

OSTEOLOGICAL CHARACTERISTICS OF THE FAMILY MURÆNES-  
OCIDÆ.

THEODORE GILL, M. D., PH. D.

The genus *Muraenesox* was taken as the type of a family by Professor Cope in his "Observations on the systematic relations of fishes," but without any indication of his reasons for considering it as such. The only information conveyed by him was that contained in the following synopsis:

1. Palatopterygoid arch completed ; pectoral fins ..... *Congridæ*.  
 2. Palatopterygoid arch represented by incomplete pterygoid ; premaxillaries more  
     widely separated..... { *Aguillidæ*.  
                                        { *Muraenesocidæ*.

The characters thus indicated prove on comparison of the several types to be neither applicable nor distinctive. *Murænesox* appears nevertheless to represent a distinct family most nearly related to the *Congridæ* and whose characteristics are here given. These, however, must (as in the descriptions of other families) be regarded as simply provisional, and to be confirmed or modified by comparison with the characteristics of other genera. Whether any other genera belong to the family can not be definitely ascertained till their anatomy is known.

MURÆNESOCIDÆ.

*Family synonyms.*

*Murænesocidæ* Cope, Proc. Am. Ass. Adn. Sc., 1871, p. 334, 1872.

*Muraenesocidæ* Gill, Arrangement Fam. Fishes, p. 20, 1872.

Congridæ gen *Kaup et al.*

Congroidei gen *Bleeker*.

Murænidæ gen *Günther et al.*

*Subfamily synonyms.*

*Muraenesocina* *Günther* Cat. Fishes B. M., v. 8, p. 20, 1870.

*Congriformes murænesoces* *Bleeker*, Atlas Ich. Ind. Neerland., v. 1, p. 19, 1864.

*Muraenesocinae* Jordan & Gilbert, Syn. Fishes, N. A., p. 357, 1882.

*Diagnosis.*

Enchelycephalous Apodals with the tongue not free, the branchios-  
tegal membrane connecting the opposite sides below, the epipharyngeals  
reduced to one pair, and the hypopharyngeals linguiform and encroach-  
ing on the fourth branchial arch.



*Description.*

*Body* typically anguilliform, with the caudal portion or tail moderately attenuated backwards, and with the anus in the anterior half of the length.

*Scales* absent.

*Lateral line* distinct, nearer the back than abdomen in front, about midway between the two for most of its length.

*Head* compressed, elongate, attenuate forwards, with all the bones invested in the skin.

*Eyes* within the anterior half of the head's length, entirely lateral, moderate, and covered by thin skin.

*Nostrils* lateral; the posterior considerably in advance of the eye, patulous, but with a raised border; the anterior tubiform and nearer the front of the snout than eye.

*Mouth* with the cleft deep and extending beyond the eyes.

*Jaws* rather slender; *maxillines* remote from the front of the anteal, with the clasping processes feeble and appressed only to the lower portion of the anteal in front of the posterior nostrils and far behind its head; each ramus has a broad horizontal ledge-like expansion behind under the orbits and is correspondingly depressed from above, and thence becomes compressed and dilated into oar-like expansions, overlapping and closely appressed to the lower jaw; *mandible* with the rami elongated and slender; each dentary has a well-developed coronoid and constitutes most of the ramus; the articular is exceedingly contracted and developed only as a posterior cap to the dentary round the articular condyle.

*Teeth* well developed, especially on the front and median line of the anteal; generally in three rows on the anteal and ledge of each maxilline, and with the teeth of the median row more or less enlarged; also generally in three rows on each dentary, and with the teeth of the median row enlarged.

*Lips* undeveloped.

*Tongue* rudimentary, not free.

*Opercular apparatus* moderately developed; *operculum* oblong and thin; *suboperculum* simulating a branchiostegal; *interoperculum* moderate, and mostly overlapped by the preoperculum; *preoperculum* well developed, but excavated by muciferous pores.

*Branchiotremes* in front of or lower than the inferior rays of the pectorals, rather large, and with the membrane in front emarginated by a deep sinus.

*Branchiostegals* in considerable number (about 17 to 23 pairs), extending along the ceratohyals and epihyals, and with the branchiostegal membrane well developed and connecting the bones of the opposite sides; the rays moderately bowed.

*Dorsal, anal, and caudal* confluent in one uninterrupted fin, with the



rays readily perceptible through the thin skin; dorsal commencing nearly above or in advance of the basis of the pectorals; anal commencing immediately behind the anus; caudal prominent.

*Pectorals* well developed, nearer the breast than back, with the rays distinct.

*Branchial arches* nearly complete, with well-developed glossohyal and long slender urohyal,\* but with first and second basibranchials only ossified; the hypobranchials of the first three arches well developed and ossified, of the fourth and fifth suppressed; ceratobranchials and epibranchials of four pairs ossified; pharyngobranchials of first arch, rudimentary; of second, moderate; of third, expanded and connected also with fourth; of fourth,† developed as lamelliform epipharyngeals covered with cardiform teeth; hypopharyngeals elongated linguiform bones covered with cardiform teeth and dislocated so as to cover the basal portion of the ceratohyals of the fourth pair.

*Interbranchial slits* extended.

The characters which appear to distinguish the *Muraenesoces* best from the Anguillids and Congrids or Leptocephalids are the low position on the hyomandibular of the condyle for the operculum; the slender branchial arches and the development and position of the hypopharyngeals and epipharyngeals; the union of the opposite branchiostegals by the inferior branchiostegal membrane, and the want of freedom of the tongue. Whether the other genera that have been closely associated with *Muraenesox* (*Hoplunnis*, *Oxyconger*, *Neoconger*, *Nettastoma*, and *Saurenhelys*) are related to the family can only be determined by an examination of their skeletons. The species combined under the name *Muraenesox* are the only ones certainly possessed of the characters provisionally assigned to the family. The species generally united under the generic designation differ considerably, and have been distributed by Dr. Bleeker under two genera. It will be convenient at least to recognize them as subgenera, but a section not yet isolated, distinguished by the simply conic teeth, is as worthy of distinct rank as the two already named. Three sections of generic or subgeneric rank may therefore be recognized, viz:

---

\* The basal half of the urohyal is invested in the membrane between the opposite branchiostegal arches, and from the lower surface, at the place of emergence upwards from the membrane, arises the ligament connecting with the anterior points of the scapular arch.

† It is inferred that the dentigerous epipharyngeal is the fourth pharyngobranchial, from the fact that it is the fourth pharyngobranchial or second epipharyngeal which is the largest in the *Anguillidae*. In that case it is the third pharyngobranchial which has widened and developed a process for the fourth epibranchial in *Muraenesox*, while the epipharyngeal is entirely dislocated from its normal position and its base of attachment transferred to the second epibranchial and third pharyngobranchial.



1. *Murænesox* M'Clelland, Calcutta Journ. Nat. Hist., v. 4, p. 408, 1843.  
Type *M. cinereus* (Forsk).

Murænesocids with enlarged tricuspidate cultrate and acute teeth along the middle of the vomer (anteal) and compressed cultrate acute teeth in the middle row of the mandible.

2. *Cynoponticus* Costa, Fauna Napol. = *Brachyconger*, Bleeker Atlas Ich. Néerland. Ind., v. 4, p. 19, 1864.  
Type *C. savanna* (Cuv.).

Murænesocids with enlarged tricuspidate, bluntly edged teeth along the middle of the vomer and little compressed bluntly edged and truncated teeth in the middle row of the mandible.

3. *Congresox* Gill = *Murænesox* sp., M'Clelland, Bleeker *et al.*  
Type *C. talabon* = *Conger talabon* Cuv.

Murænesocids with enlarged and mostly acutely conic slender teeth along the middle of the vomer and similar teeth in the middle row of the mandible.

I have examined crania of *Murænesox*\* and *Cynoponticus*, but not one of *Congresox*. The first two genera differ in details but are much alike in cranial characteristics, and (contrary to the generic diagnosis of Bleeker) differ very slightly and only in degree in the contraction of the anteal behind its head.

---

\* That of the *Murænesox* (*M. cinereus*) is imperfect and broken behind.



Gill, Theodore. 1890. "Osteological characteristics of the family Muraenesocidae." *Proceedings of the United States National Museum* 13(815), 231–234. <https://doi.org/10.5479/si.00963801.13-815.231>.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/53445>

**DOI:** <https://doi.org/10.5479/si.00963801.13-815.231>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/52042>

**Holding Institution**

Smithsonian Libraries and Archives

**Sponsored by**

Smithsonian

**Copyright & Reuse**

Copyright Status: Public domain. The BHL considers that this work is no longer under copyright protection.

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.