croaker, Coroncoro perro	GC83, SA91, Rep01-24
107	Sciaenidae	*Plagioscion magdalenae* (Steindachner 1879) MS: *Sciaena magdalenae*, *Plagioscion surinamensis* | Magdalena pacora, Corvinata de río, Pacora	S1879, FR76, Rep01-24, NB09
108	Sciaenidae	*Stellifer microps* (Steindachner, 1864) MS: *Ophioscion microps* | Smalleye stardrum, Corvinata ojochico	MS71, GR79,
109	Sciaenidae	*Stellifer punctatissimus* (Meek & Hildebrand, 1925) MS: *Ophioscion punctatissimus* | Spotted croaker, Gogó	AL03
110	Sciaenidae	*Stellifer venezuelae* (Schultz, 1945) | Venezuelan stardrum, Corvinata	BA81, GC83, SA91, CE89, LO90, BM95, BV98, SR99, Rep01-24, NB09
111	Sciaenidae	*Umbrina broussonnetii* Cuvier, 1830 | Striped drum, Corbinata marina	SA91, Rep01-24
112	Sciaenidae	*Umbrina coroides* Cuvier, 1830 | Sand drum, Corvina	DA71, GR79, GC83, Rep01-24

Table S1 continued - 8

Gerreiformes - 1F, 4G, 8S			
113	Gerreidae	*Diapterus auratus* Ranzani, 1842 MS: *Diapterus olisthostomus* | Irish mojarra, Mojarra blanca, Mojarra huesuda	DA71, BA81, GA84, LO90, SA91, BV98, SR99, Rep01-24, NB09
114	Gerreidae	*Diapterus rhombeus* (Cuvier, 1829) MS: *Gerres rhombeus* | Caitipa mojarra, Mojarra blanca, Mojarrita	S1879, FR76, GR79, BA81, GA84, CE89, CI90, LO90, SA91, BM95, BV98, SR99, Rep01-24, NB09
115	Gerreidae	*Eucinostomus argenteus* Baird & Girard, 1855 | Silver mojarra, Mojarra picona	SA91
116	Gerreidae	*Eucinostomus gula* (Quoy & Gaimard, 1824) | Jenny mojarra	GA84, SA91, BV98, SR99
117	Gerreidae	*Eucinostomus harengulus* Goode & Bean, 1879 | Tidewater mojarra	LO90, SA91
118	Gerreidae	*Eucinostomus melanopterus* (Bleeker, 1863) | Flagfin mojarra, Mojarra de ley	GA84, LO90, SA91, BV98, SR99
119	Gerreidae	*Eugerres plumieri* (Cuvier, 1830) MS: *Gerres plumieri* | Striped mojarra, Mojarra rayada	R1746, S1879, DA71, MS71, AT75, FR76, GR79, BA81, GC83, GA84, CE89, CI90, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09
120	Gerreidae	*Gerres cinereus* (Walbaum, 1792) | Yellow fin mojarra, Mojarra blanca	DA71, MS71, BA81, GA84, LO90, SA91, BV98, SR99, AL03, Rep01-24
Gobiiformes - 3F, 13G, 13S			
121	Eleotridae	*Dormitator maculatus* (Bloch, 1792) | Fat sleeper, Mero de río	FR76, LO90, SA91, Rep01-24, NB09
122	Eleotridae	*Eleotris amblyopsis* (Cope, 1871) | Large-scaled spinycheek sleeper	LO90, SA91-PEC-1881, BM95
123	Eleotridae	*Gobiomorus dormitor* Lacepède, 1800 | Bigmouth sleeper	NB09
124	Gobiidae	*Akko dionaea* Birdsong & Robins, 1995 | Atlantic specter goby	Aal05
125	Gobiidae	*Bathygobius soporator* (Valenciennes, 1837) | Frillfin goby	SA91, BM95
126	Gobiidae	*Gobiosoma spes* (Ginsburg, 1939) | Vermiculated goby	SA91, BM95, BV98, SR99
127	Gobiidae	*Lophogobius cyprinoides* (Pallas, 1770) | Crested goby	SA91, BM95
128	Gobiidae	*Microdesmus carri Gilbert, 1966* | *Stippled wormfish*	AAC02
129	Oxudercidae	*Ctenogobius boleosoma* (Jordan & Gilbert, 1882) MS: *Gobionellus boleosoma*, Darter goby	GA84
130	Oxudercidae	*Evorthodus lyricus* (Girard, 1858) | Lyre goby	GC83, GA84, LO90, BM95
131	Oxudercidae	*Gobioides broussonnetii* Lacepède, 1800 | Violet goby	MS71, AA90, SA91-PEC-1633, AL03

Table S1 continued - 9

Gobiiformes continued - 3F, 13G, 13S			
132	Oxudercidae	*Gobionellus oceanicus* (Pallas, 1770) MS: *Gobionellus hastatus*, Highfin goby	LO90, SA91, BV98, AL03
133	Oxudercidae	*Sicydium plumieri* (Bloch, 1786) | Sirajo, Tití	R1746
Gymnotiformes - 2F, 3G, 4S			
134	Gymnotidae	*Gymnotus carapo* Linnaeus, 1758 | Banded knifefish, Anguila perra	FR76
135	Sternopygidae	*Eigenmannia humboldtii* (Steindachner, 1879) MS: *Sternopygus Humboldtii* | Humboldt glass knifefish, Mayupa de Humboldt	S1879
136	Sternopygidae	*Sternopygus aequilabiatus* (Humboldt, 1805) | Magdalena glass knifefish, Mayupa del Magdalena	S1879
137	Sternopygidae	*Sternopygus macrurus* (Bloch & Schneider, 1801) | Longtail knifefish, Ratón, Mayupita	FR76, Rep01-24
Holocentriformes - 1F, 1G, 1S			
138	Holocentridae	*Holocentrus adscensionis* (Osbeck, 1765) MS: *Holocentrus rufus*, Squirrelfish, Vergajuelos, Carajuelo	R1746
Lobotiformes - 1F, 1G, 1S			
139	Lobotidae	*Lobotes surinamensis* (Bloch, 1790) | Tripletail, Binde	BA81, SA91- PEC-108, Rep01-24
Lophiiformes - 1F, 1G, 1S			
140	Antennariidae	*Antennarius striatus* (Shaw, 1794) | Striated frogfish, Sapo rayado	SA91-PEC-776
Lutjaniformes - 2F, 5G, 9S			
141	Haemulidae	*Conodon nobilis* (Linnaeus, 1758) | Barred grunt, Cocó, Ronco canarino	GA84, BA81, SA91, BV98, Rep01-24
142	Haemulidae	*Haemulon plumierii* (Lacepède, 1801) | White grunt, Coroncoro, Boquecoño	R1746
143	Haemulidae	*Haemulopsis corvinaeformis* (Steindachner, 1868) MS: *Pomadasys corvinaeformis* | Roughneck grunt, Pargo blanco	SA91, BV98, SR99
144	Haemulidae	*Rhonciscus crocro* (Cuvier, 1830) MS: *Pomadasys crocro*, Burro grunt, Ronco	DA71, SA91, Rep01-24
145	Lutjanidae	*Lutjanus analis* (Cuvier, 1828) | Mutton snapper, Rubia, Pargo palmero	R1746

Table S1 continued - 10

Lutjaniformes continued - 2F, 5G, 9S			
146	Lutjanidae	*Lutjanus cyanopterus* (Cuvier, 1828) | Cubera snapper, Pargo dientón	MS71, SA91, BM95
147	Lutjanidae	*Lutjanus griseus* (Linnaeus, 1758) | Grey snapper, Pargo prieto	DA71, BA81, SA91, Rep01-24
148	Lutjanidae	*Lutjanus jocu* (Bloch & Schneider, 1801) | Dog snapper, Pargo perro	SA91, BM95, SR99
149	Lutjanidae	*Lutjanus synagris* (Linnaeus, 1758) | Lane snapper, Pargo rayado	R1746, SA91, SR99
Mugiliformes - 1F, 2G, 4S			
150	Mugilidae	*Dajaus monticola* (Bancroft, 1834) MS: *Agonostomus monticola* | Mountain mullet, Rayao, Besote	Rep01-24
151	Mugilidae	*Mugil curema* Valenciennes, 1836 | White mullet, Anchoveta, Anchoa	MS71, GR79, GC83, GA84, CI90, LO90, SA91, SR99, AL03, Rep01-24, GB14
152	Mugilidae	*Mugil incilis* Hancock, 1830 | Parassi mullet, Lisa	S1879, MS71, FR76, BA81, GC83, GA84, CI90, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09, GB14
153	Mugilidae	*Mugil liza* Valenciennes, 1836 MS: *Mugil brasiliensis* | Lebranche mullet, Lebranche	R1746, S1879, MS71, FR76, GR79, BA81, GC83, GA84, CI90, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09, GB14
Perciformes - 3F, 5G, 5S			
154	Scorpaenidae	*Pterois volitans* (Linnaeus, 1758) | Red lionfish, Pez león	Rep06-24
155	Serranidae	*Cephalopholis cruentata* (Lacepède, 1802) MS: *Cephalopholis fulva*, Graysby, Cabrilla	R1746
156	Serranidae	*Epinephelus itajara* (Lichtenstein, 1822) | Atlantic goliath grouper, Mero guasa	R1746, SA91, Rep01-24
157	Serranidae	*Mycteroperca bonaci* (Poey, 1860) | Black grouper, Chema	R1746
158	Triglidae	*Prionotus punctatus* (Bloch, 1793) | Bluewing searobin, Gallina azul	SA91-PEC-1841

Table S1 continued - 11

Pleuronectiformes - 4F, 5G, 5S			
159	Achiridae	*Achirus lineatus* (Linnaeus, 1758) MS: *Achirus achirus* | Lined sole, Lenguado, Pegapega, Arepa	MS71, FR76, GR79, BA81, GA84, CE89, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09
160	Achiridae	*Trinectes paulistanus* (Miranda Ribeiro, 1915) MS: *Trinectes maculatus* | Slipper sole	AT75, CE89, SA91, BV98, SR99, AL03
161	Cyclopsettidae	*Citharichthys spilopterus* Günther, 1862 | Bay whiff, Lenguado común	MS71, LO90, SA91, BM95, BV98, SR99, AL03, NB09
162	Cynoglossidae	*Symphurus plagusia* (Bloch & Schneider, 1801) | Duskycheek tonguefish, Lenguado alargado	SA91, AL03
163	Paralichthyidae	*Paralichthys tropicus* Ginsburg, 1933 | Tropical flounder, Lenguado	R1746
Scombriformes - 3F, 5G, 7S			
164	Pomatomidae	*Pomatomus saltatrix* (Linnaeus, 1766) | Bluefish, Albacora	Rep01-24
165	Scombridae	*Euthynnus alletteratus* (Rafinesque, 1810) | Little tunny, Bonito	R1746, Rep08-24
166	Scombridae	*Scomberomorus brasiliensis* Collette, Russo & Zavala-Camin, 1978 | Serra Spanish mackerel, Carite	SA91
167	Scombridae	*Scomberomorus cavalla* (Cuvier, 1829) | King mackerel, Sierra	R1746, Rep06-24
168	Scombridae	*Scomberomorus regalis* (Bloch, 1793) | Cero, Carite	BA81, SA91, Rep01-24
169	Scombridae	*Thunnus atlanticus* (Lesson, 1831) | Blackfin tuna, Albacora	R1746
170	Trichiuridae	*Trichiurus lepturus* Linnaeus, 1758 | Largehead hairtail, Sable	S1879, SA91, Rep01-24
Siluriformes - 8F, 21G, 23S			
171	Ariidae	*Ariopsis canteri* Acero P., Betancur-R & Marceniuk, 2017 MS: *Arius assimilis*, *Ariopsis assimilis*, *A. bonillai*, *Ariopsis sp.*, *Arius sp.*, *Galeichthys bonillai*, *Notarius bonillai* | Cazón sea catfish, Chivo cabezón	S1879, DA71, MS71, FR76, BA81, GC83, CE89, CI90, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09, GB14
172	Ariidae	*Bagre filamentosus* (Swainson, 1839) MS: *Bagre felis*, *B. marinus* | Filament sea catfish, Chinchorro, Bagre bandera	DA71, FR76, BA81, Rep01-24
173	Ariidae	*Cathorops mapale* Betancur-R & Acero P., 2005 MS: *Cathorops spixii*, *Arius spixii* | Mapalé sea catfish, Chivo mapalé	FR76, GR79, BA81, GC83, GA84, CE89, CI90, LO90, SA91, BV98, SR99, Rep01-24, NB09, GB14
174	Ariidae	*Sciades herzbergii* (Bloch, 1794) | Pemecou sea catfish, Barbudo de mar	MS71, FR76

Table S1 continued - 12

Siluriformes continued - 8F, 21G, 23S			
175	Ariidae	*Sciades proops* (Valenciennes, 1840) MS: *Arius proops* | Crucifix sea catfish, Chivo mozo, Peje gato	R1746, GC83, CI90, SA91, SR99, Rep01-24
176	Auchenipteridae	*Ageneiosus pardalis* Lütken, 1874 MS: *Ageneiosus ucayalensis*, *A. caucanus* | Doncella driftwood catfish, Doncella	S1879, GC83, BV98, Rep01-24
177	Auchenipteridae	*Trachelyopterus insignis* (Steindachner, 1879) MS: *Auchenipterus insignis*, *A. magdalenae* | Northern South American driftwood catfish, Cachegua	S1879, BV98, SR99, Rep01-24, NB09
178	Callichthyidae	*Megalechis thoracata* (Valenciennes, 1840) MS: *Hoplosternum thoracatum*, Common callichthyd armored catfish, Chipe	FR76, LO90, SA91-PEC-1832
179	Doradidae	*Centrochir crocodili* (Humboldt, 1821) MS: *Doras longispinis*, Magdalena thorny catfish, Cachegua	S1879, FR76, AL03
180	Heptapteridae	*Pimelodella chagresi* (Steindachner, 1876) | Chagres three-barbeled catfish, Casimiro	FR76
181	Heptapteridae	*Rhamdia quelen* (Quoy & Gaimard, 1824) MS: *Pimelodus sebae*, *Rhamdia sebae* | South American catfish, Barbul arroyo	S1879, FR76, Rep01-24, NB09
182	Loricariidae	*Chaetostoma fischeri* Steindachner, 1879 | Fischer armored catfish, Chucho	FR76
183	Loricariidae	*Crossoloricaria variegata* (Steindachner, 1879) | Alcalde armored catfish, Alcalde	FR76
184	Loricariidae	*Dasyloricaria filamentosa* (Steindachner, 1879) MS: *Loricaria filamentosa* | Filament armored catfish, Corroncho de hebra	S1879
185	Loricariidae	*Isorineloricaria tenuicauda* (Steindachner, 1879) MS: *Plecostomus tenuicauda* | Raspacanoa armored catfish, Raspacanoa	S1879, FR76, LO90, AL03
186	Loricariidae	*Panaque cochliodon* (Steindachner, 1879) | Corroncho armored catfish, Corroncho	FR76
187	Loricariidae	*Pterygoplichthys undecimalis* (Steindachner, 1879) MS: *Chaetostomus undecimalis* | Cacucho armored catfish, Rascón, Cacucho	S1879, FR76, SA91-PEC-1582, BV98
188	Loricariidae	*Rineloricaria magdalenae* (Steindachner, 1879) MS: *Loricaria Magdalenae* n. sp. | Magdalena armored catfish, Alcalde	S1879, FR76
189	Pimelodidae	*Pimelodus yuma* Villa-Navarro & Acero P., 2017 MS: *Pimelodus clarias*, *Pimelodus blochii* | Nicuro, Barbul	S1879, FR76, SA91, BV98, SR99, Rep01-24
190	Pimelodidae	*Pseudoplatystoma magdaleniatum* Buitrago-Suárez & Burr, 2007 MS: *Platystoma fasciatum*, *Pseudoplatystoma fasciatum*, *Pseudoplatystoma fasciatus* | Magdalena long-whiskered catfish, Bagre pintado	S1879, FR76, GC83, BV98, AL03, Rep01-24, NB09
191	Pimelodidae	*Sorubim cuspicaudus* Littmann, Burr & Nass, 2000 MS: *Sorubim lima* | Trans-Andean shovelnose catfish, Blanquillo	S1879, FR76, BV98, Rep01-24, NB09
192	Pseudopimelodidae	*Batrochoglanis raninus* (Valenciennes, 1840) MS: *Pseudopimelodus raninus*, Bumblebee catfish, Bagre sapo	SR99
193	Pseudopimelodidae	*Pseudopimelodus bufonius* (Valenciennes, 1840) | Colombian bumblebee catfish, Bagre sapo	FR76

Table S1 continued - 13

Spariformes - 1F, 1G, 1S			
194	Sparidae	*Archosargus rhomboidalis* (Linnaeus, 1758) | Western Atlantic seabream, Mojarra amarilla	Rep01-24
Synbranchiformes - 1F, 1G, 1S			
195	Synbranchidae	*Synbranchus marmoratus* Bloch, 1795 | Marbled swamp eel, Anguila	FR76
Sygnathiformes - 2F, 3G, 3S			
196	Mullidae	*Mulloidichthys martinicus* (Cuvier, 1829) | Yellow goatfish, Salmonete	R1746
197	Syngnathidae	*Microphis lineatu*s (Kaup, 1856) MS: *Microphis brachyurus* , *Oostethus brachyurus* | Short-tailed pipefish	SA91-PEC-NA
198	Syngnathidae	*Syngnathus cf. caribbaeus* Dawson, 1979 MS: *Syngnathus cf. rousseau* | Caribbean pipefish, Palito	AT75
Tetraodontiformes - 3F, 4G, 6S			
199	Diodontidae	*Diodon hystrix* Linnaeus, 1758 | Spot-fin porcupinefish, Puerco espín	R1746, Rep06-24
200	Ostraciidae	*Lactophrys trigonus* (Linnaeus, 1758) | Buffalo trunkfish, Chapín	R1746
201	Tetraodontidae	*Lagocephalus laevigatus* (Linnaeus, 1766) | Smooth puffer, Sapo marino	SA91-PEC-NA, Rep08-24
202	Tetraodontidae	*Sphoeroides greeleyi* Gilbert, 1900 MS: *Sphoeroides eulepidotus* | Green puffer, Pejesapo	DA71, MS71, FR76, CE89, SA91, BM95
203	Tetraodontidae	*Sphoeroides spengleri* (Bloch, 1785) | Bandtail puffer, Sapito	FR76, LO90
204	Tetraodontidae	*Sphoeroides testudineus* (Linnaeus, 1758) MS: *Tetrodon testudineus* | Checkered puffer, Pez sapo, Pejesapo	S1879. FR76, GA84, CE89, LO90, SA91, BM95, BV98, SR99, AL03, Rep04-24

Table S2. Fish taxa recorded by José Nicolás de la Rosa (ca. 1746; published 1820)

Original vernacular names from the manuscript and modern taxonomic assignments. Status refers to inclusion in the species inventory of the present study: Confirmed = included, independently reported by subsequent authors (21); Unique = Unique taxon, included, recorded exclusively by this source (16); N/I = Not included in species inventory (5). For further explanations see Text S1, Nicolás de la Rosa.

No.	Vernacular name (de la Rosa)	Family	Species	Status
1	chucha	Aetobatidae	*Aetobatus narinari*	Confirmed
2	peje ratón	Albulidae	*Albula vulpes*	Confirmed
3	pejesapo	Batrachoididae	*Batrachoides surinamensis*	Unique
4	cojinova	Carangidae	*Caranx crysos*	Confirmed
5	jurel	Carangidae	*Caranx hippos*	Confirmed
6	cazón	Carcharhinidae	*Carcharhinus* spp.	N/I
7	robalos	Centropomidae	*Centropomus undecimalis*	Confirmed
8	cabrilla	Serranidae	*Cephalopholis cruentata*	Unique
9	dorada	Coryphaenidae	*Coryphaena hippurus*	N/I
10	caballetas	Carangidae	*Decapterus* spp.	N/I
11	puerco espín	Diodontidae	*Diodon hystrix*	Confirmed
12	macabí	Elopidae	*Elops smithi*	Confirmed
13	mero	Serranidae	*Epinephelus itajara*	Confirmed
14	mojarra	Gerreidae	*Eugerres plumieri*	Confirmed
15	bonito	Scombridae	*Euthynnus alletteratus*	Confirmed
16	tintorera	Galeocerdonidae	*Galeocerdo cuvier*	Unique
17	morena	Muraenidae	*Gymnothorax funebris*	Confirmed
18	coroncoros	Haemulidae	*Haemulon plumierii*	Unique
19	vergajuelos	Holocentridae	*Holocentrus adscensionis*	Unique
20	raya vera	Dasyatidae	*Hypanus americanus*	Unique

No.	Vernacular name (de la Rosa)	Family	Species	Status
21	chapín	Ostraciidae	*Lactophrys trigonus*	Unique
22	rubio	Lutjanidae	*Lutjanus analis*	Unique
23	pargo	Lutjanidae	*Lutjanus synagris*	Confirmed
24	sábalo	Megalopidae	*Megalops atlanticus*	Confirmed
25	manta	Mobulidae	*Mobula* sp.	N/I
26	lebranche	Mugilidae	*Mugil liza*	Confirmed
27	salmonete	Mullidae	*Mulloidichthys martinicus*	Unique
28	cherna	Serranidae	*Mycteroperca bonaci*	Unique
29	machuelo	Dussumieridae	*Opisthonema oglinum*	Confirmed
30	lenguado	Paralichthyidae	*Paralichthys tropicus*	Unique
31	peje gato	Ariidae	*Sciades proops*	Confirmed
32	sierra	Scombridae	*Scomberomorus cavalla*	Confirmed
33	ojogordo	Carangidae	*Selar crumenophthalmus*	Unique
34	esmedregal	Carangidae	*Seriola rivoliana*	Unique
35	picudo	Sphyraenidae	*Sphyraena barracuda*	Confirmed
36	cornuda	Sphyrnidae	*Sphyrna lewini*	Unique
37	raya negra	Potamotrygonidae	*Styracura schmardae*	Confirmed
38	titíes	Oxudercidae	*Sicydium plumieri*	Unique
39	albacora	Scombridae	*Thunnus atlanticus*	Unique
40	palometa	Carangidae	*Trachinotus falcatus*	Confirmed
41	agujas	Belonidae	*Tylosurus acus/crocodilus*	Confirmed
42	peje espada	Xiphiidae	*Xiphias gladius*	N/I

Table S3 Steindachner

Forty-six fish species were reported by Steindachner (1879). Nineteen of these species are explicitly described as originating from the “Ciénaga” or the “Magdalena River,” while the provenance of the remaining species is not specified in the original publication (Origin). Records from the Natural History Museum Vienna (Austria) that can be associated with Steindachner document 144 specimens (No. spec.), representing 42 of the 46 species. Most records refer to Location (Loc.) 1 — “from the large, lake-like Ciénaga, which the Magdalena River forms with one of its main eastern branches shortly before flowing into the sea” (32 records), followed by Location 2 — “Magdalena River / Río Magdalena” (14 records), and Location 3 — “Ciénaga / Ciénaga Grande de Santa Marta” (7 records). Locations 4 — “Mouth of the Magdalena River,” 5 — “Ciénaga, Río Magdalena,” and 6 — “Village of Caimun [sic; likely *Caimán*], Ciénaga (probably Ciénaga) on the Magdalena River,” are each mentioned only once.

Steindachner (1879)				Nat. Hist. Museum Vienna		
No.	**Page**	**Name**	**Origin**	**Loc.**	**Catalogue Number**	**No. spec.**
1	21	*Centropomus undecimalis*	We have several specimens..., from Cienega, close to the village of Caiman.	2	78605	1
2	21	*Centropomus ensiferus*	not specified	-	No record	-
3	22	*Centropomus pedimacula*	not specified	1	17937	1
4	22	*Sciaena magdalenae* n. sp.	not specified	1	32301, 78072, 85602, 85603	4
5	25	*Corvina (Homoprion) acutirostris*	The specimen caught in the Magdalena River near the village of Caiman is...	2	85307	1
6	25	*Trichiurus lepturus*	not specified	1	43173	1
7	25	*Gerres plumieri*	Several specimens from the mouth of the river, near the village of Caiman, in brackish water.	1	72372	1
8	25	*Gerres zebra*	not specified	-	No record	-
9	25	*Gerres rhombeus*	Magdalenen River, close to the mouth	1	72362	1
10	26	*Mugil brasiliensis*	Very common in brackish water at the mouth of the Magdalena River.	-	No record	-
11	26	*Mugil incilis*	...we examined specimens from the Magdalene River...	1, 2	67665, 67666, 82359	3
12	26	*Mugil liza*	Examples of this type can be found in museums in Vienna and Cambridge (Massachusetts) from the Magdalene River...	-	No record	-
13	27	*Acara coeruleo-punetatae*	not specified	1	79185	1

		var. *latifrons*				
14	28	*Petenia kraussii* n. sp.	not specified	1, 2	24543-53, 75391, 92297, 94186	14
15	31	*Sorubim lima*	Very common in the lower reaches of the Magdalene River...	1, 3	44718-21, 44725, 50533, 82177, 93835, 93854, 100955	10
16	31	*Platystoma fasciatum*	Also, very common in the Magdalene River...	1, 2	45990, 93348, 93856, 94097	4
17	31	*Pimelodus clarias*	...frequent in the Magdalene River...	1	45756, 50550	2
18	32	*Pimelodus (Rhamdia) Sebae*	Specimens from the Magdalene River...	1, 2	45917, 45918	2
19	33	*Ageneiosus pardalis*	not specified	1	47812, 47833-35	4
20	35	*Auchenipterus insignis* n. sp.	not specified	1	47398, 47400	2
21	36	*Auchenipterus Magdalenae* n. sp.	not specified	3	47409-12, 93794	5
22	38	*Arius assimilis*	...captured near the village of Caiman...	3	48337, 48339	2
23	39	*Doras longispinis* n. sp.	not specified	1, 2	46624, 46625	2
24	40	*Plecostomus tenuicauda* n. sp.	not specified	1, 2	42596, 44262-66, 44268, 44294	8
25	43	*Chaetostomus undecimalis* n. sp.	not specified	1, 3	47220-24, 95558	6
26	45	*Loricaria filamentosa* n. sp.	not specified	1, 4	44870-75	6
27	47	*Macrodon trahira*	...48 specimens of various sizes from the Magdalene River...	1, 3, 5	66604, 68136, 68137, 68263, 69655, 69657, 93522	7
28	48	*Curimatus Mivartii* n. sp.	not specified	1, 2	68757-59	3
29	50	*Curimatus Magdalenae* n. sp.?	not specified	1	68872, 68873	2
30	51	*Prochilodus asper*	This species, which is very common in the Magdalene River...	1	56624-32, 93520	10
31	53	*Leporinus elongatus*	…15 specimens from the Magdalena River are available to me.	2	67926	1
32	55	*Leporinus striatus*	...the specimen originating from the Magdalene River...	1	68244	1
33	56	*Leporinus eques*	not specified	1	69548-50	3
34	58	*Tetragonopterus maculatus*	The five specimens available to me from the Magdalene River...	1	57654, 57660	2
35	58	*Brycon Moorei*	not specified	2	62741	1
36	60	*Chalcinus Magdalenae*	not specified	1, 3	69151-54	4

37	61	*Anacyrtus (Rhaeboides) Dayi* n. sp.	...currently only known from the Magdalenen River...	1	67132	1
38	62	*Anacyrtus (Cynopotamus) argenteus*	...this species appears to be common in the lower course of the Magdalene River...	1	62501-02, 62503-04, 77769	5
39	65	*Anacyrtus (Raestes) alatus* n. sp.	not specified	1	14998	1
40	67	*Luciocharax insculptus* n. sp.	not specified	1	68252-54	3
41	69	*Megalops thrissoides*	not specified	1	84227	1
42	69	*Sternopygus aequilabiatus*	...exemplary specimens of the Sternopygus species from the Magdalenen River...	2	64980-84, 84230, 89941, 93632	7
43	71	*Sternopygus Humboldtii* n. sp.	...Magdalenen-River.	2	64988	1
44	72	*Tetrodon testudineus*	This species is often caught close to the mouth of the brackish water near the village of Caiman.	6	64459	1
45	72	*Taeniura Magdalenae*	not specified	1, 2	50225, 60862, 87375, 88152, 89545	5
-	75	*Loricaria Magdalenae* n. sp.	not specified	3	45080, 45800, 93434, 93800	4

Table S4 Dahl

Dahl (1971) identified nineteen fish species; his manuscript species names designated by "MS". Eight species can be definitively assigned to the Ciénaga Grande de Santa Marta (CGSM) based on explicit textual evidence (shown in bold). Eighteen species are independently confirmed by other authors (Other sources), and one represents an unique record. Source abbreviations:

AL03 = Álvarez León (2003)
AT75 = Avila de Tabarés (1975)
BA81 = Barrios (1981)
BM95 = Botero Arboleda and Marshall (1995)
BV98 = Bateman Vargas (1998)
CE89 = Castaño Echeverry (1989)
CI90 = Comité Institucional (1990)
FR76 = Franky and Rodríguez (1976)
GA84 = González Afanador (1984)
GB14 = Gámez Barrera et al. (2014)
GC83 = Galvis Cortés (1983)
GR79 = Galeano and Romero (1979a)
LO90 = Lamprea Ochoa (1990)
MS71 = Mercado Silgado (1971)
NB09 = Narváez *et al.* (2009)
R1746 = de la Rosa (ca. 1746/1820)
Rep01... = Invemar Rep01-2002 to Rep24-2025
S1879 = Steindachner (1879)
SA91 = Santos-Martínez & Acero (1991)
SR99 = Sánchez-Ramírez and Rueda (1999)
Tal83 = Thorson *et al*. (1983)

No.	Name	Page	Text	Other sources
1	*Carcharhinus leucas*	17	**...has been seen ...in the CGSM**	FR76
2	*Potamotrygon magdalenae*	29	La raya común de agua dulce se presenta en todas las partes bajas del río Magdalena...	S1879, BA81, Tal83
3	*Styracura schmardae* | MS: *Himantura schmardae*	31	**...in the CGSM, where it is the most common species**	R1746, S1879, FR76, SA91
4	*Bagre filamentosus* | MS: *Bagre felis*	47	**Common on the coast, in estuaries, and in high-salinity marshes, such as those in Santa Marta....**	FR76, BA81, Rep01-24
5	*Ariopsis canteri* | MS: *Galeichthys bonillai*	48	**...in the CGSM, it is caught in sufficient quantities to supply the market in Barranquilla**	S1879, MS71, FR76, BA81, GC83, CE89, CI90, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09, GB14
6	*Curimata mivartii*	105	Common in the lower parts of the Magdalena system.	S1879, FR76, GC83, SR99, Rep01-24
7	*Prochilodus magdalenae* | MS: *P. reticulatus magdalenae*	109	…the entire Magdalena system.	S1879, MS71, FR76, GC83, SA91, BV98, SR99, AL03, Rep01-24, NB09
8	*Triportheus magdalenae*	126	Present in all parts of the Magdalena system.... It is especially common in the Lower Magdalena marsh region.	S1879, LO90, SA91, BV98, SR99, AL03, Rep01-24, NB09

9	*Ctenobrycon magdalenae* | MS: *Astyanax magdalenae*	146	Upper and Lower Magdalena...	GB14
10	*Astyanax caucanus*	147	…very common in all lower parts of the Magdalena system.	FR76, LO90
11	*Psalidodon fasciatus* | MS: *Astyanax fasciatus*	149	Species present in all parts of the Magdalena system.	FR76. LO90, SA91, BV98, SR99, Rep01-24, NB09
12	*Rachovia brevis*	184	Swamps and wells around the CGSM.	Unique report
13	*Lutjanus griseus*	231	The “mangrove snapper” deserves this name because it prefers mangroves to any other environment. It is found with some frequency in semi-saline or even almost fresh marshes.	BA81, SA91, Rep01-24
14	*Rhonciscus crocro* | MS: *Pomadasys crocro*	242	**...except in the Ciénaga Grande de Santa Marta...**	SA91, Rep01-24
15	*Gerres cinereus*	246	Common along the coast; sometimes enters rivers, swamps, etc.	MS71, BA81, GA84, LO90, SA91, BV98, SR99, AL03, Rep01-24
16	*Diapterus auratus* | MS: *D. olisthostomus*	247	…It enters semi-saline channels and marshes and often completely freshwater areas.	BA81, GA84, LO90, SA91, BV98, SR99, Rep01-24, NB09
17	*Eugerres plumieri*	248	**About 15 or 20 years ago, this species was extremely numerous, but in many places, it has declined to the point of almost losing its importance due to poor fishing practices. The Ciénaga Grande de Santa Marta is a typical case.**	R1746, S1879, MS71, AT75, FR76, GR79, BA81, GC83, GA84, CE89, CI90, LO90, SA91, BM95, BV98, SR99, AL03, Rep01-24, NB09
18	*Umbrina coroides*	259	**It was previously quite numerous in the Ciénaga Grande de Santa Marta...**	GR79, GC83, Rep01-24
19	*Sphoeroides greeleyi* | MS: *Sphoeroides eulepidotus*	305	**Apparently, some small specimens from the Ciénaga Grande de Santa Marta belong to this species.**	MS71, FR76, CE89, SA91, BM95