are indebted for the information that his Girardinus is subsequent to Heterandria.

   Very abundant; full of ripe spawn. November 20.


11. Lepomis squamatus (Cuv. & Val.) Gill. Whiting.


15. Paralichthys lethostigma Jordan & Gilbert MSS. (nom. sp. nov.).
   (Paralichthys dentatus Jor. & Gilb. Syn. Fish N. A., 822, not Pleuronectes
dentatus L. fide Bean.*)

NOTES ON THE PIPE-FISHES OF KEY WEST, FLORIDA, WITH
DESCRIPTION OF Siphostoma McKeay, A NEW SPECIES.

By JOSEPH SWAIN AND SETH E. MEEK.

The collection of pipe-fishes upon which this paper is based was ob-
tained by Professor Jordan at Key West, Fla., during his recent visit to
that place. Besides the single species, which is apparently new to
science, we find in this collection all the species, except Siphostoma
fuscum, hitherto known from the Atlantic coast of the United States.

We wish to express our indebtedness to Professor Jordan for the use
of his library and for kindly aid.

The synonymy of the different species has been already published by
Mr. Swain (Proc. U. S. Nat. Mus., 1882, 307-315), and the National
Museum has specimens of all the species here recorded.

Analysis of species of the genus Siphostoma, found in the United States.

a. Top of head strongly carinated.
   b. Breast shields not covered by soft skin; opercle with a prominent ridge; snout
      short; D. 22 or 23, covering 1 + 4 rings; rings, 16 + 30; belly concave; twelve
      irregular brown cross-bars on body. (Corythroichthys Kaup.). *Zatrumps, 1
   bb. Breast shields covered by soft skin; D. 41; rings, 19 + 30. (Dermatocheilus
      Gill.) ................................................................. Punctipinne, 2

* Dr. Bean, who has examined the Linnaean type of this species, now preserved in
   London, identifies it with the species called P. ophryas or P. ocellaris by Jordan &
   Gilbert.
aa. Top of head with a slight carination or with none; opercle without prominent longitudinal ridge. (Siphostoma.)

c. Dorsal fin covering 1 + 9 rings; snout usually long; size large.

d. Rings 20 to 21 + 45 to 49; D. 39 to 46; top of head without keel.

dd. Rings 18 to 19 + 30 to 42; D. 36 to 41; top of head slightly keeled.

cc. Dorsal fin covering 1 + 6 or 7 rings. (Occasionally 2 + 6 in S. floridæ.)

e. Rings 15 + 35; D. 29 to 30; top of head distinctly keeled; snout short.

cc. Rings before vent, 16 to 19.

f. Dorsal fin low, not longer than head.

g. Rings 18 + 31; D. 34; snout short; body comparatively stout; tail short

hh. Dorsal fin not very high; rings 20 to 21 + 36 to 38; D. 32 to 37; belly flat or slightly concave; snout moderate.

ccce. Dorsal fin covering 5 + 4 or 4 + 5 rings; rings 18 to 20 + 30 to 40; D. 36 to 40; snout moderate.

ccce. Dorsal fin covering 2 + 5 to 6 rings; rings 18 + 33; D. 29 to 31; opercle not keeled; body deep; its greatest depth in adult females equal to width of 4 body rings (2/4 in males); snout about 15 in head; belly in females angulate, without keel; dorsal pale, marked with dark green; opercle and snout barred with white.

ccccc. Dorsal fin covering 0 + 4 (occasionally 1 + 4) rings; top of head slightly keeled; snout very short, 3 in head; rings 16 + 37 to 39; D. 17; belly convex; color in spirits dusky gray, with about 13 conspicuous crossbars, each wider than a body ring.

1. Siphostoma zatripsis Jordan & Gilbert.

Two specimens taken at Key West, each with rings 16 + 27; dorsal with 22 rays, covering 1 + 4 rings.

6. Siphostoma barbaræ Swain, sp. nov.†

8. Siphostoma Floridæ Jordan & Gilbert.

Four specimens obtained, with dorsal rays 27 to 29, covering 1 + 7 rings. In addition to these we have referred to this species two female

*Note.—In the key to this genus, formerly published by Mr. Swain (Proc. U. S. Nat. Mus., 1882, 308), this species was inadvertently placed under cc, "Dorsal fin covering 1 + 7 rings," instead of under cce. "Dorsal fin covering 3 + 5 rings."

This error is copied in Jordan & Gilbert's Synopsis Fishes N. A., p. 906. It is here corrected.

†Siphostoma barbaræ Swain, sp. nov. This name is proposed for the specimen taken by Andrea Larco at Santa Barbara, Cal. (No. 31253 U. S. Nat. Mus.), described by Mr. Swain, Proc. U. S. Nat. Mus., 1882, 311, under the erroneous name of Siphostoma Bairdiæ. We are informed by M. Alexandre Thominot, of the Museum of Paris, who has re-examined the type of Synaphthus bairdiæ, that the specimen has the dorsal fin on 3 + 5½ rings, as stated by M. Dumeril. S. bairdiæ is therefore a different species, apparently closely allied to S. affine.
specimens, differing from the typical *S. florideae* in the following characters: The dorsal covering $2 + 5$ or $6$ rings, the keel of belly distinct, no cross-bars on sides of body; D. $29$ to $31$, rings $19$ to $20 + 33$. These, perhaps, represent a distinct species, but we think it more likely an extreme variation of *S. florideae*.

9. **Siphostoma affine** (Günther) Jordan & Gilbert.

Many specimens obtained in greater abundance than any other species. D. $25$ to $28$. We have also examined two specimens of this species in the museum of Yale College, collected by Prof. C. F. Hartt at Abrolhos Reef, off the east coast of Brazil.

10. **Siphostoma louisianae** (Günther) Jordan & Gilbert.

Seven specimens in the collection.

12. **Siphostoma McKayi**, sp. nov.

Head $5\frac{2}{3}$ to $6\frac{1}{2}$ in total length; D. $29$ to $31$; rings $18 + 33$ to $34$.

Snout rather long, compressed, $1\frac{3}{4}$ to $2$ in head, its median line with a slight keel above and below, with smaller keels on each side; opercle not keeled.

Dorsal somewhat higher than width of a body ring, its base about $1\frac{4}{6}$ in length of head, covering $2 + 6$ rings. Pectoral higher than length of base; tail about $1\frac{1}{2}$ in total length of fish; body deep; its greatest depth in adult females equals width of $4$ body rings.

Color in spirits grayish or dark olive; the males often with gray cross-bars on the sides; the body is usually more or less spotted with small white spots. Dorsal pale, usually dotted over with darker; caudal dusky, generally spotted with white; opercle usually with white bars.

This species is described from three female and six male specimens, obtained by Professor Jordan at Key West. Some of these typical specimens (No. 34989) are now in the United States National Museum. This species is named for our friend and fellow-student, Charles Leslie McKay, of the United States Signal Service, who recently lost his life in the cause of science in Alaska.

14. **Siphostoma crinigerum** Bean & Dresel.


Four specimens, with dorsal rays $17$, covering $0 + 4$ (one example $\frac{1}{2} + 4$) rings; rings $16 + 37$; snout very short, $3$ in head; size small. Two specimens of pipe fish in the museum of Yale College, obtained by Prof. C. F. Hartt at Abrolhos Reef, off the east coast of Brazil, appear to belong to this species.

**Indiana University, February 26, 1884.**