Order LAMPRIDIFORMES

LAMPRIDAE

Opahs

by B.B. Collette, National Marine Fisheries Service, National Museum of Natural History, Washington, D.C., USA

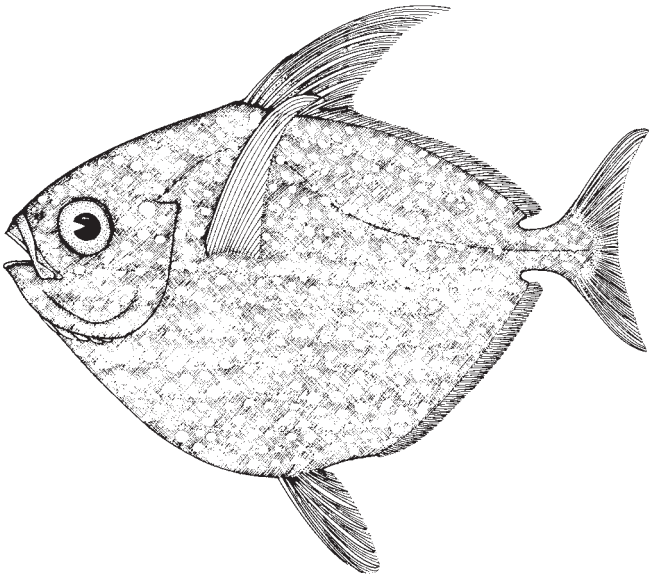
A single species occurring in the area.

Lampris guttatus (Brünnich, 1788) LAG

Frequent synonyms / misidentifications: *L. regius* (Bonnaterre, 1788), *L. luna* (Gmelin, 1789) / None.

FAO names: En - Opah; **Fr** - Opa; **Sp** - Opa.

Diagnostic characters: A large, deep, compressed and oval-shaped fish. Mouth small and toothless. **Dorsal and anal fins long and single, both retractable into deep grooves, the first with a high anterior lobe**; caudal fin moderately forked; **pectoral fins long and sickle-shaped, placed high on sides**, their bases horizontal; pelvic fins large and placed on ventral margin of body, posterior to pectoral-fin origin. Body covered with very small, smooth scales. Lateral line strongly arched over pectoral-fin base. **Colour:** back steel blue to bottle green, upper sides bluish or greenish with reflections of purple and gold, **lower sides and belly rose-red; entire body covered with small round silvery spots; jaws and fins bright scarlet.**



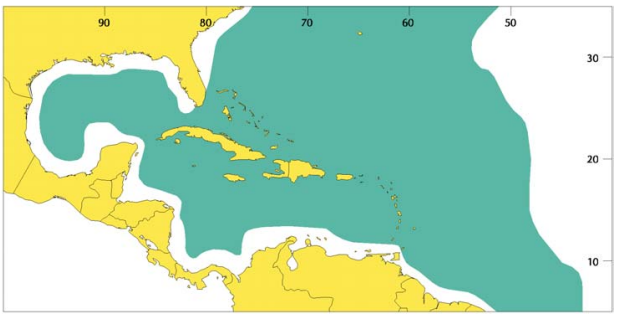
Similar families occurring in the area

No other large marine fish has the typical body shape and wing-like pectoral fins of *Lampris guttatus*.

Size: Maximum to at least 185 cm and 220 to 275 kg; common to 120 cm. The IGFA all-tackle game fish record is 73.93 kg.

Habitat, biology, and fisheries: Comparatively uncommon; found from the surface to depths of about 200 m; apparently solitary, mainly an inhabitant of warm water, but wandering far north in summer months. Normal cruising is accomplished by pectoral swimming employing the large red adductor and abductor muscles attached to the massive shoulder girdle. Feeds chiefly on small cuttlefishes, crustaceans, shellfishes, and young fishes. Taken incidentally in offshore waters. Caught with longlines. An excellent foodfish, flesh red, tender, full of oil and of delicate flavour. Occasionally marketed fresh. Separate statistics are not collected for this species.

Distribution: Worldwide in tropical and temperate waters; within the area reported from Cuba and from the Caribbean Sea south to Puerto Rico; probably scattered occurrence throughout the area.



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Bane, G.W., Jr. 1965. The opah (*Lampris regius*), from Puerto Rico. *Carib. J. Sci.*, 5:63-66.

Parin, N.V. and E.I. Kukuev. 1983. Reestablishment of validity of *Lampris immaculata* Gilchrist and the geographic distribution of opahs (Lampridae). *Voprosy Ikhtiologii,* 23:3-14.

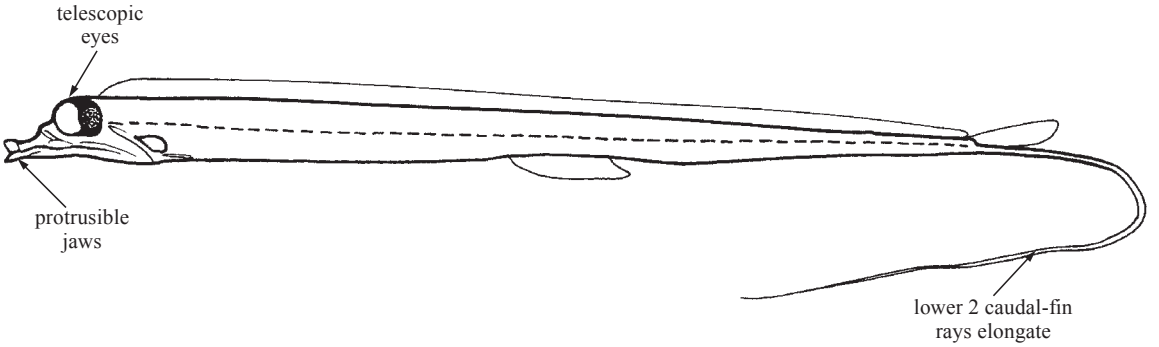
Rosenblatt, R.H. and G.D. Johnson. 1976. Anatomical considerations of pectoral swimming in the opah, *Lampris guttatus*. *Copeia,* 1976:367-370.

STYLEPHORIDAE

Tube-eyes

by J.E. Olney, Virginia Institute of Marine Science, USA

Diagnostic characters: Small to moderate-sized lampridiform fishes (usually under 30 cm); body slender, elongate, somewhat compressed. **Eyes conspicuous, telescopic, directed forward and somewhat upward. Jaws highly protrusible, mouth small and tubular** (head tilted backward when jaws protruded, with a membranous pouch stretching from head to mouth, and volume of mouth cavity increasing dramatically); teeth absent. Dorsal-fin base long, extending from nape to caudal fin; first 2 dorsal-fin elements elongate, especially in small specimens; total dorsal-fin soft rays 115 to 124. Anal-fin base short, inserted at midbody; total anal-fin soft rays 14 to 17. **Caudal fin highly modified into 2 separate parts; lower-most 2 caudal-fin soft rays extremely elongate, forming a projection that equals or exceeds body length in undamaged specimens**; upper caudal-fin lobe with 5 or 6 short rays. Pectoral fins with 10 or 11 soft rays; fin base obliquely rotated. Pelvic fins inserted below pectoral-fin base, with 1 soft ray, often broken and inconspicuous. Total vertebrae about 53; first 2 vertebrae highly reduced; second vertebra without neural spine and with neural arch m-shaped. **Colour:** body silver; head darkly pigmented; dorsal fin, anal fin, and upper caudal-fin lobe may be tinted red.



Habitat, biology, and fisheries: The only known species in this family, *Stylephorus chordatus*, is meso- or bathypelagic (captured at depths of 300 to 800 m) and rare. It feeds on small crustaceans, and is thought to capture prey while swimming in a vertical, head-up position. Worldwide in tropical and temperate waters; reported to occur in surface waters of the Florida current in large numbers on rare occasions; presumably found throughout the area. Little is known of its habits or reproduction. There is no fishery for the species.

Similar families occurring in the area

None. *S. chordatus* is easily distinguished by the conspicuous telescopic eyes, protrusible jaws, and the highly modified caudal fin with extremely elongate lower fin rays.

List of species occurring in the area

Note: A single species in the family.

Stylephorus chordatus Shaw, 1791. To 32 cm, excluding elongate caudal filament. Circumglobal.

References

Olney, J.E. 1984. Lampridiformes: development and relationships. In *Ontogeny and systematics of fishes*, edited by H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall, Jr, and S.L. Richardson. American Society of Ichthyologists and Herpetologists, Publication 1, pp. 368-379.

Olney, J.E., G.D. Johnson, and C.C. Baldwin. 1993. Phylogeny of lampridiform fishes. *Bull. Mar. Sci.*, 52:137-169.

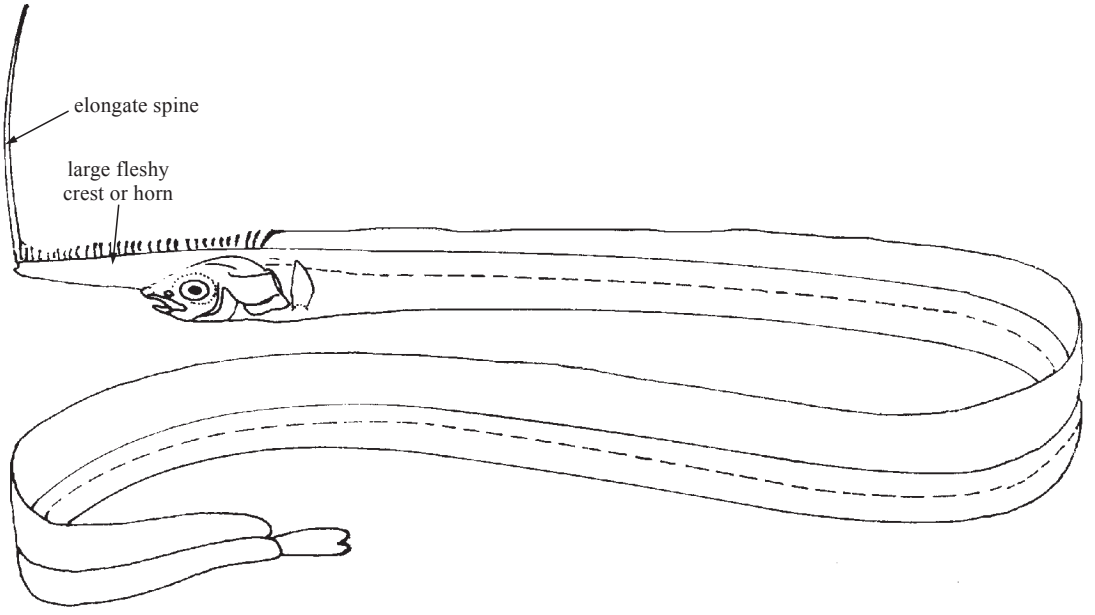
Robins, C.R., G.C. Ray and J. Douglas. 1986. *A field guide to Atlantic coast fishes North America*. Boston, Houghton Mifflin Co., 354p.

LOPHOTIDAE

Crestfishes

by J.E. Olney, Virginia Institute of Marine Science, USA

Diagnostic characters: Large-sized, ribbon-like lampridiform fishes (to 2 m); body elongate and compressed. **Head bears a large, fleshy crest or horn that extends forward to tip of jaw in *Lophotus*, and protrudes far forward of jaw in *Eumecichthys*; crest or horn bears an elongate spine and supports multiple dorsal-fin soft rays**. Upper jaw protrusible; small conical teeth present on jaws and vomer. Dorsal fin long, with 2 spines (first spine short, second spine elongate) inserting well forward of eye; total dorsal-fin soft rays 204 to 390. Anal fin short, posteriorly placed; total anal-fin soft rays 5 to 20. Caudal fin somewhat reduced, with 12 to 17 soft rays. Pectoral fins with 13 to 17 soft rays, its base almost horizontal. Pelvic fins absent or small, with 3 to 6 soft rays, inserted posterior to pectoral-fin base. **Scales absent, except for tubular lateral-line scales**. Total vertebrae, 124 to 200 (56 thoracic in *Eumecichthys*). In lophotids (and all lampridiforms), the anterior palatomaxillary ligament and palatine prong are absent, as a result, maxilla is free to extend, along with the premaxilla, well away from the ethmo-vomerine region during jaw protrustion. Other anatomical features of lophotids (and all lampridiforms): first dorsal-fin pterygiophore inserts anterior to first neural spine; elongate ascending processes of premaxilla and a large rostral cartilage insert into a frontal vault or cradle; mesethmoid posterior to lateral ethmoids. In lophotids (and radiicephalids), the supraoccipital bears an anteriorly directed process that is well developed and stout in lophotids, projects over the frontal arch, and supports the fleshy crest on the head. **Colour:** body silver with multiple dark vertical bands in *Eumecichthys*; body blue dorsally, grading to silver ventrally in *Lophotus*, lacking vertical bands, and having multiple white or silver spots; dorsal fin, pectoral fins, pelvic fins (when present), and caudal fin reddish in lophotids (and most other lampridiforms).

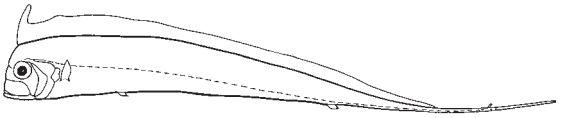


Habitat, biology, and fisheries: Lophotids are rare mesopelagic fishes that occur in most oceans. *Lophotus* consumes squids and small fishes. Eggs and larvae have been described, but little else is known of their habits and reproductive ecology. As in the Radiicephalidae, lophotids possess a tubular gland that overlies the hind gut, and discharges a black ink-like fluid through a vent near the anus in an alarm response. No fishery exists for them.

Remarks: There may be only 2 species in this family, *Lophotus lacepede* (crestfish) and *Eumecichthys fiski* (unicornfish), although some authors recognize additional species that are not treated here. The family is in need of revision.

Similar families occurring in the area

Radiicephalidae: fewer dorsal-fin elements (152 to160 versus 206 to 392); no conspicuous cranial crest or horn; anus situated near caudal fin (situated at midbody in lophotids).



Radiicephalidae

Key to the species of Lophotidae occurring in the area

1a. Crest on top of head extends forward to the tip of jaw (Fig. 1); dorsal fin with fewer than 300 rays. . . . . ***Lophotus lacepede***

1b. Crest on top of head protrudes far forward of the jaw (Fig. 2); dorsal fin with more than 300 rays . . . . . ***Eumecichthys fiski***

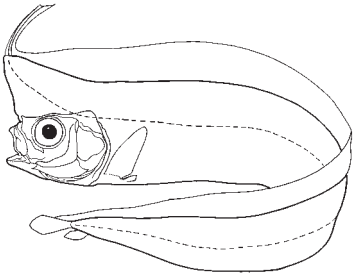


Fig. 1 ***Lophotus lacepede***

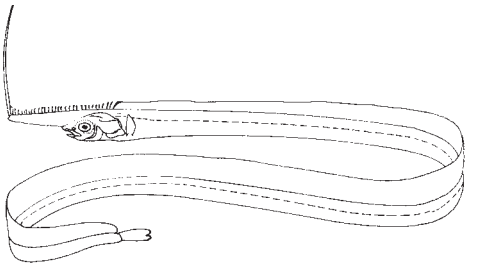


Fig. 2 ***Eumecichthys fiski***

List of species occurring in the area

Eumecichthys fiski (Günther, 1890). To 130 cm. Mesopelagic in most oceans.

Lophotus lacepede Bosc, 1817. To 200 cm. Mesopelagic in most oceans.

References

Charter, S.R. and H.G. Moser. 1996. Lampridiformes, Lophotidae, Radiicephalidae, Trachipteridae. In *The early stages of fishes in the California current region*, edited by H.G. Moser. California Cooperative Oceanic Fisheries Investigations Atlas No. 33, pp. 659-677.

Olney, J.E. 1984. Lampridiformes: development and relationships. In *Ontogeny and systematics of fishes*, edited by H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall, Jr, and S.L. Richardson. American Society of Ichthyologists and Herpetologists, Publication 1, pp. 368-379.

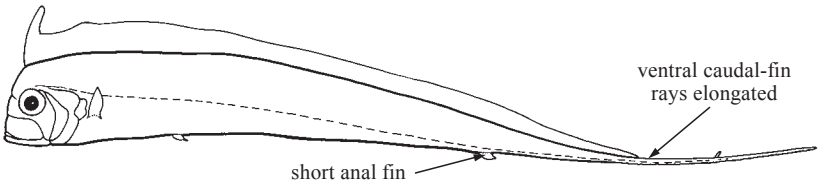
Olney, J.E., G.D. Johnson, and C.C. Baldwin. 1993. Phylogeny of lampridiform fishes. *Bull. Mar. Sci*., 52:137-169.

Robins, C. R., G.C. Ray and J. Douglas. 1986. *A field guide to Atlantic coast fishes North America.* Boston, Houghton Mifflin Co., 354 p.

RADIICEPHALIDAE

Tapertails

by J.E. Olney, Virginia Institute of Marine Science, USA



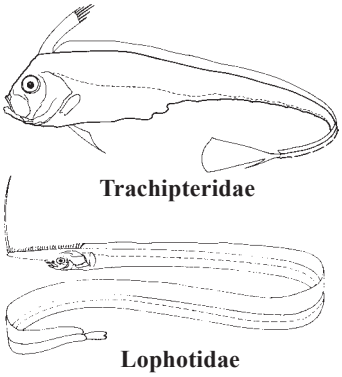
Diagnostic characters: Small to moderate-sized lampridiform fishes; body slender, elongate, compressed, its depth gradually decreasing from the head to caudal peduncle. Upper jaw highly protrusible; jaw teeth absent; 1 to several teeth on roof of mouth. Dorsal fin long, its first rays inserting over eye; anterior dorsal-fin rays somewhat elongate; total dorsal-fin soft rays 150 to 160. Anal fin short, inconspicuous, posteriorly placed near caudal peduncle; total anal-fin soft rays 6 or 7. Caudal fin highly modified into separate parts; **ventral caudal-fin soft rays (these total approximately 6 or 7) elongate, forming a caudal projection that may equal the body length in undamaged specimens**; upper caudal-fin lobe with 4 or 5 short rays. Pectoral fins with 9 or 10 soft rays; fin base obliquely rotated. Pelvic fins with 9 soft rays in small specimens, often damaged or inconspicuous in adults; pelvic fins inserted well posterior to pectoral-fin base. **Scales absent except for tubular lateral-line scales**. Total vertebrae 114 to 121 (36 to 39 thoracic, 77 to 79 abdominal); **fourth, fifth, and sixth preural centra with elongate haemal spines that pierce ventral margin of body** (unique among fishes). In radiicephalids (and all lampridiforms), the anterior palatomaxillary ligament and the palatine prong are absent, as a result, the maxilla is free to extend, along with the premaxilla, well away from the ethmo-vomerine region during jaw protrusion. Other anatomical features of radiicephalids (and all lampridiforms): first dorsal-fin pterygiophore inserts anterior to first neural spine; elongate ascending processes of premaxilla and a large rostral cartilage insert into a frontal vault or cradle; mesethmoid posterior to lateral ethmoids. In radiicephalids (and lophotids), the supraoccipital bears an anteriorly directed process (a weak spine in radiicephalids, but broader and well-developed in lophoitids). **Colour:** body silver; dorsal, pectoral and caudal fins may be tinted red.

Habitat, biology and fisheries: A single, very rare species, *Radiicephalus elongatus* is known from a few small, immature specimens captured by research nets in the area. Usually attains 60 to 75 cm in length. Meso- or bathypelagic; little is known of its habits or reproduction. Like the Lophotidae, it possesses a gland that discharges a black, ink-like fluid through a vent near the anus in an alarm response. There is no fishery for the species.

Similar families occurring in the area

Lophotidae: more dorsal-fin soft rays (206 to 392 versus 152 to 160); head with conspicuous flesh crest or horn; anus situated near caudal fin (situated at mid-body in Radiicephalidae)

Trachipteridae: anal fin absent



List of species occurring in the area

A single species in the family.

Radiicephalus elongatus Osório, 1917. Usually under 80 cm. Mesopelagic in most oceans.

References

Charter, S.R. and H.G. Moser. 1996. Lampridiformes, Lophotidae, Radiicephalidae, Trachipteridae. In *The early stages of fishes in the California current region*, edited by H.G. Moser. California Cooperative Oceanic Fisheries Investigations Atlas No. 33, pp. 659-677.

Heemstra, P.C. and S.X. Kannemeyer. 1984. The families Trachipteridae and Radiicephalidae (Pisces, Lampriformes) and a new species of *Zu* from South Africa. Annals South African Museum, 94:13-39.

Olney, J.E. 1984. Lampridiformes: development and relationships. In *Ontogeny and systematics of fishes*, edited by H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall, Jr, and S.L. Richardson. American Society of Ichthyologists and Herpetologists, Publication 1, pp. 368-379.

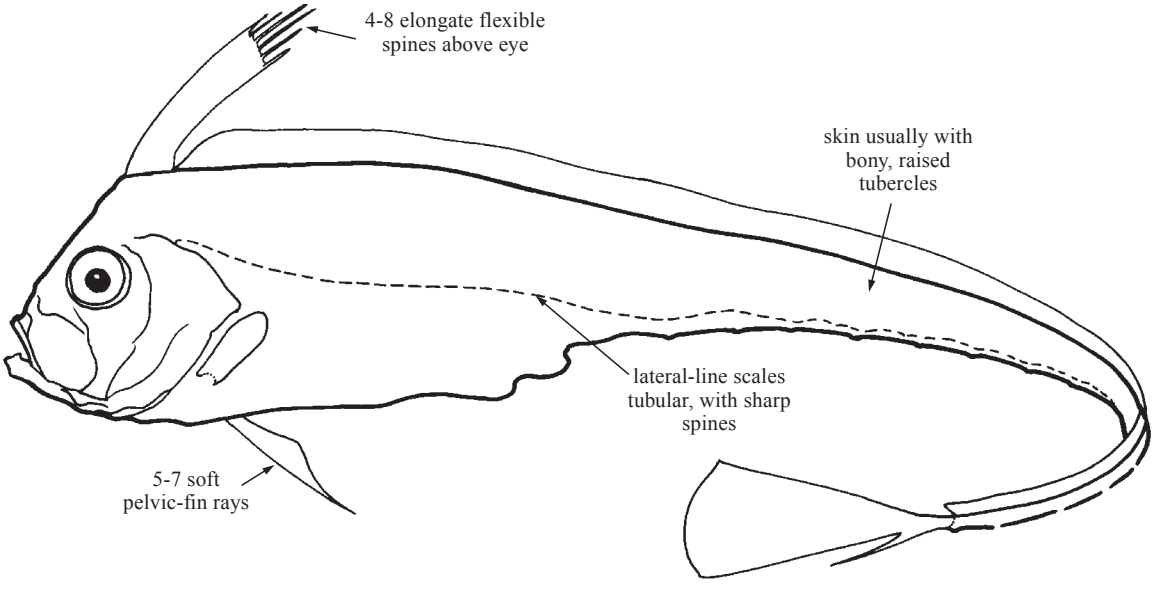
Olney, J.E., G.D. Johnson, and C.C. Baldwin. 1993. Phylogeny of lampridiform fishes. *Bull. Mar. Sci.*, 52:137-169.

TRACHIPTERIDAE

Ribbonfishes (dealfishes)

by J.E. Olney, Virginia Institute of Marine Science, USA

Diagnostic characters: Large-sized lampridiform fishes (to 2 m); body elongate, ribbon-like, compressed. In most species, body depth gradually decreasing from head to caudal peduncle. Upper jaw highly protrusible, maxilla broad; usually recurved, pointed teeth on jaws, vomer, and palatines; bones of head and jaws thin and fragile. Dorsal fin very long, extending along entire body length to tail; **anterior dorsal-fin elements consisting of 4 to 8 elongate, flexible spines that insert above eye**; total dorsal-fin elements 120 to 197; dorsal-fin rays bear strong lateral spinules that tend to interlock with adjacent soft rays and strengthen the fin. Anal fin absent. Caudal fin with 2 lobes; upper lobe sometimes upturned, conspicuous, and fan-like; total caudal-fin soft rays usually 13 to 18; usually 5 to 9 soft rays in lower fin lobe, some of which are elongate; usually 5 to 7 soft rays in the upper fin lobe, all of which are elongate in *Zu*. **Pelvic fins with 5 to 7 soft rays; often elongate in juveniles; sometimes lost at metamorphosis. Skin usually covered with bony, raised, bump-like tubercles. Scales absent, except for lateral-line scales that are tubular and bear sharp spines**. (Scalloped ribbonfish, *Zu cristatus*, with distinctive scalloped or wavy ventral margin, and possessing small deciduous scales). Total vertebrae, 62 to 102; thoracic vertebrae, 18 to 40. In trachipterids (and all lampridiforms), the anterior palatomaxillary ligament and palatine prong are absent; as a result, the maxilla is free to extend, along with premaxilla, well away from the ethmo-vomerine region during jaw protrusion. Other anatomical features of the trachipterids (and all lampridiforms): first dorsal-fin pterygiophore inserts anterior to first neural spine; elongate ascending processes of premaxilla and a large rostral cartilage insert into a front vault or cradle; mesethmoid posterior to lateral ethmoids. In trachipterids (and regalecids), the dorsal-, caudal-, and pelvic-fin rays bear spinules that project laterally; in trachipterids, the parapophyses of each thoracic vertebra are well developed, but ribs are lacking. **Colour:** head and body usually silver with oblique dusky bars or with dark spots; fins deep crimson-red.



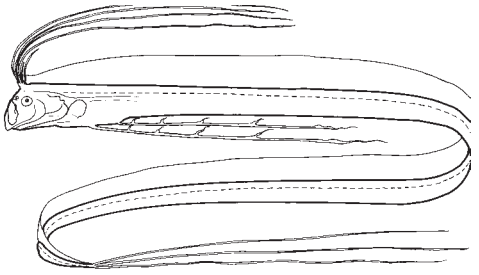
Habitat, biology, and fisheries: Trachipterids are rare mesopelagic fishes that occur in all oceans. They consume pelagic crustaceans, small fishes, and squids. Eggs free-floating, large, and red. Very little is known of their habits and reproductive ecology. There is no fishery for the group.

Remarks: Trachipterids are distributed worldwide in tropical and temperate waters. There are approximately ten species in 3 genera (*Trachipterus, Zu*, and *Desmodema*), at least 3 of which are known from the area. There are a number of other nominal species whose validity is not widely recognized by all authors. In addition, there may be undescribed species in the area. The family is in need of revision.

Similar families occurring in the area

Regalecidae: also lacking anal fin, but with more dorsal-fin soft rays (260 to 412 versus 120 to 200), and attaining a far larger size.

All other lampridiform families possess an anal fin.



Regalecidae

Key to the species of Trachipteridae occurring in the area

1a. Caudal fin without 2 lobes and not sharply upturned; no long spines or bony tubercles along ventral edge of tail; dorsal fin with 120 to 124 elements . . . . . ***Desmodema polystictum***

1b. Caudal fin with 2 lobes, the upper lobe sharply upturned; ventral edge of tail bears long spiny plates or bony tubercles; dorsal fin usually with more than 124 elements . . . . . → ***2***

2a. Posterior portion of lateral line runs along ventral edge of tail as a series of sharp spines that point in alternating directions; wavy or scalloped ventral body margin; dorsal fin with less than 150 elements . . . . . ***Zu cristatus***

2b. Posterior portion of lateral line runs well above the ventral edge of tail; lateral line spines project laterally, and do not point in alternating directions; wavy or scalloped ventral body margin; dorsal fin with more than 150 elements . . . . . ***Trachipterus arcticus***

List of species occurring in the area

Desmodema polystictum (Ogilby, 1898). To about 100 cm. Mesopleagic in all oceans.

Trachipterus arcticus (Brünnich, 1788). To about 250 cm. Mesopelagic in all oceans.

Zu cristatus (Bonelli, 1819). To about 120 cm. Mesopelagic in all oceans.

References

Olney, J.E. 1984. Lampridiformes: development and relationships. In *Ontogeny and systematics of fishes*, edited by H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall, Jr, and S.L. Richardson. American Society of Ichthyologists and Herpetologists, Publication 1, pp. 368-379.

Olney, J.E., G.D. Johnson, and C.C. Baldwin. 1993. Phylogeny of lampridiform fishes. *Bull. Mar. Sci.*, 52:137-169.

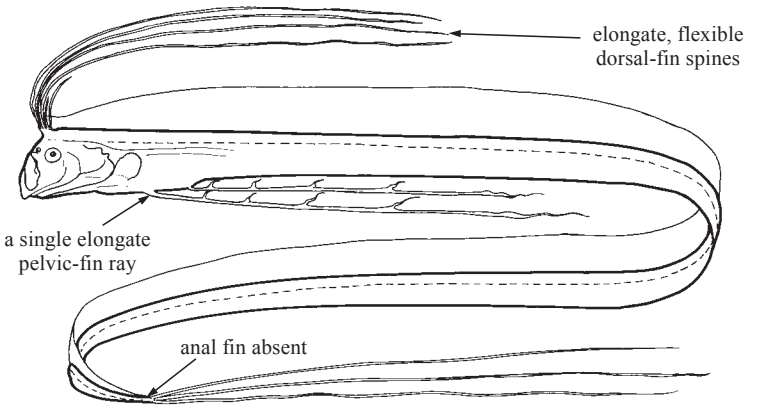
Palmer, G. 1961. The dealfishes (Trachipteridae) of the Mediterranean and north-east Atlantic. *Bull. Brit. Mus. (Nat. Hist.) Zool.*, 7(7):337-351.

Robins, C.R., G.C. Ray and J. Douglas. 1986. *A field guide to Atlantic coast fishes North America*. Boston, Houghton Mifflin Co., 354 p.

REGALECIDAE

Oarfishes

by J.E. Olney, Virginia Institute of Marine Science, USA



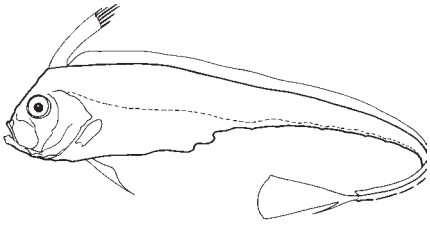
Diagnostic characters: Giant ribbon-like lampridiform fish; body extremely elongate, compressed. Upper jaw highly protrusible, maxilla broad; teeth minute in both jaws; bones of head and jaws thin and fragile. Dorsal fin very long, extending along the entire body length to the tail; **first 8 to 10 dorsal-fin elements (and the single pelvic-fin soft ray) extremely elongate** flexible spines; total dorsal-fin elements 260 to 412. **Anal fin absent**. Caudal fin usually absent in large specimens; usually with 5 rays in small specimens, the middle 3 rays stout and elongate. Pelvic fins with 1 stout ray with fleshy tabs, and 1 small splint-like element. **Scales absent, except for tubular lateral-line scales**. Total vertebrae 143 to 170. In oarfishes (and all lampridiforms), the anterior palatomaxillary ligament and the palatine prong are absent; as a result, the maxilla is free to extend, along with the premaxilla, well away from the ethmo-vomerine region during jaw protusion. Other anatomical features of oarfishes (and all lampridiforms): first dorsal-fin pterygiophore inserts anterior to first neural spine; elongate ascending processes of premaxilla and a large rostral cartilage insert into a frontal vault or cradle; mesethmoid posterior to lateral ethmoids. In regalecids (and trachipterids), the dorsal-, caudal-, and pelvic-fin rays bear spinules that project laterally; in oarfishes, the spinules are very weakly developed, and reduced to nubbins. **Colour:** body brilliant silver with oblique dusky bars; head blue; fins deep crimson red, elongate dorsal-fin elements, and the single pelvic-fin ray, ornamented with fleshy tabs, and crimson red.

Habitat, biology, and fisheries: Regalecids are rare, mesopelagic fishes that occur in all oceans. Sightings at surface, or strandings on shore usually related to storm events. There are 2 monotypic genera (*Regalecus* and *Agrostichthys*) but only *R. glesne* occurs in the area. *R. glesne* is the longest of all bony fishes, and is thought to be responsible for many historical sightings of sea monsters. Regalecids feed on deep-sea shrimps (euphausiids), small fishes, and squids. Eggs free-floating, large, and red. Very little is known of their habits and reproductive ecology. There is no fishery for regalecids.

Remarks: There may be only a single species of *Regalecus* with worldwide distribution although some authors recognize other species.

Similar families occuring in the area

Trachipteridae: also lacking anal fin, but much smaller maximum size and with fewer dorsal-fin soft rays (166 to 190 versus 260 to 412). All other lampridiform families possess an anal fin.



Trachipteridae

List of species occurring in the area

Regalecus glesne Ascanius, 1772. To 17 m. Circumglobal.

References

Olney, J.E. 1984. Lampridiformes: development and relationships. In *Ontogeny and systematics of fishes*, edited by H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall, Jr, and S.L. Richardson. American Society of Ichthyologists and Herpetologists, Publication 1, pp. 368-379.

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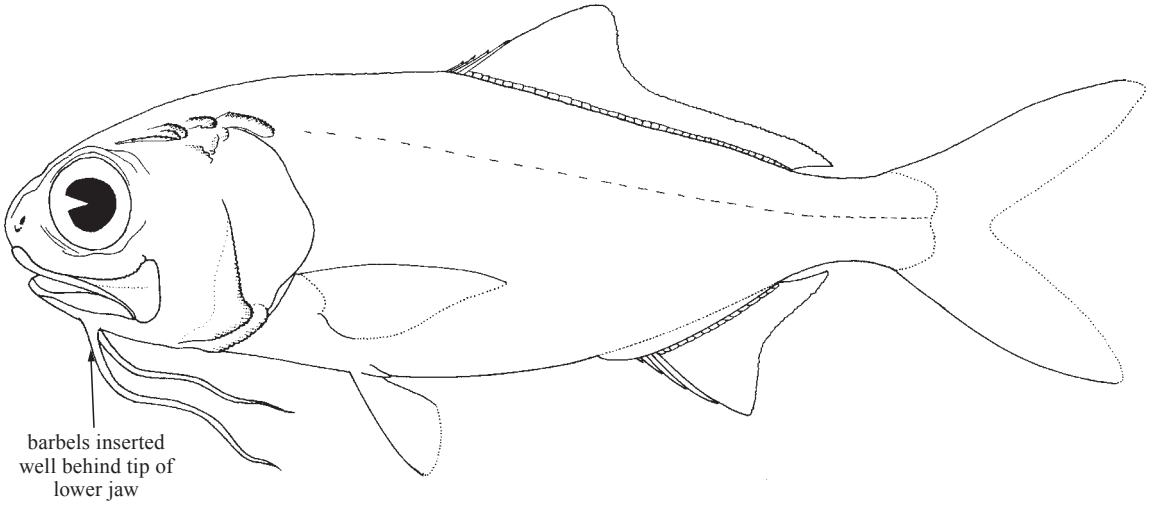
Order POLYMIXIIFORMES

POLYMIXIIDAE

Beardfishes

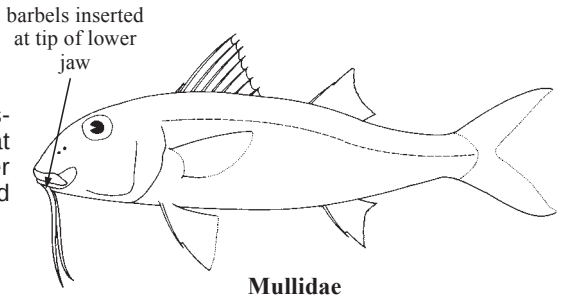
by J.A. Moore, Florida Atlantic University, USA

Diagnostic characters: Small to moderate-sized (to about 48 cm total length) acanthomorph (spiny-finned) fishes. Body elongate and laterally compressed. Head moderate-sized. Eye large, equal to or larger than snout length. **Snout rounded and prominent**. Mouth extending to posterior margin of eye; **2 supramaxillae. Teeth villiform, in bands on jaws, vomer, palatines, ectopterygoids, and endopterygoids (roof of the mouth)**. No deep sensory canals separated by bony ridges, scales extending across nape to area over eye; no spines on preopercle or opercle; **pair of long chin barbels originating from hyoid, behind symphysis of lower jaw. Seven branchiostegal rays, first 3 minuscule, supporting the hyoid barbel, only last 4 externally visible**. Single dorsal fin long, with 4 to 6 spines and 26 to 38 soft rays; anal fin with 3 to 4 spines and 15 to 18 soft rays; caudal fin forked; pectoral fin with 14 to 18 soft rays; pelvic fin with 1 spine and 6 soft rays. Scales spinoid and moderately large; lateral line with 31 to 37 pored scales; 48 to 62 transverse scale rows; scales completely cover cheek and opercle. Pyloric caecae about 27 to 108. **Colour:** body and head bluish or greenish silver to violet-brown along dorsal surface, sides completely silver; dark distal tips to anterior rays in dorsal fin, dark posterior tips of caudal fin.



Habitat, biology, and fisheries: Occurring in tropical and subtropical waters over the outer continental shelf and slope, also found around islands, mostly between depths of 150 to 700 m. Feeds on benthic invertebrates and small fish. Observed swimming with barbels in constant contact with bottom sediments. Of relatively minor importance to fisheries in the area, but considered good food fishes elsewhere.

Remarks: One genus with 10 species.



Mullidae

Similar families occurring in the area

Mullidae (goatfishes): superficially similar due to presence of long chin barbels, but these are located at symphysis of lower jaw; 2 separate dorsal fins; smaller eye and longer snout; most species brightly coloured shallow reef inhabitants.

Key to the species of Polymixiidae occurring in the area

1a. Dorsal-fin soft rays 26 to 32; total number of gill rakers on first arch14 to 22; pyloric caecae about 27 to 31 . . . . . ***Polymixia lowei***

1b. Dorsal-fin soft rays 34 to 38; total number of gill rakers on first arch10 to 13; pyloric caecae around 108 . . . . . ***Polymixia nobilis***

List of species occurring in the area

Polymixia lowei Günther, 1859.
Polymixia nobilis Lowe, 1838.

References

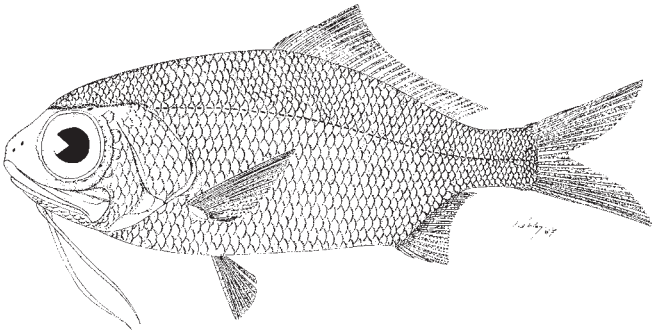
Kotlyar, A.N. 1992. A new species of the genus *Polymixia* (Polymixiidae, Beryciformes) from submarine Kyushu-Palau Ridge and notes on other members of the genus. *Vopr. Ikhtiol*., 32(6):11-26. [in Russian, English translation in *J. Ichthyol*., 1993, 33(3):30-49].

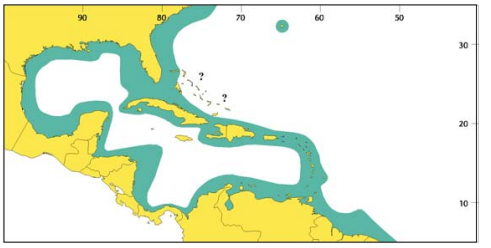
Woods, L.P. and P. Sonoda. 1973. Order Berycomorphi (Beryciformes). In Fishes of the western North Atlantic. *Mem. Sears Found. Mar. Res*., 1(6):263-396.

Polymixia lowei Gunther, 1859

En - Beardfish; **Fr** - Poisson chèvre; **Sp** - Chivato.

Maximum size to 200 mm standard length; common to 150 mm. Known throughout the area on the shelf and upper slope of continents and islands. Found over soft bottoms between depths of 50 to 650 m, but more commonly below 150 m. Taken as bycatch in trawl fisheries. Occasionally taken in large numbers. Typically not marketed because of small size.

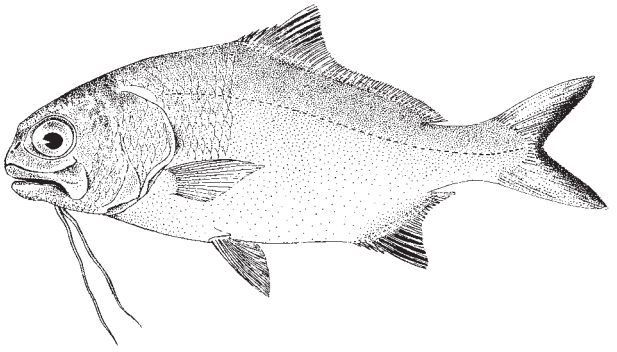


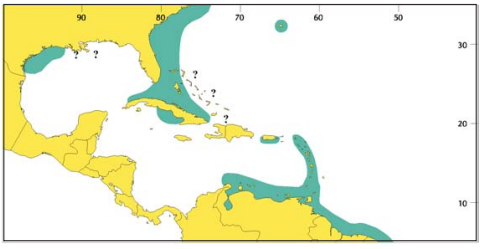


Polymixia nobilis Lowe, 1838

En - Stout beardfish; **Fr** - Poisson chèvre robuste; **Sp** - Chivato de fondo.

Maximum size to 430 mm standard length; common to 250 mm. Known from isolated records off northern South America, Greater Antilles, northern Gulf of Mexico, Bahamas, southeastern US Atlantic coast, and Bermuda. Probably more widespread in the area. Found over soft to semi-hard bottoms between depths of 70 to 800 m. Taken as bycatch in trawl and hook-and-line fisheries, but never in large quantities. Of only minor interest to fisheries.





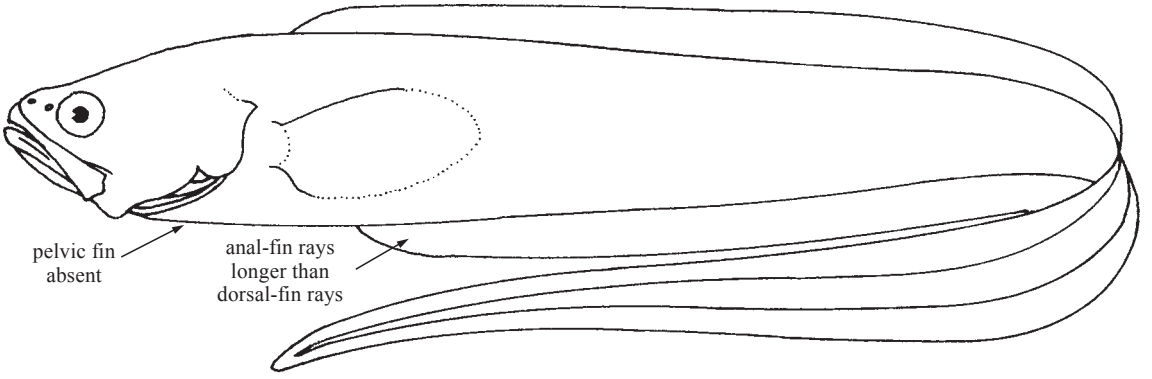
Order OPHIDIIFORMES

CARAPIDAE

Pearlfishes

by J.E. Olney, Virginia Institute of Marine Science, USA

Diagnostic characters: Small to moderate-sized, eel-like fishes; scales absent; body elongate and usually cylindrical, its depth gradually decreasing from the head to a slender tail tip; head length (tip of snout to edge of gill covers) about 10 to 15% of total length; upper jaw teeth either fang-like or small, heart-shaped; lower jaw teeth fang-like in some species; 1 to several teeth on roof of mouth. Dorsal-fin rays anterior to the thirtieth vertebra 19 to 53; **anal-fin rays longer than opposing dorsal-fin rays; anal-fin origin and anus positioned far forward, usually under the pectoral fin**; anal-fin rays anterior to the thirtieth vertebra 36 to 63; caudal fin and associated skeleton absent in most species; pectoral-fin rays 13 to 30 (pectoral fin absent in one species); **pelvic fins absent** in all but 1 genus (*Pyramodon*, not in area); **larvae possess a long, ornamented predorsal filament** that is lost at metamorphosis; eggs are deposited in a floating mucous mat. **Colour:** not brightly coloured; usually tan or cream with small black spots scattered over the body or larger black spots concentrated on top of head and along the dorsal and ventral margins of body; some species have more conspicuous black saddles of pigment along body margins and body midline.



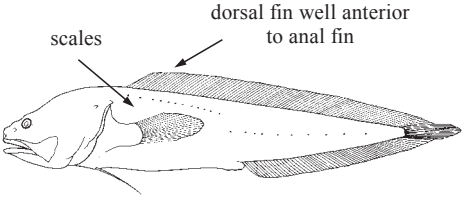
Habitat, biology, and fisheries: Widely distributed throughout tropical and temperate seas. While some species are free living, adults of most pearlfish species exhibit the highly specialized behaviour of living within the body cavities of invertebrate hosts such as sea cucumbers, clams, sea squirts, and sea stars. Some of these species exit their host at night to feed on small fishes and shrimps. Other species are parasitic, never leaving the host and feeding on its internal organs. There are 31 species in 7 genera; 3 species in the area but these are rarely collected. Pearlfishes in the area include a deep-sea species (*Snyderidia canina*) that is free living; a shallow-water species (*Carapus bermudensis*) that lives inside sea cucumbers (especially the genera *Actinopyga* and *Holothuria*); and a shallow-water species (*Echiodon dawsoni*) that is probably free living but may associate with colonies of tube worms. There is no fishery for pearlfishes, although some species in the Pacific and Indian Oceans are a bycatch of some invertebrate fisheries such as pearl oysters and sea cucumbers (bêche de mer).

Similar families occurring in the area

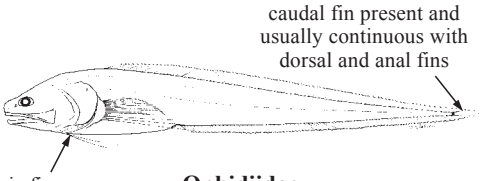
Bythitidae: most species have scales; caudal fin present although sometimes continuous with dorsal- and anal-fin rays; pelvic fins usually present; dorsal fin well anterior of anal fin; anal- and dorsal-fin rays about equal in length; viviparous (live bearing) fishes; males with externally visible intromittent organs.

Ophidiidae: caudal fin present and usually continuous with dorsal- and anal-fin rays; dorsal-fin rays equal in length or longer than anal fin rays; pelvic fins usually present.

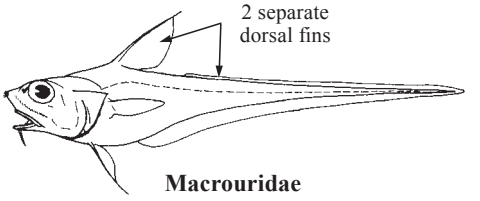
Steindachneriidae and Macrouridae (especially young stages): 2 separate dorsal fins; pelvic fins present; abdominal area often darkly pigmented.



Bythitidae



Ophidiidae



Macrouridae

Key to the species of Carapidae occurring in the area

1a. The first ray of the dorsal fin is anterior to the first ray of the anal fin . . . . . ***Snyderidia canina***

1b. The first ray of the dorsal fin is well posterior to the first ray of the anal fin . . . . . → ***2***

2a. The upper jaw has 1 or 2 pairs of large fangs and no small, heart-shaped teeth; usually found free living and not associated with sea cucumbers (holothurians). . . . . ***Echiodon dawsoni***

2b. The upper jaw lacks large fangs and there are many small, heart-shaped teeth; found inside the body cavity of sea cucumbers (holothurians) . . . . . ***Carapus bermudensis***

List of species occurring in the area

Carapus bermudensis (Jones, 1874). 11 to 37 cm TL. W shores of the Atlantic, Bermuda, and Caribbean Sea S to Brazil.

Echiodon dawsoni Williams and Shipp, 1982. 8 to 11 cm TL. W shores of the Atlantic, Bermuda, and Caribbean Sea S to Brazil.

Snyderidia canina Gilbert, 1905. 15 to 27 cm TL. Deep waters throughout the area and other tropical seas.

References

Cohen, D.M. and J.G. Nielson. 1978. Guide to the identification of genera of the fish order Ophidiiformes with a tentative classification of the order. *NOAA Tech. Rept. NMFS Circ.*, 417 p.

Markle, D.F and J.E. Olney. 1990. Systematics of the pearlfishes (Pisces: Carapidae). *Bull. Mar. Sci.*, 47(2):269-410.

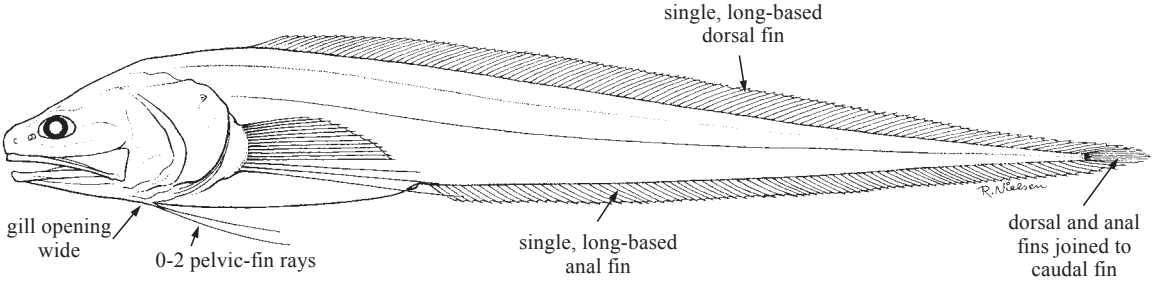
Williams, J.T. and R.L. Shipp. 1982. A new species of the genus *Echiodon* (Pisces: Carapidae) from the eastern Gulf of Mexico. *Copeia*, 1982:845-851.

OPHIDIIDAE

Cusk-eels

by J.G. Nielsen, Zoological Museum, University of Copenhagen, Denmark. and C.R. Robins, Lawrence, Kansas, USA

Diagnostic characters: Moderately elongate ophidiiform fishes (size from about 10 to 200 cm). **Anterior nostril placed midway between upper lip and posterior nostril**. Supramaxilla present. Teeth usually small, densely distributed, and blunt-tipped. **Very seldom fewer than 7 long gill rakers on anterior gill arch (except in Ophidiini). Dorsal and anal fins long, joined to caudal fin; dorsal-fin rays normally longer than opposing anal-fin rays; pelvic-fin rays 0 to 2. Scales present**. A well-developed spine on opercle usually present. **Anus placed posterior to tip of pectoral fin except in species with prolonged pectoral fins. Colour:** very variable, some with horizontal or vertical bars and eye spots.

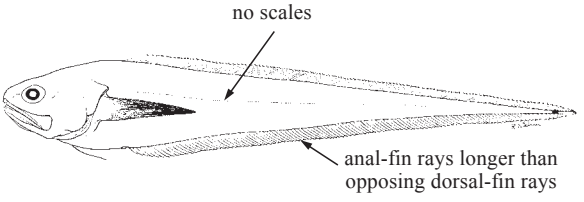


Habitat, biology and fisheries: With the exception of a few species which occur pelagically at great depths, cusk eels are bottom-living, found from shallow waters to a depth of 8 370 m the depth record for fishes; oviparous with pelagic larvae; no specialized larval stage (except for *Brotulotaenia* with rubaniform stage and *Lamprogrammus* with exterillium stage - Fahay and Nielsen in ms); a few species of commercial importance.

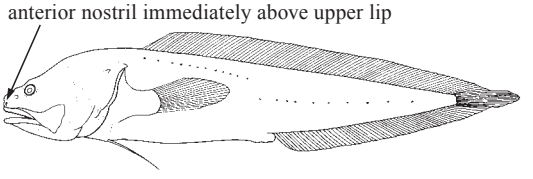
Similar families occuring in the area

Carapidae: scales absent; anal-fin rays longer than opposing dorsal-fin rays; anus placed below pectoral fins.

Bythitidae: anterior nostril placed immediately above upper lip: very seldom more than 7 long gill rakers on anterior gill arch.

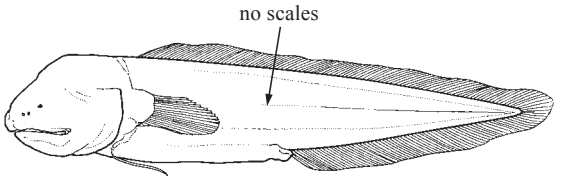


Carapidae

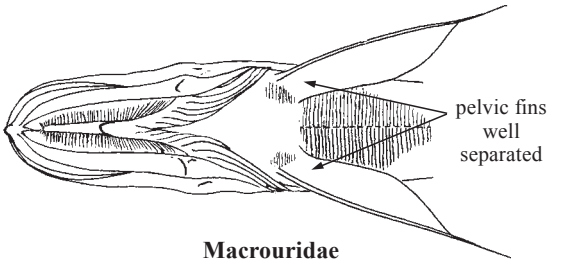


Bythitidae

Aphyonidae: no scales; skin loose and gelatinous; eyes small and indistinct.
Macrouridae: pelvic fins well separated from each other, with more than 2 rays.

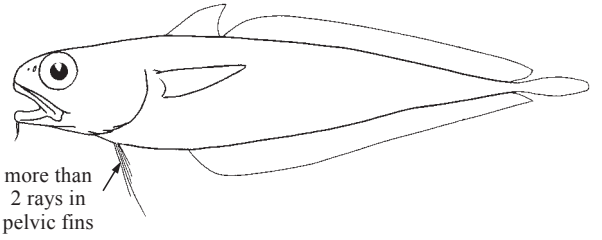


Aphyonidae



Macrouridae

Gadidae, Moridae, and Phycidae: pelvic fins well separated from each other; dorsal and anal fins not joined to caudal fin.



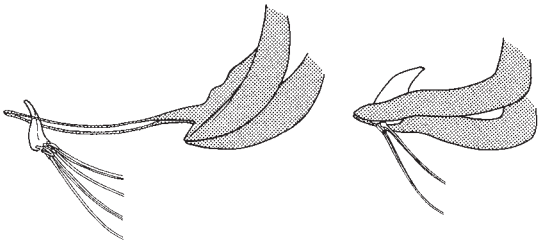
Moridae

Key to subfamilies of Ophidiidae occurring in the area

1a. Barbels present on snout and chin . . . . . **Brotulinae**
1b. No barbels on snout and chin . . . . . → *2*

2a. Scales in form of small, non-imbricate prickles . . . . . **Brotulotaeniinae**
2b. Scales cycloid . . . . . → *3*

3a. Main body of ventral arm of cleithrum meeting its mate at about level of preopercle, but a slender, elongate filament of bone extends anteriorly to pelvic fins (Fig. 1a) inserted beneath eye; median basibranchial tooth patches present or absent . . . . . **Ophidiinae**
3b. Ventral arm of cleithrum meeting its mate and terminating at about level of preopercle or farther anteriorly, but the anteriorly directed bony filament is absent (Fig. 1b); pelvic-fin insertion variable in position but most often well posterior to eye, fin absent in a few species; 1 or more median basibranchial tooth patches (except absent in *Apagesoma* spp. and in *Barathritis iris*)(for key to genera see Nielsen et al., 1999) . . . . . **Neobythitinae**



a) Ophidiinae **b) Neobythiinae**

Fig. 1 ventral arm of cleithrum

Key to species of Brotulotaeniinae occurring in the area

1a. Head length 5.3 to 9.9 in standard length; dorsal-fin rays 113 to 134; anal-fin rays 91 to 108; total vertebrae 88 to 96 . . . . . → ***2***

1b. Head length 3.2 to 4.5 in standard length; dorsal-fin rays 79 to 91; anal-fin rays 58 to 72; total vertebrae 67 to 72 . . . . . ***Brotulotaenia brevicauda***

2a. Head length 9.2 to 9.9 in standard length; dorsal-fin rays 113 to 115; anal-fin rays 91 to 94 . . . . . ***Brotulotaenia nigra***

2b. Head length 5.3 to 8.5 in standard length; dorsal-fin rays 119 to 134; anal-fin rays 98 to 108 . . . . . ***Brotulotaenia crassa***

Key to tribes of Ophidiinae occurring in the area

1a. All body scales in regularly overlapping rows; posterior part of head extensively scaled (only 1 genus in region, *Lepophidium*) . . . . . ***Lepophidiini***

1b. At least some scales (frequently all) non overlapping, arranged in a basketweave (anguilloid) fashion. Head entirely naked except for top of head in *Parophidion schmidti* . . ***Ophidiini***

Key to the genera of Ophidiini ocurring in the area

1a. Two pelvic-fin rays equal in length or very nearly so; top of head with large scales (1 species, *P. schmidti*, in area) . . . . . ***Parophidion***

1b. Two pelvic-fin rays unequal in length; head entirely naked . . . . . → ***2***

2a. Rostral spine stout, projecting upward at an oblique angle . . . . . ***Otophidium***

2b. Rostral spine absent or much reduced or long and projecting forward toward tip of snout . . ***Ophidion***

Key to the species of *Otophidium* occurring in the area

1a. Body boldly marked with black spots; 1 large dark humeral spot . . . . . ***Otophidium omostigmum***

1b. Body without dark marks . . . . . → ***2***

2a. Rostral spine strong, ending in a broad squarish process; no pores behind eye; pectoral-fin rays usually 17 (rarely 16) . . . . . ***Otophidium chickcharney***

2b. Rostral spine shorter, ending in a blunt point; 2 pores behind eye; pectoral-fin rays usually 16 (rarely 15) . . . . . ***Otophidium dormitator***

List of species occurring in the area

The symbol is given when species accounts are included.

Subfamily BROTULINAE

Brotula barbata (Bloch and Schneider, 1801).

Subfamily BROTULOTAENIINAE

Brotulotaenia brevicauda Cohen, 1974. 35 cm. Tropical Atlantic and Indian Oceans.
Brotulotaenia crassa Parr, 1934. 85 cm. Atlantic and Indian Oceans.
Brotulotaenia nigra Parr, 1933. 30 cm. Tropical Atlantic Ocean.

Subfamily OPHIDIINAE

Note: There are an additional 8 undescribed species of *Lepophidium* from the western Atlantic, all of them in Fishing Area 31. Their descriptions are in preparation. Pending their description, a key to the species of *Lepophidium* in the area is impractical. Lea and Robins have completed a manuscript describing 4 new species of *Ophidion* from the tropical western Atlantic. All occur in Area 31. *Ophidion* is very likely paraphyletic and the relations of the various clades to each other and to *Otophidium* is unclear at this time.

Lepophidium aporrhox Robins, 1961. 19 cm. Honduras to Suriname.

Lepophidium brevibarbe (Cuvier, 1829).

Lepophidium jeannae Fowler, 1941. 28 cm. SE US to S Florida and Gulf of Mexico.

Lepophidium kallion Robins, 1960. 17 cm. Puerto Rico and Greater Antilles to Barbados.

Lepophidium marmoratum (Goode and Bean, 1885). 22 cm. Bahamas, Cuba, and Yucatan to Nicaragua and Virgin Islands.

Lepophidium pheromystax Robins, 1960. 27 cm. Puerto Rico and Colombia to NE Brazil.

Lepophidium profundorum (Gill, 1863). 25 cm. Georges Bank to N Florida and Gulf of Mexico.

Lepophidium staurophor Robins, 1959. 27 cm. S Gulf of Mexico to W Caribbean Sea.

Ophidion grayi Fowler, 1948. 27 cm. South Carolina and N Gulf of Mexico to Mexico.

Ophidion holbrookii (Putnam, 1874).

Ophidion josephi Girard, 1858. 21 cm. Georgia to NE Florida and N Gulf of Mexico. (*Ophidion welshi* is a junior synonym.)

Ophidion lagocheila (Böhlke and Robins, 1959). 8 cm. Bahamas and Bermuda.

Ophidion marginatum (DeKay, 1842). 21 cm. New York to NE Florida.

Ophidion nocomis Robins and Böhlke, 1959. 8 cm. Bahamas to Puerto Rico.

Ophidion robinsi Fahay. 1992. 13 cm. New Jersey to South Carolina.

Ophidion selenops Robins and Böhlke, 1959. 10 mm. South Carolina to the Florida Keys and the SE Gulf of Mexico.

Otophidium chickcharney Böhlke and Robins, 1959. 10 cm. Bahamas.

Otophidium dormitator Böhlke and Robins, 1959. 7 cm. S Florida and Bahamas to Yucatan, Mexico and the Lesser Antilles.

Otophidium omostigma (Jordan and Gilbert, 1882). 12 cm. North Carolina and N Gulf of Mexico to S Florida and Lesser Antilles.

Parophidion schmidti (Woods and Kanazawa, 1951) 9 cm. Bermuda, Bahamas, and S Florida to N South America.

Subfamily NEOBYTHITINAE

Abyssobrotula galatheae Nielsen, 1977. 18 cm. Circumtropical.

Acanthonus armatus Günther, 1878. 38 cm. Circumtropical.

Apagesoma delosommatus (Hureau, Staiger and Nielsen, 1979). 60 cm. Tropical Atlantic.

Apagesoma edentatum Carter, 1983. 75 cm. Tropical W Atlantic.

Barathrites iris Zugmayer, 1911. 50 cm. Probably circumtropical.

Barathrites parri Nybelin, 1957. 25 cm. NW Atlantic.

Barathrodemus manatinus Goode and Bean, 1883. 20 cm. Tropical NW Atlantic.

Bassogigas gillii Goode and Bean, 1896. 85 cm. FAO Area 31 and 41.

Bassozetus compressus (Günther, 1878). 62 cm. Atlantic and off the Philippines.

Bassozetus levistomatus Machida, 1989. 80 cm. Circumtropical.

Bassozetus normalis Gill, 1883. 28 cm. NW Atlantic.

Bassozetus robustus Smith and Radcliffe, 1913. 64 cm. Circumtropical.

Bassozetus taenia (Günther, 1887). 25 cm. N Atlantic.

Bathyonus laticeps (Günther, 1878). 20 cm. Atlantic.

Bathyonus pectoralis Goode and Bean, 1885. 22 cm. W Atlantic and E Indian Oceans.

Benthocometes robustus (Goode and Bean, 1885). 12 cm. Tropical Atlantic and Mediterranean.

Dicrolene intronigra Goode and Bean, 1883. 22 cm. FAO Areas 21, 31, 34, and 47.

Dicrolene kanazawai Grey, 1958. 40 cm. Tropical W Atlantic.

Eretmichthys sp. 25 cm. Probably undescribed species from tropical W Atlantic.

Holcomycteronus profundissimus (Roule, 1913). 25 cm. Probably circumtropical.
Holcomycteronus squamosus (Roule, 1916). 25 cm. Atlantic.

Lamprogrammus brunswigi (Brauer, 1906). 95 cm. Circumtropical.
Lamprogrammus shcherbachevi Cohen and Rohr, 1993. 200 cm. In all oceans.

Leucicorus atlanticus Nielsen, 1975. 15 cm. Tropical W Atlantic.

Luciobrotula corethromycter Cohen, 1964. 50 cm. Tropical Atlantic.

Monomitopus agassizii (Goode and Bean, 1896). 14 cm. Tropical W Atlantic.
Monomitopus magnus Carter and Cohen, 1985. 54 cm. FAO Area 31.

Neobythites braziliensis Nielsen, 1999. 15 cm. Off NE Brazil.
Neobythites elongatus Nielsen and Retzer, 1994. 14 cm. Caribbean and Gulf of Mexico.
Neobythites gilli Goode and Bean, 1885. 15 cm. Gulf of Mexico.
Neobythites marginatus Goode and Bean, 1886. 22 cm. North Carolina to Trinidad in Caribbean and Gulf of Mexico.
Neobythites monocellatus Nielsen, 1999. 15 cm. Off N South America.
Neobythites multidigitatus Nielsen, 1999. 8 cm. Bahamas.
Neobythites ocellatus Günther, 1887. 16 cm. W Indies excluding Gulf of Mexico.
Neobythites unicolor Nielsen and Retzer, 1994. 13 cm. Caribbean and Gulf of Mexico.

Penopus microphthalmus (Vaillant, 1888). 32 cm. Tropical Atlantic and off Cape Town.

Petrotyx sanguineus (Meek and Hildebrand, 1928). 20 cm. W Indies.

Porogadus catena (Goode and Bean, 1885). 24 cm. W Atlantic and Gulf of Panama.
Porogadus miles Goode and Bean, 1885. 30 cm. Circumtropical.
Porogadus silus Carter and Sulak, 1984. 18 cm. Bahamas and Caribbean.

Spectrunculus grandis (Günther, 1877). 130 cm. In all oceans.

Xyelacyba myersi Cohen, 1961. 46 cm. Circumtropical.

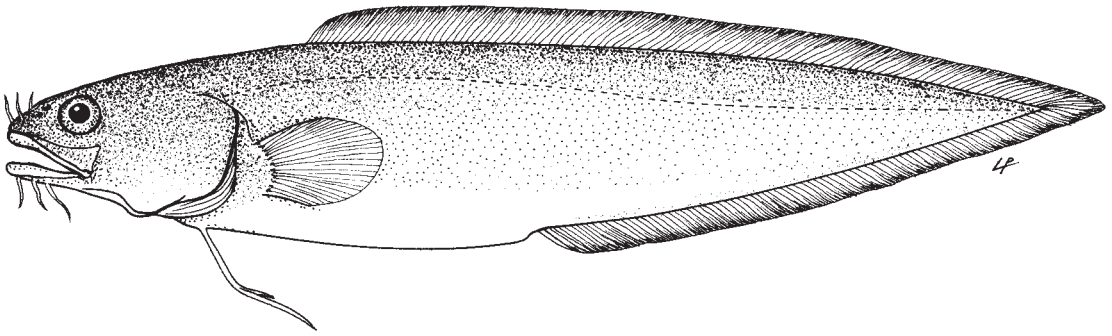
Reference

Nielsen, J.G., D.M. Cohen, D.F. Markle, and C.R. Robins. 1999. FAO Species Catalogue. Vol. 18. Ophidiiform fishes of the world (order Ophidiiformes). An annotated and illustrated catalogue of pearlfishes, cusk-eels, brotulas and other ophidiiform fishes known to date. *FAO Fish. Synop*., (125)18:178 p.

Brotula barbata (Bloch and Schneider, 1801) BRD

Frequent synonyms / misidentifications: None / None.

FAO names: En - Bearded brotula; **Fr** - Brotula barbé; **Sp** - Brótula de barbas.

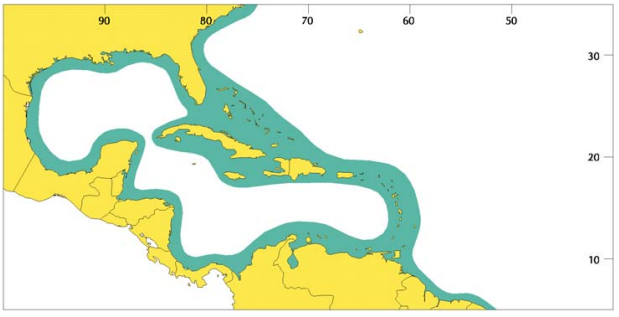


Diagnostic characters: Barbels present on snout (6) and chin (6). Developed gill rakers on first arch 4 or fewer. Pelvic fins each with 2 rays, inserted at about level of preopercle, well behind eye. Body completely covered with small, imbricate, cycloid scales. **Colour:** brownish.

Size: Maximum length about 1 m.

Habitat, biology, and fisheries: Adults live on or near the bottom down to 650 m and juveniles common on reefs. Small silvery specimens are taken far out to sea in surface waters.

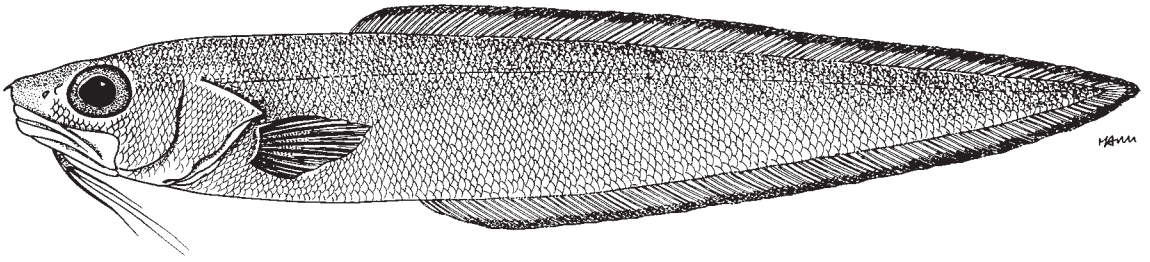
Distribution: In tropical parts of both the western and eastern Atlantic.



Lepophidium brevibarbe (Cuvier, 1829)

Frequent synonyms / misidentifications: *Lepophidium graellsi* (Poey,1861) / *Lepophidium profundorum*.

FAO names: En - Shortbeard cusk-eel (Blackedge cusk-eel); **Fr** - Brotule barbiche; **Sp** - Perla barbacorta.

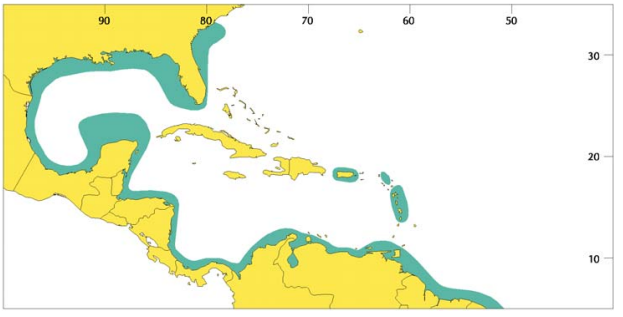


Diagnostic characters: Gill rakers usually 3 (rarely 2 or 4) rudiments on upper limb of first arch, 4 (very rarely 5) developed rakers on lower limb. Dorsal-fin rays 124 to 134; anal-fin rays 99 to 110. Precaudal vertebrae 15 (occasionally 14); caudal vertebrae 54 to 56 (rarely 57); total vertebrae 69 to 72 (rarely 73) . **Colour:** head and body tan, unmarked except for dark margin to dorsal fin and, to a lesser extent, anal fin.

Size: At least 270 mm.

Habitat, biology, and fisheries: Benthic from waters edge to 75 m. Common. Of minor economic importance. Sometimes harvested as bycatch of the shrimp trawling fishery in Colombia and is marketed under the local name of "perla."

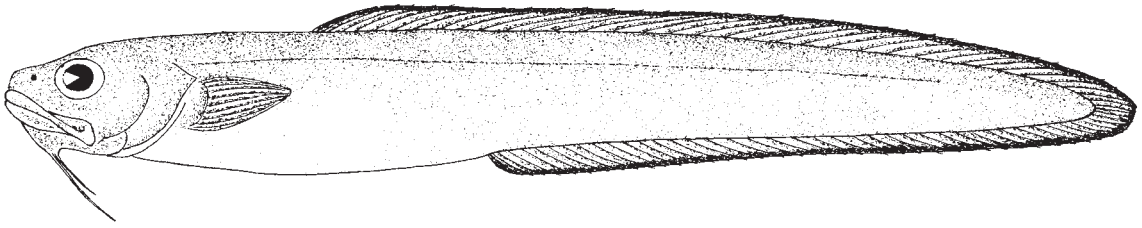
Distribution: Southeastern United States and northern Gulf of Mexico to southern Brazil.



Ophidion holbrookii (Putnam, 1877)

Frequent synonyms / misidentifications: *Ophidion beani* (Jordan and Gilbert, 1883) / None.

FAO names: En - Bank cusk-eel.

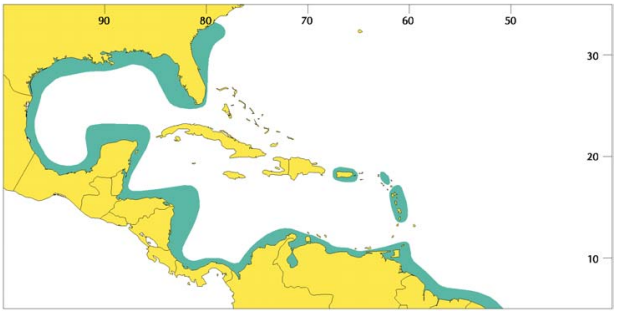


Diagnostic characters: Body distinctly deepest at dorsal-fin origin, slab-sided. Mouth subterminal. Dorsal profile nearly straight from snout to dorsal-fin origin (not arched). **Gill rakers on first arch: 2 rudiments on upper limb** and 4 developed rakers on lower limb. Pelvic rays long, extending below opercle. **Colour:** head and body tan, unmarked except for dark margin to dorsal fin and, occasionally, anal fin.

Size: At least 300 mm.

Habitat, biology, and fisheries: Benthic from coastal bays to 75 m. Common. Landed as a bycatch of the shrimp trawling fishery. Marketed in Colombia under the local name of “perla.”

Distribution: North Carolina and northern Gulf of Mexico to southeastern Brazil. Absent from the Bahamas.

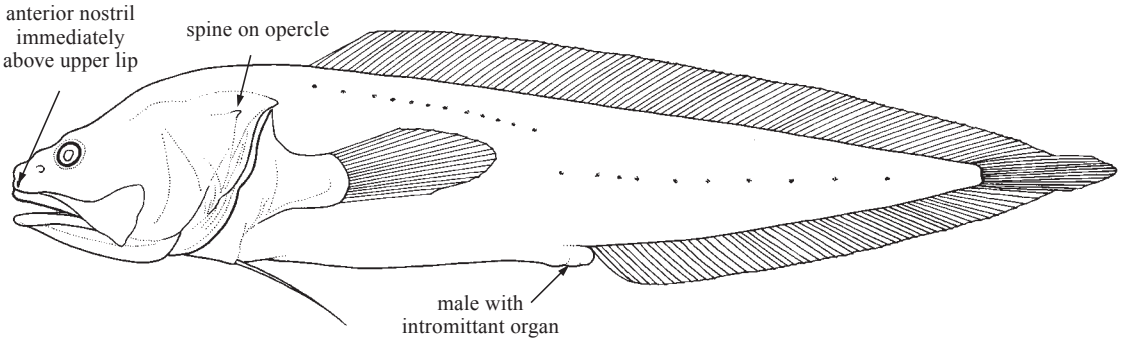


BYTHITIDAE

Viviparous brotulas

by J.G. Nielsen, Zoological Museum, University of Copenhagen, Denmark

Diagnostic characters: Body of varying shapes (size from 5 to about 100 cm). Eyes distinct (excpet in some *Lucifuga* species and in *Typhliasina*). **Anterior nostril immediately above upper lip** (except for *Dinematichthys* with anterior nostril midway between posterior nostril and upper lip). **Basibranchial tooth patches absent. Seldom more than 7 long gill rakers on anterior gill arch**. Dorsal and anal fins long joined to (subfamily Bythitinae) or free from (subfamily Brosmophycinae) caudal fin; dorsal-fin soft rays normally longer than opposing anal-fin soft rays; pelvic-fin soft rays 0 to 2. **Scales present in all but a few species**. Opercle with well-developed spine. Swimbladder present; **males with intromittant organ. Precaudal vertebrae 9 to 22. Colour:** brownish to whitish.



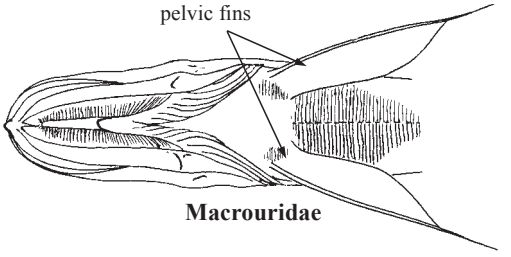
Habitat, biology and fisheries: Occur in fresh-water caves and in marine water from a few to about 2 000 m. Viviparous; no importance to fisheries.

Similar families occurring in the area

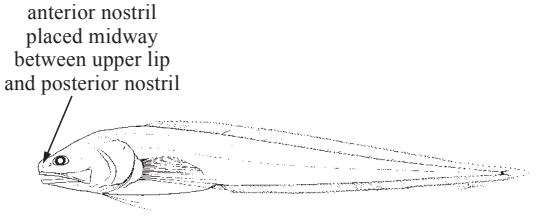
Ophidiidae: anterior nostril placed midway between upper lip and posterior nostril; rarely less than 7 long gill rakers on anterior arch.

Aphyonidae: no scales; skin loose and gelatinous; eyes small or indistinct.

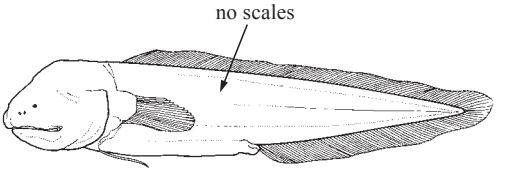
Gadidae, Macrouridae, Moridae, Phycidae, and Steindachneriidae: pelvic fins well separated from each other.



Macrouridae



Ophidiidae



Aphyonidae

List of species occurring in the area

Note: See Nielsen *et al*. (1999) for a key to genera.

Subfamily BYTHITINAE

Bellottia apoda Giglioli, 1883. To 7 cm. Tropical Atlantic and Mediterranean.

Bythites gerdae Nielsen and Cohen, 1973. To 6 cm. Straits of Florida.

Calamopteryx goslinei Böhlke and Cohen, 1966. To 6 cm. Tropical NW Atlantic.
Calamopteryx robinsorum Cohen, 1973. To 5 cm. Tropical NW Atlantic.

Cataetyx laticeps Koefoed, 1927. At least 50 cm. N and SE Atlantic and Mediterranean.

Diplacanthopoma brachysoma Günther, 1887. To 20 cm. Tropical W Atlantic.

Grammonus claudei (Torrey Huerta, 1930). To 9 cm. Tropical NW Atlantic; marine caves and reefs.

Saccogaster melanomycter Cohen, 1981. To 7 cm. Caribbean Sea off Colombia.
Saccogaster rhamphidognatha Cohen, 1987. To 6 cm. N Gulf of Mexico.
Saccogaster staigeri Cohen and Nielsen, 1972. To 9 cm. Off Florida and Gulf of Mexico.

Stygnobrotula latebricola Böhlke, 1957. To 7 cm. Tropical W North Atlantic.

Subfamily BROSMOPHYCINAE

Note: The description of 4 new species of *Ogilbia* and 2 new genera each with 2 new species are in preparation (Møller, Schwarzhans, and Nielsen).

Dinematichthys minyomma Sedor and Cohen, 1987. To 8 cm. Off Honduras.

Gunterichthys longipenis Dawson, 1966. To 6 cm. N Gulf of Mexico.

Lucifuga dentata Poey, 1858. To 12 cm. In caves in Cuba.
Lucifuga simile Nalbant, 1981. To 8 cm. In caves in Cuba.
Lucifuga spelaeotes Cohen and Robins, 1970. To 11 cm. Bahamas.
Lucifuga subterranea Poey, 1858. To 11 cm. In caves in Cuba.
Lucifuga teresinarum Diaz Perez, 1988. To 9 cm. In caves in Cuba.

Ogilbia cayorum Evermann and Kendall, 1898. To 8 cm. Florida Keys.

Typhliasina pearsei (Hubbs, 1938). To 10 cm. Freshwater caves in Yucatan.

Reference

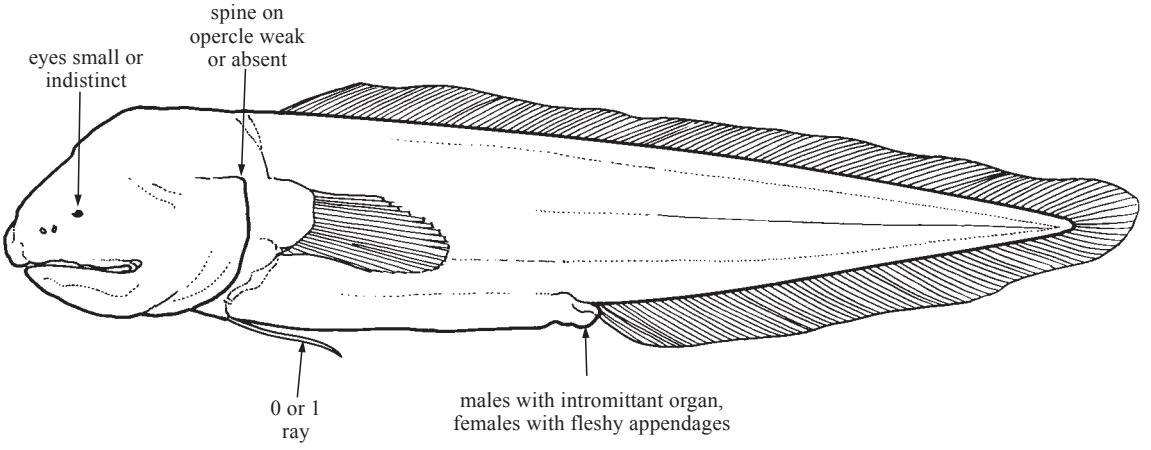
Nielsen, J.G., D.M. Cohen, D.F. Markle, and C.R. Robins. 1999. FAO Species Catalogue. Vol. 18. Ophidiiform fishes of the world (order Ophidiiformes). An annotated and illustrated catalogue of pearlfishes, cusk-eels, brotulas and other ophidiiform fishes known to date. *FAO Fish. Synop*., (125)18:178 p.

APHYONIDAE

Aphyonids

by J.G. Nielsen, Zoological Museum, University of Copenhagen, Denmark

Diagnostic characters: Elongate ophidiiform fishes (size from 5 to 25 cm). **Skin loose, transparent, and gelatinous. Eyes small or indistinct**. Basibranchial tooth patches absent. Opercular spine weak or absent. Long gill rakers present or absent. **Long dorsal- and anal-fin bases joined to caudal fin; pelvic fins with 0 or 1 ray. Scales absent. Precaudal vertebrae 26 to 50. Swimbladder absent. Viviparous, males with intromittant organ**, females often with fleshy appendages around genital opening. Except for *Barathronus*, adult aphyonids have retained many larval characters such as cylindrical shaped vertebral centra, slightly ossified bones, and poorly developed musculature, gill rakers, and gill filaments. **Colour:** brownish to whitish.

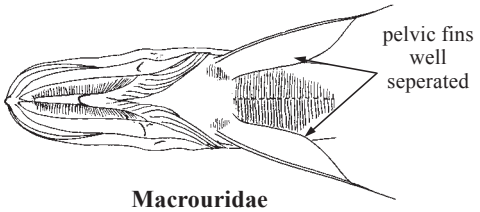


Habitat, biology and fisheries: Rarely caught fishes which occur near the bottom at depths between about 250 and 5 600 m. Found at lower latitudes in all oceans. Viviparous with relatively few, large eggs and consequently large larvae. Except for larvae of *Barathronus,* aphyonid larvae most probably remain near the bottom. No importance to fisheries.

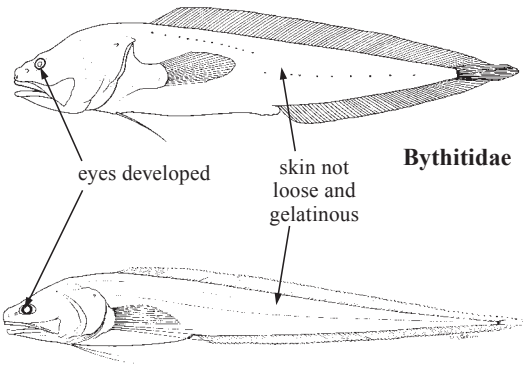
Similar families occurring in the area

Bythitidae and Ophidiidae: eyes developed (except in the cave dwelling *Lucifuga* and *Typhliasina* and in the deep-sea genus *Leucicorus* with rudimentary eye lens), skin not loose and gelatinous.

Gadidae, Moridae and Phycidae: pelvic fins well separated from each other; dorsal and anal fins not joined to caudal fin.



Macrouridae



Bythitidae

Ophidiidae

List of species occuring in the area

Note: See Nielsen *et al*. for key to genera.

Aphyonus gelatinosus Günther, 1878. To 25 cm. Circumtropical.
Aphyonus rassi Nielsen, 1975. To 7 cm. Caribbean.

Barathronus bicolor Goode and Bean, 1886. To 12 cm. Gulf of Mexico and Caribbean.
Barathronus unicolor Nielsen, 1984. To 11 cm. Off Florida and Morocco.

Meteoria erythrops Nielsen, 1969. To 8 cm. Atlantic between 28°N and 42°N.

Nybelinella erikssoni (Nybelin, 1957). To 10 cm. Atlantic between 45°N and 27°S.

Parasciadonus brevibrachium Nielsen, 1984. To 7 cm. C Atlantic.

Sciadonus jonassoni (Nybelin, 1957). 6 cm. Atlantic between 9°N and 31°N.

References

Nielsen, J.G. 1969. Systematics and biology of the Aphyonidae (Pisces, Ophidioidea). *Galathea Report*, (10):7-90.

Nielsen, J.G., D.M. Cohen, D.F. Markle, and C.R. Robins. 1999. FAO Species Catalogue. Vol. 18. Ophidiiform fishes of the world (order Ophidiiformes). An annotated and illustrated catalogue of pearlfishes, cusk-eels, brotulas and other ophidiiform fishes known to date. *FAO Fish. Synop*., (125)18:178 p.