

# Synaphobranchidae

(including Nettodaridae and Simenchelyidae)

Clofnam 87

by L. Saldanha and M. L. Bauchot

Common name: Arrowtooth eels, cut-throat eels (En).

Three subfamilies—Dysommidae, Synaphobranchinae and Simenchelyinae—showing considerable morphological variation, but all members sharing certain osteological features and having leptocephali with telescopic eyes.

Body elongate to very elongate, scaled (scales often arranged in a 'basketwork' pattern) or naked. Head pointed, compressed (Synaphobranchinae) or blunt (Simenchelyinae) or depressed and more rounded (Dysommidae); mouth large, except for Simenchelyinae where it is small and circular. Teeth usually small, needle-like in both jaws and on vomer (Synaphobranchinae), larger, sometimes compound in other subfamilies. Gill openings restricted, sublateral, or slightly separated and confluent within a single slit-like opening on the middle of throat. Dorsal and anal fins confluent with caudal fin; pectoral fins present (except in some Dysommidae); pelvic fins absent.

Benthopelagic inhabitants of the temperate and tropical waters of the continental slope at bathyal or abyssal depths.

Genera 10; in Clofnam area 5<sup>1</sup>.

## KEY TO GENERA AND SPECIES

- |    |   |  |
|----|---|--|
| 1a | Head blunt; mouth terminal, small and circular . . . . .  | <i>Simenchelys parasitica</i> (p. 590)   |
| 1b | Head conical, pointed; mouth large, reaching to beyond posterior margin of eye . . . . .          | 2  |
| 2a | Snout tip bulbous, ornamented with conspicuous papillae and ridges. . . . .                       | <i>Dysomma brevirostre</i> (p. 587)      |
| 3a | Dorsal fin origin far behind anus level . . . . .   | <i>Synaphobranchus kaupi</i> (p. 591)    |
| 3b | Dorsal fin origin over or in the vicinity of pectoral fins . . . . .                              | 4  |
| 4a | Gape reaching more than twice eye diameter beyond posterior margin of eye . . . . .               | <i>Histiobranchus bathybius</i> (p. 588) |
| 4b | Gape extending between posterior margin of eye and about one diameter beyond . . . . .            | 5  |
| 5a | Posterior nostril without a flap. Dorsal fin origin over the pectoral fin . . . . .               | <i>Ilyophis brunneus</i> (p. 590)        |
| 5b | Posterior nostril with a roughly triangular flap. Dorsal fin origin behind pectoral fin . . . . . | <i>Ilyophis blachei</i> (p. 589)         |

1. Recently other species were recorded inside the Clofnam area: *Ilyophis arx* C. H. Robins, 1976, and *Haptenchelys taxis* C. H. Robins & D. M. Martin, 1976 (Saldanha & Merret, 1982; Merret & Saldanha, 1986).

**DYSOMMA** Alcock, 1889

[Clofnam 87.4]  
Clofnam Suppl. 355

Common synonym: *Nettodarus* Whitley, 1951 (Clofnam 81.1)

Body greatly elongate, naked; anus far anterior. Snout fleshy, plicate and papillose, overhanging tip of lower jaw. Dorsal fin origin far forward, about over gill opening.

Species 6; in Clofnam area 1.

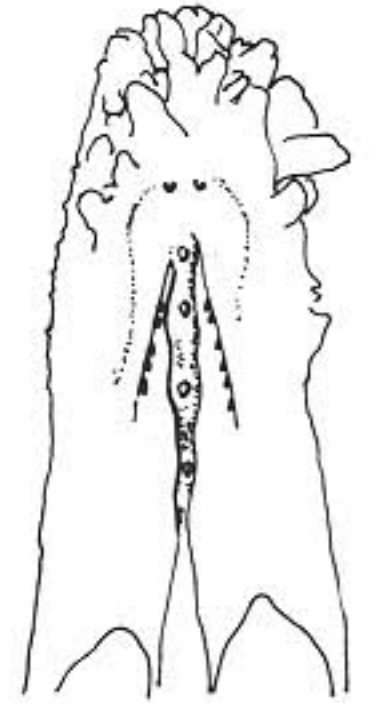
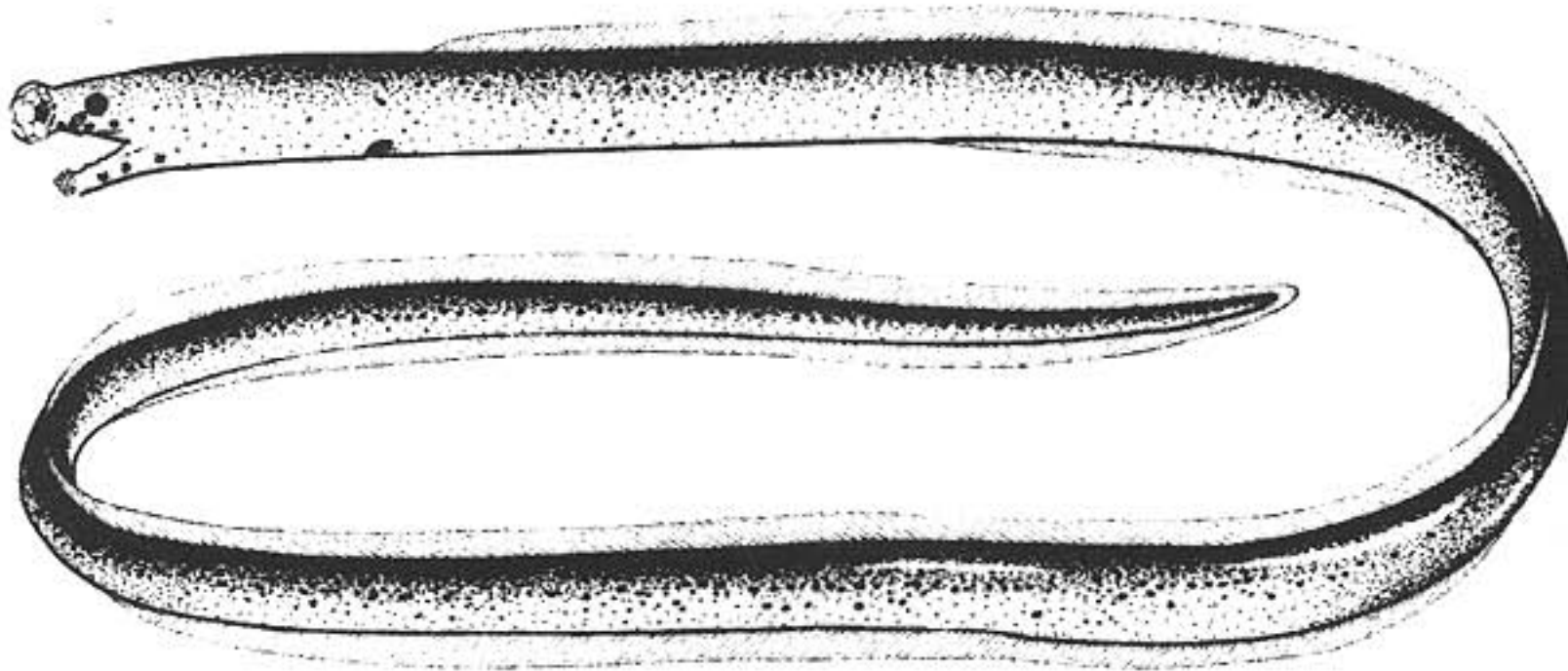
Recent revisions: Böhlke & Robins (1968), Blache, Maul & Saldanha (1970), Robins & Robins (1976).

***Dysomma brevirostre*** (Facciola, 1887)

Clofnam 81.1.1  
Suppl.: 355

Common synonym: *Nettodarus brevirostris* of authors.

Common name: Pignosed arrowtooth eel (En).

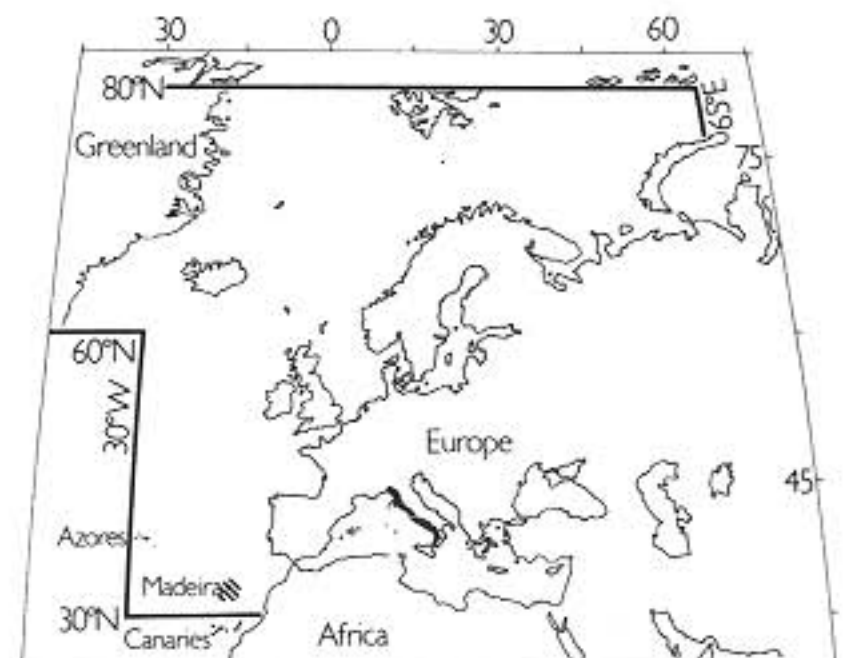


Teeth of upper jaw

**Diagnosis:** body very elongate, slender, compressed; anus far anterior. Snout tip and chin bulbous, ornamented with conspicuous papillae and ridges. Nostrils broad-based; anterior tubular, close to tip of snout, posterior in front of lower margin of eye, with a fleshy rim. Gape moderate. A transversely oriented pair of teeth on premaxillary-ethmoid area, followed by a single row of 4 or 5 larger teeth, each set in individual pads of tissue on the vomer; lower jaw with 3 large teeth, widely spaced, followed by a uniserial row of tiny, close-set teeth; maxillary teeth reduced, acute and minute, uniserial. Gill openings small, parallel, close together on underside of head. Dorsal and anal fins confluent with caudal fin; dorsal fin origin slightly behind level of gill openings; pectoral fins absent. Lateral line present only on head and anterior part of trunk, with 8–10 pores, of which 4 or 5 before gill openings. Vertebrae: total 190–205; abdominal 67. **Colour:** back-brown, flanks and head darker; small dark patches all over body. **Size:** to 26.5 cm.

**Habitat:** benthopelagic, on upper continental slope between 350 and 650 m, probably deeper. **Food:** no data. **Reproduction:** very few data; leptocephali known.

**Distribution:** western Mediterranean (Ligurian Sea, Messina), also eastern Atlantic (Madeira and south to Gulf of Guinea and beyond). Elsewhere, western Atlantic (Florida) and Hawaii.





**HISTIOBRANCHUS** Gill, 1883

Clofnam 87.2

Body moderately elongate, anus slightly before midpoint of body. Gape long, reaching more than twice diameter of eye behind posterior margin of eye. Dorsal fin origin at level of pectoral fin. Scales present on body, absent on whole or at least a large area of head.

Species 2; in Clofnam area 1.

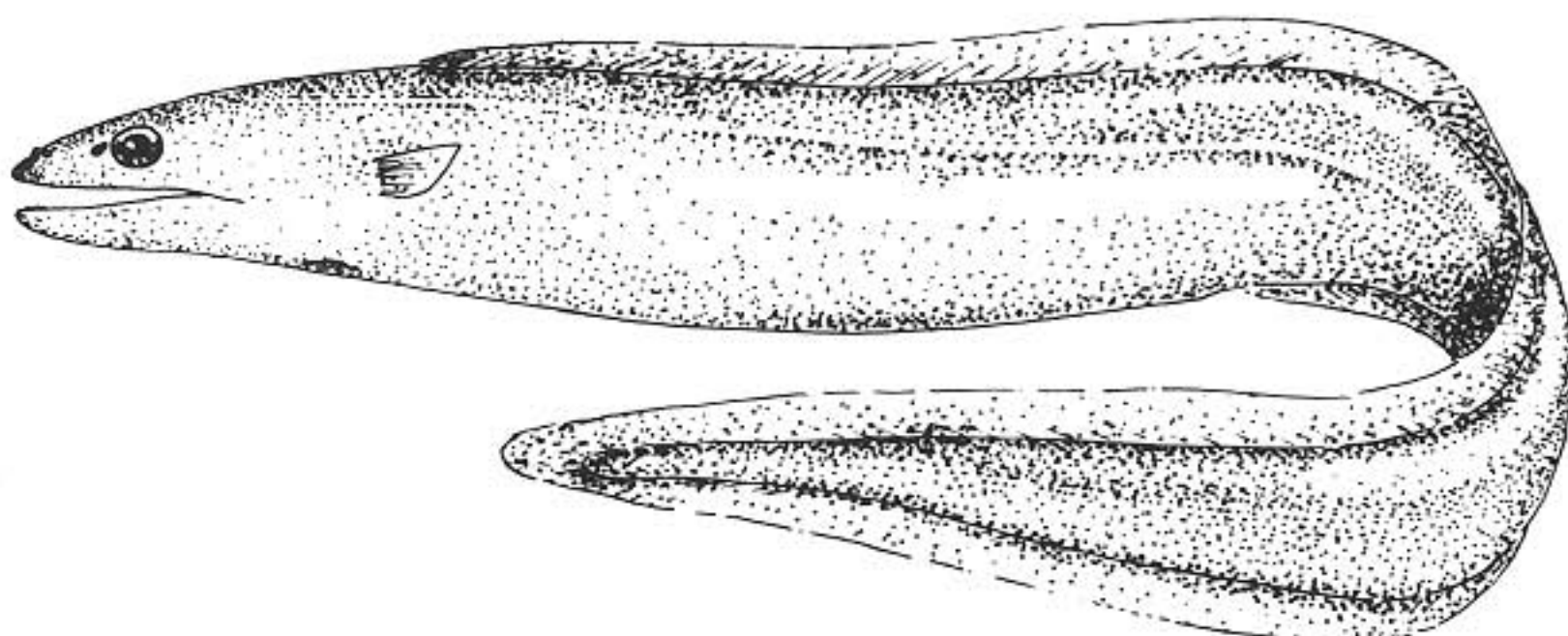
Recent revision: Castle (1964).

**Histiobranchus bathybius** (Günther, 1877)

Clofnam 87.2.1

Common synonyms: none.

Common name: Deepwater arrowtooth eel (En).

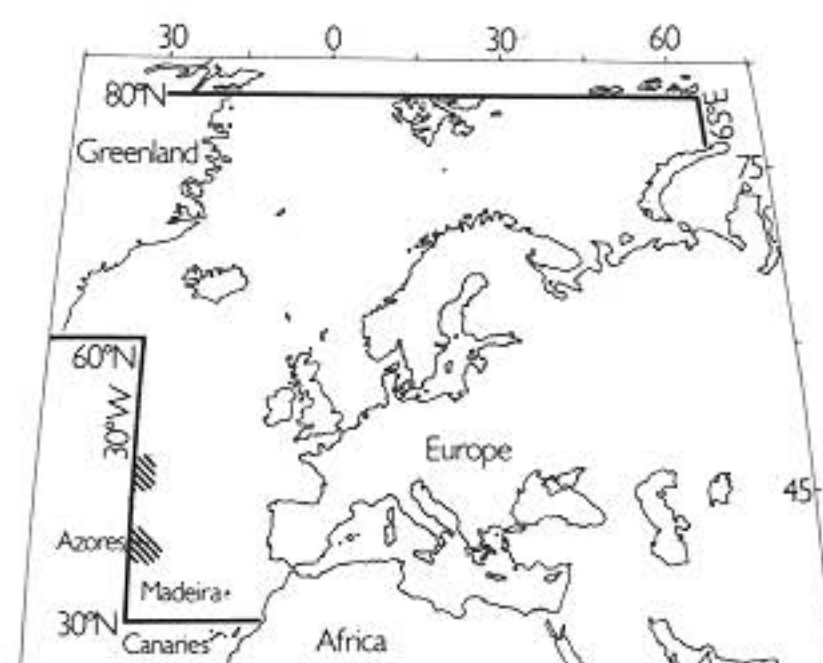


Teeth of upper jaw

**Diagnosis:** body moderately elongate, massive, compressed posteriorly; trunk high and long, anus slightly before midpoint of body. Head conical, slightly depressed in posterior orbital region. Anterior nostril subterminal, subtubular; posterior nostril a collared pore in advance of eye. Mouth large, the gape extending well behind level of posterior margin of eye. Teeth sharply conical and recurved, in three rows anteriorly on both jaws, the largest teeth on premaxillary-ethmoid in an oval patch well separated from 2 or 3 rows of vomerine teeth. Gill slits almost confluent anteriorly. Dorsal, anal and caudal fins well developed, confluent; dorsal origin over pectoral fins, which are short. Lateral line with 47–52 preanal pores, 7 prepectoral pores. Vertebrae: total 126–140; abdominal about 76. Scales elongate, oval, all over the body except a large area of head, in a 'basket-work' pattern. **Colour:** black to brown. **Size:** to 137 cm.

**Habitat:** benthopelagic on continental slope and abyssal plain down to 4,855 m. **Food:** no data. **Reproduction:** no data.

**Distribution:** throughout area. Elsewhere, eastern Atlantic and Indo-Pacific.



*ILYOPHIS* Gilbert, 1892

Clofnam 87.3

Body elongate, scaled or not; anus at anterior third of the body. Mouth moderately large, the cutaneous crease extending to about one eye diameter behind eye. Gill openings separate but set on ventral surface, their free edge lunate. Dorsal fin origin over or in the vicinity of pectoral fin.

See species for biology, etc.

Species 3; in Clofnam area 2.

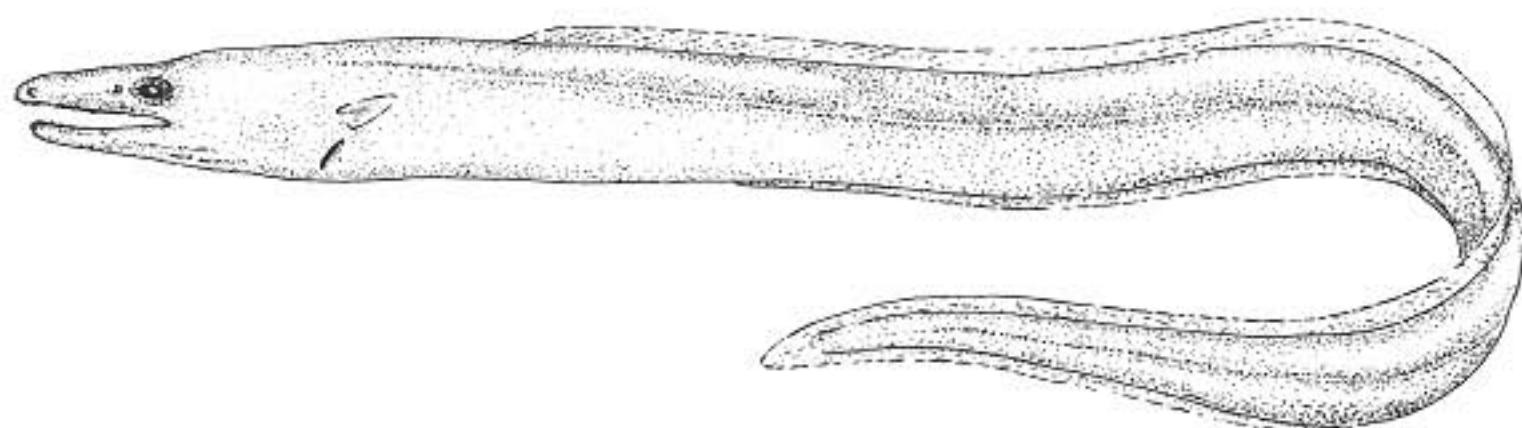
Recent revisions: Castle (1964, 1968), Robins (1971, 1976), Saldanha & Merret (1982).

*Ilyophis blachei* Saldanha & Merret, 1982

[Clofnam 87.3.2]

Common synonyms: none.

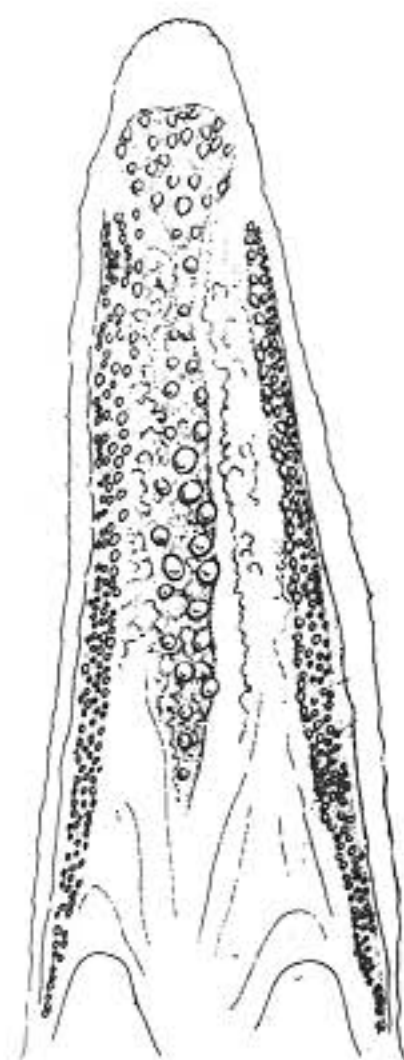
Common names: none.



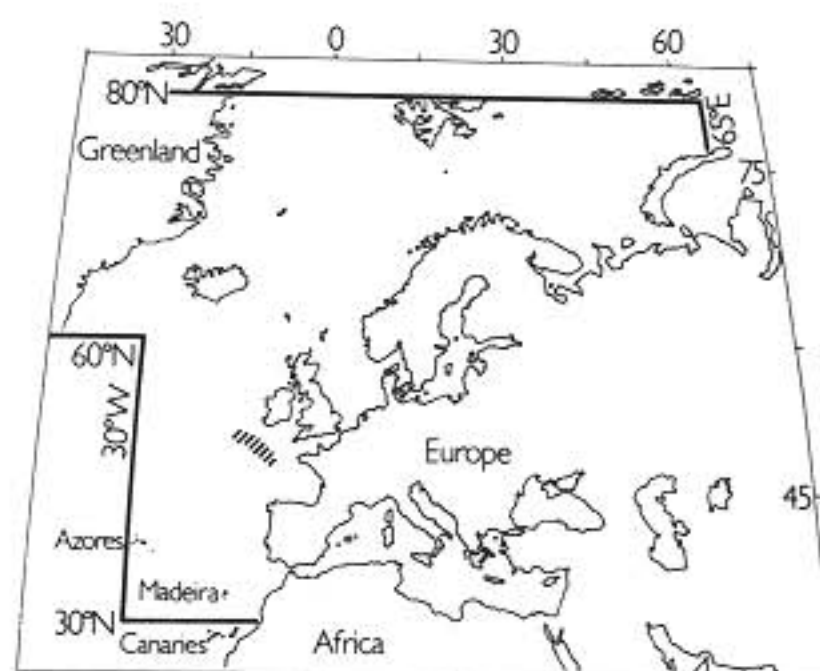
**Diagnosis:** body elongate, slender, compressed anteriorly. Head conical, snout slightly prominent. Anterior nostril tubular, subterminal; posterior nostril rounded, bordered anteriorly by a roughly triangular flap, large enough to close nostril. Mouth terminal, its cutaneous crease reaching level of posterior edge of eye or extending half eye diameter beyond; lips absent. Teeth cardiform and caniniform in 3 or 4 series on both jaws, decreasing in size from inner to outer rows and also antero-posteriorly; vomer teeth blunt and caniniform, mostly biserial, the most robust of all dentition. Gill-slits oblique on ventral surface. Dorsal and anal fins well developed, confluent with caudal fin; origin of dorsal fin reaching beyond tip of pectoral fin by about half snout length. Lateral line long, extending very far on tail (about 87–94% SL); cephalic system with 5–6 supra-orbital, 7–8 infra-orbital and 10–11 preoperculo-mandibular pores; 3 pores on supra-temporal and 1 on supra-orbital commissures. Vertebrae 179–188. Scales absent or present only in some regions of body, arranged in a 'basketwork' pattern. **Colour:** when fresh, back metallic bronze with reflective sheen; when preserved, irregularly brownish and creamish overall, belly darker or paler than remaining parts of body, peri-anal ring always dark brown; fins and pores on lateral line whitish. **Size:** to 77.2 cm.

**Habitat:** benthopelagic on lower continental slope at 1,465–2,070 m soundings. **Food:** carnivorous, feeds on galatheid crustaceans and certainly other prey. **Reproduction:** probable spawning period in June–July.

**Distribution:** Porcupine Sea–Bight area (off British Isles) and north of Bay of Biscay.



Teeth of upper jaw



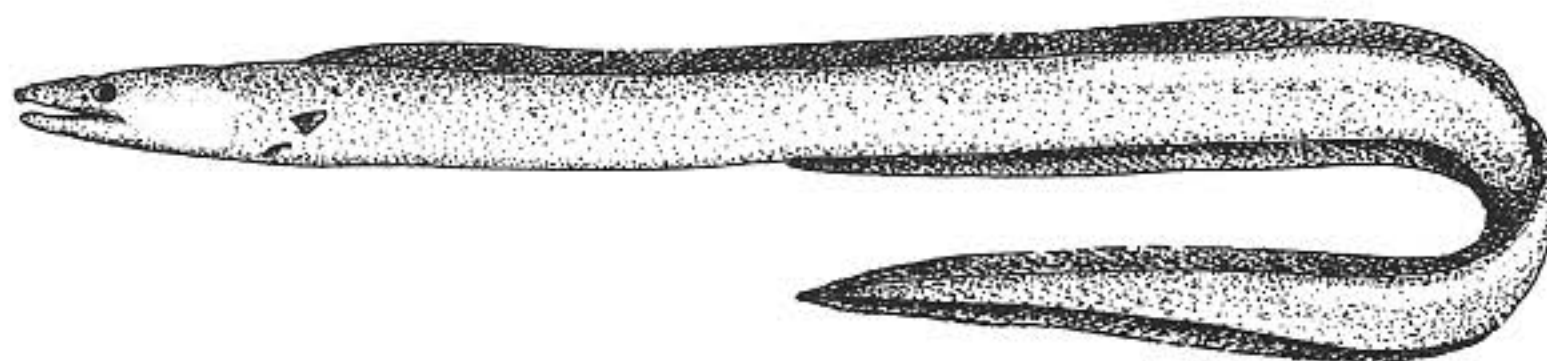


*Ilyophis brunneus* Gilbert, 1891

Clofnam 87.3.1

Common synonyms: none.

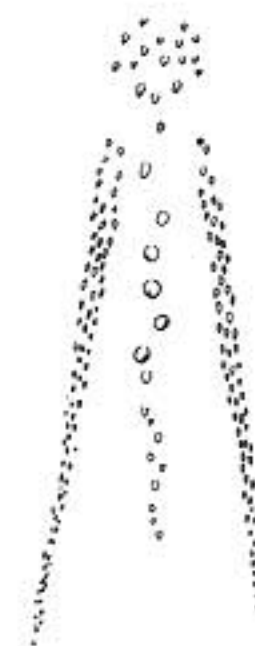
Common name: Muddy arrowtooth eel (En).



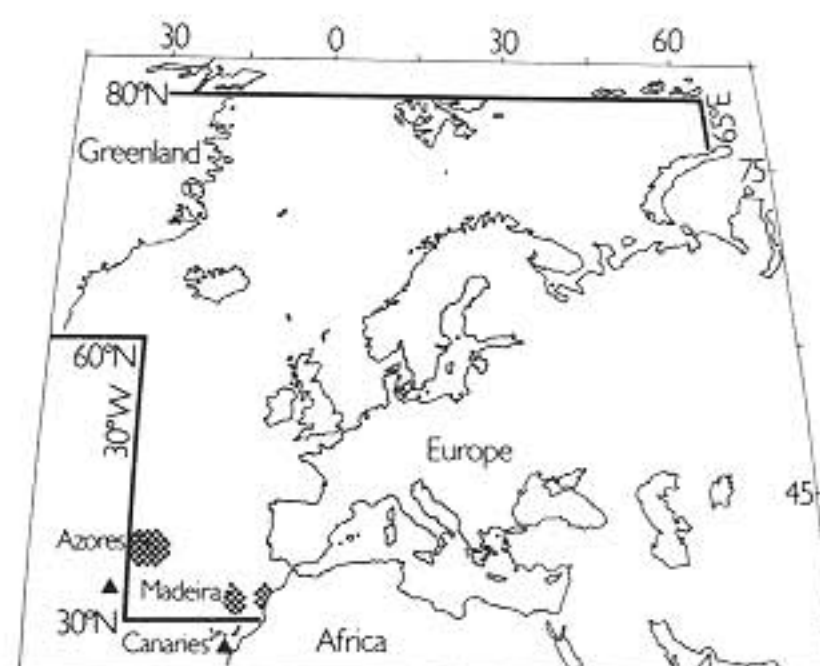
**Diagnosis:** body greatly elongate, slender, compressed posteriorly, its depth uniform from pectoral region to near the tail tip. Head conical, snout slightly prominent. Anterior nostril tubular, subterminal; posterior nostril a collared pore in advance of eye. Mouth terminal, its cutaneous crease extending for about one eye diameter beyond posterior margin of eye; lips absent. Teeth conical, acute, slightly recurved, multiserial anteriorly, smaller and cardiform posteriorly on both jaws, larger sized teeth on premaxillary-ethmoid oval patch confluent with an irregular uniserial vomerine row, the anterior ones very large. Dorsal and anal fins well developed, confluent with caudal fin; dorsal fin origin over pectoral fin base; pectoral fin minute, only a little longer than eye. Lateral line with 35–38 preanal pores of which 4–6 prepectoral pores; cephalic system with 3 supra-orbital, 5–6 (usually 5) infra-orbital and 9–10 preoperculo-mandibular pores; no post-orbital or supra-temporal pores. Vertebrae 132–158. Scales, when present, all over the body, except on head, minute, very elongate, disposed in a 'basketwork' pattern. **Colour:** black to brown; fins darker; pores in lateral line white. **Size:** to 54 cm.

**Habitat:** benthopelagic on lower slope near upper abyssal zone, down to 3,120 m. **Reproduction:** very few data.

**Distribution:** probably throughout area. Elsewhere, recorded from central Atlantic, northern Indian Ocean, central eastern Pacific.



Teeth of upper jaw

*SIMENCHELYS* (Gill MS) Goode & Bean, 1879

Clofnam 72.1

See species for diagnosis, biology, etc.

Species 1.

Recent revision: Solomon-Raju &amp; Rosenblatt (1971).

*Simenchelys parasitica* (Gill MS) Goode & Bean, 1879

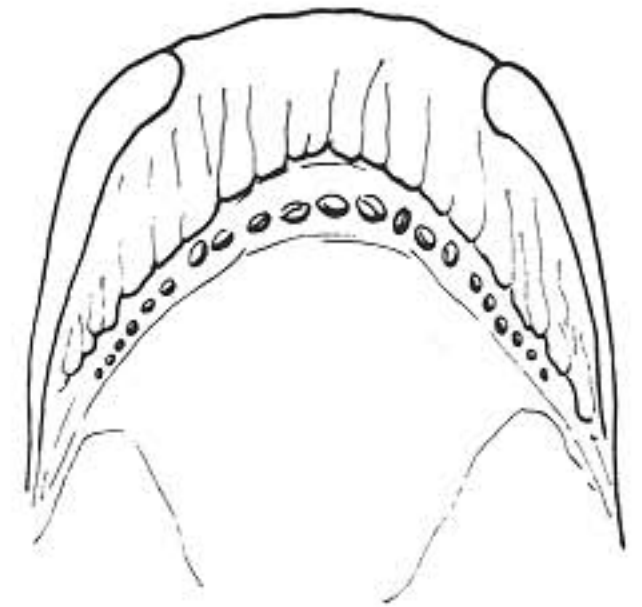
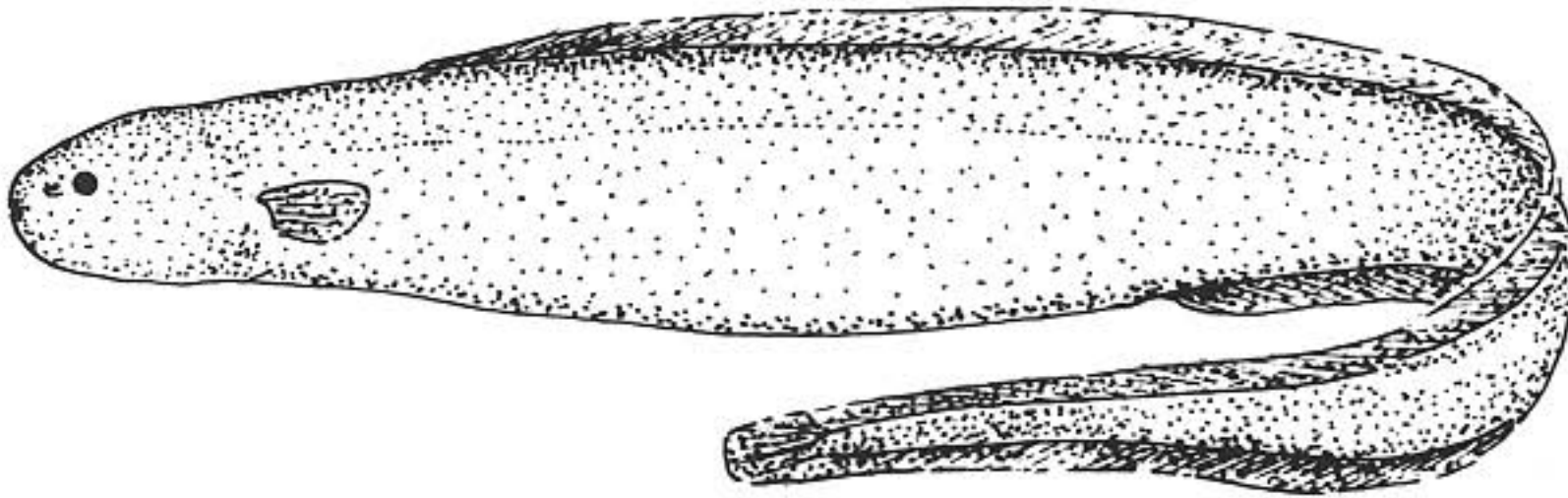
Clofnam 72.1.1

Common synonyms: none.

Common name: snubnosed eel (En).

**Diagnosis:** body elongate, anus a little before midpoint of body. Head blunt; anterior nostrils in a frontal position, posterior nostrils in front

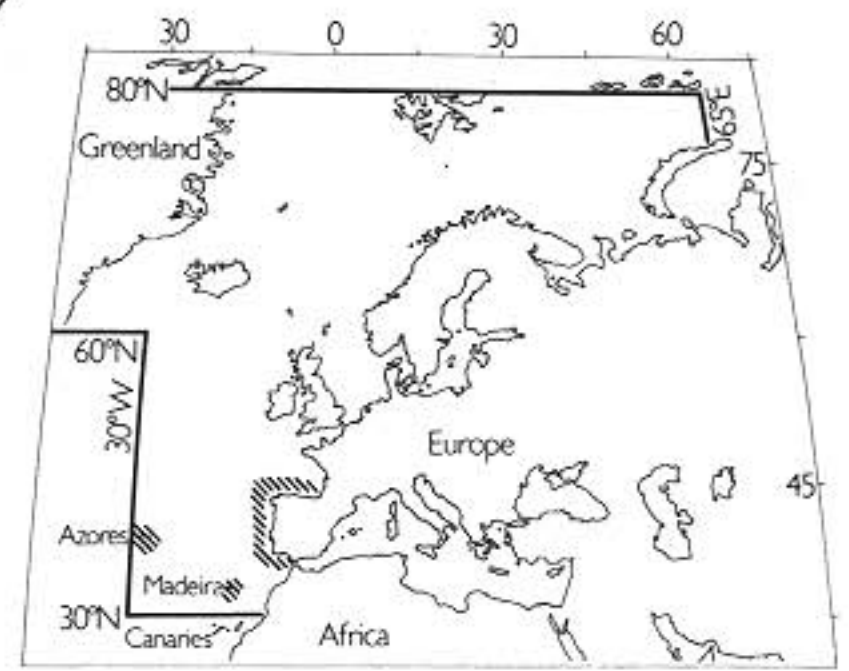
of eye. Mouth restricted to terminal circular opening. Teeth with cutting edge, uniserial on both jaws. Gill openings separate, ventrolateral. Dorsal and anal fins confluent with conspicuous caudal fin; pectoral fins present. Lateral line with 44 preanal pores, 2 prepectoral pores. Vertebrae: total 116–125; abdominal 45–49. Scales rudimentary, embedded. *Colour*: uniform dark brown, dorsal and anal fin margins whitish; juveniles paler with black belly. *Size*: to 61 cm.



Teeth of upper jaw

*Habitat*: benthopelagic on continental slope and upper abyssal depths, from 100 to 3,000 m; reported to be parasitic on fishes, photographed free-living near the bottom by bathyscaphe (Azores). *Food*: invertebrates (epibenthic copepods and amphipods) and fishes. *Reproduction*: eggs probably pelagic; leptocephalus unknown; one late metamorphic specimen recorded from central north Pacific.

*Distribution*: eastern Atlantic, the Azores and Madeira. Elsewhere, western Atlantic and central North Pacific.



# **SYNAPHOBRANCHUS** Johnson, 1862

Clofnam 87.1

Body elongate, anus at anterior third of body; head twice in preanal length. Mouth moderate, reaching to about one eye diameter behind posterior margin of eye. Dorsal fin origin slightly in advance of, to well behind, level of anus. Scales present on body and sometimes on cheeks.

Species 4; in Clofnam area 1.

Recent revision: Castle (1964), Robins (1971).

## ***Synaphobranchus kaupi*** Johnson, 1862

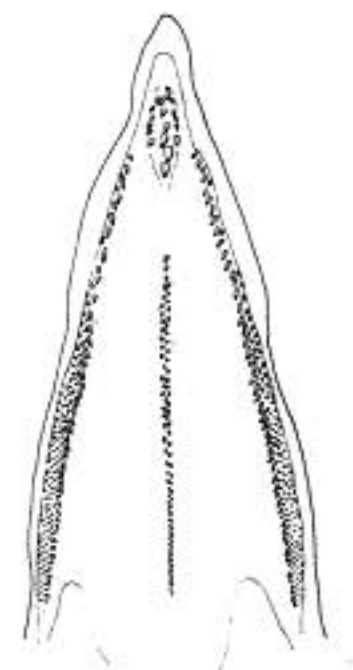
Clofnam 87.1.1

Common synonyms: none.

Common name: Kaup's arrowtooth eel, Cut-throat eel (En).



*Diagnosis*: body elongate, slender, compressed posteriorly, greatest depth at trunk; trunk short. Head conical, tip of snout turned downwards, not prominent. Anterior nostril subterminal and subtubular, posterior



Teeth of upper jaw



nostril a collared pore before eye. Mouth reaching to about one eye diameter behind posterior margin of eye, jaws slender, the lower turned upwards at tip, lips absent. Teeth minute, conical, recurved, multiserial on both jaws, the largest on premaxillary; ethmoid in an oval patch separated from uni- or biserial vomerine teeth. Gill slits united below. Dorsal fin low, anal fin more developed, both confluent with caudal fin; dorsal fin origin well behind vent; pectoral fins moderately alternated, their length slightly more than snout. Lateral line with 30 preanal pores, 8 prepectoral pores. Vertebrae 142–152. Scales present over whole of body except head. *Colour*: black to brown; vertical fins with lighter edge anteriorly. *Size*: to 81.3 cm.

*Habitat*: benthopelagic on continental slope from 400 to 4,800 m, near the upper limit of abyssal zone. *Food*: mainly decapoda, natantia, amphipods, but also fishes and cephalopods, sometimes of big size. *Reproduction*: during warm hydrological season.

*Distribution*: eastern North Atlantic from south of Ireland and the Faroes; not recorded in Mediterranean. Elsewhere, western North Atlantic and Indian Ocean.

