

Chapter 5

Aulopiformes

Order Aulopiformes

Number of suborders	(4) Synodontoidei, Chlorophthalmoidei, Aulopisauroidi, Giganturoidei
Number of families	15
Number of genera	44
Number of species	approx. 236

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GENERAL LIFE HISTORY

Distribution	Typically small to moderate-sized fishes found in all oceans.
Relative abundance	Pelagic species ubiquitous, not abundant; deep-living benthic species uncommon; some coastal benthic species relatively abundant.
Adult habitat	Synodontids, chlorophthalmids, ipnopids benthic; other families mostly meso- or bathypelagic; hover-and-strike or ambush predators.

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EARLY LIFE HISTORY

Mode of reproduction	Oviparous; hermaphroditism common in deep-water species.
Knowledge of ELH	Eggs known for few species, mostly synodontids; larvae known for some species in all suborders.

ELH Characters:	<p>Eggs: aulopid and synodontid eggs round, 1.0–1.5 mm in diameter, sculptured shell with irregular polygonal network on surface.</p> <p>Larvae: moderately to very elongate, slightly to strongly compressed with preanal length ranging from < 66% to > 66% of body length; pigmentation generally light with distinctive peritoneal patches in several families; head spines lacking except in alepisaurids and some paralepidids.</p>
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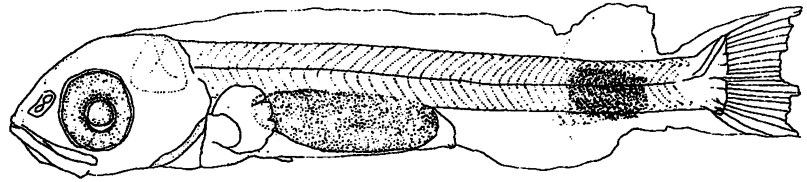
Example species:	<p>SYNODONTOIDEI: <i>Aulopus bajacali</i> (Aulopidae), <i>Saurida undosquamis</i> (Synodontidae).</p> <p>CHLOROPHTHALMOIDEI: <i>Chlorophthalmus</i> sp. (Chlorophthalmidae).</p> <p>AULOPISAUROIDEI: <i>Rosenblattichthys volucris</i> (Scopelarchidae), <i>Evermannella indica</i> (Evermannellidae), <i>Alepisaurus ferox</i> (Alepisauridae), <i>Sudis atrox</i> (Paralepididae), <i>Anopterus pharao</i> (Paralepididae).</p> <p>GIGANTUROIDEI: <i>Gigantura indica</i> (Giganturidae).</p>
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REFERENCES	<p>Ambrose 1996a–e, Baldwin and Johnson 1996, Beltrán-León and Herrera 2000, Ditty 2006a–d, Fahay 2007a, Johnson 1984, Leis and Carson-Ewart 2000a, Okiyama 1974, 1984, Ozawa 1986b, d–g, 1988b, c, e, Watson 1996b, Watson and Sandknop 1996c, d.</p>
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Aulopiformes/Synodontoidei/Aulopidae

Aulopus
A. bajacali 12.3 mm
(Okiyama 1974)



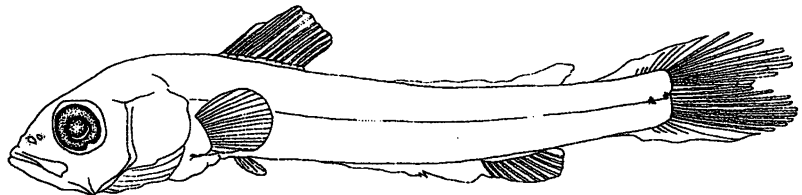
Aulopiformes/Synodontoidei/Synodontidae

Saurida
S. undosquamis
15.6 mm
(Okiyama 1974)



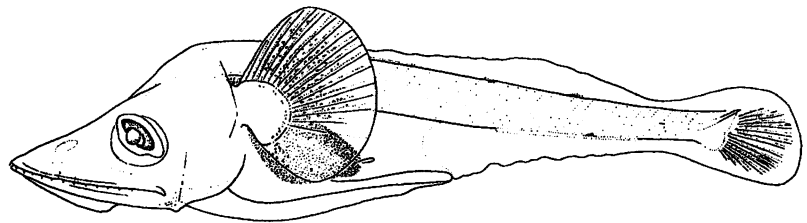
Aulopiformes/Chlorophthalmoidei/Chlorophthalmidae

Chlorophthalmus
Chlorophthalmus sp.
17.1 mm
(Okiyama 1984)



Aulopiformes/Alepisauroidi/Scopelarchidae

Rosenblattichthys
R. volucris 13.0 mm
(Watson and Sandknop
1996c)



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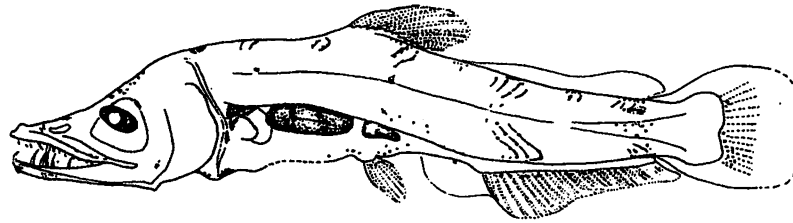
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Aulopiformes/Alepisauroidi/Evermannellidae

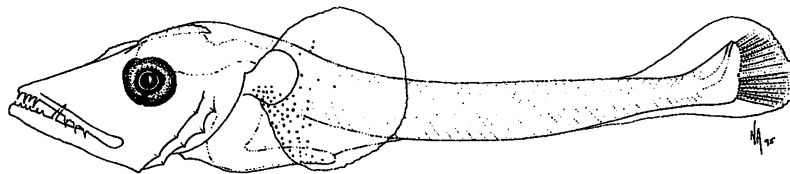
Evermannella
E. indica 9.1 mm
(Johnson 1982)



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G. ind
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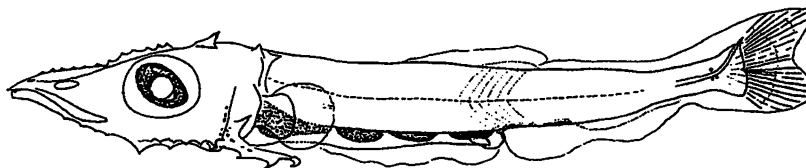
Aulopiformes/Alepisauroidi/Alepisauridae

Alepisaurus
A. ferox 8.4 mm
(Ambrose 1996e)



Aulopiformes/Alepisauroidi/Paralepididae

Sudis
S. atrox 9.2 mm
(Ozawa 1986g)



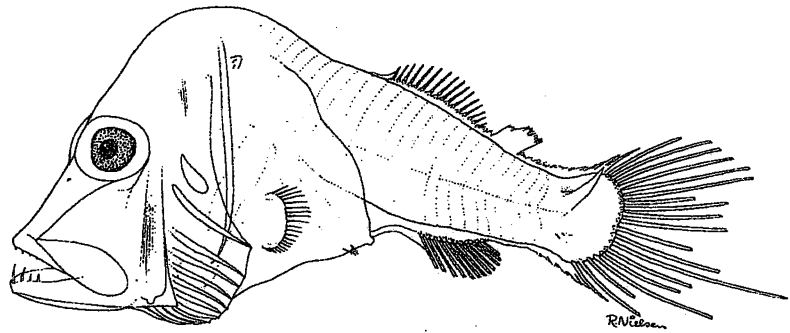
Aulopiformes/Alepisauroidi/Paralepididae

Anotopterus
A. pharao 14.2 mm
(Okiyama 1984)



Aulopiformes/Giganturoidei/Giganturidae

Gigantura
G. indica 4.5 mm
(Johnson and
Bertelsen 1991)



Order Aulopiformes

Suborder	Synodontidoidei
Family	Synodontidae (Lizardfishes)
Number of genera	4
Number of species	57

GENERAL LIFE HISTORY

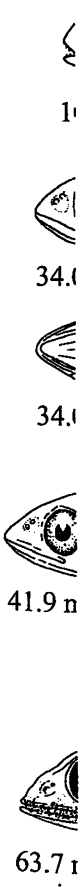
Distribution	Small to medium-size coastal fishes found worldwide in tropical to temperate regions.
Relative abundance	Some continental shelf species moderately abundant.
Adult habitat	Coastal shelf to slope, bays and estuaries, most species benthic ambush predators.

EARLY LIFE HISTORY

Mode of reproduction	Oviparous; planktonic eggs and larvae.
Knowledge of ELH	Eggs known for a few species, larvae known for many species.
ELH Characters:	Eggs: planktonic, round, 1.0–1.5 mm diameter, sculptured shell with network of irregular polygons; yolk homogeneous, oil globule(s) lacking. Larvae: slender bodied with a long tubular gut, preanal length ranges from about 66% to 75% BL; head rounded in preflexion stage, spines lacking on head and pectoral girdle; about 45–65 myomeres; paired lateral series of up to 8–12 blotches along entire length of gut.
Example species:	<i>Synodus lucioceps</i> (California Current region).
Meristics:	D: 11–13. A: 12–15, P1: 13–15, P2: 8 (abd.), V: 50–55+9–10=60–63, C: 12–15, 10+9, 12–14.

REFERENCES

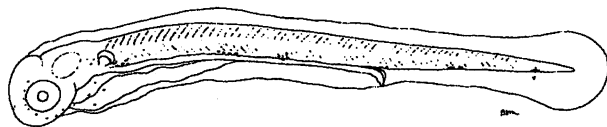
Beltrán-León and Herrera 2000, Ditty et al. 2006b, Fahay 2007a, Leis and Rennis 2000a, Miller et al. 1979, Okiyama 1984, Ozawa 1988b, Stevens and Moser 1996a.



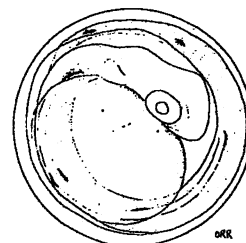
Aulopiformes/Synodontoidei/Synodontidae

Synodus lucioceps

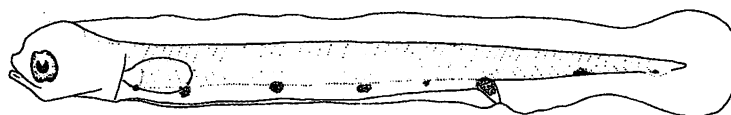
from: Stevens and Moser 1996a



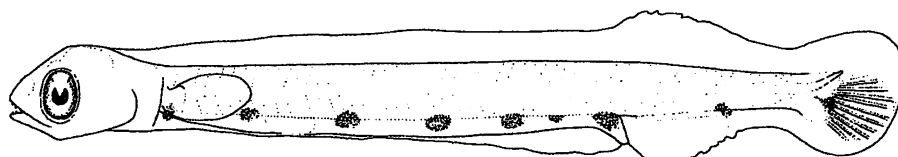
3.6 mm



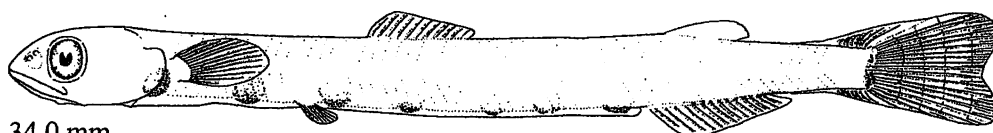
1.4 mm



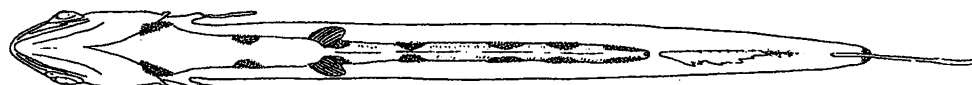
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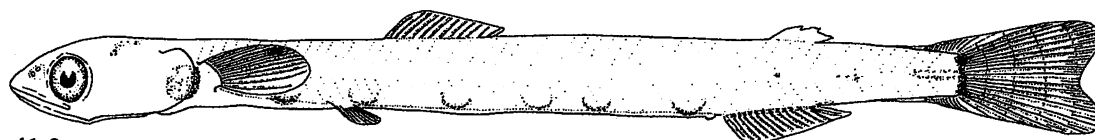
10.5 mm



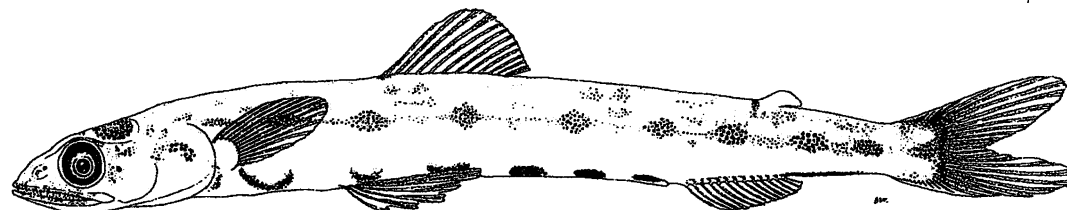
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Order Aulopiformes

Suborder	Chlorophalmoidei
Family	Notosudidae (Paperbones)
Number of genera	3
Number of species	19

GENERAL LIFE HISTORY

Distribution	Small to medium-size deepsea fishes, occur nearly worldwide.
Relative abundance	Uncommon.
Adult habitat	Meso- and bathypelagic or epibenthic on continental or insular slopes.

EARLY LIFE HISTORY

Mode of reproduction	Oviparous, synchronous hermaphrodites, planktonic larvae.
Knowledge of ELH	Eggs unknown, larvae known for a moderate number of species.
ELH Characters:	Eggs: unknown.

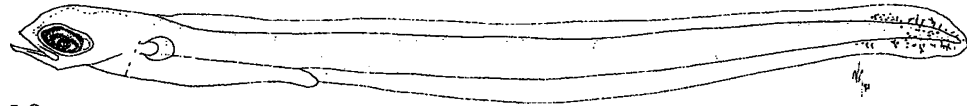
Larvae: slender body, somewhat depressed head, wedge-shaped snout; eyes narrow; preanal length usually slightly less than 33% BL to near midbody; about 42–66 myomeres; typically a band of small melanophores on caudal peduncle.

Example species: *Scopelosaurus* sp. (North Pacific between ca. 20°–60° N; these larvae have been identified as *S. harryi* following Bertelsen et al. [1976]; however, Balanov and Savinykh [1999] reported that both *S. harryi* and *S. adleri* occur in the North Pacific, with *S. harryi* reproducing in the west and *S. adleri* reproducing in the east).

Meristics: D: 10–12, A: 16–19, P1: 10–14, P2: 9–10 (abd), V: 26–30+29–32=58–61, C: 12, 10+9, 11–12.

REFERENCES Balanov and Savinykh 1999, Beltrán-León and Herrera 2000, Bertelsen et al. 1976, Fahay 2007a, Okiyama 1984, Ozawa 1978, 1986d, 1988c, Richards 2006l, Watson and Sandknop 1996d.

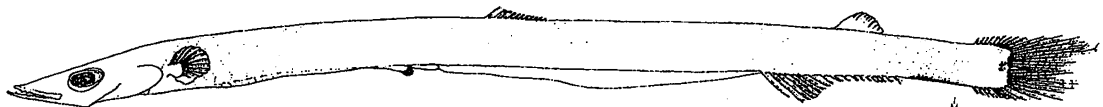
Aulopiformes/Chlorophthalmoidei/Notosudidae
Scopelosaurus sp.
from: Watson and Sandknop 1996d



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Chapter 5

Order Aulopiformes

Suborder	Alepisauroidae
Family	Scopelarchidae (Pearleyes)
Number of genera	4
Number of species	17

GENERAL LIFE HISTORY

Distribution	Small to moderate-size midwater predators in all oceans except the Arctic and the Mediterranean Sea.
Relative abundance	Ubiquitous but not abundant.
Adult habitat	Meso- and bathypelagic.

EARLY LIFE HISTORY

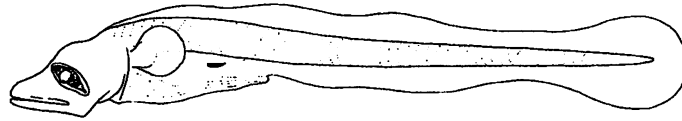
Mode of reproduction	Oviparous, synchronous hermaphrodites, planktonic larvae.
Knowledge of ELH	Eggs unknown, larvae known for most species.
ELH Characters:	Eggs: unknown.

Larvae: deep-bodied with large head to moderately slender with moderately small head, mouth large, snout long and wedge-shaped; eye narrow, vertical axis inclined obliquely forward; preanal length about 33–50% of body length, gut slightly sigmoid with bulbous stomach, wide translucent space between gut and trunk musculature; about 40–65 myomeres; one or more prominent pigment patches above gut.

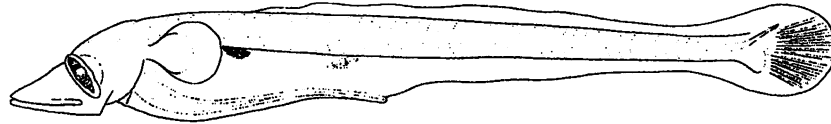
Example species:	<i>Scopelarchus guentheri</i> (Circumglobal in warm water).
Meristics:	D: 7–8, A: 24–29, P1: 18–21, P2: 9 (abd.), V: 17–18+29–33=46–51, C: 13–16, 10+9, 13–16.

REFERENCES	Beltrán-León and Herrera 2000, Ditty 2006e, Fahay 2007a, Johnson, R.K. 1974, 1982, Ozawa 1986f, 1988c, Watson and Sandknop 1996c.
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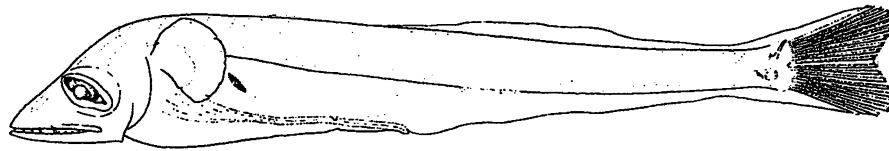
Aulopiformes/Alepisauroidi/Scopelarchidae
Scopelarchus guentheri
from: Watson and Sandknop 1996c



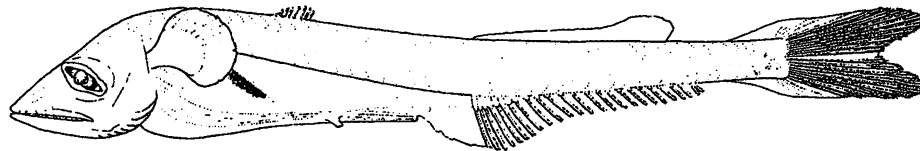
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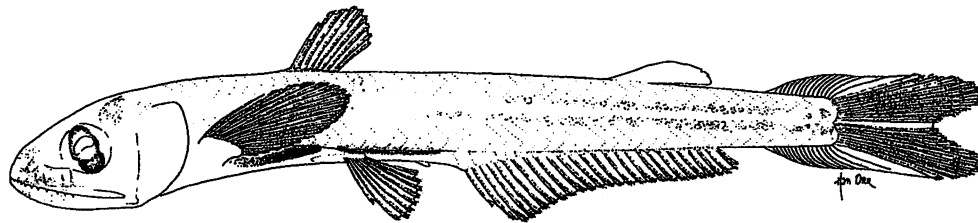
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18.5 mm



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Chapter 5

Order Aulopiformes

Suborder	Alepisauroidae
Family	Evermannellidae (Sabretooths)
Number of genera	3
Number of species	7

GENERAL LIFE HISTORY

Distribution	Small midwater predators occurring between about 40° N and 40° S.
Relative abundance	Not abundant.
Adult habitat	Mesopelagic deep-sea predators.

EARLY LIFE HISTORY

Mode of reproduction: Oviparous, synchronous hermaphrodites, planktonic larvae.

Knowledge of ELH: Eggs unknown, larvae known for all genera.

ELH Characters: **Eggs:** unknown.

Larvae: moderately elongate and compressed, preanal length about one-half body length; snout pointed, mouth large, teeth form early; oblong eye; about 45–54 myomeres; moderate to large unpaired pigment patches over gut, melanophores on myosepta.

Example species: *Evermannella ahlstromi* (Equatorial to transitional waters of the eastern North and South Pacific).

Meristics: D: 10–12, A: 29–32, P1: 12, P2: 9 (abd.), V: 47–49, C: 10+9.

REFERENCES: Ambrose 1996d, Ditty 2006c, Fahay 2007a, Johnson 1982, 1984, Johnson and Glodek 1975, Ozawa 1986e.



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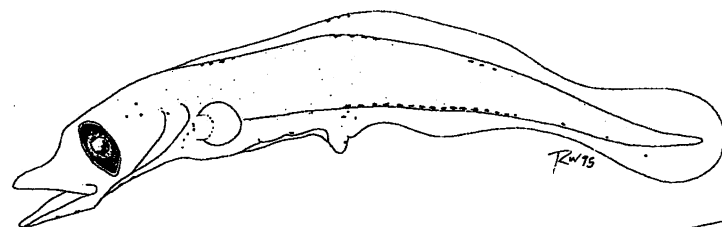


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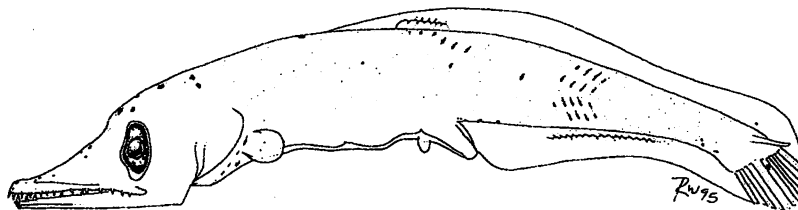


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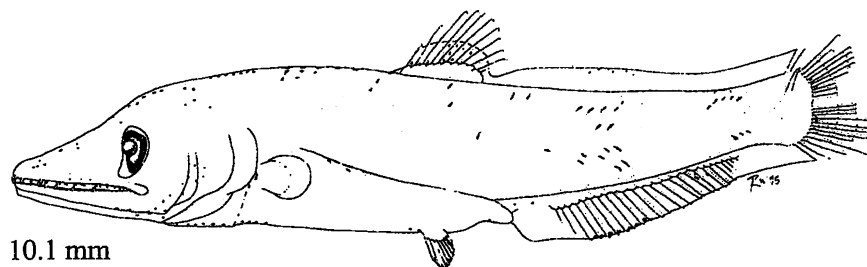
Aulopiformes/Alepisauroidae/Evermannellidae
Evermannella ahlstromi
from: Ambrose 1996d and Johnson and Glodek 1975



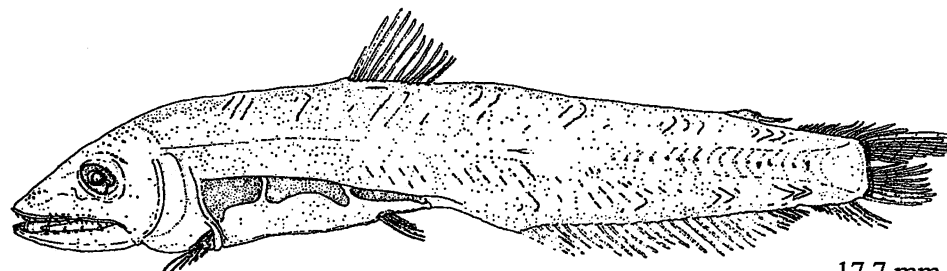
3.4 mm



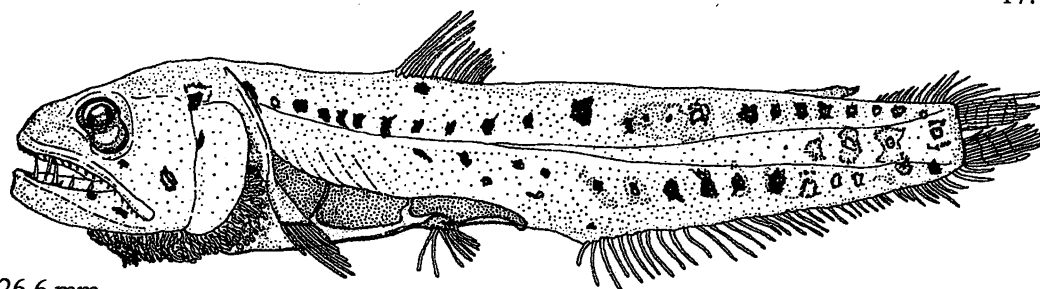
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17.7 mm



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Chapter 5

Order Aulopiformes

Suborder	Alepisauroidae
Family	Paralepididae (Barracudinas)
Number of genera	13
Number of species	approx. 56

GENERAL LIFE HISTORY

Distribution	Small to moderate-size predators in all oceans.
Relative abundance	Ubiquitous and relatively abundant judging from their importance as prey for cetaceans and larger oceanic predatory fishes (Fitch and Lavenberg 1968).
Adult habitat	Epi- to bathypelagic zones of all oceans.

EARLY LIFE HISTORY

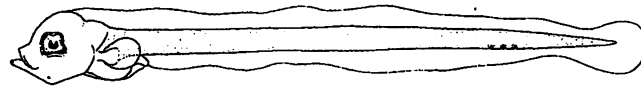
Mode of reproduction	Oviparous, synchronous hermaphrodites, planktonic larvae.
Knowledge of ELH	Eggs unknown, larvae known for many species.
ELH Characters:	Eggs: unknown.

Larvae: elongate, compressed, head rounded in early larvae, snout becomes wedge-shaped, eyes oval in early larvae, becoming rounded in mid- to late larvae, gut short in early larvae, undergoing a marked ontogenetic elongation with numerous peritoneal pigment patches that increase in number as the gut elongates; about 52–121 myomeres.

Example species:	<i>Lestidiops ringens</i> (North Pacific subarctic and transition zones, in eastern Pacific from British Columbia to Baja California).
Meristics:	D: 8–13, A: 26–33, P1: 11–12, P2: 8–11 (abd.), V: 82–91, C: 13–20, 10+9, 13–20.

REFERENCES	Ambrose 1996b, Beltrán-León and Herrera 2000, Ditty 2006d, Fahay 2007a, Okiyama 1984, Ozawa 1986g, 1988e.
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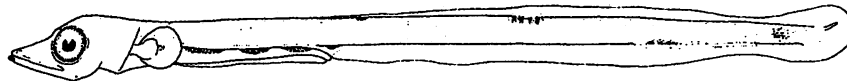
Aulopiformes/Alepisauroidae/Paralepididae
Lestidiops ringens
from: Moser 1981 and Ambrose 1996b



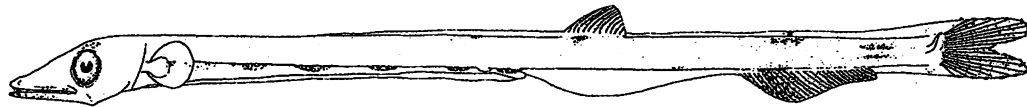
5.6 mm



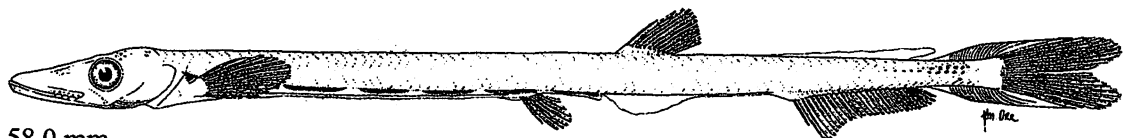
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IDENTIFICATION OF EGGS AND LARVAE OF MARINE FISHES
edited by Arthur W. Kendall, Jr.

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Merlucciidae: <i>Merluccius productus</i>	

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