Data article

Dataset on the diversity of helminth parasites of freshwater fish in the headwaters of the Coatzacoalcos river, in Oaxaca, Mexico

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\section*{Abstract}
The data presented in this article are related to the research article entitled "Diversity of helminth parasites of freshwater fish in the headwaters of the Coatzacoalcos river, in Oaxaca, Mexico" published in International Journal for Parasitology: Parasites and Wildlife. This dataset document the diversity of helminth parasites found in 25 fish species from 8 families from rivers in the headwaters of the Coatzacoalcos river basin at the border between Oaxaca and Veracruz states, Isthmus of Tehuantepec zone, southeastern Mexico, in the northernmost end of Central America. We record here 48 species, 44 genera and 29 helminth families. Most of the helminth species recorded in this area has also been collected from Central American bodies of freshwater south of...
Specifications Table

| Subject area | Biology; Animal science and Zoology. |
|--------------|-------------------------------------|
| Specific subject area | Platyhelminthes, Nematoda and Acanthocephala. Helminth ecto- and endo-parasites of tropical freshwater fish of northern end of Central America. |
| Type of data | Table. |
| How data were acquired | Microscope, survey. Each fish was examined under a stereo microscope in Petri dishes with river water for external examination, and with 0.6% saline solution for internal organs. External examination included the skin, scales, mouth, gill cavity, anus, and fins of each host; while internal examination included the brain, gut, mesenteries, kidneys, liver, gall bladder and muscles. We collected data on the number of species (species richness) and abundance distribution of helminths (number of individuals of each species). |
| Data format | Raw numbers in matrices of localities and fish-individual (lines) vs characteristics (location coordinates and altitude; host length, weigh and sex), and helminth parasite taxa (columns) recorded in each one fish host individually. A matrix per each one of 25 fish species. |
| Description of data collection | We examined 410 freshwater fishes from 25 species and eight families during March and April 2009; at seven sites in the headwaters of the Coatzacoalcos river basin. Fish were collected using electrofishing device, transferred to the laboratory and kept alive in aerated containers until they were examined for helminths, performed within 8 hours of capture. Each fish was measured (total and standard length; maximum deep) and examined under a stereo microscope in Petri dishes with river water (for external organs) or saline 0.6% solution (for internal organs inspection). Skin, scales, mouth, gill cavity, anus, and fins, as well as all internal organs and tissues except the blood and bones, of each host were examined. Fish were euthanized and the gill arches were removed, separated from the gill cavity and evaluated individually. After, internal organs were excised and examined for helminths under stereomicroscope. |
| Parameters for data collection | The platyhelminths (monogenea and digenea) and the acanthocephalan found were fixed in 4% hot formaldehyde, stained with Mayer’s paracarmine or Gomori’s triple stain and mounted whole on Canada balsam, to made permanent slides for microscopical examination. Nematodes were fixed also in 4% formalin and studied in nonpermanent slides with glycerin. Taxonomic identification was performed based on morphometric analysis of the specimens. A total of 48 helminth species are documented from 44 genera and 29 families. |

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Value of the Data

- These data are essential for phylogenetical and ecological hypothesis planning and further biogeographical studies; will assist to examine spatial variation in community structure of helminth parasites of freshwater fishes; may also assist to compare patterns of structure of assemblage vs appropriate null models; can be useful to compare population or community characteristics i. e. richness, densities, of tropical assemblages vs temperate or other regions.
- These kinds of data could be useful for general biologists, biogeographers, ecologists and parasitologists. Also for aquaculturists and veterinarians involved in aquatic organism especially fish management and production; as well as regulatory agencies and stakeholders who seek to protect the public and their goods or values by limiting the adverse environmental impacts of development.
- Parasite species knowledge of fishes and other aquatic organisms can be used to constraint controlled production of aquatic organisms or exploitation of natural resources. Likewise, environmental impact processes would take in account the likelihood that any aquacultural development will affect natural populations, native species or biodiversity in general, for example by accidentally introducing exotic, undesirerable alien species of parasites to the natural populations of fishes (see [1]; Salgado-Maldonado and Rubio-Godoy, 2015, [2] for examples).
- These data could be used for providing an assessment of human impacts on the environment, or to generate data utile for a public awareness of conservation objectives. For example, host parasite systems knowledge can be used to indicate changes in the status of biodiversity [3]. As well these data could support to explore characteristics of the structure of parasite assemblages as nestedness or patterns of decay of similarity with distance.

1. Data Description

Table 1 contains the list of the fish species and the number of individual fish examined ordered alphabetically by fish family. Common names of the fish species and locations of collection are also referred in this table.

Table 2 is a list of fish host – parasite associations, including the tissues or organs of the fish from which parasites were collected, and the localities and date of collection of helminth parasites collected from the 25 fish species examined from upper Coatzacoalcos river, Oaxaca, Mexico. Helminth parasites are ordered by Phylum (Monogenea, Trematoda, Cestoda), Acanthocephala and Nematoda (adults first, then larval forms).
Table 1
Fish families and species, common names, localities (RJ: Jaltepec River, EP El Platanillo River; RE Escondido River; RN Negro River; RG Grande River; RM Modelo River; RP Pánfilo River), dates (Ap, April, Ma, March 2009) and number of hosts examined from the headwaters of the Coatzacoalcos river, Mexico.

| Family         | Species                                                                 | Common names                                      | Locality | No. hosts examined |
|----------------|--------------------------------------------------------------------------|---------------------------------------------------|----------|--------------------|
| CHARACIDAE     | Astyanax aeneus (Günther, 1860) [referred as Astyanax finitimis (Bocourt, 1868) by Schmitter-Soto, 2017] | Platilla, pepesca, Banded tetra                  | EP/Ma    | 19                 |
|                |                                                                          |                                                   | RN/Ma    | 24                 |
|                |                                                                          |                                                   | RG/Ma    | 1                  |
|                |                                                                          |                                                   | RP/Ap    | 20                 |
|                |                                                                          |                                                   | RJ/Ap    | 12                 |
| CICHLIDAE      | Parachromis friedrichsthalii (Heckel, 1840)                             | Yellowjacket cichlid                              | RJ/Ap    | 1                  |
|                | Paraneetroplus bulleri Regan, 1905                                       | Mojarra, Corrientero                              | EP/Ma    | 2                  |
|                | Theraps irregularis Günther, 1862                                        | Arroyo cichlid                                    | RE/Ap    | 16                 |
|                | Thorichthys callolepis (Regan, 1904)                                     | Mojarra de San Domingo                            | RN/Ma    | 6                  |
|                | Thorichthys helleri (Steindachner, 1864)                                 | Mojarra amarilla, Yellow cichlid                  | RE/Ap    | 7                  |
|                | Thorichthys maculipinnis (Steindachner, 1864)                            | Mojarra                                           | RN/Ma    | 3                  |
|                | Trichromis salvini (Günther, 1862)                                       | Mojarra, Yellow belly cichlid                     | RM/Ma    | 8                  |
|                | Vieja guttulata (Günther, 1864)                                          | Mojarra de Amatitlán, Amatitlán cichlid           | EP/Ma    | 24                 |
|                |                                                                          |                                                   | RN/Ma    | 29                 |
|                |                                                                          |                                                   | RE/Ap    | 10                 |
|                |                                                                          |                                                   | RJ/Ap    | 6                  |
|                | Vieja regani (Miller, 1974)                                              | Mojarra, mojarra de Almoloya, Almoloya cichlid    | RM/Ma    | 5                  |
| ELEOTRIDAE     | Gobiomorus dormitor Lacepède, 1800                                       | Guavina, Bigmouth sleeper                         | RN/Ma    | 6                  |
|                |                                                                          |                                                   | RM/Ma    | 4                  |
|                |                                                                          |                                                   | RP/Ap    | 4                  |
|                |                                                                          |                                                   | RE/Ap    | 1                  |
|                |                                                                          |                                                   | RJ/Ap    | 1                  |
| GOBIIDAE       | Awaous banana (Valenciennes, 1837)                                       | Gobio de río                                      | RN/Ma    | 8                  |
|                |                                                                          |                                                   | RM/Ma    | 1                  |
| HEPTAPTERIDAE  | Rhamdia guatemalensis (Günther, 1864)                                    | Juile, Bagre, Guatemalan chulin                   | RN/Ma    | 1                  |
|                |                                                                          |                                                   | RE/Ap    | 5                  |
| MUGILIDAE      | Agonostomus monticola (Bancroft, 1834)                                   | Lisa de río, Mulet                                | RN/Ma    | 1                  |
|                |                                                                          |                                                   | RP/Ap    | 2                  |
|                |                                                                          |                                                   | RE/Ap    | 2                  |
| POECILIIDAE    | Poecilia mexicana Steindachner, 1863                                     | Shortfin molly                                    | RE/Ap    | 13                 |
|                | Poecilia sphenops Valenciennes, 1846                                     | Guppi, Molly                                      | RN/Ma    | 2                  |
|                |                                                                          |                                                   | RM/Ma    | 5                  |
|                |                                                                          |                                                   | RG/Ma    | 5                  |
|                |                                                                          |                                                   | RJ/Ap    | 10                 |

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Table 1 (continued)

| Common names | Locality | No. hosts examined |
|--------------|----------|--------------------|
| Poeciliopsis gracilis (Heckel, 1848) | Porthole livebearer | RG/Ma 4 |
| Priapella intermedia Álvarez and Carranza, 1952 | Guayacón de los Chimalapas | RG/Ma 1 |
| Pseudoxiphophorus bimaculatus (Heckel, 1848) | Guatopote manchado, Twospot livebearer | EP/Ma 4 |
| Xiphophorus clemenciae Álvarez, 1959 | Espadita, Yellow swordtail | RG/Ma 1 |
| Xiphophorus mixei Kallman, Walter, Morizot and Kazianis, 2004 | Mixe swordtail | EP/Ma 5 |
| Xiphophorus monticolus Kallman, Walter, Morizot and Kazianis, 2004 | Southern mountain swordtail | EP/Ma 9 |
| Xiphophorus heleri Heckel, 1848 | Espadita, Green swordtail | RJ/Ap 2 |
| SYNBRANCHIDAE | | |
| Ophisternon aenigmaticum Rosen and Greenwood, 1976 | Falsa anguila, Fatlips swamp eel | EP/Ma 5 |

Table 3 list the abbreviations to the scientific names of the taxa of helminth parasites used in Supplementary Table 4.

Supplementary Table 4. document the raw data on helminth parasites of 25 fish species from the Headwaters of Coatzaicoalcos river, Mexico. One matrix for each fish species ordered alphabetically by fish families (see Table 1). Data include the name of the locality, coordinates in decimal degrees, altitude meters above sea level, date of collection, host number in the author’s field notes, host’ sex; host’ measurements documented for each one fish examined; and the raw number of helminth parasites recorded from each fish host.

2. Experimental design, materials and methods

We gathered data from a total of 410 freshwater fish from 25 species and eight families during March and April 2009. Fishes were caught at the upper reaches of the Coatzaicoalcos River basin. The area of study is located ~300 km from the mouth of the Coatzaicoalcos river in the Gulf of Mexico. We examined from 1 to 30 individuals of every available fish species from each of seven locations. Sample locations were chosen as follows: 1. El Platanillo river, tributary to Del Sol river (municipality Santo Domingo Petapa), coordinates 16.951111, -95.244167, altitude 416 m; 2. Río Grande (El Barrio), 16.792167, -95.016083, 220 m; 3. Río Negro (Santa María Chimalapa), 16.898528, -94.693694, 166 m; 4. Río Modelo (Santa María Chimalapa), 17.134778, -94.745000, 115 m; 5. Río Pánfilo (Matías Romero, Oaxaca), 17.083639, -94.873944, 60 m; 6. Río Jaltepec (Jesús Carranza, Veracruz), 17.388444, -95.056111, 40 m; 7. Río Escondido (Paraje San Francisco El Vado, Agencia Municipal Río Escondido, Santa María Chimalapa), 17.091083, -94.751694, 103 m. Note all sites in Oaxaca state, except # 6, which is in Veracruz state, Mexico. At each locality, fish were captured using nets or electrofishing device. Live fish were brought to the laboratory.
### Table 2
Parasite – host associations, localities (RJ: Jaltepec River, EP El Platanillo River; RE Escondido River; RN Negro River; RG Grande River; RM Modelo River; RP Pánfilo River), and date of collection (Ap, April or Ma, March 2009), of helminth parasites collected from 25 fish species from upper Coatzacoalcos river, Oaxaca, Mexico

| HELMINTH   | FISH          | HOST | SITE | LOCALITY, Date |
|------------|---------------|------|------|----------------|
| **MONOGENEA** |               |      |      |                |
| *Aphanoblastella travassosi* (Price, 1938) | *Rhamdia guatemalensis* | Gills | RN, Ma |
|             | *Rhamdia laticauda* | Gills | RE, Ap |
| *Guavinella tropica* Mendoza-Franco, Scholz and Cabañas-Carranza, 2003 | *Gobiomorus dormitor* | Gills | RN, RM, Ma; RE, Ap |
| *Gyrodactylus* sp. | *Poecilia mexicana* | Fins | RE, Ap |
|             | *Thorichthys callelepis* | Fins | RN, Ma |
|             | *Vieja guttulata* | Gills | RN, Ma |
| *Salugsinus* sp. | *Xiphophorus monticolus* | Gills | EP, Ma |
| *Sciadicleithrum* sp. | *Paraneetroplus bulleri* | Gills | RE, Ap |
|             | *Thorichthys callelepis* | Gills | RN, Ma |
|             | *Vieja guttulata* | Gills | EP, Ma; RJ, Ap |
| "Urocleidoides" cf. *strombicirrus* (Price and Bussing, 1967) | *Astyanax aeneus* | Gills | EP, RN, Ma; RP, Ap |
| **TREMATODA** |               |      |      |                |
| *Auriculostoma astyanace* Scholz, Aguirre-Macedo and Choudhury, 2004 | *Astyanax aeneus* | Intestine | RG, Ma; RJ, Ap |
| *Crassicutis cichlasomae* Manter, 1936 | *Parachromis friedrichsthalii* | Intestine | RJ, Ap |
|             | *Paraneetroplus bulleri* | Intestine | RE, Ap |
|             | *Thorichthys helleri* | Intestine | RM, Ma |
|             | *Trichromis salvini* | Intestine | RM, Ma; RP, RE, RJ, Ap; |
|             | *Vieja regain* | Intestine | RM, Ma |
| *Creptotrema agonostomi* Salgado-Maldonado, Cabañas-Carranza and Caspeta-Mandujano, 1998 | *Agonostomus monticolus* | Intestine | RN, Ma; RP, RE, Ap |
|             | *Astyanax aeneus* | Intestine | RP, RJ, Ap |
| *Genarchella astyanctis* (Watson, 1976) | *Astyanax aeneus* | Intestine | RM, Ma |
| *Genarchella isabellae* (Lamothe-Argumedo, 1977) | *Thorichthys helleri* | Intestine | RM, Ma |
|             | *Vieja guttulata* | Stomach | EP, RN, Ma |
|             | *Vieja regain* | Stomach | RM, Ma |
| *Magnivitellinum* cf. *simplex* Kloss, 1966 | *Astyanax aeneus* | Intestine | RP, Ap |
| *Paracreptotrematoides* cf. *heterandriae* (Salgado-Maldonado, Caspeta-Mandujano and Vázquez, 2012) | *Agonostomus bimaculatus* | Intestine | RP, Ap |
|             | *Saccocoelioides* cf. *sogandaresi* Lumsden, 1963 | Intestine | RP, Ap |
|             | *Epocilia sphenops* | Intestine | RG, Ma |
|             | *Poeciliopsis gracilis* | Intestine | RG, Ma |
|             | *Xiphophorus clemenciae* | Intestine | RG, Ma |
| *Wallinia anindoi* Hernández-Mena, Pinacho-Pinacho, García-Varela, Mendoza-Garfias and Pérez Ponce de León, 2019 | *Astyanax aeneus* | Intestine and intestinal caeca | RN, Ma; RJ, Rp, Ap |

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### HELMINTH FISH HOST

#### METACERCARIAE

| Host                        | Site                          | Locality, Date |
|-----------------------------|-------------------------------|----------------|
| Apharyngostrigea sp.        | Mesentry, Gall bladder        | RN, Ma; RJ Ap  |
| *A. aeneus*                 |                               |                |
| *Ascocotyle (Phagicola) diminuta* (Stunkard and Haviland, 1924) |                               |                |
| *Poeclia sphenops*          | Gills                         | RG, Ma         |
| *Centrocestus formosanus* (Nishigori, 1924) |                               |                |
| *Gobioramorpus dormitor*    | Gills                         | RN, Ma         |
| *Pseudoxiphophorus bimaculatus* |                               |                |
| *Thorichthys callolepis*    | Gills                         | RN, Ma         |
| *Xiphophorus clemenciae*    | Gills                         | RN, Ma         |
| *Cladocystis cf. trifolium* (Braun, 1901) |                               |                |
| *Thorichthys helleri*       | Intestine                     | RM, Ma         |
| *Trichromis salvinii*       | Mesentry                      | RG, Ma         |
| Closotomus sp.              |                               |                |
| *A. aeneus*                 | Gills, mesentry               | EP, Ma         |
| *Rhandia guatemalensis*     | Mesentry, gill cavity,       | RN, Ma; RP, Ap |
|                              | mesentry                      |                |
| *Rhandia laticauda*         | Fins                          | RE, Ap         |
| *Thorichthys callolepis*    | Fins, skin, mouth, mesentry  | RN, Ma         |
| *Vieja guttulata*           | Gill cavity                   | RN, Ma         |
| Crocodileicola pseudostoma (Willemoes-Suhrm, 1870) | |                |
| *Rhandia guatemalensis*     | Intestine                     | RP, Ap         |
| Diplodostomum sp.           |                               |                |
| *Poeclia sphenops*          | Eyes                          | RJ, Ap         |
| *Thorichthys callolepis*    | Eyes, gills                   | RN; Ma; RJ, Ap |
| *Trichromis salvinii*       | Eyes                          | RN, Ma; RJ, Ap |
| *Vieja guttulata*           | Eyes, brain, mesentry         | RN, Ma; RJ, Ap |
| Posthodiplodostomum sp.     |                               |                |
| *Parachromis friderichstalii* | Mesentry                    | RJ, Ap         |
| *Paraneetroplus pulleri*    | Muscle, mesentry              | RE, Ap         |
| *Poeclia sphenops*          | Mesentry                      | RG, Ma; RJ, Ap |
| *Trichromis salvinii*       | Muscle, eyes, mesentry        | RJ, Ap         |
| *Vieja guttulata*           | Muscle, mesentry              | RN, Ma         |
| *Vieja regain*              | Gills                         | RG, Ma         |
| Tylodelphys sp.             |                               |                |
| *Parachromis friderichstalii* | Mesentry                    | RJ, Ap         |
| *Trichromis salvinii*       | Mesentry                      | RJ, Ap         |
| Uvulifer cf. ambloplitis (Hughes, 1927) |                               |                |
| *Apharyngostrigea sp.*      |                               |                |
| *Thorichthys callolepis*    | Intestine                     | RN, Ma         |
| *Vieja guttulata*           | Intestine                     | RN, Ma         |
| Schyzocotyle achiolognathi (Yamaguti, 1934) |                               |                |
| *Vieja guttulata*           | Intestine                     | RJ, Ap         |

#### CESTODA

| Host                        | Site                          | Locality, Date |
|-----------------------------|-------------------------------|----------------|
| *Cichlidocestus sp.*        |                               |                |
| *Thorichthys callolepis*    | Intestine                     | RN, Ma         |
| *Vieja guttulata*           | Intestine                     | RN, Ma         |
| Schyzocotyle achiolognathi (Yamaguti, 1934) |                               |                |
| *Vieja guttulata*           | Intestine                     | RJ, Ap         |

#### METACESTODE

| Host                        | Site                          | Locality, Date |
|-----------------------------|-------------------------------|----------------|
| *Glossocercus sp.*          |                               |                |
| *Poeclia sphenops*          | Liver                         | RJ, Ap         |

#### ACANTHOCEPHALA

| Host                        | Site                          | Locality, Date |
|-----------------------------|-------------------------------|----------------|
| *Neoechinorhynchus chimalapansis* |                               |                |
| Salgado-Maldonado, Caspeta-Mandujano and Martínez-Ramírez, 2010 |                               |                |
| *Awaous banana*             | Intestine                     | RN, Ma         |

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| HELMINTH FISH HOST | SITE | LOCALITY, Date |
|--------------------|------|----------------|
| **NEMATODA**       |      |                |
| Atractis vidali    |      |                |
| González-Solís and Moravec, 2002 |      |                |
| **Vieja guttulata** |      |                |
| Capilliidae gen. sp. |      |                |
| Astyanax aeneus    |      |                |
| **Cucullanus angeli** |      |                |
| Cabañas-Carranza and Caspeta-Mandujano, 2007 |      |                |
| **Vieja guttulata** | Intestine | RN, Ma |
| **Cucullanus mexicanus** |      |                |
| Caspeta-Mandujano and Moravec and Aguilar-Aguilar, 2000 |      |                |
| **Rhamdia guatemalensis** | Mesentery | RP, Ap |
| **Cucullanus sp.** |      |                |
| *Gobiomorus dormitor* | Intestine | RE, Ap |
| **Paraneetroplus bulleri** | Intestine | RE, Ap |
| *Thorichthys helleri* | Intestine | RM, Ma |
| **Vieja guttulata** | Intestine | RE, Ap |
| **Dichelyne mexicanus** |      |                |
| Caspeta-Mandujano, Moravec and Salgado-Maldonado, 1999 |      |                |
| **Agonostomus monticola** | Intestine | RP, Ap |
| (Caballero-Rodríguez, 1971) |      |                |
| *Gobiomorus dormitor* | Stomach | RE, Ap; RN, Ma |
| **Philometridae gen. sp.** |      |                |
| *Ophisternon aenigmaticum* | Skin | EP, RN, Ma |
| **Paraneetroplus bulleri** | Body cavity | RE, Ap |
| *Theraps irregularis* | Muscle | RN, Ma |
| **Procamallanus (Spirocamallanus) rebcae** | Intestine | RG, RM, Ma |
| (Andrade-Salas, Pineda-López and García-Magaña, 1994) |      |                |
| *Thorichthys helleri* | Intestine | RE, Ap |
| *Thorichthys maculipinnis* | Intestine | RE, Ap |
| **Pseudocapillaria (Ichthyocephaliora) ophisterni** |      |                |
| Moravec, Salgado-Maldonado and Jiménez-García, 2000 |      |                |
| *Ophisternon aenigmaticum* | Mesentery | RE, Ap |
| **Railletnema kritscheri** |      |                |
| Moravec, Salgado-Maldonado and Pineda-López, 1993 |      |                |
| **Paraneetroplus bulleri** | Intestine | RE, Ap |
| *Thorichthys helleri* | Intestine | RM, Ma |
| **Trichromis salvini** | Intestine | RJ, Ap |
| **Vieja guttulata** | Intestine | RN, Ma; RE, Ap |
| **Vieja regain** | Intestine | RG, Ma |
| **Rhabdochona kidderi** |      |                |
| Pearse, 1936 |      |                |
| **Paraneetroplus bulleri** | Intestine | RE, Ap |
| *Rhamdia laticauda* | Intestine | RE, Ap |
| **Vieja guttulata** | Intestine | EP, Ma; RE, Ap |
| **Vieja regain** | Intestine | RM, Ma |
| **Rhabdochona sp.** |      |                |
| *Theraps irregularis* | Intestine | RN, Ma |
| **Spinitectus mexicanus** |      |                |
| Caspeta-Mandujano, Moravec and Salgado-Maldonado, 2000 |      |                |
| *Pseudoxiphophorus bimaculatus* | Intestine | RP, Ap |
| **LARVAL NEMATODES** |      |                |
| Acuariidae gen. sp. |      |                |
| *Astyanax aeneus* | Intestine | EP, Ma |
| **Paraneetroplus bulleri** | Mesentery | EP, Ma |
| *Trichromis salvini* | Mesentery | RG, Ma |
| *Xiphophorus mixei* | Muscle | EP, Ma |

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| HELMINTH | FISH HOST | SITE | LOCALITY, Date |
|----------|-----------|------|----------------|
| Astyanax aeneus | Liver | RN, Ma; RP, Ap |
| Awaous banana | Mesentery | RN, Ma |
| Gobiomorus dormitor | Intestine, liver, muscle, mesentery | RM, RN, Ma; RE, RP, Ap |
| Ophisternon aenigmaticum | Body cavity, Mesentery | RG, RM, RN, Ma; RJ, RP, Ap |
| Paraneopterus bulleri | Liver, mesentery | RE, Ap |
| Rhamdia guatemalensis | Mesentery | RC, Ma; RP, Ap |
| Thorichthys callolepis | Liver | RJ, Ap |
| Thorichthys helleri | Liver | RM, Ma |
| Vieja guttulate | Intestine, mesentery | RE, RJ, Ap |
| Vieja regani | Mesentery | RC, Ma |
| Xiphophorus hellerii | Mesentery | RJ, Ap |

**Falcaustra sp.**

| Gobiomorus dormitor | Intestine | RN, Ma |
| Poecilia mexicana | Intestine | RE, Ap |
| Hysterodactylus centrocepha (Pearse, 1936) | Intestine | RN, Ma |
| Vieja guttulate | Intestine | RN, Ma |
| Rhabdochona sp. larvae or female | unidentifiable to species | |
| Gobiomorus dormitor | Intestine | RM, Ma; RP, Ap |
| Ophisternon aenigmaticum | Intestine | RE, Ap |
| Thorichthys helleri | Intestine | RM, Ma |
| Vieja guttulate | Intestine | RN, Ma |
| Spiroloxys sp. | | |
| Astyanax aeneus | Mesentery | RJ, Ap; RN, Ma |
| Gobiomorus dormitor | Mesentery | RN, Ma |
| Poecilia mexicana | Mesentery | RE, Ap |
| Thorichthys callolepis | Mesentery | RN, Ma |
| Xiphophorus clemenciae | Mesentery | RG, Ma |

### Table 3

Abbreviations to scientific names of helminth parasite taxa referred to in Supplementary Table 4.

| Aas | Auriculostoma astyanacae | Gyr | Gyrodactylus sp. |
|-----|--------------------------|-----|-----------------|
| Acu | Acuariidae | Hce | Hysterodactylus centrocepha (larvae) |
| Adi | Asccostylidae (Phagicolida) diminuta | Msi | Magnivitellium cf. Simplex |
| Aph | Apharyngostriega sp. | Nch | Neurokrinorhynchus chimalapausensis |
| Atr | Aphanoblastella traversi | Phe | Paracrepidotrematoide cf. heterandriae |
| Avi | Actractis vidali | Phi | Phylometridae gen. sp. |
| Cag | Creptotrema agonostomi | Pmi | Posthodiplostomum cf. minimum |
| Can | Cucullanus angeli | Pop | Pseudocapillaria ophisterni |
| Cap | Capillaria sp. | Pos | Posthodiplostomum sp. |
| Cci | Crassicrita cichlasomae | Pre | Procamallanus rebedae |
| Cfo | Centrocestus formosanus | Pte | Paracapillaria teixeirafreti |
| Cic | Cichidocestus sp. | Rha | Rhabdochona sp. |
| Cli | Clinostomum sp. | Rki | Rhabdochona kidleri |
| Cme | Cucullanus mexicanus | Rkr | Raillietnema kritscheri |
| Con | Contracaecum sp. | Sac | Schyzocytote aehiognathi |
| Cps | Crocodiliola pseudostoma | Sci | Sciadieolithrum sp. |
| Ctr | Cladocystis trifolioid | Sme | Spinitectus mexicanus |
| Cuc | Cullum sp. | Spi | Spiroloxy sp. |
| Dip | Diplomastomum sp. | Sso | Saccocoelioidea cf. sogandaresi |
| Dme | Dichelyne mexicanus | Tyl | Tylodelphis |
| Fal | Falcaustra sp. | Uam | Uvulifer amboletopsis |
| Gas | Genarchella astyanacit | Ust | Urocoididea cf. strombicirrus |
| Gis | Genarchella isabellae | Wam | Wallinia anindoi |
| Glo | Glossocercus sp. | | |
| Gtr | Guavinecrops tropica | | |
and examined within 8 h of capture using standard procedures. Briefly, all the external surfaces, viscera, and musculature of each fish host were examined under a stereomicroscope, and all the helminths encountered in each fish were counted. Two kinds of data were collected from each individual fish: the number of helminth taxa (species richness) in each fish and the number of helminth individuals per helminth taxa (the abundance distribution). All helminths found were isolated and counted, and then fixed in 4% hot formaldehyde (cestodes, monogeneans and adult digeneans, as well as larvae of digeneans and nematodes). Some monogeneans were fixed with ammonium picrate [4] and mounted unstained in Gray–Wess medium [5], for analysis of sclerotized structures. Acanthocephalans were placed in distilled water, refrigerated overnight (6–12 h) to evert the proboscis, and then fixed in hot 10% formalin. Digeneans, monogeneans, cestodes, and acanthocephalans used for morphological examination of whole mounts, were stained with either Mayer's pararcarmine or Gomori's triple stain dehydrated using a graded alcohol series, cleared in methyl salicylate, and and mounted whole in Canada balsam. Nematodes were cleared in glycerine for light microscopy and stored in 70% ethanol. Taxonomic identification was performed based on morphometric analysis of the specimens [6].

**Ethics statement**

Fish were euthanized and the branchial arches were removed, separated from the brachial cavity and evaluated individually (protocol for the use of fish in research based on the NORM – 019 – STPS – 1993 established by the Instituto de Ecología, Pesquerías y Oceanografía del Golfo de México EPOMEX, Campeche, Mexico; specimens collected under the Cartilla Nacional de Colector Científico FAUT-0105 issued by the Secretaría del Medio Ambiente y Recursos Naturales [SEMARNAT] to GSM).

**Declaration of Competing Interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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**Supplementary materials**

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.dib.2020.106191.
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