# Field Guide to the Synodontidae (Lizardfishes) of the Western Atlantic Ocean

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William W. Anderson, Jack W. Gehringer and Frederick H. Berry

UNITED STATES DEPARTMENT OF THE INTERIOR

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Circular 245

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# Field Guide to the Synodontidae (Lizardfishes) of the Western Atlantic Ocean[1]

By

WILLIAM W. ANDERSON AND JACK W. GEHRINGER, Fishery Biologists,
AND FREDERICK H. BERRY, Systematic Zoologist (Fishes)

Bureau of Commercial Fisheries Biological Laboratory, Brunswick, Ga. 31521

## ABSTRACT

Illustrated keys, designed primarily for use in the field, are presented for the 3 genera and 10 species of lizardfishes, family Synodontidae, occurring in the western Atlantic Ocean.

Lizardfish--Order Iniomi, Family Synodontidae--are now placed in four genera: Synodus Gronow, Saurida Valenciennes, Trachinocephalus Gill, and Xystodus Ogilby. Xystodus is known only from Australia; the other three occur in the Atlantic, Pacific, and Indian Oceans. Ten species of these three genera occur in the western Atlantic Ocean.

Trachinocephalus myops (Forster), found from the western Atlantic eastward to Hawaii, ranges in the western Atlantic from Cape Cod to Brazil. It occurs in inshore areas but is apparently more abundant in offshore waters at about 20 to 50 fath. (fathoms). Its depth record is just over 200 fath.

Synodus intermedius (Spix) and Synodus poeyi Jordan range from North Carolina to Brazil and appear to be species of offshore bottoms. They seldom occur near shore; most records are between 20 and 60 fath. (the depth record is about 175 fath.).

Synodus saurus (Linnaeus), known as an insular species, occurring also in the eastern Atlantic and the Mediterranean Sea, has been recorded in the western Atlantic from Bermuda, Bahamas, and Leeward Islands, West Indies. It inhabits shallow waters and seldom is taken in depths beyond 10 fath.

Synodus synodus (Linnaeus), occurring also in the eastern Atlantic and Mediterranean Sea, ranges in the western Atlantic from scattered localities in the Gulf of Mexico and West Indies to Uruguay; it is considered an inhabitant of inshore areas but ventures out onto the Continental Shelf to depths of about 50 fath.

Synodus foetens (Linnaeus), ranging from Cape Cod to Brazil and probably our most abundant lizardfish, is found inshore in salt-water estuaries and along beaches but also ranges out onto the Continental Shelf in depths of 100 fath.

Saurida normani Longley ranges from South Carolina to about Brazil, appears to prefer offshore areas on the shelves and slopes, and does not frequent inshore areas (the depth distribution is about 22 to 300 fath.).

Saurida suspicio Breder, recorded from a limited area--the Bahamas, West Indies, and Caribbean Sea--has been taken from shallow water near reefs or shore both at surface and bottom.

Saurida brasiliensis Norman, known also in the eastern Atlantic as S. parri, ranges in the western Atlantic from North Carolina to about Brazil, inhabits offshore areas in the open ocean, and is not recorded from near shore; depth distribution is about 10 to 225 fath., but most records are from less than 100 fath.

Saurida caribbaea Breder, ranging from Florida to about Brazil, apparently inhabits offshore shelf and slope areas--depth record is about 250 fath. All of these lizardfishes are primarily epipelagic as larvae and are bottom dwellers as juveniles and adults.

These fish are not generally sought after commercially but are eaten by people in various parts of the world. They are abundant in some areas, as off the south Atlantic and Gulf coasts of the United States, and constitute an important part of the fish population as forage fish and predators.

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Larval stages of the six species are illustrated in figures 20 to 25.

This paper is the first in a series of guides to facilitate field identification of various important groups of fishes of the western Atlantic. We have used the simplest characters consistent with positive identification. Substantiative characters, not always easy to use in the field, are placed in brackets in the key. Most of the material and the figures (except figs. 1 and 3) are from Anderson, Gehringer, and Berry (1966). Details about the family, genera, and species are available in that publication.

## KEY TO THE LIZARDFISHES

1A. Anal fin origin about midway between caudal base and pectoral fin origin and closer to origin of pelvic fin than to caudal base. [Pelvic fin shape and number of rays (8) similar to Synodus (figs. 1A and B). Anal fin long, 14 to 16 rays] Fig. 2. Snakefish. Trachinocephalus myops.

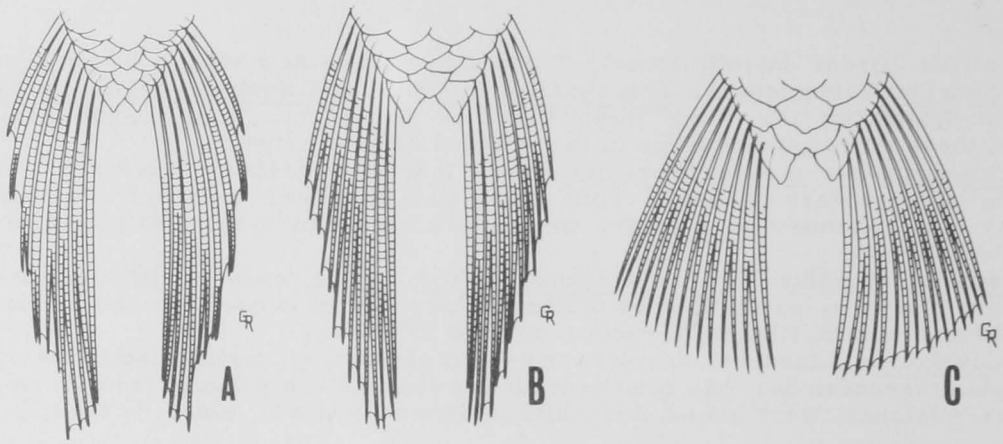


Figure 1.--Ventral view of pelvic fins of Trachinocephalus (A), Synodus (B), and Saurida (C).

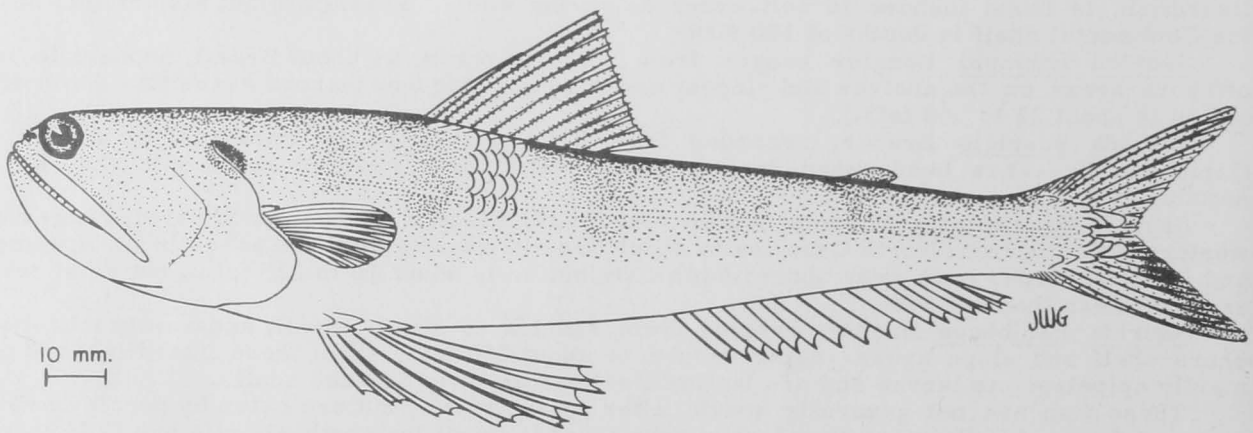


Figure 2.--Trachinocephalus myops, adult, 180 mm. standard length.

1B. Anal fin origin much nearer to caudal base than to pectoral fin origin and closer to caudal base than to origin of pelvic fin (as in figs. 13 and 14). . . . . 2.

2A. Inner rays of pelvic fin much longer than outer rays. [Pelvic fin rays 8.]
Fig. 1B. Synodus 3.

2B. Inner rays of pelvic fin about equal to or not much longer than outer ones. [Pelvic rays 9.]
Fig. 1C. Saurida 7.

3A. Scales with pores in lateral line 43 to 50 (rarely 51). [Vertebrae 44 to 50, number of body myomeres similar.] . . . . . 4.

3B. Scales with pores in lateral line 55 to 64 (rarely 54 or 65). [Vertebrae 54 to 63, number of body myomeres similar.]. . . . . 5.

4A. Scale between upper anterior part of eye and nostril heavily ridged and with posterior margin serrated (fig. 3A). Black patch on shoulder girdle under gill cover usually present. Lower jaw rounded anteriorly, without fleshy knob.
Figs. 4 and 5. Sand diver. Synodus intermedius.

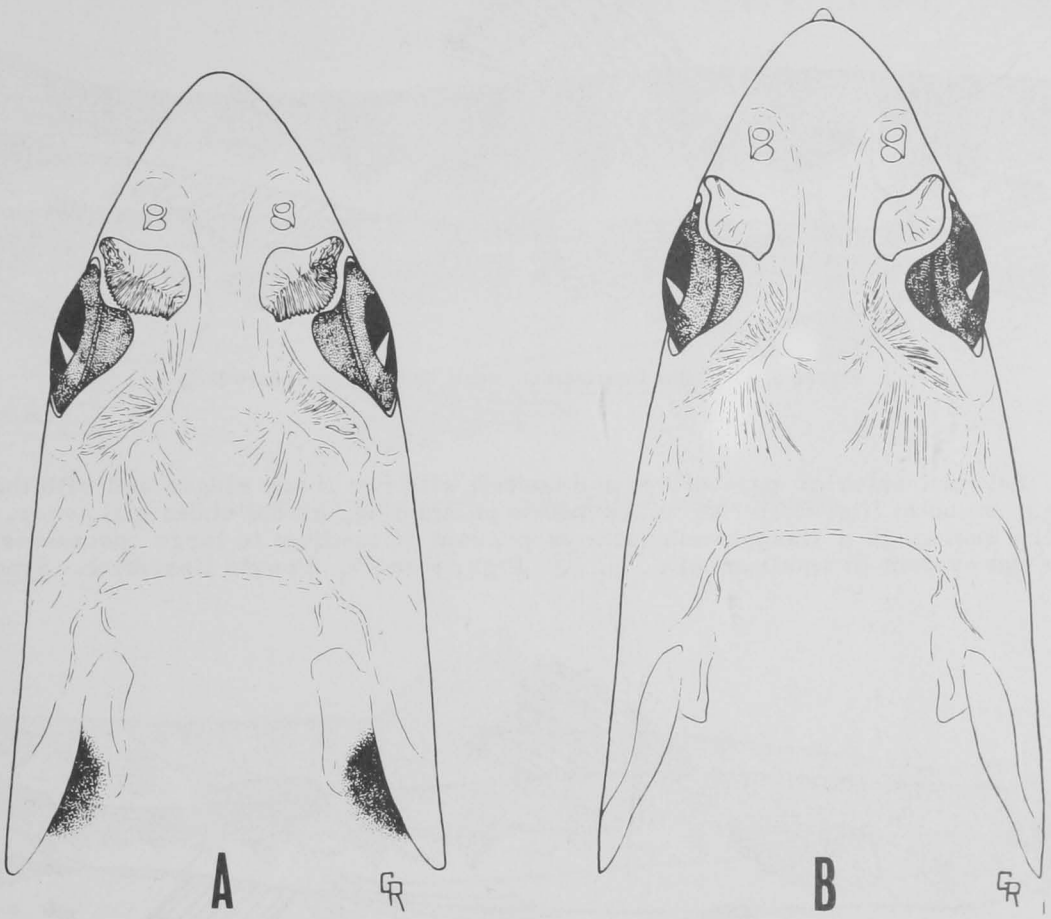


Figure 3.--Dorsal view of head of Synodus intermedius (A) and Synodus poeyi (B).

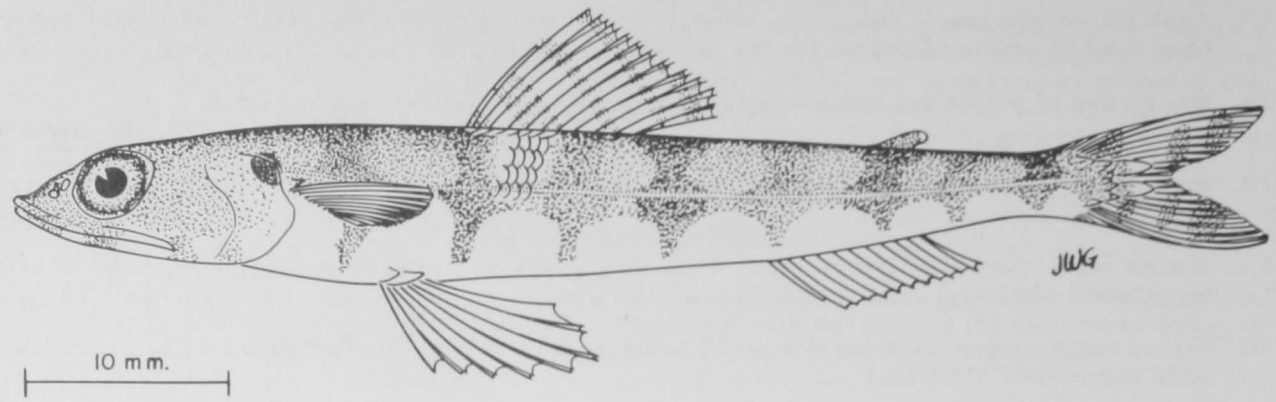


Figure 4.--Synodus intermedius, young, 52 mm. standard length.

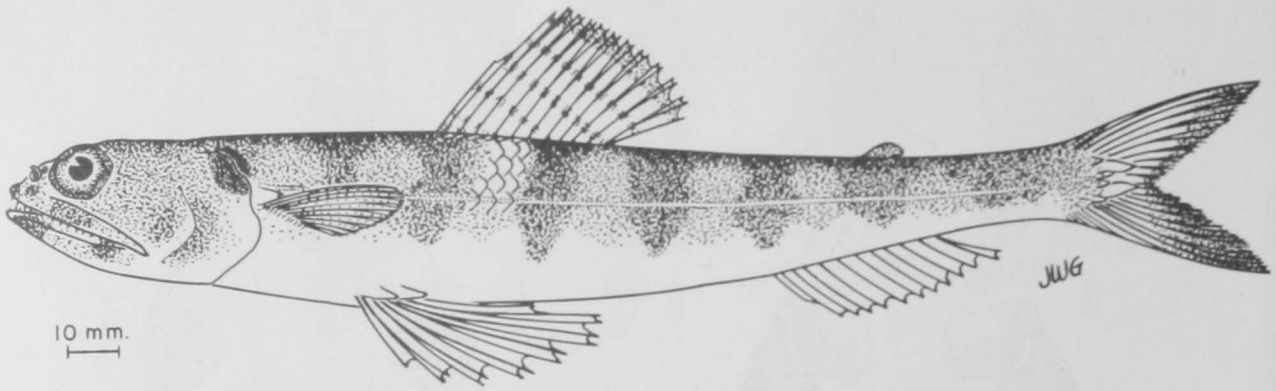


Figure 5.--Synodus intermedius, adult, 205 mm. standard length.

4B. Scale between anterior part of eye and nostril with few if any ridges and with the posterior margin smooth (fig. 3B). No black patch on shoulder girdle under gill cover. Lower jaw usually ending in a fleshy knob (always present in medium to large specimens but sometimes not evident in small ones) . . . . . Figs. 6 and 7. Poey's lizardfish. Synodus poeyi.

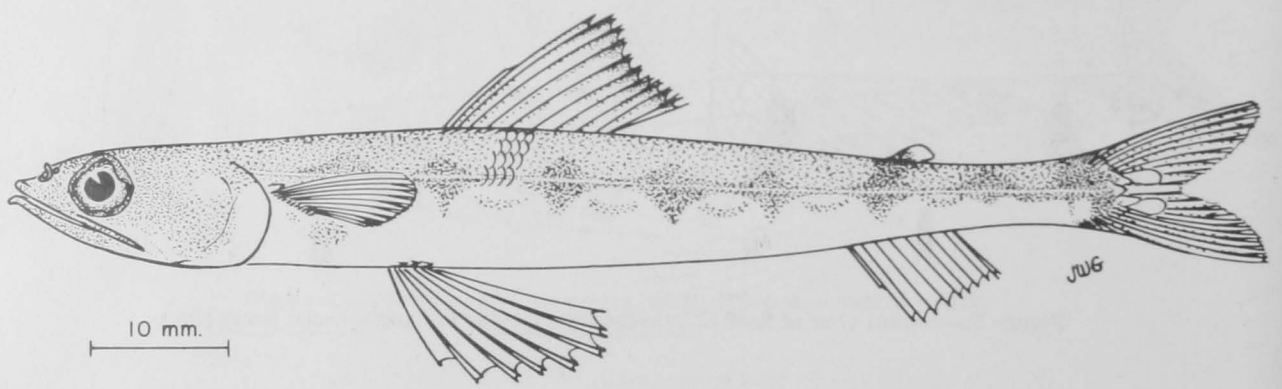


Figure 6.--Synodus poeyi, young, 81 mm. standard length.

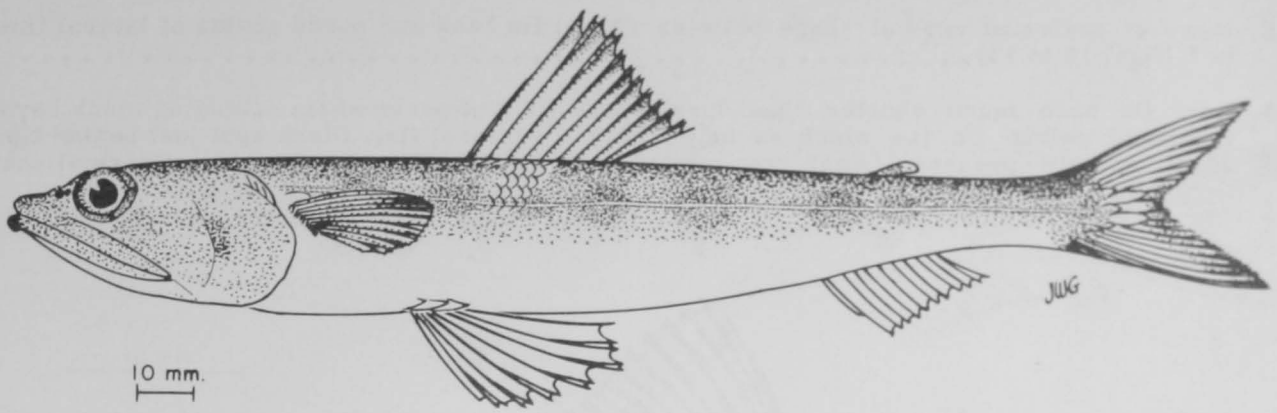


Figure 7.--Synodus poeyi, adult 198 mm. standard length.

5A. Rows of scales of normal shape between dorsal fin base and pored scales of lateral line always 3. [About 8 moderately broad, dark saddles across back in addition to blotches on lateral line. Predorsal scales usually 15 to 20. Anal fin rays 9 to 11.]
Figs. 8 and 9. Lagarto. Synodus saurus.

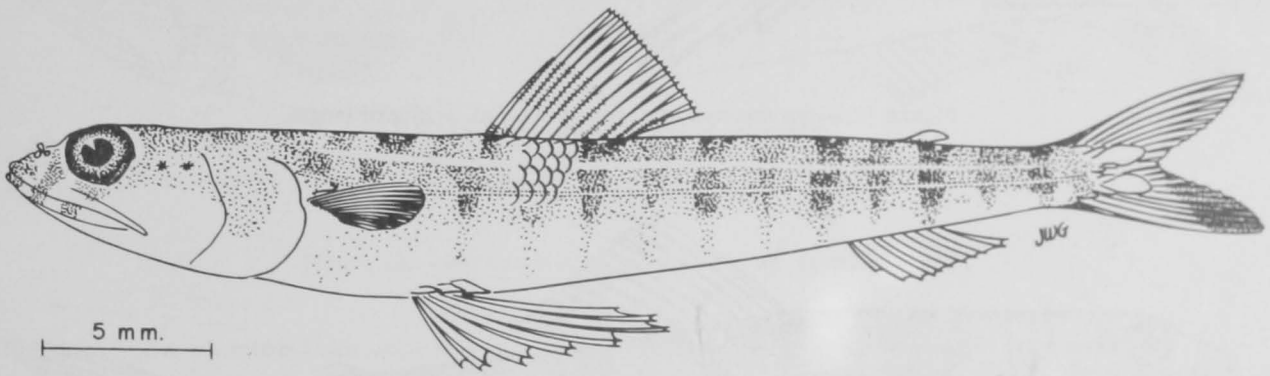


Figure 8.--Synodus saurus, young, 63 mm. standard length.

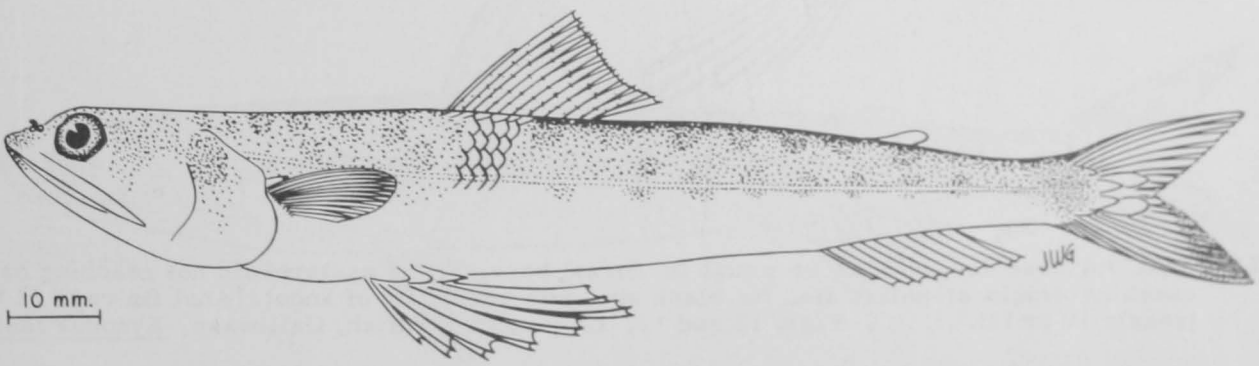


Figure 9.--Synodus saurus, adult, 116 mm. standard length.

5B. Rows of scales of normal shape between dorsal fin base and pored scales of lateral line 4 to 6 (figs. 10 to 13) . . . . . 6.

6A. Anal fin base much shorter than dorsal base. Tip of pectoral fin extending much beyond origin of pelvic fin (as much as half length of pectoral fin). Black spot just behind tip of snout usually present. [Anal rays 8 to 10 (rarely 11). Rows of scales of normal shape between dorsal fin base and pored scales of lateral line always 4.]
Figs. 10 and 11. Rockspear. Synodus synodus.

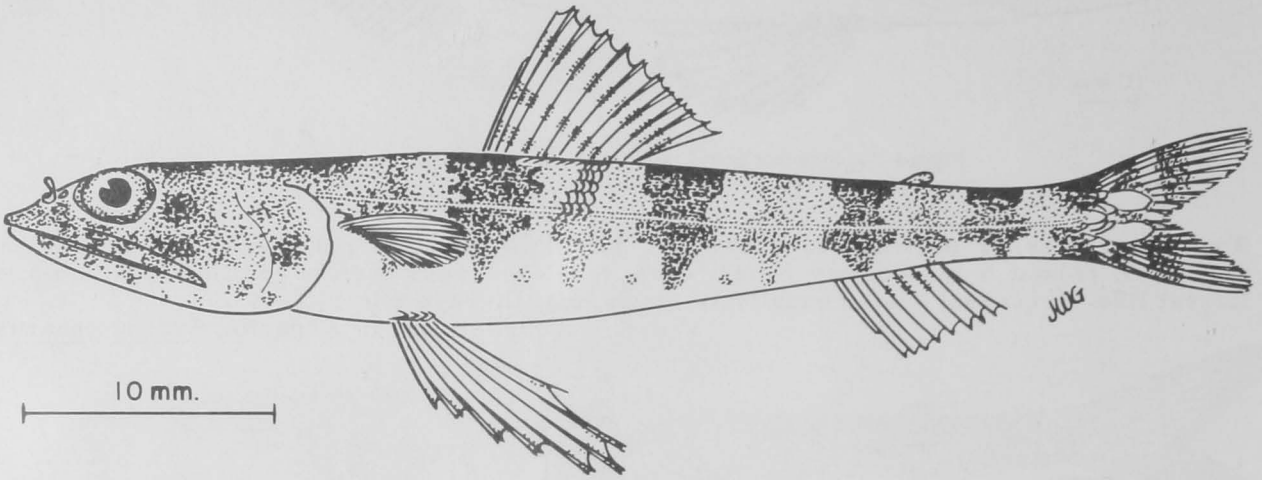


Figure 10.--Synodus synodus, young, 43 mm. standard length.

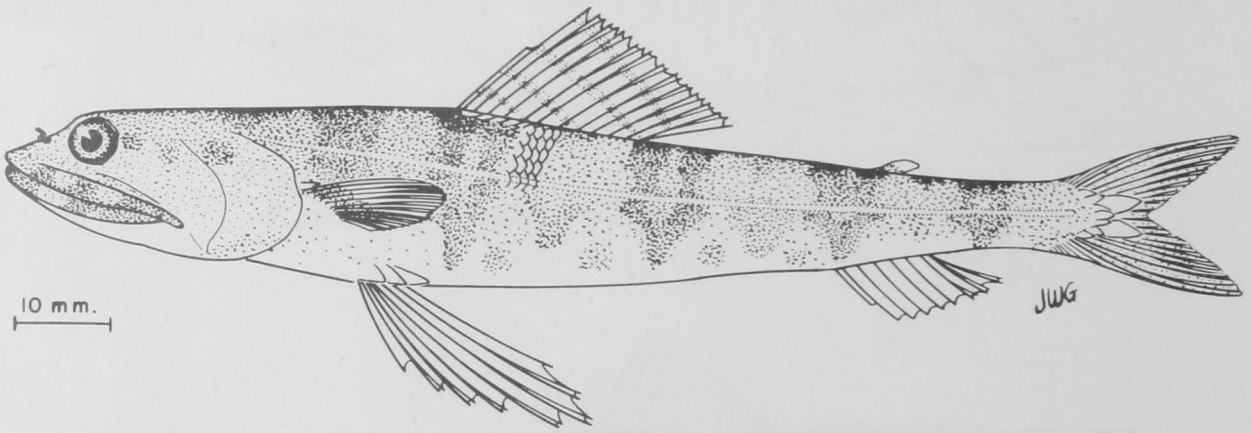


Figure 11.--Synodus synodus, adult, 113 mm. standard length.

6B. Anal fin base longer than or equal to dorsal base. Tip of pectoral fin not reaching or just reaching origin of pelvic fin. No black spot just behind tip of snout. [Anal fin rays 11 to 13 (rarely 10 or 14).]. . . . . Figs. 12 and 13. Common lizardfish, Galliwasp. Synodus foetens.

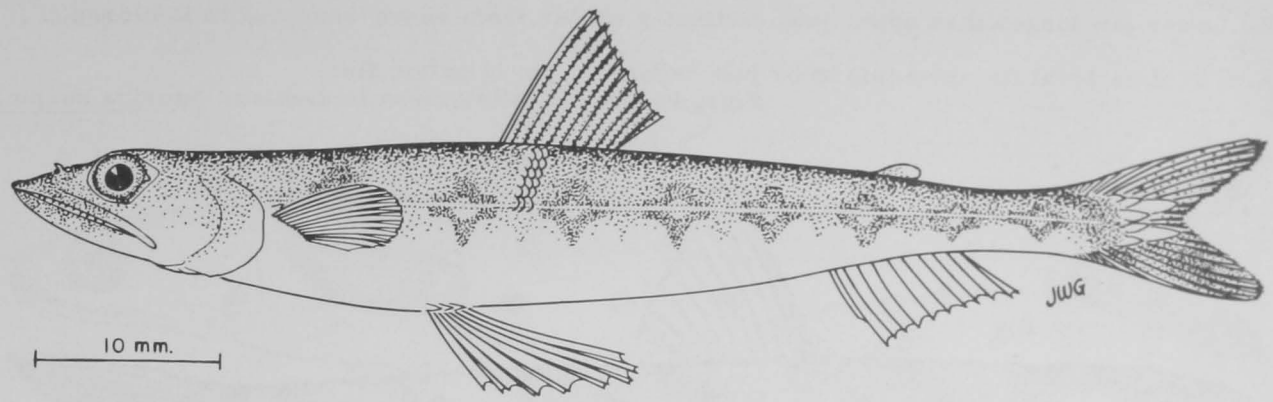


Figure 12.--Synodus foetens, young, 57 mm. standard length.

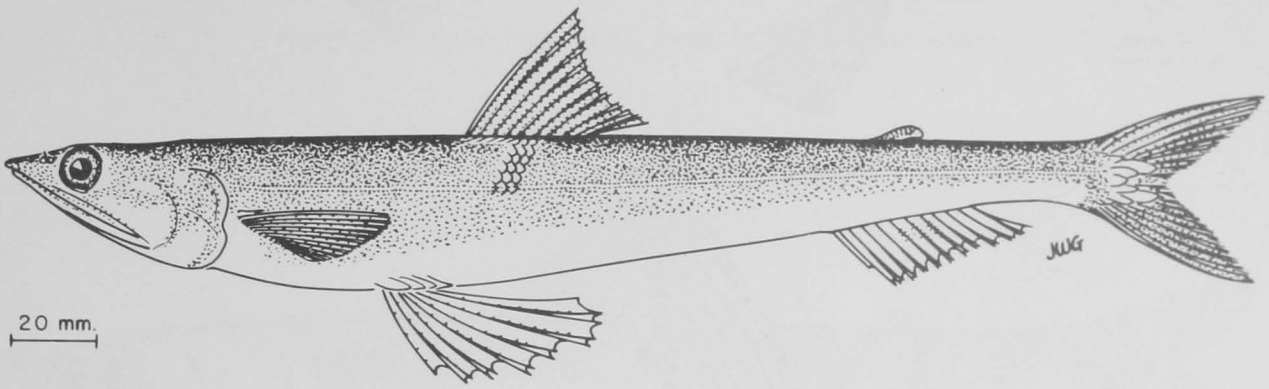


Figure 13.--Synodus foetens, adult, 255 mm. standard length.

7A. Lower jaw shorter than upper jaw, not visible from above when mouth is closed.
Fig. 14. Norman's lizardfish. Saurida normani.

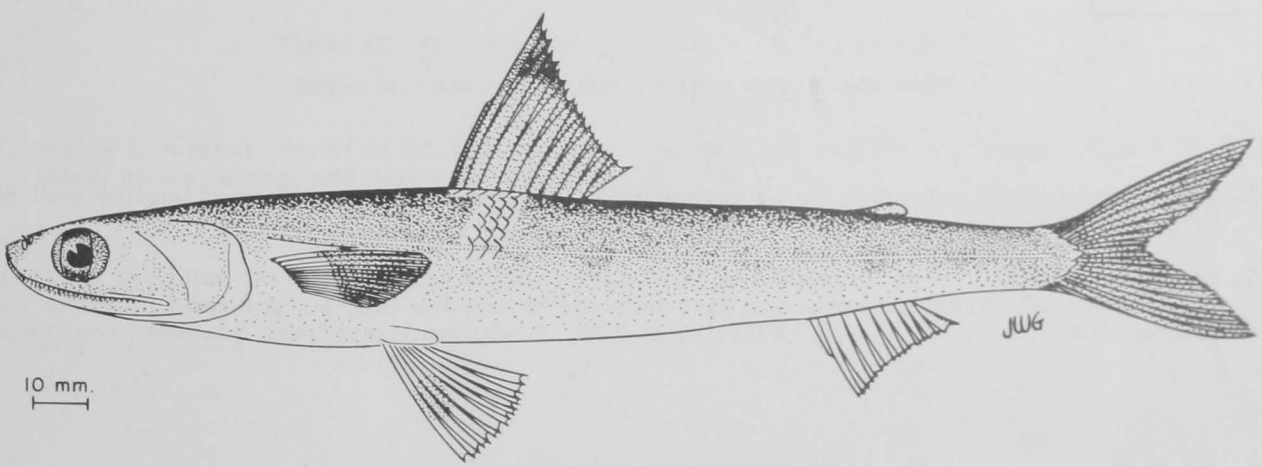


Figure 14.--Saurida normani, adult, 263 mm. standard length.

7B. Lower jaw longer than upper jaw, distinctly visible from above when mouth is closed. . . 8.

8A. Tip of pectoral fin extending to or just beyond origin of pelvic fin.
Figs. 15 and 16. Misteriosa lizardfish. Saurida suspicio.

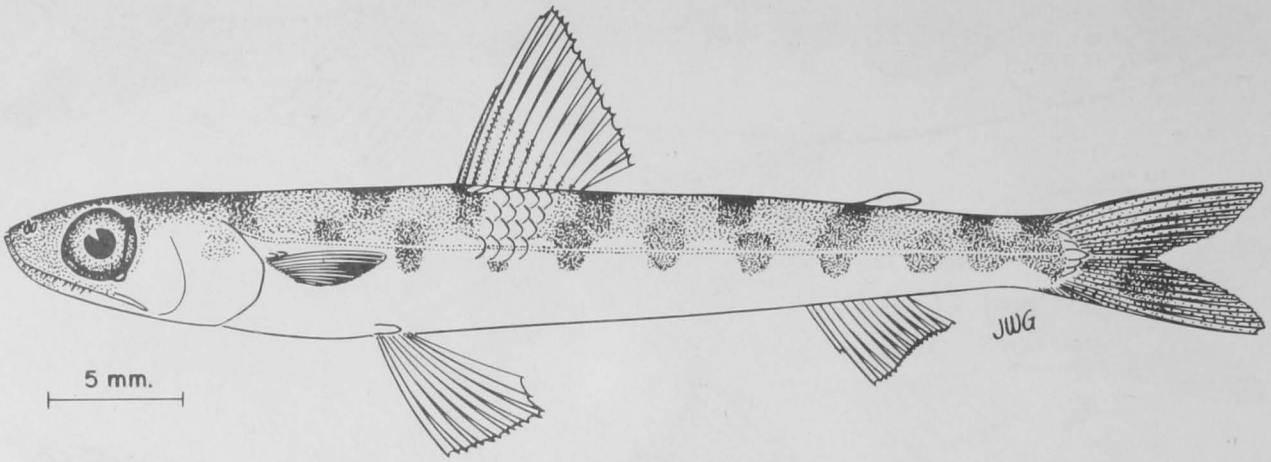


Figure 15.--Saurida suspicio, young, 39.5 mm. standard length.

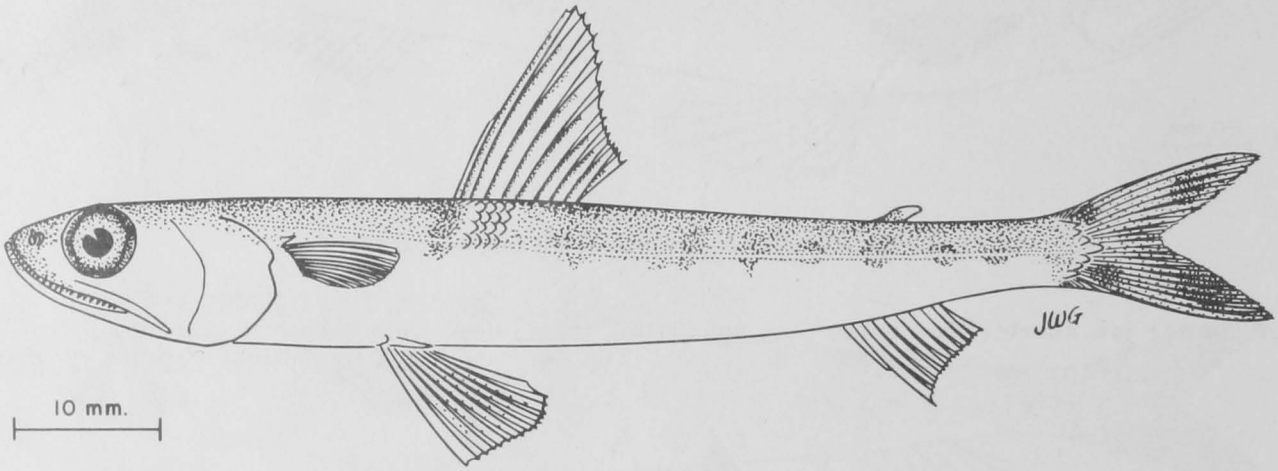


Figure 16.--Saurida suspicio, adult, 74 mm. standard length.

8B. Tip of pectoral fin extending much beyond origin of pelvic fin, sometimes extending well past origin of dorsal fin . . . . . 9.

9A. Scales in lateral line 40 to 50. Three faint dark saddles across back (at origin of dorsal fin, termination of dorsal fin base, and just anterior to adipose fin); about 6 faint blotches along lateral line . . . . . Figs. 17 and 18. Brazilian lizardfish. Saurida brasiliensis.

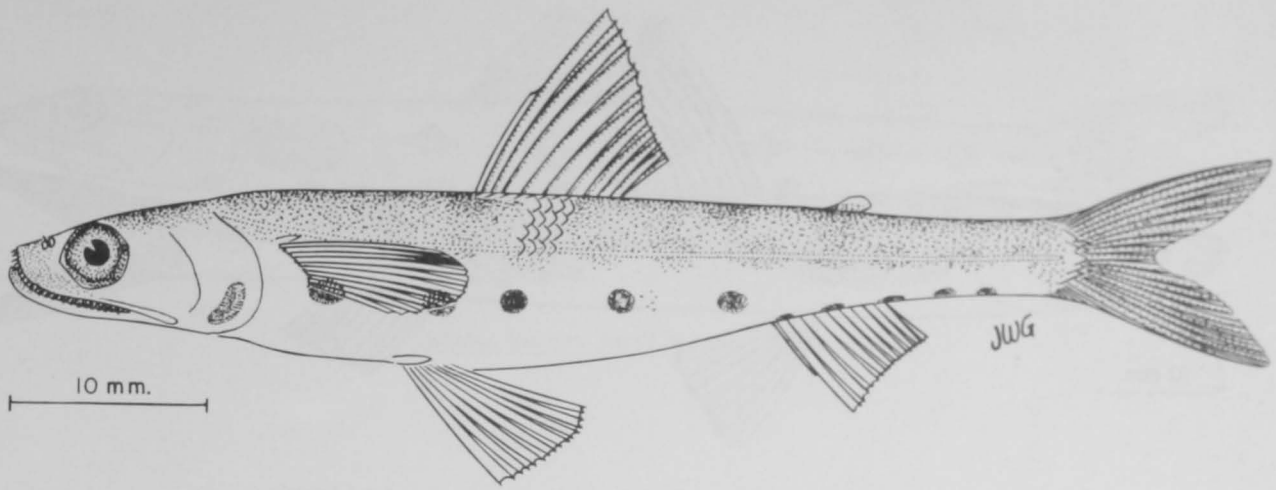


Figure 17.--Saurida brasiliensis, young, 53 mm. standard length.

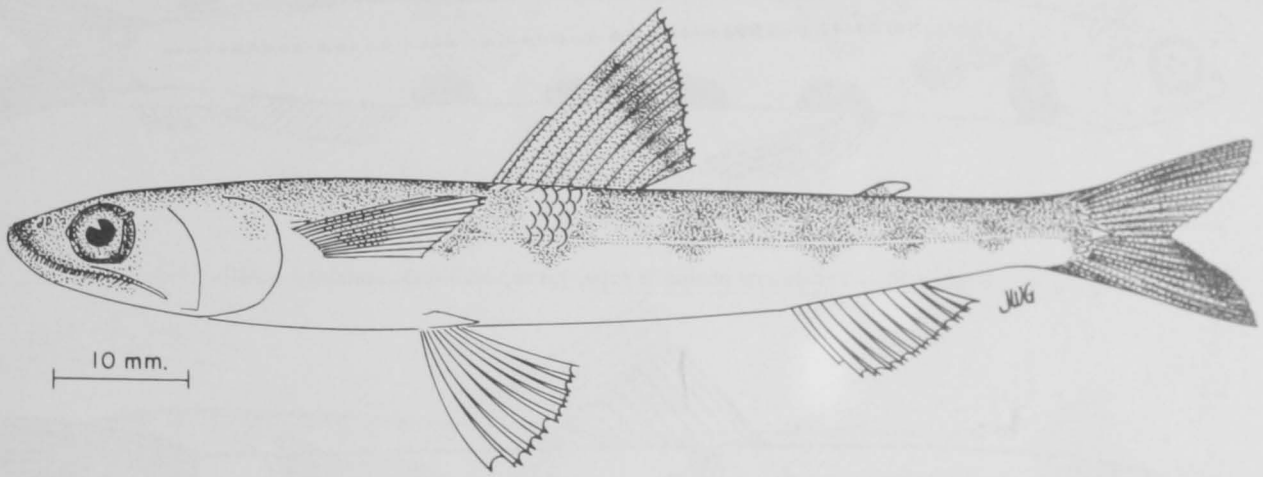


Figure 18.--Saurida brasiliensis, adult, 80 mm. standard length.

9B. Scales in lateral line 54 to 60. Dark blotches on back not saddlelike; irregular dark spots on sides, above, along, and below lateral line.

Fig. 19. Caribbean lizardfish. Saurida caribbaea.

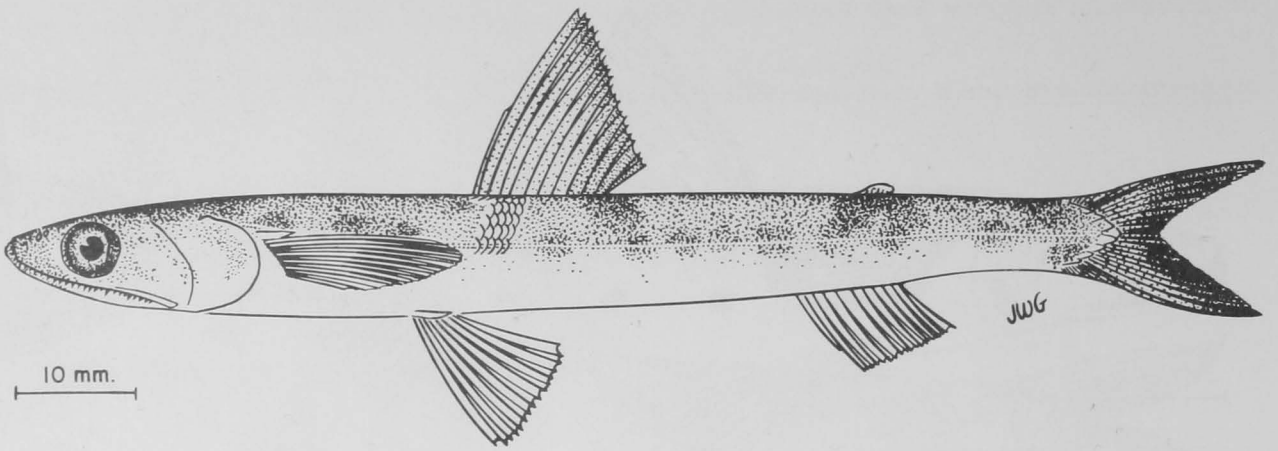


Figure 19.--Saurida caribbaea, adult, 89 mm. standard length.

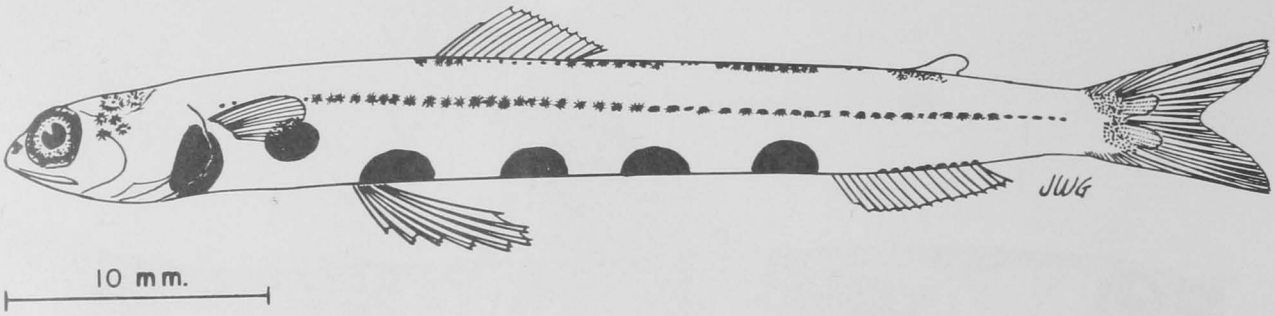


Figure 20.--Trachinocephalus myops, larva, 42.5 mm. standard length.

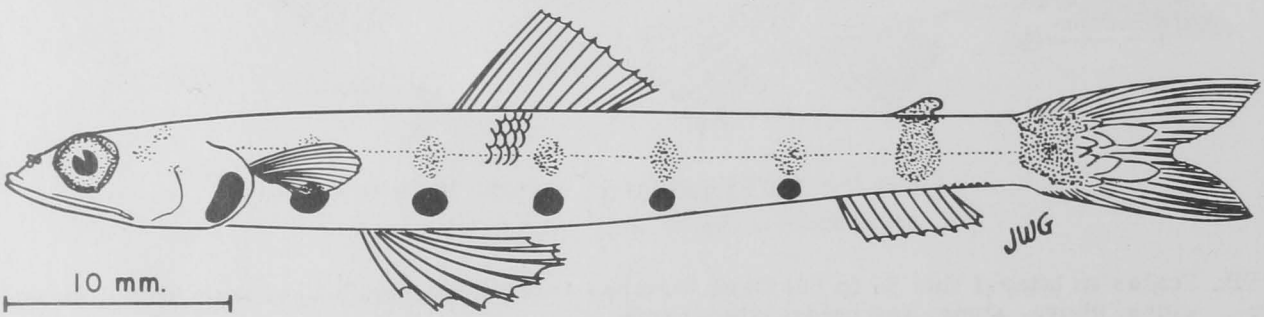


Figure 21.--Synodus saurus, larva, 46 mm. standard length.

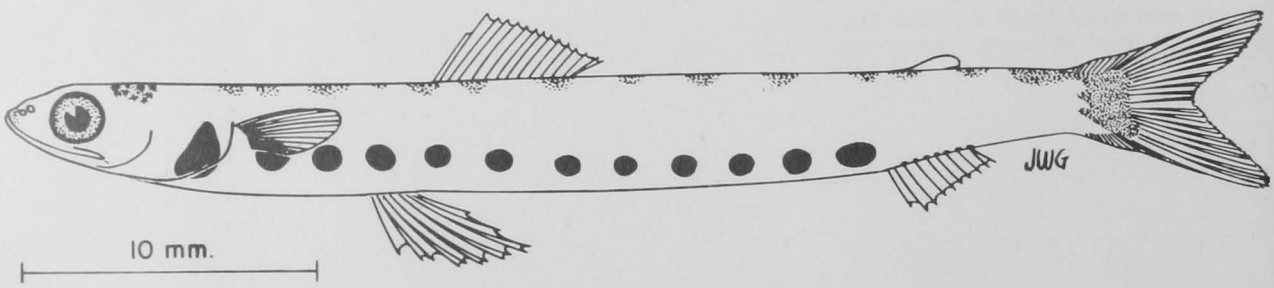


Figure 22.--Synodus synodus, larva, 37 mm. standard length.

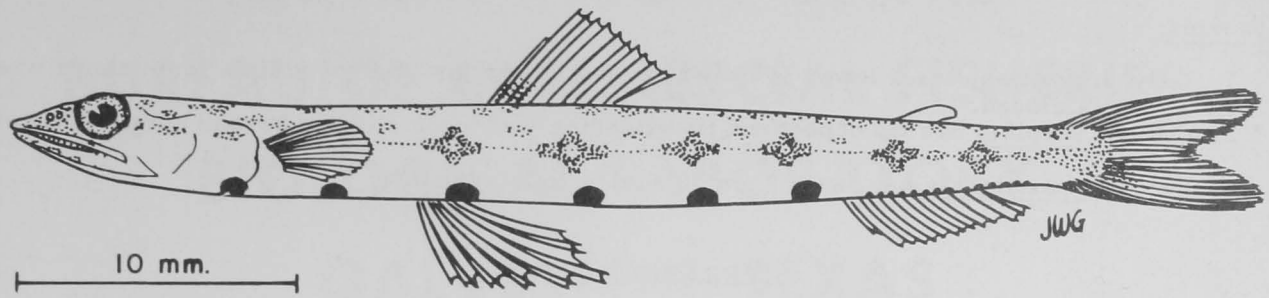


Figure 23.--Synodus foetens, larva, 40 mm. standard length.

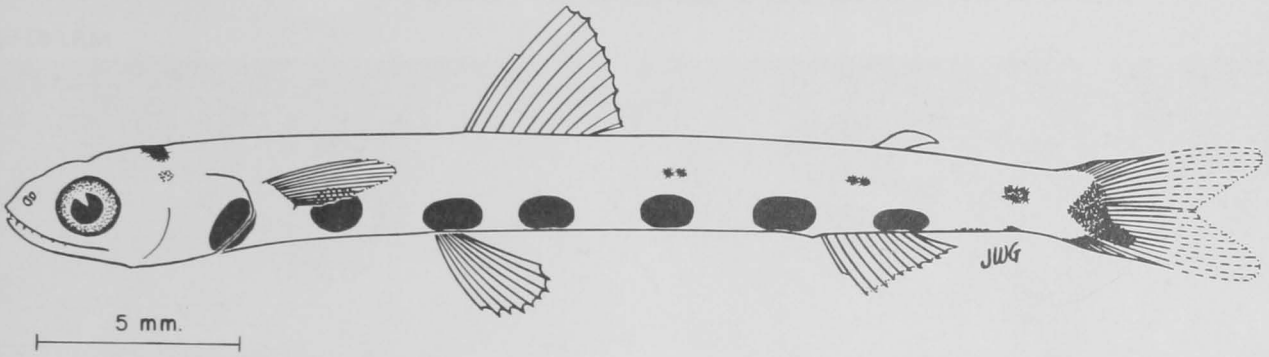


Figure 24.--Saurida suspicio, larva, 27 mm. standard length.

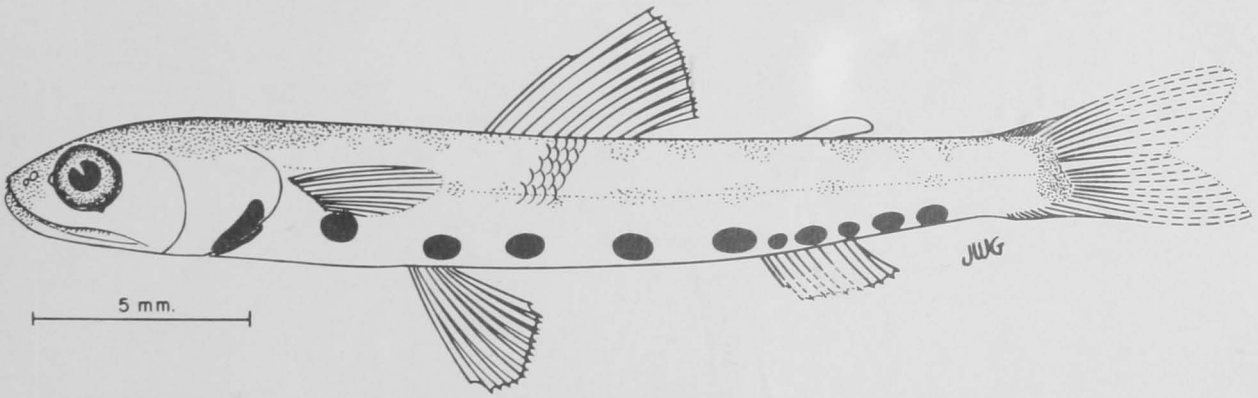


Figure 25.--Saurida brasiliensis, larva, 25 mm. standard length.

Useful characters for field identification (not always evident, especially in small specimens):

Synodus:

1. Only S. poeyi has a fleshy knob at tip of lower jaw.
2. Only S. synodus has a small black spot just behind tip of snout.
3. Only S. intermedius has a black patch on shoulder girdle under gill cover.
4. Only S. foetens has an anal fin base length greater than or at least equal to dorsal base length.

Saurida:

1. Only S. normani has a lower jaw shorter than upper jaw and not visible from above when mouth is closed.
2. Only S. suspicio has tip of pectoral fin extending just to or slightly beyond origin of pelvic fin.
3. Only S. brasiliensis has fewer than 50 scales in lateral line.

## LITERATURE CITED

ANDERSON, WILLIAM W., JACK W. GEHRINGER, AND FREDERICK H. BERRY.
(1966) Family Synodontidae, Lizardfishes. In Yngve H. Olsen and James W. Atz, Editors. Fishes of the Western North Atlantic. Sears Found., Mar. Res., Mem. No. I, pt. 5.

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Saurida:

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2. Only S. suspicio has tip of pectoral fin extending just to or slightly beyond origin of pelvic fin.
3. Only S. brasiliensis has fewer than 50 scales in lateral line.

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