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Pseudopriacanthus Bleeker, a Synonym of the Priacanthid Genus *Pristigenys* Agassiz

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the initial samples, few specimens of this species were ever collected and the species was considered to be extinct by Koelz (1929). The only known specimens are the holotype in the U.S. National Museum (USNM 45568) and 31 specimens formerly in the collection of Indiana University and now in the California Academy of Sciences (CAS). All but three of these were examined by Evermann and Smith (1896) and, as paratypes, must be considered as representative of what Smith thought of as valid *C. prognathus*, especially since he collected several of the specimens himself.

I examined all of the existing specimens of *C. prognathus*: USNM 45568, and CAS 11102, 42004–42118, 42120–42125, 42127–28, 42130, 42134, 42136. The poor condition of the holotype and of CAS 42117 precluded their positive identification. The remaining specimens represent nearly every species of cisco described in the Great Lakes—3 *C. artedii*, 12 *C. hoyi*, 2 *C. kiyi*, 6 *C. reighardi* and 7 *C. zenithicus*; those collected in Lake Ontario and identified by Smith included 6 *C. hoyi*, 1 *C. reighardi*, and 1 *C. kiyi*. My identifications are based on analysis of 15 morphological and meristic characteristics; the data are on file at the Great Lakes Fishery Laboratory.

No unique phenotypes were observed among the specimens and no single species clearly dominated the samples. I conclude therefore that the species *Coregonus prognathus* has no taxonomic validity. Because of the poor condition and uncertain identity of the holotype, *Coregonus prognathus* should be considered a nomen dubium.

*Acknowledgments.*—I thank the California Academy of Sciences for the loan of Evermann and Smith's collection of *C. prognathus*. Contribution 551 of the Great Lakes Fishery Laboratory.

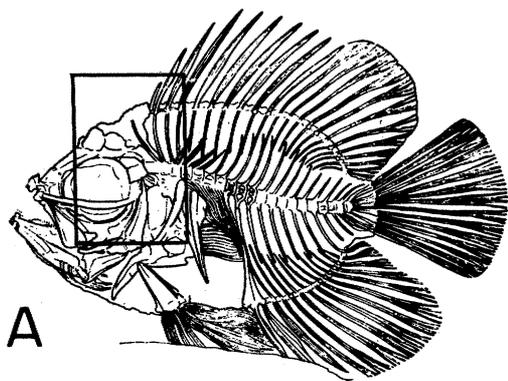
#### LITERATURE CITED

- EVERMANN, B. W., AND H. M. SMITH. 1896. The whitefishes of North America. Rep. U.S. Comm. Fish. 20:283–324.
- KOELZ, W. 1929. Coregonid Fishes of the Great Lakes. Bull. U.S. Bur. Fish. 43:297–643.
- SMITH, H. M. 1894. Notes on two hitherto unrecognized species of American whitefishes. *Ibid.* 14:1–13.
- THOMAS N. TODD, *U.S. Fish and Wildlife Service, Great Lakes Fishery Laboratory, 1451 Green Road, Ann Arbor, Michigan 48105*. Accepted 5 May 1980.

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**PSEUDOPRIACANTHUS BLEEKER, A SYNONYM OF THE PRIACANTHID GENUS PRISTIGENYS AGASSIZ.**—The names *Pristigenys* and *Pseudopriacanthus* are currently used interchangeably for a genus of Priacanthidae. *Pristigenys* (type species by monotypy, *Pristigenys macrophthalmus* Agassiz, equals *Chaetodon substriatus* de Blainville) was erected by Agassiz (1835) for a fossil priacanthid species occurring in Eocene beds at "Monte Bolca," Italy. Subsequently, Bleeker (1869) proposed the use of *Pseudopriacanthus* (type species by subsequent selection, *Priacanthus nipponius* Cuvier) as the generic name for a group of Recent priacanthids. During the course of his research on fossil percoids from "Monte Bolca," White (1936) referred a number of his specimens to *Pristigenys substriata* after comparing them to de Blainville's holotype. However, White noted that the details of the head and shoulder girdle of *Pristigenys* closely resemble the corresponding parts of *Pseudopriacanthus*. He also noted that the long pelvic fins of *Pristigenys* approximate the condition found in *Priacanthus* (= *Cookeolus*) *boops*, another priacanthid. He concluded however, that *Pristigenys* and *Pseudopriacanthus* are synonyms. Myers (1958) reiterated White's conclusions and considered the correct name for fossil and Recent species to be *Pristigenys*. More recently, Fitch and Lavenberg (1975) have stated "Extremely long pelvic fins are visible on the fossil, however, and these in conjunction with the associated fish fauna leads us to believe that *Pristigenys* is a senior synonym . . . of *Cookeolus* rather than *Pseudopriacanthus*." Finally, Fritzsche (1978) stated that there was no evidence to support synonymy of *Pristigenys* with any of the extant priacanthid genera.

We have recently begun a study of the osteology and relationships of the Priacanthidae. We have examined cleared and stained specimens or radiographs of Recent priacanthids as well as the fossil material used by White (1936). Specimens of Recent priacanthids examined include *Pristigenys alta* (Gill), *Pristigenys nipponia* (Cuvier), *Pristigenys serrula* (Girard), *Cookeolus boops* (Bloch & Schneider), *Priacanthus cruentatus* (Lacépède), *Priacanthus arenatus* Cuvier and *Priacanthus alalaua* Jordan and Evermann. While examining a specimen (P. 15371) of *Pristigenys substriata* (de Blainville) from the Paleontology Department of the British Museum (Natural History), we discovered a single pre-



A



B

Fig. 1. A) *Pristigenys substriata* (de Blainville) reproduced from Fig. 3 of White (1936) (reversed). B) Magnification of the area outlined in A, showing the predorsal bone (indicated by the arrow).

dorsal bone embedded in a patch of scales anterior to the first dorsal-fin pterygiophore. A close examination of White's Fig. 3 (Fig. 1) shows this predorsal bone surrounded by what

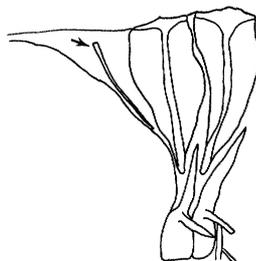


Fig. 2. Predorsal bone and anteriormost two vertebrae and dorsal fin pterygiophores of *Pristigenys alta* (Gill), USNM 155625. The predorsal bone is indicated by the arrow.

appear to be bony flanges. White's figure is of BMNH specimen P. 15370, the counterpart of our specimen. It is clear that the bony area around the predorsal bone in White's figure is the patch of scales that we observed. Of Recent priacanthids, species of the nominal genus *Pseudopriacanthus* possess a single predorsal bone (Fig. 2), whereas those of other Recent genera, *Cookeolus* and *Priacanthus*, have none. Meristic and morphometric data show that *Pristigenys substriata* is very similar to the western Atlantic *P. alta*. The following data are presented for comparative purposes with the condition for *P. substriata* followed by that of *P. alta*: Depth in SL 1.6 vs. 1.6–1.8; orbit in head length 1.9 vs. 1.8–2.0; third dorsal-fin ray in head length 1.4 vs. 1.2–1.4; third anal-fin ray in head length 1.4 vs. 1.4; dorsal-fin rays 12 vs. 10–12; and anal-fin rays 12 vs. 9–11.

In light of the new evidence, Fitch and Lavenberg's (1975) suggestion that *Cookeolus* and *Pristigenys* be synonymized, based on the sharing of long pelvic fins, seems unreasonable. Relative length of these fins is quite variable within the perciforms and morphometric characters are not generally considered to be valid indicators of relationship. Species now assigned to *Pseudopriacanthus* and *Pristigenys* share the presence of the predorsal bone, which, although primitive, is unique within the priacanthids. We have been unable to find any evidence to support their generic separation. In the absence of contrary evidence, we concur with White (1936) and Myers (1958) in considering *Pristigenys* the senior synonym of *Pseudopriacanthus*. All Recent species of *Pseudopriacanthus* should be referred to *Pristigenys*.

Colin Patterson, British Museum (Natural History), kindly arranged the loan of fossil *Pristigenys* material. Robert Lavenberg, Natural

History Museum of Los Angeles County, provided information on *P. serrula*. Edmund Keiser, University of Mississippi, and William D. Anderson, College of Charleston, read and commented on the manuscript. William Martin photographed the figures.

#### LITERATURE CITED

- AGASSIZ, L. 1835. Revue critique des poissons fossiles figurés dans l'Ittiologia Veronese. Neues Jahrb. Miner.: 290–316.
- BLEEKER, P. 1869. Neuvième notice sur la faune ichthyologique du Japon. Versl. Akad. Amsterdam, 2. ser. 3:237–252.
- FITCH, J. E., AND R. J. LAVENBERG. 1975. Tidepool and nearshore fishes of California. University of California Press, California Natural History Guide 38.
- FRITZSCHE, R. A. 1978. The first eastern Pacific records of bulleye, *Cookeolus boops* (Bloch and Schneider, 1801), (Pisces, Priacanthidae). Calif. Fish and Game 64:219–221.
- MYERS, G. S. 1958. The priacanthid fish genus *Pristigenys*. Stanford Ichthy. Bull. 7:40–42.
- WHITE, E. I. 1936. On certain Eocene percoid fishes. Ann. Mag. Nat. Hist., ser. 10, 18:48–54.
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A SUB-DORSAL FIN PORE/CANAL SYSTEM IN THE CENTROLOPHID FISH *SCHEDOPHILUS MACULATUS* (PISCES: STROMATEOIDEI).—One of the distinctive morphological peculiarities of the stromateoid fishes is the development of a very complex and extensive subdermal mucosal system that is visible externally in some species as masses of small pores. The extent of this system varies from species to species but is best developed on the snout, head and back. In diagnosing the centrolophid genus *Schedophilus* Haedrich (1967:60) included "extensive subdermal canal system communicating to the surface through small pores". Two recently collected specimens

of *Schedophilus maculatus* (Günther) (Fig. 1) have a canal that is related to this canal system and which has hitherto not been described. Inasmuch as these are the only adult *S. maculatus* so far reported (246 and 249.5 mm SL—McDowall, 1980)—all others being small juveniles—this is perhaps not surprising.

A substantial canal extends along the length of the dorsal fin between the split bases of the fin rays and opens to the exterior as large paired pores behind each ray (Fig. 2); the left and right side pores are directly opposite one another. There is in effect a hole or short canal directly through the fin base. The longitudinal sub-dorsal fin canal begins on the dorsum at the fin origin and extends dorsally onto the fin base at about the third fin spine. The canal terminates in front of the posteriormost fin ray. The paired pores open upwards from the canal as short branches, these branches being continuous with the anastomosing subdermal canal system characteristic of these species. *S. maculatus* adults do not have the masses of small pores opening through the integument on the back, as do some centrolophids. Instead, the system remains largely subdermal, communicating to the exterior only through the pores along the dorsal-fin base. (This is difficult to ascertain as the integument of the specimens had been damaged during capture.)

The nature and function of the extensive canal system of the stromateoid fishes is not understood. Horn (1970:218) discussed such possible functions as sensory receptors of use in establishing and maintaining schools or the production of mucus to offer protection from the toxins of coelenterates, amongst which the young, especially, of many stromateoids live. Horn also referred to the hypothesis of Walters (1963), that a comparable system in trachypterid fishes functions in boundary-layer control, thus decreasing drag and increasing swimming efficiency.

Horn referred to a "row of large pores beneath the anterior half of the dorsal fin" in *Peprius triacanthus* (Stromateidae) but these pores lie over the epaxial muscle mass of the fish, not over the fin base and they are not reported by Horn to be connected to a major canal system.

Bone and Brook (1973:755) described the canal system in *Schedophilus medusophagus* Cocco, noting that "The major canals approximately follow the outlines of the myocommata, but are linked to form an anastomosing network, with a single lateral canal underlying the