

SAURENCHELYS HALIMYON, A NEW SPECIES OF NETTASTOMID EEL,
WITH COMMENTS ON SAURENCHELYS CANCRIVORA PETERS, 1864,
AND A PRELIMINARY LIST OF LARVAL AND METAMORPHOSED
ANGUILLIFORMES CAUGHT IN THE MID NORTH ATLANTIC

by

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SUMMARY

A new species of nettastomid eel, *Saurenychelys halimyon*, is described and figured. The leptocephalus of *Saurenychelys cancrivora* Peters, 1864, is redescribed; no resemblance was found to the leptocephalus of *Facciolella physonema* (Facciola, 1914) as was supposed by Blache (1977). Fourteen species are listed of larval and metamorphosed Anguilliformes caught in April 1980 in the mid North Atlantic.

RÉSUMÉ

Une espèce nouvelle d'Anguilles de la famille des Nettastomatidae, *Saurenychelys halimyon*, est décrite et figurée. La larve leptocéphale de *S. cancrivora* Peters, 1864, est redécrite; il n'y a pas de ressemblance avec le leptocéphale de *Facciolella physonema* (Facciola, 1914), comme l'avait supposé Blache (1977). On donne une liste de 14 espèces d'Anguilliformes (larves ou exemplaires métamorphosés) capturées en avril 1980 dans la partie centrale de l'Atlantique Nord.

INTRODUCTION

During the Amsterdam Mid North Atlantic Plankton Expedition* with the Dutch Royal Navy research vessel "H. M. Tydeman", from 11 April up to 2 May 1980, samples were taken with the combined Rectangular Midwater Trawl (RMT 1 + 8) at depths varying between 30 m and 1200 m. These samples were taken between 55°N and 24°N, along the 30°W longitude. For a complete station list including technical and hydrological data, one is referred

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to Van der Spoel (1981). All animals recorded here are caught in the RMT 8 net. They are kept in the collections of the Zoölogisch Museum, Amsterdam (ZMA).

A new species of nettastomid eel, *Saurenychelys halimyon*, was caught. It is described and figured here, after comparison with all available data of the closely related *S. cancrivora* Peters, 1864.

Saurenychelys halimyon nov. spec.
(Figs. 1-2)

Material. — Holotype, total length (TL) 183.5 mm, ZMA 118.791, mid Atlantic Ocean, type-locality 35°14.4'N 31°31.6'W, station 20, haul 12, caught between 04.21-05.22 h at a depth between 40 and 110 m, 26-IV-1980.

Diagnosis. — The new species shows all characteristics of the Nettastomatidae, it has many features in common with *Saurenychelys cancrivora* Peters, 1864, but it is much longer and has a greater number of myomeres.

Description. — Body in fresh condition nearly completely transparent. About 273 myomeres, the extreme caudal ones in the pointed tail are difficult to discern; 73 preanal myomeres. Distance from tip of snout to anus: 59.5 mm; height of body at half of total length: 7.8 mm; length of head, from tip of snout to posterior end of occiput: 11.04 mm; length of protruding part of snout, first two teeth inclusive: 0.56 mm; length of nasal capsule: 3.52 mm (anterior and posterior nostril included). Distance between posterior nostril and anterior margin of eye: 1.36 mm.

The anterior end of the nasal capsule is close to the tip of the snout, at a shorter distance than in *S. cancrivora*. In the present specimen the snout is bulging, ending in a pronounced tip, clearly separated from the rest of the snout (fig. 1). The nasal capsules are separated from each other. The anterior nostril is slightly tubular; the posterior nostril is an oval pore.

Length of upper jaw: 6.16 mm; length of lower jaw: 5.36 mm. Five pores are present along the dorsal margin of the snout above the nasal capsule, and four along the margin of the upper jaw. A row of five pores is present along the lower jaw (fig. 1).

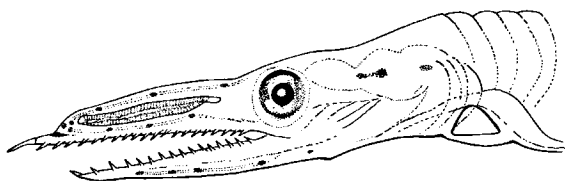


Fig. 1. Head of *Saurenehelys halimyon* n. sp. (ZMA 118.791).

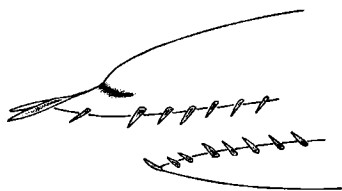


Fig. 2. Tip of snout and lower jaw of *Saurenehelys halimyon* n. sp. (ZMA 118.791).

The first teeth in the upper jaw are only slightly bent and point nearly straight forward, the snout is straight (fig. 2). This is different compared to *S. cancrivora*, which species has snout and first teeth bent downward. The teeth are relatively small and rather uniform in shape and size, except for the frontal teeth, which are longer. Dental formula:

$$\frac{2 - 20}{1 - 15}$$

Eye round, 1.52 mm in diameter, with silvery pigmented iris, the dorsal quart of its margin covered with a black pigmented cap. Brown pigment present at basis of tip of snout along basis of bulging "nose". Two deep pigment spots are present in the area of the brain, a larger anterior spot on the cerebellum, and a

smaller spot more caudally on the medulla oblongata.

Along the ventral margin of the body, brown pigment spots are present on the intestine up to the anus. Deeper pigment spots are present along the chorda. They are at every 10th to 15th myomere.

Intestine with two dilatations, the anterior one between myomeres 10 and 14, the posterior one between myomeres 69 and 72.

The pectoral fins are small and pointed (triangular). The caudal fin is pointed, containing six rays, three on each hypural. The dorsal fin arises not far from the occiput, at myomere 14, where the first fine soft rays are visible. The anal fin arises immediately beyond the anus with relatively long stiff rays.

Etymology. — The specific name is derived from the Greek ἄλις meaning "in abundance", and μύων meaning "muscle", in allusion to the numerous myomeres.

Saurenehelys cancrivora Peters, 1864 (Figs. 3-4)

Refs.: Peters, 1864: 397-399; Grassi, 1913: 162, pl. IX figs. 26-44.

Material. — One specimen, TL 104.0 mm, ZMA 118.790, mid Atlantic Ocean, 31°58.2'N 29° 54.0'W, station 22, haul 7, caught between 00.19-02.19 h at a depth between 90 and 200 m, 28-IV-1980.

Description. — Body in fresh condition nearly completely transparent. Number of myomeres 247, of which 68 preanal. Distance from tip of snout to anus: 34.9 mm. Height of body at half of total length: 3.2 mm. Length of head from tip of snout, first teeth included, to posterior end of occiput: 7.8 mm. Length of snout from tip to anterior border of nasal capsule: 1.76 mm. This is considerably longer as compared to *S. halimyon* described above.

Length of nasal capsule, including oval posterior nostril: 1.92 mm. Distance between posterior margin of nasal capsule and eye: 0.44 mm. The snout is not bulging, whereas the tip and the first two teeth are bent downward (figs.

3, 4). The nasal capsules are close to each other and partly touching one another in the midline of the snout. The anterior and posterior nostrils are oval pores, of which the first one is within the contour of the nasal capsule.

Length of upper jaw: 4.64 mm; length of lower jaw: 3.5 mm. No pores are present on snout and lower jaw.

The teeth are small and rather uniform in size. Dental formula:

$$\frac{2-14.}{1-15}$$

Diameter of the round eyes: 1.04 mm. The iris is covered by brown chromatophores. The head is unpigmented, except for two small blackish brown pigment spots on the cerebellum and the medulla oblongata. On the vomer is a small light brown spot, whereas four black spots are arranged in a square around the heart.

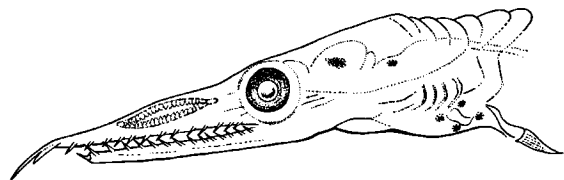


Fig. 3. Head of *Saurenehelys cancrivora* Peters, 1864 (ZMA 118.790).



Fig. 4. Tip of snout and lower jaw of *Saurenehelys cancrivora* Peters, 1864 (ZMA 118.790).

Along the ventral margin of the body, small pigment spots are present on the intestine. There are no deep pigment spots along the chorda.

Intestine with two rather inconspicuous dilations, the first one between myomeres 16 and 22, the second one further caudal.

Pectoral fins small and pointed triangularly. The dorsal fin begins at myomere 7, being only a skin fold up to the caudal part of the body. Here, from myomere 227 to the tip of the tail,

fine soft rays are present. The anal fin is supported by fine soft rays which are somewhat more developed in the part of the tail of the last 20 myomeres. The tail is pointed with six rays, three on each hypural. The two median rays are longest.

The present animal fits in completely with the descriptions and figures given by Grassi (1913), however, not with those given by Blache (1977).

Remarks. — Within the family Nettastomatidae some confusion exists about *Saurenehelys cancrivora*. Peters has given the first description of this species in 1864. The type-specimen, in bad condition (Grassi, 1913) was deposited in the Berlin Museum. The probable type-locality given by Peters (1864) was the Mediterranean or the Atlantic Ocean. According to Blache et al. (1973) the type-specimen is lost.

Grassi (1913, 1914) gives an extensive description of the leptocephalus of this species and its development, based on animals caught in the Strait of Messina. D'Ancona (1931) repeats this description. Sanzo (1938) gives a description of the development of the eggs and early development of the leptocephalus of *S. cancrivora*, based on material from the Strait of Messina and the Gulf of Naples. These descriptions and figures agree with each other with respect to the typical features of *S. cancrivora*.

The most characteristic features of this species are the 238-246 myomeres, of which 61-66 preanal, the difference in length between the upper and lower jaw, the bent form of the tip of the snout, which is accentuated by the downward bent form of the first two teeth, and the nasal capsules which touch each other in the middle and are bulging a little above the contour of the snout (see fig. 3)

These typical features are completely neglected by Blache (1977). The leptocephalus considered by him as *S. cancrivora* misses all characteristic features of the head and snout of *S. cancrivora* sensu Grassi (1913). The animal described by Blache (1977) has a rather short blunt snout, the lower jaw is slightly longer

than the upper jaw, and the nasal capsule is well below the dorsal contour of the snout.

Blache (1977) related the leptocephalus of *S. cancrivora* Grassi, 1913 and *Leptocephalus Saurenychelydis cancrivorae* Lea, 1913, to the leptocephalus of *Facciolella physonema* (Facciola, 1914). Castle (1969) does not mention *F. physonema* at all in his index and bibliography of eel larvae. Moreover, this animal is different from *S. cancrivora* sensu Grassi, 1913, in the shape of its head and in particular of its snout (see also Saldanha & Blache, 1968). The specimen described by Blache (1977) is incomplete. Still, he mentions the total number of vertebrae to be 240-250, which is somewhat higher than the number of myomeres in *S. cancrivora*. Blache (1977) states: "Cependant, alors que Grassi dénombre 238-246 myomères dont 60-66 préanaux, Lea indique 249 dont 48 préanaux; Lea est donc en accord avec notre propre observation, alors que nous ne nous expliquons pas la divergence de Grassi".

Leptocephalus Saurenychelydis cancrivorae is described by Lea (1913: 31, fig. 32, pl. V fig. 4). By the shape of its head, and by the presence of pores along the upper and lower jaw, this animal shows much resemblance to *S. halimyon* n. sp., though it is much shorter and has a lower number of myomeres (total length 92 mm, 249 myomeres, of which 48 preanal). The shapes of the snouts of *L. Saurenychelydis cancrivorae* and *S. halimyon* show much resemblance, although in the former animal the tip is absent, probably due to damage.

The differences mentioned above between *F. physonema* and *S. cancrivora* sensu Grassi, 1913, are such that there are no grounds to consider *S. cancrivora* or *L. Saurenychelydis cancrivorae* on the one hand, and *F. physonema* on the other, as one and the same species within the family Nettastomatidae. Our above description of *S. cancrivora* (ZMA 118.790) and the descriptions given by Grassi (1913) and Lea (1913) refute the relation with *F. physonema* as supposed by Blache (1977). Moreover, the leptocephalus described by Blache as *S. cancrivora* (1977: 176-180, fig. 61) shows no relation with the specimen described above, nor with the descriptions of Grassi (1913, 1914) either.

LARVAL AND METAMORPHOSED ANGUILLIFORMES CAUGHT IN THE MID NORTH ATLANTIC

Most stations mentioned are at or close to 30°W except for the stations 15-20 which are west of the Azores.

EURYPHARYNGIDAE

Leptocephalus pseudolatissimus Bertin, 1936b.

Refs.: Lea, 1913; Bertin, 1938; Bauchot, 1959; Orton, 1963.

Station 22; haul 7; 28-IV-1980; 00.19-02.19 h; 90-200 m; 31°58.2' N 29°54.0' W (ZMA 118.768, 1 specimen, TL = 23.9 mm).

ANGUILLIDAE

Anguilla anguilla (Linnaeus, 1758).

Refs.: Castle, 1969; Vladikov & March, 1975.

Station 14; haul 2; 18-IV-1980; 16.33-17.33 h; 205-300 m; 45°07.6' N 29°54.3' W (ZMA 118.785, 2 specimens, TL = 64.3 mm, 67.4 mm).

Station 14; haul 8; 19-IV-1980; 00.07-01.47 h; 85-200 m; 45°21.8' N 29°46.4' W (ZMA 118.786, 1 specimen, TL = 67.4 mm).

Station 16; haul 1; 20-IV-1980; 08.29-09.29 h; 90-200 m; 41°56.4' N 35°00.7' W (ZMA 118.787, 1 specimen, TL = 58 mm).

Station 17; haul 1; 21-IV-1980; 01.55-03.52 h; 45-95 m; 41°01.4' N 35°31.3' W (ZMA 118.788, 40 specimens, TL = 50-69 mm).

SERRIVOMERIDAE

Serrivomer parabeani Bertin, 1940

The data for this species have been discussed previously (Van Utrecht, 1982).

Serrivomer brevidentatus Roule & Bertin, 1929.

Refs.: Roule & Bertin, 1929; Beebe & Crane, 1936; Bauchot, 1959; Castle, 1969.

Station 25; haul 1; 29-IV-1980; 16.00-17.56 h; 490-1000 m; 28°42.0' N 29°59.1' W (ZMA 118.755, 2 specimens, TL = 63.5 mm, 65 mm).

Station 26; haul 1; 1-V-1980; 07.17-08.42 h; 200-450 m; 24°57.9' N 29°59.1' W (ZMA 118.760, 1 specimen, TL = 115 mm).

Station 27; haul 10; 2-V-1980; 12.18-14.43 h; 475-1000 m; 24°48.6' N 28°47.2' W (ZMA 118.754, 1 specimen, TL = 81 mm).

NEMICHTHYIDAE

No measurements are given for the Nemichthyidae, as these are unreliable due to their delicate jaws and tails which are readily damaged.

Nemichthys scolopaceus Richardson, 1848.

Refs.: Beebe & Crane, 1937; Nielsen & Smith, 1978.

Station 16; haul 3; 20-IV-1980; 13.05-15.05 h; 490-1000 m; 41°47.8'N 35°02.8'W (ZMA 118.773, 1 specimen).
 Station 17; haul 1; 21-IV-1980; 01.55-03.52 h; 45-95 m; 41°01.4'N 35°31.3'W (ZMA 118.772, 118.766, 2 specimens).
 Station 19; haul 1; 23-IV-1980; 05.30-06.30 h; 190-320 m; 38°00.6'N 35°29.7'W (ZMA 118.764, 1 specimen).
 Station 20; haul 1; 25-IV-1980; 13.54-15.13 h; 505-870 m; 35°27.2'N 31°51.6'W (ZMA 118.761, 1 specimen).
 Station 20; haul 3; 25-IV-1980; 17.41-19.15 h; 770-1250 m; 35°22.7'N 31°44.9'W (ZMA 118.771, 1 specimen).
 Station 24; haul 3; 29-IV-1980; 05.00-07.00 h; 200-300 m; 29°44.0'N 29°57.7'W (ZMA 118.775, 1 specimen).

Nemichthys curvirostris (Strömman, 1896).

Refs.: Beebe & Crane, 1937; Nielsen & Smith, 1978.
 Station 16; haul 2; 20-IV-1980; 10.51-11.51 h; 285-400 m; 41°51.8'N 35°02.4'W (ZMA 118.758, 1 specimen).
 Station 22; haul 9; 28-IV-1980; 03.04-04.56 h; 45-100 m; 31°55.9'N 29°52.2'W (ZMA 118.756, 1 specimen, damaged).
 Station 24; haul 2; 29-IV-1980; 03.05-04.04 h; 110-205 m; 29°48.1'N 29°57.5'W (ZMA 118.776, 1 specimen).
 Station 25; haul 6; 29/30-IV-1980; 23.32-00.32 h; 195-300 m; 28°27.2'N 29°56.5'W (ZMA 118.763, 1 specimen).

Nemichthys sp. Richardson, 1848.

Refs.: Beebe & Crane, 1937; Castle, 1964, 1965, 1966; Nielsen & Smith, 1978.
 Station 25; haul 1; 29-IV-1980; 16.00-17.56 h; 490-1000 m; 28°27.2'N 29°59.1'W (ZMA 118.751, 1 postlarva).
 Station 25; haul 1; 29-IV-1980; 16.00-17.56 h; 490-1000 m; 28°27.2'N 29°59.1'W (ZMA 118.753, 1 postlarva).

Labichthys sp. Gill & Ryder, 1883.

Ref.: Nielsen & Smith, 1978.
 Station 20; haul 3; 25-IV-1980; 17.41-19.15 h; 770-1250 m; 35°22.7'N 31°44.9'W (ZMA 118.770, 1 specimen).

CYEMIDAE

Cyema atrum Günther, 1878.

Refs.: Lea, 1913; Bertin, 1936a, 1937; Roule & Bertin, 1929; Castle, 1964, 1969.
 Station 22; haul 6; 27-IV-1980; 21.35-23.35 h; 195-300 m; 32°04.1'N 29°54.0'W (ZMA 118.769, 1 specimen, TL = 36.7 mm).
 Station 22; haul 7; 28-IV-1980; 00.19-02.19 h; 90-200 m; 31°58.2'N 29°54.0'W (ZMA 118.762, 1 specimen, TL = 34.2 mm).
 Station 23; haul 2; 28-IV-1980; 13.15-15.18 h; 505-960 m; 30°39.9'N 29°59.5'W (ZMA 118.765, 1 specimen, TL = 42.4 mm).

NETTASTOMATIDAE

Nettastoma melanurum Rafinesque, 1810.

Refs.: Lea, 1913; Castle, 1964, 1969; Blache, 1977

Station 19; haul 19; 24-IV-1980; 13.49-14.49 h; 50-110 m; 37°53.7'N 35°17.7'W (ZMA 118.789, 2 specimens, TL = 24.5 mm, 30.9 mm).

Saurenehelys cancrivora Peters, 1864

Refs.: Peters, 1864; Grassi, 1913; Castle, 1969.
 Station 22; haul 7; 28-IV-1980; 00.19-02.19 h; 90-200 m; 31°58.2'N 29°54.0'W (ZMA 118.790, 1 specimen, TL = 104 mm).

Saurenehelys halimyon n. sp.

Station 20; haul 12; 26-IV-1980; 04.21-05.22 h; 40-110 m; 35°14.4'N 31°31.6'W (ZMA 118.791, 1 specimen, TL = 183.5 mm).

? NETTASTOMATIDAE

Leptocephalus dolichorhynchus Lea, 1913.

Refs.: Lea, 1913; Castle, 1969.
 Station 22; haul 7; 28-IV-1980; 00.19-02.19 h; 90-200 m; 31°58.2'N 29°54.0'W (ZMA 118.792, 1 specimen, TL = 44.9 mm).
 Station 24; haul 3; 29-IV-1980; 05.00-07.00 h; 200-300 m; 29°44.0'N 29°57.7'W (ZMA 118.759, 1 specimen, TL = 48.2 mm).

DERICHTHYIDAE

Derichthys serpentinus Gill, 1884.

Ref.: Beebe, 1935.
 Station 14; haul 8; 19-IV-1980; 00.07-01.47 h; 85-200 m; 45°21.8'N 29°46.4'W (ZMA 118.752, 1 specimen, TL = 126.5 mm).
 Station 17; haul 2; 21-IV-1980; 04.48-05.48 h; 330-505 m; 41°10.6'N 35°30.9'W (ZMA 118.757, 1 specimen, TL = 156.5 mm).

NESSORHAMPHIDAE

Nessorhamphus ingolfianus (Schmidt, 1912).

Ref.: Beebe, 1935.
 Station 13; haul 9; 17-IV-1980; 08.29-10.07 h; 480-1000 m; 49°00.8'N 29°18.5'W (ZMA 118.774, 1 specimen, TL = 251 mm).
 Station 20; haul 3; 25-IV-1980; 17.41-19.15 h; 770-1250 m; 35°22.7'N 31°44.9'W (ZMA 118.767, 1 specimen, TL = 135 mm).

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