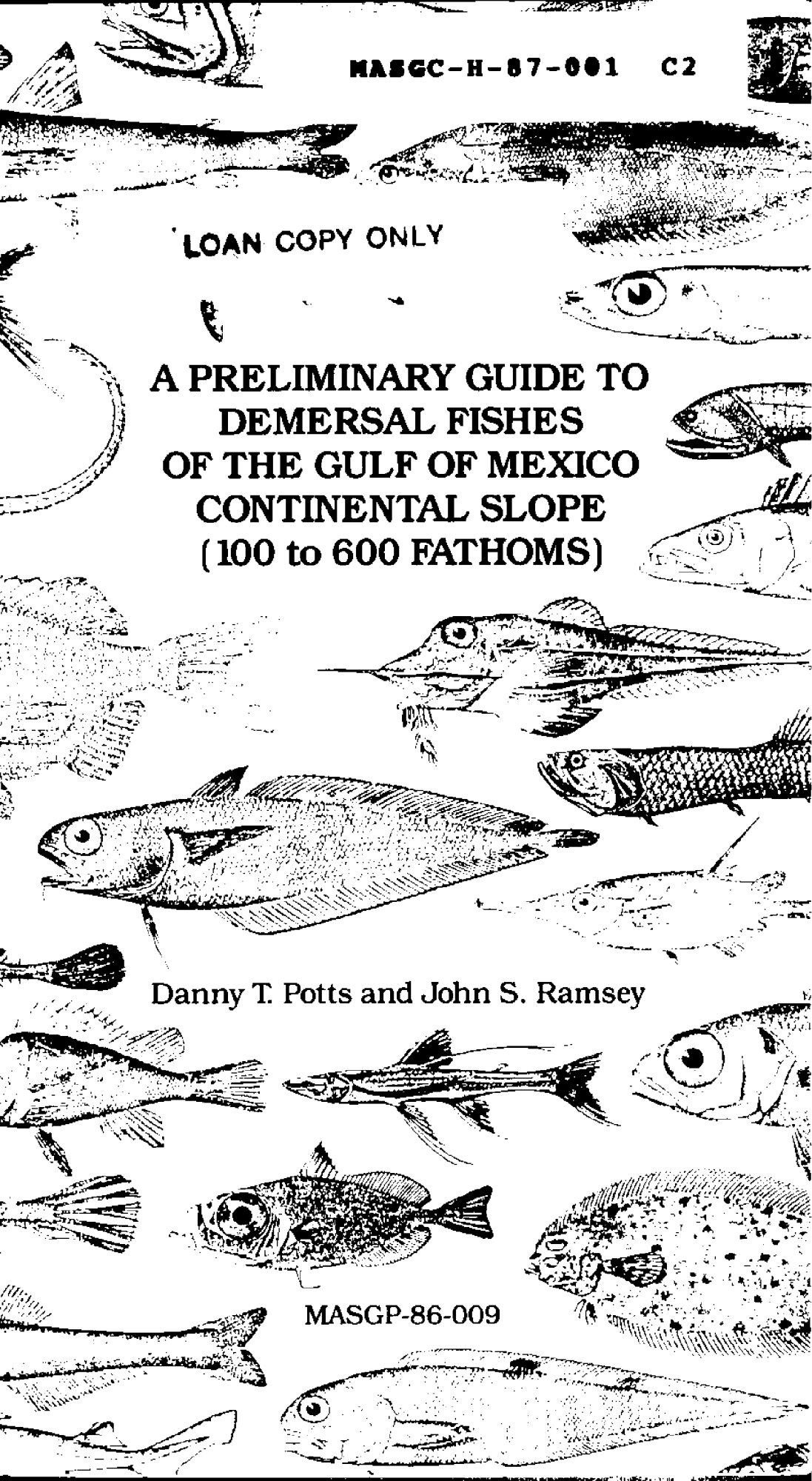


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**A PRELIMINARY GUIDE TO  
DEMERSAL FISHES  
OF THE GULF OF MEXICO  
CONTINENTAL SLOPE  
(100 to 600 FATHOMS)**

Danny T. Potts and John S. Ramsey

MASGP-86-009



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(100 to 600 FATHOMS)**

by

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## PREFACE

Fishery biologists along with commercial and recreational fishermen are exploring and exploiting the deeper waters of the Gulf of Mexico more than ever. However, fishes found in the Gulf waters below 100 fathoms are poorly known and not easily identified. Although there are good fish guides for the inshore waters (*Fishes of the Gulf of Mexico — Texas, Louisiana, and Adjacent Waters* by H.D. Hoese and R. H. Moore and *Fishes of the Northern Gulf of Mexico* by J. G. Walls), there is no readily available, single source of information identifying fish from waters beyond 100 fathoms. Descriptions of many species are scattered in the scientific literature or are contained in books not readily available to the public (e.g., *Oceanic Ichthyology* by G. B. Goode and T. H. Bean or *The Fishes of North and Middle America* by D. S. Jordan and B. W. Evermann). *A Preliminary Guide to Demersal Fishes of the Gulf of Mexico Continental Slope (100 to 600 Fathoms)* is a first step in making this deepwater fish fauna better known to scientists and fishermen who are seeking to expand our renewable marine resources.

— by Richard K. Wallace  
Alabama Sea Grant Extension—Mobile

## ACKNOWLEDGMENTS

Thanks are due Dr. James I. Jones, Director, Mississippi-Alabama Sea Grant Consortium and Dr. Andrew J. Kemmerer, Director, Mississippi Laboratories, National Marine Fisheries Service for providing funds for the publication of this guide. Special thanks are due Dr. William Hosking, Coordinator of Sea Grant Extension, Alabama Cooperative Extension Service for encouragement and enthusiastic support of our endeavors. Dr. E.W. Shell, Head, Department of Fisheries and Allied Aquacultures, Auburn University kindly gave us access to duplicating facilities and supported specimen storage in the Auburn University fish collection. The illustrations were taken from the public domain (mostly by Smithsonian Institution artists); several original errors were corrected by freehand drawing technique, and four figures are original (by DTP).

Our highest appreciation is due Bennie A. Rohr and the staff of the Pascagoula, Mississippi laboratory of the Southeastern Fisheries Center, National Marine Fisheries Service for many courtesies on board the M.R.V. *Oregon II*. They also helped coordinate berths for cooperator time donated by the authors and a dozen Auburn University students on the *Oregon II* since 1977. In addition, the NMFS personnel graciously allowed us to preserve numerous

specimens during ten cruises, all presently deposited at the Auburn University fish collection. We especially appreciate the time and care that Bennie Rohr and Elmer Gutherz took in preparing detailed technical reviews of this contribution, based in good part on their unpublished observations.

The Alabama Cooperative Fish and Wildlife Research Unit is sponsored jointly by the Alabama Agricultural Experiment Station, Auburn University, the Game and Fish Division, Alabama Department of Conservation and Natural Resources, and the U.S. Fish and Wildlife Service.

## INTRODUCTION

This is a pictorial guide to common or representative bottom fishes of the upper Continental Slope of the Gulf of Mexico between 100 and 600 fathoms. It is designed to be used by the beginner, but we hope it also will be useful to others working offshore Gulf waters from Yucatan and along the northwestern and northeastern Slope to Florida. We have concentrated on gathering good drawings from the excellent but unwieldy volumes in the series *Fishes of the Western North Atlantic* (Bigelow et al. 1948-82), bedraggled copies of which can be found on most of the research vessels, as well as the rare and expensive *Oceanic Ichthyology* (Goode and Bean 1896) and more recent contributions scattered in the technical literature. We hasten to emphasize that the guide is nowhere near complete, but should be regarded as a starting place for more detailed work. We are aware of numerous unpublished records of occurrence that presumably will see print soon.

The classification generally follows the "AFS checklist" (Robins et al. 1980) where possible, and is augmented for strictly deepwater families by nomenclature and categories employed by Nelson (1984). Our interpretation was assisted occasionally by reference to various articles compiled in the recent symposium on *Ontog-*

*eny and Systematics of Fishes* (Moser et al. 1984). We have arranged the families so that the most similar ones are placed together for ease in identification. We have not coined any common names, which were taken as used by Robins et al. (1980) and Fitch and Lavenberg (1968).

Most users will find the guide handiest when leafing through the pages trying to locate a figure or series of drawings more or less similar to a fish in hand. More careful scrutiny of such features as fin placement, eye size, and ornamentation will narrow the choices. Finally, the criteria mentioned as "field characters" should allow preliminary identification of most kinds encountered in deep trawl samples. We have tried to limit these characters to color attributes in life and otherwise easily observed diagnostic features. Often the maximum size listed is helpful in eliminating wrong choices, as is the depth distribution. However, as many of the listings are from the literature, there is a great deal of room for improvement in these data.

The scope of this work is not comprehensive for the present. For example, we have eliminated mention of the large, seldom trawled fishes such as the thresher shark (*Alopias vulpinus*), as well as most of the members of strictly mesopelagic families. Even for the groundfishes we have decided not to mention a number of species presently thought to be fairly rare. As an illustration of this, we have discussed only six of the eight bothid flatfishes reported from the Continental Slope by Gutherz (1967). On the



other hand, a few families have been included even if their one or two species in the Gulf are thought to be rare. Moreover, there are many undescribed species.

Several doubtful reports of Shelf species well down the Slope are rejected until more evidence is produced. For instance, we do not include recent deepwater compilations of spot (*Leiostomus xanthurus*) and cutlassfish (*Trichiurus lepturus*), and assume the reports are based on misidentification or erroneous depth data. On the other hand, one of the benefits of publishing a first attempt at a regional handbook is that it soon goes out of date, owing to new comparative awareness of distributional limits by users. We hope that selective preservation of specimens now will enable more nearly accurate compilations to be made. As it stands, we have tried to be cautious in citing depth records compiled by Springer and Bullis (1956), Bullis and Thompson (1965), and Bullis and Struhsaker (1965). Other valuable data were found in Bright (1968) and Rohr and Gutherz (1977).

Unless a specific reference is mentioned for each family, it will be assumed that further data can be found in Goode and Bean (1896) or Jordan and Evermann (1896-1900) for deepwater fishes and in guides by Walls (1975), Hoese and Moore (1977), Murdy (1983) and Shipp (1986) for fishes of the Continental Shelf (ranging shallower than 100 fathoms). Anatomical guides and extensive glossaries also may be found in these sources. We have included the date of publication after each species name, but have not listed the descriptions otherwise in the lit-

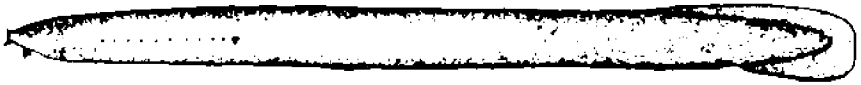
erature cited section at the end of this guide. Those interested in looking up more information on the family or genus involved should note the most recent description, then find the appropriate article by referring to author indexes in the *Zoological Record* (1864 et seq.), *Sport Fishery Abstracts* (1956-85; later *Fisheries Review*, 1986 et seq.), and *Current References in Fish Research* (1976 et seq.). Others may have access to the valuable bibliographic reference for North American fishes by Jordan et al. (1930).

(Note: Since this guide was completed *A Field Guide to Atlantic Coast Fishes of North America* by C.R. Robins and G. C. Ray was published by Houghton Mifflin Company, Boston. A great deal of useful information on Continental Shelf species primarily was presented, often including limits of depth distribution. Moreover, we became aware that National Marine Fisheries Service biologist B. A. Rohr and others are preparing guides to specific groups and assemblages at various depths in the Gulf of Mexico. Although they very kindly offered to share these with us, we will not attempt to anticipate the extensive data they plan to publish.)

MYXINIFORMES

**MYXINIDAE** (hagfishes)

Reference: Fernholm 1982.



***Eptatretus minor*** Fernholm and Hubbs 1981  
(not illustrated)

FIELD CHARACTERS: 74-82 slime pores; thin whitish middorsal stripe.

DEPTH RANGE: 150-200 fms.

MAXIMUM SIZE: to 40 cm.

***Eptatretus springeri*** (Bigelow and Schroeder 1952)

Gulf hagfish (not illustrated)

FIELD CHARACTERS: 84-92 slime pores; no thin whitish middorsal stripe.

DEPTH RANGE: 200-400 fms.

MAXIMUM SIZE: to 59 cm.

## LAMNIFORMES

### SCYLIORHINIDAE (catsharks)

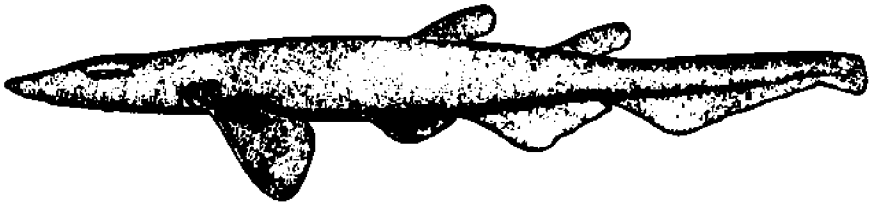
Reference: Castro 1983.

#### *Apristurus laurussoni* (Saemundsson 1922)

FIELD CHARACTERS: First and second dorsal fins same size, the first located over the pelvics; no pores on the ventral side of the snout.

DEPTH RANGE: 500-800 fms.

MAXIMUM SIZE: to 65 cm.

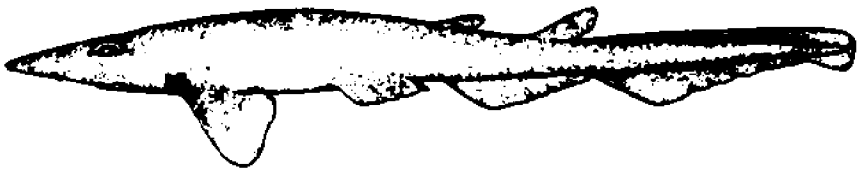


#### *Apristurus parvipinnis* Springer and Heemstra 1979

FIELD CHARACTERS: First dorsal fin smaller than the second and located behind the pelvics; 8-9 rows of conspicuous pores along ventral side of the snout.

DEPTH RANGE: 350-600 fms.

MAXIMUM SIZE: to 50 cm.

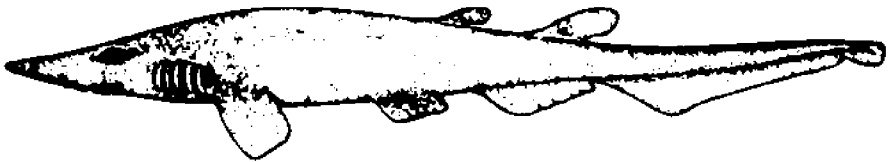


***Apristurus riveri*** Bigelow and Schroeder 1944

FIELD CHARACTERS: First dorsal fin smaller than the second and located behind the pelvics; 4 rows of conspicuous pores along the ventral side of the snout.

DEPTH RANGE: 350-600 fms.

MAXIMUM SIZE: to 48 cm.

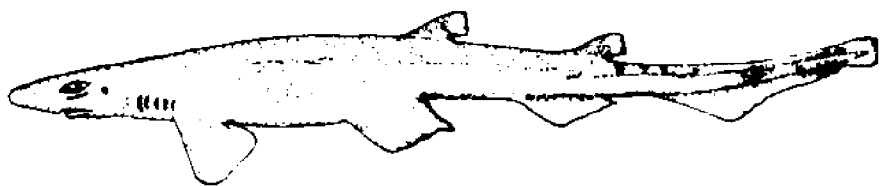


***Galeus arae*** (Nichols 1927)  
marbled catshark

FIELD CHARACTERS: Color yellowish brown with striking pattern of dark blotches along back and sides of body; enlarged dermal denticles on the tail.

DEPTH RANGE: 140-400 fms.

MAXIMUM SIZE: to 40 cm.

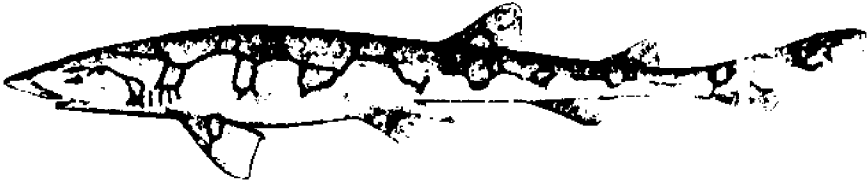


***Scyliorhinus retifer* (Garman 1880)**  
chain dogfish

FIELD CHARACTERS: Color reddish brown above, yellowish below with a reticulated or chainlike pattern over most of the body; dermal denticles not enlarged on the tail.

DEPTH RANGE: 100-250 fms.

MAXIMUM SIZE: to 47 cm.



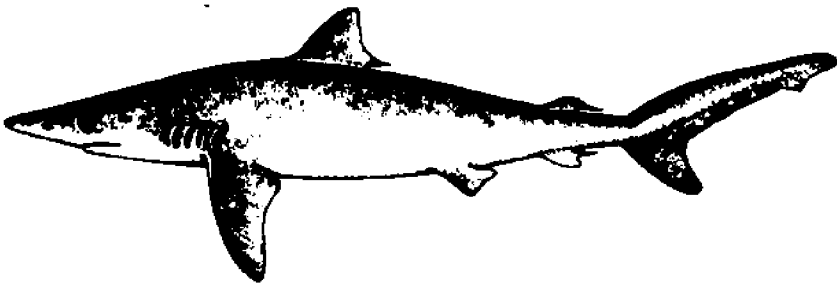
**CARCHARHINIDAE (requiem sharks)**

***Carcharinus signatus* (Poey 1868)**  
night shark

FIELD CHARACTERS: Large green eyes, upper teeth with increasingly oblique cusps with a pronounced notch on their outer margins and 2-5 coarse serrations from notch to base.

DEPTH RANGE: 100-200 fms.

MAXIMUM SIZE: to 280 cm.



## SQUALIFORMES

### **SQUALIDAE** (dogfish sharks)

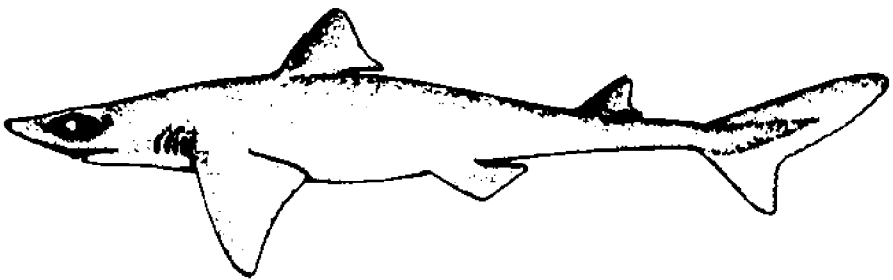
Reference: Castro 1983.

#### ***Squalus blainvillei*** (Risso 1826)

**FIELD CHARACTERS:** Pectoral fins with rounded free rear tips; dermal denticles broad and three-pointed with a strong central ridge; tips of dorsal fins not black.

**DEPTH RANGE:** 180-400 fms.

**MAXIMUM SIZE:** to 100 cm.



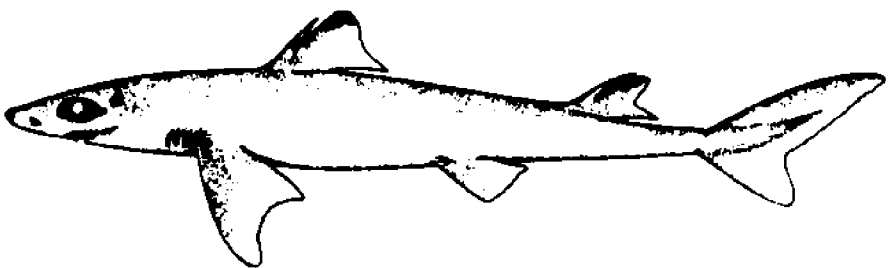
#### ***Squalus cubensis*** Howell Rivero 1936

Cuban dogfish

**FIELD CHARACTERS:** Pectoral fins with pointed free rear tips; dermal denticles lanceolate with a strong central ridge; tips of both dorsal fins black.

**DEPTH RANGE:** 65-310 fms.

**MAXIMUM SIZE:** to 110 cm.

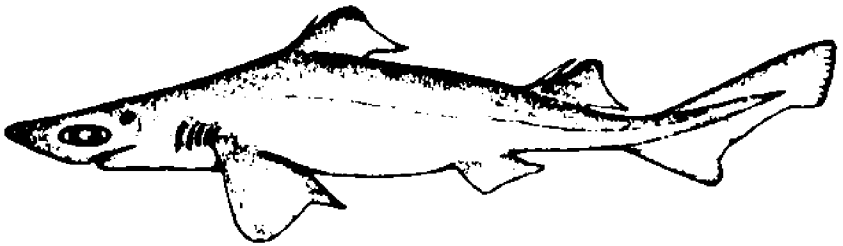


***Centrophorus uyato* (Rafinesque 1810)**

**FIELD CHARACTERS:** Pectoral fins with long pointed free rear tips; dermal denticles ovoid, narrowing rearward to a point; tips of both dorsal fins black.

**DEPTH RANGE:** 100-500 fms.

**MAXIMUM SIZE:** to 98 cm.

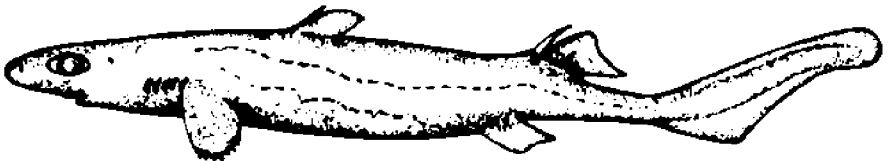


***Etmopterus schultzi* Bigelow, Schroeder and Springer 1953**  
fuzzy dogfish

**FIELD CHARACTERS:** Pectoral fins with a broad fringe of naked, hornlike rays; dermal denticles long and strongly recurved, giving a bristly appearance; color dark sooty gray above, black below.

**DEPTH RANGE:** 210-400 fms.

**MAXIMUM SIZE:** to 27 cm.



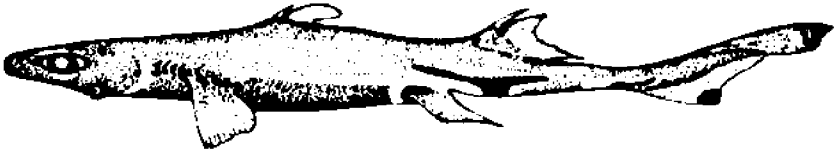


***Etmopterus virens*** Bigelow, Schroeder and Springer 1953  
green-bellied dogfish

FIELD CHARACTERS: Pectoral fins normal; dermal denticles short and thornlike; color sooty black or brown above, bright iridescent green below.

DEPTH RANGE: 190-310 fms.

MAXIMUM SIZE: to 25 cm.



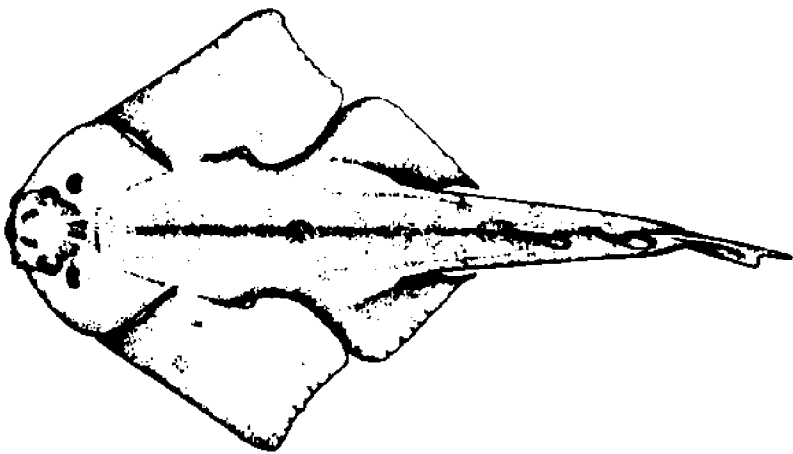
## **SQUATINIDAE (Angel Sharks)**

***Squatina dumerili*** Lesueur 1817  
Atlantic angel shark

FIELD CHARACTERS: Flattened body; terminal mouth; eyes on top of head; greatly expanded pectoral fins, separate from head.

DEPTH RANGE: 20-175 fms.

MAXIMUM SIZE: to 155 cm.



## RAJIFORMES

### TORPEDINIDAE (Electric Rays)

Reference: Bigelow and Schroeder 1953.

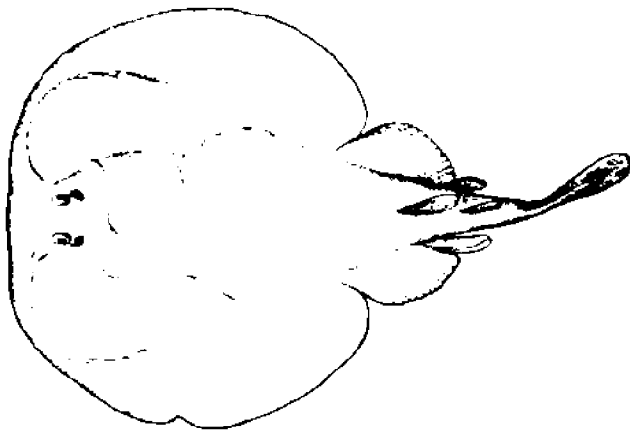
#### *Torpedo nobiliana* Bonaparte 1835

Atlantic torpedo

FIELD CHARACTERS: Broad subcircular disc; short snout anterior to the eyes; perfectly smooth skin; short thick tail.

DEPTH RANGE: 5 to 210 fms.

MAXIMUM SIZE: to 125 cm.



**RAJIDAE** (skates)

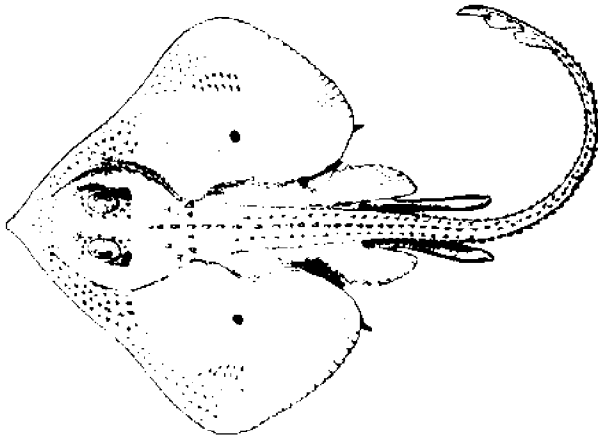
Reference: McEachran and Compagno 1982.

***Breviraja sinusmexicana*** (Bigelow and Schroeder 1950)  
speckled skate

**FIELD CHARACTERS:** Most of upper surface of disc with small, sharp, movable, darkly pigmented spines; midrow of thorns on tail and back continuous with patch of thorns behind eyes.

**DEPTH RANGE:** 170-350 fms.

**MAXIMUM SIZE:** to 38 cm.

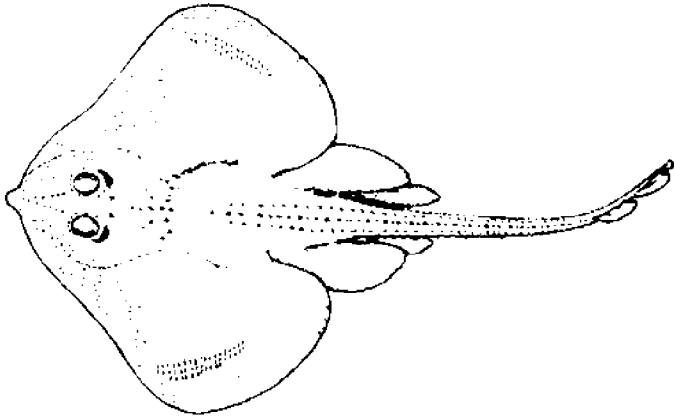


***Raja lentiginosa* Bigelow and Schroeder 1951**  
freckled skate

**FIELD CHARACTERS:** Prickles and small thorns present over anterior third of disc, in front of nuchal region only; midrow of thorns on tail and back ending short of the patch of thorns behind the eyes.

**DEPTH RANGE:** 30-300 fms.

**MAXIMUM SIZE:** to 42 cm.

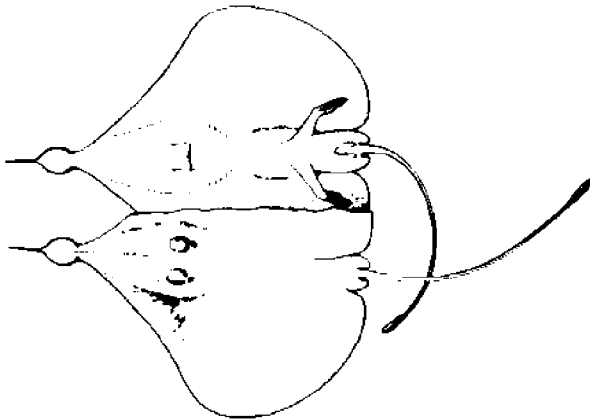


***Springeria folirostris* Bigelow and Schroeder 1951**

**FIELD CHARACTERS:** Upper surface of disc perfectly naked; peculiar leaflike expansion at the end of an extended snout.

**DEPTH RANGE:** 180-260 fms.

**MAXIMUM SIZE:** to 65 cm.



## CHIMAERIFORMES

### CHIMAERIDAE (chimaeras)

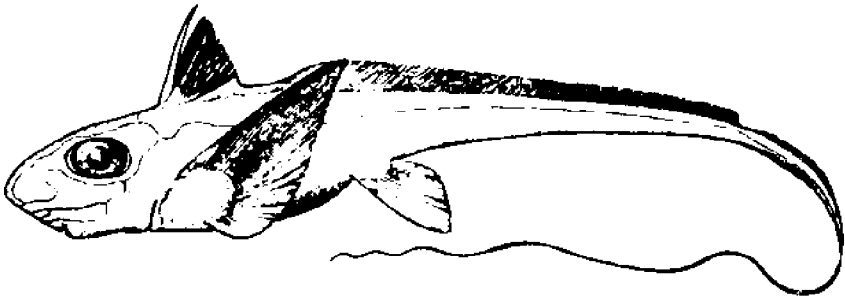
Reference: Bigelow and Schroeder 1953.

#### *Hydrolagus alberti* Bigelow and Schroeder 1951

FIELD CHARACTERS: Color dark brownish everywhere, fins somewhat darker; long caudal filament; diameter of eye almost as long as snout.

DEPTH RANGE: 140-600 fms. (replaced by other species on deeper parts of Slope).

MAXIMUM SIZE: to 30 cm.



## NOTACANTHIFORMES

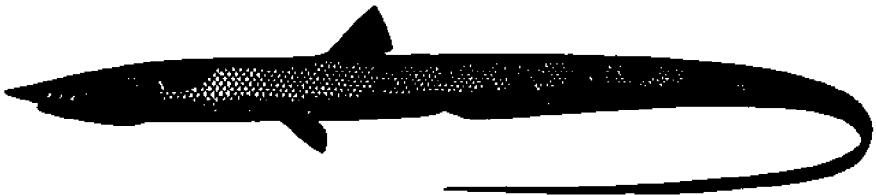
### HALOSAURIDAE (halosaurs)

#### *Aldrovandia gracilis* Goode and Bean 1896

FIELD CHARACTERS: Pelvic fin insertion well in advance of dorsal fin insertion; lateral line pigmented, consisting of large discoid plaques, maxillary spine short and sharp.

DEPTH RANGE: 600-1100 fms.

MAXIMUM SIZE: to 24 cm.

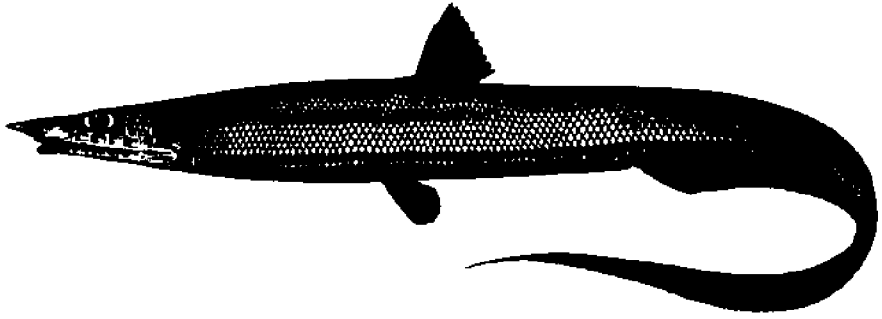


***Halosaurus guentheri* Goode and Bean 1896**

FIELD CHARACTERS: Pelvic fin insertion in advance of the dorsal fin origin; sides of body tannish without silvery reflections; maxillary spine large; body cylindrical.

DEPTH RANGE: 355-625 fms.

MAXIMUM SIZE: to 24 cm.

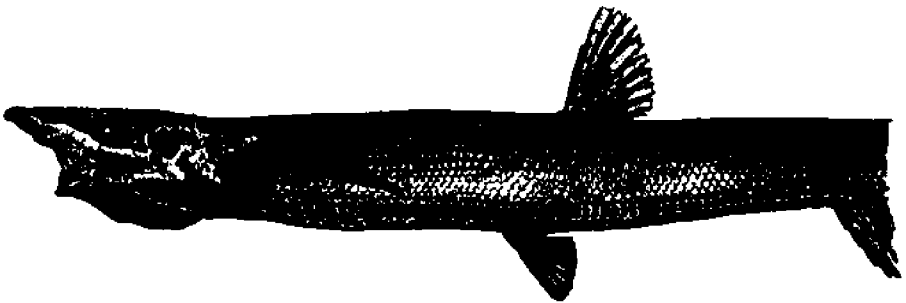


***Halosaurus oveni* Johnson 1863**

FIELD CHARACTERS: Pelvic fin insertion in advance of dorsal fin origin; sides of body pinkish with a silvery reflection; maxillary spine large; body compressed.

DEPTH RANGE: 240-400 fms.

MAXIMUM SIZE: to 18 cm.



## **NOTACANTHIDAE** (spiny eels)

*Notacanthus chemnitzii* Bloch 1788

spiny eel

FIELD CHARACTERS: Pale bluish gray body color, but pale pinkish in young, dark brown in large adults; 9-11 dorsal spines.

DEPTH RANGE: 250-496 fms.

MAXIMUM SIZE: to 20 cm.



## ANGUILLIFORMES

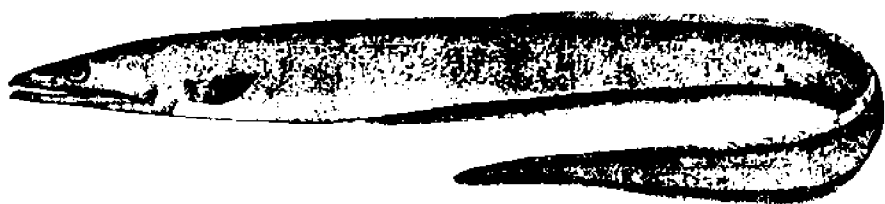
### **SYNAPHOBRANCHIDAE** (cutthroat eels)

*Synaphobranchus oregoni* Castle 1960

FIELD CHARACTERS: Dorsal fin beginning far behind origin of anal fin.

DEPTH RANGE: 250-750 fms.

MAXIMUM SIZE: to 70 cm.



***Ilyophis brunneus* Gilbert 1891**

FIELD CHARACTERS: Dorsal beginning just behind the pectoral fin; eye near angle of mouth; lateral line with conspicuous white pores.

DEPTH RANGE: 350-600 fms.

MAXIMUM SIZE: to 65 cm.



**NETTASTOMATIDAE (duckbill eels)**

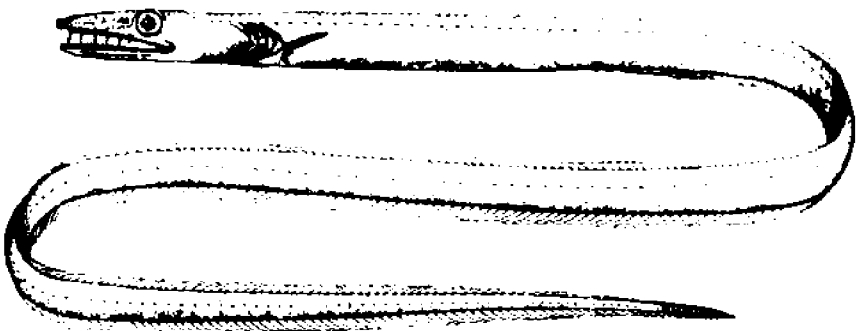
Reference: Lane and Stewart 1968.

***Hoplunnis diomedianus* Goode and Bean 1896**  
blacktail pike-conger

FIELD CHARACTERS: Visceral peritoneum black; three rows of vomerine teeth, teeth in lateral rows movable, concealed by flesh of mouth, median vomerine teeth V-shaped.

DEPTH RANGE: 55-110 fms.

MAXIMUM SIZE: to 43 cm.





***Hoplunnis tenuis* Ginsburg 1951**

spotted pike-conger (not illustrated)

FIELD CHARACTERS: Visceral peritoneum black; three rows of vomerine teeth, teeth in lateral rows firmly attached, not concealed by flesh of mouth, median vomerine teeth V-shaped.

DEPTH RANGE: 95-240 fms.

MAXIMUM SIZE: 52 cm.

***Hoplunnis macrurus* Ginsburg 1951**

freckled pike-conger (not illustrated)

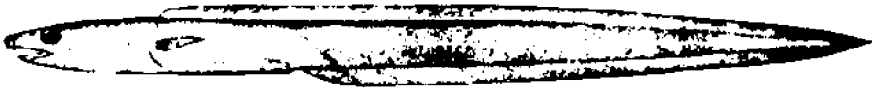
FIELD CHARACTERS: Visceral peritoneum colorless; one row of vomerine teeth, midline only, teeth lanceolate.

DEPTH RANGE: 15-120 fms.

MAXIMUM SIZE: to 48 cm.

**CONGRIDAE (conger eels)**

Reference: Smith and Kanazawa 1977.



***Rhechias bullisi* Smith and Kanazawa 1977**

(not illustrated)

FIELD CHARACTERS: Dorsal origin just behind level of pectoral fin, preanal distance ca. 35% of total length; 33-38 lateral-line pores; posterior part of body tapering bluntly; stomach pale.

DEPTH RANGE: 30-300 fms.

MAXIMUM SIZE: to 51 cm.

***Gnathophis bathytopos* Smith and Kanazawa  
1977**

blackgut conger (not illustrated)

FIELD CHARACTERS: Dorsal origin just behind level of pectoral fin; preanal distance ca. 36% of total length, about twice predorsal length; 26-31 lateral-line pores; posterior part of body tapering bluntly; stomach black.

DEPTH RANGE: 95-200 fms.

MAXIMUM SIZE: to 35 cm.

***Hildebrandia gracilior* (Ginsburg 1951)**  
whiptail conger (not illustrated)

FIELD CHARACTERS: Dorsal origin just behind level of pectoral fin; preanal distance ca. 30% of total length; 33 lateral-line pores; posterior part of body tapering to an almost hairlike filament.

DEPTH RANGE: 80-120 fms.

MAXIMUM SIZE: to 20 cm.

**SALMONIFORMES**

**ARGENTINIDAE (argentines)**

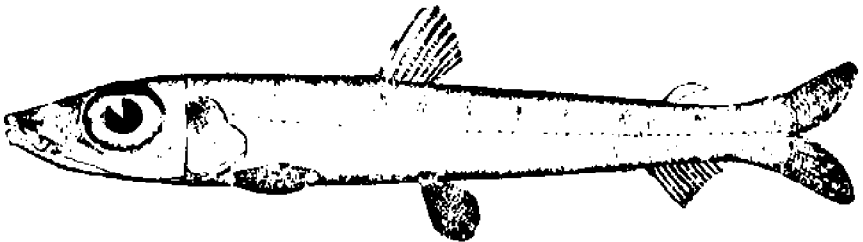
Reference: Cohen 1964; Cohen and Atsuides 1970.

***Argentina striata* Goode and Bean 1896**  
striated argentine

FIELD CHARACTERS: Scales smooth and deciduous; anus immediately anterior to the anal fin; maxillary less than half as long as snout.

DEPTH RANGE: 52-250 fms.

MAXIMUM SIZE: to 19 cm.



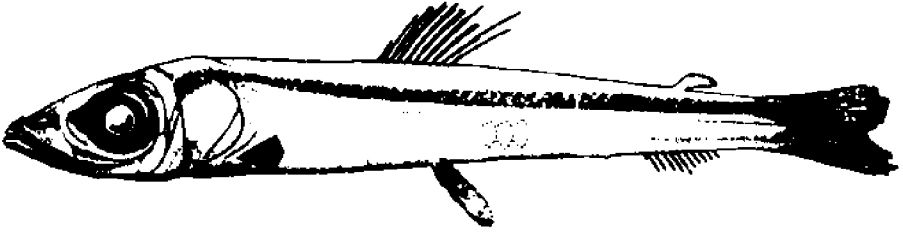
***Glossanodon pygmaeus* Cohen 1958**

Pygmy argentine

FIELD CHARACTERS: Scales smooth and deciduous; anus some distance anterior to the anal fin; maxillary almost as long as snout.

DEPTH RANGE: 50-250 fms.

MAXIMUM SIZE: to 11 cm.



**BATHYLAGIDAE (deepsea smelts)**

Reference: Cohen 1964.

***Bathylagus bericoides* (Borodin 1929)**

FIELD CHARACTERS: Snout very short; darkly pigmented scale pockets; gill openings small, not extending halfway up the side of body; scales deciduous.

DEPTH RANGE: surface-800 fms.

MAXIMUM SIZE: to 18 cm.



***Bathylagus longirostris* Maul 1948**

FIELD CHARACTERS: Snout almost as long as diameter of eye; gill openings large, reaching more than halfway up the side of body; scales deciduous.

DEPTH RANGE: surface-780 fms.

MAXIMUM SIZE: to 15 cm.

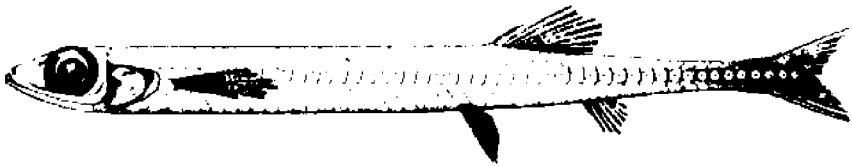


***Microstoma microstoma* (Risso 1810)**

FIELD CHARACTERS: Maxillary very short; lateral-line scales wider and more adherent than other scales; anus immediately anterior to anal fin; color mostly silvery with darkened opercles and caudal peduncle.

DEPTH RANGE:

MAXIMUM SIZE: to 20 cm.



## **ALEPOCEPHALIDAE (slickheads)**

References: Sulak 1975; Markle 1978.

### ***Xenodermichthys copei* (Gill 1884)**

Atlantic gymnast

**FIELD CHARACTERS:** Color uniformly deep blackish violet; skin naked, smooth and slimy; dorsal and anal fins of equal size; maxillary not reaching middle of eye.

**DEPTH RANGE:** 400-600 fms.

**MAXIMUM SIZE:** to 8 cm.

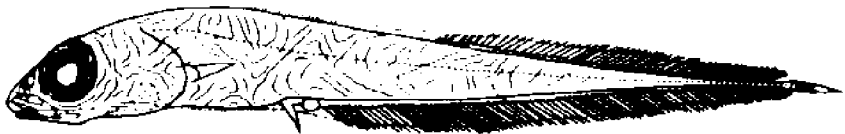


### ***Leptoderma macrops* Vaillant 1892**

**FIELD CHARACTERS:** Color uniformly velvety black; skin smooth, naked, very loose and fragile; dorsal fin shorter than anal fin; maxillary not reaching the eye; caudal fin minute.

**DEPTH RANGE:** 300-1200 fms.

**MAXIMUM SIZE:**

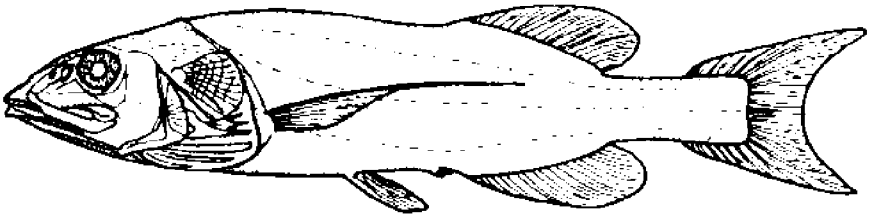


***Talismania oregoni* Parr 1952**

FIELD CHARACTERS: Color brownish black; scales large with a point posteriorly; dorsal and anal fins of equal size; teeth in jaws long, closely-set and fixed; vomer with 4-5 strong teeth.

DEPTH RANGE: 300-600 fms.

MAXIMUM SIZE: to 26 cm.



STOMIIFORMES

**STERNOPTYCHIDAE** (marine hatchetfishes)

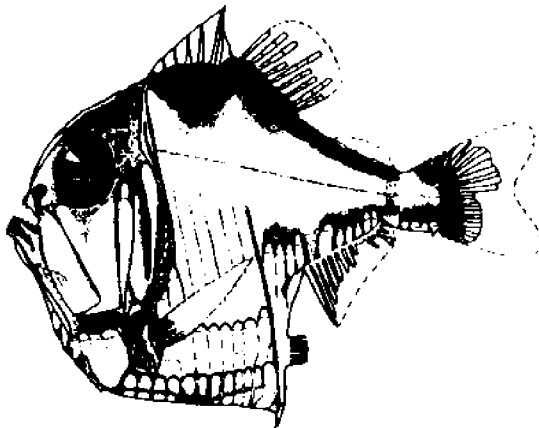
Reference: Baird 1971.

***Argyropelecus amabilis* (Ogilby 1888)**

FIELD CHARACTERS: Dorsal blade present and separated from dorsal fin; maxillary large; body almost as deep as long.

DEPTH RANGE: 200-550 fms.

MAXIMUM SIZE: to 4 cm. (note: *A. gigas*, a larger species, also is taken).

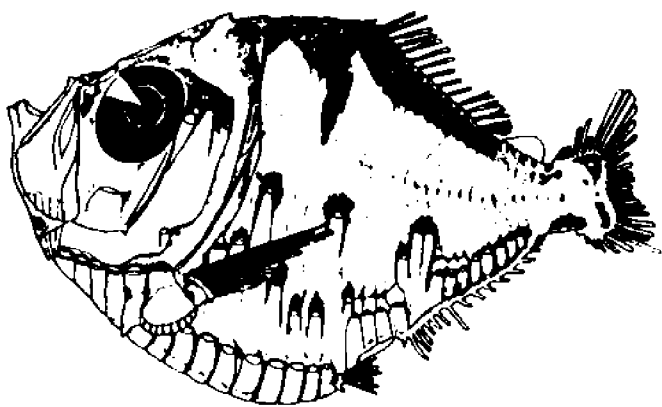


***Polyipnus asteroides* Schultz 1938**  
star hatchetfish

FIELD CHARACTERS: Dorsal blade not present;  
maxillary large; body longer than deep.

DEPTH RANGE: 200-600 fms.

MAXIMUM SIZE: to 7 cm.

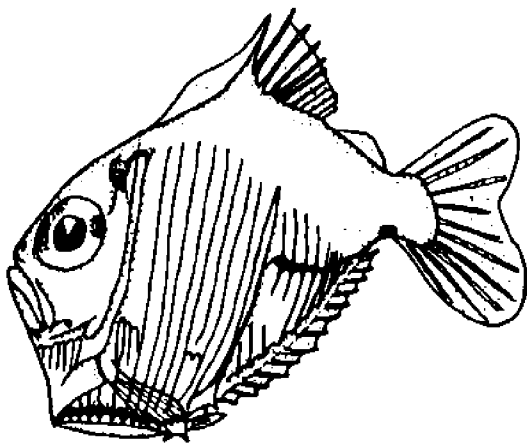


***Sternoptyx diaphana* Hermann 1781**  
oblique hatchetfish

FIELD CHARACTERS: Dorsal blade present and  
continuous with the dorsal fin; maxillary  
small; body almost as deep as long.

DEPTH RANGE: 100-500 fms.

MAXIMUM SIZE: to 5 cm.

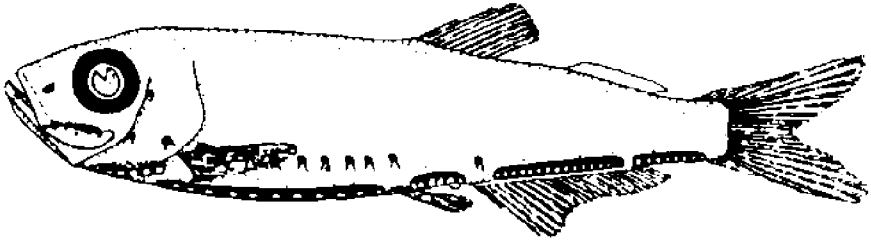


***Maurolicus muelleri* (Gmelin 1788)**

FIELD CHARACTERS: Adipose fin long and low; size small; tail not slender; length of snout about equal to diameter of eye; color silvery; photophores hatchetfish-like.

DEPTH RANGE: surface-600 fms.

MAXIMUM SIZE: to 8 cm.



**PHOTICHTHYIDAE (lightfishes)**

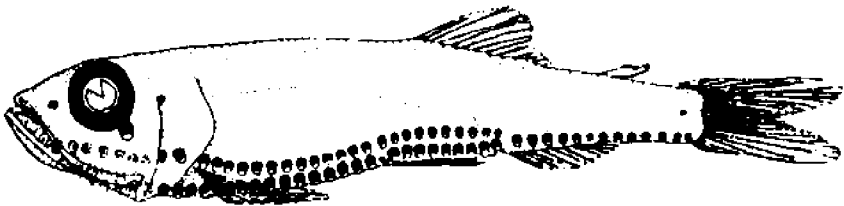
Reference: Grey 1964.

***Vinciguerria poweriae* (Cocco 1838)**

FIELD CHARACTERS: Adipose fin present; length of snout equal to the diameter of the eye; two rows of conspicuous photophores along belly; small size; tail not slender; anal fin short, beginning behind middle of dorsal fin base.

DEPTH RANGE: 50-300 fms.

MAXIMUM SIZE: to 4 cm.



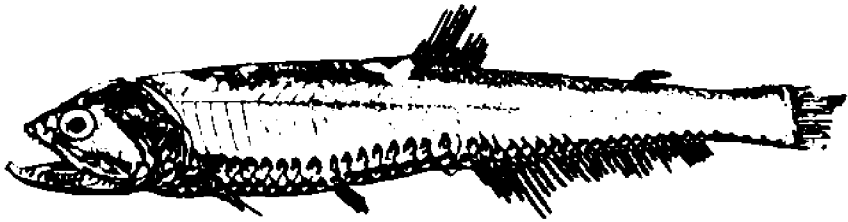


***Polymetme corythaeola* (Alcock 1898)**

FIELD CHARACTERS: Adipose fin present; length of snout equal to diameter of eye; two rows of conspicuous photophores along belly; skin rarely lost; size large.

DEPTH RANGE: 150-320 fms.

MAXIMUM SIZE: to 26 cm.

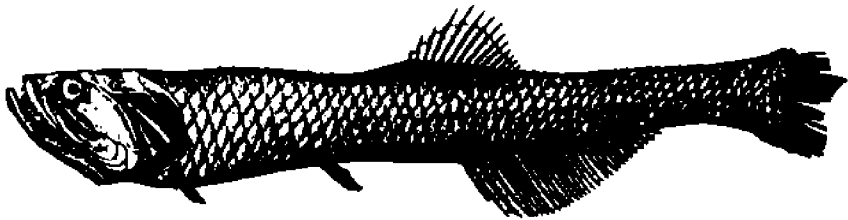


***Yarrella blackfordi* Goode and Bean 1896**

FIELD CHARACTERS: Adipose fin absent; length of snout much greater than diameter of eye; photophores small and scattered, usually lost; scales deciduous, skin very fragile and usually entirely lost; size large.

DEPTH RANGE: 250-350 fms.

MAXIMUM SIZE: to 32 cm.

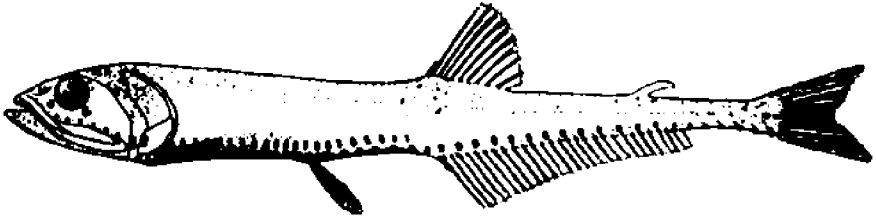


***Pollichthys maui* (Poll 1953)**

FIELD CHARACTERS: Adipose fin present; small size; slender tail; length of snout greater than diameter of eye; two rows of photophores along belly; anal fin long, beginning beneath dorsal fin insertion; color light.

DEPTH RANGE: 55-500 fms.

MAXIMUM SIZE: to 6 cm.

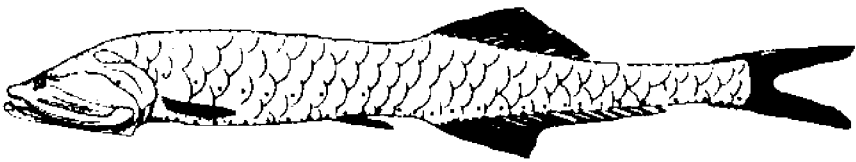


***Cyclothone microdon* (Günther 1878)**

FIELD CHARACTERS: Adipose fin absent; small size; slender tail; length of snout greater than diameter of eye; two rows of photophores along belly; anal fin long, beginning beneath dorsal fin insertion; color black to brownish-black.

DEPTH RANGE: 150-1100 fms.

MAXIMUM SIZE: to 8 cm.



## GONOSTOMATIDAE (bristlemouths)

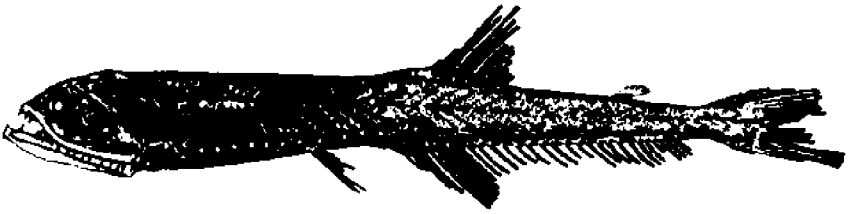
Reference: Grey 1964.

### *Gonostoma elongatum* Günther 1878

FIELD CHARACTERS: Adipose fin present; color black; larger size; slender tail; length of snout about equal to diameter of eye; two rows of photophores along belly; anal fin long, beginning anterior to dorsal fin origin.

DEPTH RANGE: 100-800 fms.

MAXIMUM SIZE: to 28 cm.



## CHAULIODONTIDAE (viperfishes)

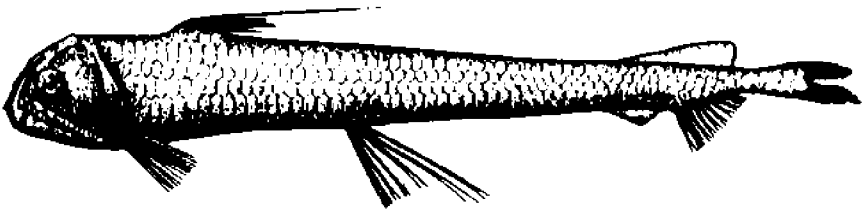
Reference: Morrow 1964.

### *Chauliodus sloani* Bloch and Schneider 1801 deepsea viperfish

FIELD CHARACTERS: Color dark brownish to black; dorsal fin with a long filament; teeth large, especially the lower canines; chin barbel absent; size large.

DEPTH RANGE: 200-900 fms.

MAXIMUM SIZE: to 28 cm.



## **ASTRONESTHIDAE** (snaggletooths)

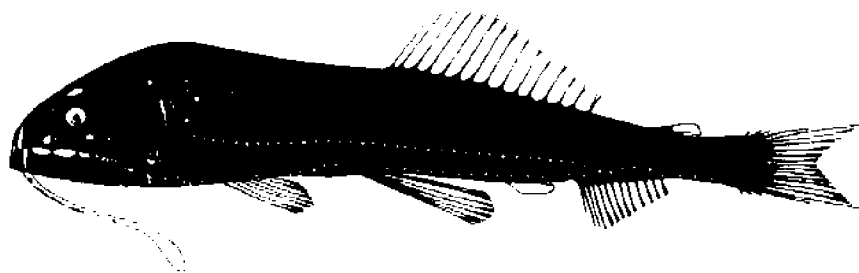
Reference: Gibbs 1964.

### ***Astronesthes niger*** Richardson 1844

FIELD CHARACTERS: Color black; larger teeth with barbs; chin barbel with small end; size small.

DEPTH RANGE: 125-800 fms.

MAXIMUM SIZE: to 6 cm



## **MELANOSTOMIIDAE** (scaleless dragonfishes)

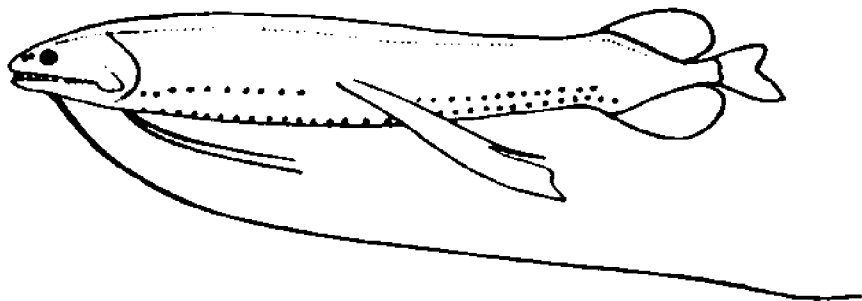
Reference: Morrow and Gibbs 1964.

### ***Bathophilis pawneeii*** Parr 1927

FIELD CHARACTERS: Pectoral fin composed of only two rays; chin barbel slender, very long if not broken; ventral groove for chin barbel; color dark brown to purplish black; no large postorbital light organ.

DEPTH RANGE: 65-1400 fms. (not over Shelf).

MAXIMUM SIZE: to 12 cm

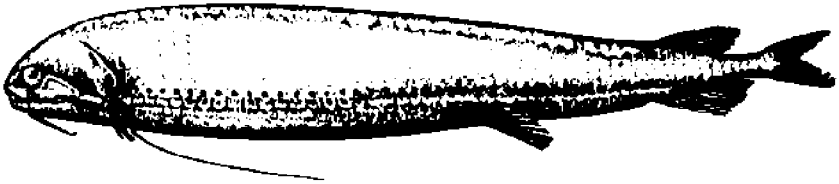


***Echiostoma barbatum* Lowe 1843**

FIELD CHARACTERS: Pectoral fin composed of more than two rays, the last being very long; chin barbel shorter than head; color dark brown to purplish black; large triangular postorbital light organ, pinkish anteriorly, silvery white posteriorly.

DEPTH RANGE: surface-950 fms.

MAXIMUM SIZE: to 32 cm.

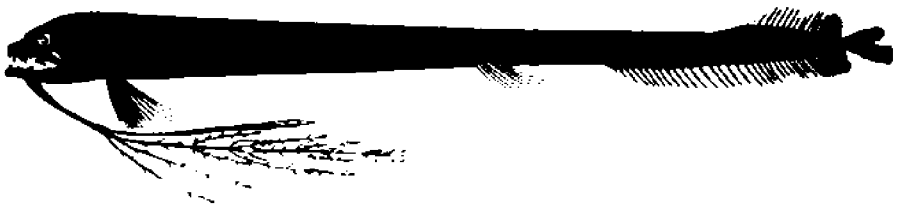
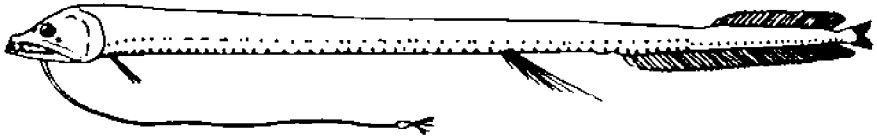


***Eustomias* species (2 shown out of many)**

FIELD CHARACTERS: Anal fin much longer than dorsal; chin barbel varies in branching and in length. So far 8 species noted in Gulf of Mexico by Gibbs et al. (1983) and Gomon and Gibbs (1985); all are mesopelagic forms taken incidentally in bottom hauls.

DEPTH RANGE: 25-1000 fms (not over Shelf).

MAXIMUM SIZE: to 23 cm.



## MALACOSTEIDAE (loosejaws)

Reference: Morrow 1964.

### *Photostomias quernei* Collett 1889

FIELD CHARACTERS: Pectoral fins and chin barbel absent; color black; postorbital light organ pink or reddish; snout shorter than eye.

DEPTH RANGE: surface-1500 fms.

MAXIMUM SIZE: to 16 cm.



## MYCTOPHIFORMES

### CHLOROPHTHALMIDAE (greeneyes)

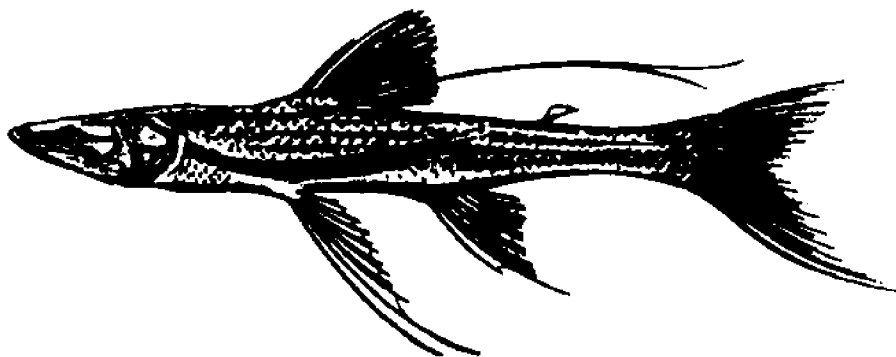
Reference: Mead 1966.

### *Bathypterois bigelowi* Mead 1959

FIELD CHARACTERS: Pectoral fin divided with uppermost ray notably thicker, longer and divided posterior to the dorsal fin; adipose fin present; black spot in the fork of caudal fin; lining of mouth black.

DEPTH RANGE: 260-400 fms.

MAXIMUM SIZE: to 13 cm.

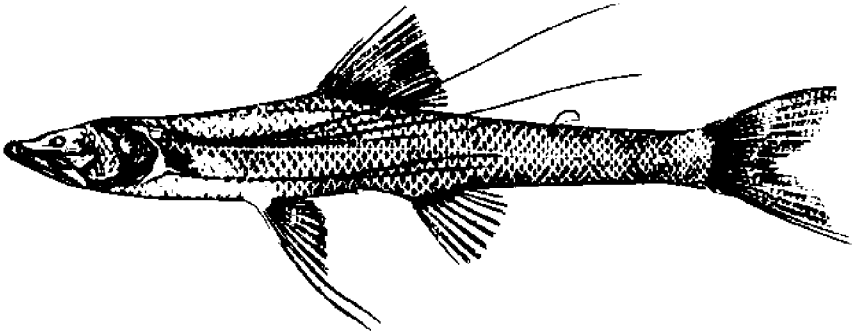


***Bathypterois quadrifilis* Günther 1878**

**FIELD CHARACTERS:** Pectoral fin divided with uppermost ray notably thicker, longer and divided anterior to the dorsal fin; adipose fin present; color mostly black; the scale pockets with white borders.

**DEPTH RANGE:** 470-665 fms.

**MAXIMUM SIZE:** to 15 cm.

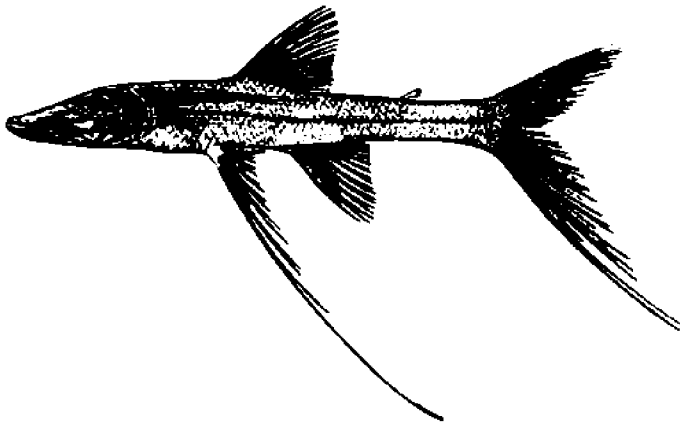


***Bathypterois viridensis* (Roule 1916)**  
tripodfish

**FIELD CHARACTERS:** Pectoral fin divided with uppermost ray not notably thickened or longer; adipose fin present; two broad vertical bands on body; lining of mouth black.

**DEPTH RANGE:** 350-720 fms.

**MAXIMUM SIZE:** to 20 cm.

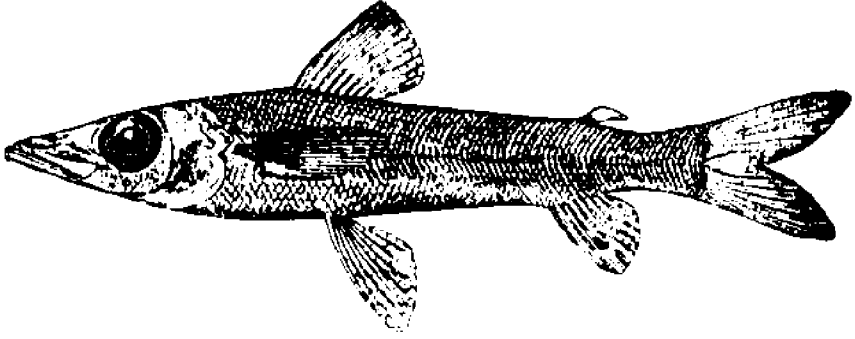


***Parasudis truculenta*** (Goode and Bean 1895)  
longnose greeneye

FIELD CHARACTERS: Snout longer than horizontal diameter of eye; anus well behind pelvic fin bases.

DEPTH RANGE: 100-260 fms.

MAXIMUM SIZE: to 23 cm.

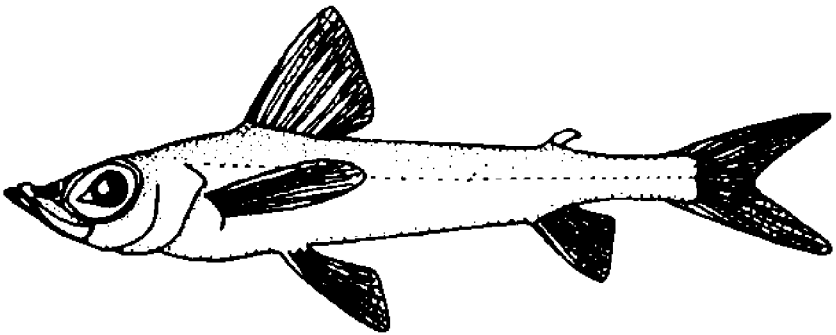


***Chlorophthalmus agassizi*** Bonaparte 1840  
shortnose greeneye

FIELD CHARACTERS: Snout shorter than horizontal diameter of eye; anus close to pelvic fin bases.

DEPTH RANGE: 95-310 fms.

MAXIMUM SIZE: to 13 cm.





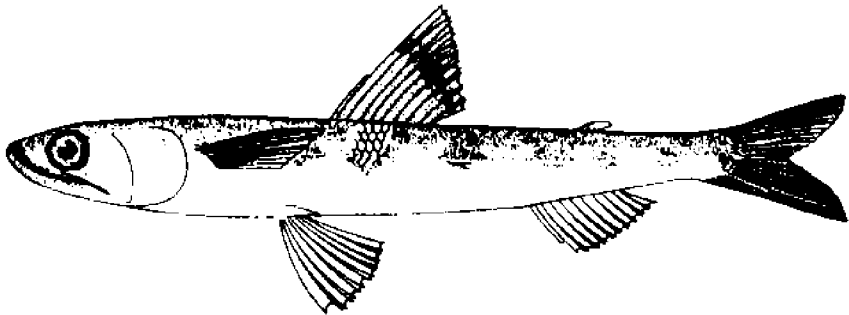
## SYNODONTIDAE (lizardfishes)

### *Saurida brasiliensis* Norman 1935 largescale lizardfish

FIELD CHARACTERS: No black patch on shoulder under gill cover; lower jaw rounded anteriorly and upturned; length of snout about as long as diameter of eye.

DEPTH RANGE: 10-225 fms.

MAXIMUM SIZE: to 10 cm. (Note: *S. normani* also is found in upper Slope waters).

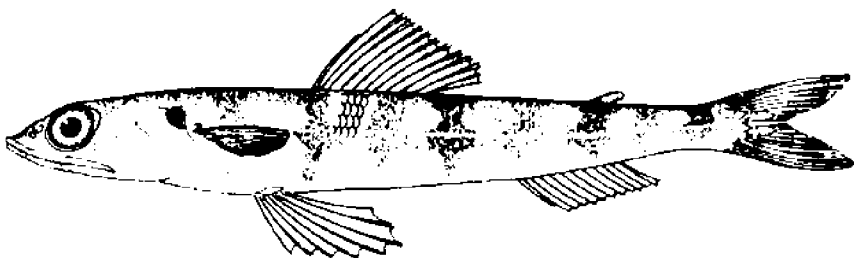


### *Synodus intermedius* (Spix 1829) sand diver

FIELD CHARACTERS: Black patch on shoulder under gill cover; lower jaw rounded anteriorly, without a fleshy knob; length of snout a little longer than diameter of eye.

DEPTH RANGE: 8-175 fms.

MAXIMUM SIZE: to 38 cm.

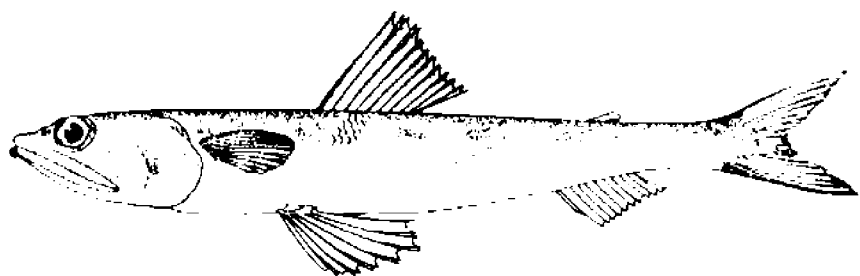


***Synodus poeyi* Jordan 1887**  
offshore lizardfish

FIELD CHARACTERS: No black patch on shoulder under gill cover; lower jaw ending in a fleshy knob; length of snout a little longer than diameter of eye.

DEPTH RANGE: 13-175 fms.

MAXIMUM SIZE: to 20 cm. (Note: *S. foetens* also is taken at just over 100 fms.)

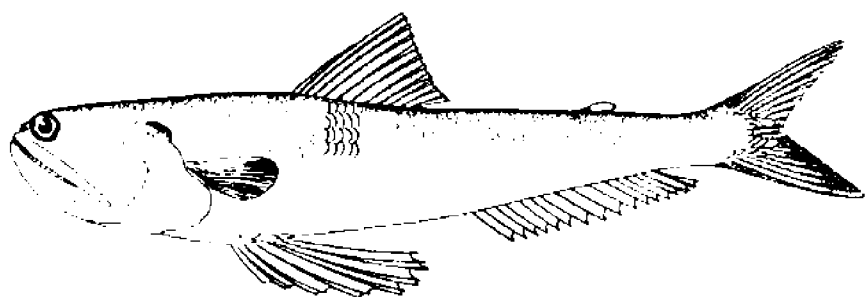


***Trachinocephalus myops* Gill 1862**  
snakefish

FIELD CHARACTERS: Head large; snout blunt and its length shorter than diameter of eye.

DEPTH RANGE: shore-200 fms.

MAXIMUM SIZE: to 31 cm.



## OMOSUDIDAE

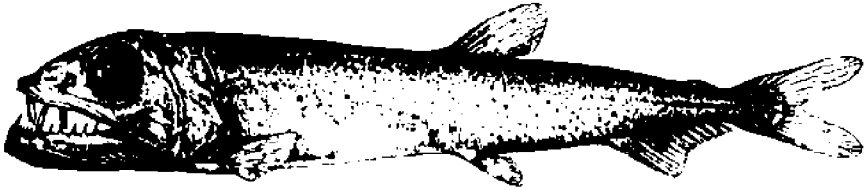
Reference: Rofen 1966.

### *Omosudis lowei* Günther 1887

FIELD CHARACTERS: Very compressed body and teeth; color brassy-silvery, iridescent.

DEPTH RANGE: 400-1000 fms.

MAXIMUM SIZE: to 23 cm.



## ALEPISAUROIDAE (lancetfishes)

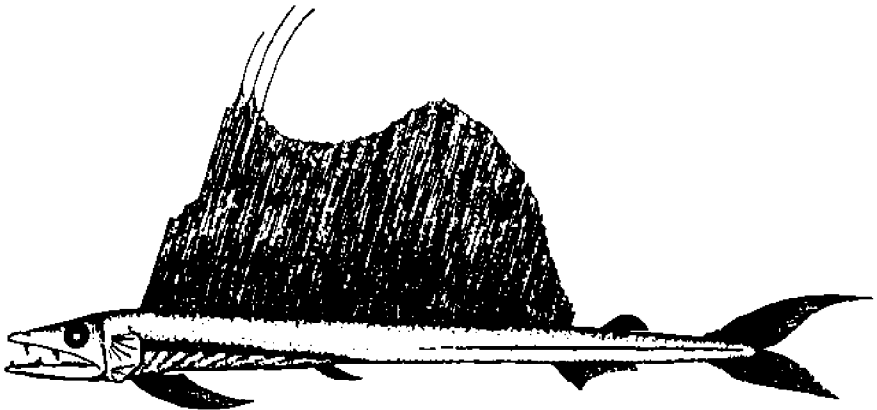
Reference: Gibbs and Wilimovsky 1966.

### *Alepisaurus ferox* Lowe 1833 longnose lancetfish

FIELD CHARACTERS: Body slender; skin naked; flesh soft.

DEPTH RANGE: 20-1000 fms.

MAXIMUM SIZE: to 150 cm.



## NEOSCOPELIDAE (blackchins)

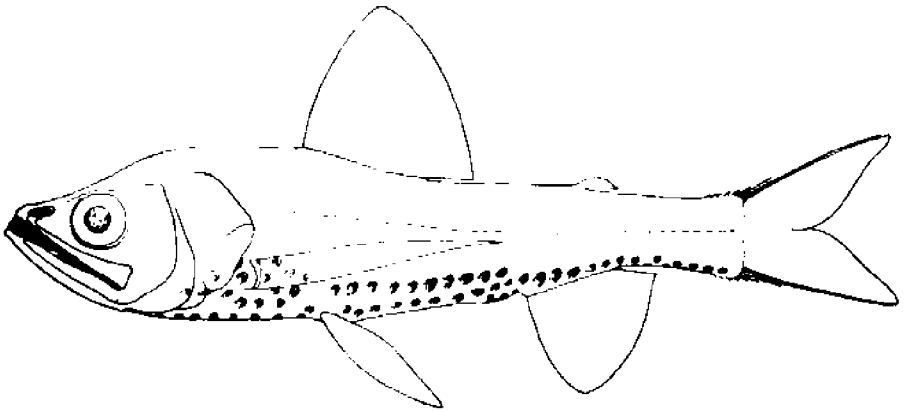
Reference: Nafpaktitis 1977.

### *Neoscopelus macrolepidotus* Johnson 1863

FIELD CHARACTERS: Photophores on the tongue; one row of photophores over the anal fin; one or two photophores visible anterior to the pectoral fin, one or two others hidden beneath the opercle.

DEPTH RANGE: 150-500 fms.

MAXIMUM SIZE: to 22 cm.

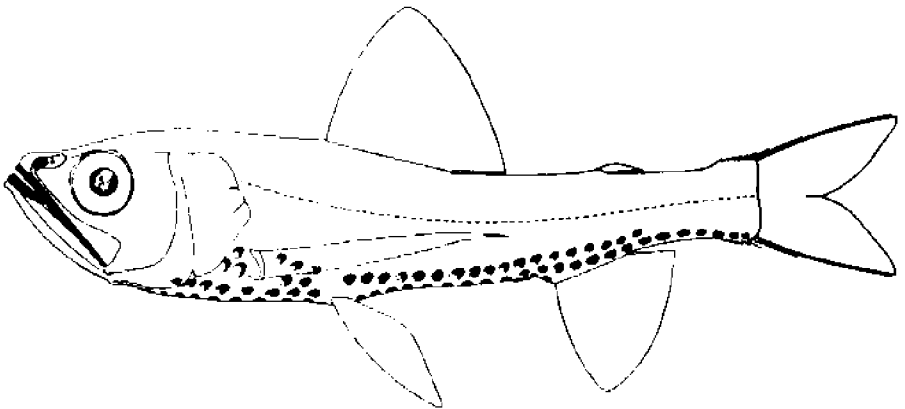


### *Neoscopelus microchir* Matsubara 1943

FIELD CHARACTERS: Photophores on the tongue; two rows of photophores over anal fin; three photophores visible anterior to the pectoral fin.

DEPTH RANGE: 100-300 fms.

MAXIMUM SIZE: to 16 cm.



**BREGMACEROTIDAE** (codlets)

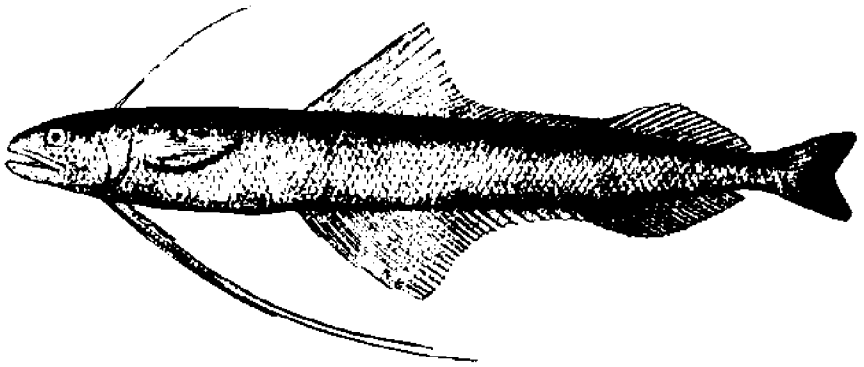
*Bregmaceros atlanticus* Goode and Bean  
1886

antenna codlet

FIELD CHARACTERS: Small size; greatly elongate pelvic fins; single free dorsal ray on top of head; 49-58 anal rays; pinkish-silver sheen in life.

DEPTH RANGE: 25-200 fms.

MAXIMUM SIZE: to 6 cm.

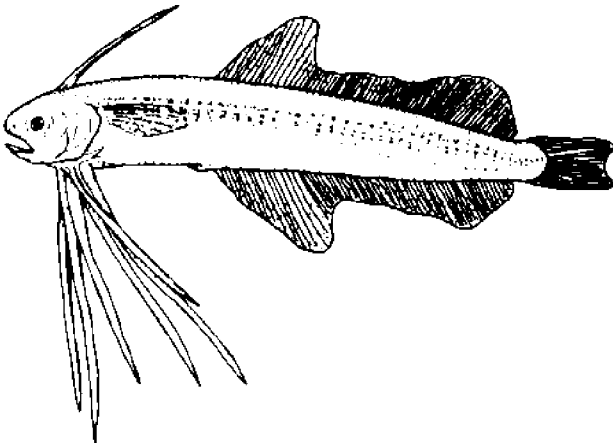


*Bregmaceros cantori* Milliken and Houde 1984

FIELD CHARACTERS: Small size; greatly elongate pelvic fins; single free dorsal ray on top of head; 45-49 anal rays; golden sheen in life.

DEPTH RANGE: 225-240 fms.

MAXIMUM SIZE: to 5 cm.



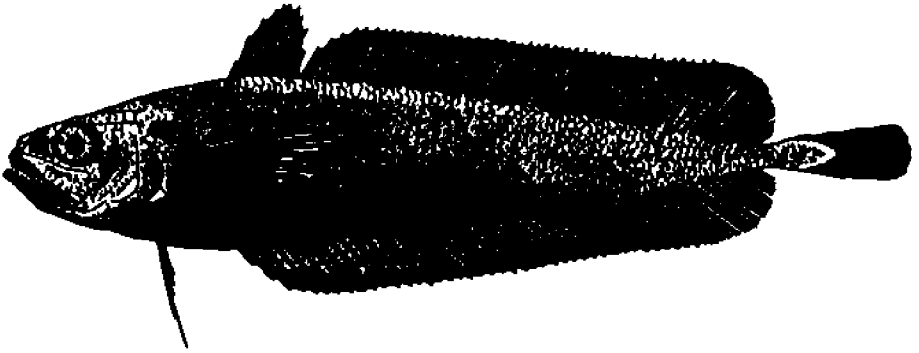
## GADIDAE (cods)

### *Gadella maraldi* (Risso 1810)

FIELD CHARACTERS: No chin barbel present; color brownish black above, bluish to purplish black below; pelvic fins consisting of more than two rays, the second ray being the longest.

DEPTH RANGE: 195-450 fms.

MAXIMUM SIZE:

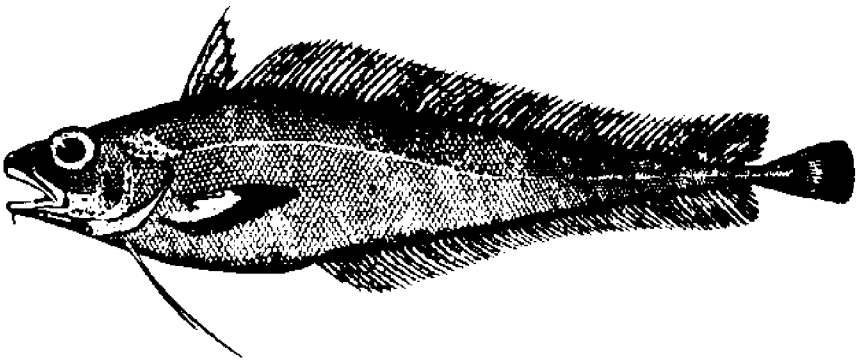


### *Laemonema barbatulum* Goode and Bean 1883

FIELD CHARACTERS: Chin barbel present; color tannish above, bluish gray below; pelvic fins consisting of two rays which extend past the tips of the pectoral fins.

DEPTH RANGE: 180-305 fms.

MAXIMUM SIZE:

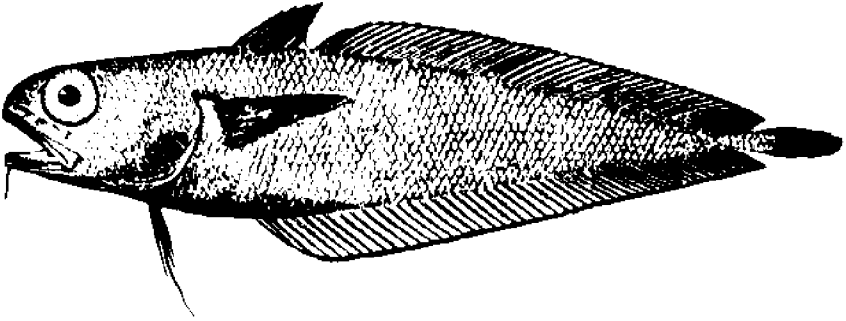


***Physiculus fulvus* Bean 1885**

FIELD CHARACTERS: Chin barbel present; color tannish above, bluish gray below; pelvic fins consisting of two rays which extend past the tips of the pectoral fins.

DEPTH RANGE: 50-175 fms.

MAXIMUM SIZE:



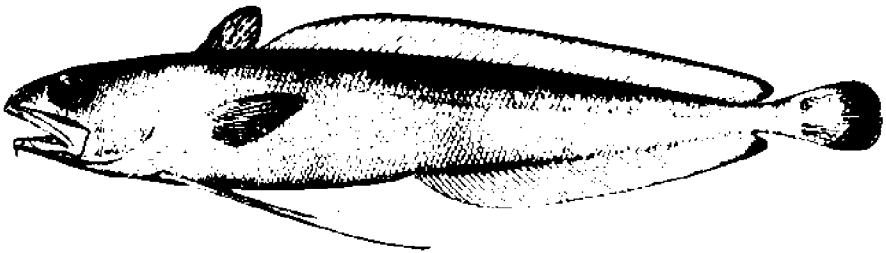
***Urophycis cirrata* (Goode and Bean 1896)**

Gulf hake

FIELD CHARACTERS: Two long pelvic fin rays, reaching beyond anal fin origin; color light silvery tan; first dorsal fin dark at tip only; lateral line inconspicuous.

DEPTH RANGE: 30-324 fms.

MAXIMUM SIZE: to 30 cm.

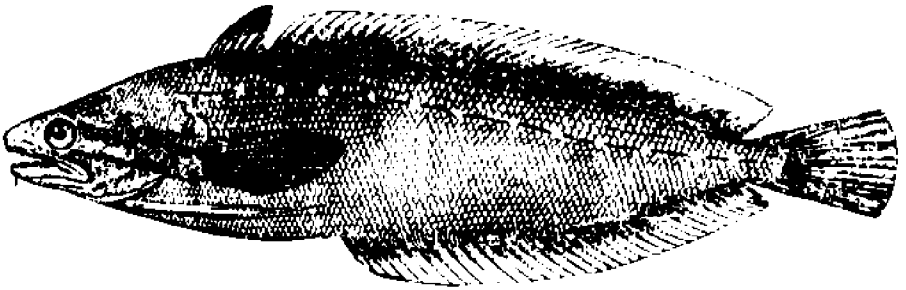


***Urophycis floridana*** (Bean and Dresel 1885)  
southern hake

FIELD CHARACTERS: Two pelvic fin rays, not reaching beyond anal fin origin; color tan; first dorsal fin mostly dark; lateral line of dark brown sections interspaced by large white spots.

DEPTH RANGE: shore-200 fms.

MAXIMUM SIZE: to 35 cm.

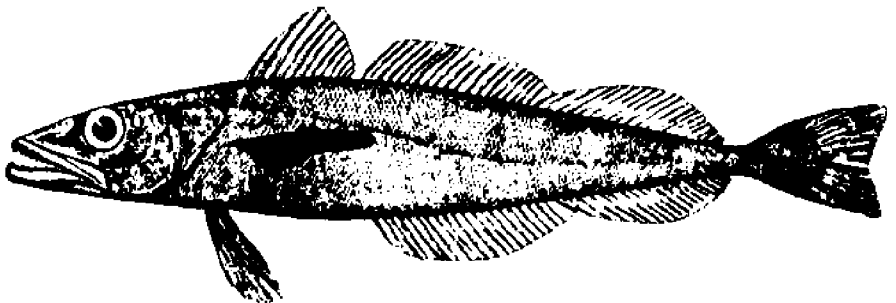


***Merluccius albidus*** (Mitchill 1818)  
offshore hake

FIELD CHARACTERS: Head and eye large; teeth prominent; color silvery tannish; scales small and deciduous; caudal fin present; iris of eye reflective fore and aft.

DEPTH RANGE: 40-580 fms.

MAXIMUM SIZE: to 70 cm.





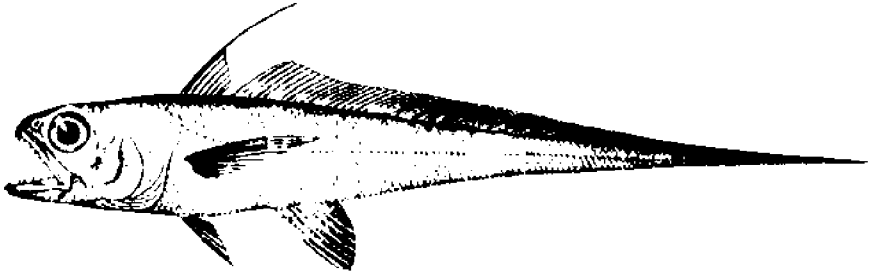
***Steindachneria argentea*** Goode and Bean  
1896

luminous hake

FIELD CHARACTERS: Head and eye large; teeth prominent; color silvery; scales very small and deciduous; no caudal fin, body tapering to a filament.

DEPTH RANGE: 10-310 fms.

MAXIMUM SIZE: to 30 cm.



**MACROURIDAE** (grenadiers)

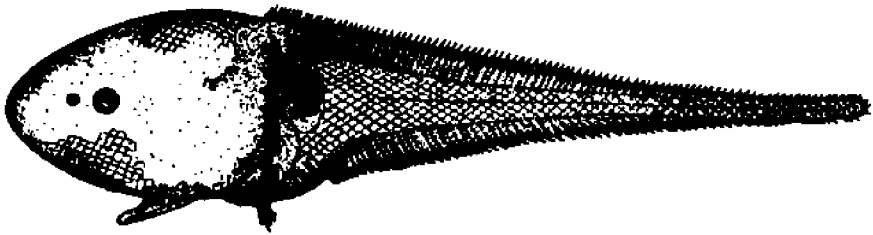
Reference: Marshall and Iwamoto 1973; Marshall 1973.

***Squalogadus modificatus*** Gilbert and Hubbs  
1916

FIELD CHARACTERS: Football-like head.

DEPTH RANGE: 450-800 fms.

MAXIMUM SIZE: to 35 cm.

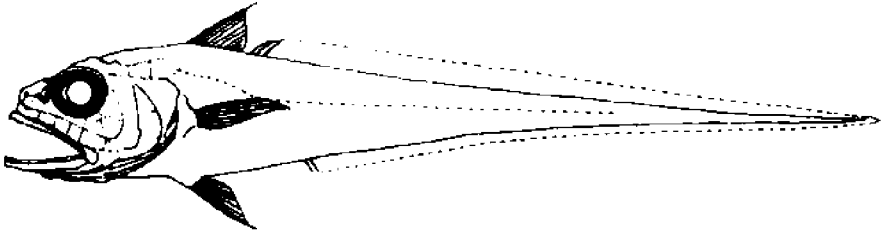


***Bathygadus macrops* Goode and Bean 1886**

FIELD CHARACTERS: Pectoral fin without a filament; minute barbel on chin; length of snout shorter than diameter of eye.

DEPTH RANGE: 170-350 fms.

MAXIMUM SIZE: to 45 cm.

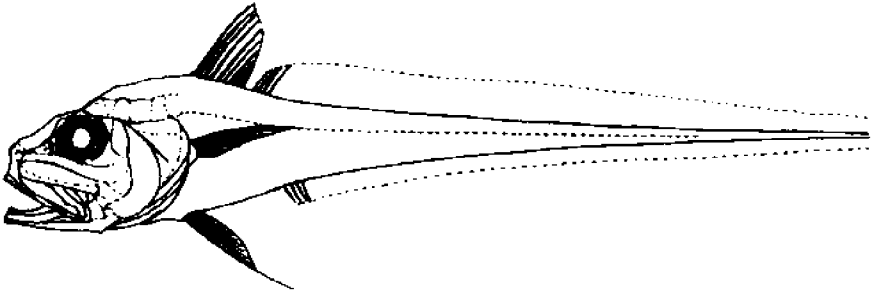


***Bathygadus melanobranchus* Vaillant 1888**

FIELD CHARACTERS: Pectoral fin without a filament; no chin barbel; length of snout longer than diameter of eye.

DEPTH RANGE: 200-1200 fms.

MAXIMUM SIZE: to 40 cm.

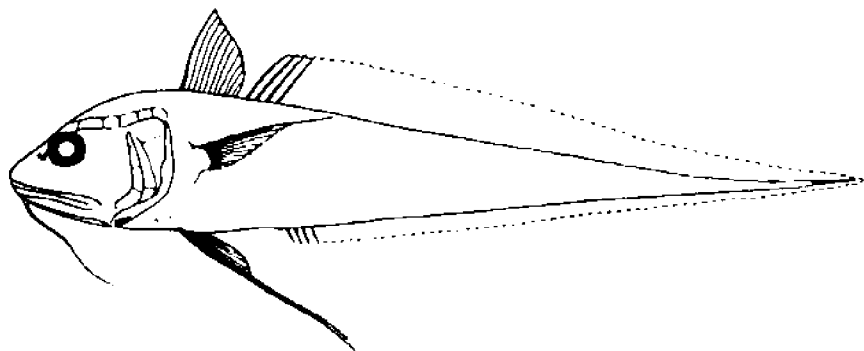


***Gadomus arcuatus* (Goode and Bean 1886)**

**FIELD CHARACTERS:** Pectoral fin with a short filament; chin barbel longer than jaw; dorsal fin without a filament.

**DEPTH RANGE:** 300-600 fms.

**MAXIMUM SIZE:** to 58 cm.

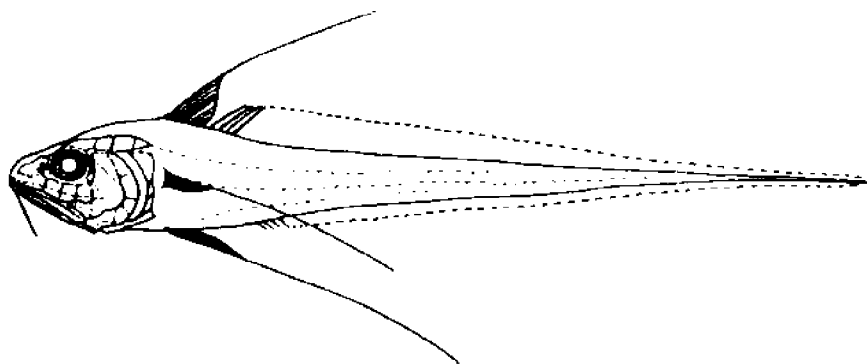


***Gadomus longifilis* (Goode and Bean 1886)**

**FIELD CHARACTERS:** Pectoral fin with a very long filament; chin barbel shorter than jaw; dorsal fin with a filament.

**DEPTH RANGE:** 300-1000 fms.

**MAXIMUM SIZE:** to 30 cm.



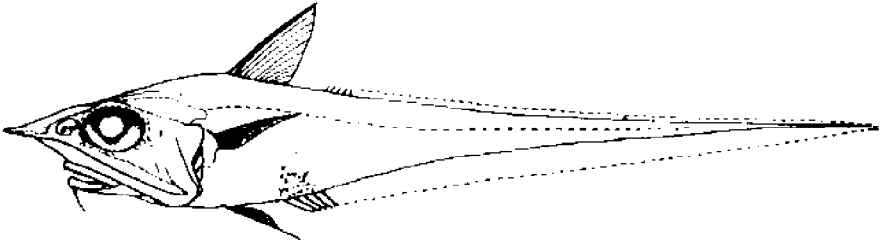
***Coelorinchus caribbaeus*** (Goode and Bean  
1886)

blackfin grenadier

FIELD CHARACTERS: Inside of mouth pale; underside of snout covered with scales; lips light; snout long and produced, the middle scute long and pointed.

DEPTH RANGE: 90-225 fms.

MAXIMUM SIZE: to 30 cms.



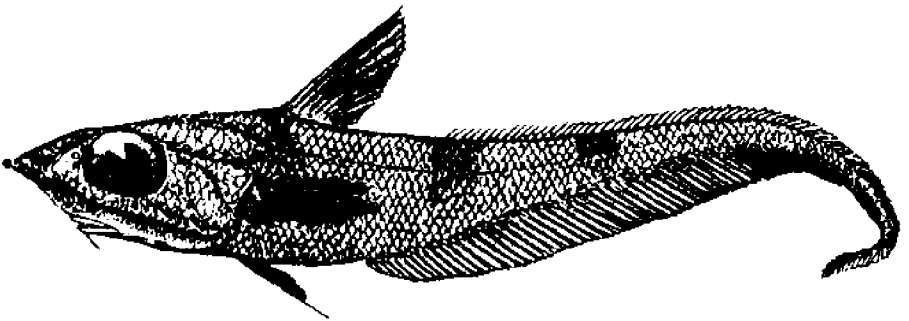
***Coelorinchus coelorhynchus carminatus***  
(Goode 1880)

saddled grenadier

FIELD CHARACTERS: Inside of mouth dark; underside of snout covered with scales; lips light; snout not long and produced, its middle scute the same length as those on either side.

DEPTH RANGE: 90-310 fms.

MAXIMUM SIZE: to 32 cms.

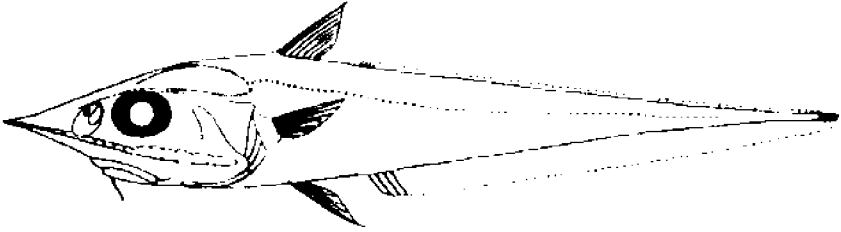


***Coelorinchus occa* (Goode and Bean 1886)**

**FIELD CHARACTERS:** Inside of mouth black; underside of snout naked; lips dark; snout long and produced, no lateral scutes; head large.

**DEPTH RANGE:** 230-1100 fms.

**MAXIMUM SIZE:** to 50 cm.

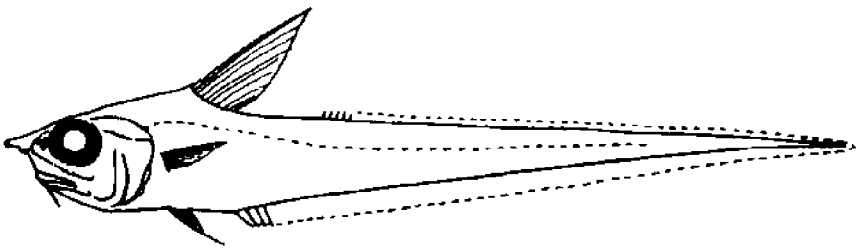


***Nezumia aequalis* (Günther 1878)**

**FIELD CHARACTERS:** Dorsal spine serrated; barbel small; length of snout less than diameter of eye; color, bluish to violet anteriorly; 8-10 pelvic rays; suborbital ridge not prominent, not visible when viewed from above; large diamond-shaped black naked area on belly between pelvic fin bases.

**DEPTH RANGE:** 500-700 fms.

**MAXIMUM SIZE:** to 30 cm.

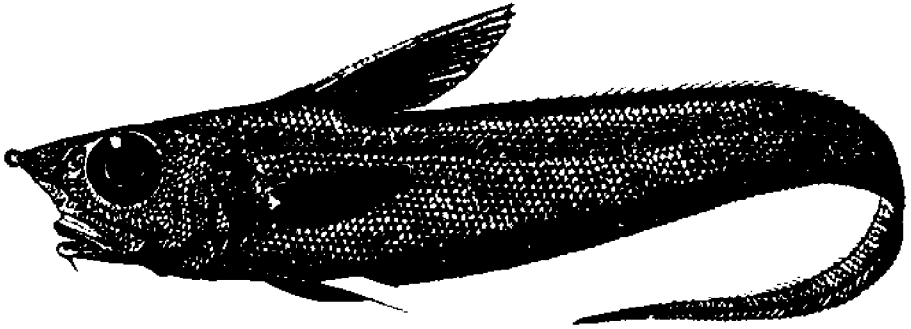


***Nezumia cyrano* Marshall and Iwamoto 1973**

FIELD CHARACTERS: Dorsal spine serrated; barbel small; length of snout about equal to diameter of eye; color, bluish to violet anteriorly; suborbital ridge prominent, visible from above; small naked black area on belly behind pelvic fin bases.

DEPTH RANGE: 300-600 fms.

MAXIMUM SIZE: to 28 cm.

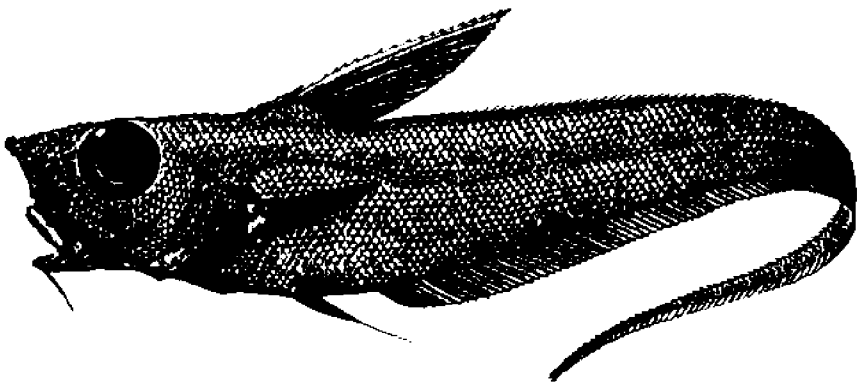


***Nezumia suilla* Marshall and Iwamoto 1973**

FIELD CHARACTERS: Dorsal spine serrated; barbel large; length of snout about equal to diameter of eye; 6-7 pelvic fin rays; small oval naked black area on belly between the pelvic fin bases.

DEPTH RANGE: 250-700 fms.

MAXIMUM SIZE: to 35 cms.

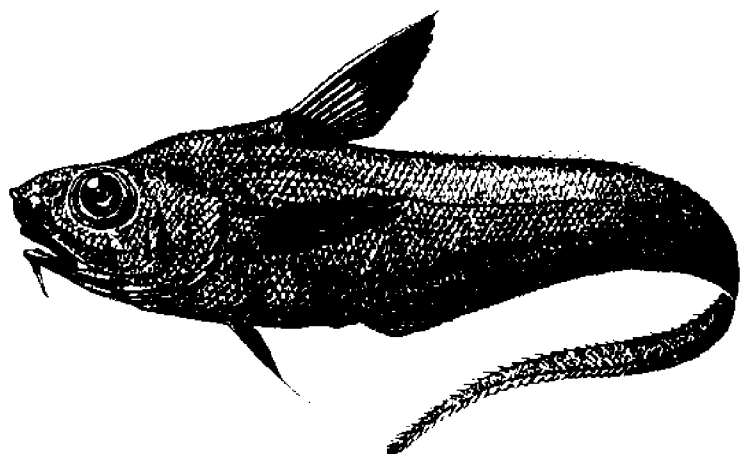


***Coryphaenoides colon* Marshall and Iwamoto  
1973**

**FIELD CHARACTERS:** Dorsal spine serrated; chin barbel thick, black and fleshy; part of snout scaleless; no black rim around the orbits.

**DEPTH RANGE:** 275-500 fms.

**MAXIMUM SIZE:** to 40 cm.

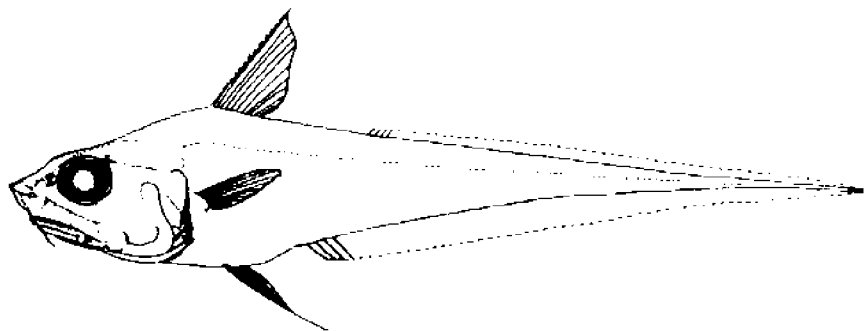


***Coryphaenoides mexicanus* (Parr 1946)**

**FIELD CHARACTERS:** Dorsal spine serrated; chin barbel thin and light-colored; snout fully scaled; black rim around the orbits.

**DEPTH RANGE:** 350-750 fms.

**MAXIMUM SIZE:** to 40 cm.

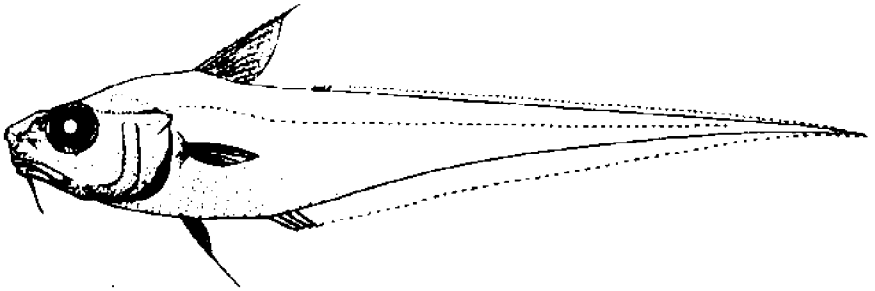


***Ventrifossa atlantica* Parr 1946**

**FIELD CHARACTERS:** Dorsal spine serrated; snout without a distinct fleshy point; semicircular naked black area on belly anterior to pelvic fin insertion.

**DEPTH RANGE:** 200-400 fms.

**MAXIMUM SIZE:** to 36 cm.

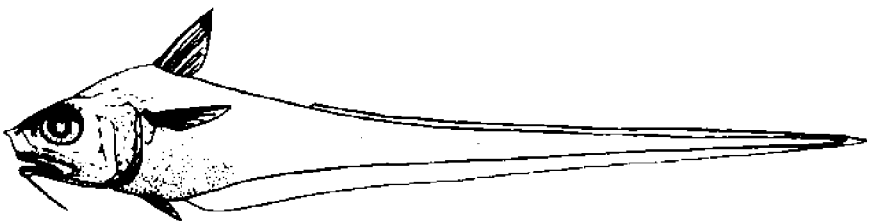


***Ventrifossa occidentalis* (Goode and Bean 1886)**

**FIELD CHARACTERS:** Dorsal spine serrated; snout with a distinct fleshy point; small circular naked black area on belly posterior to pelvic fin insertion.

**DEPTH RANGE:** 70-250 fms.

**MAXIMUM SIZE:** to 39 cm.



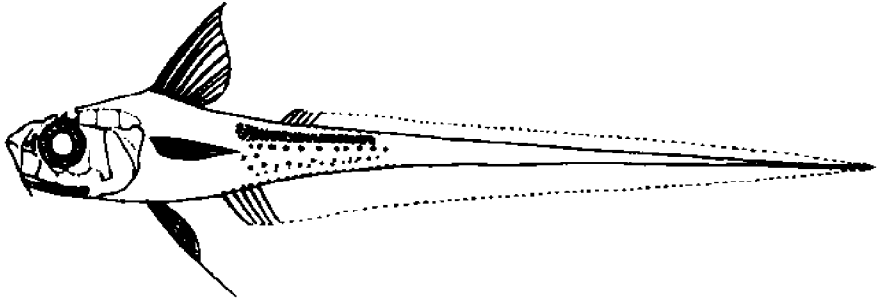


***Hymenocephalus italicus* Giglioli 1884**

FIELD CHARACTERS: Dorsal spine smooth; head cavernous and fragile; upper half of tail densely peppered with small black spots, lower half sparsely dotted with larger lighter spots.

DEPTH RANGE: 200-300 fms.

MAXIMUM SIZE: to 25 cm.

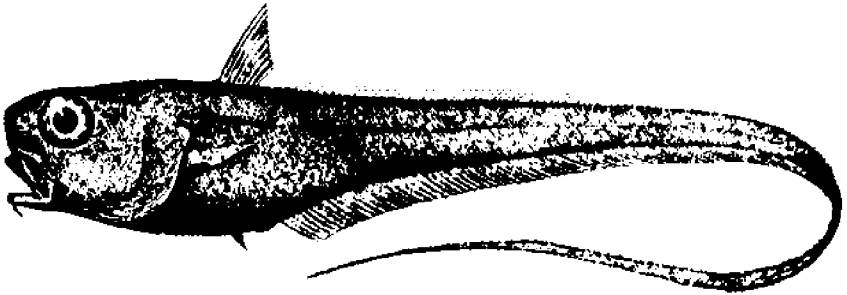


***Trachonurus villosus* (Günther 1877)**

FIELD CHARACTERS: Dorsal spine smooth; very dense upright spinules on trunk and tail; color generally dark brown to black.

DEPTH RANGE: 400-600 fms.

MAXIMUM SIZE: to 46 cm.



**OPHIDIIDAE (cusk-eels)**

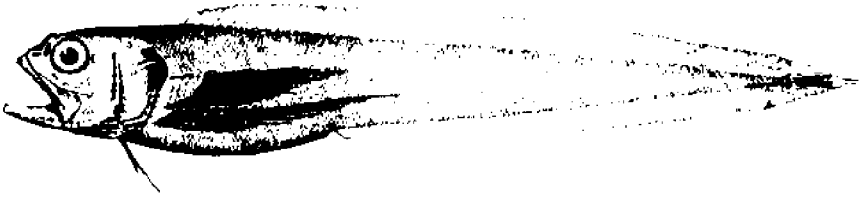
Reference: Cohen and Nielsen 1978.

***Dicrolene intronigra* Goode and Bean 1883**

FIELD CHARACTERS: Spine on snout absent; spine on opercle large; three spines on preopercle; pelvic fin consisting of two rays; color brown, posterior edge of opercle black; cheek cavernous; pectoral fin large, divided, with long filaments.

DEPTH RANGE: 350-700 fms.

MAXIMUM SIZE: to 27 cm.

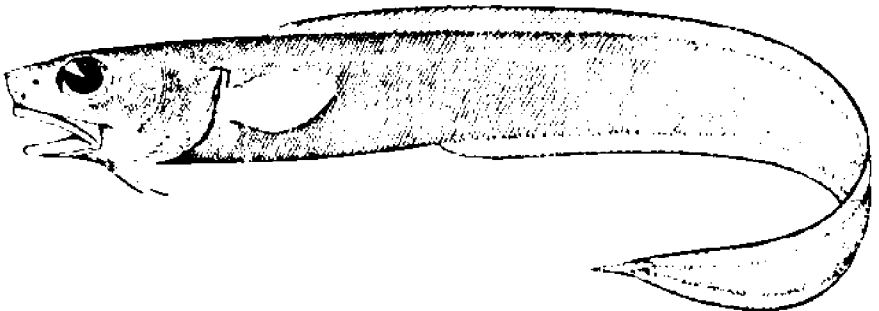


***Lepophidium* sp. (cf. *profundorum*)**

FIELD CHARACTERS: Strong spine on end of snout; spine on opercle absent; pelvic fin consisting of two rays, gular in position; color brownish, dorsal, anal and caudal fins edged in black; eellike.

DEPTH RANGE: 30-175 fms.

MAXIMUM SIZE: to 20 cm.

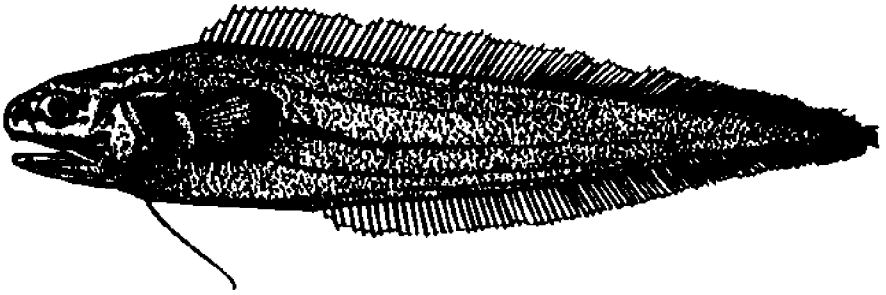


***Monomitopus agassizi* (Goode and Bean 1896)**

FIELD CHARACTERS: Spine on snout absent; spine on opercle small; two spines on preopercle; pelvic fins consisting of only one ray; color brownish, posterior edge of opercle blackish brown; cheek cavernous.

DEPTH RANGE: 300-500 fms.

MAXIMUM SIZE: to 17 cm.



***Neobythites gilli* Goode and Bean 1886**

FIELD CHARACTERS: Spine on snout absent; spine on opercle large; single hidden spine on preopercle; pelvic fins consisting of two rays; color light yellow with silvery reflections, a series of irregular brown blotches above lateral line and on dorsal fin.

DEPTH RANGE: 50-120 fms.

MAXIMUM SIZE: 10 cm. +

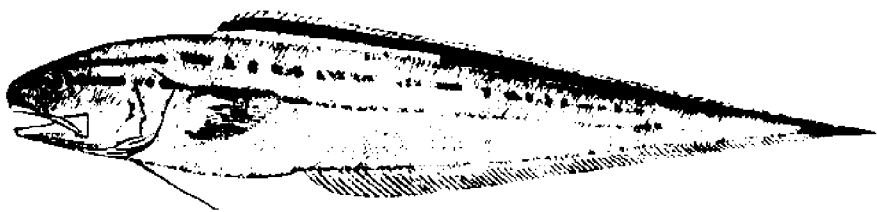


*Neobythites marginatus* Goode and Bean  
1886

FIELD CHARACTERS: Spine on snout absent; spine on opercle small; two spines on preopercle; pelvic fins consisting of only one ray; color light yellowish brown, an obscure narrow band of darker brown from snout through eye onto body, another over the eye, and a blackish band in dorsal fin extending its length.

DEPTH RANGE: 150-200 fms.

MAXIMUM SIZE: to 22 cm.



BATRACHOIDIFORMES

BATRACHOIDIDAE (toadfishes)

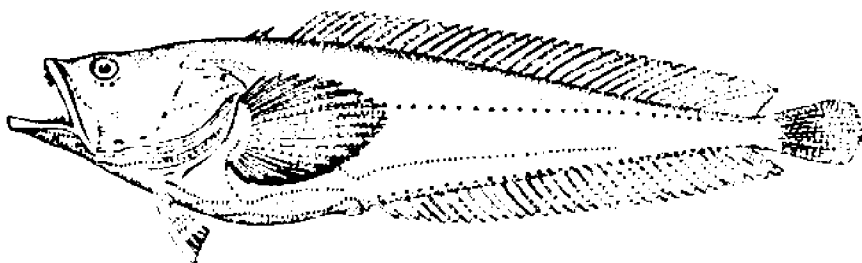
*Porichthys plectrodon* Jordan and Gilbert  
1882

Atlantic midshipman

FIELD CHARACTERS: Sides and ventral surface of body covered with regularly arranged rows of photophores; color light tan to golden on sides, often with large or small brown blotches.

DEPTH RANGE: shore-110 fms.

MAXIMUM SIZE: to 20 cm.



**LOPHIIDAE** (goosefishes)

Reference: Caruso 1983.

***Lophius gastrophysus*** Ribeiro 1915  
blackfin goosefish

FIELD CHARACTERS: Black underturned posterior margins of pectoral fins; color greyish to brownish, frequently finely reticulated; tendrils laterally around head and body.

DEPTH RANGE: 90-330 fms.

MAXIMUM SIZE: to 46 cm.



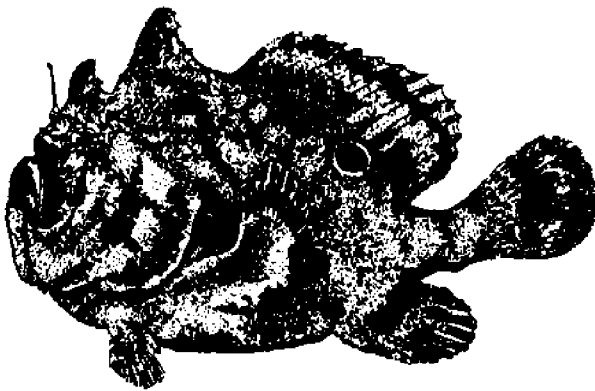
**ANTENNARIIDAE** (frogfishes)

***Antennarius radiosus*** Garman 1896  
singlespot frogfish

FIELD CHARACTERS: illicium bulbous; single large ocellus beneath dorsal fin.

DEPTH RANGE: 15-120 fms.

MAXIMUM SIZE: to 14 cm.



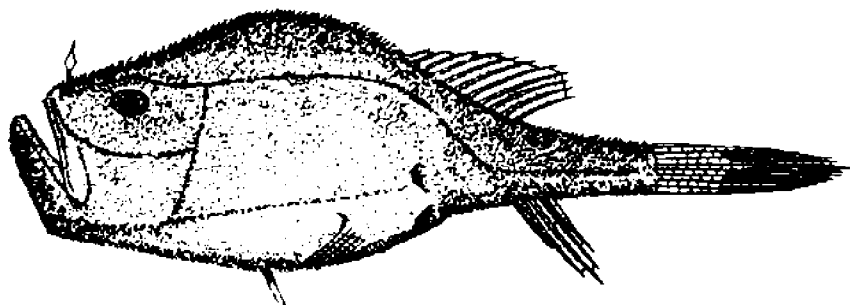
## CHAUNACIDAE (gapers)

### *Chaunax pictus* Lowe 1846

FIELD CHARACTERS: Color orangish above, sides rosy, fins scarlet, eyes opaline blue; inflated abdomen; muciferous cavities on chain-like lines on body; illicium short.

DEPTH RANGE: 140-360 fms.

MAXIMUM SIZE: to 40 cm.



## OGCOEPHALIDAE (batfishes)

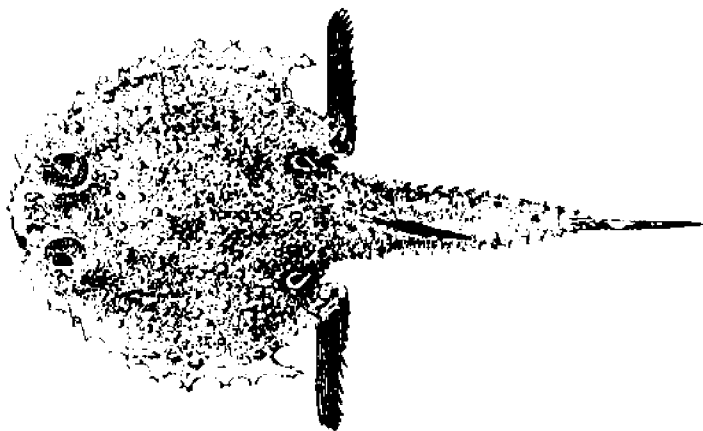
Reference: Bradbury 1980.

### *Dibranchius atlanticus* Peters 1875 offshore batfish

FIELD CHARACTERS: Head oval to subtriangular; small rosettes of spines laterally around body; tail long.

DEPTH RANGE: 125-475 fms.

MAXIMUM SIZE: to 15 cm.

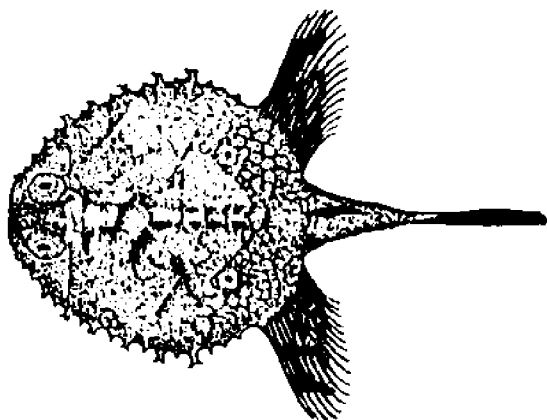


***Halieutichthys aculeatus* (Mitchill 1818)**  
pancake batfish

FIELD CHARACTERS: Head rounded; rostrum absent; pectorals and caudal banded; body very flat; color brown.

DEPTH RANGE: 10-125 fms.

MAXIMUM SIZE: to 10 cm.

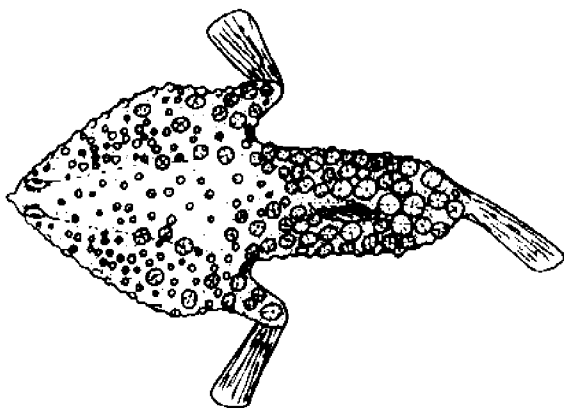


***Ogcocephalus declivirostris* Bradbury 1980**  
thicktailed batfish

FIELD CHARACTERS: Caudal peduncle thick to caudal fin; body not flat; back with some dark spots; colors plain; dermal cirri numerous and well developed on sides of tail and disk.

DEPTH RANGE: 2-115 fms.

MAXIMUM SIZE: to 15 cm.



***Zalieutes mcgintyi*** (Fowler)  
tricorn batfish (not illustrated)

FIELD CHARACTERS: Caudal peduncle thick; body not flat; color plain; a conspicuous horn on each side of snout.

DEPTH RANGE: 50-100 fms.

MAXIMUM SIZE: 9 cm.

## LAMPRIFORMES

### ATELEOPODIDAE

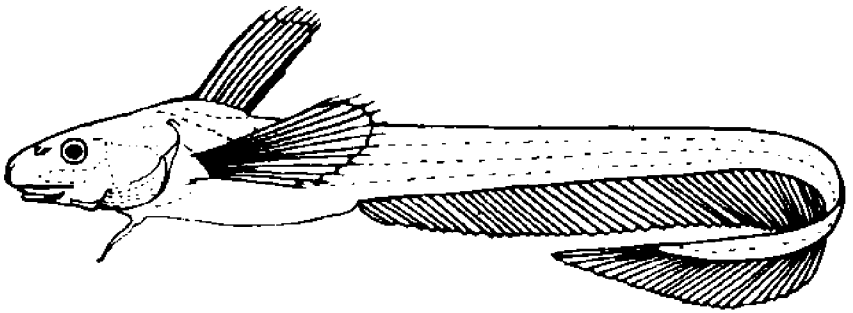
Reference: Walters 1963.

***Ijimaia antillarum*** Rivero 1935

FIELD CHARACTERS: Caudal fin reduced, united with the long anal fin of adults; single pelvic fin rod on throat; no scales.

DEPTH RANGE: 190-360 fms.

MAXIMUM SIZE: to 55 cm.





BERYCIFORMES

**TRACHICHTHYIDAE** (slimeheads)

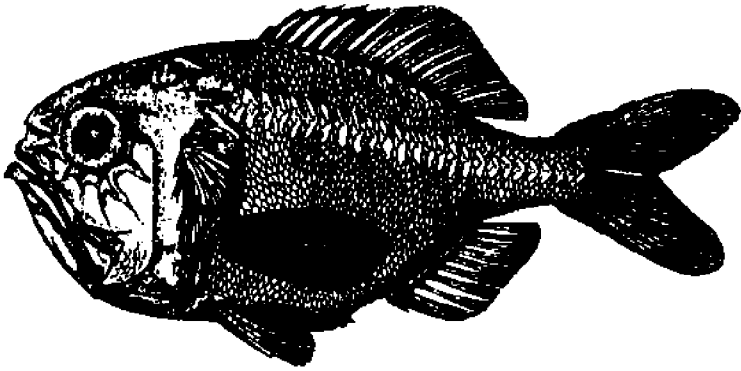
Reference: Woods and Sonoda 1973.

***Hoplostethus occidentalis*** Woods 1973

FIELD CHARACTERS: Ventral scutes present; usually six dorsal spines; fins straw colored; nine soft anal rays; scales adherent.

DEPTH RANGE: 140-300 fms.

MAXIMUM SIZE: to 17 cm.

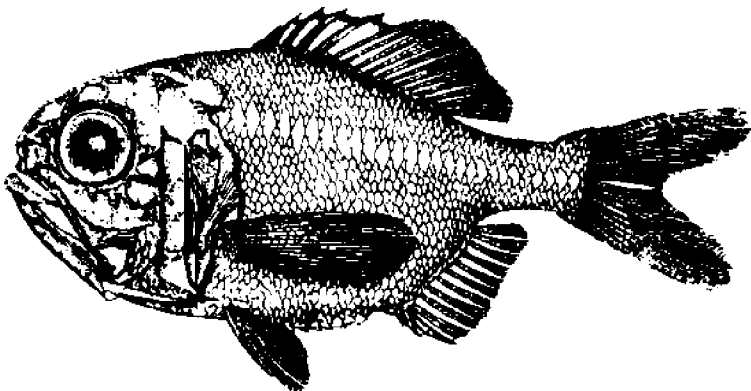


***Hoplostethus mediterraneus*** Cuvier 1829  
blackmouth alfonsin

FIELD CHARACTERS: Ventral scutes present; six dorsal spines; fins reddish; 10 soft anal rays; scales deciduous.

DEPTH RANGE: 175-520 fms.

MAXIMUM SIZE: to 19 cm.



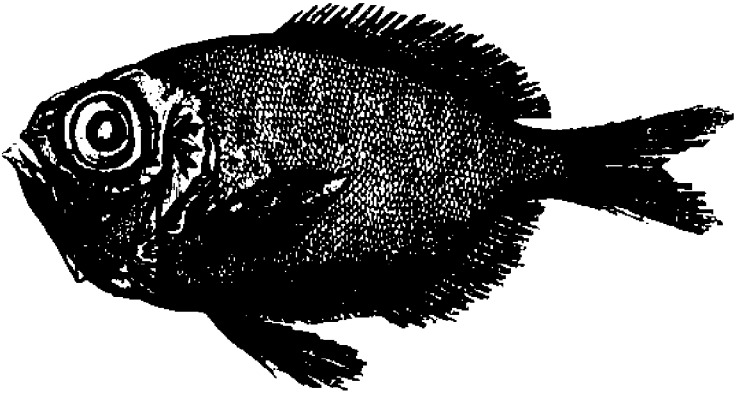
## DIRETMIDAE (spinyfins)

### *Diretmus argenteus* Johnson 1863

FIELD CHARACTERS: Ventral scutes present; dorsal spines absent; color blackish overall; small numerous teeth.

DEPTH RANGE: 125-1200 fms.

MAXIMUM SIZE: to 26 cm.



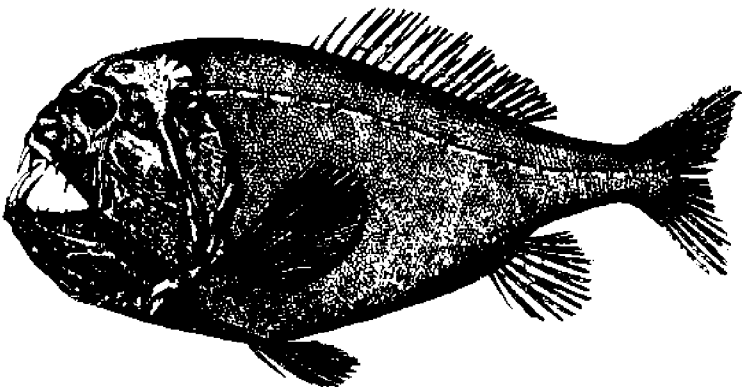
## ANOLOGASTRIDAE (fangtooths)

### *Anoplogaster cornuta* (Valenciennes 1833) fangtooth

FIELD CHARACTERS: Ventral scutes absent; dorsal spines absent; color blackish overall; long fang-like teeth (except in young <88 mm.).

DEPTH RANGE: 25-1685 fms. (not over Shelf)

MAXIMUM SIZE: to 16 cm.



**BERYCIDAE** (alfonsinos)

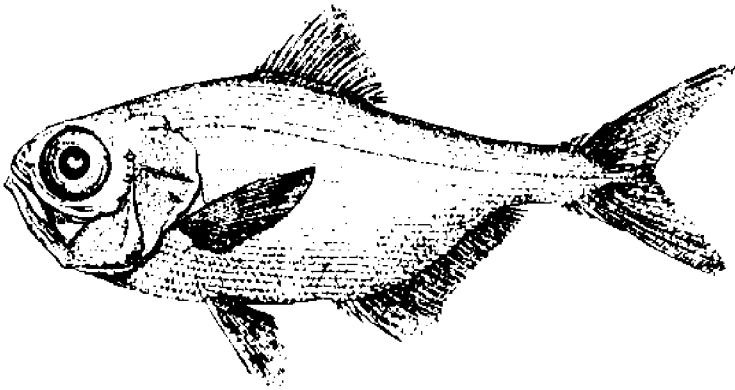
*Beryx splendens* Lowe 1833

Alfonsin

FIELD CHARACTERS: Ventral scutes absent; four dorsal spines; color mostly bright red, including inside of mouth and gill cavity.

DEPTH RANGE: 200-1000 fms.

MAXIMUM SIZE: to 30 cm.



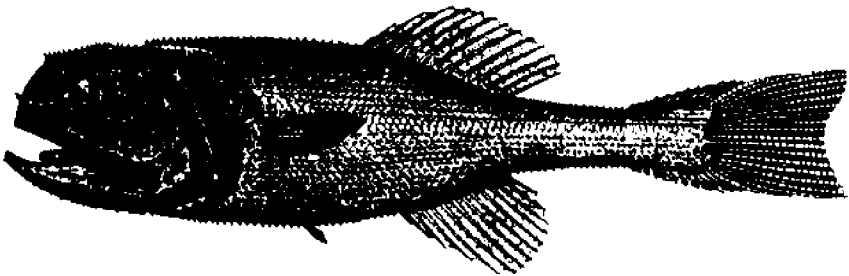
**STEPHANOBERYCIDAE** (pricklefishes)

*Stephanoberyx monae* Gill 1863

FIELD CHARACTERS: Ventral scutes absent; elongate with long caudal peduncle; bristly appearance.

DEPTH RANGE: 550-1000 fms.

MAXIMUM SIZE: to 8 cm.



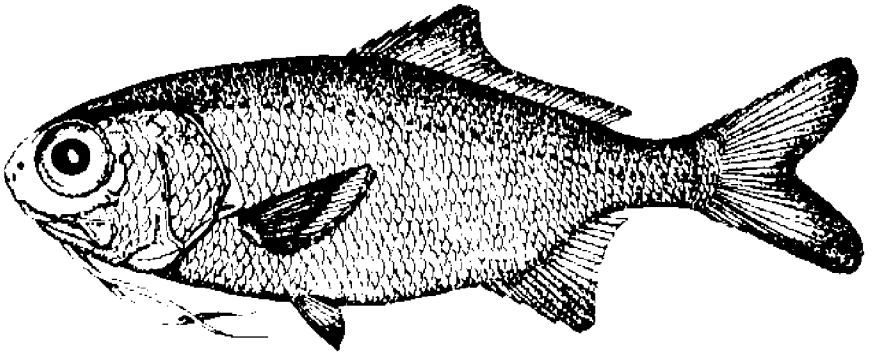
**POLYMIXIIDAE** (beardfishes)

*Polymixia lowei* Günther 1859  
beardfish

FIELD CHARACTERS: Ventral scutes absent; five dorsal spines; color bluish grey, lower half reflective; hyoid barbels present.

DEPTH RANGE: 50-350 fms.

MAXIMUM SIZE: to 20 cm.



**ZEIFORMES**

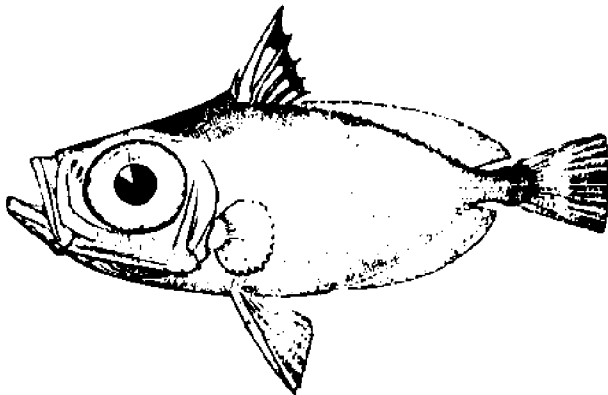
**ZEIDAE** (dories)

*Cyttus hololepis* Goode and Bean 1896

FIELD CHARACTERS: Large bony plates at bases of vertical fins absent; pelvic fins armed with a single, large, serrated spine; spines along belly absent; color orangish; body not compressed anteriorly.

DEPTH RANGE: 140-310 fms.

MAXIMUM SIZE: to 28 cm.

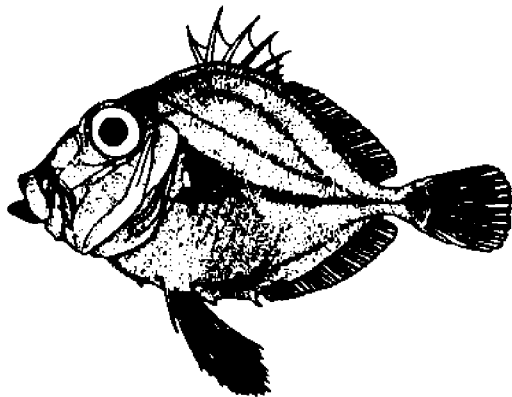


***Cyttopsis rosea* (Lowe 1843)**

**FIELD CHARACTERS:** Large bony plates at bases of vertical fins absent; pelvic fins large and black, without a spine; large spines along belly; color silvery; body compressed anteriorly.

**DEPTH RANGE:** 140-310 fms.

**MAXIMUM SIZE:** to 28 cm.



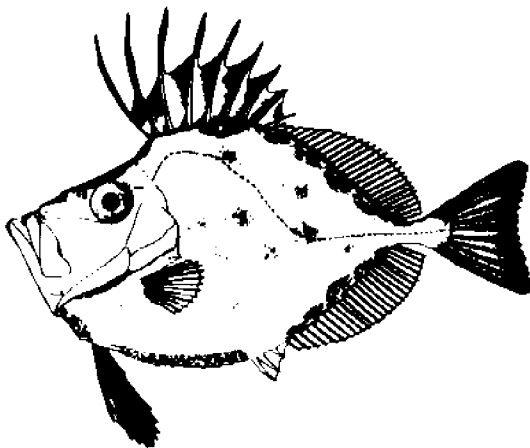
***Zenopsis conchifera* (Lowe 1852)**

buckler dory

**FIELD CHARACTERS:** Large bony plates, each with a hook, at bases of vertical fins; pelvic fins large and blackish, without a spine; body compressed anteriorly.

**DEPTH RANGE:** 50-300 fms.

**MAXIMUM SIZE:** to 75 cm.



**CAPROIDAE** (boarfishes)

Reference: Berry 1959.

*Antigonia capros* Lowe 1843  
deepbody boarfish (not illustrated)

FIELD CHARACTERS: Body deeper than long;  
color red; 29-34 anal soft rays.

DEPTH RANGE: 40-200 fms.

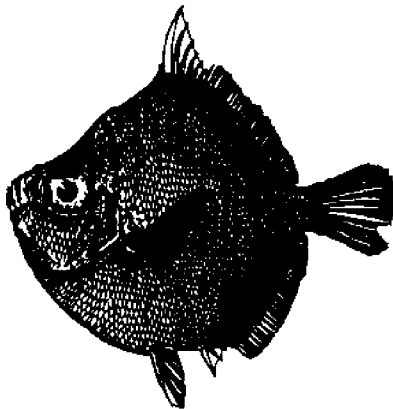
MAXIMUM SIZE: to 15 cm.

*Antigonia combatia* Berry and Rathjen 1958  
shortspine boarfish

FIELD CHARACTERS: Body about as deep as  
long; color pinkish silver; 23-28 anal soft rays.

DEPTH RANGE: 70-300 fms.

MAXIMUM SIZE: to 10 cm.



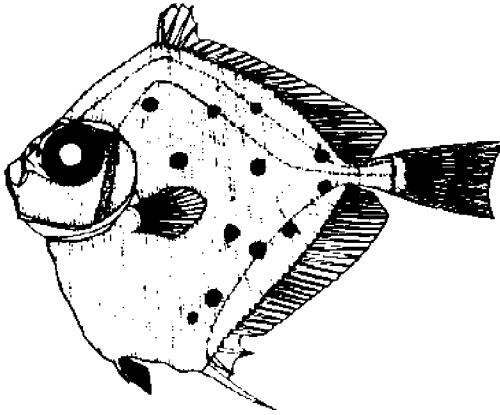
**GRAMMICOLEPIDAE** (diamond dories)

***Xenolepidichthys dalgleishi*** Gilchrist 1922  
spotted tinsselfish

FIELD CHARACTERS: Scales very high and narrow; very deep bodied (adults); 5-6 dorsal spines; first anal spine large, heavy and serrated; a series of irregular spaced roundish spots on body.

DEPTH RANGE: 65-260 fms.

MAXIMUM SIZE: to 25 cm.



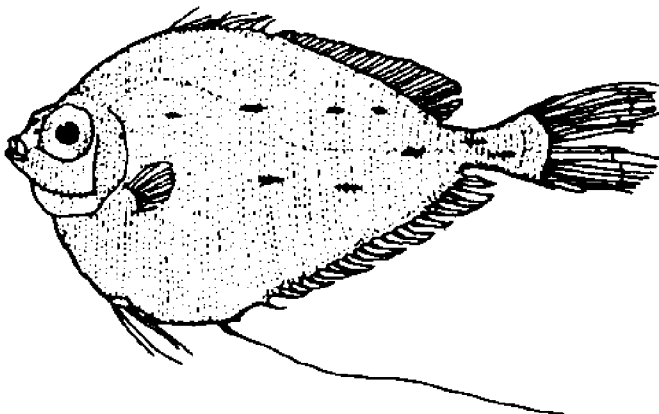
***Daramattus americanus*** (Nichols and Firth 1939)

thorny tinsselfish

FIELD CHARACTERS: Scales very high and narrow; moderately deep bodied (adults); 7 dorsal spines; first anal spine as a filament, not heavy or serrated; a series of short, dark horizontal streaks on body and peduncle.

DEPTH RANGE: 90-225 fms.

MAXIMUM SIZE: to 25 cm.



## SYNGNATHIFORMES

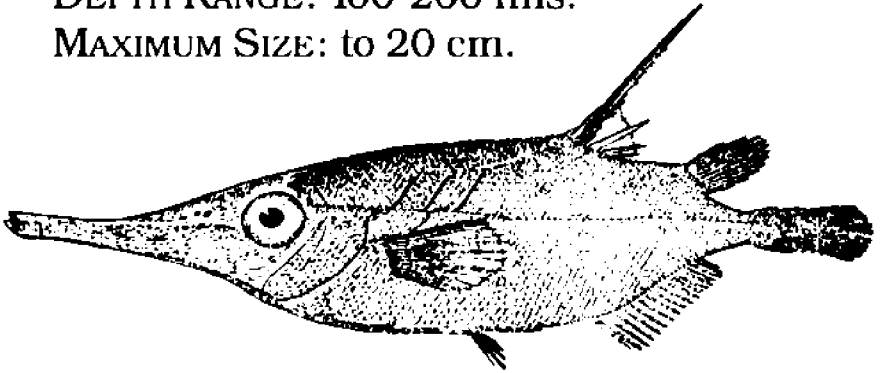
### CENTRISCIDAE (snipefishes)

*Macrorhamphosus scolopax* (Linnaeus 1758)  
longspine snipefish

FIELD CHARACTERS: Very long and slender snout; second dorsal spine long, strong and posteriorly serrated; color rose or reddish olive above, silvery sides and belly.

DEPTH RANGE: 100-200 fms.

MAXIMUM SIZE: to 20 cm.



## SCORPAENIFORMES

### SCORPAENIDAE (scorpionfishes)

Reference: Eschmeyer 1969.

*Neomerinthe hemingwayi* Fowler 1935  
spinycheek scorpionfish (not illustrated)

FIELD CHARACTERS: Third dorsal spine not elongate; color reddish orange with numerous brown spots on body and fins; some pectoral rays branched.

DEPTH RANGE: 30-115 fms.

MAXIMUM SIZE: to 30 cm.

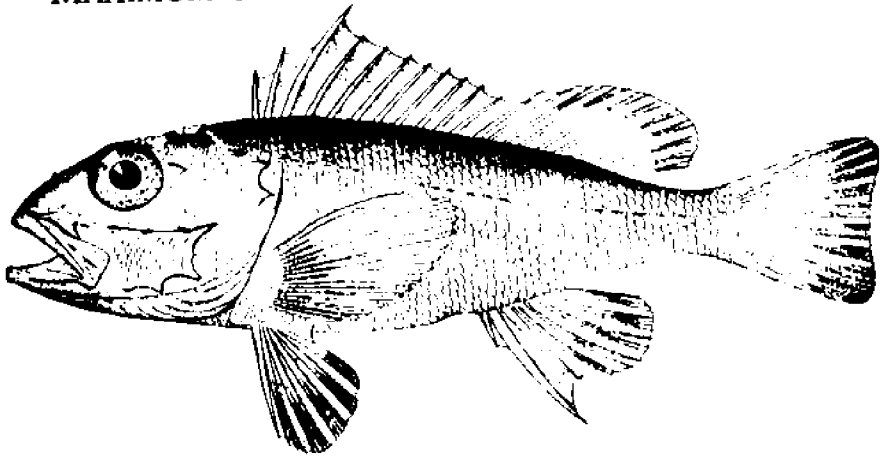


***Pontinus longispinis*** Goode and Bean 1896  
longspine scorpionfish

FIELD CHARACTERS: Third dorsal spine noticeably elongate; color pale to pinkish with dusky blotches above; pectoral fin short, not extending to anal fin and composed entirely of unbranched rays; length of snout longer than diameter of eye; length of head more than three times in total length of fish.

DEPTH RANGE: 50-205 fms.

MAXIMUM SIZE: to 20 cm.

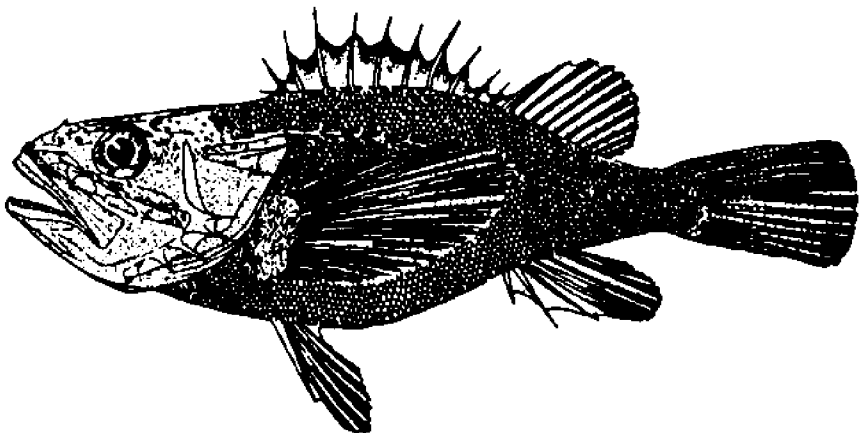


***Setarches guentheri*** Johnson 1862

FIELD CHARACTERS: Third dorsal spine not elongate; pectoral fin long, extending to middle of anal fin; length of snout longer than diameter of eye; head very large, its length less than three times in total length of fish.

DEPTH RANGE: 125-380 fms.

MAXIMUM SIZE: to 30 cm.



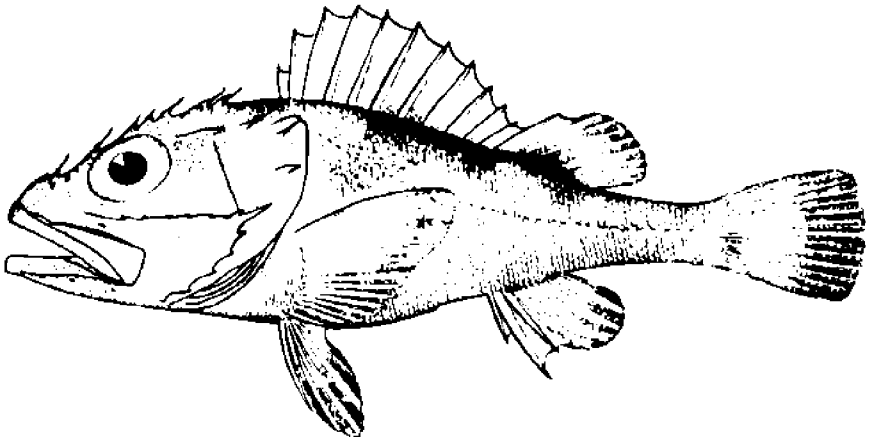
***Trachyscorpia cristulata*** (Goode and Bean 1896)

Atlantic thornyhead

**FIELD CHARACTERS:** Third dorsal spine not elongate; color varied, mottled, a large dusky blotch in and below each of the dorsal fins; pectoral fin very large, but not extending to anal fin, with fingerlike rays below; length of snout longer than diameter of eye.

**DEPTH RANGE:** 72-600 fms.

**MAXIMUM SIZE:** to 45 cm.

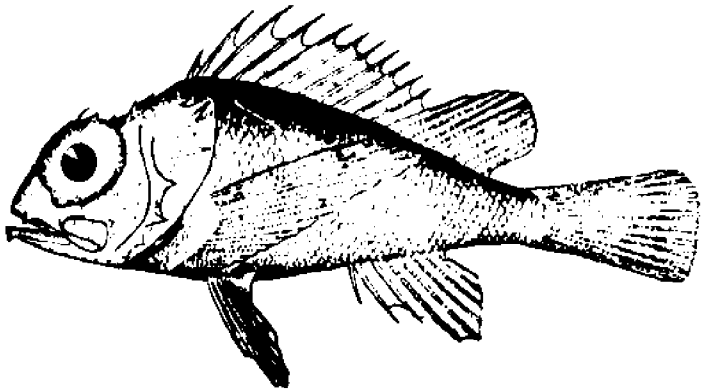


***Scorpaena agassizi*** Goode and Bean 1896  
longfin scorpionfish

**FIELD CHARACTERS:** Third dorsal spine not elongate; length of snout shorter than diameter of eye; size smaller.

**DEPTH RANGE:** 25-150 fms.

**MAXIMUM SIZE:** to 13 cm.



## TRIGLIDAE (searobins)

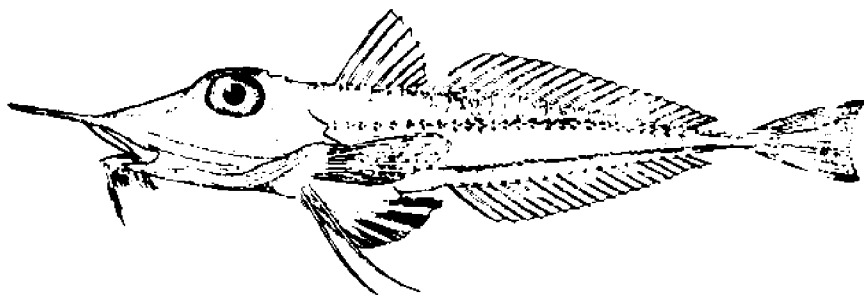
Reference: Ginsburg 1950.

### *Peristedion gracile* Goode and Bean 1896 slender searobin

FIELD CHARACTERS: Large size; color pinkish to orangish; head from above not much wider than body; no serrated ridges on mandible; length of rostral extensions much greater than diameter of eye; edge of perifacial rim smooth.

DEPTH RANGE: 40-300 fms.

MAXIMUM SIZE: to 20 cm.

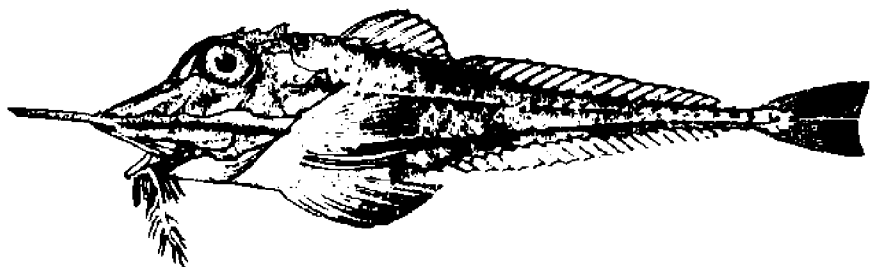


### *Peristedion greyae* Miller 1967 Prickly searobin

FIELD CHARACTERS: Large size; color largely pinkish to red-orange; head from above much wider than body; 2-3 distinct serrated ridges on mandible; length of rostral extensions much greater than diameter of eye.

DEPTH RANGE: 100-455 fms.

MAXIMUM SIZE: to 21 cm.

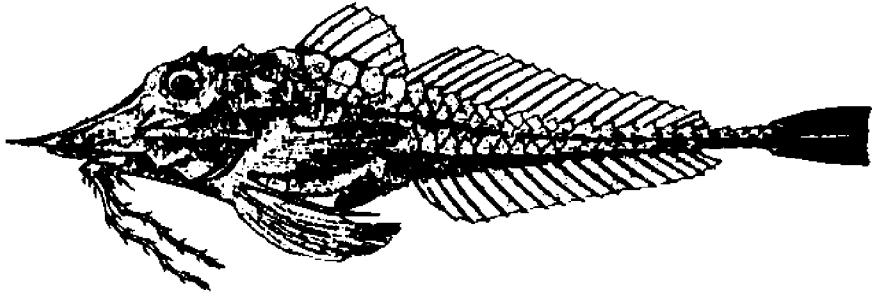


*Peristedion miniatum* Goode 1880  
armored searobin

FIELD CHARACTERS: Small size; color bright crimson; head from above much wider than body; one serrated ridge on mandible; length of rostral extensions shorter than diameter of eye; edge of perifacial rim irregular.

DEPTH RANGE: 80-310 fms.

MAXIMUM SIZE: to 12 cm.

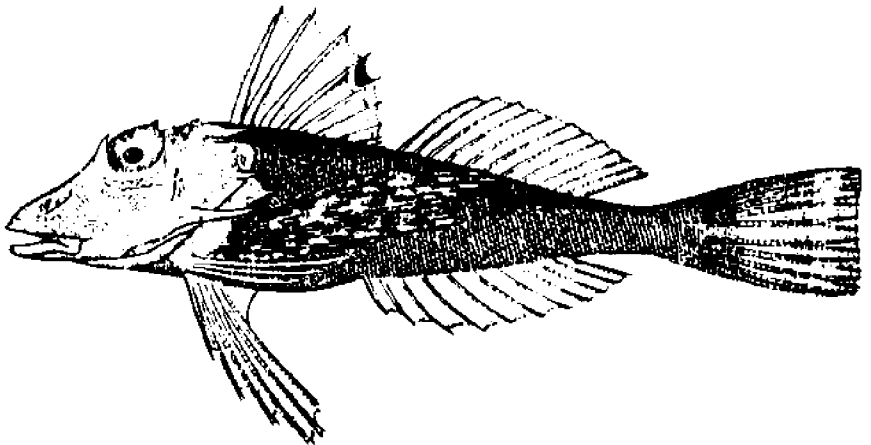


*Prionotus paralatus* Ginsburg 1950  
Mexican searobin

FIELD CHARACTERS: Body almost round; opercular and preopercular spines very long; color light brown; three dark bands in caudal fin; longest ray of pectoral fin not extending to caudal peduncle; nasal spine absent.

DEPTH RANGE: 10-175 fms.

MAXIMUM SIZE: to 15 cm.

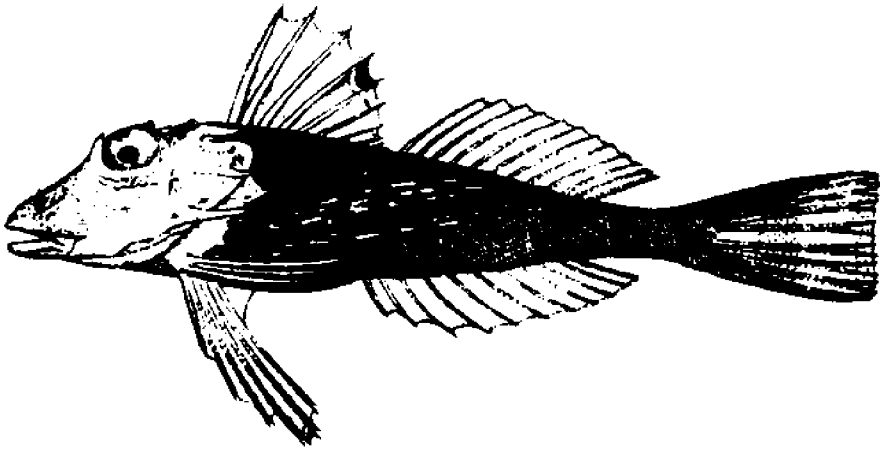


***Prionotus alatus*** Goode and Bean 1883  
spiny searobin

FIELD CHARACTERS: Body almost round; opercular and preopercular spines very long; color light brown; two dark bands in caudal fin; longest ray of pectoral fin extending to caudal peduncle; nasal spine present.

DEPTH RANGE: 17-105 fms.

MAXIMUM SIZE: to 16 cm.

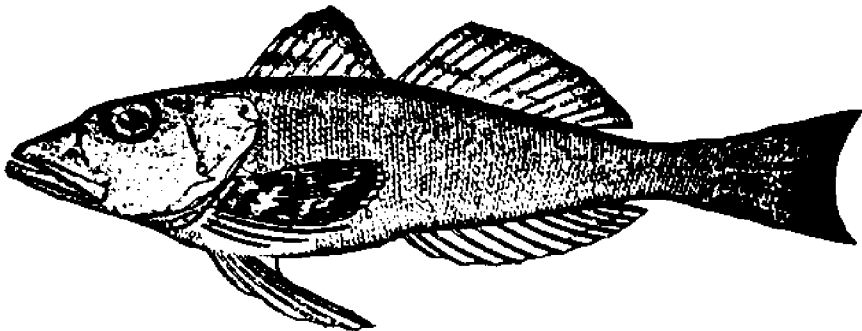


***Prionotus stearnsi*** Jordan and Swain 1885  
shortwing searobin

FIELD CHARACTERS: Body compressed; opercular and preopercular spines short; color light brown with silvery reflections.

DEPTH RANGE: 5-250 fms.

MAXIMUM SIZE: to 13 cm.



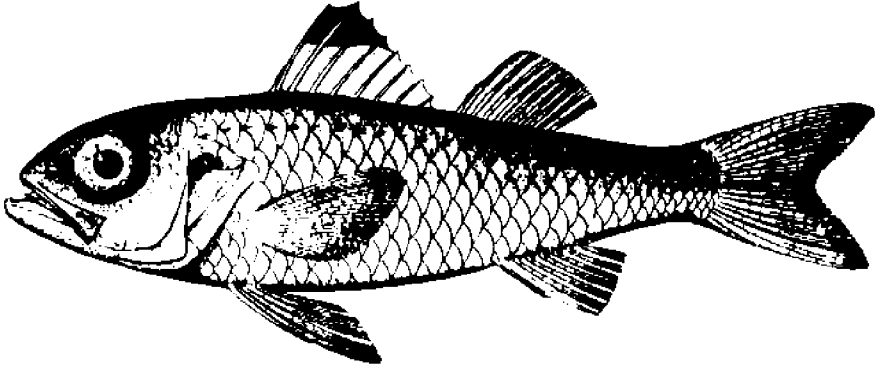
**PERCICHTHYIDAE** (temperate basses)

***Synagrops bellus*** (Goode and Bean 1896)  
blackmouth bass

FIELD CHARACTERS: Three anal spines; second spines of dorsal and anal fins not serrated.

DEPTH RANGE: 75-310 fms.

MAXIMUM SIZE: to 8 cm.

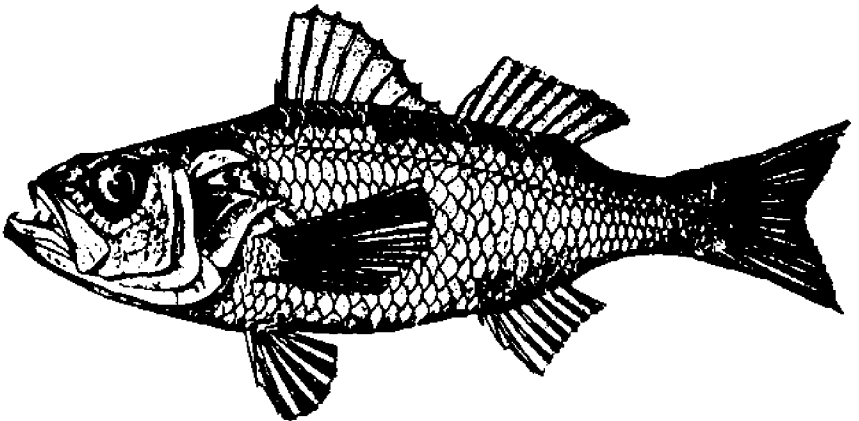


***Synagrops spinosus*** Schultz 1940

FIELD CHARACTERS: Three anal spines; second spines of dorsal and anal fins serrated.

DEPTH RANGE: 100-200 fms.

MAXIMUM SIZE:



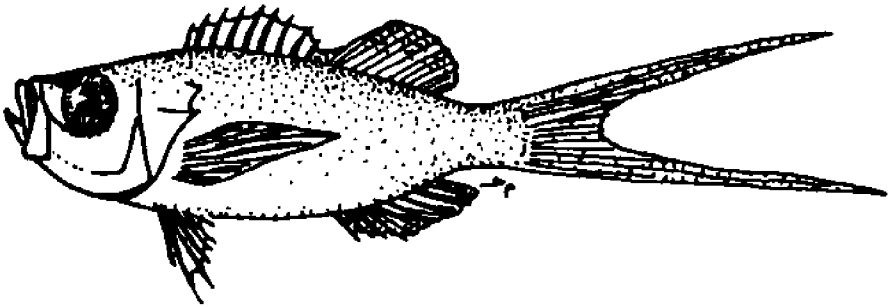
**SERRANIDAE** (sea basses)

***Hemanthias leptus*** (Ginsburg 1952)  
longtail bass

FIELD CHARACTERS: Color golden above, silvery below, fins yellow, ocellated spot near vertical base of caudal fin in adults; caudal fin deeply lunate with filamentous lobes; eye large, about equal to length of snout; large size.

DEPTH RANGE: 100-130 fms.

MAXIMUM SIZE: to 30 cm.

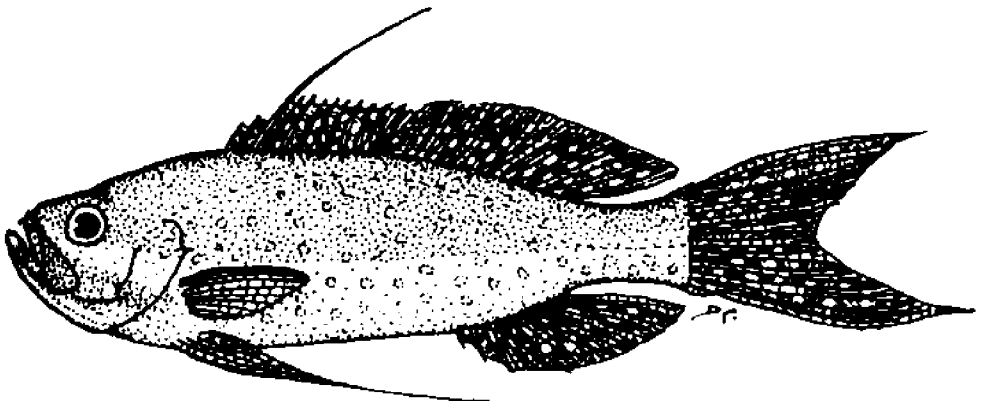


***Hemanthias vivanus*** (Jordan and Swain  
1885)  
red barbier

FIELD CHARACTERS: Color carmine, deepest on back and shading into violet on sides, freckled with olive; bright gold stripe from eye to upper base of pectoral fin, another from tip of snout running under eye to middle of pectoral fin base; diameter of eye greater than length of snout; large size.

DEPTH RANGE: 20-130 fms.

MAXIMUM SIZE: to 30 cm.

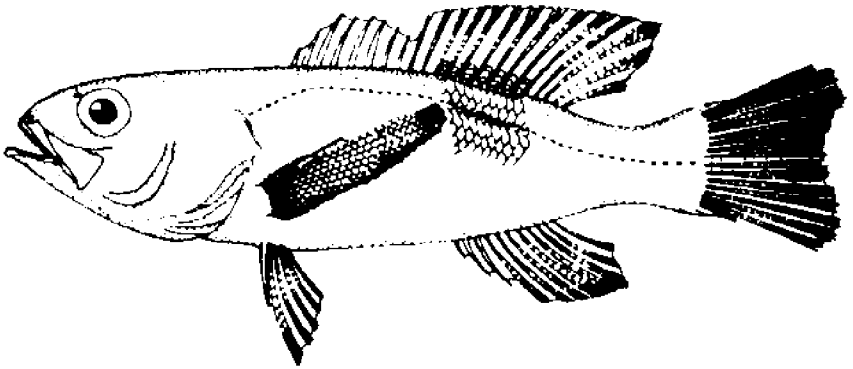


***Pikea mexicana* Schultz 1958**  
yellowtail bass

FIELD CHARACTERS: Color reddish with mostly regular rows of yellow spots on sides; yellow margins to dorsal and anal interspinous membranes; caudal fin yellow; size small.

DEPTH RANGE: 45-150 fms.

MAXIMUM SIZE: to 15 cm.



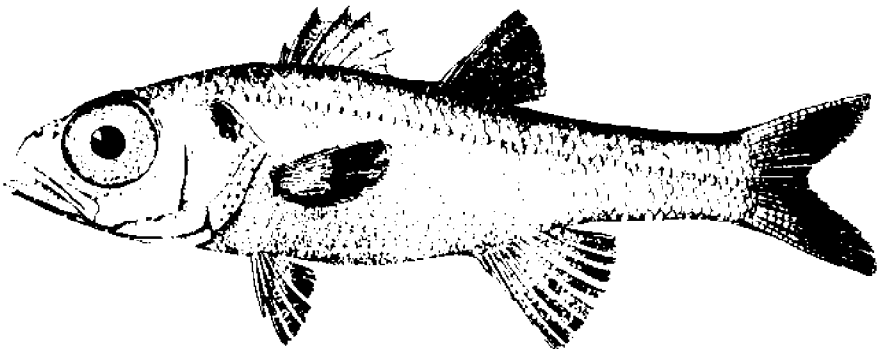
**APOGONIDAE (cardinal fishes)**

***Glossamia pandionis* Goode and Bean 1881**

FIELD CHARACTERS: Two anal spines; body sprinkled with small black spots, finer above, larger below, especially along posterior border of the scales.

DEPTH RANGE: 150-350 fms.

MAXIMUM SIZE:





**MALACANTHIDAE** (tilefishes)

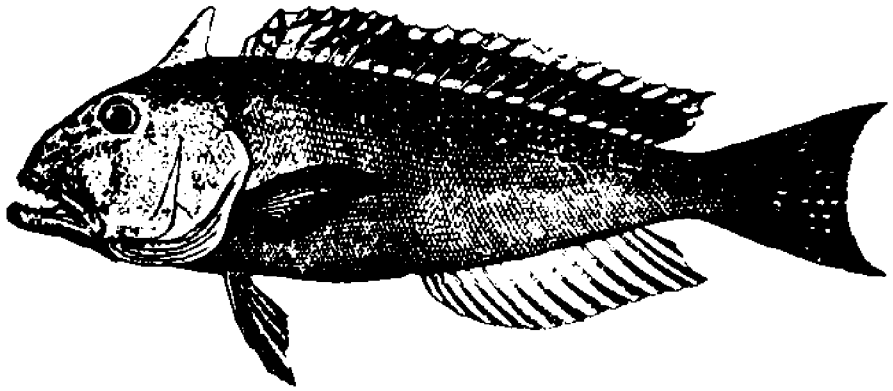
Reference: Dooley 1978.

***Lopholatilus chamaeleonticeps*** Goode and Bean 1879  
tilefish

FIELD CHARACTERS: Long dorsal and anal fins; fleshy appendage on the nape before the dorsal fin.

DEPTH RANGE: 80-200 fms.

MAXIMUM SIZE: to 100 cm.



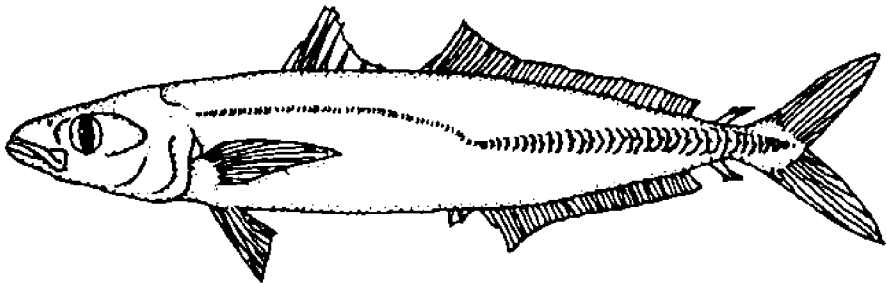
**CARANGIDAE** (jacks)

***Decapterus punctatus*** (Agassiz 1829)  
round scad

FIELD CHARACTERS: Two papillae on shoulder girdle under opercular flap; finlets behind dorsal and anal fins well separated from finrays preceding.

DEPTH RANGE: shore-200 fms.

MAXIMUM SIZE: to 18 cm.

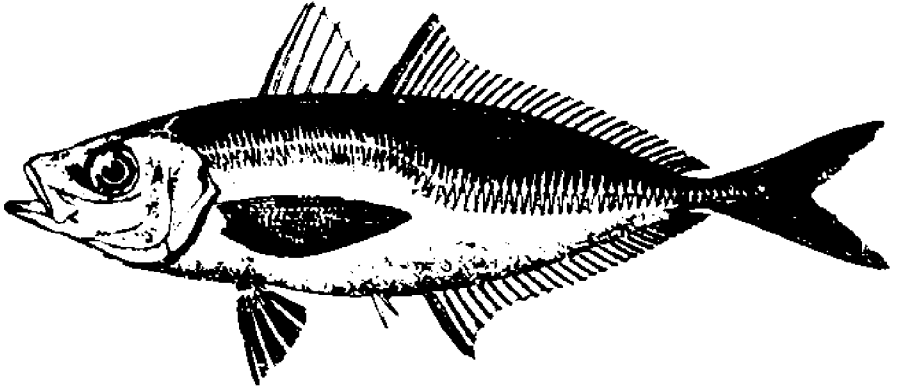


***Trachurus lathami* Nichols 1920**  
rough scad

FIELD CHARACTERS: No papillae on shoulder girdle under opercular flap; finlet-like last dorsal and anal rays continuous with fin rays preceding.

DEPTH RANGE: shore-180 fms.

MAXIMUM SIZE: to 28 cm.



**BRAMIDAE (pomfrets)**

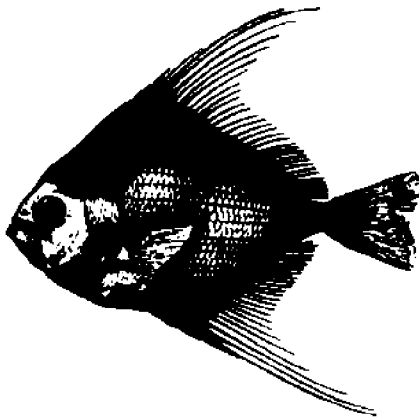
Reference: Mead 1972.

***Taractichthys longipinnis* (Lowe 1843)**  
bigscale pomfret

FIELD CHARACTERS: Color grey with coppery iridescence; dorsal at least as high as body depth.

DEPTH RANGE: 120-900 fms.

MAXIMUM SIZE: to 90 cm.



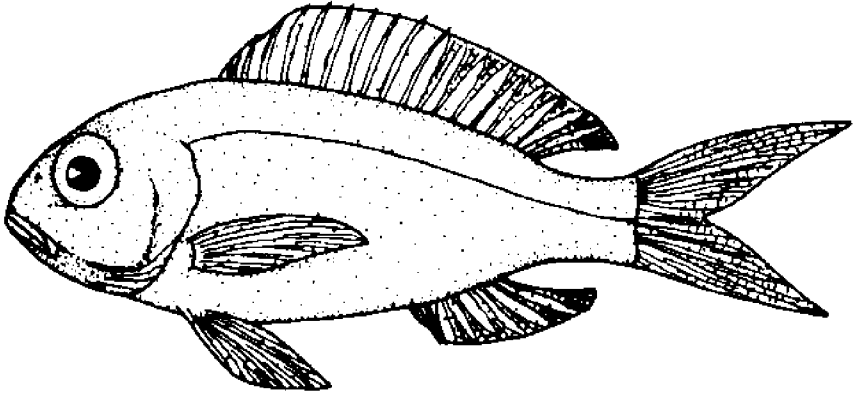
## LUTJANIDAE (snappers)

*Pristipomoides aquilonaris* (Goode and Bean  
1896)  
wenchman

FIELD CHARACTERS: No scales on soft dorsal and anal fins, with last rays produced as filaments; color silvery pinkish.

DEPTH RANGE: 15-150 fms.

MAXIMUM SIZE: to 23 cm.



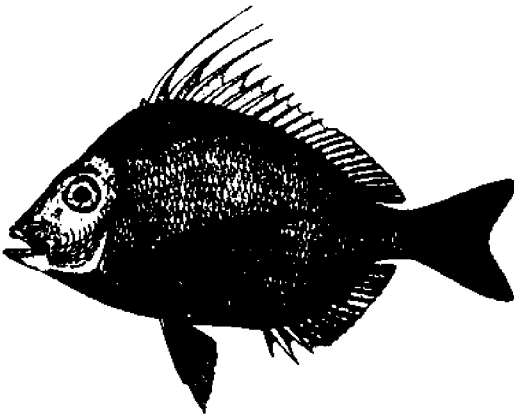
## SPARIDAE (porgies)

*Stenotomus caprinus* Bean 1882  
longspine porgy

FIELD CHARACTERS: Deep bodied; color, silvery overall with vague dark vertical bars; third, fourth and fifth dorsal spines greatly elongated.

DEPTH RANGE: 3-100 fms.

MAXIMUM SIZE: to 15 cm.



## ZOARCIDAE (eelpouts)

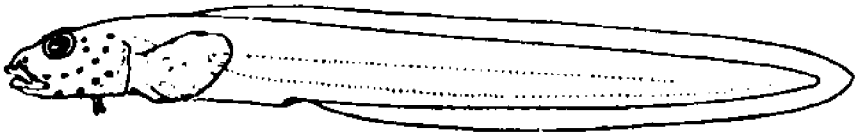
Reference: DeWitt 1977.

### *Lycenchelys bullisi* Cohen 1964

FIELD CHARACTERS: Dorsal fin continuous with anal; pelvic fins present; body elongate; a series of large pores along the upper and lower jaws.

DEPTH RANGE:

MAXIMUM SIZE:



## URANOSOPIDAE (stargazers)

Reference: Berry and Anderson 1961.

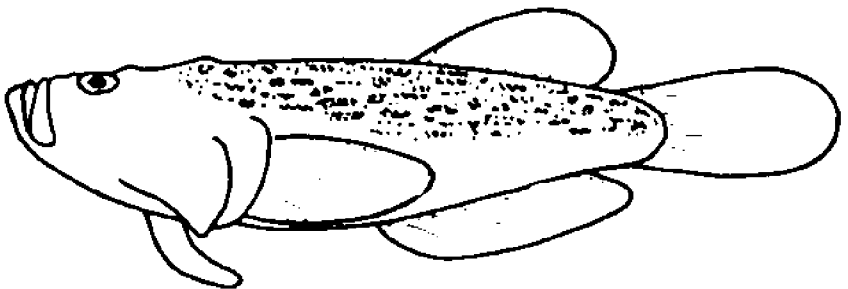
### *Gnathagnus egregius* (Jordan and Thompson 1905)

freckled stargazer

FIELD CHARACTERS: Preopercle with lower edge developed as a long flattened winglike appendage without true spines; dentary bones of lower jaw forming a pair of prominent converging bony ridges anteriorly, deeply notched between.

DEPTH RANGE: 80-240 fms.

MAXIMUM SIZE: to 24 cms.



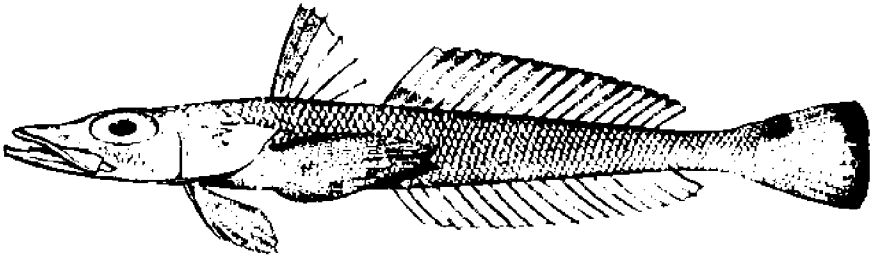
**PERCOPHIDAE** (flatheads)

***Bembrops gobioides*** (Goode 1880)  
goby flathead

FIELD CHARACTERS: Dark spot in caudal fin near its base in the upper half; anal fin not darkly pigmented along its margin; 17-18 rays in second dorsal fin; large males without a filament on the second dorsal spine.

DEPTH RANGE: 65-280 fms.

MAXIMUM SIZE: to 26 cm.

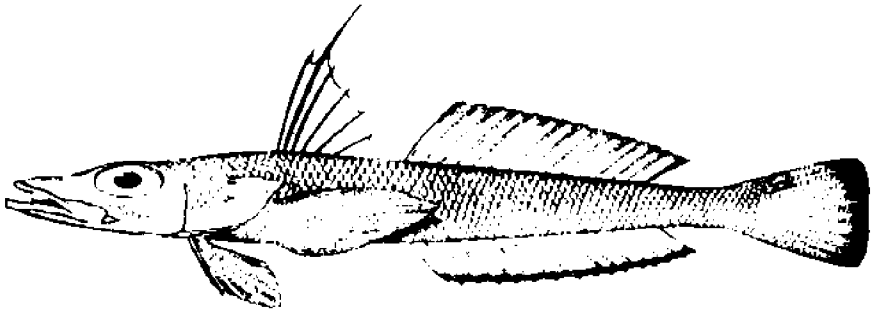


***Bembrops anatirostris*** Ginsburg 1955  
duckbill flathead

FIELD CHARACTERS: Dark spot in caudal fin absent; anal fin darkly pigmented along its margin; 14-15 rays in second dorsal fin; large males with a filament on the second dorsal spine.

DEPTH RANGE: 60-240 fms.

MAXIMUM SIZE: to 33 cm.



## CALLIONYMIDAE (dragonets)

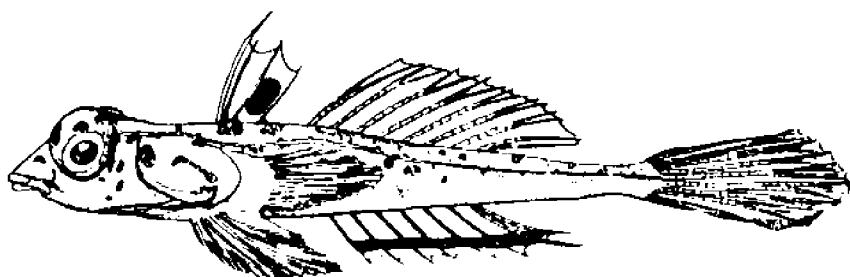
Reference: Davis 1966.

### *Callionymus agassizi* Goode and Bean 1888 spotfin dragonet

FIELD CHARACTERS: Dorsal fins separated by a wide space; gill opening restricted to a small upper pore about even with dorsal origin; a strong, branched preopercular process jutting sideways and back on head.

DEPTH RANGE: 50-350 fms.

MAXIMUM SIZE: to 13 cm.



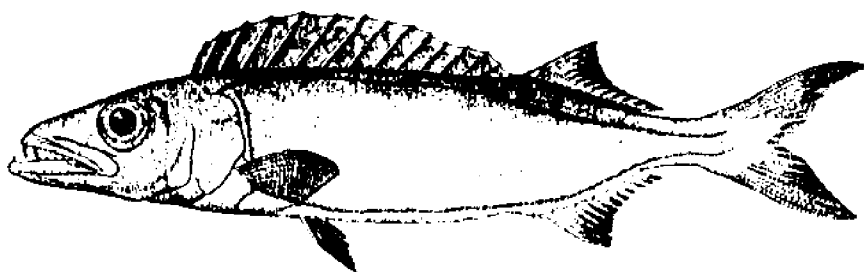
## GEMPYLIDAE (snake mackerels)

### *Epinnula orientalis* Gilchrist and Von Bonde 1924 sackfish

FIELD CHARACTERS: Distinct upper and lower lateral lines; skin with minute deciduous scales; color silvery; upper lateral line terminating on caudal peduncle; upper and lower lateral lines originating together at upper edge of gill-opening.

DEPTH RANGE: 100-250 fms.

MAXIMUM SIZE: to 26 cm.



***Epinnula magistralis* Poey 1854**

**FIELD CHARACTERS:** Distinct upper and lower lateral lines; skin with minute deciduous scales; color bluish; upper lateral line continuing to caudal fin; lower lateral line originating beneath base of fifth or sixth dorsal spine.

**DEPTH RANGE:** 150-240 fms.

**MAXIMUM SIZE:** to 98 cm.

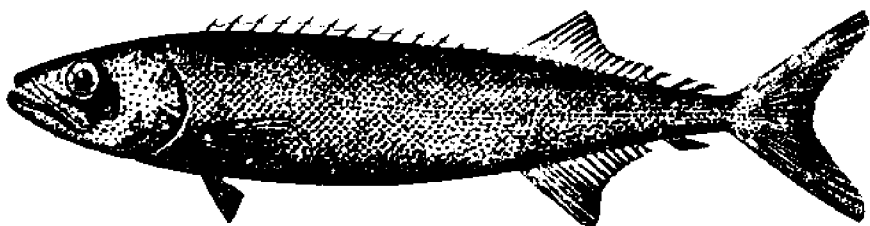


***Ruvettus pretiosus* Cocco 1829**  
oilfish

**FIELD CHARACTERS:** Lateral line indistinct; skin with tubercles; color dark brown to black.

**DEPTH RANGE:** 90-250 fms.

**MAXIMUM SIZE:** to 200 cm.



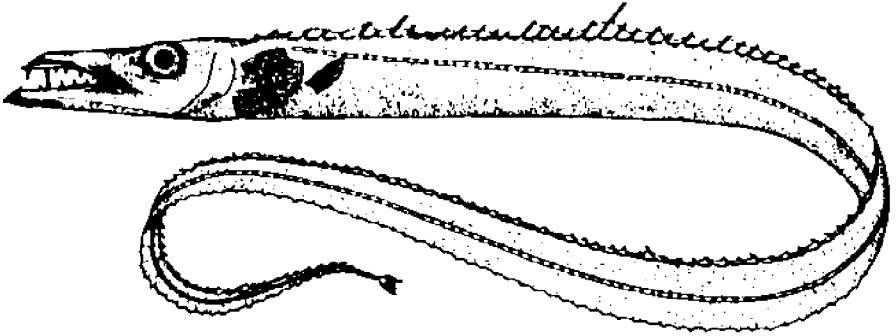
## TRICHIURIDAE (cutlassfishes)

### *Benthodesmus tenuis* (Günther 1877)

FIELD CHARACTERS: Long eel-like body terminating in a very small caudal fin; color silvery; mandible ending in a fleshy pointed knob; opercles dark.

DEPTH RANGE: 100-300 fms.

MAXIMUM SIZE: to 120 cms.



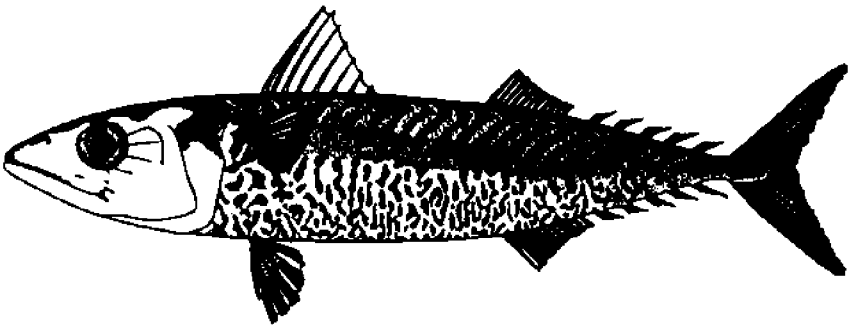
## SCOMBRIDAE (mackerels)

### *Scomber japonicus* Houttuyn 1782 chub mackerel

FIELD CHARACTERS: Dorsal fins separated by more than length of snout; color greenish-blue above, silvery sides with wavy dark lines and spots; body fully scaled.

DEPTH RANGE: 15-160 fms.

MAXIMUM SIZE: to 30 cm.





**STROMATEIDAE** (butterfishes)

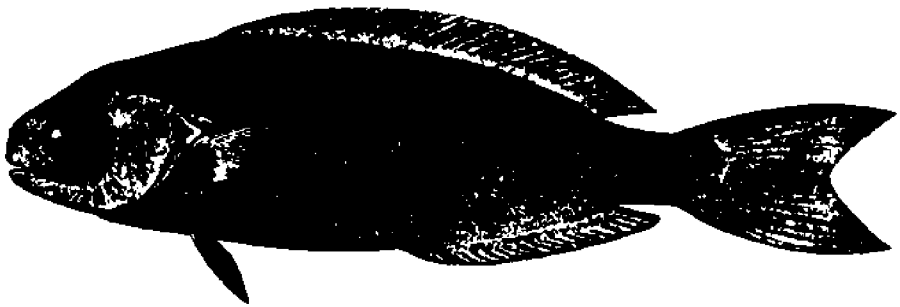
Reference: Haedrich and Horn 1972.

***Centrolophus niger*** (Gmelin 1788)  
black ruff

FIELD CHARACTERS: Spines in dorsal fin weakly developed; scales deciduous, each with a pore; color dusky brown to black.

DEPTH RANGE:

MAXIMUM SIZE: to 130 cm.

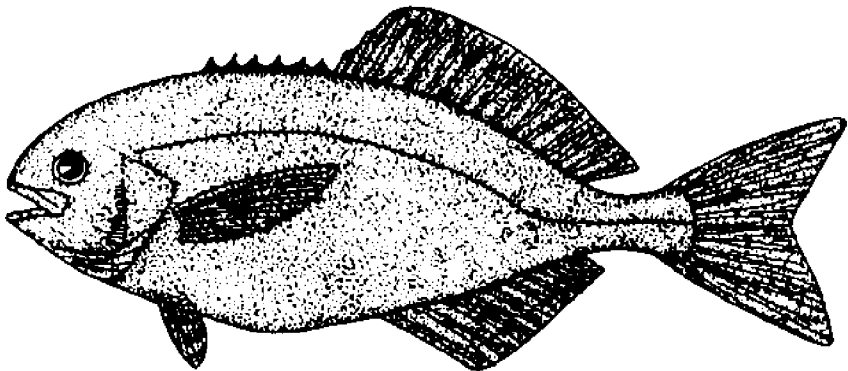


***Hyperoglyphe bythites*** (Ginsburg 1954)  
black driftfish

FIELD CHARACTERS: Spines of dorsal fin strong and stout; spinous dorsal fin much lower than soft dorsal fin; scales not especially deciduous.

DEPTH RANGE: 100-220 fms.

MAXIMUM SIZE: to 76 cm.



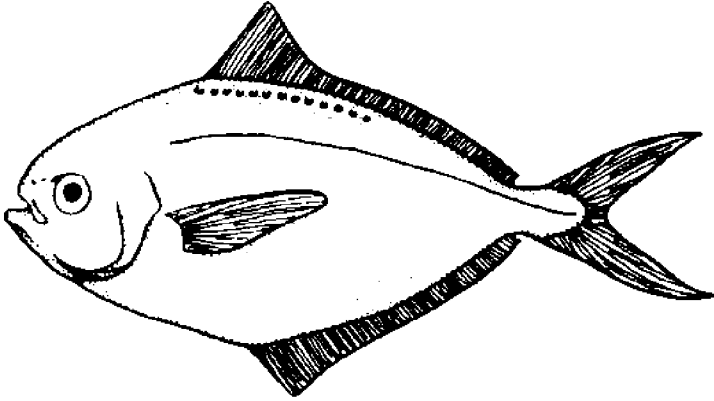
***Peprilus burti* (Fowler 1944)**

Gulf butterfish

FIELD CHARACTERS: A row of conspicuous pores below the dorsal fin base; color silvery, fins dusky.

DEPTH RANGE: 3-180 fms.

MAXIMUM SIZE: to 30 cm.



TETRAODONTIFORMES

**TRIACANTHODIDAE (spikefishes)**

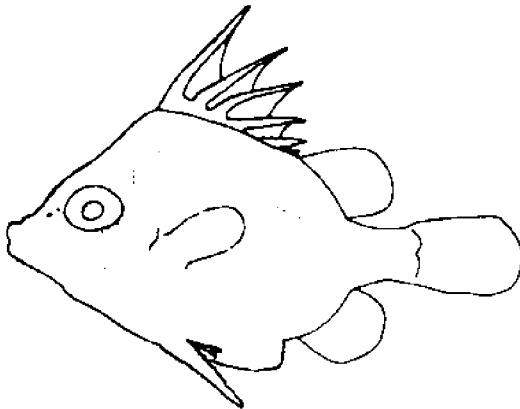
Reference: Tyler 1980.

***Parahollardia lineata* (Longley)**  
jambeau

FIELD CHARACTERS: Soft dorsal and anal fins short, placed far back on body; pelvic fins represented only by two stout spines.

DEPTH RANGE: 90-310 fms.

MAXIMUM SIZE: to 19 cm.



## **BOTHIDAE** (lefteye flounders)

Reference: Gutherz 1967.

### ***Ancylopsetta dilecta*** (Goode and Bean 1883) three-eye flounder

FIELD CHARACTERS: Three large ocellated spots (usually with light centers) on ocular side; pelvic fin on ocular side; lateral line arched over pectoral fin; anterior most dorsal rays noticeably elongate; size, larger. Fin.

DEPTH RANGE: 30-200 fms.

MAXIMUM SIZE: to 18 cm.

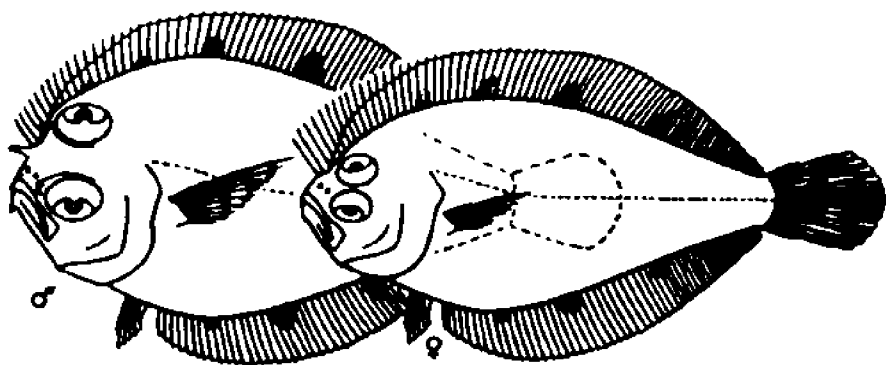


### ***Citharichthys cornutus*** (Günther 1887) horned whiff

FIELD CHARACTERS: Color brown on ocular side; pectoral with several cross bars and a dark area in the axil; lateral line slightly arched over the pectoral fin; males with a widened interorbital and prominent spines on the orbital rims; sexually dimorphic; size smaller.

DEPTH RANGE: 15-200 fms.

MAXIMUM SIZE: to 10 cm.

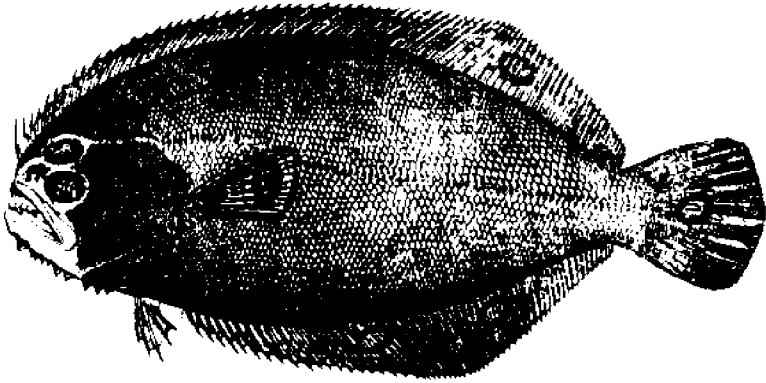


*Cyclopsetta fimbriata* (Goode and Bean 1885)  
spotfin flounder

FIELD CHARACTERS: Color brown on ocular side with several large black spots on all fins, a large black spot on distal portion of pectoral fin; lateral line slightly arched over the pectoral fin; pectoral fin truncate; size larger.

DEPTH RANGE: 10-125 fms.

MAXIMUM SIZE: to 38 cm.

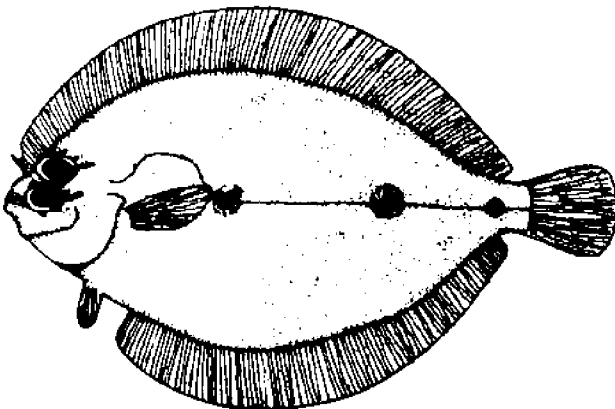


*Engyophrys senta* Ginsburg 1933  
spiny flounder

FIELD CHARACTERS: Color dark tan or brownish on ocular side with darker blotches along lateral line and edges of body; short tentacles extending from posterior margin of the eyes (especially in young and females); lateral line strongly arched over the pectoral fin; mouth small; size very small.

DEPTH RANGE: 15-100 fms.

MAXIMUM SIZE: to 8 cm.

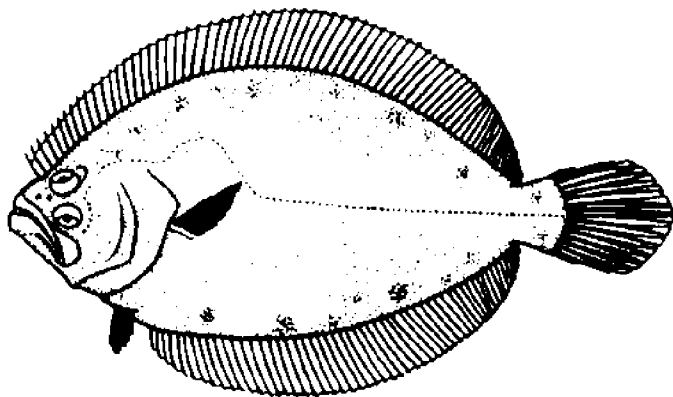


*Paralichthys squamilentus* Jordan and Gilbert 1882  
broad flounder

FIELD CHARACTERS: Color brown on ocular side with numerous nonocellated spots; broad area along dorsal and ventral edges of ocular side sprinkled with pigment, center devoid of pigment; lateral line strongly arched over the pectoral fin; mouth large; forehead concave; size large.

DEPTH RANGE: 4-125 fms.

MAXIMUM SIZE: to 41 cm.

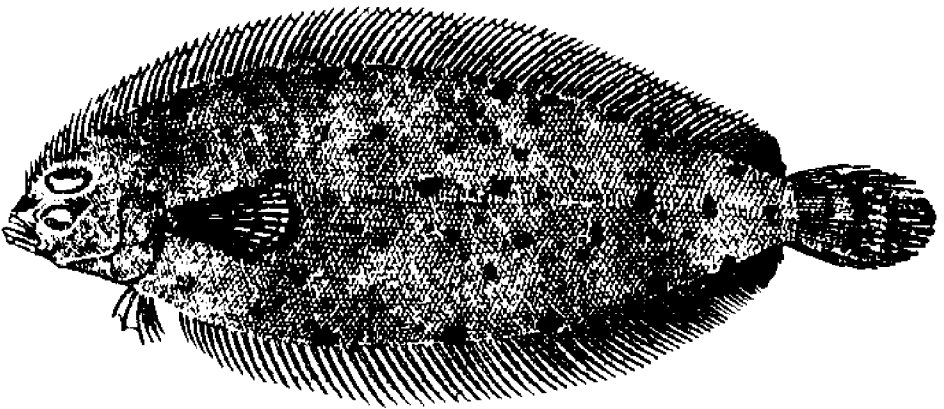


***Monolene antillarum* Norman 1933**  
deepwater flounder

FIELD CHARACTERS: Color light tan (often with darker crossbars), caudal usually with dark spot, dark spots at bases of fins, lower distal portion of pectoral fin darkened; lateral line strongly arched over the pectoral fin; mouth larger, maxillary extending past anterior edge of eye.

DEPTH RANGE: 50-300 fms.

MAXIMUM SIZE: to 15 cm.



**CYNOGLOSSIDAE (tonguefishes)**

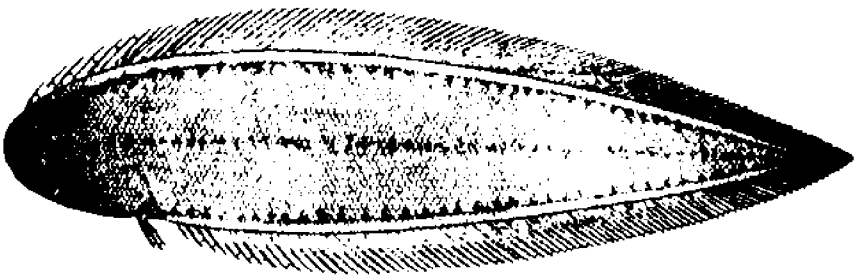
Reference: Ginsburg 1951.

***Symphurus marginatus* (Goode and Bean 1886)**

FIELD CHARACTERS: Width of body more than four times in length; base of dorsal and anal fins with black line; dorsal and anal fins darkly pigmented, especially towards caudal fin; a faint line down middle of side of body.

DEPTH RANGE: 180-450 fms.

MAXIMUM SIZE:

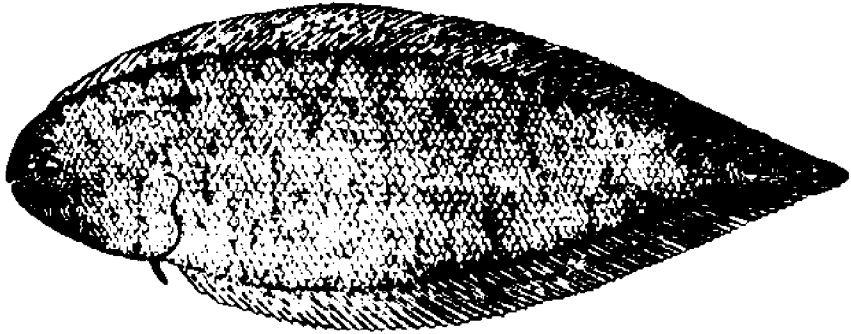


***Symphurus piger*** (Goode and Bean 1888)  
deepwater tonguefish

FIELD CHARACTERS: Width of body less than three times in length; base of dorsal and anal fins without black line; dorsal and anal fin peppered, a dark blotch near base of caudal; no line down middle of side of body.

DEPTH RANGE: 50-105 fms.

MAXIMUM SIZE: to 15 cm.



**PLEURONECTIDAE** (righteye flounders)

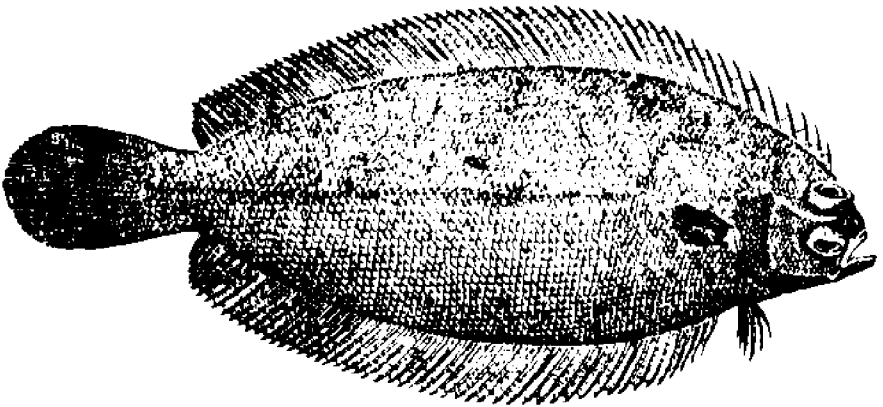
Reference: Norman 1934.

***Poecilopsetta beani*** (Goode 1881)  
offshore flounder

FIELD CHARACTERS: Color brownish with indistinct darker markings, middle of upper and lower margins of caudal fin with a pair of conspicuous black blotches; pectoral fin blackish distally.

DEPTH RANGE: 110-900 fms.

MAXIMUM SIZE: to 9 cm.





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