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# Some Digenetic Trematodes of Marine Fishes from the Barrier Reef and Reef Lagoon of Belize

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A total of 200 marine fishes (36 species) from the Caribbean Sea off Belize were examined for digenetic trematodes and 163 (81.5%) harbored at least one species. Five species are described as new: *Lasiotocus asymmetricus* (Monorchiidae) from *Haemulon flavolineatum; Stephanostomum belizense* (Acanthocolpidae) from *Caranx bartholomaei; Neolepidapedon belizense* (Lepocreadiidae) from *Sphyraena barracuda; Opecoeloides belizensis* (Opecoelidae) from *Priacanthus arenatus; Saturnius belizensis* (Hemiuridae) from *Mugil curema*. 72 previously known species were identified, and all represent new geographical distribution records while many are recorded from new hosts. Their zoogeographical affinities are very strongly with the tropical western Atlantic, although some also occur in the eastern Atlantic, Mediterranean, and Indo-Pacific regions.

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## 1. Introduction

The longest barrier reef in the Western Hemisphere lies from 8 to 25 miles off Belize (Central America) in the Caribbean Sea, and is second only to Australia's Great Barrier Reef. No digenetic trematodes have been reported from the marine fishes of Belize. During the period from 18 June–22 July, 1975 trematodes were collected from fishes from the barrier reef (Ambergris, Drowned, English, and Long Cays), Belize City shore, and Turneffe Islands, an atoll lying just outside the barrier reef. Two hundred fishes (36 species in 25 genera and 20 families) were examined and 163 (81.5%) harbored at least one species of trematode. A total of 78 species of trematodes were identified, five of which are new. All represent new geographical distribution records. An asterisk (*) preceding the host name of previously known species of trematodes indicates a new host record.

## 2. Material and methods

Living worms were killed in hot water; all were fixed in Lavdowsky's alcohol-formalin-acetic acid fixative without coverglass pressure, stained in Mayer's carmalum, and mounted in Permount. Specimens were deposited in the U.S. National Museum Helminthological Collection as noted. All measurements are in micrometer.

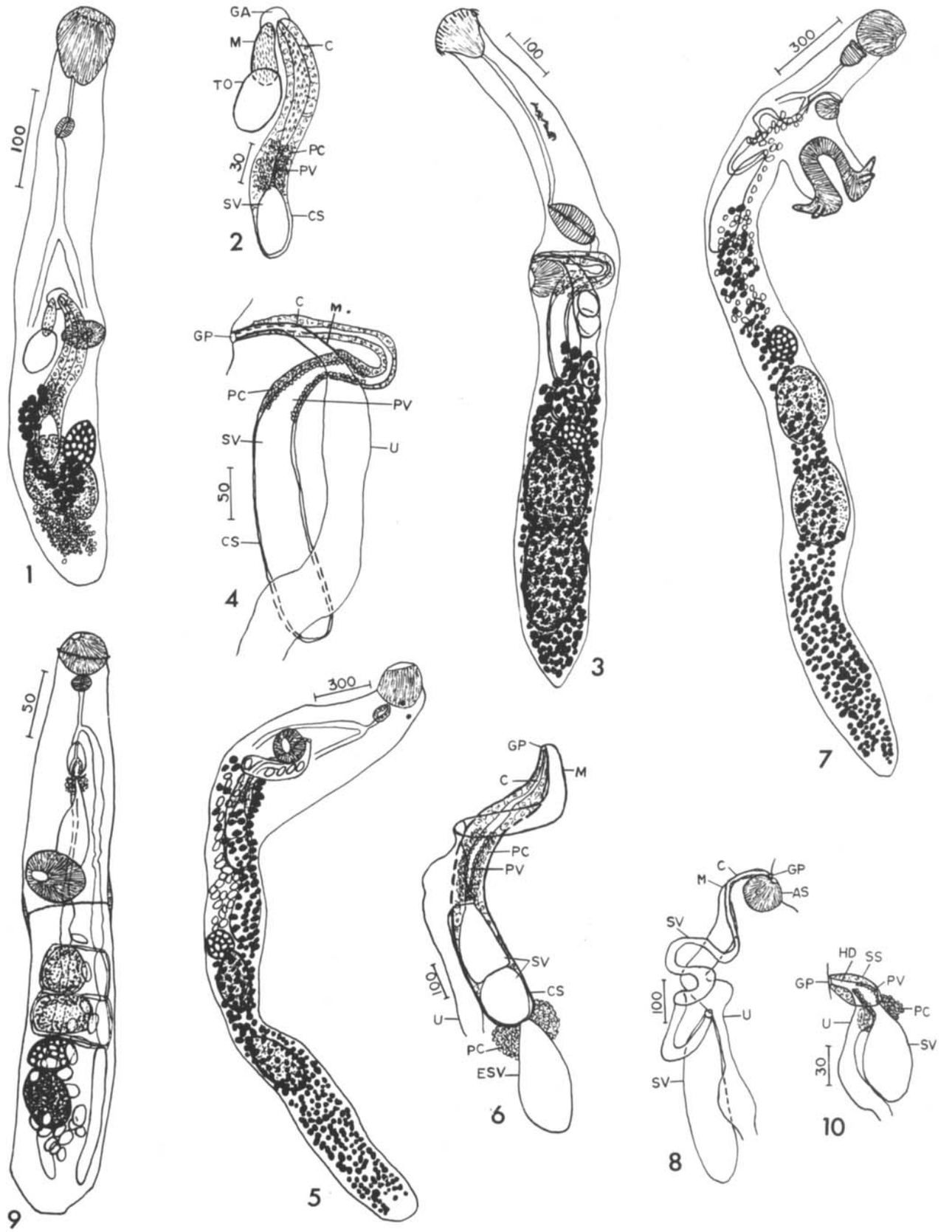
## 3. Descriptions and discussions of new species

***Lasiotocus asymmetricus*** sp.n. (Figs. 1, 2) (Monorchiidae)

*Host: Haemulon flavolineatum* (Desmarest).
*Site:* Small intestine.
*Localities:* Drowned Cays, Long Cay.
*Specimens deposited:* No. 74161 (holotype); No. 74162 (paratype).

*Description* (based on 1 worm each from 2 of 16 fish; measurements, except for eggs, of holotype only): Body elongate, narrow, spinose, 585 long by 85 wide. Forebody 320 long; hindbody 230 long; forebody : hindbody length ratio 1 : 0.72. Eye spot pigment absent. Oral sucker ventroterminal, funnel-shaped, 80 by 57. Postoral circular muscle ring present. Acetabulum 35 by 41. Sucker length ratio 1 : 0.44, width ratio 1 : 0.72. Prepharynx 40 long; pharynx 25 by 23; esophagus 95 long; cecal bifurcation 85 preacetabular; posterior extent of ceca not discernible. Excretory pore terminal; extent of vesicle not discernible, latter containing single concretion in holotype only.

Testis single, smooth, filling most of body width, 88 by 65, lying 82 postacetabular; posttesticular space 68 long, latter distance 30% of hindbody length. Cirrus sac narrow, sigmoid in ventral view, 165 (longitudinal extent) by 30, length 28% of total body length, commencing 110 postacetabular at testicular level, extending 22 preacetabular. Seminal vesicle saccular, 55 by 26. Prostatic vesicle tubular, surrounded by prostate cells. Cirrus elongate, with thorn-shaped spines 9–10 by 2–3 at base. Genital atrium unspined, 36 by 26. Genital pore median, preacetabular. Ovary dextral, smooth, overlapping testis dorsally, 53 by 36, lying 65 postacetabular. Vitellaria in two asymmetrically placed clusters of 8–12 follicles each; left field 68 by 34, commencing 27 postacetabular at level of posterior part of cirrus sac; right field 55 by 33, commencing 100 postacetabular at testis level. Vitelline ducts dorsal; reservoir small. Uterus coiled in posttesticular space and sinistral to right vitellarium to level of posterior part of cirrus sac, entering terminal organ just anterior to posterior vesicle. Terminal organ bipartite, thick-walled, muscular, longitudinal extent 70; posterior vesicle unspined, 55 by 33; anterior part (metraterm) 36 by 22, entirely spined with narrow spines 5–7 by 1–1.5. Eggs yellow to light brown, operculate, 10 measuring 15–20 (16.7) by 10–12 (11.2).




*Figs. 1–10.* — *1, 2. Lasiotocus asymmetricus* sp.n. (*1*) Adult, holotype, dorsal view. (*2*) Terminal genitalia, holotype. — *3, 4. Stephanostomum belizense* sp.n. (*3*) Adult, holotype, sinistrolateral view. (*4*) Terminal genitalia, holotype. — *5, 6. Neolepidapedon belizense* sp.n. (*5*) Adult, holotype, ventral view. (*6*) Terminal genitalia, holotype. — *7, 8. Opecoeloides belizensis* sp.n. (*7*) Adult, holotype, dextrolateral view. (*8*) Terminal genitalia, holotype. — *9, 10. Saturnius belizensis* sp.n. (*9*) Adult, holotype, ventral view. (*10*) Terminal genitalia, paratype, sinistrolateral view.

All scales are in micrometer. Abbrevations: *AS*, accessory sucker; *C*, cirrus; *CS*, cirrus sac; *ESV*, external seminal vesicle; *GA*, genital atrium; *GP*, genital pore; *HD*, hermaphroditic duct; *M*, metraterm; *PC*, prostate cells; *PV*, prostatic vesicle; *SS*, sinus sac; *SV*, seminal vesicle; *TO*, terminal organ; *U*, uterus.

*Discussion.* The paratype was too macerated to be measured. The new species differs from all others in the genus in regard to the distinctive diagonal position of the vitelline clusters, hence the species appellation *asymmetricus*. The very long forebody also distinguishes it from all other species in the genus. *Lasiotocus lintoni* (Manter, 1931), Thomas, 1959, is closest to *L. asymmetricus*, differing further in having a more pointed oral sucker, the gonads more anteriorly situated, longer cirral and metratermal spines, and longer eggs.

***Stephanostomum belizense*** sp.n. (Figs. 3, 4) (Acanthocolpidae)

*Host: Caranx bartholomaei* Cuvier.
*Site:* Small intestine.
*Locality:* Drowned Cays.
*Specimens deposited:* No. 74282 (holotype and paratypes); No. 74163, 74283 (paratypes).

*Description* [based on 1, 2 (1 mature – 1 immature), 3, 9, and 10 (8–2) worms, respectively, in 5 of 8 fish; 3 in ventral view and 5 in lateral view measured; measurements are length by width by depth]: Body elongate, narrow, spined, 1 148–1 585 by 105–131 by 110–150 at anterior testis level. Forebody 440–850 long, comprising 38–54 % of total body length; hindbody 525–715 long; forebody : hindbody length ratio 1 : 0.60–1.47. Eye spots or its scattered pigment present. Circumoral spines numbering 24–26, in two alternating uninterrupted rows, oral spines 17–23 by 5–9, aboral spines 32–40 by 7–9. Oral sucker 53–85 by 73–93 by 75–87. Acetabulum 55–70 by 61–78 by 54–70. Sucker length ratio 1 : 0.78–1.17, width ratio 1 : 0.77–0.84, depth ratio 1 : 0.63–0.93. Prepharynx 290–595 long; pharynx 63–85 by 44–61 by 44–50; esophagus 10–46 long; cecal bifurcation just preacetabular. Excretory pore terminal.

Gonads smooth, tandem, contiguous, occasionally slightly overlapping, overlapping vitelline fields laterally, filling body depth, close to posterior extremity. Anterior testis 105–150 by 73–92 by 105–121; posterior testis 140–204 by 70–94 by 97–126; posttesticular space 70–125 long. Cirrus sac curved, elongate, extending to ovarian level or just preovarian, 243–337 (longitudinal extent) by 44–51 by 37–53. Seminal vesicle saccular, 150–220 by 42–48 by 35–50. Prostatic vesicle elongate, lying posterodorsal and dorsal to acetabulum. Cirrus elongate. Genital pore median, just preacetabular. Ovary dextral, 46–73 by 52–61 by 50–70, lying 180–250 postacetabular. Vitellaria commencing 50–97 postacetabular, in lateral fields, confluent posttesticular. Uterus coiling between ovary and acetabulum. Metraterm muscular, thick-walled, shorter than cirrus sac. Eggs few, operculate, yellow-brown, with anopercular knob, 14 measuring 55–67 (60.2) by 39–49 (43.5).

*Discussion. Stephanostomum elongatum* (Park, 1939) Hanson, 1950, *S. interruptum* Sparks & Thatcher, 1958, *S. lebourae* Caballero, 1952, and *S. lopezneyrai* Pérez Vigueras, 1955, are within or overlap the 24–26 range of oral spines for the new species. However, all differ in having a much shorter forebody and a cirrus sac which does not reach the ovary. *S. roytmani* Parukhin, 1974, has a long forebody, but differs in having only 20 oral spines which are interrupted ventrally, a median ovary, and a cirrus sac which does not reach the ovary.

***Neolepidapedon belizense*** sp.n. (Figs. 5, 6) (Lepocreadiidae)

*Host: Sphyraena barracuda* (Walbaum).
*Site:* Pyloric ceca.
*Locality:* Long Cay.
*Specimen deposited:* No. 74164 (holotype).

*Description* (based on 1 mature and 1 immature worm in 1 of 7 fish; mature worm measured): Body elongate, narrow, spined to acetabular level, extremities rounded, 3 655 long by 410 wide at acetabular level. Discrete eye spots present at oral sucker-pharynx levels. Forebody 730 long; hindbody 2 370 long; forebody : hindbody length ratio 1 : 3.74. Oral sucker ventroterminal, 215 long by 210 deep. Acetabulum 195 by 190. Sucker length ratio 1 : 0.91. Prepharynx 12 long; pharynx 110 by 100; esophagus 77 long; ceca extending to posterior extremity. Excretory vesicle extending to cecal bifurcation; pore terminal.

Testes two, smooth, longitudinally elongate, tandem, 135 apart; anterior testis 315 by 175; posterior testis 390 by 175; posttesticular space 865 long, distance 32 % of hindbody length. External seminal vesicle saccular, 350 by 125, surrounded by few prostate cells at junction with cirrus sac, commencing at ovarian level. Cirrus sac sigmoid in dorsal view, thick-walled, muscular, 850 by 148, commencing 640 postacetabular, distance 69 % of length between acetabulum and ovary, passing acetabulum sinistrally. Internal seminal vesicle bipartite, saccular, 330 long; posterior chamber 170 by 133, anterior chamber 190 by 126. Prostatic vesicle 350 by 125, entirely postacetabular. Cirrus long. Genital atrium small. Genital pore sinistral to anterolateral margin of acetabulum. Ovary dextral, smooth, 145 by 150, lying 925 postacetabular. Seminal receptacle 97 by 110, dorsal to posterior part of ovary and anterior part of anterior testis. Vitellaria commencing short distance postacetabular, extending to posterior extremity, fields confluent between testes and posttesticular. Uterus preovarian and postacetabular, coils few. Metraterm comma-shaped in ventral view, thick-walled, muscular, 450 by 87, commencing 150 postacetabular, passing ventral to cirrus sac. Eggs few, yellow-brown, operculate, some with slight thickening at anopercular end, 7 measuring 73–92 (81.9) by 50–60 (55.6).

*Discussion.* The new species appears closest to *N. macrum* Overstreet, 1969, from a serranid fish from the Atlantic coast of Florida. The latter species differs in having a longer prepharynx and esophagus, smaller suckers and pharynx, a shorter posttesticular space, the external seminal vesicle twice the length of the cirrus sac, the cirrus sac commencing considerably preovarian, a unipartite internal seminal vesicle, the ovary considerably anterior to the anterior testis, and smaller eggs (63–66 by 35–41).

***Opecoeloides belizensis*** sp.n. (Figs. 7, 8) (Opecoelidae)

*Host: Priacanthus arenatus* Cuvier.
*Site:* Small intestine.
*Locality:* Long Cay.
*Specimen deposited:* No. 74165 (holotype).

*Description* (based on 1 mature worm in 1 of 2 fish; measurements are length by depth): Body elongate, narrow, sides nearly parallel, extremities rounded, 3 060 by 270 at anterior

testis level. Forebody 485 long; hindbody 2375 long; forebody : hindbody length ratio 1 : 4.9. Oral sucker ventroterminal, 180 by 167. Acetabulum pedunculate, 190 by 280, bearing 8 papillae (two juxtaposed on each anterolateral and each posterolateral margin). Sucker length ratio 1 : 1.06, depth ratio 1 : 1.68. Accessory sucker with outer limiting membrane, 95 by 75. Prepharynx 14 long; pharynx urn-shaped, 97 by 85; esophagus 195 long; cecal bifurcation at anterior margin of peduncle level; posterior extent of ceca not discernible.

Testes two, smooth, tandem, 44 apart; anterior testis 295 by 210, posterior testis 350 by 220; posttesticular space 855 long, distance 36% of hindbody length. Seminal vesicle bipartite; posterior part saccular, 360 by 97, commencing 395 and terminating 20 posterior to peduncle; anterior part tubular, sinuous, extending anterior to peduncle, passing dextral to uterus. Cirrus dorsal and anterior to accessory sucker, 145 by 35. Genital pore just anterior to accessory sucker. Ovary smooth, 130 by 143, lying 695 posterior to peduncle and 34 pretesticular. Vitellaria commencing 230 posterior to peduncle, in uninterrupted lateral fields anteriorly, confluent posttesticular. Uterus coiled between ovary and peduncle. Metraterm simple. Eggs brownish proximally, yellow-brown distally, operculate, 5 slightly collapsed ones measuring 58–63 (60.8) by 32–38 (35).

*Discussion.* The new species is closest to *O. pedicathedrae* Travassos, Freitas, & Bührnheim, 1966, from a sciaenid fish from Brazil. The latter species differs in having an oval pharynx and an acetabulum with 6 papillae in anterior and posterior groups of 3 each.

***Saturnius belizensis*** sp.n. (Figs. 9, 10) (Hemiuridae)

*Host: Mugil curema* Valenciennes.
*Site:* Stomach.
*Locality:* Belize City shore.
*Specimens deposited:* No. 74166 (holotype); No. 74167 (paratype).

*Description* (based on 2 worms in 1 of 4 fish): Body elongate, narrow, smooth, without ecsoma, posterior extremity truncated, 415–594 long by 65 wide by 92 deep, width and depth greatest at testicular level. Two prominent ridges encircling body, one around oral sucker and other just postacetabular; lateral body edges of anterior ridge nipplelike and posterior ridge moundlike. Forebody tapering anteriorly, 155–185 long; hindbody with nearly parallel sides, 220–365 long; forebody : hindbody length ratio 1 : 1.42–1.97. Hindbody divided internally by 3 transverse, fibrous, septalike partitions resulting in 3 tandem segments, anterior and middle segments about same size; anterior segment 35–56 long, middle segment 32–53 long, posterior segment 120–195 or 29–33% of total body length. Oral sucker ventral, 28–29 by 31 by 33; preoral space 5 long. Acetabulum 40–44 by 44 by 41. Sucker length ratio 1 : 1.38–1.57, width ratio 1 : 1.42, depth ratio 1 : 1.24. Pharynx 18–21 by 18 by 24; esophagus 25–30 long; cecal bifurcation preacetabular; ceca constricted when passing through body partitions, ending blindly near posterior extremity. Excretory vesicle short, postuterine; arms long, uniting dorsal to pharynx.

Testes two, smooth tandem, in separate segments of hindbody; anterior testis 35–48 by 38 by 42, between first and second partition, lying 34–80 postacetabular; posterior testis 35–48 by 45 by 44, between second and third partition. Seminal vesicle saccular, commencing dorsal to anterior part of acetabulum. Prostate cells few. Sinus sac pyriform, 22–44 by 15 by 20, containing sperm-filled prostatic vesicle posteriorly and thick-walled hermaphroditic duct. Genital pore just postbifurcal. Ovary smooth, 30–40 by 37 by 47, just posterior to third partition. Seminal receptacle absent. Vitellarium single, compact, just postovarian, 44–59 by 37 by 64; postvitelline space 50–75 long. Uterus coiling between posterior extremity and acetabulum, divided by body partitions into 4 sacs connected dorsally, entering sinus sac. Eggs yellow-brown proximately, brownish distally, operculate, large relative to body size, 10 measuring 22–24 (22.8) by 11–15 (12.9).

*Discussion.* The larger specimen (paratype) was mounted in sinistrolateral view. The genus *Saturnius* was erected by Manter (1969) for *S. segmentatus* from *Mugil cephalus* (L.) from Queensland, Australia. This species differs from the new species in having the lateral body edges of the postacetabular ridge nipplelike rather than moundlike, and the hindbody with 4 septalike partitions resulting in 4 tandem segments of increasing size rather than 3 partitions resulting in 3 segments with the anterior two about the same size.

**4. Previously known species**

1. *Hapladena megatyphlon* Pérez Vigueras, 1957 (Waretrematidae) from small intestine of *Pomacanthus arcuatus* (2 worms in 1 of 5 fish) from Drowned Cays; specimens deposited: No. 74168.

2. *Hapladena ovalis* (Linton, 1910) Manter, 1947, small intestine of **Sparisoma chrysopterum* (1 and 6 worms in 2 of 4 fish), Drowned Cays; specimens deposited: No. 74169.

3. *Hapladena varia* Linton, 1910, small intestine of **Acanthurus bahianus* (2 worms in 1 of 3 fish) and *A. coeruleus* (1, 2, and 3 worms in 3 of 4 fish), Drowned Cays; specimens deposited: No. 74170 (from *A. bahianus*), No. 74147 (*A. coeruleus*).

4. *Apocreadium cryptum* Overstreet, 1969 (Apocreadiidae), pyloric ceca and small intestine of *Anisotremus virginicus* (3 immature worms in 1 of 4 fish) and **Haemulon flavolineatum* (1 mature worm and 1 immature in 2 of 16 fish), Drowned Cays; specimens deposited: No. 74172 (*A. virginicus*), No. 74173 (*H. flavolineatum*).

5. *Apocreadium mexicanum* Manter, 1937, small intestine of *Balistes vetula* (2, 28, 76, and 100+ worms in 4 of 8 fish), Drowned Cays; specimens deposited: No. 74174.

6. *Haplosplanchnus mugilis* Nahhas & Cable, 1964 (Haplosplanchnidae), small intestine of *Mugil curema* [1 (immature) and 4 (2 mature, 2 immature) worms in 2 of 4 fish] and **M. trichodon* (2 worms in 1 of 3 fish), Belize City shore; specimens deposited: No. 74175 (*M. curema*), No. 74176 (*M. trichodon*).

7. *Schikhobalotrema acutum* (Linton, 1910) Skrjabin & Guschanskaja, 1955 (Haplosplanchnidae), small intestine of **Lachnolaimus maximus* (4 and 7 worms in 2 of 6 fish), Drowned Cays; specimens deposited: No. 74177.

8. *Schikhobalotrema pomacentri* (Manter, 1937) Skrjabin & Guschanskaja, 1955, small intestine of **Sparisoma chrysopterum* (1, 2, and 3 worms in 3 of 4 fish), Drowned Cays and Turneffe Islands; specimens deposited: No. 74178.

9. *Cleptodiscus reticulatus* Linton, 1910 (Paramphistomidae), small intestine of **Haemulon flavolineatum* (1 immature but well-differentiated worm in 1 of 16 fish) and *Pomacanthus arcuatus* (1 immature worm in 1 of 5 fish), Drowned Cays; specimens deposited: No. 74179 (*H. flavolineatum*), No. 74180 (*P. arcuatus*).

10. *Pachycreadium crassigulum* (Linton, 1910) Manter, 1954 (Opistholebetidae), small intestine of *Calamus bajonado* (2 immature worms in 1 of 7 fish), Turneffe Islands; specimens deposited: No. 74181.

11. *Hexangitrema pomacanthi* Price, 1937 (Angiodictyidae), small

intestine and pyloric ceca of *Pomacanthus arcuatus* (10, 14, 60+, 100+, and 100+ adult and immature worms in 5 of 5 fish), Drowned Cays; specimens deposited: No. 74182.

12. *Bivesicula caribbensis* Cable & Nahhas, 1962 (Bivesiculidae), pyloric ceca of **Holocentrus ascensionis* (1 worm in 1 of 7 fish), Drowned Cays; specimen deposited: No. 74183.

13. *Antorchis urna* (Linton, 1910) Linton, 1911 (Fellodistomidae), pyloric ceca and small intestine of *Pomacanthus arcuatus* (5, 13, 17, and 52 worms in 4 of 5 fish) and *Holacanthus ciliaris* (10, 15, 30, and 48 worms in 4 of 4 fish), Drowned Cays; specimens deposited: No. 74184 (*P. arcuatus*), No. 74185 (*H. ciliaris*).

14. *Proctoeces lintoni* Siddiqi & Cable, 1960 (Fellodistomidae), small intestine of *Calamus bajonado* (2 mature and 3 immature worms in 1 of 7 fish) and **Lachnolaimus maxinus* (1 mature and 1 immature worms in 2 of 6 fish), Drowned Cays; specimens deposited: No. 74186 (*C. bajonado*), No. 74187 (*L. maximus*).

15. *Proctoeces maculatus* (Looss, 1901) Odhner, 1911, small intestine of **Balistes vetula* (1 young adult in 1 of 8 fish), Drowned Cays; specimen deposited: No. 74188.

16. *Tergestia acuta* Manter, 1947 (Fellodistomidae), small intestine of *Caranx bartholomaei* (7 worms in 1 of 8 fish), Drowned Cays; specimens deposited: No. 74189.

17. *Diplangus parvus* Manter, 1941 (Diplangidae), small intestine of *Haemulon flavolineatum* (1 worm in 1 of 16 fish), Long Cay; specimen deposited: No. 74190.

18. *Diplangus paxillus* Linton, 1910, small intestine of *Haemulon flavolineatum* (1, 2, and 3 worms in 3 of 16 fish), Drowned Cays and Long Cay; specimens deposited: No. 74191.

19. *Monorchis latus* Manter, 1942 (Monorchiidae), small intestine of *Anisotremus virginicus* [2, 10 (8 mature, 2 immature), and 11 worms in 3 of 4 fish], Drowned Cays; specimens deposited: No. 74192.

20. *Lasiotocus beauforti* (Hopkins, 1941) Thomas, 1959 (Monorchiidae), small intestine of **Haemulon sciurus* [1 and 5 (4 mature, 1 immature) worms in 2 of 7 fish], Drowned Cays and Turneffe Islands; specimens deposited: No. 74193.

21. *Lasiotocus glebulentus* Overstreet, 1971, small intestine of **Mugil curema* (7 worms in 1 of 4 fish), Belize City shore; specimens deposited: No. 74194. None of the worms had any concretions in the excretory vesicle.

22. *Lasiotocus longicaecus* (Manter, 1940) Yamaguti, 1954, small intestine of *Anisotremus virginicus* (2 worms in 1 of 4 fish), Drowned Cays; specimens deposited: No. 74195.

23. *Lasiotocus sparisomae* Fischthal & Nasir, 1974, small intestine and pyloric ceca of **Haemulon sciurus* (10 and 13 worms in 2 of 7 fish), Turneffe Islands, and **H. flavolineatum* (2 worms in 1 of 16 fish), Drowned Cays; specimens deposited: No. 74196 (*H. sciurus*).

24. *Lasiotocus truncatus* (Linton, 1910) Thomas, 1959, small intestine of *Haemulon sciurus* (2, 2, 4, and 5 worms in 4 of 7 fish), Drowned Cays, Long Cay, Turneffe Islands, and *H. flavolineatum* (2, 2, and 13 worms in 3 of 16 fish), Turneffe Islands; specimens deposited: No. 74197 (*H. sciurus*), No. 74198, 74284, 74285 (*H. flavolineatum*).

25. *Genolopa ampullacea* Linton, 1910 (Monorchiidae), small intestine of *Haemulon flavolineatum* (1 worm in 1 of 16 fish), Turneffe Islands; specimens deposited: No. 74199.

26. *Genolopa anisotremi* (Nahhas & Cable, 1964) Yamaguti, 1971, small intestine of *Anisotremus virginicus* (1 and 10 worms in 2 of 4 fish), Drowned Cays; specimens deposited: No. 74200.

27. *Genolopa pritchardae* (Nahhas & Cable, 1964) Yamaguti, 1971, small intestine of **Haemulon flavolineatum* [1 and 9 (6 mature, 3 immature) worms in 2 of 16 fish], Long Cay; specimens deposited: No. 74284, 74285.

28. *Postmonorchis orthopristis* Hopkins, 1941 (Monorchiidae), small intestine of *Haemulon sciurus* (5 worms in 1 of 7 fish), Drowned Cays, and *H. flavolineatum* (2 worms each in 2 of 16 fish), Long Cay; specimens deposited: No. 74201 (*H. sciurus*), No. 74202 (*H. flavolineatum*).

29. *Barisomum erubescens* Linton, 1910 (Pronocephalidae), small intestine and pyloric ceca of *Pomacanthus arcuatus* (1, 3, and 5 worms in 3 of 5 fish), Drowned Cays; specimens deposited: No. 74203.

30. *Stephanostomum casum* (Linton, 1910) McFarlane, 1934 (Acanthocolpidae), small intestine of *Lutjanus analis* (1 worm in 1 of 5 fish), Long Cay; *L. synagris* [1, 1, 5 (4 mature, 1 immature), and 6 worms in 4 of 19 fish], Long Cay, English Cay Channel; and *Ocyurus chrysurus* (1 worm in 1 of 12 fish), Drowned Cays; specimens deposited: No. 74204 (*L. analis*), No. 74205 (*L. synagris*), No. 74206 (*O. chrysurus*).

31. *Stephanostomum ditrematis* (Yamaguti, 1939) Manter, 1947, small intestine and pyloric ceca of *Caranx bartholomaei* [1, 1, (immature), 3 (1 mature, 2 immature), 3, 4, 5 (2, 3), 6 (4, 2), and 6 worms in 8 of 8 fish], Drowned Cays; *C. latus* (2 and 3 worms in 2 of 4 fish), Long Cay; and **Priacanthus arenatus* (1 mature but non-ovigerous worm in 1 of 2 fish), Long Cay; specimens deposited: No. 74207, 74281, 74283 (*C. bartholomaei*), No. 74208 (*C. latus*), No. 74209 (*P. arenatus*).

32. *Stephanostomum ghanense* Fischthal & Thomas, 1968, small intestine of **Caranx bartholomaei* (1 and 3 worms in 2 of 8 fish), Drowned Cays; specimens deposited: No. 74281, 74282.

33. *Stephanostomum megacephalum* Manter, 1940, small intestine of *Caranx bartholomaei* (2 worms in 1 of 8 fish), Drowned Cays; specimens deposited: No. 74286.

34. *Stephanostomum sentum* (Linton, 1910) Manter, 1940, small intestine of *Calamus bajonado* (1 worm in 1 of 7 fish), Drowned Cays, and *Haemulon flavolineatum* [5 (2 mature, 3 immature) worms in 1 of 16 fish], Long Cay; specimens deposited: No. 74210 (*C. bajonado*), No. 74211 (*H. flavolineatum*).

35. *Homalometron elongatum* Manter, 1947 (Homalometridae), small intestine of *Gerres cinereus* (4 non-ovigerous worms in 1 of 13 fish), Ambergris Cay, and **Calamus bajonado* (7 non-ovigerous worms in 1 of 7 fish), Turneffe Islands; specimens deposited: No. 74212 (*G. cinereus*), No. 74123 (*C. bajonado*).

36. *Crassicutis marina* Manter, 1947 (Homalometridae), small intestine of *Gerres cinereus* (1 worm in 1 of 13 fish), Belize City shore, and **Calamus bajonado* (1 with 1 egg, 6 mature but non-ovigerous, and 16 immature worms in 1 of 7 fish), Turneffe Islands; specimens deposited: No. 74214 (*G. cinereus*), No. 74215 (*C. bajonado*).

37. *Postporus epinepheli* (Manter, 1947) Manter, 1949 (Homalometridae), small intestine of *Epinepheles morio* [3 and 8 (7 mature, 1 immature) worms in 2 of 2 fish], Drowned Cays; specimens deposited: No. 74216.

38. *Lepocreadium bimarinum* Manter, 1940 (Lepocreadiidae), small intestine of *Lachnolaimus maximus* [2 (1 mature, 1 immature) and 4 worms in 2 of 6 fish], Drowned Cays; specimens deposited: No. 74217.

39. *Lepocreadium trulla* (Linton, 1907) Linton, 1910, small intestine of *Ocyurus chrysurus* (2 worms in 1 of 12 fish), Drowned Cays; specimens deposited: No. 74218.

40. *Pseudocreadium lamelliforme* (Linton, 1907) Manter, 1946 (Lepocreadiidae), small intestine of *Balistes vetula* (1, 2, 5, 14, 25, 26, and 39 mature and immature worms in 7 of 8 fish), Drowned Cays, Long Cay; specimens deposited: No. 74219.

41. *Multitestis chaetodoni* Manter, 1947 (Lepocreadiidae), pyloric ceca and small intestine of *Chaetodon ocellatus* [3 and 10 (6 mature, 4 immature) worms in 2 of 3 fish], Drowned Cays; specimens deposited: No. 74220.

42. *Multitestis rotundus* Sparks, 1954, small intestine of **Calamus bajonado* [1 immature, 5 (2 mature, 3 immature), and 190 (mature, immature) in 3 of 7 fish], Turneffe Islands; specimens deposited: No. 74221.

43. *Myzoxenus lachnolaimi* Manter, 1947 (Lepocreadiidae), small intestine of *Lachnolaimus maximus* [1, 1 immature, 2, and 3 (1 mature, 2 immature) worms in 4 of 6 fish], Drowned Cays; specimens deposited: No. 74222.

44. *Lepidapedon truncatum* Sogandares, 1959 (Lepocreadiidae), pyloric ceca and small intestine of *Holocentrus ascensionis* (1, 1, 6, 7, 8, and 12 worms in 6 of 7 fish), Drowned Cays, Long Cay; specimens deposited: No. 74223.

45. *Opecoeloides brachytelus* Manter, 1947 (Opecoelidae), small intestine of **Centropomus undecimalis* (2 worms with 1 egg each and 2 immature in 1 of 2 fish), Belize City shore; specimens deposited: No. 74224.

46. *Opecoeloides elongatus* Manter, 1947, small intestine and pyloric ceca of *Pseudupeneus maculatus* [4, 13, and 27 (mature, immature) worms in 3 of 4 fish], Drowned Cays; specimens deposited: No. 74225.

47. *Pseudopecoelus barkeri* Hanson, 1950 (Opecoelidae), pyloric ceca and small intestine of *Holocentrus ascensionis* (1 worm each in 4 of 7 fish), Drowned Cays, Long Cay; specimens deposited: No. 74226.

48. *Cainocreadium consuetum* (Linton, 1910) Yamaguti, 1971 (Opecoelidae), small intestine of *Haemulon sciurus* [7, 9, 11 (6 ma-

ture, 5 immature), and 15 (13, 2) worms in 4 of 7 fish], Drowned Cays, Turneffe Islands, and *H. flavolineatum* [1 (immature in 3), 1, 2, 3 (2 mature, 1 immature), 5 (2, 3), and 5 (1, 4) worms in 8 of 16 fish], Drowned Cays, Long Cay, Turneffe Islands; specimens deposited: No. 74227 (*H. sciurus*), No. 74228 (*H. flavolineatum*).

49. *Hamacreadium mutabile* Linton, 1910 (Opecoelidae), small intestine and pyloric ceca of *Lutjanus apodus* (3 worms in 1 of 8 fish), Turneffe Islands; *L. griseus* [1 (in 3) and 4 (2 mature, 2 immature) worms in 4 of 14 fish], Long Cay; *L. synagris* [4 (3 mature, 1 immature) and 5 worms in 2 of 19 fish], Long Cay; and *Ocyurus chrysurus* (3 mature and 1 immature worms in 1 of 12 fish), Long Cay; specimens deposited: No. 74229 (*L. apodus*), No. 74230 (*L. griseus*), No. 74231 (*L. synagris*), No. 74232 (*O. chrysurus*).

50. *Helicometra torta* Linton, 1910 (Opecoelidae), small intestine of *Epinepheles striatus* [3 and 3 (1 mature, 2 immature) worms in 2 of 4 fish], Drowned Cays; specimens deposited: No. 74233.

51. *Helicometrina nimia* Linton, 1910 (Opecoelidae), pyloric ceca and small intestine of *Lujanus analis* (4 worms in 1 of 5 fish), Long Cay; *L. apodus* (1 worm in 1 of 8 fish), Drowned Cays; *L. griseus* (1 worm each in 2 of 14 fish), Long Cay; and *L. synagris* (1, 2, 6, 6, and 9 worms in 5 of 19 fish), Long Cay, English Cay Channel; specimens deposited: No. 74234 (*L. analis*), no. 74235 (*L. apodus*), No. 74236 (*L. griseus*), No. 74237 (*L. synagris*).

52. *Podocotyle chloroscombri* (Fischthal & Thomas, 1970) Yamaguti, 1971 (Opecoelidae), small intestine of **Caranx bartholomaei* (2 mature and 3 immature worms in 1 of 8 fish), Drowned Cays; specimens deposited: No. 74238.

53. *Stenopera equilata* Manter, 1933 (Opecoelidae), small intestine and pyloric ceca of *Holocentrus ascensionis* [9 (7 mature, 2 immature), 9 (8, 1), 26 (25, 1), and 38 (37, 1) worms in 4 of 7 fish], Drowned Cays; specimens deposited: No. 74239.

54. *Bucephalus varicus* Manter, 1940 (Bucephalidae), small intestine and pyloric ceca of *Caranx bartholomaei* (8, 9, 10, 21, 21, 27, 34, and 35 worms in 8 of 8 fish), Drowned Cays, and *C. latus* (3, 10, 38, and 75+ worms in 4 of 4 fish), Long Cay, Ambergris Cay; specimens deposited: No. 74240, 74282 (*C. bartholomaei*), No. 74241 (*C. latus*).

55. *Rhipidocotyle adbaculum* Manter, 1940 (Bucephalidae), small intestine of *Scomberomorus regalis* (8 worms in 1 of 2 fish), Long Cay; specimens deposited: No. 74242.

56. *Rhipidocotyle barracudae* Manter, 1940, pyloric ceca of *Sphyraena barracuda* (3 worms in 1 of 7 fish), Long Cay; specimens deposited: No. 74243.

57. *Prosorhynchus pacificus* Manter, 1940 (Bucephalidae), pyloric ceca and small intestine of *Mycteroperca bonaci* [3 and 20 (15 mature, 5 immature) worms in 2 of 2 fish], and *M. venenosa* [3, 9 (6 mature, 3 immature), and 13 (8, 5) worms in 3 of 5 fish], Drowned Cays; specimens deposited: No. 74244 (*M. bonaci*), No. 74245 (*M. venenosa*).

58. *Metadena adglobosa* Manter, 1947 (Cryptogonimidae), pyloric ceca and small intestine of *Lutjanus apodus* (5, 6, 16, 30, 54, 62, and 68 worms in 7 of 8 fish), Belize City shore, Drowned Cays; *L. griseus* (3, 4, 6, 9, 9, 16, 20, 38, and 48 worms in 9 of 14 fish), Drowned Cays, Long Cay, Ambergris Cay; and *L. synagris* (1 worm each in 2 of 19 fish), Long Cay, English Cay Channel; specimens deposited: No. 74246 (*L. apodus*), No. 74247, 74280 (*L. griseus*), No. 74248 (*L. synagris*).

59. *Metadena globosa* (Linton, 1910) Manter, 1947, pyloric ceca and small intestine of **Lutjanus analis* (4, 7, 14, and 61 worms in 4 of 5 fish), Drowned Cays, Long Cay; *L. apodus* [1 immature, and 8 (4 mature, 4 immature) in 2 of 8 fish], Drowned Cays, Turneffe Islands; *L. griseus* (1 worm in 1 of 14 fish), Drowned Cays; *L. synagris* [1 (in 3), 2, 2, 6, 7, 7 (3 mature, 4 immature), 10, 11, 11, and 13 (7, 6) worms in 12 of 19 fish], Drowned Cays, Long Cay, English Cay Channel; and *Ocyurus chrysurus* (1, 5, 7, 19, and 100+ worms in 5 of 12 fish), Drowned Cays, Long Cay; specimens deposited: No. 74249 (*L. analis*), No. 74250 (*L. apodus*); No. 74280 (*L. griseus*), No. 74251 (*L. synagris*), No. 74252 (*O. chrysurus*).

60. *Paracryptogonimus americanus* Manter, 1940 (Cryptogonimidae), pyloric ceca and small intestine of **Lutjanus analis* [2, 4, 6 (5 mature, 1 immature), 10, and 37 worms in 5 of 5 fish], Drowned Cays, Long Cay; *L. griseus* (6 worms in 1 of 14 fish), Long Cay; **L. synagris* [1 immature, 1, 8 (6 mature, 2 immature), 10 (9, 1), 13 (8, 5), 20 (3, 17), and 32 (9, 23) worms in 7 of 19 fish], Drowned Cays, Long Cay, English Cay Channel; *Ocyurus chrysurus* [3, 4, 10 (6 mature, 4 immature), and 27 worms in 4 of 12 fish], Drowned Cays, Long Cay; and **Mycteroperca venenosa* (1 immature worm in 1 of 5 fish), Drowned Cays; specimens deposited: No. 74253 (*L. analis*), No. 74254 (*L. griseus*), No. 74255 (*L. synagris*), No. 74256 (*O. chrysurus*), No. 74257 (*M. venenosa*).

61. *Siphodera vinaledwardsii* (Linton, 1901) Linton, 1910 (Cryptogonimidae), pyloric ceca and small intestine of *Lutjanus analis* (1 and 4 worms in 2 of 5 fish), Drowned Cays, Long Cay; *L. synagris* [1 (in 4), 2, 4 (3 mature, 1 immature), and 8 (6, 2) worms in 7 of 19 fish], Drowned Cays, Long Cay, English Cay Channel; and *Ocyurus chrysurus* (1 worm in 1 of 12 fish), Drowned Cays; specimens deposited: No. 74258 (*L. analis*), No. 74259 (*L. synagris*), No. 74260 (*O. chrysurus*).

62. Didymozoidae sp., stomach wall of *Haemulon sciurus* (unidentifiable fragments of mature worm in 1 of 7 fish), Drowned Cays.

63. *Torticaecum fenestratum* (Linton, 1907) Yamaguti, 1942 (Didymozoidae), small intestine of **Lachnolaimus maximus* (1 larval worm in 1 of 6 fish), Drowned Cays; specimen deposited: No. 74261. Bilqees (1970) created a new family Multigonadidae for *Multigonadus microcecus* gen. and sp.n. from the elasmobranch fish *Myrmillo manazo* (syn. *Mustellus m.*) from the Karachi coast of Pakistan. This form very strongly resembles Immature Didymozoid A (Didymozoidae) described by Fischthal & Kuntz (1964) from the cyprinid fish *Puntius binotatus* (Cuv. & Val.) from Palawan Island, Philippines. Both have a non-muscular oral sucker, a similar sucker ratio, and the cecal bifurcation preacetabular. The structures identified as testes and ovary by Bilqees appear to be the many chambers of the intestinal ceca of Immature Didymozoid A and most other larval didymozoids. Frequently, the contents of these chambers appear granular and could be misinterpreted as gonads. Eggs were not reported from any of the 20 specimens of *Multigonadus microcecus*. The latter species needs to be restudied to verify its morphology.

64. *Anahemiurus microcercus* Manter, 1947 (Hemiuridae), small intestine of *Calamus bajonado* (2 and 12 worms in 2 of 7 fish), Turneffe Islands; specimens deposited: No. 74262.

65. *Theletrum fustiforme* Linton, 1910 (Hemiuridae), stomach of *Pomacanthus arcuatus* (4 mature and 1 immature worms in 1 of 5 fish), Drowned Cays; specimens deposited: No. 74263.

66. *Leurodera decora* Linton, 1910 (Hemiuridae), stomach and small intestine of *Anisotremus virginicus* (1 worm in 1 of 4 fish), Drowned Cays, and *Haemulon flavolineatum* [1 immature, 2, 3, 4 (3 mature, 1 immature), 5 (4, 1), 6, and 13 (12, 1) worms in 7 of 16 fish], Drowned Cays, Long Cay; specimens deposited: No. 74264 (*A. virginicus*), No. 74265 (*H. flavolineatum*).

67. *Ectenurus virgulus* Linton, 1910 (Hemiuridae), stomach of **Lutjanus synagris* (2 worms in 1 of 19 fish), English Cay Channel, and *Caranx bartholomaei* (1 and 2 worms in 2 of 8 fish), Drowned Cays; specimens deposited: No. 74266 (*L. synagris*), No. 74267 (*C. bartholomaei*).

68. *Hysterolecitha rosea* Linton, 1910 (Hemiuridae), stomach of *Acanthurus bahianus* (2 worms in 1 of 3 fish), Drowned Cays; specimens deposited: No. 74268.

69. *Dichadena galeata* (Looss, 1907) Skrjabin & Guschanskaja, 1954 (Hemiuridae), stomach of **Mugil curema* (2 worms in 1 of 4 fish), Belize City shore; specimens deposited: No. 74269.

70. *Macradena perfecta* Linton, 1910 (Hemiuridae), stomach and small intestine of **Acanthurus bahianus* (1 and 3 worms in 2 of 3 fish), and *A. coeruleus* (3 worms in 1 of 4 fish), Drowned Cays; specimens deposited: No. 74270 (*A. bahianus*), No. 74271 (*A. coeruleus*).

71. *Pseudodichadena lobata* Yamaguti, 1971 (Hemiuridae), small intestine of *Acanthurus coeruleus* [1, 1, and 10 (8 mature, 2 immature) worms from 3 of 4 fish], Drowned Cays; specimens deposited: No. 74272.

72. *Brachadena pyriformis* Linton, 1910 (Hemiuridae), stomach and small intestine of *Anisotremus virginicus* [3 (1 mature, 2 immature) and 6 (2, 4) worms in 2 of 4 fish], Drowned Cays; *Haemulon flavolineatum* [1 immature and 2 (1, 1) worms in 2 of 16 fish], Drowned Cays, Turneffe Islands; **Chaetodon striatus* (3 worms in 1 of 1 fish), Drowned Cays; and *Calamus bajonado* (2 worms in 1 of 7 fish), Drowned Cays; specimens deposited: No. 74273 (*A. virginicus*), No. 74274 (*H. flavolineatum*), No. 74275 (*C. striatus*), No. 74276 (*C. bajonado*).

73. *Sterrhurus musculus* Looss, 1907 (Hemiuridae), stomach and small intestine of *Anisotremus virginicus* (1 non-ovigerous and 1 mature worm in 2 of 4 fish), Drowned Cays; **Lutjanus synagris* (3 worms in 1 of 19 fish), English Cay Channel; and *Holocentrus ascensionis* (1 worm each in 2 of 7 fish), Drowned Cays, Long Cay; specimens deposited: No. 74277 (*A. virginicus*), No. 74278 (*L. synagris*), No. 74279 (*H. ascensionis*).

## 5. Zoogeographical affinities

The zoogeographical distribution of 72 previously known species of digenetic trematodes from marine fishes of Belize is: 50 spp.—Dry Tortugas, Florida, 43—Jamaica, 32—Puerto Rico, 28—Floridan Atlantic, 27—Curaçao, 23—Bimini, 16—Bermuda, 11—Floridan Gulf of Mexico, 11—Mexican Pacific, 8—Bahamas, 8—Cuba, 8—Panamanian Pacific, 7—U.S. Atlantic (North Carolina, Massachusetts), 7—northern Gulf of Mexico, 7—Red Sea, 6—Ghana, 6—Galápagos Islands, 6—Baja California, 5—Panamanian Atlantic, 4—Venezuela, 3—Mediterranean Sea, 3—Black Sea, 3—Canadian Pacific, 3—Japan, 2—California, 2—Ecuador, 2—Philippines, 2—New Caledonia, 1—Adriatic Sea, 1—Senegal, 1—Argentina, 1—Columbian Pacific, 1—Okinawa, 1—Australia, 1—India, 1—China, 1—Gulf of Aden. Thus, the affinities are very strongly with the tropical western Atlantic (Caribbean, Gulf of Mexico, Florida, Bimini, Bahamas, Bermuda). The presence of some of the trematode species in the eastern Atlantic, Mediterranean, and Indo-Pacific regions probably can be accounted for as noted by Manter (1955, 1967) and Fischthal (1972).

## 6. Host-parasite list

The first number in parentheses following the name of each fish host indicates the number examined, while the second number indicates the number infected with at least one species of trematode.

*Acanthurus bahianus* Castelnau, ocean surgeon (Acanthuridae)—(3-2)
- *Hapladena varia*
- *Hysterolecitha rosea*
- *Macradena perfecta*

*Acanthurus coeruleus* Bloch & Schneider, blue tang (Acanthuridae)—(4-3)
- *Hapladena varia*
- *Macradena perfecta*
- *Pseudodichadena lobata*

*Anchoa lamprotaenia* Hildebrand, longnose anchovy (Engraulidae)—(1-1)
- Immature (unidentifiable)

*Anisotremus virginicus* (L.), porkfish (Pomadasyidae)—(4-4)
- *Apocreadium cryptum*
- *Brachadena pyriformis*
- *Genolopa anisotremi*
- *Lasiotocus longicaecus*
- *Leurodera decora*
- *Monorchis latus*
- *Sterrhurus musculus*

*Balistes vetula* L., queen triggerfish (Balistidae)—(8-7)
- *Apocreadium mexicanum*
- *Proctoeces maculatus*
- *Pseudocreadium lamelliforme*

*Calamus bajonado* (Bloch & Schneider), jolthead porgy (Sparidae)—(7-5)
- *Anahemiurus microcercus*
- *Brachadena pyriformis*
- *Crassicutis marina*
- *Homalometron elongatum*
- *Multitestis rotundus*
- *Pachycreadium crassigulum*
- *Proctoeces lintoni*
- *Stephanostomum sentum*

*Caranx bartholomaei* Cuvier, yellow jack (Carangidae)—(8-8)
- *Bucephalus varicus*
- *Ectenurus virgulus*
- *Podocytole chloroscombri*
- *Stephanostomum belizense*
- *Stephanostomum ditrematis*
- *Stephanostomum ghanense*
- *Stephanostomum megacephalum*
- *Tergestia acuta*

*Caranx latus* Agassiz, horse-eye jack (Carangidae)—(4-4)
- *Bucephalus varicus*
- *Stephanostomum ditrematis*

*Carcharhinus limbatus* (Valenciennes), blacktip shark (Carcharhinidae)—(1-0)

*Centropomus undecimalis* (Bloch), snook (Centropomidae)—(2-1)
- *Opecoeloides brachytelus*

*Chaetodon ocellatus* Bloch, spotted butterfly fish (Chaetodontidae)—(3-3)
- *Brachadena pyriformis*
- *Multitestis chaetodoni*

*Chaetodon striatus* L., banded butterfly fish (Chaetodontidae)—(1-1)
- *Brachadena pyriformis*

*Epinepheles guttatus* (L.), red hind (Serranidae)—(1-0)

*Epinepheles morio* (Valenciennes), red grouper (Serranidae)—(2-2)
- *Postporus epinepheli*

*Epinepheles striatus* (Bloch), Nassau grouper (Serranidae)—(4-2)
- *Helicometra torta*

*Gerres cinereus* (Walbaum), yellowfin mojarra (Gerridae)—(13-2)
- *Crassicutis marina*
- *Homalometron elongatum*

*Haemulon flavolineatum* (Desmarest), French grunt (Pomadasyidae)—(16-16)
- *Apocreadium cryptum*
- *Brachadena pyriformis*
- *Cainocreadium consuetum*
- *Cleptodiscus reticulatus*
- *Diplangus parvus*
- *Diplangus paxillus*
- *Genolopa ampullacea*
- *Genolopa pritchardae*
- *Lasiotocus asymmetricus*
- *Lasiotocus sparisomae*
- *Lasiotocus truncatus*
- *Leurodera decora*
- *Postmonorchis orthopristis*
- *Stephanostomum sentum*

*Haemulon sciurus* (Shaw), bluestriped grunt (Pomadasyidae)—(5-5)
- *Cainocreadium consuetum*
- Didymozoidae sp.
- *Lasiotocus beauforti*
- *Lasiotocus sparisomae*
- *Lasiotocus truncatus*
- *Postmonorchis orthopristis*

*Holacanthus ciliaris* (L.), queen angelfish (Chaetodontidae)—(4-4)
- *Antorchis urna*

*Holocentrus ascensionis* (Osbeck), longjaw squirrelfish (Holocentridae)—(7-7)
- *Bivesicula caribbensis*
- *Lepidapedon truncatum*
- *Pseudopecoelus barkeri*
- *Stenopera equilata*
- *Sterrhurus musculus*

*Lachnolaimus maximus* (Walbaum), hogfish (Labridae)—(6-5)
- *Lepocreadium bimarinum*
- *Myzoxenus lachnolaimi*
- *Proctoeces lintoni*
- *Schikhobalotrema acutum*
- *Torticaecum fenestratum*

*Lutjanus analis* (Cuvier), mutton snapper (Lutjanidae)—(5-5)
- *Helicometrina nimia*
- *Metadena globosa*
- *Paracryptogonimus americanus*
- *Siphodera vinaledwardsii*
- *Stephanostomum casum*

*Lutjanus apodus* (Walbaum), schoolmaster (Lutjanidae)—(8-8)
- *Hamacreadium mutabile*
- *Helicometrina nimia*
- *Metadena adglobosa*
- *Metadena globosa*

*Lutjanus griseus* L., grey snapper (Lutjanidae)—(14-13)
*Hamacreadium mutabile*
*Helicometrina nimia*
*Metadena adglobosa*
*Metadena globosa*
*Paracryptogonimus americanus*

*Lutjanus synagris* (L.), Lane snapper (Lutjanidae)—(19-19)
*Ectenurus virgulus*
*Hamacreadium mutabile*
*Helicometrina varia*
*Metadena adglobosa*
*Metadena globosa*
*Paracryptogonimus americanus*
*Siphodera vinaledwardsii*
*Stephanostomum casum*
*Sterrhurus musculus*

*Mugil curema* Valenciennes, white mullet (Mugilidae)—(4-3)
*Dichadena galeata*
*Haplosplanchnus mugilis*
*Lasiotocus glebulentus*
*Saturnius belizensis*

*Mugil trichodon* Poey, fantail mullet (Mugilidae)—(3-1)
*Haplosplanchnus mugilis*

*Mycteroperca bonaci* (Poey), black grouper (Serranidae)—(2-2)
*Prosorhynchus pacificus*

*Mycteroperca venenosa* (L.), yellowfin grouper (Serranidae)—(5-3)
*Paracryptogonimus americanus*
*Prosorhynchus pacificus*

*Ocyurus chrysurus* (Bloch), yellowtail snapper (Lutjanidae)—(12-12)
*Hamacreadium mutabile*
*Lepocreadium trulla*
*Metadena globosa*
*Paracryptogonimus americanus*
*Siphodera vinaledwardsii*
*Stephanostomum casum*

*Pomacanthus arcuatus* (L.), grey angelfish (Chaetodontidae)—(5-5)
*Antorchis urna*
*Barisomum erubescens*
*Cleptodiscus reticulatus*
*Hapladena megatyphlon*
*Hexangitrema pomacanthi*
*Theletrum fustiforme*

*Priacanthus arenatus* Cuvier, bigeye (Priacanthidae)—(2-1)
*Opecoeloides belizensis*
*Stephanostomum ditrematis*

*Pseudupeneus maculatus* (Bloch), spotted goatfish (Mullidae)—(4-3)
*Opecoeloides elongatus*

*Scomberomorus regalis* (Bloch), cero (Scombridae)—(2-1)
*Rhipidocotyle adbaculum*

*Sparisoma chrysopterum* (Bloch & Schneider), redtail parrotfish (Scaridae)—(4-4)
*Hapladena ovalis*
*Schikhobalotrema pomacentri*

*Sphyraena barracuda* (Walbaum), great barracuda (Sphyraenidae)—(7-1)
*Neolepidapedon belizense*
*Rhipidocotyle barracudae*

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