

***Chlopsis bicolor* Rafinesque, 1810****Chlopsidae****Bicolor eel**

**Range:** Both sides of the Atlantic Ocean; in the western North Atlantic from North Carolina, southern Florida and off Yucatan Peninsula to southern Brazil; also eastern Atlantic from south of the Azores to Mediterranean Sea

**Habitat:** Cryptic species, collected from depths of 32–351 m

**Spawning:** Presumably year-round; leptocephali frequently collected in study area, Apr–Dec

**Eggs:** – Undescribed

**Larvae:**

- Small to moderately sized
- Body moderately deep, body depth 21–26% SL
- Tail-tip bluntly pointed
- Gut relatively short, simple, without swellings or loops; anus at or near mid-length
- Nephros ends at level of anus
- Last vertical blood vessel arises from end of nephros, enters aorta posterior to level of anus
- Dorsal fin long, origin at about myomere 20–23
- Head and snout moderate, pointed
- Pectoral fin well-developed, lost at transformation
- Midline pigment includes a series, consisting of 2–3 spots per myoseptum, from head to tail (Fig. C)
- Gut pigment includes a series of spots along bottom of esophagus and top of intestine
- A scattering of pigment on end of anal fin, extending onto caudal fin
- Head pigment includes 2–3 spots in row behind jaw angle; also a crescentic patch below eye
- Maximum leptocephalus size 55 mmSL

**Meristic Characters**

|                    |         |
|--------------------|---------|
| Myomeres:          | 126–136 |
| Vertebrae:         | 127–134 |
| Dorsal fin rays:   | –       |
| Anal fin rays:     | –       |
| Pectoral fin rays: | none    |
| Pelvic fin rays:   | none    |
| Caudal fin rays:   | 9       |

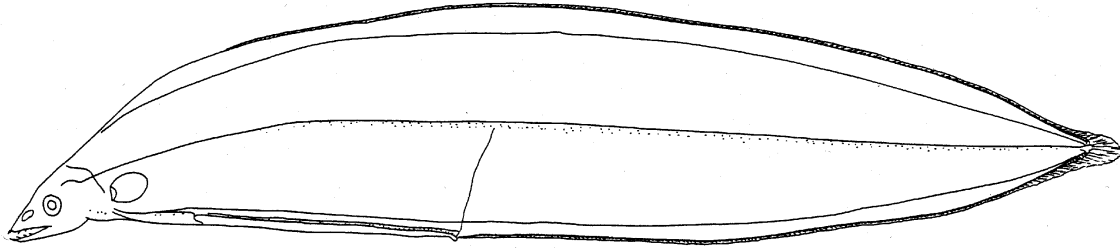
**Figures:** Adult: Mary Fuges (Smith, 1989a); A–C: Mary Fuges (Smith, 1989b)

**References:** Schmidt, 1912; Smith, 1969; Smith, 1989b

*Chlopsis bicolor*

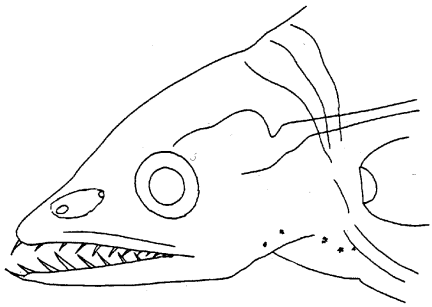
Predorsal myomeres 20-23

Total myomeres 126-136

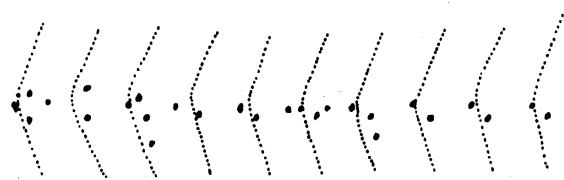


**A. 36 mmSL**

Preanal myomeres 46-50



**B. 36 mmSL  
(Head Detail)**



**C. 36 mmSL  
(Mid-section of Body)**

***Chlopsis dentatus* (Seale, 1917)****Chlopsidae**

No common name



**Range:** Western North Atlantic Ocean from Cuba, Barbados, Colombia and Caribbean coast of Mexico; also western Indian Ocean; leptocephali have also been collected from Gulf of Guinea (eastern Atlantic) and a single specimen from western Pacific (Solomon Islands)

**Habitat:** Moderately deep water near rock and rubble; collected from depths of 64–366 m

**Spawning:** Extended season; leptocephali have been rarely collected in study area, Sep–Oct

**Eggs:** – Undescribed

**Larvae:**

- Small to moderately sized
- Body moderately deep, body depth 24–33% SL
- Tail-tip bluntly pointed
- Gut relatively short, simple, without swellings or loops; anus anterior to mid-length
- Nephros ends at level of anus
- Last vertical blood vessel arises from end of nephros, enters aorta posterior to level of anus
- Dorsal fin long, origin at about myomere 19
- Head and snout moderate, pointed
- Pectoral fin well-developed, lost at transformation
- Midline pigment includes a series of small melanophores in clusters along midline; 2 additional clusters on body wall above gut
- Gut pigment includes a series of spots along bottom of esophagus and clumps of spots along top of intestine
- Head pigment includes an oblique row behind jaw angle; no patch below eye
- Maximum leptocephalus size 59 mmSL

**Meristic Characters**

|                    |         |
|--------------------|---------|
| Myomeres:          | 114–119 |
| Vertebrae:         | 116–124 |
| Dorsal fin rays:   | –       |
| Anal fin rays:     | –       |
| Pectoral fin rays: | none    |
| Pelvic fin rays:   | none    |
| Caudal fin rays:   | –       |

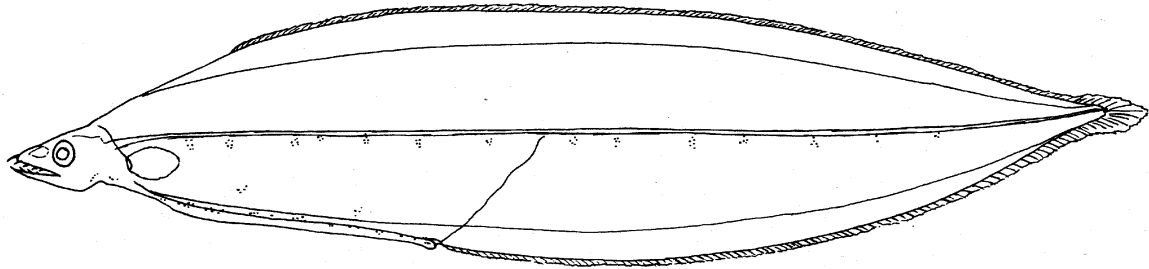
**Figures:** Adult: Mary Fuges (Böhlke and Smith, 1968); A: Mary Fuges (Smith, 1989b)

**References:** Smith, 1969; Keller, 1976; Smith, 1989b

*Chlopsis dentatus*

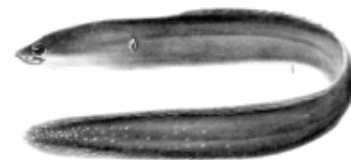
Predorsal myomeres 19

Total myomeres 114-119



**A. 38 mmSL**

Preanal myomeres 38-39

***Chilorhinus suensonii* Lütken, 1852****Chlopsidae****Seagrass eel**

**Range:** Western North Atlantic Ocean from Bermuda and the Bahamas through Caribbean Sea to Brazil; absent from Florida and Gulf of Mexico

**Habitat:** Mostly shallow waters; collected from depths near shoreline to 275 m, typically in grassbeds; a common species

**Spawning:** Smallest larvae collected in summer, but pattern not certain; leptocephali frequently collected in study area, Jun–Dec

**Eggs:** – Undescribed

**Larvae:**

- Small to moderately sized
- Body moderately deep, body depth 25–37% SL
- Tail-tip bluntly pointed
- Gut relatively short, simple, without swellings or loops; anus at or near mid-length
- Nephros ends at level of anus
- Last vertical blood vessel arises from end of nephros, enters aorta posterior to level of anus
- Dorsal fin long, origin at about myomere 20–27
- Head and snout moderate, pointed
- Pectoral fin well-developed, becomes reduced at transformation, vestigial in adults
- Midline pigment includes series of small melanophores, usually 1 per myoseptum, just below midline (Fig. B)
- Gut pigment includes a series of spots along bottom of esophagus and liver, and top of intestine
- Head pigment includes oblique row behind jaw angle and a crescentic patch below eye
- Maximum leptocephalus size 56 mmSL

**Meristic Characters**

|                    |        |
|--------------------|--------|
| Myomeres:          | 97–104 |
| Vertebrae:         | 98–106 |
| Dorsal fin rays:   | –      |
| Anal fin rays:     | –      |
| Pectoral fin rays: | 1–3    |
| Pelvic fin rays:   | none   |
| Caudal fin rays:   | –      |

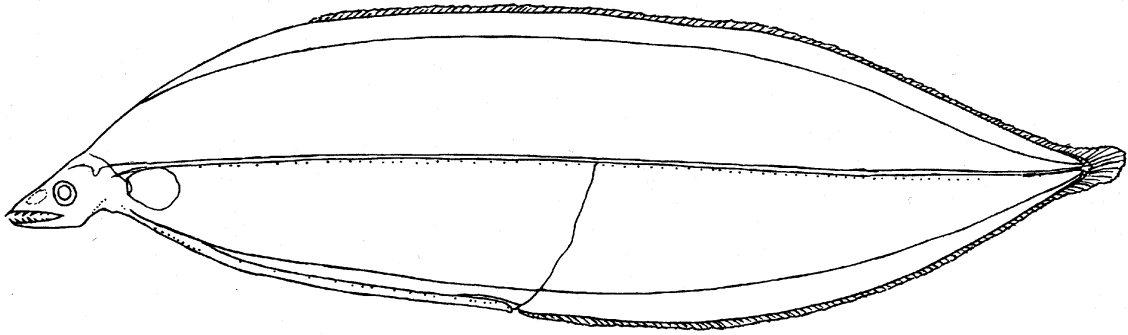
**Figures:** Adult: Steven Gigliotti (Smith, 1989a); **A–B:** Mary Fuges (Smith, 1989b)

**References:** Keller, 1976; Smith, 1989b

*Chlorhinus suensonii*

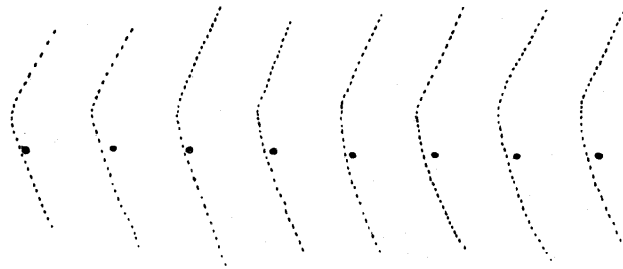
Predorsal myomeres 20-27

Total myomeres 97-104



**A. 36 mmSL**

Preanal myomeres 40-47



**B. 36 mmSL**  
**(Mid-section of Body)**

***Kaupichthys hyoprroides* (Strömman, 1896)****Chlopsidae**

## False moray



**Range:** Western North Atlantic Ocean from Bermuda, the Bahamas and southern Florida through Caribbean Sea to Venezuela; also Indo-West Pacific Ocean

**Habitat:** Usually near coral reefs; a cryptic species

**Spawning:** Probably throughout the year; evidence suggests spawning occurs south of Sargasso Sea, although larger leptocephali occur there; leptocephali not infrequently collected in study area, Jul–Dec

**Eggs:** – Undescribed

**Larvae:**

- Small to moderately sized
- Body moderately deep, body depth 17–36% SL
- Tail-tip bluntly rounded
- Gut relatively short, simple, without swellings or loops; anus at or near mid-length
- Nephros ends at level of anus
- Last vertical blood vessel arises from end of nephros, enters aorta posterior to level of anus
- Dorsal fin long, origin at about myomere 14–19
- Head and snout moderate, pointed
- Pectoral fin well-developed, retained in adults, but reduced
- Lateral pigment includes a scattering of small spots over entire body, mostly associated with myosepta
- Gut pigment includes a series of spots along bottom and side of esophagus and top of intestine; lighter series along bottom of intestine
- Head pigment includes spots on upper and lower jaws, 'throat' area, and a crescentic patch below eye
- Maximum leptocephalus size 53 mmSL

**Meristic Characters**

Myomeres: 113–120

Vertebrae: 109–123

Dorsal fin rays: about 350

Anal fin rays: –

Pectoral fin rays: 14–15

Pelvic fin rays: none

Caudal fin rays: –

**Note:** 1. Experiments in the Sargasso Sea demonstrate that leptocephali are usually concentrated in upper 100 m of water column at night; not many collected during the day, suggesting net avoidance; (see Castonguay and M<sup>c</sup>Cleave, 1987).

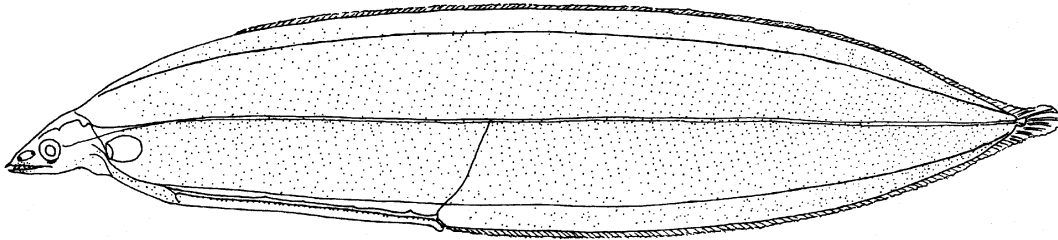
**Figures:** Adult: Mary Fuges (Smith, 1989a); A-C: Smith, 1979

**References:** Castle, 1964b; Keller, 1976; Smith, 1989b

*Kaupichthys hyoprорoides*

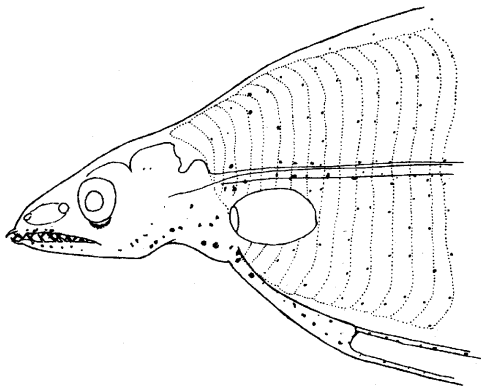
Predorsal myomeres 14-19

Total myomeres 113-120

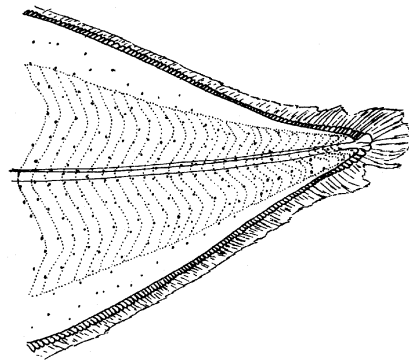


**A. 39 mmSL**

Preanal myomeres 38-44



**B. 39 mmSL  
(Head Detail)**



**C. 39 mmSL  
(Caudal Area)**



***Kaupichthys nuchalis* Böhlke, 1967****Chlopsidae****Collared eel**

**Range:** Western North Atlantic Ocean from the Bahamas and islands in the Caribbean Sea; isolated occurrence in northern Gulf of Mexico

**Habitat:** Mostly near coral reefs, possibly associated with sponges; collected from depths from nearshore to 77 m; (isolated capture from 604–732 m)

**Spawning:** Undescribed; presumably year-round; leptocephali not infrequently collected in study area, Jul–Oct

**Eggs:** – Undescribed

**Larvae:**

- Small to moderately sized
- Body moderately deep, body depth 17–34% SL
- Tail-tip bluntly rounded
- Gut relatively short, simple, without swellings or loops; anus at or near mid-length
- Nephros ends a short distance anterior to level of anus
- Last vertical blood vessel arises from end of nephros, enters aorta near level of anus
- Dorsal fin long, origin at about myomere 22–24
- Head and snout moderate, pointed
- Pectoral fin well-developed
- Midline pigment includes very small spots along midline posterior to level of anus
- Gut pigment light, limited to few spots on top and sides of gut near anus
- Head pigment includes melanophores before and after eye and a crescentic patch below eye
- Maximum leptocephalus size 43 mmSL

**Meristic Characters**

|                    |         |
|--------------------|---------|
| Myomeres:          | 121–125 |
| Vertebrae:         | 119–125 |
| Dorsal fin rays:   | 376     |
| Anal fin rays:     | 297     |
| Pectoral fin rays: | 11–12   |
| Pelvic fin rays:   | none    |
| Caudal fin rays:   | –       |

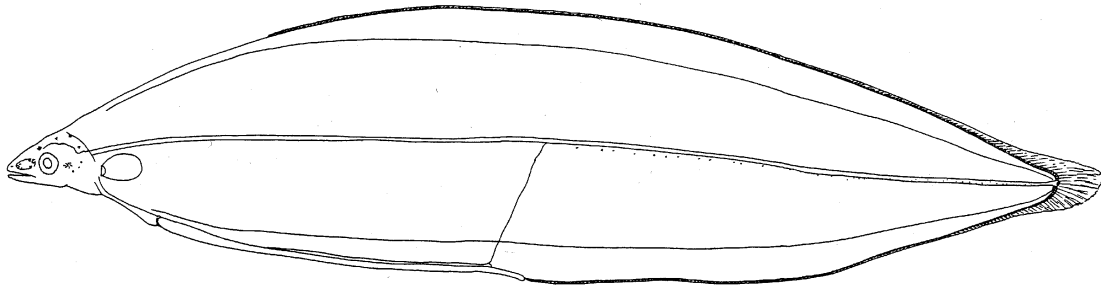
**Figures:** Adult: Mary Fuges (Smith, 1989a); **A–B:** Mary Fuges (Smith, 1989b)

**References:** Smith, 1969; Keller, 1976; Smith, 1989b

*Kaupichthys nuchalis*

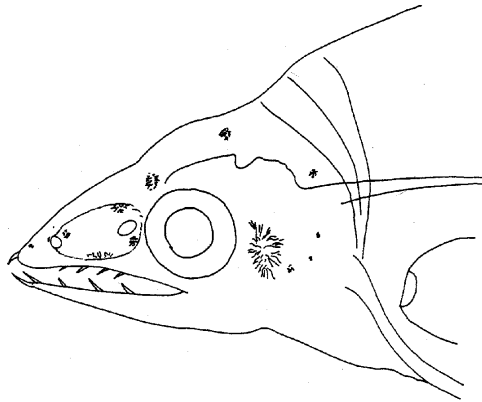
Predorsal myomeres 22-24

Total myomeres 121-125



**A. 43 mmSL**

Preanal myomeres 50-54



**B. 43 mmSL  
(Head Detail)**

***Robinsia catherinae* Böhlke and Smith, 1967****Chlopsidae**

No common name

**Range:** Western Atlantic Ocean off Panama and western Indian Ocean off Kenya**Habitat:** Collected from depths of 52–243; a rare species**Spawning:** Undescribed; presumably throughout the year; leptocephali rarely collected in study area, Sep**Eggs:** – Undescribed

**Larvae:**

- Small to moderately sized
- Body moderately deep, body depth 21–30% SL
- Tail-tip bluntly rounded
- Gut relatively short, simple, without swellings or loops; anus at or near mid-length
- Nephros ends at level of anus
- Last vertical blood vessel arises from end of nephros, enters aorta posterior to level of anus
- Dorsal fin long, origin at about myomere 17
- Head and snout moderate, pointed
- Pectoral fin well-developed, lost at transformation
- Midline pigment includes series of 3–16 moderately large melanophores; may be unequal on 2 sides
- Gut pigment includes several large paired melanophores along intestine
- Head pigment limited to few spots behind jaw angle
- Maximum leptocephalus size 71 mmSL

**Meristic Characters**

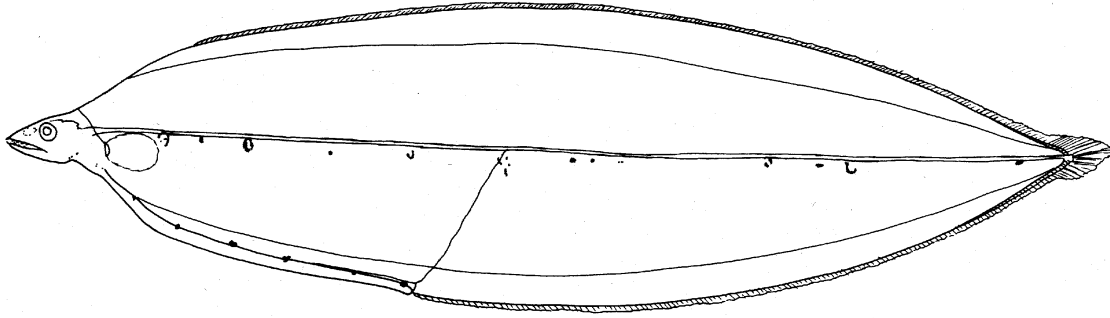
|                    |               |
|--------------------|---------------|
| Myomeres:          | 125–137       |
| Vertebrae:         | 130–about 137 |
| Dorsal fin rays:   | –             |
| Anal fin rays:     | –             |
| Pectoral fin rays: | none          |
| Pelvic fin rays:   | none          |
| Caudal fin rays:   | –             |

**Figures:** Adult: Mary Fuges (Smith, 1989a); A: Mary Fuges (Smith, 1989b)**References:** Smith, 1969; Keller, 1976; Smith, 1989b

*Robinsia catherinae*

Predorsal myomeres 17

Total myomeres 125-137



**A. 48 mmSL**

Preanal myomeres 43-47

***Serrivomer beanii* Gill and Ryder, 1883****Serrivomeridae****Stout sawpalate eel**

**Range:** Widely distributed throughout the northern Atlantic Ocean, with center of abundance in temperate and subtropical waters; collections in Gulf of Mexico and Caribbean Sea most likely limited to juveniles

**Habitat:** Mesopelagic, mostly in depths of 550–1,000 m, with some variation in depth ranges by age

**Spawning:** Late summer to fall; leptocephali not uncommonly collected in study area, Oct–Dec

**Eggs:** – Undescribed

**Larvae:**

- Body moderately deep
- Maximum body depth 14–16% SL
- Gut long and simple, without swellings; anus at 78–84% SL
- Dorsal fin origin anterior to level of anus
- Head and snout pointed; posterior nostril just in front of eye
- Midline pigment restricted to scattering of spots near tail tip
- Gut pigment lacking
- Head pigment lacking, except a few spots above eye
- Pigment usually scattered on or near base of caudal fin
- Anal fin(fold) usually pigmented with a scattering of spots in larger leptocephali
- Maximum leptocephalus size 60 mmSL

**Note:** 1. Experiments in the Sargasso Sea demonstrate that leptocephali are usually concentrated in upper 100 m of water column at night; not many collected during the day, suggesting net avoidance (See Castonguay and McCleave, 1987.)

**Meristic Characters**

|                    |               |
|--------------------|---------------|
| Myomeres:          | 153–164       |
| Vertebrae:         | 154–162       |
| Dorsal fin rays:   | 136–175       |
| Anal fin rays:     | 119–156       |
| Pectoral fin rays: | reduced, weak |
| Pelvic fin rays:   | none          |
| Caudal fin rays:   | 2(or 3) + 3   |

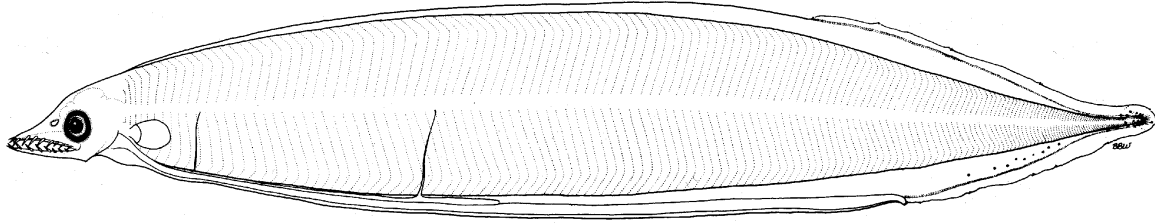
**Figures:** Adult: Mary Fuges (Tighe, 1989a); A: Betsy Washington (Tighe, 1989b)

**References:** Tighe, 1989a; 1989b

*Serrivomer beanii*

Predorsal myomeres 73-89

Total myomeres 153-164



**A. 32 mmSL**

Preanal myomeres 84-95

Last vertical blood vessel at myomere 31-39

***Serrivomer lanceolatoides* (Schmidt, 1916)****Serrivomeridae**

No common name



**Range:** Western North Atlantic Ocean, including Gulf of Mexico, in tropical and subtropical waters, as far north as 40°N

**Habitat:** Mesopelagic; mostly in depths of 500–1,000 m, varying slightly by age

**Spawning:** Spring-early summer; leptocephali not uncommonly collected in study area, Jul–Oct

**Eggs:** – Undescribed

**Larvae:**

- Body moderately deep
- Maximum body depth 13–17% SL
- Gut long and simple, without swellings; anus at 76–88% SL
- Dorsal fin origin anterior to level of anus
- Head and snout pointed; posterior nostril just in front of eye
- Midline pigment includes an irregular series of spots on myosepta, beginning near myomere #20, not every myoseptum pigmented
- Gut pigment lacking
- Head pigment lacking except for few spots dorsal to eye
- Pigment usually scattered on or near base of caudal fin
- Dorsal and anal fin bases usually pigmented with a scattering of spots in larger leptocephali
- Maximum leptocephalus size 65 mmSL

**Meristic Characters**

|                    |               |
|--------------------|---------------|
| Myomeres:          | 156–163       |
| Vertebrae:         | 154–163       |
| Dorsal fin rays:   | 175–198       |
| Anal fin rays:     | 165–192       |
| Pectoral fin rays: | reduced, weak |
| Pelvic fin rays:   | none          |
| Caudal fin rays:   | 2 (or 3) + 3  |

**Note:** 1. Leptocephali are distributed between 0 and 220 m, with most at about 70 m during day, and 100 m at night (Bauchot, 1959)

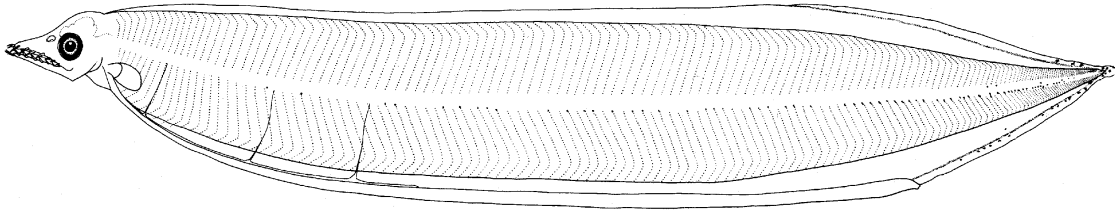
**Figures:** Adult: Mary Fuges (Tighe, 1989a); A: Betsy Washington (Tighe, 1989b)

**References:** Tighe, 1989a; 1989b

*Serrivomer lanceolatus*

Predorsal myomeres 80-88

Total myomeres 156-163



**A. 35 mmSL**

Preanal myomeres 89-97

Last vertical blood vessel at myomere 30-36



***Facciolella* spp.**  
**Nettastomatidae**  
 No common name



- Range:** Western North Atlantic Ocean from Bermuda and Atlantic coast of Florida, through the Gulf of Mexico, Hispaniola and the southern Caribbean Sea from Nicaragua to Venezuela; also southern Brazil
- Habitat:** Collected from depths of 329–732 m; (2 extreme records in 75 and 3,109 m)
- Spawning:** Probably an extended season for both kinds; leptocephali (of both kinds) rarely collected in study area, Aug–Dec
- Eggs:** – Undescribed
- Larvae:**
- Characters shared by both leptocephali:
  - Body moderately long and slender; tail-tip acute
  - Gut short, with irregular undulations or swellings
  - Last vertical blood vessel arises from end of nephros, near level of anus
  - Dorsal fin long, origin at about 12–18% SL
  - Head and snout pointed; posterior nostril just in front of eye
  - Pectoral fin well-developed, lost at transformation
  - Head pigment includes band of internal spots beside and behind brain
  - Maximum leptocephalus size 86 mmSL (sp. B) or 109 mmSL (sp. C)
  - See differences between 2 leptocephali in table below:

**Meristic Characters**

|                    |         |
|--------------------|---------|
| Myomeres:          | 240–264 |
| Vertebrae:         | 243–256 |
| Dorsal fin rays:   | –       |
| Anal fin rays:     | –       |
| Pectoral fin rays: | none    |
| Pelvic fin rays:   | none    |
| Caudal fin rays:   | –       |

| Character              | <i>Facciolella</i> sp. B             | <i>Facciolella</i> sp. C                          |
|------------------------|--------------------------------------|---|
| Total/Preanal myomeres | 240–254/57–61                        | 253–264/43–47                                     |
| Preanus length/SL      | 35–56%                               | 22–47%  |
| Midline pigment        | Series, head to tail along notochord | 3 in series, followed by scattering on lower body |
| Gut pigment            | Few, large spots                     | More, smaller spots                               |

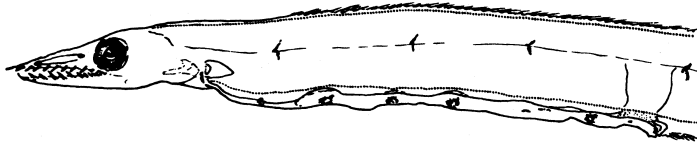
- Figures:** Adult: Mary Fuges (Smith, 1989a); **A–B, F–G:** Smith and Castle, 1982; **C–E:** Smith, 1989b
- References:** Smith and Castle, 1982; Smith, 1989b

*Facciolella* sp. B.

Genus *Facciolella*

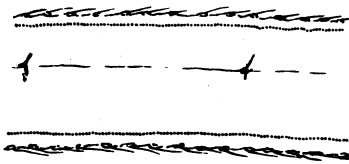
Predorsal myomeres 15-16

Total myomeres 240-254



A. 75 mmSL

Preanal myomeres 57-61

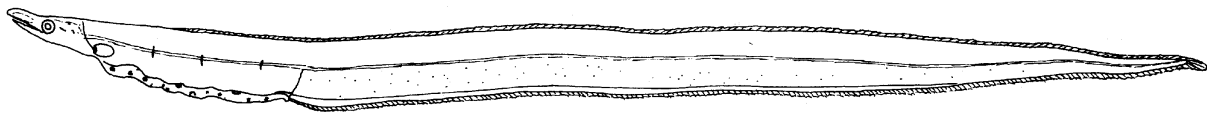


B. 75 mmSL (Mid-tail Section)

*Facciolella* sp. C

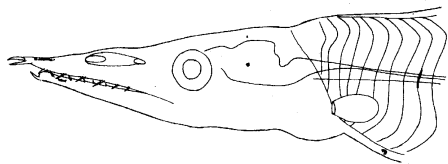
Predorsal myomeres 18-20

Total myomeres 253-264

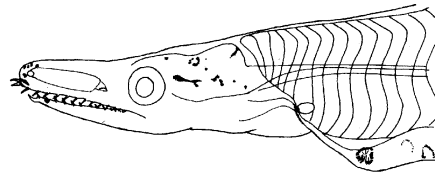


C. 87 mmSL

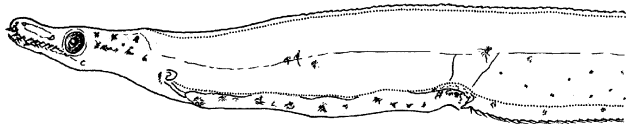
Preanal myomeres 43-47



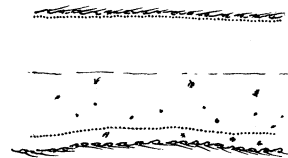
D. 37 mmSL (Head Detail)



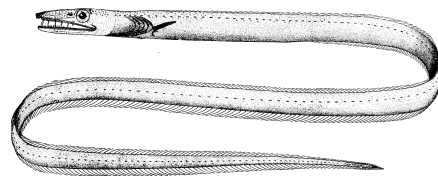
E. 87 mmSL (Head Detail)



F. 84 mmSL (Anterior Body and Head)



G. 84 mmSL (Mid-tail Section)

***Hoplunnis diomediana* Goode and Bean, 1896****Nettastomatidae****Blacktail pike-conger**

**Range:** Western North Atlantic Ocean from North Carolina, both coasts of Florida and eastern and southern Gulf of Mexico

**Habitat:** Collected from depths of 33–203 m

**Spawning:** Probably year-round; leptocephali collected infrequently in study area, Apr–Oct

**Eggs:** – Undescribed

**Larvae:**

- Body moderately elongate
- Maximum body depth 7% SL
- Tail-tip acute
- Gut short with 2 distinct swellings; anus at 35–50% SL
- Liver forms a single swelling in anterior part of gut
- Kidney conspicuously expanded near its terminus near anus
- Last vertical blood vessel arises from end of nephros, near level of anus; at myomere 55–56
- Dorsal fin long, origin at about 14% SL
- Head and snout pointed; posterior nostril just in front of eye
- Pectoral fin well-developed
- Midline pigment includes a series of about 10 deep, vertically elongate melanophores, from near head to tail end
- Gut pigment includes melanophores on and between gut swellings
- Head pigment includes internal pigment behind brain and medial to nasal capsule
- Maximum leptocephalus size 56 mmSL

**Meristic Characters**

|                    |         |
|--------------------|---------|
| Myomeres:          | 222–232 |
| Vertebrae:         | 221–234 |
| Dorsal fin rays:   | –       |
| Anal fin rays:     | –       |
| Pectoral fin rays: | 9–10    |
| Pelvic fin rays:   | none    |
| Caudal fin rays:   | –       |

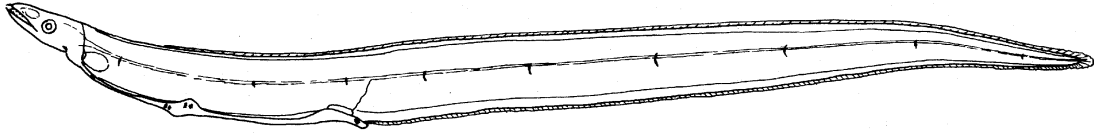
**Figures:** Adult: Mary Fuges (Smith, 1989a); **A:** Smith, 1989b; **B–C:** Smith and Castle, 1982

**References:** Smith and Castle, 1982; Smith, 1989b

*Hoplunnis diomediana*

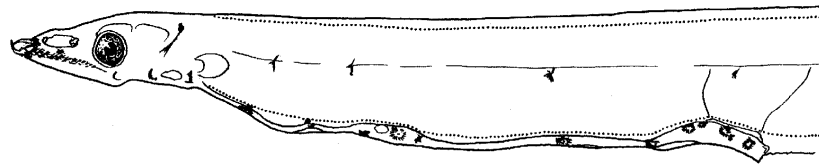
Predorsal myomeres 13-17

Total myomeres 222-232



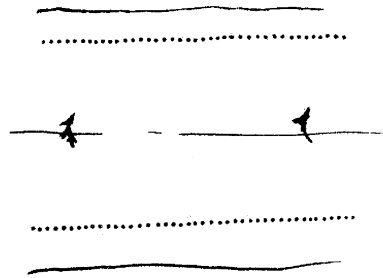
**A. 52 mmSL**

Preanal myomeres 50-54



**B. 48 mmSL**

**(Anterior Body and Head)**



**C. 48 mmSL**

**(Mid-tail Section)**

***Hoplunnis macrura* Ginsburg, 1951****Nettastomatidae****Freckled pike-conger**

**Range:** Western North Atlantic Ocean; western and southern Gulf of Mexico and coast of northern South America to Amazon River mouth

**Habitat:** Collected from depths of 20–220 m

**Spawning:** Apparently year-round in Gulf of Mexico; leptocephali not infrequently collected in study area, Jun–Nov

**Eggs:** – Undescribed

**Larvae:**

- Body moderately elongate
- Maximum body depth 4–8% SL
- Tail-tip acute
- Gut short; with 2 distinct swellings; anus at 28–44% SL
- Liver forms a single swelling in anterior part of gut (about 1 head length behind pectoral fin)
- Kidney conspicuously expanded near its terminus near anus
- Last vertical blood vessel arises from end of nephros, near level of anus, at myomere 54–58
- Dorsal fin long, origin at about 9–11% SL
- Head and snout pointed; posterior nostril just in front of eye
- Pectoral fin well-developed
- Midline pigment includes 9–10 internal melanophores along notochord
- Gut pigment includes spots in front of, on, and between gut swellings
- A series of small melanophores occurs along the lower body wall above the anal fin rays
- Head pigment includes internal melanophores behind brain and medial to nasal capsule
- Maximum leptocephalus size 113 mmSL

**Meristic Characters**

|                    |         |
|--------------------|---------|
| Myomeres:          | 221–252 |
| Vertebrae:         | 227–245 |
| Dorsal fin rays:   | –       |
| Anal fin rays:     | –       |
| Pectoral fin rays: | 10–11   |
| Pelvic fin rays:   | none    |
| Caudal fin rays:   | –       |

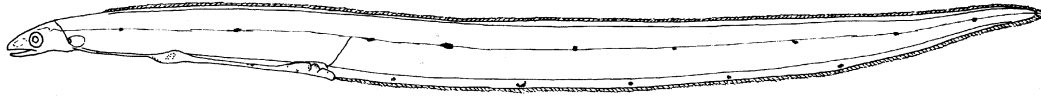
**Figures:** Adult: Mary Fuges (Smith, 1989a); **A–C:** Smith, 1989b; **D–E:** Smith and Castle, 1982

**References:** Smith and Castle, 1982; Smith, 1989b

*Hoplunnis macrura*

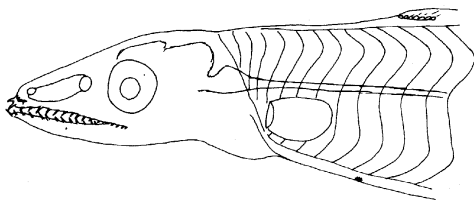
Predorsal myomeres 9-13

Total myomeres 221-252

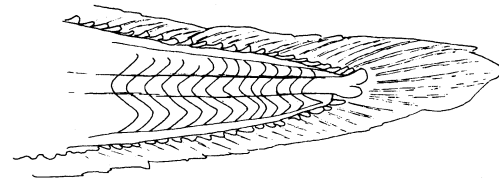


**A. 84 mmSL**

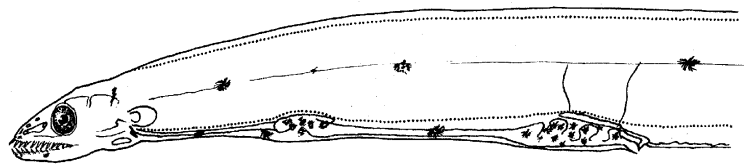
Preanal myomeres 51-58



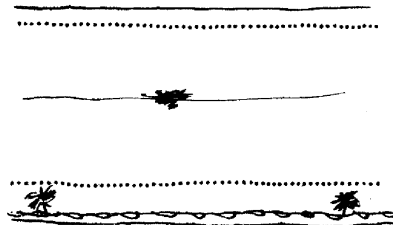
**B. 84 mmSL**  
(Head Detail)



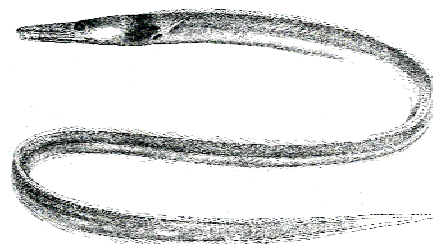
**C. 84 mmSL**  
(Caudal Area)



**D. 85 mmSL**  
(Anterior Body and Head)



**E. 85 mmSL**  
(Mid-tail Section)

***Hoplunnis tenuis* Ginsburg, 1951****Nettastomatidae****Spotted pike-conger**

**Range:** Western North Atlantic Ocean from the Bahamas, Gulf of Mexico, through the West Indies and along the coasts of Central and South America to the Guianas; also extreme collections off New Jersey and southern Brazil

**Habitat:** No information

**Spawning:** Possibly during most of the year; leptocephali not uncommonly collected in study area, Apr–Oct

**Eggs:** – Undescribed

**Larvae:**

- Body moderately elongate
- Maximum body depth 5–7% SL
- Tail-tip acute
- Gut short; with 2 distinct swellings; anus at 23–33% SL
- Liver forms a single swelling in anterior part of gut
- Kidney conspicuously expanded near its terminus near anus
- Last vertical blood vessel arises from end of nephros, near level of anus, at myomere 46–47
- Dorsal fin long, origin at about 9–12% SL
- Head and snout pointed; posterior nostril just in front of eye
- Pectoral fin well-developed
- Midline pigment includes series of 8–10 large pigment spots from near the head to tail, the 1<sup>st</sup> four superficial, the remainder internal and horizontally elongate
- Second series of melanophores along ventral edge of myomeres, posterior to anus
- Gut pigment includes several prominent spots on and between swellings
- Head pigment includes internal spots behind brain, superficial spots behind and above eye, and internal pigment medial to nasal capsules
- Maximum leptocephalus size 142 mmSL

**Meristic Characters**

Myomeres: 232–251

Vertebrae: 232–244

Dorsal fin rays: –

Anal fin rays: –

Pectoral fin rays: 9–10

Pelvic fin rays: none

Caudal fin rays: –

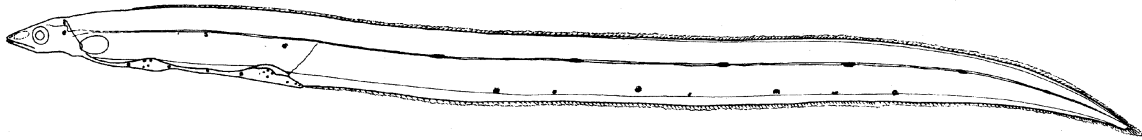
**Figures:** Adult: Mary Fuges (Smith, 1989a); **A–D:** Smith, 1989b; **E:** Smith and Castle, 1982

**References:** Smith and Castle, 1982; Smith, 1989b

*Hoplunnis tenuis*

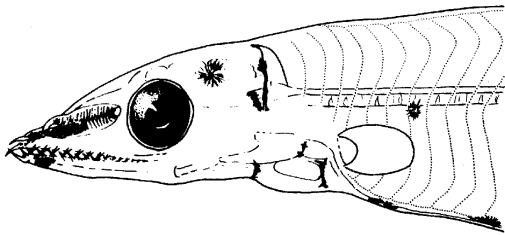
Predorsal myomeres 11-18

Total myomeres 232-251

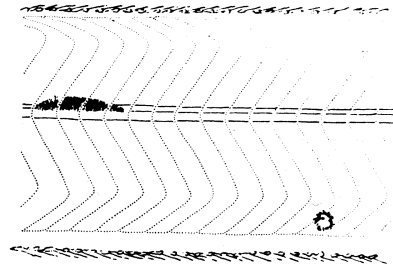


**A. 93 mmSL**

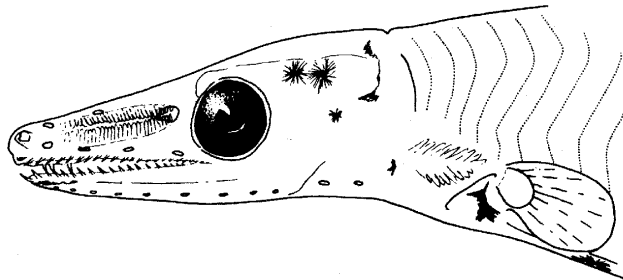
Preanal myomeres 44-48



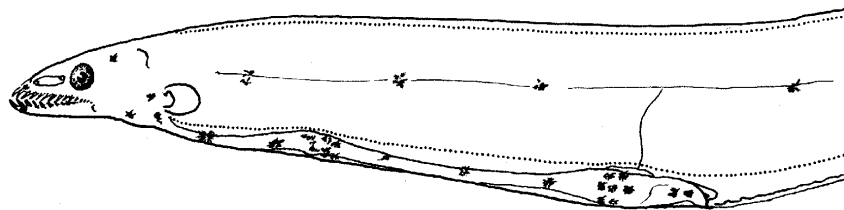
**B. 76 mmSL (Head Detail)**



**C. 76 mmSL (Mid-tail Section)**



**D. 142 mmSL (Head Detail)**



**E. 101 mmSL, Transforming  
(Anterior Body and Head)**



***Nettastoma melanura* Rafinesque, 1810****Nettastomatidae**

No common name



**Range:** Western North Atlantic Ocean from east coast of Florida and Gulf of Mexico through the Caribbean Sea to the Guianas; also eastern Atlantic. Replaced by *Nettastoma syntresis* in the Bahamas.

**Habitat:** Collected from depths of 329–860 m, with extremes of 37 and 1,647 m

**Spawning:** Undescribed; possibly a prolonged season; leptocephali not uncommonly collected in study area, Jun–Nov.

**Eggs:** – Undescribed

**Larvae:**

- Body deepens abruptly behind head
- Maximum body depth 24–35% SL
- Tail-tip acute
- Gut short; with 2 swellings, anterior one associated with liver, posterior one with kidney; anus at 44–62% SL
- Last vertical blood vessel arises from end of nephros, anterior to level of anus
- Dorsal fin moderately long, origin at about 33% of length
- Head and snout pointed; posterior nostril just in front of eye
- Pectoral fin well-developed, lost at transformation
- Midline pigment includes a single melanophore midway between anus and tail tip
- Gut pigment includes melanophores on both swellings
- Head pigment includes internal spots behind eye
- Maximum leptocephalus size 120 mmSL

**Meristic Characters**

|                    |         |
|--------------------|---------|
| Myomeres:          | 186–211 |
| Vertebrae:         | 195–207 |
| Dorsal fin rays:   | 356–389 |
| Anal fin rays:     | 234–317 |
| Pectoral fin rays: | none    |
| Pelvic fin rays:   | none    |
| Caudal fin rays:   | –       |

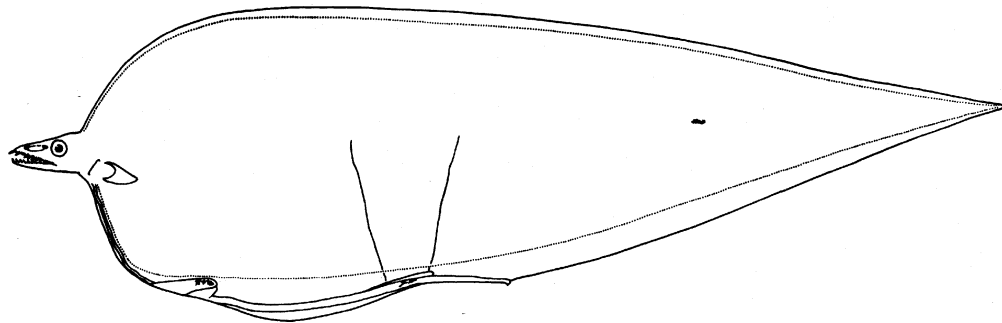
**Figures:** Adult: Mary Fuges (Smith, 1989a); **A–D:** Smith and Castle, 1982

**References:** Smith and Castle, 1982; Smith, 1989b

*Nettastoma melanura*  
(*N. syntresis*)

Predorsal myomeres 39-48

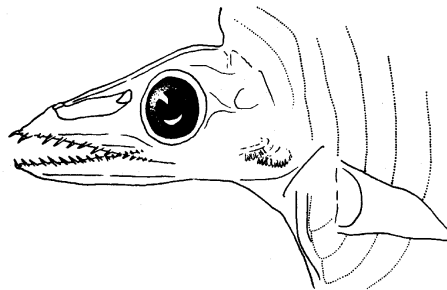
Total myomeres 186-211



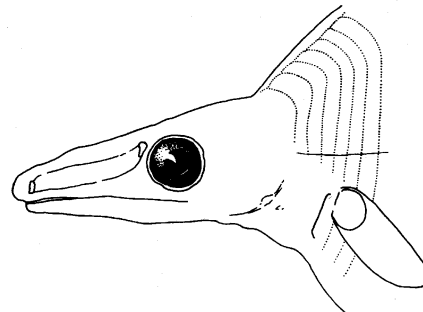
**A. 106 mmSL**

Preanal myomeres 60-70

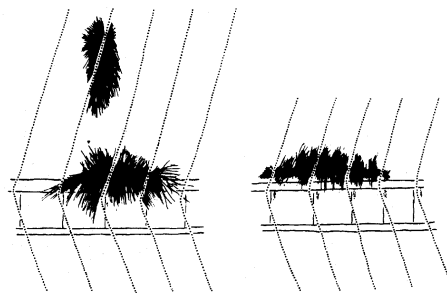
Last vertical blood vessel at myomere 61-62



**B. Head detail 106 mmSL**



**C. Head detail 111 mmSL**



**D. Lateral pigment spot: *N. syntresis* (left); *N. melanura* (right)**

*Nettastoma syntresis* leptocephali are identical to those of *N. melanurum* but have fewer preanal myomeres (53-56) and a lateral pigment spot composed of 2 melanophores (*cf.* 1). Leptocephali of *N. syntresis* have not yet been collected in study area, but have been taken in the Gulf Stream off Cape Hatteras (Aug) and might be expected farther northeast in the Gulf Stream .

***Nettenchelys pygmaea* Smith and Böhlke, 1981****Nettastomatidae**

No common name



**Range:** Only known from 4 specimens collected from northern Gulf of Mexico (2) and Venezuela (2). Leptocephali, however, are much more common (known from Gulf of Mexico, Caribbean Sea, Gulf Stream and Sargasso Sea)

**Habitat:** Possibly cryptic; collected from depths of 128–280 m; a dwarf species (maximum size of known specimens: 201 mmTL)

**Spawning:** Undescribed; possibly a prolonged season; leptocephali rarely collected in study area in Aug and Oct

**Eggs:** – Undescribed

**Larvae:**

- Body deep; maximum body depth 12–22% SL just anterior to mid-point; tail-tip acute
- Gut short; with 2 swellings; anus at 39–69% SL (longest in small specimens)
- Last vertical blood vessel arises from end of nephros, anterior to level of anus
- Dorsal fin long, origin at about 18–26% SL
- Head and snout pointed; posterior nostril just in front of eye
- Pectoral fin well-developed, lost at transformation
- Midline pigment includes a large, elongate spot midway between anus and tail tip
- Gut pigment limited to a cluster of spots on side of posterior gut swelling
- Head pigment features a band of internal spots behind eye and posterior to brain
- Maximum leptocephalus size 84 mmSL

**Note:** 1. See note on leptocephali of *Nettenchelys inion* and *N. exorius* on figure page

**Meristic Characters**

|                    |         |
|--------------------|---------|
| Myomeres:          | 220–251 |
| Vertebrae:         | 220–250 |
| Dorsal fin rays:   | –       |
| Anal fin rays:     | 267–343 |
| Pectoral fin rays: | none    |
| Pelvic fin rays:   | none    |
| Caudal fin rays:   | –       |

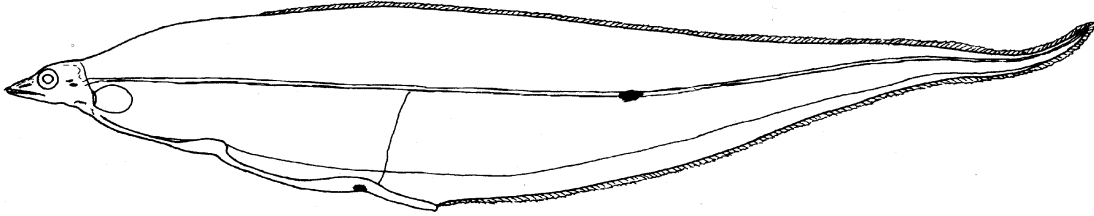
**Figures:** Adult: Mary Fuges (Smith, 1989a); **A:** Mary Fuges (Smith, 1989b); **B–C:** Smith, 1979; **D:** Smith and Castle, 1982

**References:** Smith, *et al.*, 1981; Smith and Castle, 1982; Smith, 1989b

*Nettenchelys pygmaea*  
(and *N. inion*)

Predorsal myomeres 26-34

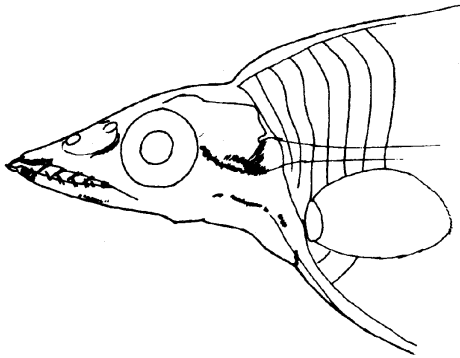
Total myomeres 220-251



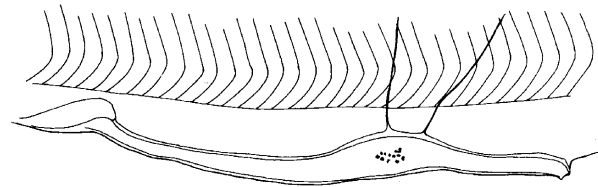
**A. 54 mmSL**

Preanal myomeres 49-56

Last vertical blood vessel at myomere 49-54

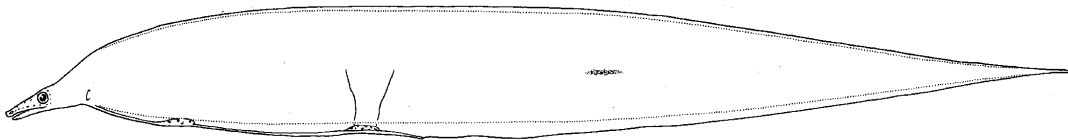


**B. 54 mmSL**  
(Head Detail)

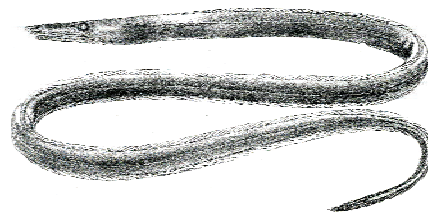


**C. 54 mmSL**  
(End of Gut Detail)

*Nettenchelys inion* leptocephali (below) are identical to those of *N. pygmaea* but have fewer total myomeres (209-226) and more preanal myomeres (59-64). Leptocephali of *N. inion* have been rarely collected in study area in Jul-Aug. They are presently inseparable from leptocephali of *N. exorius*, which have been collected off Florida and the Bahamas.



**D. 177 mmSL**

***Saurenhelys cognita* Smith, 1989****Nettastomatidae****Longface eel**

**Range:** Western North Atlantic Ocean; east coast of North America from the Carolinas, Georgia and Florida through Gulf of Mexico (mostly eastern part); also a record from Campeche Bay

**Habitat:** Collected from depths of 59–128 m

**Spawning:** Protracted, possibly year-round; leptocephali infrequently collected in study area, Apr–Aug

**Eggs:** – Undescribed

**Larvae:**

- Body moderately elongate
- Maximum body depth 7–18% SL
- Tail-tip acute
- Gut short with 2 distinct swellings; anus at 39–67% SL
- Liver forms a single swelling in anterior part of gut
- Kidney conspicuously expanded near its terminus over anus
- Dorsal fin long, origin at about 14–17% SL
- Head and snout pointed; posterior nostril just in front of eye
- Pectoral fin well-developed, lost at transformation
- Midline pigment includes 8 internal melanophores along notochord from near head to tail
- Gut pigment concentrated on gut swellings
- Head pigment includes internal pigment behind brain, on palate, and tip of upper jaw
- Maximum leptocephalus size 73 mmSL

**Meristic Characters**

|                    |         |
|--------------------|---------|
| Myomeres:          | 201–209 |
| Vertebrae:         | 199–209 |
| Dorsal fin rays:   | –       |
| Anal fin rays:     | –       |
| Pectoral fin rays: | none    |
| Pelvic fin rays:   | none    |
| Caudal fin rays:   | –       |

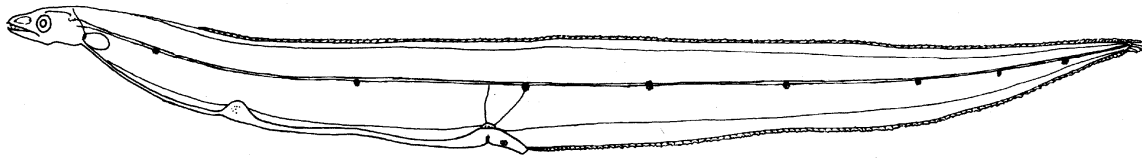
**Figures:** Adult: Mary Fuges (Smith, 1989a); **A:** Smith, 1989b; **B–C:** Smith and Castle, 1982

**References:** Smith and Castle, 1982; Smith, 1989b

*Saurenhelys cognita*

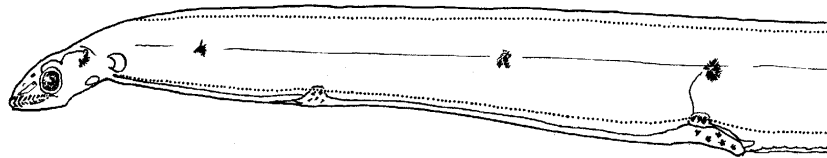
Predorsal myomeres 17-19

Total myomeres 201-209

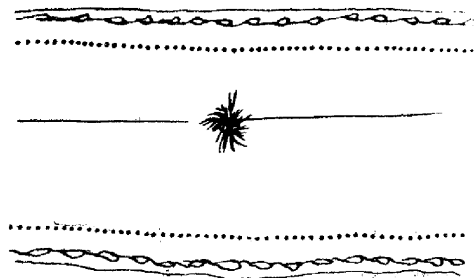


**A. 49 mmSL**

Preanal myomeres 59-64  
Last vertical blood vessel at myomere 61-62



**B. 73 mmSL**  
**(Anterior Body and Head)**



**C. 73 mmSL**  
**(Mid-tail Section)**

***Cyema atrum* Günther, 1878****Cyematidae**

No common name

**Range:** Widespread in all oceans**Habitat:** Mesopelagic and very deep-living; collected from waters as deep as 3,000 m**Spawning:** Leptocephali rarely collected in study area, Jul**Eggs:** – Undescribed

**Larvae:**

- Body very deep, deepens abruptly just behind head
- Maximum body depth 18–58% SL
- Gut moderately long; with 4 prominent loops; anus at 63–73% SL
- Liver forms a large lobe in anterior part of gut (at myomere 6–9)
- Kidney not expanded, ends over next-to-last gut loop
- Last vertical blood vessel arises from end of nephros
- Dorsal fin long, origin at about 63–74% of length (at level of anus)
- Head and snout pointed; eye located near upper margin; small nasal capsule
- Midline pigment includes a scattering of small to large spots, above and below midline, most numerous in small specimens
- Dorsal margin of body has a few prominent melanophores
- Gut pigment includes a few melanophores, dorsally on each loop, and a few ventrally
- Head pigment lacking
- Maximum leptocephalus size 70 mmSL

**Meristic Characters**

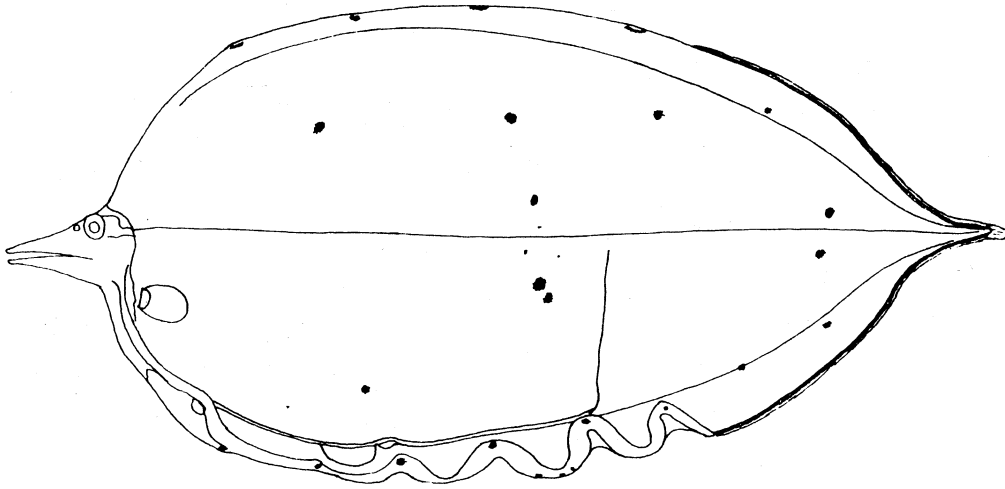
|                    |           |
|--------------------|-----------|
| Myomeres:          | 72–79     |
| Vertebrae:         | 70–80     |
| Dorsal fin rays:   | 85–93     |
| Anal fin rays:     | 72–86     |
| Pectoral fin rays: | 12–15     |
| Pelvic fin rays:   | none      |
| Caudal fin rays:   | 2–3 + 3–4 |

**Figures:** Adult: Goode and Bean, 1896; **A–B:** Smith, 1979**References:** Lea, 1913; Roule and Bertin, 1929; Smith, 1989b

*Cyema atrum*

Predorsal myomeres 37-46

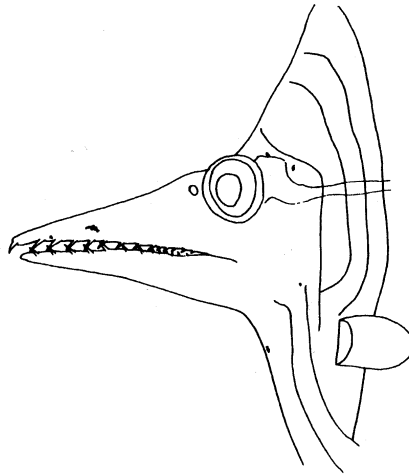
Total myomeres 72-79



**A. 42 mmSL**

Preanal myomeres 37-46

Last vertical blood vessel at myomere 36



**B. 42 mmSL  
(Head Detail)**



***Saccopharynx* sp.**  
**Saccopharyngidae**  
 No common name



**Range:** Members of the genus found across the North Atlantic Ocean; the adult illustrated (*S. ampullaceus*) is found in the western North Atlantic from south of Georges Bank and Greenland to Bermuda and North Carolina; also eastern Atlantic as far north as 65°N

**Habitat:** Mesopelagic, found between 2,000 and 3,000 m; usually associated with the Gulf Stream

**Spawning:** Leptocephali have been collected near Grand Bank in summer

**Eggs:** – Undescribed

**Larvae:**

- Body very deep, oval shaped
- Maximum body depth 26–43% SL
- Gut short, consisting of a long, thin, esophagus, and a much-thickened intestine forming a pronounced loop at the anus
- Preanus length 46–51% SL
- Last vertical blood vessel arises from end of nephros, near level of anus
- Dorsal fin moderately long, its origin at 15–17% SL
- Head and snout blunt, with a greatly elongate suspensorium and huge gape
- Midline pigment lacking
- Gut pigment includes scattered spots on loop near anus
- Head pigment lacking
- Maximum leptocephalus size uncertain; transformation occurs between 40 and 80 mmTL

**Note:** 1. This leptocephalus also previously described as *Leptocephalus latus* (Schmidt, 1909) or *L. latissimus* (Schmidt, 1912)

**Meristic Characters**

|                    |                      |
|--------------------|----------------------|
| Myomeres:          | 170–240              |
| Vertebrae:         | >200                 |
| Dorsal fin rays:   | 147–195 <sup>1</sup> |
| Anal fin rays:     | 139–177 <sup>1</sup> |
| Pectoral fin rays: | 28–41                |
| Pelvic fin rays:   | none                 |
| Caudal fin rays:   | –                    |

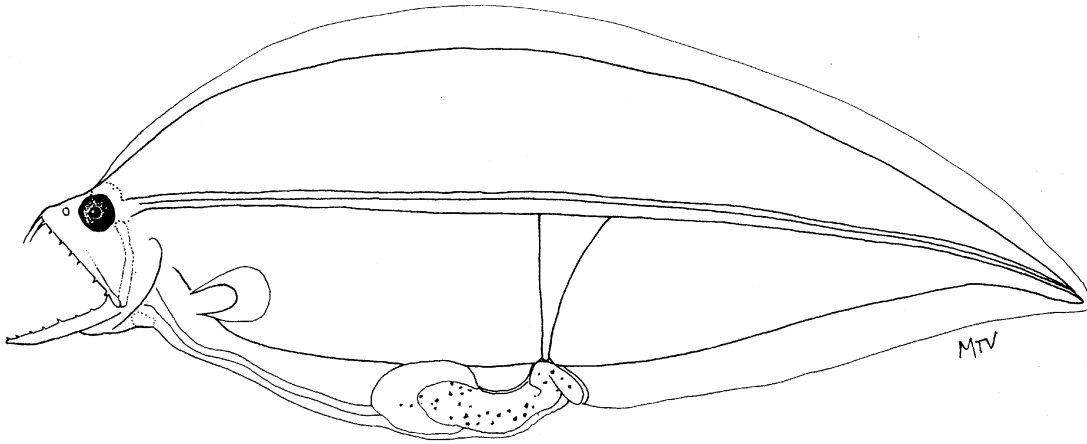
<sup>1</sup> Number of rays anterior to 100<sup>th</sup> vertebra

**Figures:** Adult: Mary Fuges (Smith, 1989a); A: Mary Vona (Charter, 1996g)

**References:** Bertelsen *et al.*, 1989; Smith, 1989b

*Saccopharynx* sp.

Total myomeres 170-240



**A. 25.1 mmSL**

Preanal myomeres 38-54

Last vertical blood vessel at myomere 50

*Saccopharynx lavenbergi*, from the Pacific Ocean, illustrated. In most respects, it closely resembles *Saccopharynx* sp. from the North Atlantic. Myomere numbers above pertain to the latter species

***Eurypharynx pelecanoioides* Vaillant, 1882****Eurypharyngidae**

No common name



**Range:** Worldwide in tropical and temperate waters of all oceans; in the Atlantic Ocean, from as far north as Iceland and Greenland to 48°S

**Habitat:** Mesopelagic; collected from waters as deep as 3,000 m

**Spawning:** A prolonged season, and presumably a short larval duration; leptocephali not infrequently collected north of 35°N, Apr–Dec

**Eggs:** – Undescribed

**Larvae:**

- Body very deep
- Maximum body depth 19–42% SL
- Tail-tip acute
- Gut moderately long; consisting of a long, thin, esophagus, and a much-thickened intestine forming a pronounced, convoluted loop at the anus (at 55–61% SL)
- Last vertical blood vessel arises from end of nephros
- Dorsal fin long, origin at about 34–42% of length (ahead of level of anus)
- Head short and very deep with elongate suspensorium; gape huge, with long anterior fangs
- Midline pigment lacking
- Gut pigment includes a scattering of spots on the gut loop near anus
- Head pigment lacking
- Maximum leptocephalus size 35–40 mmSL

**Meristic Characters**

|                    |          |
|--------------------|----------|
| Myomeres:          | 103–125  |
| Vertebrae:         | 101–113  |
| Dorsal fin rays:   | 155–196  |
| Anal fin rays:     | 118–147  |
| Pectoral fin rays: | about 11 |
| Pelvic fin rays:   | none     |
| Caudal fin rays:   | none     |

**Note:** 1. This leptocephalus also previously described as *Leptocephalus pseudolatissimus* (Raju, 1974a)

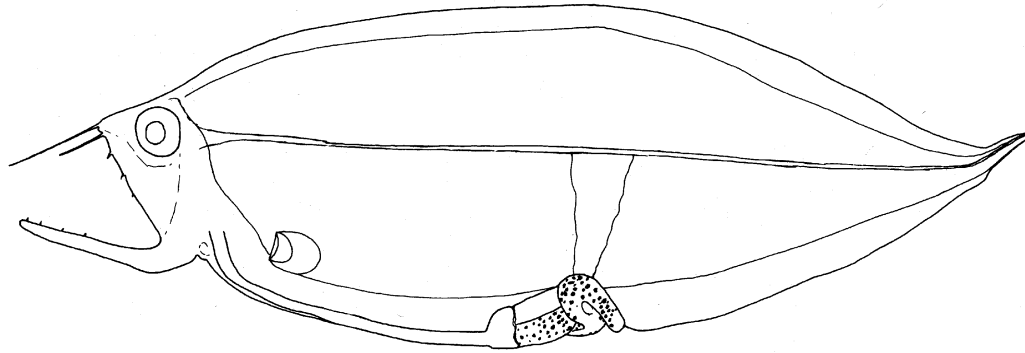
**Figures:** Adult: Mary Fuges (Böhlke, 1966); A: Mary Fuges (Smith, 1989b)

**References:** Smith, 1989a; 1989b

*Eurypharynx pelecanoides*

Predorsal myomeres 19-24

Total myomeres 103-125



**A. 11 mmSL**

Preanal myomeres 34-41

Last vertical blood vessel at myomere 35